

# West Coast DHB Models of Care Discovery Final Report

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## Executive summary

In conjunction with the Ministry of Health, the West Coast DHB has initiated a sustainability project involving 14 different work streams. The mandate of our work consisted of identifying and investigating models of care options and producing a consultants' report on models of care for the Steering Group.

The views expressed in this report are the views of LECG only and, although consulted, and involved in workshops, are not the views of the West Coast DHB or the Ministry of Health.

A clear picture of the service issues facing West Coast DHB emerges as follows:

- The DHB struggles to source healthcare professionals for all of its services but, most acutely, for secondary services. Given the picture of shortages in health sectors world wide, this picture will not get easier.
- 1. Where capacity in secondary services is maintained there is clear over capacity to the extent that some of the services will not have the critical mass of population to sustain quality requirements.
- The major secondary care facility at Grey Base has significant fit for purpose issues. This and the Buller facility do not meet seismic regulations.
- The DHB has put time and effort into networking with other DHBs. This networking is of great importance and some of this effort is showing promise with relationships being developed. In particular, it is considered important to deepen the relationship with Canterbury DHB. The relationship between the West Coast and Canterbury is one that shows considerable promise once incentives are aligned, and West Coast DHB wishes to maximise this opportunity.
- The funding for the DHB is already substantially over that of other DHBs and further funding increases will raise issues of horizontal equity with other populations.
- There is clear innovation in primary care services that shows great promise. The services are nurse based, supported by a General Practitioner, and are well embedded in the local communities.
- Neither the secondary nor the primary health service is financially viable with the current funding formula. On a proportional revenue basis, primary care is running at the same deficit as secondary services. Further, even with deficit funding and rural adjusters, running secondary services at over capacity will limit opportunities to develop primary and community services.

- The proportion of older people in the population will rise and will increase demand for health services. A number of older people will move away from the West Coast to be closer to specialist health services.
- Aged care services will come under greater pressure over the coming years with the expected change in the population pyramid (more elderly people, living longer). The DHB knows how to change the existing model of care but there are some substantial barriers to doing so as both secondary care and private providers will need to change the mix of available capacity and skills.
- High levels of smoking and drug abuse together with a higher proportion of the population having lower socioeconomic status will continue to impact on health usage.

We looked to what is done internationally as well as in New Zealand to see what other models of care might be in similar situations.

- In the majority of the models of care reviewed, the outstanding feature of the models is the desire to place heavier responsibility for health care on the individual, the community and on the primary sector.
- Another feature is seamless or highly integrated pathways of care with continuity of care for patients moving through the health system. Closely linked to this is the feature that stands out in all models of care: highly integrated services from primary to secondary care through integrated teams of health-care professionals. Nurse-led services, case management and good communication networks between GPs, rehabilitation teams, nurses and specialists are all aspects of a desirable model of care. Finally, robust clinical information systems are identified as an important feature of good models of care.
- Common elements to all rural settings include:
  - A necessary generalist nature of practice.
  - Critical importance of emergency care.
  - Appropriate use of e-health (internet-based, telemedicine).
  - The need for clearly defined interfaces and communication between primary and secondary levels of care.

Rural services encounter a complex set of problems that include and go beyond those of the urban population. For example, the increasing prevalence of chronic disease or an increasing elderly population are issues experienced by both rural and urban populations but these are compounded in rural settings by difficult geographical access, high vulnerability to harsh climates, and a lower access to a range of specialised services.

The difficulty in recruiting health professionals, GPs and nurses, with a sufficiently wide range of skills to serve a rural population comes out repeatedly in the literature. Rural services, due to the low population numbers, face sustainability issues - both clinical

sustainability and financial sustainability. In general, four key areas underpin the viability of rural services. These include professional viability, business viability, organisational viability, and family/social viability.

Many of the innovations have come from ‘burning platforms’ in local communities. The models of care that are developed can be uplifted and varied to fit the local environment but common approaches are:

- Greater scope of practice for health care providers with multidisciplinary teams working together in a hub and spoke set up.
- Mobile services to take services to the patient rather than all patients coming to services.
- Support for isolated communities and service providers through technology based initiatives.
- Nationally coordinated strategies to train health professionals with skills specific to the rural setting.

We set out and discuss three options for future models of care as follows:

#### **Option One – Enhanced status quo**

The first option is the logical extrapolation of current services with proposed enhancements and directions. Current secondary services are retained by strengthening the DHB’s relationship with other DHBs and developing opportunities to utilise facilities.

While this option will support the delivery of services on the Coast it is unlikely to be sustainable in the long term as the ability to employ a clinical workforce continues to get more difficult in New Zealand. The potential move to a one in four roster for medical staff means that the low population base on the West Coast will impact on clinical sustainability.

Financially this option would be sustainable only if the Ministry of Health continues to fund this DHB at a higher rate than the population-based funding formula (PBFF) supports.

#### **Option Two - Contract out secondary medical and surgical services to one or more DHBs**

Option two is about enhancing and integrating a primary care base with a secondary care base, but means sending more patients off the Coast.

With appropriate arrangements in place with other DHBs and with a transport system that copes with the weather conditions, this option provides a safe and quality health service to the people of the West Coast. However, due to the requirement of having to leave the Coast for treatment, there will be a possible

cost to the population in terms of social implications for the family of the patient. Those implications would need to be dealt with by implementation of better step down options available in several sites along the West Coast.

**Option Three - Develop relationships with one or more DHBs to provide secondary services on site**

This would require specialists to travel to the West Coast for a minimum of one day and preferably two days per week or as required.

This option allows for the majority of services to continue to be provided on the West Coast but not as a 24 x 7 service. This does increase risks for certain groups of patients, e.g. obstetric services. Options to support this service include ensuring anaesthetic capability through employing Medical Officers of Specialist Scale (MOSS) with these skills.

There is no clear answer. However, LECG is of the view, based on our work to date, that the current model of care is not sustainable, and that key elements of the current model of care in primary care need to be implemented more strongly, while hospital services are reconfigured to a more sustainable model.

On a final note, we draw a picture of what we would want to see by way of successful models of care:

- Clinical staff from multiple disciplines working together in a complementary way to improve both efficiency and health outcomes.
- Nationally coordinated strategies to prepare health professionals for clinical practice in rural areas.
- Treatment carried out in as close to patients' homes as practically and clinically possible, thus supporting goals of independence, whilst minimising secondary care costs.
- Clinical staff integrated across primary and secondary care to allow a more seamless care pathway.
- Specialist services integrated into the base clinic or hospital through networked clinical services with a reciprocal flow in and out of the West Coast to other DHBs that maximises clinicians' time with patients.
- Appropriate communication technologies and electronic transfer of information used as far as possible.
- Emergency and trauma service linked in with and supported by one of the regional trauma hubs.

- Public confidence maintained in emergency care services within the West Coast through educating the public regarding levels of access to services, their location and their risk.
- Clinical services sustainable in terms of funding imperatives and workforce conditions. Clinical services carried out in an environment of collaboration, yet one that offers clarity about the mandates of all parties, decision rights, and decision-making processes.

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# 1 Introduction and approach

## 1.1 Brief

The West Coast is facing a period of significant potential change in clinical service delivery. The critical challenges the Coast faces result from its small population, rural nature and funding status, and revolve around clinical and financial sustainability of service provision. Intimately linked to these challenges are those of recruitment and retention of stable, qualified medical staff, and a population that has high expectations of healthcare services. Future decisions must be made on the way in which primary and secondary health care will be delivered on the West Coast, and this will involve difficult investment and divestment decisions.

In conjunction with the Ministry of Health, the West Coast DHB has initiated a sustainability project involving 14 different work streams. The mandate of our work within this project has consisted of identifying and investigating models of care options and producing a consultants' report on models of care for the Steering Group.

## 1.2 Process overview

The discovery process was two-fold. The first step included a high-level review of the current models of care through plans and working documents previously developed by the DHB, as well as structured interviews conducted with the Executive Management Team (EMT). The second step included a review of the way health services are delivered in other rural places both in New Zealand and overseas. Following this we outlined three options to consider and developed evaluation criteria in consultation with the EMT. The criteria were applied to the options to enable the final report to be drafted.

DHB management and the Ministry of Health were involved at the following stages:

- An initial project briefing
- Interviews, particularly of the DHB management team
- A further workshop reviewing options
- Comment on the draft report.

## 1.3 Project exclusions

Exclusions to the project included a detailed financial study, extensive consultation, Master Site Planning, Clinical Services Planning and Business Case Planning.

## 1.4 LECG view

The views expressed in this report are the views of LECG only and, although consulted, and involved in workshops, are not the views of the West Coast DHB or the Ministry of Health.

## 1.5 Structure of the report

The report is structured as follows:

- Section 2 sets out the client population and where people live.
- Section 3 sets out current service provision.
- Section 4 sets out issues facing the DHB.
- Section 5 sets out what is happening elsewhere in models of service, particularly in areas with a high degree of isolation and rurality.
- Section 6 sets out the evaluation framework used by LECG to form a view.
- Section 7 sets out current and future models of care.
- Section 8 sets out an analysis of models of care.
- Section 9 sets out our final comments and reflections.

## 2 Demographic profile and population characteristics

The West Coast DHB has a population of 31,326 people (2006 Census) which is an increase of 3.4% since the 2001 census.

The population is dispersed along the Coast with a density of 1.3 people per square kilometre (New Zealand average is 15 people per square kilometre). The 2006 census showed the population as 9,700 in the Buller District, Westland 8,403 and the largest population base in Grey District with 13,200 people.

As at 30 June 2007 the West Coast PHO identified 13.9% of the enrolled population are regarded as Quintile or Deprivation 5 (highest level of deprivation).

**Table 1 : West Coast PHO population by deprivation**

|                              | Enrolled pts | Percentage |
|------------------------------|--------------|------------|
| <b>Māori /PI Dep 5</b>       | 443          | 1.5%       |
| <b>Māori /PI not Dep 5</b>   | 1,804        | 6.1%       |
| <b>Other Dep 5</b>           | 3,652        | 12.4%      |
| <b>Other not Dep 5</b>       | 23,484       | 79.8%      |
| <b>High User Health Card</b> | 32           | 0.1%       |
| <b>TOTAL</b>                 | 29,415       | 100.0%     |

New Zealand as a whole has approximately 19% of the population in dep 5. PHOs around New Zealand vary greatly in the deprivation of their populations. Examples include Turanganui PHO based in Tairāwhiti DHB which has 38% of the PHO population of 30,053 in Dep5, of which 22.3% are Māori or PI. Whanganui PHO has 31% Dep 5, while Auckland PHO has only 10%. In the South Island DHBs the dep 5 populations tend to be lower than those in the North Island. For example, Nelson Marlborough has 8%, South Canterbury has 9%, and Otago has 10.5% in the dep 5 category.

The West Coast is a popular tourist destination with an average of approximately 5,230 visitors every day<sup>1</sup>. Hospitalisation rates of overseas visitors are similar to the national average, however the use of primary care or hospital outpatient/emergency services is considerable for patients whose health care is covered by the Crown Funding agreement (ACC covered, Australia and UK tourists).

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<sup>1</sup> New Zealand Regional Tourism Forecasts – West Coast RTO, 2006 figures. Forecasted visitors are 6273 visitors per day in 2013.

A wide range of health indices and risk factors have been found to be related to socio-economic factors such as deprivation, income, education, labour force status, housing and occupational class. Socio-economic status is low on the West Coast compared to the rest of the country – the Buller community, in particular, ranks low in New Zealand. Furthermore, the West Coast has a lower proportion of Māori than other parts of New Zealand. The bullet points that follow are of particular importance in describing the characteristics of the population.<sup>2</sup>

- Lower proportion of Māori (9.7%) than elsewhere in New Zealand (14.6%).
- Māori population expected to grow to 13.3% by 2021.
- Māori population aged over 55 years expected to grow by 64.3% in the next ten years.
- 13.8% of people in West Coast are over 65 years compared with 12.3% for New Zealand as a whole
- The total population aged over 65 years expected to grow 20.9% in the next ten years.
- Low fertility and birth rates, relative to the rest of New Zealand.
- Higher overall mortality rate than New Zealand overall.
- Higher mortality rate for men than for men in New Zealand overall. In particular, higher rates of mortality from cancer, circulatory disease, and respiratory disease (statistically significant using 99% confidence interval).
- The median age of West Coasters is 40.2 years of age, compared to 35.9 years for New Zealand as a whole.
- Higher smoking rates compared with other regions – West Coast teenagers have the second highest rate of smoking in New Zealand.
- High levels of drug, alcohol, and substance abuse.
- Immunisation rates are too low to provide adequate protection for the whole community.
- Highest rate of motor vehicle crashes in New Zealand, partly related to high tourist numbers.
- Employment predominantly in high-risk industries e.g. farming, mining, fishing, and forestry.

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<sup>2</sup> West Coast DHB Annual Plan 2007/08

- Approximately 28 % of the West Coast population over the age of 15 earn less than \$15,000 per annum.
- High percentage of people aged over 15 years are without qualifications (33%) compared to the rest of New Zealand (24%).

## 2.1 Geography

The West Coast covers the area approximately 650km in length between Karamea in the north and Haast in the south and extends east to Springs Junction, a land area of 2.3 million hectares. Much of the land is rugged with scattered small and isolated pockets of population. The base hospital is located in Greymouth.

Buller Hospital in Westport is 1.5 hours from Greymouth to the north via the Coast Road and another 1.5 hours from Karamea. The Coast Road is subject to delays and closure associated with unfavorable weather conditions, as is the Karamea Bluff between Westport and Karamea. From Greymouth it is four hours to Haast in the south via similar terrain and 3.5 hours to Christchurch in the east, via Arthur's Pass in the Southern Alps. Reefton is 1 hour and Hokitika 35 minutes travel time from Greymouth. Bad weather and major traffic accidents frequently close the Arthur's Pass route and weather also disrupts both fixed wing and helicopter emergency flights. Thus weather conditions can cause the West Coast to be isolated at times, by air and road. This implies a particular need for emergency transport and emergency stabilization capacity.

Only 64% of West Coast residents reside within 60 minutes ("The Golden Hour") travel time by car from secondary hospital services. The absence of regular public transport for people living on the West Coast exacerbates the situation for those who do not have access to private transport.

## 2.2 Snapshot of the West Coast towns and facilities

The population is spread out along the Coast with two larger towns in Westport and Greymouth. The following table summarises the towns along the Coast, their population and a brief description of the facilities located there. The population figures are only for residents living in the named towns and there are therefore approximately 6800 people living outside of these towns that are part of the total West Coast population stated in the following section.

**Table 2 : West Coast Profile<sup>3</sup>**

| Town             | Population | DHB Facilities  | Distances  | Information <sup>4</sup>  |
|------------------|------------|---|--|---|
| <b>Karamea</b>   | 423        | Clinic, Surgery & Health Centre<br>District and Public Health Nursing   | Ngakawau 64km<br>Westport 93km<br>Nelson 319km   | The Buller district has a population on 9702, a 0.8% increase over the 2001 census. A 14% decrease in population is projected 2001 – 2026.<br>Māori = 8.6%  |
| <b>Ngakawau</b>  | 234        | Clinic, Surgery & Health Centre<br>Special Area Medical Officers  | Westport 29km  | Median age of 42.9% (NZ- 35.9%)<br>>65 yrs – 15.6% (NZ – 12.3%)<br><15yrs – 19.8% (NZ – 21.5%)  |
| <b>Westport</b>  | 5,724      | General Hospital<br>Specialist Outpatient Clinics<br>Rest Home Beds<br>Community Mental Health Services<br>District and Public Health Nursing                                 | Inangahua Junction 46 km<br>Nelson 226km<br>Christchurch 350km<br>Reefton 99km<br>Greymouth 99km                     | Internet access – 46.7% (NZ 60.5%)<br>Mobile phone- 60.3% (NZ – 74.2%)<br>Employment is based around agriculture and fishing with some mining operations also in this area.   |
| <b>Reefton</b>   | 948        | General Hospital<br>Specialist Outpatient Clinics<br>Rest Home Beds<br>District and Public Health Nursing   | Greymouth 79km<br>Nelson 213km<br>Christchurch 251km   | The population in the Buller District tends to have a lower socioeconomic status than the rest of the West Coast.   |
| <b>Dobson</b>    | 672        | Clinic, Surgery & Health Centre   | Greymouth 11km   | Grey District population - 13,221   |
| <b>Greymouth</b> | 9,837      | Base Hospital<br>Specialist Outpatient Clinics<br>Mental Health Inpatient Unit<br>Community Mental Health Services<br>District and Public Health Nursing<br>Clinic, Surgery & | Christchurch 263km (via Arthur's Pass)<br>350km (via Lewis Pass)<br>Nelson 292km (via Buller Gorge)<br>Hokitika 40km | The population is projected to decrease by 9% 2001 - 2026<br>Māori – 8.5%<br>>65 yrs – 13.5% (NZ – 12.3%)<br><15yrs – 21.6% (NZ – 21.5%)<br>Internet access – 50.6% (NZ 60.5%)<br>Mobile phone - 65.9% (NZ – 74.2%) |

<sup>3</sup> Information from this table has been compiled by LECG and comes from Statistics New Zealand 2006 Census and the West Coast DHB website.

| Town               | Population | DHB Facilities   | Distances  | Information <sup>4</sup>   |
|--------------------|------------|--|--|--|
|                    |            | Health Centre  |  |  |
| <b>Moana</b>       | 200        | Clinic, Surgery & Health Centre<br>District and Public Health Nursing  | Greymouth 35km   |  |
| <b>Hokitika</b>    | 5,000      | Clinic, Surgery & Health Centre<br>Specialist Outpatient Clinics<br>Community Mental Health Services<br>Psychiatric Hospital<br>District and Public Health Nursing | Greymouth 40km   | <p>Westland population – 8403<br/>The population is projected to decrease 11% 2001 - 2026<br/>Median age 40.9 yrs (NZ-35.9)<br/>Māori 12.1%<br/>&gt;65 yrs – 12.3%<br/>&lt;15yrs – 19.4%<br/>Internet access – 52% (NZ – 60.5%)<br/>Mobile phone – 60.3% (NZ – 74.2%)<br/>Westland has more of the population involved in tourism than Buller or Grey Districts.<br/>The population tend to have a higher socioeconomic status with a higher median income than those in the Grey and Buller Districts, but still lower than the New Zealand mean.</p> |
| <b>Hari Hari</b>   | 300        | Clinic, Surgery & Health Centre<br>District and Public Health Nursing  | Hokitika 76km  |  |
| <b>Whataroa</b>    | 300        | Clinic, Surgery & Health Centre<br>Specialist Outpatient Clinics<br>District and Public Health Nursing   | Harihari 46km  |  |
| <b>Franz Josef</b> | 300        | Clinic, Surgery & Health Centre  | Whataroa 33km  |  |
| <b>Fox Glacier</b> | 200        | Clinic, Surgery & Health Centre<br>District and Public Health Nursing  | Franz Josef 25km   |  |
| <b>Haast</b>       | 300        | Clinic, Surgery & Health Centre<br>District and Public Health Nursing  | Fox Glacier 121km<br>Greymouth 317km<br>Cromwell 180km<br>Dunedin 411 km<br>Wanaka 142 km<br>Invercargill 384 km |  |

## 3 Service provision

We set out the current service provision in this section as follows:

- Primary and community services;
- Mental health services;
- Māori health;
- Older People's Health; and
- Secondary care provision.

### 3.1 Primary and community services

There are three main DHB centres of health services outside of Greymouth, based in Westport, Reefton and Hokitika. Buller Health, based in Westport integrates primary, hospital rehabilitation and community support services. The aim is to develop a similar integrated super-primary service in Reefton. Visiting specialist outpatient clinics are also provided in these areas.

The DHB provides community outreach services in nine facilities from Karamea in the north to Haast in the south of the district. Rural Nurse Specialists are the first point of call in these areas with services becoming more generalist as the distance increases away from the health centres. Nurses in these areas are on call 24 hours a day, seven days a week.

There are nine general practices based in Karamea, Westport, Reefton, Greymouth, Hokitika, and Whataroa. Of these, three of the four Greymouth practices are privately owned. The DHB owns and operates the remaining practices.

The West Coast Primary Health Organisation has a number of clinical programmes running including:

- Kaiawhina / Kaihautu which aims to improve access to primary health care services for Māori in Buller;
- Chronic disease management programmes relating to diabetes and cardiovascular screening and annual reviews, healthy lifestyles for those 'at risk', CarePlus, domiciliary pharmacy and smoking cessation;
- Health promotion programmes that include infrastructure development, breast feeding support, smokefree and confidential health advice team (CHAT) that provides support for youth;
- Youth health services – contraception and sexual health;

- Palliative care – funding for terminal care clinics and home visits;
- Primary mental health – to support general practice teams to improve health outcomes for those with low to moderate mental health care needs;
- Corrections vouchers for free acute care and general check ups for clients of the corrections service; and
- Cancer support services – through a community-based lay support and navigation services.

### 3.2 Mental health services

One of the current work streams within the West Coast DHB sustainability project is to reconfigure mental health services to focus on community-based services. The reason for this is the 2006 hospital admissions benchmarking project showed West Coast DHB to have higher than average rates of acute hospital admissions and longer lengths of stay for patients with a mental health diagnosis.

The aim is to change the funding and delivery of mental health services to provide a wider more flexible range of services in community settings for both acute treatment and long-term care. This work stream will look at:

- Alternatives to acute inpatient beds;
- Community-based long term rehabilitation and support services;
- Strengthened links with specialist mental health services and primary care;
- Improvement of older people’s mental health services including dementia; and
- Strengthening of the mental health workforce, including Māori, child and youth and occupational therapy.

### 3.3 Māori health

There appears to be less disparity between the health of Māori and the general population on the West Coast compared with the disparity in other parts of New Zealand, however Māori are over represented in acute and hospital admissions. A work stream has been established to increase investment in Māori health services to improve access for Māori, assessing and monitoring Māori health status, enhancing mainstream services and support for Māori providers and improvement of the West Coast DHB engagement with Māori.

### 3.4 Older People’s Health

In 2006 the West Coast DHB developed a ten-year plan for Older People’s Health and Disability Support Services. This plan recognises the projected increase in the

population over 65 years, particularly from 2011 and the increase in health services required if preventative programmes are put in place.

West Coast DHB has the highest spend on long-term support services per person over 75 years and the highest level of rest home bed usage of any DHB. Despite this there is a perception that some older people move away from the West Coast, particularly to Christchurch, to be closer to family and specialist hospital services.

Service Coordination for the West Coast is provided by one Full Time Equivalent (FTE) employee based in Greymouth Hospital. Needs assessments have been completed by those working in the social work department, with the exception of the Assessment, Treatment and Rehabilitation, (AT&R) Liaison Nurses and a Needs Assessor for the mental health services.

Rest homes tend to be small and privately owned. Registered nursing staff often work in isolation without the training and education provided in the DHB provider arm. The current service is fragmented. After hours services tend to be provided by the hospital Emergency Department.

### 3.5 Secondary care

Greymouth is the main base for secondary health services for the West Coast. The Grey Base Hospital has MOSS providing Emergency services, and specialist staff who provide general medical, AT&R, obstetrics and gynaecology and general surgical services including orthopaedics.

Table 3 shows the total numbers of inpatient health services delivered in 2005 and 2006 measured in terms of total raw discharges for Grey Base Hospital.

The table also shows the weights of the individual service types expressed as percentages of total services for raw discharges. Ante Postnatal, for example, represents approximately 1/10<sup>th</sup> of Grey Base Hospital activity. In addition, the two services that have changed the most over the two year period are AT&R with a fall of 21%, and surgical short stay with an increase of 180%.

**Table 3 : Raw and casewighted discharges for all Grey Base Hospital services, 2005 - 2006<sup>5</sup>**

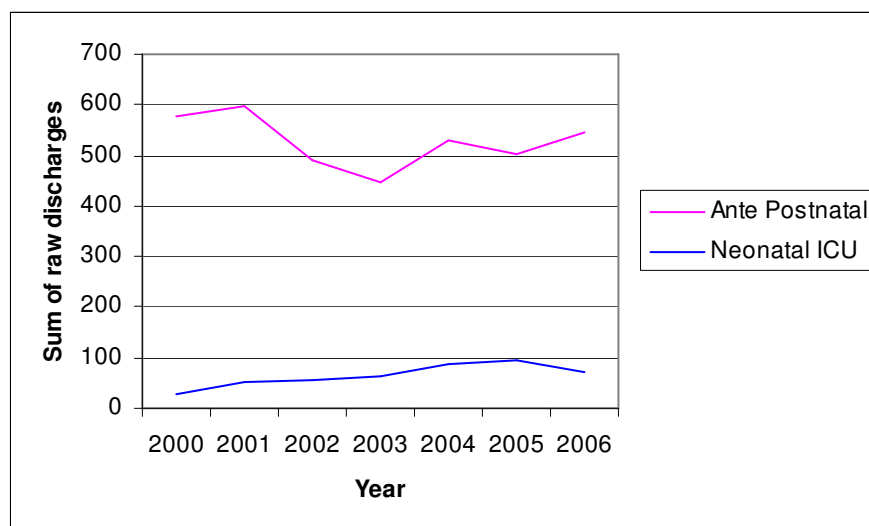
| Service Type        | Raw Discharges |      | Casewighted Discharges |      | % of total |      |
|---------------------|----------------|------|------------------------|------|------------|------|
|                     | 2005           | 2006 | 2005                   | 2006 | 2005       | 2006 |
| AT&R                | 124            | 98   | 507                    | 339  | 2%         | 2%   |
| Ante Postnatal      | 502            | 545  | 292                    | 318  | 9%         | 11%  |
| Medical             | 1889           | 1765 | 1547                   | 1533 | 35%        | 34%  |
| Neonatal ICU        | 96             | 72   | 52                     | 29   | 2%         | 1%   |
| Other               | 106            | 100  | 1857                   | 1742 | 2%         | 2%   |
| Paediatric Medical  | 214            | 196  | 92                     | 94   | 4%         | 4%   |
| Paediatric Surgical | 247            | 237  | 143                    | 138  | 5%         | 5%   |
| Surgical            | 281            | 214  | 193                    | 148  | 5%         | 4%   |
| Surgical Long Stay  | 1933           | 1834 | 2099                   | 2059 | 36%        | 35%  |
| Surgical Short Stay | 41             | 115  | 23                     | 71   | 1%         | 2%   |
| Total               | 5433           | 5176 | 6806                   | 6471 |            |      |

The provision of birthing services and surgical services are of particular public interest in the West Coast. To gain a deeper understanding of the activity in the hospital around these services, we have graphed the sum of raw discharges below over the period 2000 to 2006 in Figure 1.

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<sup>5</sup> Prepared by LECG from information provided from the Ministry of Health

Figure 1 : Raw discharges for Ante Postnatal and Neonatal ICU 2000 - 2006<sup>6</sup>



This chart shows that demand for birthing services and neo-natal care is somewhat erratic due to the relatively low numbers. For example, there was a fall of 5% of discharges in ante postnatal over 2004 – 2005 and a 9% increase over 2005 – 2006. Neonatal discharges fell by 29% over 2005 – 2006 yet had increased by 9% the previous year.

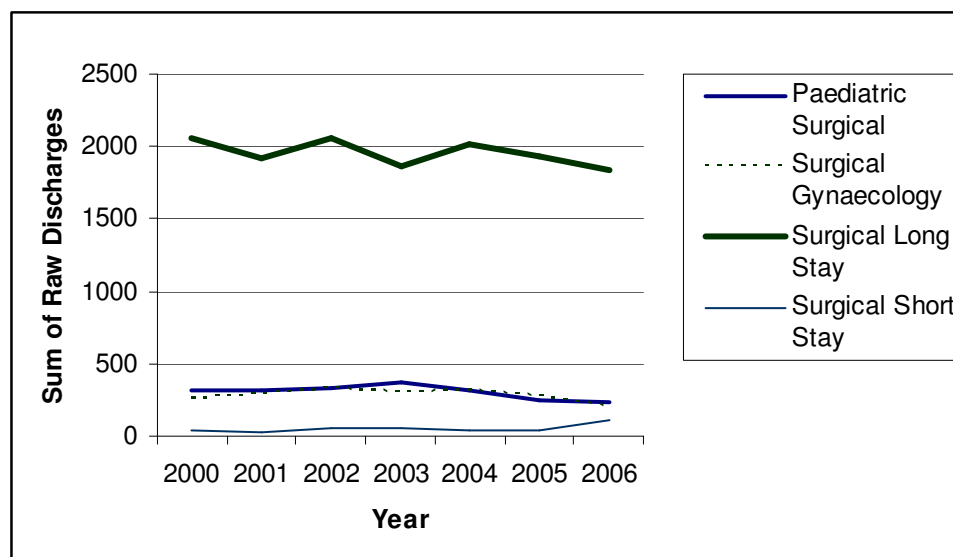
Average figures on the West Coast indicate that 30% of births are by caesarean, and 16% of births are by emergency caesarean. Taking an estimated figure of 400 births per annum on the Coast we could therefore expect 64 unplanned caesareans on the West Coast. If however we judge by average figures for New Zealand, we can see that 25% of births are by caesarean section and 50% of these are elective. Using these figures, this would indicate some 50 unplanned caesareans on the West Coast. It is estimated that 35% of women are referred to an obstetrician at some point during pregnancy.

Over the period there have been less patients discharged from surgical services, with the exception of surgical short stay patients. However, this latter category represents a very small proportion of surgical discharges (under 5% in 2006). Similarly, paediatric surgical discharges and gynaecology surgical discharges represent fewer than 10% of discharges, with the remainder belonging to the long stay surgical category.

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<sup>6</sup> Prepared by LECG from information provided from the Ministry of Health

Figure 2 : Raw discharges for surgical services 2000 - 2006<sup>7</sup>



### 3.6 Access to secondary care services

Access to services for the West Coast population is higher than the New Zealand average. Table 4 below shows the level of certain surgical procedures provided in the public health system to patients domiciled in the small DHBs in New Zealand and compared to a standardised ratio. The ratio takes into account the particular sex, age, ethnicity and social deprivation mix of the DHB population. Intervention rate analysis does not necessarily indicate what the right rate might be, but compares individual DHBs with the national mean, taking DHB population demographics into account.

If DHBs were providing services at the same level they would all be at 1. A rate higher than 1 indicates that service levels in the Coast are higher than the New Zealand average, or in other words, there is a situation of over production in secondary services. The surgical services provided on the West Coast, with the exception of grommets have higher access rates than New Zealand as a whole.

Actual thresholds are a measurement of clinical need for a particular clinical service. The higher the score the greater the need for intervention – often surgical. The actual thresholds included in Table 4 are an indication only. Caution should be taken in comparisons with the other DHBs as it is not known whether all DHBs are using the same scoring tool. However these do indicate a low threshold level to access these

<sup>7</sup> Prepared by LECG from information provided from the Ministry of Health

services for the West Coast population. The statistics are supported by comments in the interviews about the over capacity of Grey Base to retain a full roster.

**Table 4: Small NZ DHB Standardised Discharge Ratios and Actual Thresholds<sup>8</sup>**

| DHB                               | Tairāwhiti   | Whanganui   | Wairarapa   | West Coast  | South Canterbury |
|-----------------------------------|--|-------------|-------------|-------------|------------------|
| <b>Procedure</b>                  | <b>Standardised Discharge Ratios 2006/07</b>                     |             |             |             |                  |
| Coronary Artery Bypass Grafts     | 0.64   | <b>1.09</b> | 0.83        | 0.73        | <b>1.40</b>      |
| Angioplasties                     | 0.67   | 0.64        | 0.62        | 0.55        | 0.95             |
| Total Hip Replacement             | <b>1.15</b>  | <b>1.24</b> | <b>1.46</b> | <b>1.17</b> | <b>1.52</b>      |
| Total Knee Replacements           | 0.99   | 0.97        | <b>1.33</b> | <b>1.28</b> | <b>1.43</b>      |
| Prostatectomies                   | 0.80   | <b>1.32</b> | 0.70        | <b>1.25</b> | 0.97             |
| Cataracts                         | 0.82   | <b>1.26</b> | <b>1.32</b> | <b>1.00</b> | <b>1.55</b>      |
| Grommets                          | 0.88   | 0.70        | 0.80        | 0.60        | <b>1.44</b>      |
| Hernia Repair                     | <b>1.50</b>  | <b>1.05</b> | <b>1.36</b> | <b>2.07</b> | <b>1.47</b>      |
| Tubal Ligation                    | 0.85   | <b>1.32</b> | <b>2.28</b> | <b>1.06</b> | <b>2.60</b>      |
| Hysterectomy                      | <b>1.30</b>  | <b>1.03</b> | <b>1.94</b> | <b>1.88</b> | <b>1.88</b>      |
| Cholecystectomy                   | <b>1.34</b>  | <b>1.74</b> | <b>1.27</b> | <b>1.30</b> | <b>1.93</b>      |
| Tonsils & Adenoids                | 0.74   | 0.63        | 0.79        | <b>1.24</b> | <b>1.74</b>      |
| Carpal Tunnel                     | <b>1.04</b>  | <b>1.44</b> | <b>1.06</b> | <b>1.85</b> | <b>2.49</b>      |
| Heart Valve Replacements & repair | 0.93   | 0.90        | <b>1.17</b> | <b>1.43</b> | 0.90             |
| <b>Nov 2006 – Oct 2007</b>        | <b>Nationally Recognised Actual Threshold for each specialty</b> |             |             |             |                  |
| General Surgery                   | 57   | 59          | 53          | 2           | 50               |
| Gynaecology                       | 50   | 44          | 43          | 45          | 52               |
| Orthopaedics                      | 46   | 71          | 60          | 53          | 66               |

Currently the following services are provided to the West Coast through clinicians travelling from Canterbury:

**Table 5 : On site services in Greymouth provided by Canterbury DHB<sup>9</sup>**

| Department  | Description of service                                  |
|-------------|---|
| Cardiology  | 6 clinics per year                                      |
| Haematology | 4 clinics per year                                      |
| Nephrology  | 3-4 general clinics and 2-3 transplant clinics per year |
| Oncology    | 1 day clinic every 3 weeks                              |
| Respiratory | 2-3 clinics per year                                    |

<sup>8</sup> Source : New Zealand Health Information Service [www.nzhis.govt.nz](http://www.nzhis.govt.nz)

<sup>9</sup> Source : West Coast DHB Draft Secondary Care Plan, 25<sup>th</sup> May 2007

|               |   |
|---------------|---|
| Paediatrics   | Liaison paediatrician 3 days per fortnight. An after-hours paediatrician is on call |
| Radiology     | A visiting radiologist provides a weekly meeting                                    |
| Sexual Health | Quarterly education sessions and an annual visit from the Sexual Health Service     |

Other visiting subspecialties identified in West Coast DHB presentation documents include :

|                 |                    |
|-----------------|--------------------|
| Dermatology     | Colorectal Surgery |
| Neurology       | ENT                |
| Rheumatology    | Ophthalmology      |
| Plastic surgery | Urology            |

The vast majority of FSA and follow up specialist appointments accessed by West Coasters in 2006 – 2007 in other DHBs out of the Coast occurred in Canterbury (85%), with the remainder in Nelson Marlborough (10%) and Otago/Southland (2%)<sup>10</sup>.

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<sup>10</sup> According to outpatient data provided by the Ministry of Health.

## 4 Issues facing the DHB

We set out the issues facing the DHB . The issues have been identified from the following sources:

- review of planning and other review documents;
- interview findings with the DHB; and
- findings from initial discussions with other DHBs.

### 4.1 Review of DHB planning documents

#### 4.1.1 Secondary services review<sup>11</sup>

The West Coast DHB has developed a programme of work designed to provide the platform to deliver a sustainable health service to the West Coast population. This Secondary Care Plan 2007 is a planning document designed for the health services in a 10 – 15 year period. It is limited to Grey Base Hospital and underlines the challenges in clinical and financial stability that the Coast faces.

The principal discussions of the plan are concentrated around workforce and training issues, collaboration with other DHBs, reducing ALOS and avoidable admissions and a rebuild of the facility along with appropriate improvements in information technology.

The DHB notes the following significant points in the document:

- Future clinical delivery will require a different model of care. At a strategic level the DHB identifies a shift of services along a seamless continuum of care from the secondary level along to the community. In particular, cardiac rehabilitation, palliative care, AT&R and Aged Residential Care were identified as services in which patients could receive care in the home or community setting, thereby reducing unnecessary hospital admissions. Other initiatives identified to optimise the use of hospital beds included increased day surgery and a step up/down facility to reduce the length of stay, a combined medical and surgical ward, and an emergency department with enhanced holding capacity combined with a CCU and paediatric beds.
- Working with other DHBs is considered essential in terms of sharing scarce specialist resource over several DHBs to create sufficient volumes of work that a single small DHB cannot offer. Mental health services offer a possible template for the regionalisation of services. At a more general level however, specialist services

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<sup>11</sup> West Coast District Health Board Draft Secondary Care Plan. 25<sup>th</sup> May 2007.

could be improved by bringing in specialists to the Coast, increasing peer support between clinicians from other DHBs, or finally, having West Coast patients travel to access specialist services in other DHBs. In the first option (specialists visiting the Coast), a ‘superclinic’ outpatient system was mentioned as being worth investigating.

- The DHB aims for constant quality improvement of its health services throughout the entire continuum of care from public health initiatives through to palliative care. Mindful of the existing challenges faced by the Coast, path dependency for example, the DHB has a quality framework that guides its work and which revolves around five criteria, including accessibility, acceptability, effectiveness, efficiency, and safety. Accessibility of services at a macro level – where services are located – is one of the most pressing issues for the Coast. The size of the population sparsely distributed over a large land mass makes travel a necessary part of accessing services for patients. To what extent they will travel in the future depends in part upon the compromise between a Coaster’s right to access balanced against the inherent acceptance of difficulty of access made by a person when he or she decides to stay in an isolated area. The efficient and equitable level of resource allocation at a macro level, as well as what constitutes a safe level, will also affect service access.
- Workforce issues have impacted on and cause, to some extent, the focus of health strategy at Government level, namely to shift the point of intervention from the tertiary end of the continuum of care to the primary or public health end. In other words, if the DHB considers it more efficient - for both the quality of life and the health dollar – to target individuals before they fall ill, and if they do, to care for them at home or in the community rather than in the hospital. This shift in service focus therefore implies a reduction in specialist clinical staff at secondary level, and forces DHBs to collaborate in order to provide clinically viable service volumes for specialists. Collaboration is most developed with Canterbury DHB for the majority of tertiary work and a part of secondary work, as described in Table 5 above. Although the challenges are significant in working with CDHB and with other DHBs (such as Nelson Marlborough DHB and Otago DHB) partnerships like this have scope for deeper collaboration in terms of sharing clinical staff through joint appointments, more visiting specialists to the Coast from other DHBs, and in the form of patients travelling to the Coast for elective surgery. West Coast DHB may also consider providing private services to fill unused capacity and assist with recruitment as the Wairarapa and Nelson Marlborough DHB have done.
- Significant scope exists to extend the use of telemedicine for training and development of clinicians as well as for clinical use to assist in diagnosis and treatment of patients. Existing progress in Information Systems include the development of the Primary Health Information System (PrISM) network to connect the DHBs Primary Health practices, use of the PACs system for radiology imaging and use of the iSOFT system for its secondary hospital and mental health services.

- Workforce pressures are further compounded by the tension between the requirement for generalists in the Coast and the fact that health professions are becoming increasingly specialised with only large, tertiary cities able to offer a sufficiently large patient base to employ sub-specialists. However, one of the basic assumptions of the DHB policy is to provide services relatively close to patients as long as it is effective and safe. This leads to direct implications for the model of care. This model privileges generalist and stabilisation services close to rural locations, with specialised services available either through visiting specialists to the Coast or through transporting patients out to neighbouring DHBs. Developing generalist skills remains a challenge at medical and nursing level and the DHB recognises the urgent need to work with colleges and the Medical Council to address this at a national level. The Coast hopes to be a major site for undergraduate medical students and rural nursing students in the future, and has launched a pilot programme of scholarships to attract young health professionals to the Coast.
- The DHB recognises that changes in the physical infrastructure must accompany the change in the model of care. A rebuild of Grey Base Hospital appears to be more economically viable than a reconfiguration of the existing site. The current physical layout proposed assumes the same range of services will be provided in the future with the determinant of the range of services being clinical safety and not employment arrangements.

#### 4.1.2 2020 review<sup>12</sup>

The Grey Base 2020 project, a major planning exercise, was initiated in 2006 by the West Coast DHB and the Ministry of Health in response to the issues of clinical and financial sustainability that the Coast faces. The question of sustainability is complicated even further by the inherent diseconomies of scale that come from providing health services to a small and widely dispersed population. To ensure future service viability, changes will need to occur at the Grey Base public hospital as the only site large enough to impact on the West Coast's situation.

The West Coast faces ongoing problems with recruitment and retention of clinical staff, in particular of New Zealand registered medical specialists. There is increasing specialisation (and sub specialisation) which leads to a concentration of services in major urban centres and sometimes inadequate volumes of work for clinicians. The consequences of this fragile supply results in a deterioration of the DHB's financial performance through locum costs and paying for patients to be cared for in other DHBs.

The population of the Coast will contain a higher proportion of elderly people. This will be reflected in the major causes of hospitalisation in the future, namely heart disease,

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<sup>12</sup> Grey Base 2020 Project; Strategy Stage Analysis, Greymouth Hospital 2020 Project

cancer, arthritis, and falls. Hospital admissions are expected to peak in 2011 and then decline.

Key questions posed to stakeholders in 2006, both internal and external, included:

- What services will be likely to be provided from Grey Base Hospital in 2020?
- How will they be provided?
- What configuration and physical structure will Grey Base Hospital need to have?

Feedback from these meetings included the following points:

- A reinforced primary and community sector has the capacity to reduce demand for inpatient services. This potential reduction in inpatient demand is essential to inform the redevelopment of Grey Base Hospital, in which space should be designed for flexible use. Nursing services in the community and more effective social services are an example of this and implies the need for step down and convalescent care facilities in the community.
- A multi-disciplinary approach to care is sought, resulting in a seamless service for patients instead of a silo model when primary and secondary care are separated.
- It would be a good idea to have a concentration of primary care services alongside the ED and diagnostic services.
- A range of services in Greymouth could be maintained by contracting in specialist services. Patients may need to travel to other DHBs for complex care in the future but planning should be based on status quo inpatient volumes.
- Generalist skills for doctors and nurses are necessary for rural settings as opposed to sub speciality skills, which cannot function due to the small population.
- A consensus lies around core services that Grey Base should provide: A high quality ED with holding capacity for 24 hours or longer and the ability to perform emergency procedures as a last resort option, ability to transfer out, high quality diagnostic services, a robust IT platform, and maternity services. These services will impact on the physical layout of Grey hospital if it were to be redesigned. It should have an HDU co-located with the ED, and a primary health care centre adjacent with diagnostic and allied health functions.
- A hospital redesign process would allow a space adapted to the needs of staff (relaxation and recreation), to the needs of Māori, and would integrate corporate and clinical space.
- The West Coast should be a hub for training rural health professionals.

The proposed model of care concentrates on generalist medical care supported by visiting specialists. Highly developed support networks, along with telecommunications technology, would allow the current range of services to be maintained. This generalist

approach is driven by the recognition that current recruitment strategies are not sustainable. Not only will clinical staff on the Coast need to have more generalist skills, clinical space will also need to be as flexible as possible to respond to patient needs.

Future service delivery is based on the belief that West Coast citizens have a right to secondary care services on the West Coast, in a single location within reasonable time and distance. The assumption is that if specialised services are to be provided from Grey Base Hospital they will be done so thanks to close collaboration with other DHBs or through specialists in a private capacity. The most developed level of regional collaboration takes place with Canterbury DHB, although this is ad hoc.

This model depends in large part on a strong primary care sector that is well integrated with secondary services. Effective health promotion and community care (especially for elderly people and people with chronic disease) has as its aim the reduction of secondary-level admissions and lower costs per patient. The physical consequence of this shift of point of intervention back along the continuum of care is a one site clinical space with community services, allied health and secondary care working together. This united clinical space idea has resulted in master site planning proposals that recommend a reconfiguration of the existing Grey hospital into a space that allows opportunities to vary bed distribution across disciplines or on a seasonal basis.

Master Site planning initiatives recognise the need to upgrade or rebuild the current hospital which is nearing the end of its economic life. In addition an engineering assessment commissioned by the West Coast DHB has shown buildings at Greymouth and Buller have failed to meet current seismic compliance standards and so are deemed to be “earthquake prone” under the Building Act. The seismic report was one of the factors that lead the Board to decrease the life-expectancy of the Grey Base Hospital buildings to five years. The other main factor was the Board’s expectation that Government would approve the proposal for a new hospital. The DHB has not conducted a seismic assessment of Reefton Hospital.

Refurbishment looks to be economically unviable with the preference being a new build to enable a clean slate reconfiguration of services. Two main rebuild options included selling land at the northern part of the site and rebuilding the south part with a three-storey option required in both cases. A complete new site location and build in a single level construction was also identified. A conservative estimate of savings provided from a reconfigured hospital amount to \$1 million per annum, with potential gains of \$4 million through workforce improvements.

Both the Ministry of Health and West Coast DHB recognise that the population based funding mechanism would need to be reconsidered. The deficit that is being incurred by the West Coast is the catalyst for exploring new models of care, developing new risk management policies and reconfiguring Grey Base Hospital.

#### **4.1.3 CHFA commissioned review**

West Coast DHB has undertaken a number of reviews and considered opportunities to reduce costs. A report undertaken in 2005 by the Crown Health Financing Agency and

West Coast District Health Board<sup>13</sup> indicated that there was no obvious solution to remove the \$16.5m over funded position West Coast DHB faces under PBFF. This statement was based on the assumption that secondary services would continue to be delivered on the Coast. A number of operational efficiencies and strategic initiatives outlined in this report have been put in place or are in consideration going forward. Given that this review assumes a status quo situation for secondary services, we considered this document of little use in considering other options for the Coast. Nonetheless, the document does underline the fact that the status quo is not financially sustainable.

#### **4.1.4 The Association of Salaried Medical Specialists Senior Medical and Dental Officer Salary Survey 2006**

The cost of workforce is significant for the West Coast DHB. Not only is it difficult to recruit health professionals to the area, a premium is often paid to attract them. The Association of Salaried Medical Specialists Senior Medical and Dental Officer Salary Survey in 2006 identified the West Coast DHB had the highest mean full time equivalent base salary for DHB Specialists at \$154,521 where the range across the 21 DHBs was \$138,134 - \$154,521 and the national average \$143,310. For Medical and Dental Officers West Coast DHB pays the third highest full time equivalent salary at \$122,833 where the range is \$102,722 - \$126,500 with a national average of \$114,664. Despite these salaries it is difficult to recruit staff and clinical services remain vulnerable. In addition, as there are generally only a few health professionals working in a particular service and when staff are on leave or a vacancy occurs, the whole service becomes at risk.

#### **4.1.5 West Coast Improving Services for Elderly**

In 2006 the West Coast DHB developed a ten-year plan the “West Coast Improving Services for Elderly (WISE) for Older People’s Health and Disability Support Services. 2006 – 2016”. This plan is designed to be implemented within current overall funding with each activity subject to a detailed costing and implementation plan. This plan has four goals:

1. Protect older people’s health independence and interdependence;
2. Deal with illness and disability before they worsen;
3. Ensure older people experience a smooth path into and back from specialist services; and
4. Put in place a strong organisational infrastructure for older people’s services.

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<sup>13</sup> Crown Health financing Agency & West Coast District Health Board. Joint project to analyse the reasons behind the ongoing gap between West Coast DHB’s revenue & expenditure (2005)

Each of these goals has a number of objectives and an action plan has been developed that includes timeframes, responsibilities and outcome measures.

## 4.2 Interview findings – challenges

We identified the following issues from interviews conducted in the discovery phase of the project. The list of interviewees follows.

### **Interviews conducted with the Executive Management Team and the PHO at West Coast DHB offices (in no particular order):**

- Chris Le Prou, GM Secondary Care
- Wayne Turp, GM Planning and Funding
- Gerrie van der Zanden, CPH
- Tor Wainwright, Planning & Funding Analyst, focus on Elder Care
- Wayne Champion, Chief Information Officer
- Andrea Baker, CEO West Coast PHO
- Gary Coghlan, GM Maori Health
- Hecta Williams, GM Community & Primary Health, and Jenny Robertson, Manager Buller Health
- Vicki Robertson, HOD Obstetrics & Gynaecology
- Jane O’Malley, Director of Nursing and Midwifery

### **Teleconferences with SISSAL and DHBs from the South Island**

- Otago DHB: Brian Rousseau (CEO Otago/interim CEO Southland) Chris Fraser (Planning and Funding Manager)
- Canterbury DHB: Nigel Millar (Chief Medical Officer), Carolyn Gullery (Planning and Funding Manager), and Mary Gordon (Executive Director of Nursing)
- South Canterbury DHB: Chris Fleming (CEO) and Margaret Hill (Planning and Funding Manager)
- Nelson Marlborough DHB: John Peters (CEO), Sharon Kletchko (Planning and Funding Manager) and Keith Rusholme (Manager, Secondary Services)
- SISSAL: Christine Miller (Interim General Manager)

#### 4.2.1 Acute workforce issues in secondary care

##### ***Medical***

The current collective agreement (Multi-Employer Collective Agreement, known as ‘MECA’) recommends that specialists do not work more than a one in three on call.

The implication is that the DHB must employ a minimum of three specialists in medicine, obstetrics, general surgery and anaesthetics. There is also some indication that there may be a move to a one in four on call requirement which would not be sustainable for West Coast DHB in terms of cost or workload.

Currently there is one orthopaedic surgeon based at Grey Base Hospital who provides elective orthopaedic services. All acute orthopaedic surgery is transferred out of the district as there has been difficulty in recruiting additional orthopaedic surgeon(s).

Recruitment into Grey Base Hospital is an issue that occupies a considerable amount of time in the DHB. In particular, the geography of the region means that medical staff work without the collegial support that they may seek, and the clinical volumes mean that medical rosters and clinical credentialing are marginal. The premium paid for locums in secondary care is very significant. The secondary service employs a high number of locums at a premium cost. In addition, there is no private hospital service on the West Coast.

The secondary care services are generally fragile. There are a small number of individuals in each service and when one individual is on leave or resigns there is a significant impact on the ability of the service to continue to deliver.

A paediatrician who visits the Coast and provides community paediatric services is due to retire and it is expected that it will be difficult to find a replacement for him. One of the three obstetricians is leaving in January to go to Southland DHB where the volume of births is higher.

### ***Nursing***

The average age of a West Coast DHB nurse is 48 years and nurses are very hard to recruit particularly in the face of a national retention problem. Clinical Training Agency (CTA) funding and local DHB commitment means that nurses are supported to participate in post graduate education and clinical skill development. In 2008 the DHB has joined with University of Otago to bring primary health care clinical education to practice nurses on the Coast. Nurses are generally well qualified and experienced to take on advanced practice roles. However, attracting new graduates has been a challenge. Nurses in the community often work in isolation or with little supervision or support, making it difficult to place less experienced nurses into these situations.

### ***Workforce initiatives***

A number of innovations have been undertaken to attract staff to the district including:

- anaesthetist staff on rotation from Durbin, South Africa;
- rural nursing initiatives;
- new graduate nursing programme;
- rural immersion medical students;
- rural training centre development; and

- DHB ownership of general practices and employment of staff.

Workforce for the PHOs has not been a major issue to date, although there is competition between all health providers on the West Coast for the small numbers of qualified staff available.

#### 4.2.2 Infrastructure

A platform for Information Systems has been developed that allows for sharing of electronic records from all providers on the West Coast. This system has been recognised as innovative at a national level.

To date the Primary Health Information System (PriSM) allows for records of the DHB owned practices to be shared. In the future it is anticipated that all GPs, the Māori Health provider (Tai Poutini), the dental PriSM system and the corrections health system will be aligned.

The primary care patient management system, used by the rural nurses, MedTech32, is integrated with the West Coast DHB systems including: laboratory, PACS, patient management, and the clinical information system. Access is also available to the National Immunisation Register and other national systems. The West Coast DHB uses iSOFT as its clinical management system, as do Otago and Southland. However, Canterbury does not.

The PACS radiology system allows for electronic images to be reported on by a radiologist in Christchurch and to be shared with clinicians in all other South Island hospitals. Issues with the IS infrastructure identified in the interviews include the narrow bandwidth for PACS which does not allow for large data transfers e.g. 16 slice (or greater) CT images. Report generation is still difficult or in some cases not available. The lack of consistent systems across DHBs can inhibit data transfer. Use of desktop video conferencing with a technology such as Skype is being explored to support clinician to clinician dialogue. There is limited access to systems to providers outside of the current DHB at this time, although providers are given electronic discharge summaries and laboratory/radiology results. Progress is being made towards attaining integrating primary and secondary level systems through a joint development partnership with iSOFT and Medtech.

#### 4.2.3 Current secondary service delivery

The West Coast is regarded as an over serviced population in some services as there is over capacity from a facility and workforce perspective to deliver surgical services, relative to other DHBs in New Zealand. Other than cost, this may not be an issue. However, the capacity issue is such that, in both facilities and in medical services, there are clear inefficiencies (e.g. an oversized hospital) and a risk of not being able to credential services where there is insufficient volume. Waiting times tend to be short with no more than 120 days for a First Specialist Assessment, and in general surgical acuity is low.

There is no ICU. However, Grey Base has a critical care unit with capacity for high dependency nursing and 24 hour ventilator support available until patients can be

transferred. No paramedic service is currently available. The surgical bus is only used for diagnostic scopes at present but is thought to have the potential for further service delivery.

#### **4.2.4 West Coast relationships**

Relationships with health service providers on the Coast are positive and in general working towards a collaborative approach to service delivery. Opportunities for further development exist for the PHO and DHB, together with other NGO's to provide an integrated approach to care in the community. The DHB and residential care providers are identifying ways of working together for education and service development. Implementation of the West Coast Improving Services for the Elderly Plan will require collaboration across providers to achieve the outcomes desired for older people.

Intersectoral collaboration on the Coast is variable, with good relationships with schools and the Ministry of Social Development, including WINZ. The district and regional councils have been slow to engage but recognise advantages in collaborative approaches.

#### **4.2.5 Cost of service delivery is high**

Recent reviews of West Coast DHB has shown that it is relatively efficient in most of the purchasing and fixed cost areas but that the PBFF does not work for the DHB when the costs infrastructure for a small scale DHB are much higher than for larger DHBs.

One of the biggest cost areas is employment. To attract medical staff and ensuring 1:3 call rosters leads to higher staff numbers (particularly medical staff) and higher salaries than in other larger DHBs. The MECA agreements are increasing pay and conditions across health professional groups adding additional pressures to the DHB to meet the costs of service delivery. It is a cheaper option to employ four clinicians than three plus a locum to cover the leave provisions.

#### **4.2.6 Acceptable minimum level of services**

There is considerable debate around the acceptable minimum level of service that should be provided on the West Coast. Following is the summary of the current thoughts expressed during the interviews:

- A high quality emergency department able to stabilise and hold patients prior to transferring out (where necessary) is seen as essential. This service must be supported in the community by air and road ambulance transport and staff and PRIME trained medical and nursing staff.
- High quality diagnostics are important for service delivery on the Coast. Developments such as PACS have made radiology services easier with the support of a private Canterbury radiology service providing reports on line.
- Transport systems both road and air, are critical for the West Coast because of the difficult nature of the terrain and the inclement weather. One interviewee indicated that the airport is closed for one month of the year in total. This affects transport of patients to Greymouth and out to other DHBs as required.

Interviewees felt that the minimum level of hospital services for the West Coast DHB to provide locally is not simple to define. Secondary obstetric services are believed to be essential, by some, and if this is the case then three obstetricians and three anaesthetists are required to provide 24 hour 7 day service. As there is insufficient workload for three anaesthetists then it would seem sensible to undertake a level of surgery. This would require three surgeons, and general surgeons are becoming more difficult to recruit as sub specialists become the 'norm'.

#### **4.2.7 Transport is crucial**

Transport services along the Coast and out to other district health services are core to West Coast DHB functioning. There are few public transport systems available for patients along the Coast. While there are health services provided from Karamea to Haast these become more and more generalist in nature the further away from Greymouth the service is provided. While outreach clinics are provided in Westport, Reefton and Hokitika, any specialist inpatient care is currently provided in Greymouth or outside of the district.

Transport out of the district may be by road or air – more likely to be fixed wing than helicopter. There are three airports on the West Coast located in Westport, Greymouth and Hokitika.

#### **4.2.8 Emergency Services**

As mentioned above, interviewees identified a high quality emergency department as essential.

There are issues in sustainability of the emergency services. St John Ambulance has difficulty in attracting volunteers. There is pressure on nurses in rural areas who are first 'on-call' for all after hours services including emergencies. Cell phone coverage is only available in the main centres.

The Greymouth ED staff should have relationships that provide support from specialists in Canterbury or another designated DHB.

There are a number of days each year where roads are closed and / or no flights can get in or out. This increases the need to provide for a higher level of self-sufficiency. An interviewee indicated that options for all weather flight craft should be investigated.

#### **4.2.9 Aged care**

Access to transport services is poor in the region and this is thought to contribute to a proportion of the older population moving elsewhere in their old age, for example to Canterbury or Otago. Therefore there is a relatively lower proportion of people over 85 on the Coast than in other parts of the country and 5% of the residential budget (allocated to rest homes) is spent elsewhere, mostly in Christchurch.

The geriatrician in Greymouth has been there a long time. Secondary services need to urgently put resources into training primary care to meet the demand for dementia care

in 15 years. There are people willing to defend Older People's Health but structural issues prevent a seamless service from existing.

The rest homes are in the main four centres and are small private and church-run rest homes. There is inadequate after hours GP support and rest homes tend to use the ED as the after hours service. People from Reefton or Buller also get sent to the hospital in Greymouth for relatively simple things.

Qualified nurses are hard to find for rest homes mainly due to pay, which is lower than in the DHB due to the nursing MECA. In the West Coast education, training and support is necessary for nurses in rest homes who are qualified and capable of caring for the patients but who perhaps lack confidence. Joint training sessions with DHB nursing staff and good telephone access to ED services would probably reduce the number of patients presenting to ED after hours.

The WISE plan hopes to address many of the issues for the long term, however some funds will be required to implement all recommendations.

#### **4.2.10 Innovation in primary and community care**

The West Coast DHB is extensively involved in the delivery of primary and community care, particularly with the ownership of general practices. This occurred with the difficulty in attracting GPs to the Coast. The GPs are paid under the SMO MECA which includes 30% non-patient contact time. Hence it is harder for privately owned GP practices to attract GP's to work in these practices which cannot afford to pay at this level.

Rural nursing services have been developed to meet the need of the population on the West Coast and are well established in 13 sites. In South Westland Rural Nurse Specialists work in partnership with the sole GP to provide primary care, public health and PRIME services.

The challenges the DHB faces in the community include the small number of appropriately trained people on the Coast who can work in the isolated environment. This particularly applies to medical and nursing staff.

The PHO identified options for the DHB owned practices to be managed by the PHO rather than the DHB, who have less understanding of general practice. The PHO is also concerned about funding availability for ongoing development. For example, the chronic disease programmes are currently funded for two years through PHO funds but there is limited ability to develop these further without additional funds. While the DHB is financially supporting the secondary service there are limitations to funding for primary and community innovations.

### **4.3 South Island DHB relationships**

West Coast DHB has traditionally had a contractual relationship with Canterbury DHB for delivery of services not provided on the Coast including both inpatient and outreach

outpatient services. The feeling in the West Coast DHB is that there is an “inequality of need” between the District Health Boards that leads to a one-sided relationship in terms of need and reliability of service continuity. Interviewees indicated there is variability in the approach to ensuring service delivery for the West Coast.

Clinicians, however, have developed relationships with peers in Christchurch and other hospitals, including Otago and Nelson Marlborough DHBs. West Coast DHB is actively exploring options for networking clinical services.

Discussions with senior staff from the other South Island DHBs have indicated cautionary support of collaborative approaches with West Coast DHB. Increasing delivery of service to patients from West Coast DHB within their own facilities was felt to be less of an issue providing they could plan for it. Nelson Marlborough DHB indicated a positive approach and willingness to consider any opportunity that supported the West Coast DHB.

We note that all comments could be taken in various ways, that the comments presented are from initial discussions only, and the comments are not moderated by further discussion.

**Otago DHB** Chief Executive and General Manager Planning and Funding indicated that a model for the West Coast DHB could be similar to that of Dunstan Hospital (stabilise and ship) with the support of retrieval services such as a helicopter with GPS and night vision (as per Otago helicopter service). There was acknowledgment of the difficulty in removing services from a small district and the political ramifications of taking services away<sup>14</sup>.

It was accepted that patients from the Haast area could be flown to the South and access services at Dunstan or Dunedin. Planning for additional services from other DHBs would be part of the change process.

Otago did not feel that it was likely that they would look to joint appointments or similar arrangements but that this might be possible with other DHBs such as Nelson Marlborough. They have formed such an alliance with Southland DHB for cancer services.

**South Canterbury DHB** Chief Executive and Planning and Funding Manager recognised the particular difficulties faced by the West Coast DHB and the risks associated with the current and any future model. They believe small DHBs must enter into collaborative relationships to manage the risks they face but did not see a specific model that would work for South Canterbury and the West Coast.

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<sup>14</sup> We understand that a technological issue prevents this – the altitude of the Southern Alps (as opposed to the Otago foothills) requires that someone invents a de-icing helicopter rotor before this will be feasible.

Clinicians are not inclined to want to work across different facilities at a distance when there are other opportunities such as private practice.

**Canterbury DHB** Chief Executive and General Manager Planning and Funding recognises the issues for West Coast DHB but have difficulty in getting clinicians to work on the West Coast, especially when there is short notice and the work load is low. Options for service configuration could be based on:

- Patients shipped in from the Coast, implying transport is essential, and changing perhaps the base location of the aircraft. Airport location and infrastructure must be appropriately changed.
- Efficient broadband service to enable telemedicine. Appropriate terminals and a high quality link are necessary. This issue of infrastructure must be addressed at a national level.
- Bringing surgeons in to the Coast, although currently tolerated, presents risks in terms of a lack of continuity of care and would mean a lack of trust from the community. If there was no 24/7 cover in Greymouth, then it could resemble Ashburton, which covers a population of 20 000 and carries out day surgery.
- Treating Grey Hospital as a 'virtual' ward of Christchurch Hospital could be an option.

Canterbury DHB is willing to talk with West Coast DHB but would wish to be able to plan for changes. There are minimal implications in relation to volumes for some services in Canterbury accessed by West Coast residents, however a level of frustration was evident due to filling requests at short notice in the past.

**Nelson Marlborough DHB** Chief Executive, Chief Operating Officer and General Manager Planning and Funding all expressed a willingness to work with West Coast DHB as a neighbouring DHB. Some discussions have already taken place between the Nelson Marlborough DHB Chief Operating Officer for an evolutionary approach around collaborative service delivery.

The orthopaedic initiative with the Churchill Trust in Blenheim has some implications for the public service, as the facility is not open at weekends. However this is not considered a major issue at this time.

Nelson Marlborough DHB are keen to see a long term solution and welcome the opportunity to work with the West Coast to achieve this. Factors that would support Nelson Marlborough involvement include:

- Understanding potential implications for Wairau Hospital with the rebuild project underway to increase its capacity to a fully serviced secondary hospital. Certain services in this case will be managed between neighbouring DHBs.
- Some Nelson Marlborough services, e.g. ophthalmology and general surgery, require additional specialist staff to meet on call agreements while the workload

does not justify this. Addition of West Coast population may support additional staff.

- The service model at Nelson and hospitals is senior led with a ratio of 3 senior to 1 junior medical staff (other similar sized DHBs are 1:1). This 3:1 model should not be compromised.
- Recognition of Nelson Marlborough's approach to primary and community service development and patient self management for chronic care.
- Recognise different contractual models for service delivery that allow efficient utilisation of facilities and health workforce.

**The South Island Share Service Agency (SISSAL)** has identified services that have priority for collaborative service planning e.g. oncology and mental health services. Planning towards a South Island Regional Clinical Service Plan has commenced but this is in the early stage of development at this time.

#### 4.4 Summary of issues

From the issues, a clear picture of the service issues facing West Coast DHB emerges:

- The DHB struggles to source healthcare professionals for all of its services but, most acutely, for secondary services. Given the picture of shortages in health sectors world wide, this picture will not get easier.
- Where capacity in secondary services is maintained, there is clear over capacity, to the extent that some of the services will not have the critical mass of population to sustain quality requirements.
- The major secondary care facility at Grey Base has significant fit for purpose issues. Grey Base and the Buller facility do not meet seismic regulations.
- The DHB has put time and effort into networking with other DHBs and some of this effort is showing promise – but not particularly with Canterbury DHB. Canterbury DHB appears to have no incentive to work with the West Coast in the way that might otherwise be expected. On the other hand, other relationships are being developed.
- The funding for the DHB is already substantially over that of other DHBs and issues of further funding increase will raise issues of horizontal equity with other populations.
- There is clear innovation in primary care services that shows great promise. The services are nurse based, supported by a GP, and are well embedded in the local communities.

- The secondary service is not financially viable with the current funding formula. Even with deficit funding and rural adjusters, running secondary services at over capacity will limit opportunities to develop primary and community services.
- The proportion of older people in the population will rise and will increase demand for health services. A number of older people move away from the West Coast to be closer to specialist health services.
- Aged care services will come under greater pressure over the coming years with the expected change in the population pyramid (more elderly people, living longer). The DHB knows how to change the existing model of care but there are some substantial barriers to doing so as both secondary care and private providers will need to change the mix of available capacity and skills.
- High levels of smoking and drug abuse, together with a higher proportion of the population having lower socioeconomic status, will continue to impact on health usage.

## 5 Comparative analysis of models of care – what is happening elsewhere?

In this chapter we explore models of care implemented in other parts of New Zealand and internationally. While we have looked particularly for models of care implemented in areas with a similar level of isolation to that faced in the West Coast. We have also included models of care implemented elsewhere.

A lot of the issues facing the West Coast are not that different from those faced in other areas, such as how to attract and retain a qualified and experienced workforce and how to maintain access for patients.

### 5.1 Overview of models of care

#### 5.1.1 Features

The following table provides a useful summary of the difference between old and new ways of working.

#### Features of previous and current best practice health service delivery<sup>15</sup>

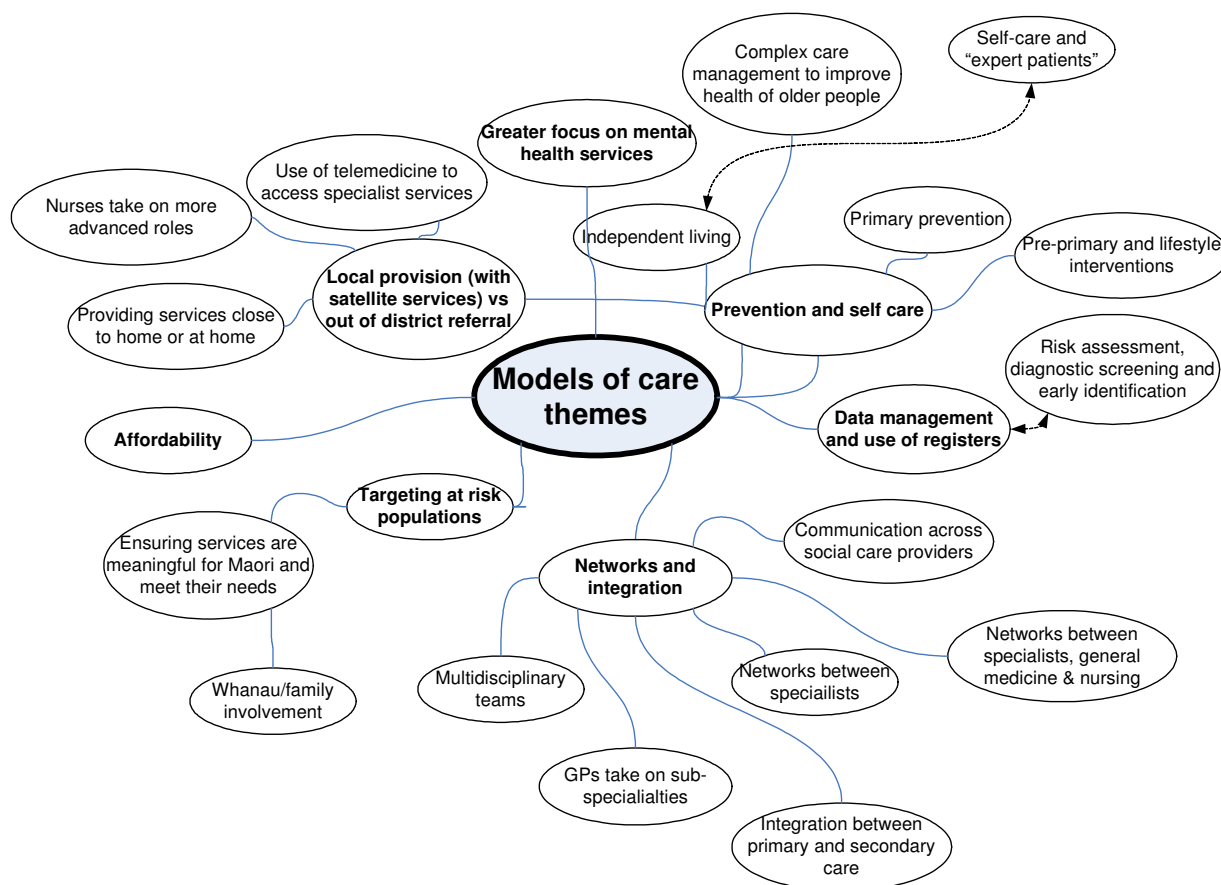
| Previous  | Best Practice   |
|---|---|
| Culture of independence   | Collaborative   |
| Little sector leadership  | Confident, strong sector leadership   |
| Traditional models of care: <ul style="list-style-type: none"> <li>• ‘Silo-focused care’</li> <li>• Hospital focused care</li> <li>• Reactive</li> <li>• Emergent</li> <li>• ‘Clinical services firm’</li> <li>• Focus on the individual</li> <li>• Episodic care</li> <li>• Uni-causality approach to care</li> <li>• Doctor oriented</li> <li>• Passive recipients</li> </ul> | Modern models of care: <ul style="list-style-type: none"> <li>• Collaborative care</li> <li>• Ambulatory</li> <li>• Integrated with Primary Care</li> <li>• Futures, long-term</li> <li>• Interdisciplinary</li> <li>• Inclusive of public health</li> <li>• Anticipatory</li> <li>• Focus on population patterns</li> <li>• Continuity of care</li> <li>• Chronic/ complex condition capability</li> <li>• Multi-disciplinary teams</li> <li>• Enabled participants</li> </ul> |
| Multiple and ad hoc decision making structures  | Clear decision-making structures that allow difficult decisions to be made  |
| Unsustainably fragmented services   | Service critical mass   |
| Intractable recruitment issues  | Recruitment critical mass   |

<sup>15</sup> Source : Ministry of Health : Guide to health service planning and capital investment (February 2006)

|                    |                       |
|--------------------|-----------------------|
| Fixed provider mix | Flexible provider mix |
|--------------------|-----------------------|

### 5.1.2 Themes

The following diagram shows key themes or aspects common to many modern models of care. This diagram was prepared by drawing on the key themes expressed in other New Zealand work on models of care, such as the clinical services planning work done by LECG for elsewhere in New Zealand.



### 5.1.3 Examples of models

#### **Chronic care models**

In the University of Birmingham HSMC review (2006)<sup>16</sup> a number of UK and international frameworks were reviewed around the theme of improving care for people with long term conditions. The most common model among the broad frameworks examined is the Chronic Care Model. Among the service delivery approaches, the Kaiser pyramid of care seems to be used as a reference in many Western countries. The application differs in each place according to the funding or incentive system, and the culture: *“Some suggest that although national policy makes a difference, it is at community level that people work together to design innovative solutions”*<sup>17</sup>. In other words, it is reasonable to expect the efficacy of health provision to depend in some significant part on the adaptive character and willingness of the community to adapt to their specific issues.

These service delivery models have been identified and used to differing extents in other countries, and do not focus on any one component of service delivery. The principal characteristics of the models, along with the country in which the characteristic was noted, include the following:

- Inter-agency cooperation and communication (partnerships between primary care, social care and other applicable agencies) – Scotland.
- A focus on primary care with care being community-based or home-based – Scotland, France, Italy.
- Nurse-led services – France.
- Self care and empowerment, proactive self-health management – many countries.
- Population-based prevention – France.
- Regional systems to make services geographically accessible – France.
- Integrated services through interdisciplinary teams, care pathways – USA.

#### **5.1.4 Evaluation of models**

Components of the chronic care model evaluated (mainly in the US) and some specific models of service delivery, such as the Kaiser approach, may have a beneficial and sustainable impact on quality of care and resource use e.g. improvement programmes. Although there are many useful lessons to consider, there is limited high quality evidence about the impact of any model in particular. The equivocal nature of the effectiveness of these models is due largely to the fact they are not clearly defined or

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<sup>16</sup> “Improving Care for People with Long-Term Conditions, a Review of UK and International Frameworks”. University of Birmingham HSMC (2006) : 30.

<sup>17</sup> Ibid, p 22.

conceptualised. There is a lack of comparability across models, and a general lack of focus on evaluation.

In addition, this review referred to the ‘Life Course’ model of service delivery in New Zealand, based on Ministry of Health documents. This model is interesting from the point of view of the division of responsibility for health outcomes being shared along a continuum between society and the health sector. In this model, a holistic approach is taken that involves protection and positive living conditions as a first step towards an iterative care path for the population.

## 5.2 Models of care for isolated communities

West Coast DHB faces specific issues as a result of its geographical isolation. We explore some models of care tried in other isolated communities below.

### 5.2.1 Rural and remote Scotland

According to the 2001 census, some 18.7% of Scotland’s population live in rural or remote areas, with 8.2% in remote areas<sup>18</sup>. These areas include many islands and communities reached only by poor quality roads, subject to adverse weather conditions.

A study conducted in 2002 explored some of the opinions and attitudes of people living in different locations about access to and expectations of health care. In the list of possible service improvements, the following were mentioned (in decreasing order of importance)<sup>19</sup>:

- Cutting time to a GP appointment (this was the case for rural locations but not for remote rural resident).
- Having an ED department closer.
- Having a more rapid ambulance response.
- Having nurses trained to do more advanced work.
- Free transport to hospital appointments.

High levels of satisfaction with services in this survey were linked with the ease of access and expectations of local help available, particularly from GPs. About one third of the people accepted that nurses could deliver some services currently provided by

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<sup>18</sup> “Contemporary Issues in Scottish Rural Health Care” [HeaRD Health and Rurality Digest 12](#) (2007)

<sup>19</sup> “Urban and rural peoples views of health care in Scotland” [HeaRD Health and Rurality Digest 10](#) (2006)

GPs. It is to be noted that most people in remote and rural areas expected their GP to be available for out of hours emergencies.

In another survey<sup>20</sup>, a small sample of elderly residents in rural Scotland said they would prefer to see a known GP but accepted seeing a doctor in an emergency situation. Concerns included the practicalities of transport and the belief that if they were ill enough to need a doctor they would be too ill to travel. Islanders used to a nurse as their first-line professional were very positive about the roles of nurses being extended, where mainland residents were more sceptical about this.

One of the conclusions is that measures needed to be taken to increase public awareness of the changing nature of health services in rural areas so that incomers can be realistic in their health expectations.

New policy in Scotland suggests an extension and an enhancement of primary health care and support for self management of chronic diseases. Nurses and allied health professionals could play a greater role in this through working in joint partnerships. Other joint working partnerships between health and social care services have been identified through the Joint Future initiative<sup>21</sup> as being beneficial for the rural environment.

Key changes in rural health provision have included the introduction of the NHS 24 national telephone triage system in Scotland in 2002. This system was designed to provide nurse-led telephone triage, consultation and advice and is integrated with GP out-of-hours cooperatives, ED departments and the Scottish Ambulance Service. This service, in particular the high quality health information aspect, is particularly useful for rural areas where access to GPs may pose difficulties.

In terms of workforce changes, there has been the implementation of a GMS contract in the UK for general practitioners that has led to major changes in the configuration of services, particularly for out of hours provision of primary medical care from which GPs were able to opt out.

A National Framework Advisory Group was set up to look at health services in Scotland. This group, chaired by Professor David Kerr, produced a report<sup>22</sup> in which strategies were identified regarding the improvement of health for rural and remote Scotland. These included:

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<sup>20</sup> “Expectations of, and demand for, healthcare amongst elderly incomers and longstanding residents in rural Scotland: qualitative interview study” HeaRD Health and Rurality Digest. 7 (2004).

<sup>21</sup> <http://www.scotland.gov.uk/Topics/Health/care/JointFuture/KeyElements>

<sup>22</sup> Kerr, D. “A National Framework for Service Change in the NHS in Scotland”. (May 2005) <<http://www.scotland.gov.uk/Publications/2005/05/23141307/13348>>

- Extending roles for primary care implying enhanced roles for GPs in emergency medicine, minor surgery, and special interest areas (GPs with a special interest, GPwSI).
- Enhanced community hospital services with services adapted to the geographical area. A community hospital should ideally serve as a local resource centre with a multi-professional perspective, providing access to out-of-hours or urgent care. After consultation with communities in rural Scotland, the following factors were named as being important to a resilient rural community:
  1. Immediate telephone access to emergency triage and dispatch.
  2. First responders trained by local health systems and drawn from the local community.
  3. Professional emergency response graded to the need, including nursing, paramedic and medical personnel.
  4. Access to diagnostic facilities where required.
- Tiered emergency responses, with the recommendation for high quality air transport systems best addressed at a high regional level between the national health service and the ambulance service.
- Defined roles for networked Rural General hospitals, with their main purpose being to provide emergency medical care (“treat where possible, transfer when necessary”); locally based routine elective care; and care for chronic illness.
- Development of a school for rural health care and appropriate training for rural health professionals, with consultation at a national level between the national health board and colleges of general practitioners.

These strategies have the underpinning characteristics of a blurring of traditional boundaries between primary and secondary care, and better inter-agency coordination/communication. E-health (information and communication technologies locally and at a distance) is recognised in Scotland as providing solutions to rural delivery of care, as well as an ubiquitous IT infrastructure that adheres to clear technical standards. The report underlines the importance of collaboration between rural general hospitals and larger hospitals, with the latter responsible for ensuring health care demand is met.

### ***Case study : A model for remote island communities<sup>23</sup>***

An island grouping off the Scottish coast trialled a novel method of providing consultant support for acute internal medicine. Under the scheme, a consultant general physician was appointed in a district general hospital on the mainland of Scotland, approximately

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<sup>23</sup> Godden DJ, Ludbrook A, McIntyre L, et al. “Consultant supported intermediate care – a model for remote and island communities.” Rural and Remote Health 4 276 (2004).

100 miles from the island group, to provide a lead clinician role for inpatient services at the island hospital, visiting the island on a twice-monthly basis, undertaking educational sessions and developing local guidelines and care pathways for the management of individual conditions. In addition, two junior doctors were appointed to the island hospital to support inpatient care. Consultants from other medical sub-specialties made intermittent educational visits (six per year).

The outcome of the study has shown appropriate standards of care can be delivered by this model. Costs of care increased and there were higher admittances and more transfers to the mainland by air ambulance. The level of service provided increased concomitantly, and the health benefits were achieved at costs that compare favourably with other interventions recommended by health technology assessment groups. Costs were similar to a three-consultant service or a triage and transfer model. Details of cost analysis and discussions on options are included in the paper.

In the future, the models chosen by remote and island communities and healthcare providers are therefore likely to be determined by viability, sustainability and public acceptability, rather than cost. The study indicates that consultant supported intermediate care is a viable model.

***Case study: Recruitment and Retention of Health Care Professionals in Remote and Rural Primary Care***<sup>24</sup>

This survey was taken to improve the understanding of the existing remote and rural workforce in Highland Scotland.

The perceived negative aspects of rural working included poor accessibility of facilities, out of hours working, and professional isolation. Conclusions included the need for more active recruitment outside Scotland tailored to staff with a rural background, and reform in local educational institutions. A greater emphasis on rural health issues was needed to prepare rural staff. Other conclusions included the need to have access to professional development, and measures to make life easier for staff such as subsidised child-care.

***Case study : West Highland study of the role of the Rural General Hospital***<sup>25</sup>

In 2004 a report was produced describing the desired role of the rural general hospital in the towns of Fort William and Oban, with respective populations of 9,908 and 8,000 (2001 census). It described a model of acute health care, one that depended on strong collaboration (in health care and in recruitment) between the bodies of clinicians in each hospital so as to increase the combined workforce and the range of medical/surgical

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<sup>24</sup> “The ‘Work and Place’ Survey : Recruitment and Retention of Health Care Professionals in Remote and Rural Primary Care.” HeaRD Health and Rurality Digest. 8 (2004).

<sup>25</sup> West Highland Health Services Solutions Group, Final Report (Oct. 2004).

specialisations provided. In this way, the report considered the catchment population as a whole that would be served by an integrated team of clinicians rather than two separate communities with generalist consultants in each. In an isolated region like the West Highlands, the report said that strong links with the tertiary care centres were important and should be nurtured through managed clinical networks. Rural general hospital (RGH) in this study meant a model of service with 24/7 Acute General Medical and Surgical Services with suitable backup of support services, specialist and investigative facilities. The report recognised that skills in a RGH must extend to first class resuscitation, but that consultants require a range of scheduled services to maintain skills. The report proposed a core range of services for a RGH:

**Table 6 : Core Range of services for a Rural General Hospital**

| Medical              | Surgical                      |
|----------------------|-------------------------------|
| Heart attacks        | Abdominal pain assessment     |
| Stroke               | Appendicitis                  |
| Diabetic coma        | Bowel obstruction             |
| Heart Failure        | Pancreas inflammation         |
| Asthma               | Gall stones and kidney stones |
| Chest infections     | Bowel bleeding                |
| Self poisoning       | Head injury assessment        |
| Epileptic fits       | Terminal cancer care          |
| Liver failure        | Deep skin abscess             |
| Acute gastric bleeds | Acute trauma                  |

A conclusion of the study was that 24/7 acute services in medicine and surgery were indispensable for the population of the West Highlands due to the remoteness of the communities, poor public and private transport, the need to maintain acute services for the tourist population and the needs of the growing elderly population. The suggested solution to provide sustainable 24/7 cover was a shared rota for night shifts (11 pm until 8 am), with the two hospitals providing emergency cross-cover. In this solution, a surgeon based at either hospital would be on call for both with an anaesthetist available at both sites, 24/7. This solution implied advice being given from the on-call surgeon in the event of a medical emergency, which happened at the other site, with the anaesthetist taking a lead role. Should a transfer be required it was preferred that the on-call surgeon travel to the patient rather than the patient having to be transferred.

### 5.2.2 Rural Australia<sup>26</sup>

Australia faces health provision in a vast geographical space with a small highly urbanised population. The fundamental difficulty of providing rural specialist care in Australia is the population distribution: the catchment population is too small and too widely dispersed to expect private practice alone to provide services at reasonable cost. There are 6-7 million Australians living in non-metropolitan areas, with a population density of 2.5 persons per km<sup>2</sup>. At times, some remote communities are cut off from the rest of the world due to the weather. Characteristics of care in rural and remote communities include:

- A dominance of publicly provided care rather than private services.
- Blurring of GP and specialist roles. GPs often have trauma experience.
- Specialists visit remote locations and GPs may provide anaesthetic and after-care services for them. GPs are multi-functional, and cover anaesthetics, obstetrics and surgical work in some cases. It is argued that the provision of first-line surgical services in rural towns will continue to rely on adequately trained GPs.
- There are patient travel and accommodation schemes to offset expenses for rural residents who must travel far to access services. In Queensland for example, the patient travel subsidy scheme pays when the service is not available within a 50 km radius from the nearest public hospital.
- Telemedicine is used in dermatology and psychiatry to allow consultation by distance with a specialist.
- As opposed to Queensland, the service is taken to the patient in South Australia. Breast screening is provided freely in the form of mobile units that travel to most rural sites to perform screening.

As a guideline the following figure is useful to see the professionally recommended populations needed to sustain resident specialist services in Australia. Of particular interest for New Zealand rural communities is the minimum of 10–20 thousand for general surgery and anaesthesia, as described in figure 3 below.<sup>27</sup>

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<sup>26</sup> Pegram RW, Humphreys JS, McLean R. “Meeting the needs of rural and remote Australians for specialist medical care : issues and options.” Journal of the Royal College of Physicians of Edinburgh 35 (2005) : 298-308.

<sup>27</sup> Pegram RW, Humphreys JS, McLean R. Meeting the needs of rural and remote Australians for specialist medical care : issues and options. Journal of the Royal College of Physicians of Edinburgh 35 (2005) : 298-308.

**Figure 3 : Specialist medical colleges defined population catchment requirements for a viable resident service**

| 10,000–20,000   | 20,000–60,000                | 50,000–80,000     | 80,000 or more*     |
|-----------------|------------------------------|-------------------|---------------------|
| General Surgery | Gen. Physician/Cardiology(1) | ENT surgery       | Urology*            |
| Anaesthesia     | Obs. Gyn*                    | Dermatology       | Diag Radiology*     |
|                 | Paed. Medicine*(2)           | Rehab Medicine    | Cardiology          |
|                 | Psychiatry*                  | Neurology         | Intensive care*     |
|                 | Orthopaedic Surgery*         | Thoracic medicine | Nephrology*         |
|                 | Geriatric Medicine           |                   | Medical Oncology*   |
|                 | Pathology                    |                   | Radiation Oncology* |

\*The College considers a minimum of two to three specialists are required in any one location to sustain a resident service.

(1) Cardiology may be provided by a general physician with an interest in cardiology.

(2) Population of 6-8,000 children required.

Source: (AMWAC 200s)

### ***Specialist services to remote areas***

Specialist services are lacking in rural centres and absent in isolated remote communities, as can be seen from figure 4 below. Most metropolitan teaching hospitals have developed dedicated rural catchment areas for outreach and retrieval services and also have placements for specialist training for registrars in rural areas. Most major provincial centres (population over 25 000) have a base hospital with most specialty services covered. Retrieval arrangements exist for the transfer of serious cases after initial stabilisation, and specialists provide outreach services to the smaller towns in their catchment region, as well as providing advice to GPs there.

As in NZ, there are requirements around after hours rosters – 1 in 4 in an ideal situation. When staff numbers are not sufficient to meet this, doctors can end up doing a one in two or one in three roster. In such cases it is underlined that an appropriate system of locum cover would be needed so that staff can have six weeks recreational and two weeks study leave annually. There is a support scheme for rural specialist to support professional development activities but the \$2 million devoted to this is not significant.

Concerning after hours service, the following factors stood out as being important:

1. Consistent and adequate remuneration for after hours and on call service.
2. Structured and subsidised programs for skills development and maintenance.
3. Appropriate facilities and equipment.
4. Community education to inform expectations and demand.
5. Sufficient admin support as rural specialists have more administrative work than their metropolitan counterparts.

Rural specialists seem to have a vital role in clinical governance and decision making at a local level to ensure services are organised well.

**Figure 4 : Australia's rural context and the provision of medical specialist care<sup>28</sup>**

| Rural hierarchy   | Specialist programs                                  | Examples  |
|---|--|---|
| State capital cities & other metropolitan areas (100,000) | Super-specialties                                    |   |
| Regional centres (25,000-99,999)                          | Specialists to varying degrees                       | Regional training places for specialists                          |
| Rural centres (5,000-24,999)                              | Loss of specialists and deskilling of proceduralists | Support scheme for specialists; MSOAP (area of need concept)      |
| Small rural communities (<5,000)                          | Primary care and evacuation of severe trauma         | QLD – Flying surgeon & Obstetrician; MSOAP (area of need concept) |
| Isolated remote communities                               | Primary care and evacuation of severe trauma         | Royal Flying Doctor Service                                       |

**Queensland model**

In Queensland, there is a regional hub framework model. In the category of towns up to 25,000 residents and specialist services are provided by a mix of visiting specialists, outreach services and arrangements for patient transfer to regional centres. Remote areas with less than 5,000 residents rely on limited visiting services: flying doctor service, monthly specialist fly in, flying obstetrician service, as well as telemedicine communication. Some areas do not even have a GP and rely on area nurses, Aboriginal health workers and limited allied health staff. Since 2000 there has been a nationally funded Medical Specialists Outreach Assistance Program to allow new specialist outreach services to communities, which would usually be too small to have access.

A study on remote Northern Queensland<sup>29</sup> concluded that rural locations must be recognised in discharge planning processes to ensure adequate support services are

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<sup>28</sup> Pegram RW, Humphreys JS, McLean R. Meeting the needs of rural and remote Australians for specialist medical care : issues and options. Journal of the Royal College of Physicians of Edinburgh 35 (2005) : 298-308.

available to patients and their carers. Communication and dissemination of information to patients is vital and should include, in particular, information on hospital admission, travel benefits, accommodation options, and care requirements post discharge.

### **Workforce models**

There is increasing recognition that academically targeted training programs are necessary for rural medical staff.

The Royal Australasian College of Surgeons has created a dedicated rural surgical training stream and a rural section within the college but there has not been great success in attracting trainees to it. Rural clinical schools have also been established, requiring 25% of the students of the medical program to undertake 50% of their training rurally. These clinical schools were funded for nine university medical faculties. University departments of rural health have also been established and cover nursing and allied health as well as medicine. They provide an interprofessional focus and have a particular research focus on population health.

Doctors trained overseas have been used in rural areas to compensate for the lack of Australian doctors. With this have come issues around quality of care when these doctors must adapt to the local context, and require mentoring to do so.

It is recognised that a skilled GP workforce is essential, as is an appropriate training system to train GPs with procedural skills in surgery, anaesthetists and obstetrics. GPs must be assured of adequate indemnity and remuneration to encourage them to undertake training in this area.

### **Australian case study : Obstetric services in the Indian Ocean Territories**

A study was undertaken to determine the requirements for a safe, cost-effective and socially acceptable obstetrics service for the Christmas and Cocos Islands situated over 2,500km from Perth Australia. Women living in the Indian Ocean Territories (IOT) are isolated both geographically and administratively, as the IOT Health Service is administered from the Department of Transport and Regional Services in Canberra, ACT, Australia. Since 1998, all pregnant women have been required to leave the islands by 36 weeks gestation and travel to the mainland for birthing, whereas pre-1998 low risk pregnancies were delivered on their island. This is also a common scenario for many remote parts of mainland Australia.

Three models of service delivery were proposed<sup>30</sup>:

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<sup>29</sup> Harris NM, R Thorpe, Dickinson H, et al. "Hospital and after: experience of patients and carers in rural and remote north Queensland, Australia." Rural and Remote Health 4 (online) 2004: 246.

<sup>30</sup> Roach SM, Downes S. Caring for Australia's most remote communities: obstetric services in the Indian Ocean Territories. Rural and Remote Health 7 (online) 2007: 699.

- GP anaesthetists and GP obstetricians be employed on Christmas Island to provide a full obstetric service.
- Low-risk pregnancies and women electing to have a caesarean section, be permitted to deliver on-island. This could utilise a fly-in obstetric team.
- Greater assistance be provided on the mainland, especially with regard to accommodation and child care.

Although women would prefer to give birth on their island for low-risk pregnancies, they were mindful of safety issues, and the most important aspect was having a choice about where the baby would be born.

### ***Telemedicine case study : New South Wales<sup>31</sup>***

Campbelltown Hospital in NSW has a multidisciplinary team providing acute outreach services at a satellite facility. A video link was established in 2003 to allow the members of the outreach team to link to the established journal club. Useful strategies identified in the 4 years this service has been running are included in the article. The remote site had not previously conducted a journal club. An audit on the service identified a link between the video outreach journal club and patient care in over one-third of the papers reviewed (8 of 22). Further research is required to determine actual impact on practice but has shown that use of video conferencing is a means of support for practitioners in isolated rural centres.

### ***InterRAI case study***

The InterRAI programme<sup>32</sup> is an international, collaborative network of researchers in over 20 countries and is committed to improving health care for persons who are elderly, frail, or disabled. The InterRAI goal is to promote evidence-based clinical practice and policy decisions through the collection and interpretation of high quality data about the characteristics and outcomes of persons served across a variety of health and social services settings.

The programme uses an assessment instruments that can be used to improve the quality of care for older people. For example, the Acute Care InterRAI (AC) assessment tool converts input into usable, summarised information that provides the core for informed decision making and further targeted evaluation. The routine use of the AC could assist in triage of acute admissions for referral to a geriatric service, facilitate timely planning for follow-up services post-discharge and assist care planning during the hospital stay. The RAI assessment tools have already been successfully used in Canada with a

<sup>31</sup> SF Wilson, N Collins. *Video outreach journal club*. Rural and Remote Health 5 (online) 2005: 355.

<sup>32</sup> <http://www.interrai.org>

selection of success stories presented at the national RAI forum in 2007.<sup>33</sup> In particular, the Acute care assessment tool has already been used successfully in a Canadian study of integrated health information systems linking home care, nursing homes, acute care and psychiatry services.<sup>34</sup>

It also has positive uses in a rural setting. In Australia, there has been limited use of the interRAI approach, although numerous demonstrations and development projects are underway.<sup>35</sup> Four interRAI assessment tools are currently available in Australia. For example, the interRAI Home Care tool is being used in two community based services in Victoria, and the interRAI Acute Care is being used in several hospitals in Queensland as part of the international development effort. The interRAI PAC is under trial at a service in Brisbane.

Of particular interest for geriatric care in rural communities are four telemedicine projects on geriatric care and comprehensive assessment being led in Brisbane under the auspices of the University of Queensland with application across rural Queensland. In a recent project lead by Professor Len Gray<sup>36</sup>, a comprehensive geriatric assessment instrument is applied at the Mater Rockhampton and Mackay hospitals which is then accessed remotely by a geriatrician for assessment and feedback to the treating doctor. Another project carried out at Toowoomba Base Hospital involves developing and testing techniques for conducting inpatient geriatric screening and assessment in remote and provincial settings which lack geriatric nursing expertise using, for example, full video consultation. Anecdotal reports from nurses and doctors involved in an interim project evaluation suggested acceptance from both staff and patients, and significant gains in time saving and costs, largely resulting from lower travelling time for geriatrician consultations.

### ***Paramedic services in community***

A model called the Rural Expanded Scope of Practice (RESP)<sup>37</sup> is proposed with the following core components of the role:

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<sup>33</sup> <http://www.cihiconferences.ca/cdnrai2007/glance.html>

<sup>34</sup> <http://www.interrai.org/section/view/?fnode=19>

<sup>35</sup> <http://www.interrai-au.org/protocols.htm>

<sup>36</sup> [http://www.uq.edu.au/uqresearchers/unit/gmrg.html?uv\\_category=prg](http://www.uq.edu.au/uqresearchers/unit/gmrg.html?uv_category=prg). Respectively the two projects mentioned are “Application of e-health strategies to support remote geriatric assessment and care planning” and “Distance comprehensive geriatric assessment”.

<sup>37</sup> O’Meara P, Walker J, Pedler D et al. Rural Health Conference. “The rural and regional ambulance paramedic: moving beyond emergency response”. March 2007. <[www.9thnrhc.ruralhealth.org.au/program/docs/papers/omeara\\_D3.pdf](http://www.9thnrhc.ruralhealth.org.au/program/docs/papers/omeara_D3.pdf)>.

**Rural community engagement** encompasses extended paramedic roles in health and emergency service planning and development, and a more active role in primary care such as health education and screening.

**Emergency response** includes the traditional role of responding to incidents or in support of volunteer and first responder services.

**Scope of practice extension** can take place in either out-of-hospital or institutional settings. Central to this extension of practice scope is the ability to competently assess, treat and release patients when appropriate or transport patients to hospital. More use may be made of paramedic knowledge and skills in medical clinics and hospitals. E.g. assistance with airway management, taking of blood pressures and pathology samples, assisting with the management of ‘difficult’ patients, and the stabilisation of patients. There may also be scope for these minor injury roles to be extended beyond basic first aid in occupational settings such as mines and factories, and other emergencies such as fires and major disasters.

**Primary health care** integration would see paramedics taking an active role with other health professionals in the treatment of minor injuries and in the provision of primary health care, including health education and screening. Paramedics can have a positive role in promoting healthy lifestyles and preventing death and injury through public education programmes. The extent to which paramedics are able to become engaged in primary health care activities depends on their education and training, their legal status, and their availability after fulfilling their primary functions in emergency medical care and transportation.

The RESP model is well suited to rural areas with high ambulance ‘down-time’ and a dearth of public health workers.

### ***Mobile Bus - Kimberley West Health Service***

The Mobile Health Team comprises three registered nurses who run mobile clinics in most of the pastoral stations, Aboriginal outstations, ranger stations and roadhouses in the Kimberly West region. The services provided as part of the mobile clinics include preventive “well person” health checks including STI screening and follow up, health promotion, social and emotional support, medicines and treatment as required, immunisations and referral to specialist services. Where possible clinics are run twice a year at each location. The service is well accepted by people living in these remote locations.

The team are also involved in coordinating First Aid and Emergency Medical Kit training for pastoral stations and outstations and often provide First Aid support at campdrafts and rodeos at the pastoral stations they visit.

The Mobile Team work with Wurli- Wurlinjang Aboriginal Health Service and Sunrise Health Service to host a display at the Katherine Show to promote the organisation and the services provided in the region.

The program is funded through recurrent funding from the Commonwealth Department of Health and Aging.

KWHB subcontracts the Ord Valley Aboriginal Health Service (OVAHS) to provide the mobile service to some of the small communities and outstations close to the WA border.

### ***Summary of lessons of international relevance from rural Australia***

- Development of an appropriate taxonomy for rurality.
- Programmes ‘owned’ by aboriginal populations.
- Acknowledgement of the fact that students drawn from rural areas are likely to return there.
- Increasing exposure to rural health in undergraduate medical education – students spending time in rural communities.
- Specialist training programmes.
- Appropriate reward systems to compensate health practitioners for the remote living conditions they and their families face.
- Rural clinical schools for training medical students. For example at James Cook University, 66% of students chose non-metropolitan internships. Rural undergraduate and postgraduate training for nurses and allied health professionals has also developed alongside infrastructure for rural student ‘clubs’ that encourage multidisciplinary learning and foster enthusiasm for rural work.

### **5.2.3 United States**

In rural USA a model to note is the Critical Access Hospital (CAS) model. This model seems to come largely from a funding perspective rather than an operational service-based perspective. In this model, hospitals receive cost-based reimbursements.

Rural Alaskans living in isolated communities depend on Community Health Aides and Community Health Practitioners for primary health care. Dental Health Aides are now included as part of the primary care team and Behavioral Health Aides were to be added.

As in many rural communities, older people are over represented in rural communities. In West Virginia<sup>38</sup>, the Plan of Action on Rural Aging (PARA) helps older people in the community environment by offering transport solutions to medical appointments and hospital visits, and offers caregiver education and mobile health screening through ‘Care-A-Van’. This initiative and ones like it in Michigan or Kansas are often partly supported by local churches and volunteer staff.

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<sup>38</sup> Anderson A. Delivering Rural Health and Social Services : An Environmental Scan. (2006).

Freestanding Emergency departments are growing more common in the United States. These are the same as an ordinary department but are not attached to a hospital and are useful in rural areas where the population is underserved but a new hospital cannot be justified economically<sup>39</sup>.

### **Mobile Bus Service - Southeast Georgia, US**

Southeast Georgia Health System's new Mobile Health Services Vehicle provides health screenings and preventative education to the citizens of Brantley, Camden, Charlton, Glynn, Long, McIntosh, Pierce, and Wayne counties in southeast Georgia.

Staff members take the vehicle to health departments, YWCAs, industries and businesses, malls, health fairs, and community events throughout southeast Georgia, taking quality health care to where it is needed.

The services offered include screening mammograms, bone density screens, pulmonary function tests, blood pressure checks, lab draws, urine drug screens, vaccinations, tuberculosis skin tests, diabetes screens, cholesterol screens, health education, and hearing screens.

### **5.2.4 Canada**

The Canadian Rural Partnership has existed since 1998 and attempts to create greater awareness of rural issues at the federal policy level. As in the majority of rural settings across the world, a major problem in the health sector is the lack of generalist doctors, both in family medicine and surgery. A need for a set of defined competencies is required at a national level to mitigate the tendency of the medical workforce to differentiate, however no such measure has been described<sup>40</sup>.

Another recurrent theme in rural contexts is the need to have economic development in the community to allow for health services to be organised effectively. The Canada-Ontario Municipal Rural Infrastructure Fund (COMRIF) was launched in 2004 and received federal funds to renew infrastructure and create connectivity. In some rural communities in Canada there has been a long history of health care co-operatives which concentrate mostly on care for elderly people in their own homes, and also on primary health care and ambulance services. In addition to these co-ops, there is an integrated rural palliative home care model in Nova Scotia which has access and referral through a regional single point of entry. Each person has a case manager and is cared for by an interdisciplinary team<sup>41</sup>.

In the region of Northern Ontario there is a telemedicine initiative called NORTH which uses technology to deliver medical services to communities scattered over central and

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<sup>39</sup> Ibid

<sup>40</sup> MacLellan K. "Generalism and rural Canada/Le généralisme et le Canada rural" Canadian Journal of Rural Medicine 11: 3 (2006) : 177-178.

<sup>41</sup> Anderson A. Delivering Rural Health and Social Services : An Environmental Scan. (2006).

northern Ontario. It facilitates some 1,400 clinical consultations per month and offers services across 80 specialities. The example given was a stroke incidence with a neurologist 300 miles away providing initial diagnosis through images of the patient viewed on his computer screen. NORTH also facilitates professional development and continuing education.

Telehealth Saskatchewan<sup>42</sup> is a program that uses technology to provide clinical services and professional education for the isolated communities in Saskatchewan. In this system doctors can have two way videoconferencing and can care for patients using patient examination cameras and digital stethoscopes.

Transportation facilitation programs are common in Canada and in the US as described above. Nova Scotia's Dial-A-Ride<sup>43</sup> for example provides a not-for-profit community based transportation service for people to travel from rural communities to access health care.

At a national level, the Canadian Medical Association the privatisation of formerly-publicly delivered health services has been raised as a possible way to allow rural communities to own and operate facilities that are currently not provided due to the centralisation of services.<sup>44</sup>

Lastly, in a study published in 2002 which investigated the link between the location of medical training and the number of graduates practising in a rural location, it was found that the effect of training in a specialised rural program was unlikely to be neutral.<sup>45</sup> Significant associations were found between graduates in a rural practice and the family practice residency programs offered by the Memorial University of Newfoundland and the Université Laval. These associations reinforce the benefit of trying to attract medical students into rural programs in order to meet the demand for rural graduates.

### 5.3 Case studies from New Zealand

We identified a number of areas in New Zealand where there is possible relevance to the West Coast.

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<sup>42</sup> Ibid

<sup>43</sup> Ibid

<sup>44</sup> Larsen Soles TM. "C'est l'été et la vie n'est pas facile." *Canadian Journal of Rural Medicine*: 10: 4 (2005) : 221-222.

<sup>45</sup> Hutten-Czapski P, Dianne Thurber A. "Who makes Canada's rural doctors?". *Canadian Journal of Rural Medicine*. 7: 2 (2002) : 95-100

### 5.3.1 Kaitaia Hospital (Northland DHB)<sup>46</sup>

#### **Context**

Kaitaia Hospital is New Zealand's northernmost hospital and sits within Northland District Health Board. It serves approximately 21,000 people from a 26 bed site, which is currently undergoing an \$11.9 million redevelopment.<sup>47</sup>

The redevelopment includes a new occupational therapy department, emergency department and after-hours facility. The maternity unit, day surgery unit and recovery area, general ward, working areas for nurses have been improved. GP and outpatient consulting rooms are included and radiology has been relocated.<sup>48</sup>

#### **Issues and change process**

A general Surgeon undertook caesarean sections, however, changing practices indicated this was not sustainable or a safe model of care for the future.

An independent review was undertaken to determine future direction for the hospital service.

#### **Service models used**

MOSS are used at Kaitaia Hospital as part of a broader model of care. There is one MOSS trained in anaesthetics who works with visiting surgeons when on site. A second MOSS with anaesthetic capability is due to start before the end of 2007. These doctors have at least four years postgraduate experience but are not specialists as such. They lead a 24/7 service at Kaitaia, with support from surgeons from Whangarei Hospital who are providing an increasing range of surgery. The surgeons may stay on for two days, performing surgeries on one day and outpatient services the next day.

The MOSS can be supported by local GPs, many of whom started as a MOSS at the hospital, and can help provide cover when the MOSS are on leave or when there are staff shortages.

Most services, including emergency situations, are managed locally. Acute cases remain in Kaitaia, if patients are able to wait until visiting specialists arrive. Intubation is available on site if patients cannot be flown out, although this is rare. At risk pregnant women are generally flown out, and some patients also have to leave for diagnostic services.

The service works well because it was developed as part of an overarching model of care for Northland DHB, rather than a separate service or entity that was tacked on.

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<sup>46</sup> Ministry of Health website and an interview with Sue Wyeth – Manager Kaitaia Hospital, 26 October 2007.

<sup>47</sup> <http://www.northlanddhb.org.nz/hospitals/kaitaia/> Accessed 26 October 2007.

<sup>48</sup> Ibid

### 5.3.2 Wairarapa DHB

Wairarapa District Health Board has a population of 39,000. Wairarapa Hospital is a teaching hospital with links to the Wellington School of Medicine, the University of Otago Faculty of Medical and Health Sciences, and Bachelor of Nursing programmes through the UCOL campuses at Palmerston North and Masterton.

Wairarapa Hospital provides 24-hour acute/emergency services covering medical, surgical, obstetric, paediatric, assessment and rehabilitation for young and older adults, high dependency care and mental health. Wellington Hospital (1.5 hours away) provides tertiary services, both on and off-site. The hospital also works closely with neighbouring hospitals in Palmerston North and Hutt Valley. In addition, Selena Sutherland Private Hospital is on-site, giving a range of choices for patients and staff.

Selena Sutherland Hospital was established in 1996 and is the only private surgical hospital in the Wairarapa. When the new Wairarapa Hospital was completed in 2006, Selina Sutherland remained an integral of the design, and moved to a new, purpose built wing at the same time.

The hospital is managed by a Charitable Trust and headed by a Board of Directors. Local surgeons and anaesthetists as well as visiting specialists provide a range of services. Currently these include services in orthopaedics, general surgery, gynaecology and endoscopy, with visiting services provided in dermatology, urology and ophthalmology.

Selina Sutherland also holds the major Accident Compensation Corporation (ACC) contract for the Wairarapa. Facilities include three consultation suites, and six private en-suite rooms for patients requiring day or longer stay procedures. There is access to Wairarapa Hospital's high dependency unit, radiology (including CT) and laboratory services.

### 5.3.3 Chatham Islands<sup>49</sup>

#### **Context**

The Chatham Islands are situated 467 nautical miles east of mainland New Zealand but are separated by more than 700 km of sea from any other inhabited land. The Chatham Islands form one of New Zealand's smaller counties both in area and population and are comprised of two main islands - Chatham Island and Pitt Island.

The population is 740 with 40% of Māori descent and 60% of predominantly European descent.

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<sup>49</sup> <http://www.hawkesbaydhb.govt.nz/>

### ***Service models used***

A medical centre with a four bed hospital facility is situated at Waitangi. It is staffed by a doctor, nurses and local staff. Full public health care is carried out with urgent cases flown to Christchurch or Wellington. There is a St John Ambulance in operation with trained volunteers on duty 24 hours a day.

#### **5.3.4 Stewart Island<sup>50</sup>**

Stewart Island is situated 26 miles from the South Island with a population of approximately 390 permanent residents and 40,000 visitors over the summer period. Most residents live in a concentrated area around the village of Oban.

Transport is restricted to ferry or small plane services which have fixed operating hours between 8 am and 5 pm only. Emergency ambulance services are run from Invercargill via a St John service. A four wheel drive ambulance is used for transport in the residential area.

A 24/7 general primary care health service is provided. This service is led by nurses employed through the Southland DHB. Some services include: A&E care, telephone triage and advice, chronic disease management, well child care, and antenatal/postnatal care. Tertiary level care at intensive care level is required in some cases when weather prevents evacuation. The clinic has sufficient equipment for this and several beds for this purpose.

Weather is the most important factor impacting on health care on the island and is weighed up against the risk of transferring a patient according to the gravity of their state.

The island has never had a resident doctor but it depends on support from a GP who visits and supports by telephone.

#### **5.3.5 Hauora Taranaki PHO Mobile Health Bus**

Health services reach rural and isolated communities with a Mobile Health Bus service accessible to all people regardless of PHO affiliation 29 July 2005 by Hauora Taranaki PHO.

The mobile health bus services centres on chronic disease management, health assessment, lifestyle intervention programmes, alongside other nurse led clinical services throughout Taranaki.

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<sup>50</sup> Dillon, D. "Nursing on Stewart Island." NZFP 33.3 (June 2006).

The key target areas are those patients at risk of or suffering from any disease that requires lifestyle modification and/or intervention. The service is accessible to all people regardless of PHO affiliation and is provided free of charge, although gold coin donations are welcomed.

The mobile bus service works alongside GP and Māori Health Providers within the Tui Ora network to enhance and support health services at a local level. The bus is available to hire for opportunities such as Health Promotion Activities, as an Additional Clinic Space, to Provide Outreach Services or providing clinics away from usual practice locations.

### **5.3.6 Mobile pharmacy services from Opotiki**

There is a rural pharmacy service provided by Kerry Nott Pharmacy in Opotiki. It provides pharmaceutical services to the rural East cape and has the following characteristics:

- Imprest – regular review of stock lists as agreed. Regular expiry checks.
- Medicine Use Reviews (MUR) – trained pharmacists undertake MURs for patients identified with local doctor or nurse. MUR undertaken in patients home. Monitoring of medications e.g. clozapine, thyroxine, warfarin, digoxin etc.
- Diabetes Blood Glucose Meters servicing and downloading of results to send to GPs.
- Drug Information – updates to GPs and rural nurses.
- Administration staff – update on prescription charges and other relevant information.
- Public Education – Kaumatua, schools, working with diabetes and respiratory nurse educators.
- Medicine Depots – Prescriptions filled and medicines sent by courier or other agreed means to depots. Depots checked regularly for collection and delivery where necessary.
- Medication Cards for patients.
- Support for nurses with pharmacology papers.
- Discharge Planning – discuss options with hospital to ensure continuity of medication supply.

## **5.4 Summary lessons from the literature**

### **5.4.1 What the literature tells us about models of care**

In the majority of the models of care reviewed, the outstanding feature of the models is the desire to place heavier responsibility for health care on the individual, the community and on the primary sector. Supported self care or self-management with assistance when required is the centre of many models, with hospital resources being devoted to those in greatest need. The philosophy behind these models at a macro-level

lies in prevention at a population level. Further, the desire to identify groups who may become very high users of services is common. The ideological belief behind modern models of care is that investing in the primary healthcare sector will reduce costs later on in the continuum of care, i.e. at hospital level.

Another feature is seamless or highly integrated pathways of care with continuity of care for patients moving through the health system. Closely linked to this is the feature that stands out in all models of care: highly integrated services from primary to secondary care through integrated teams of health-care professionals. Nurse-led services, case management and good communication networks between GPs, rehabilitation teams, nurses and specialists are all aspects of a desirable model of care. Finally, robust clinical information systems are identified as an important feature of good models of care.

#### **5.4.2 What the literature tells us about rural health**

Common elements to all rural settings include:

- A necessary generalist nature of practice.
- Critical importance of emergency care.
- Appropriate use of e-health (internet-based, telemedicine).
- Need for clearly defined interfaces and communication between primary and secondary levels of care.

Rural services encounter a complex set of problems that include and go beyond those of the urban population. For example, the increasing prevalence of chronic disease or an increasing elderly population are issues experienced by both rural and urban populations, but these are compounded in rural settings by difficult geographical access, high vulnerability to harsh climates, and a lower access to a range of specialised services. The concept that better health outcomes are achieved when procedures are carried out in greater quantities may not be true for simple procedures, but does hold true for complex procedures according to the Department of Health in the U.K.<sup>51</sup>

Specific problems to rural communities include the migration of younger and economically active people out of the community and a loss of services like banks, schools and pharmacies. The relative contribution of health services to the economy and social capital of remote communities is greater than in big cities, therefore changes in services impact more significantly there.

The difficulty in recruiting health professionals, GPs and nurses, with a sufficiently wide range of skills to serve a rural population comes out repeatedly in the literature. Health

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<sup>51</sup> Godden DJ. “Providing health services to rural and remote communities.” Journal of the Royal College of Physicians of Edinburgh. 2005 (Editorial) 35: 294-295.

professionals require a greater level of professional development and social-network facilities than their urban colleagues to compensate the perceived drawbacks of working in an isolated environment: poor facilities, professional isolation and strenuous hours. The association between rural background/training and rural working also comes out repeatedly. The belief is that medical students who train or complete internships in a rural setting will be more likely to work in such a setting on a long term basis. On this basis, the literature suggests it is worthwhile for national colleges of nurses and doctors to develop targeted training programs for rural medical staff in which students are placed in the rural setting for a part of their course.

Rural services, due to the low population numbers, face sustainability issues - both clinical sustainability and financial sustainability. In general, four key areas underpin the viability of rural services. These include professional viability, business viability, organisational viability, and family/social viability. Rural communities are as diverse as urban ones and do not have a single homogenous population. There is therefore no one single encompassing strategy to apply but rather a series of sub-strategies.

Absolute distance is not the most important factor in rural settings. For example, an outer Hebridean island with weather vagaries and difficulty in landing planes illustrates the wider-reaching notion of 'remote'.

Worldwide there is a general tendency towards poorer health in rural settings however this differs according to country-specific factors. In rural Scotland, for example, people are very satisfied with their health care whereas rural communities in Australia have worse access to health services due to, in part, issues involving indigenous people. In general, residents of rural settings placed a high importance on GP access and emergency treatment being close. High expectations exist regarding GP out of hours service and the literature suggests a possible need for greater public awareness of the changing nature of health services in rural areas.

### **5.4.3 What the case studies tell us**

Many of the innovations have come from 'burning platforms' in local communities. The models of care that are developed can be uplifted and varied to fit the local environment but common approaches are:

- Greater scope of practice for health care providers with multidisciplinary teams working together in a hub and spoke set up.
- Mobile services to take services to the patient rather than all patients coming to services.
- Support for isolated communities and service providers through technology based initiatives.
- Nationally coordinated strategies to train health professionals with skills specific to the rural setting.

The West Coast DHB has developed plans for services that are in line with those identified in the literature.

## 6 Evaluation framework

It is crucial to establish a clear evaluation framework when deciding which models of care would be most appropriate for West Coast DHB. We begin by considering DHB expressions of priority, the basic tools for analysis available to us and evaluation frameworks used elsewhere, before proposing an evaluation framework to use in this instance.

### 6.1 Appropriate criteria for evaluation

In the health sector generally, our standard tools for analysis are based around the interplay between efficiency and equity. Concepts of equity are debated at length, and can mean equity of outcome or equity of access. In the West Coast situation, this means that the services should be provided within the most efficient configuration, within the most appropriate model of care, within an appropriate level of funding, and without over funding (as over funding creates inequity for others). The over arching outcome of equity in health translates into better services for patients and improved health outcomes.

There are themes that are not looked at so closely but which interact powerfully with service development. Some of those themes are as follows:

- **Dynamic efficiency:** in health service management, the future configuration of a service is as important as how it operates now. If the service is improving, with expected improved health outcomes, productivity and cost benefits, then that suggests that the institutional incentives are appropriately aligned.
- **Path dependency:** the current configuration of health services in the West Coast is not what would be expected if there were a blank sheet of paper. We are dependant on the implicit skills of the current workforce, the historic configuration of services, the history of relationships between parties, and the networks, capabilities and competences that organisations exhibit. The steps that were taken in the past will to some extent determine the actions to be taken now and in the future.
- **Acceptability:** The political economy often has led to choices in the NZ health sector that would not be regarded as appropriate from a health policy and health service perspective but are there because of acceptability to the public. Coasters are regarded as pragmatic about what can be achieved with issues of distance, inclement weather and small populations. However, they are also aware that risks to communities need to be expressed clearly and transparently.
- **Clinical governance:** Lastly, in the health sector over the years, there is a dual theme of clinical governance and evidenced based practice. Good practice is well described and hospitals find themselves in a chase to retain adequate rosters and adequate facilities to retain accreditation. DHBs carry governance for monies used – but they also carry stewardship for clinical practice.

## 6.2 Evaluation alternatives

We list several approaches to evaluation. The DHB has expressed how it would think about a practical application of these themes.

### ***Key attributes expressed in RFP***

The RFP identified a set of key attributes that have been identified as being important in the models of service delivery that are being discovered through this process:

- “Must promote equitable access to health services”.
- Must be both clinically and financially sustainable and must be reasonably likely to remain so, despite current workforce trends within the health sector and despite the unique challenges of population sparsity and isolation faced by the West Coast DHB.
- Must be affordable and achievable (in terms of likely implementation effort).
- Will provide evidence based best practice.
- Must provide a safe environment and a quality of service provision that is at least as good as that available to populations located elsewhere in New Zealand.
- Will contribute to the reduction of inequalities in health outcomes between different groups within the New Zealand population.”

In our proposal we suggested the following additions:

- High level of collaboration with neighbouring DHBs to remedy the lack of sufficient specialists to meet demand.
- Appropriate care pathways.
- Patient centric with a self-management focus.
- Allows exchange of knowledge.
- Recognition of demographics and health needs priorities.
- Learning from experience.
- Resource implications (facilities, technologies and workforce).

### ***DHB strategic goals***

The DHB strategic goals provide a set of outcomes which could also be redescribed as criteria. The West Coast DHB Vision is “to be the New Zealand centre of excellence for rural health services”. The long term goals to support this vision are:

**Outcome 1** - West Coasters will be as healthy as possible and will be physically active, non-smokers, abstain from recreational drugs and gambling, eat a balanced diet, and will consume alcohol only in moderation.

**Outcome 2** - Māori will enjoy the same high health status as non- Māori.

**Outcome 3** - West Coasters will have affordable and equitable access to services.

**Outcome 4** - West Coasters will have at least equal access to specialised medical and surgical services as other New Zealanders with similar need.

**Outcome 5** - There will be a meaningful commitment to the idea ‘Children are the future’.

**Outcome 6** - Collaborate to ensure the physical, social and cultural environments West Coasters live in promote health, inclusion and participation in society and maximise independence of people living with disabilities.

**Outcome 7** - As West Coasters become older they will have access services that will help them remain in their own homes for as long as possible, and then to continue to live in or near their communities.

#### ***HFA decision framework***

The Health Funding Authority (HFA) was the public body charged with making decisions about what health and disability services to fund from the public purse. It was wound up in 2001 but left a legacy of analysis and active prioritisation. The HFA built on the work done by its predecessor, the Transitional Health Authority, to design and implement a principle-based decision making framework in the period 1998 to 2000. This framework included 5 principles<sup>52</sup>:

| <b>Principle</b> | <b>Description</b>   |
|------------------|--|
| Effectiveness    | The extent to which health and disability services produce desired outcomes, such as reductions in pain, the maintenance of current activities, the promotion of independence and the prevention of premature death. Services are given higher priority if they produce more of the desired outcomes (where the level of benefit takes into account both the benefit per person and also the number of people benefiting). |
| Cost             | The total economic costs of services, including flow-on effects, are considered together with the effectiveness of those services, to ensure available funding is used to achieve the maximum possible gain in health and independence status.   |

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<sup>52</sup> Overview of the Health Funding Authority’s Prioritisation Decision Making Framework, 30 June 2000, HFA.

|               |  |
|---------------|--|
| Equity        | Equity of outcome was chosen as the main meaning of 'equity' as an operational principle. Equity of outcome is about reducing remediable disparities in health status, for groups with lower levels of health. |
| Māori Health  | In making funding decisions, the HFA acknowledges the Treaty of Waitangi, and encourages Māori participation in providing and using services.  |
| Acceptability | The expectations and values of New Zealanders are taken into account in the HFA's decision making process.   |

### **PHARMAC decision framework**

PHARMAC, the Pharmaceutical Management Agency, manages the Pharmaceutical Schedule, the list of community pharmaceuticals that are funded by the Government. It also negotiates national contracts for some medicines used by District Health Board (DHB) hospitals, and related products. Its primary objective is:

*'to secure for eligible people in need of pharmaceuticals, the best health outcomes that are reasonably achievable from pharmaceutical treatment and from within the funding provided.'*

Its cost-utility analysis inherently encapsulates criteria such as equity, acceptability, and need. More specifically, its decision criteria are<sup>53</sup>:

1. The health needs of all eligible people within New Zealand;
2. The particular needs of Māori and Pacific peoples;
3. The availability and suitability of existing medicines, therapeutic medical devices and related products and related things;
4. The clinical benefits and risks of pharmaceuticals;

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<sup>53</sup> Prescription for Pharmacoeconomical Analysis. Methods for cost-utility analysis. May 2007. PHARMAC.

5. The cost-effectiveness of meeting health needs by funding pharmaceuticals rather than by using other publicly funded health and disability support services;
6. The budgetary impact (in terms of the pharmaceutical budget and the Government's overall health budget) of any changes to the Pharmaceutical Schedule;
7. The direct cost to health service users;
8. The Government's priorities for health funding, as set out in any objectives notified by the Crown to PHARMAC, or in PHARMAC's Funding Agreement, or elsewhere; and
9. Any other criteria that PHARMAC thinks are relevant. PHARMAC will carry out the necessary consultation whenever it intends to take any 'other criteria' into account.

### 6.3 Proposed criteria for evaluation

We have evaluated the criteria and developed a set of criteria that reflect the relevant themes and take into account some of the issues raised in the interviews. For instance, sustainability has been identified as an important issue and one that is expressed fully in the table below.

The table below summarises key criteria against which a model could be measured to judge its ability to provide service consistent with the DHB's strategic goals.

| Evaluation Criteria      |   |
|--------------------------|---|
| Criterion                | Description   |
| Clinical Sustainability  | The model allows adequate patient volumes for clinicians to maintain their experience and expertise. It ensures that physical space is allocated efficiently between services. Clinical services are delivered to a high standard of quality.   |
| Financial Sustainability | The model ensures current PBFF levels are not exceeded. It allows the deficit to be reduced over the next 20 years according to MOH objectives <sup>54</sup> . The model incentivises the provision of value for money services and facilitates future contracting arrangements. It ensures overall IDF are |

<sup>54</sup> This criterion assumes the PBFF formula will continue as per current Ministry of Health policy.

|                          |   |
|--------------------------|---|
|                          | acceptable to partner DHBs and enables investment in crucial equipment and transport.   |
| Workforce Sustainability | <p>The model efficiently allocates existing staff to geographical areas of need, meets ongoing needs for staff development and works with training institutions to ensure adequate future supply.</p> <p>The model will maximise quality of care for patients by ensuring staff evolve professionally, have both confidence in and satisfaction with their work environment, and work within a clear governance structure.</p> <p>The model of care supports staff recruitment.</p> |
| Access                   | The model will ensure an acceptable level of access to services and will increase clarity of choice concerning the location of treatment. The model will assist DHB collaboration which will lead to greater equitable access to regional services.   |
| Maximise health outcomes | The model will improve health outcomes through timely and sufficiently specialised care.  |
| Efficiency               | The model will increase productive and allocative efficiency, by reducing costs through improving service integration and by using facilities to their maximum or better capacity. It will encourage dynamic efficiency by being flexible enough to respond to changes in technology or service requirements in the future.   |

We consider that the criteria of quality underpins and results from all of the above criteria. A model that is sustainable is one in which medical staff see a sufficient amount of patients and deliver, as a consequence, care backed by experience and hindsight, as well as by an understanding of the population specificity. It is a model in which scarce financial resources are efficiently allocated so that core services can be provided in the most appropriate location, with medical staff that have confidence in their work and are sufficiently supported in multidisciplinary teams. The overall level of care in a model that satisfies the criteria identified above necessarily provides a quality level of service, or at least one of higher quality that what could be expected if the status quo was left to continue.

Similarly, efficiency, although it is stated as an explicit criterion, drives the rest of the criteria. It is reasonable to expect that a model of care that meets the first five criteria will be a model that is both efficient and that delivers quality of care.

The criterion of ‘strategic fit’ was proposed in our discussions. We agree that it is important that the model is not incongruous with current health strategies formulated at a national level, but feel that this is a statement rather than an explicit criterion.

These criteria, if met, build a system of service delivery that benefits patients, staff, and the State. They will lead to both better and more equitable health outcomes.

## 6.4 Additional patient oriented analysis

Our view is that the criteria set out above will assist with the identification of appropriate models but that there is a particular issue around emergency care that is central to the existence of the base hospital.

Alongside these criteria, we feel it is important to explicitly evaluate the future model of care from a patient-centric view. In a region like the West Coast, patient expectations seem to be significantly influenced by the fear of poor accessibility to services, particularly in a situation of major trauma, emergency or pregnancy. The following three situations stand out as being important to patients:

1. Confidence in emergency services (trauma response): Ambulance services are safe, and offer fastest possible response time. ED services provide acceptable triage level times until transfer. In particular, three emergency situations will be treated so as to assuage patient fears:
  - Medical emergency
  - Accident (e.g. car accidents)
  - Pregnancy/obstetric emergency
2. Predictability of choice of location: Reliable networks with other geographically close DHBs allow patients to proactively plan secondary and tertiary treatments.
3. Ability to plan foreseeable treatment or interventions (obstetrics, elective surgery): Appointments with specialists can be made within acceptable waiting times in acceptably close locations. Quality of care remains at appropriate levels for a rural situation.

We amplify these patient oriented issues in section 8 by developing case studies covering three situations that might arise on the West Coast.

## 7 Options for models of care – current and future

In this section, we set out the current model of care and the options for development of models of care. We base our views on models of care from the literature and on the issues raised in interviews.

### 7.1 Establishing the trend in current service provision

The base for comparison is the current model of care. However, the current model of care is not static – there are already some clear directions. There are some projects and general directions that we have identified from the discovery phase that the DHB is either already undertaking or has recognised and does not yet have a full implementation plan. We assume that these initiatives will continue under all scenarios. The initiatives that we have identified are as follows:

- Better IT support and greater connectivity.
- Rural nursing – increased scope of care and use of Nurse Practitioners.
- DHB owned and operated general practice (potential that these could be PHO owned and operated at some time in the future).
- Integrated community, primary and secondary health facilities in the smaller rural centres.
- West Coast Improving Services for Elderly – Plan for Older People’s Health and Disability Support Services 2006 -2016 Implementation of the West Coast Improving Services for the Elderly (WISE) plan.
- Primary Health Care Plan 2006-2009.
- Education and training opportunities on the West Coast.
- Improving patient flow and patient journeys across the continuum of care, focussing on chronic disease management.
- DHB wide strategies to support the breakdown of silos between primary care and public health, including cancer control, Health Eating Healthy Action (HEHA) Māori Health and Child & Youth plans.
- Strengthened management of DHB relationships for IDFs.
- Workforce initiatives including:
  - Partnerships with training agencies e.g. Otago Medical School, Christchurch Polytechnic Institute of Technology and Tai Poutini Polytech
  - Establishment of a training centre

- Strengthen roles including allied health and Māori
- New roles in mental health and health of older people
- Development of an IT infrastructure that is integrated across primary and secondary including iSOFT patient management and clinical information systems and the PACS radiology system
- Investigation of potential networking initiatives with Nelson Marlborough.

Given the population characteristics, significant areas to focus on with more energy are developments relating to prevention of disease including HEHA and smoking cessation. Development of chronic conditions management programmes and implementation of the model of care that has been developed for the aged care sector will support an improved quality of life for the people on the Coast.

## 7.2 Current service model

The current service model is changing as the initiatives indicated above are implemented, however the overall service framework includes both aspects of enhanced primary care delivery as well as retention of 24 x 7 emergency coverage. Aspects of the current service are as follows:

- One Māori provider based in Hokitika, working independently
- One PHO which has a positive relationship with the DHB
- A mix of private and DHB owned and operated general practices
- Residential care services that provide rest home, hospital and dementia level care
- Community services delivered by the DHB with strong nursing development models including:
  - Diabetes, cardiac and Respiratory Nurse Specialists
  - District Nursing
  - Immunisation coordinator
  - Oncology and rehabilitation services
  - Public health nursing
  - Rural & Neighbourhood Nurse Specialist roles
  - School dental
  - Sexual health and cervical screening
  - Vision & hearing tester

- Three independent midwives are based on the Coast with a high percentage of home births compared with other DHBs.
- Development of integrated community/primary/secondary health facility model in Buller and Reefton.
- Inpatient beds at Buller and Reefton Hospitals.
- Care for the elderly – long stay beds at Buller, Grey and Reefton Hospitals
- Outpatient medical and surgical clinics provided at Westport, Reefton, Greymouth, and Hokitika, with surgical outpatient clinics also provided at Whataroa.
- Secondary care service centre at Grey Base Hospital includes:
  - Accident and emergency services
  - General medical services lead by three physicians
  - AT&R and dementia service
  - Visiting medical sub-speciality physicians
  - Surgical services are provided at Grey Hospital by three general surgeons, two orthopaedic surgeons, two gynaecologists, and three anaesthetists, when fully staffed
  - Mental Health services supported by three full-time psychiatrists, including inpatients and community mental health services
  - Public Health services are provided through Canterbury DHB with some staff based on the West Coast.

### 7.3 Additional models to support options

The models of care in development by the West Coast DHB are in line with those we have seen for other rural and remote areas within New Zealand and in other parts of the world. These include: training of staff locally, increasing the scope of care provided by health practitioners, integrating services from a single facility, development of service delivery around the continuum of care for older people and chronic disease management.

Specific models identified in Section 5 that warrant consideration to support the options identified below include:

1. Lead clinical role – See 5.3.1 Rural and Remote Scotland, case study: A model for remote island communities, where local staff are supported by a remote clinical leader, who visits on a regular basis.
2. 5.3.2 Rural Australia:

- Queensland Model. Working with neighbouring DHBs to ensure support for patients travelling for services including information on admission, travel and accommodation funding and options, care requirements and support post discharge.
  - Obstetric services in the Indian Ocean Territories. Feasibility of a visiting obstetric service, identifying risks and support services required.
  - Telemedicine case study: New South Wales. Outreach journal club support for education.
  - InterRAI case study: Review outcome and opportunities for telemedicine geriatric care and comprehensive assessment.
3. 5.3.3 Paramedic services in the community. Collaboration with St John to consider the Rural Expanded Scope of Practice (RESP) for paramedics.
  4. 5.3.5 Canada
 

Northern Ontario and Telehealth Saskatchewan provide both clinical services and continuing education through the use of telemedicine initiatives.
  5. Mobile Services
    - Mobile services are used in the United States, Australia and in New Zealand. Services delivered generally include public health, screening, education and chronic disease management. There is an opportunity to extend the mobile service currently delivered by the Māori Health provider.
    - 5.4.6 Mobile pharmacy services – outreach pharmacy services beyond the dispensing services provided by a local community pharmacy.
  6. Kaitaia Hospital: West Coast DHB currently uses a MOSS service and this could be further enhanced in line with Kaitaia’s approach. This sort of “step up, step down” model is a useful way to ensure services are provided locally when required, without requiring a large specialised workforce on site which can be unsustainable financially, and services which are better provided regionally are done so in a safe way. However a major difference between Northland and the West Coast is the presence of a larger secondary care hospital and the ability for the DHB to work with service providers to deliver care to the DHB population, rather than those in another distant DHB. For this model to work for the West Coast it would be imperative to have a collaborative relationship with one or more DHBs.
  7. Wairarapa Hospital provides private surgical services through a dedicated wing on site. This initiative should be investigated further if option one or option two are considered.

## 7.4 Options set

From consideration of the current model of care and of the literature on other models of care, we have identified three options and provide a short impact analysis of each as follows:

- enablers, or key aspects of the model
- population impact
- resource needs
- sustainability of service

### 7.4.1 Option One – Enhanced status quo

The first option is the logical extrapolation of current services with proposed enhancements and directions. Current secondary services are retained by strengthening the DHB's relationship with other DHBs and developing opportunities to utilise facilities.

#### Enablers:

- Other DHB support for local staff to deliver secondary services at Grey Base Hospital through provision of continuing education and peer support.
- Rotation of staff between DHBs to provide upskilling opportunities, work experience, and locum cover.
- Back-up options developed for times when one or more medical staff are not available.
- Extended roles for nurses including the introduction of Nurse Practitioners.
- Provision of services to patients from out of region.
- Private service delivery from Grey Base Hospital.

#### Population

- Delivery of general medical, secondary obstetrics and general surgical services on the West Coast.
- Transport to Greymouth required for inpatient services.
- Transport to health centre(s) or Greymouth for outpatients services.
- Increasing primary and community services as funding permits.

#### Resource

- Medical staff to retain a 1: 3 on call roster or introduction of one Nurse Practitioner to the teams.

- Greymouth Base Hospital retained and upgraded/rebuilt to provide efficient facility.
- Patient / family based accommodation at Greymouth to facilitate timely discharge from Grey Base and prevent admissions when only reason is patient has had to travel to Greymouth for procedure that day or the next. E.g. colonoscopy patients.
- Enhanced communication options with service providers in other DHBs to provide support and decrease patient transfers.

### **Sustainability**

- Ongoing difficulty of recruitment and retention.
- If medical MECA moves to a 1:4 on call recommendation the secondary service on the West Coast under this model would not be clinically or financially sustainable.
- Improved primary/ community services will decrease requirement for hospital bed days and flow on affect for staff.
- Access to some services e.g. minor surgical procedures is high on the West Coast compared with other DHB areas because of the availability of staff and resources. Decreasing these services decreases workload and procedure volumes for specialist staff, potentially to a non sustainable level.

### **7.4.2 Option Two - Contract out secondary medical and surgical services to one or more DHBs**

Option Two is about enhancing and integrating a primary care base with a secondary care base, but means sending more patients off the Coast.

#### **Enablers:**

- Establishment of revised and stronger clinical service networks with DHBs e.g. Canterbury, Nelson Marlborough and Otago.
- Quality emergency service provision in the community and at Grey Base Hospital.
- Transport infrastructure including air, road and possibly train.
- Decreased reliance on the hospital facility through enhanced primary and community services, flexi-bed arrangements in rest homes and health centres.
- Competent nursing and support services in primary care and the community through peer support and continuing education.
- Workforce availability to meet acute care stabilisation and management of patients prior to transfer e.g. paramedics and emergency department staff with appropriate skills and competence.

#### **Population**

- Opportunity to put focus into developing services in the community.

- Systems in place to support patient and family to get out when required (transport) and when out of region (accommodation).
- Potential increased patient risk on days where transport not available.
- Education communication to envisage advantages and to support shift in expectations/behaviour.

#### **Resource**

- Decreased employment issues for medical staff.
- Decreased opportunity for health professionals in secondary care on the Coast but increased opportunities within primary and community services.
- Social and economic impact of closing secondary care on the local workforce.
- Decreased facility costs.
- Increased inter district flows.
- Short term stay beds for acute stabilisation of patients prior to transfer.
- Training opportunities for workforce required to provide the services delivered on the West Coast, e.g. paramedics.

#### **Sustainability**

- Improved as not trying to sustain a full register however this may mean capacity building in primary care to ensure the transition is managed.

### **7.4.3 Option Three - Develop relationship with one or more DHBs to provide secondary services on site**

This would require specialists to travel to the West Coast for a minimum of one day and preferably two days per week or as required.

#### **Enablers**

- Contractual arrangement with other DHB(s).
- Potential joint appointments of medical staff.
- Transport enhanced transport systems along and out of Coast.
- Employment of MOSS, Nurse Practitioners and specialised nurses with anaesthetic capability.

#### **Population**

- Current medical and surgical services retained on a visiting service basis only.
- Acute service supported from other DHBs known to West Coast DHB employees.

- Some acute services provided on the Coast when visiting staff available and wards are open.

**Resources**

- Consideration of two sites for service delivery – Greymouth and Westport.
- Enhanced transport services.
- Appropriate trained staff on site.

**Sustainability**

- Sustainability likely to revolve around contractual arrangements and “buy-in” of all stakeholders.

## 8 Analysis of options

In this section we review the relative merits of the three options. We provide:

- a further description of the options;
- some summary comments;
- qualitative comment against the evaluation criteria; and
- a diagrammatic representation of our views.

Each of the three options is considered against the criteria outlined in section 6.1.3 above. At this point, the evaluation is primarily a qualitative analysis. We provide comment as to how far the option would facilitate success against each of the criteria posed above, in comparison with the status quo. The commentary reflects the information gathered from the reference documentation reviewed and informed by the views of stakeholders as presented in interviews.

In considering our assessment, we effectively ranked each option against each other in terms of how far it would help to promote delivery or success against those criteria. By these means, we have introduced a rudimentary scoring mechanism (as represented in the diagrams within this section to help inform assessment of the relative strengths and weaknesses of each option, with each criteria being implicitly given equal stature).

Weighting values could have been attributed to the six criteria but it appeared that this would present considerable difficulty in finding consensus on which criteria are the most important, with the objectivity of the scoring system being put at risk. Although points are awarded here, the exercise is **not** quantitative and it must be emphasised that we are taking a broader view beyond the points awarded when evaluating an option.

At the end of the evaluation we are left with a view as to which option or mix of options is the most appropriate for the West Coast to pursue with the Ministry of Health, the community, and other external stakeholders. The view presented is that of LECG.

It is also important to address what we have not done in our appraisal method.

We emphasise that our approach is comparative and qualitative, rather than being quantitative. In health sector prioritisation decisions, cost-utility analysis is commonly used to appraise options, whereby the impact of interventions is measured according to impact on health outcomes and converted to a standard measure (the QALY or quality adjusted life year). However in the scope of this project we have taken a high level appraisal of the options with indications of the specific cost analysis that would be required for a complete understanding of the most sustainable option for the Coast.

## 8.1 Option 1 : Enhanced status quo

### Description of the option

We have not included the status quo in these options as this is recognised as not viable for the West Coast DHB going forward with the current workforce and financial issues. This enhanced status quo option is the logical extrapolation of current services with proposed enhancements and directions. Current secondary services would be retained by strengthening the West Coast DHB relationship with other DHBs and developing opportunities to utilise the facilities. This would occur through delivery of services to patients from other DHBs and consideration of private service options. The current proposals to train health professionals on the Coast will support the workforce for the future, along side the arrangements with other South Island DHBs.

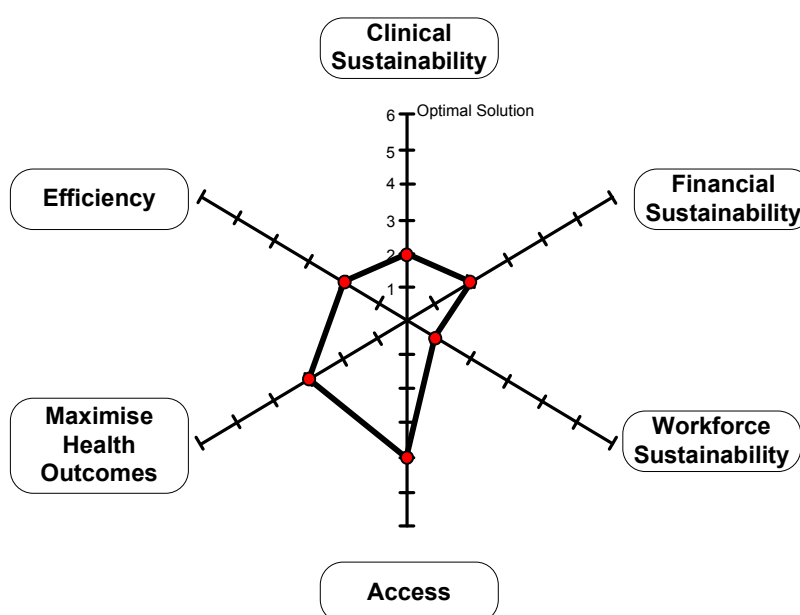
### Summary comment

While this option will support the delivery of services on the Coast it is unlikely to be sustainable in the long term as the ability to employ a clinical workforce continues to get more difficult in New Zealand. The potential move to a one in four roster for medical staff means that the low population base on the West Coast will impact on clinical sustainability.

Financially this option would be sustainable only if the Ministry of Health continues to fund this DHB at a higher rate than PBFF supports.

| Option 1: Enhanced status quo                            |   |   |
|--|---|---|
| Criteria   | Benefits and/or opportunities   | Weaknesses and/or barriers  |
| <b>Clinical sustainability</b><br><br><b>Score: 2/6</b>  | Health professional staff may have the opportunity to spend time at other DHBs in order to remain credentialed in a particular competency | The volume of work on the West Coast will increase in some services due to the ageing of the population, however it will remain marginal for clinical sustainability<br><br>Short term overseas locums may not be familiar with NZ systems and require clinical supervision   |
| <b>Financial sustainability</b><br><br><b>Score: 2/6</b> | Use of the hospital facility to provide private services and services to patients from other DHBs will improve financial sustainability   | Access by other DHBs may be short term and limited by patient willingness to travel out of district for service delivery<br><br>The need to pay higher rates of pay to attract staff to the West Coast and to maintain an efficient model will remain a challenge financially |
| <b>Workforce sustainability</b>                          | Collaborative arrangements with other DHBs will assist with CE and peer support of staff  | The need to retain a 1:3 on call roster and possibly a 1:4 in the near future will  |

|   |   |  |
|---|---|--|
| <p><b>Score: 1/6</b></p>  | <p>and possibly recruitment</p>   | <p>make recruitment an ongoing challenge</p> <p>Insufficient patient numbers may reduce staff confidence and satisfaction</p>  |
| <p><b>Access</b></p> <p><b>Score: 4/6</b></p>                   | <p>The population on the West Coast will continue to receive the current level of medical and surgical services delivered which are in general higher than other DHB populations in New Zealand</p> | <p>Inequitable access to services across New Zealand is maintained</p> <p>Access may fluctuate when there is a staff shortage</p>  |
| <p><b>Maximise health outcomes</b></p> <p><b>Score: 3/6</b></p> | <p>Secondary health service access can improve health outcomes. Patient perception of improved health outcomes by access to a hospital may be significant</p>                                       | <p>Financial constraints on the development of preventative care, self management and rehabilitation programmes in primary and community will prevent maximising of health outcomes. Possible negative health outcomes when certain services are interrupted through insufficient staff</p>                        |
| <p><b>Efficiency</b></p> <p><b>Score: 2/6</b></p>               | <p>Efficient from a patient perspective in not having to leave the Coast for all secondary services</p>   | <p>Inefficient from a resource perspective in requiring more staff than the workload would dictate</p> <p>Inefficient for other DHBs when required to backfill at short notice for staff or services delivery. Unused space in Grey Base Hospital unless patients from other DHBs come for elective procedure.</p> |



## 8.2 Option 2 : Contract out secondary services

### ***Description of the option***

This option is based on secondary services being provided by one or more DHBs, most from within the South Island. While there is likely to be outreach clinics provided on the West Coast, patients would have to travel for most treatment services. GPs may develop skills in some services that have traditionally been provided in the hospital environment. Greater flexibility would be required in the use of rest home and health centre beds.

There would be a high quality emergency service provided, possibly in more than one site. A highly developed information system would be required to support the health professionals along the Coast with formal linkages developed with medical and other staff in other DHBs.

To minimise the risk of not being able to get off the Coast (predominantly due to adverse weather conditions) there would need to be a review of transport and ambulance services, particularly air ambulance. Options might include the service being held on the West Coast, and the type of fixed wing and/or helicopter would need to be investigated fully.

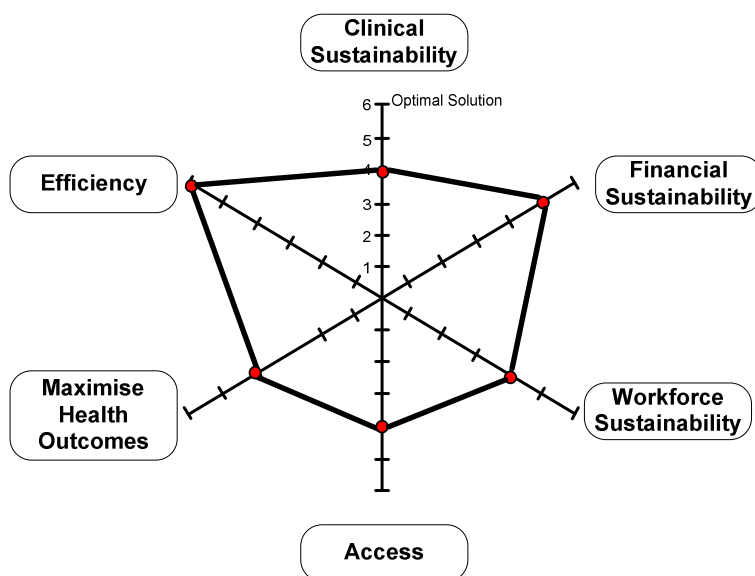
Risks associated with moving services off the Coast include the potential that it will make it harder to get GPs to come to the West Coast as they will not feel supported. Some of the population, particularly those in the older age group may leave if they believe hospital services are critical to their well being.

### ***Summary comment***

With appropriate arrangements in place with other DHBs and with a transport system that copes with the weather conditions, this option provides a safe and quality health service to the people of the West Coast. However, due to the requirement of having to leave the Coast for treatment, there will be a possible cost to the population in terms of social implications for the family of the patient. Those implications would need to be dealt with by implementation of better step down options available in several sites along the West Coast.

However, there will be a cost to the population is having to be away from the Coast and the not inconsiderable social implications for family. Those implications would need to be dealt with by implementation of better step down options and options that are available in several sites along the West Coast.

| Option 2: Contracting out all secondary medical and surgical services to one or more DHBs |  |  |
|---|--|--|
| Criteria  | Benefits and/or opportunities  | Weaknesses and/or barriers   |
| <b>Clinical sustainability</b><br><br><b>Score:4/6</b>                                    | The range of work provided on the West Coast will be in line with clinical sustainability  | Less opportunity for close primary and secondary relationship and risk of GPs feeling they are not supported and need to take on greater responsibility  |
| <b>Financial sustainability</b><br><br><b>Score:5/6</b>                                   | Cost of contracting for service delivery off the West Coast is lower than the cost of delivering in the current model.   | Risk of other DHBs increasing costs of services delivered<br><br>Increased travel and accommodation costs  |
| <b>Workforce sustainability</b><br><br><b>Score: 4/6</b>                                  | Smaller number of services to retain a workforce to deliver. Effort able to be concentrated on training and education rather than recruitment.                       | Risk of difficulty in recruiting GPs if there is no 24 x 7 secondary service on the West Coast   |
| <b>Access</b><br><br><b>Score:4/6</b>   | Appropriate access to services in line with New Zealand rates<br><br>Opportunity to develop patient support systems for travel and accommodation important component | Access to services in line with DHB of service. Likely to be at a lower rate than the current West Coast access threshold.<br><br>Patient may decline treatment because of need to leave the West Coast. |
| <b>Maximise health outcomes</b><br><br><b>Score: 4/6</b>                                  | Improved primary and community services to maximise health outcomes for patients.  | Potential risk to a small number of patients where treatment for an acute condition is delayed   |
| <b>Efficiency</b><br><br><b>Score:6/6</b>   | Efficient use of facilities and services on the Coast to deliver primary, community and emergency healthcare, with a transport service to support this               | Inefficient for patients who have to leave the Coast and whānau / family / friends to receive healthcare. Insufficient use of hospital space if current facilities are maintained.                       |



### 8.3 Option 3 : Provide secondary services on site

#### Description of the option

Option three is based on secondary services being delivered on the West Coast on a contractual basis with other DHBs. As with Option two there is a need to ensure the information systems, the transport systems and the clinical linkages are available to support those on the Coast during the times when the need for a specific service is not available.

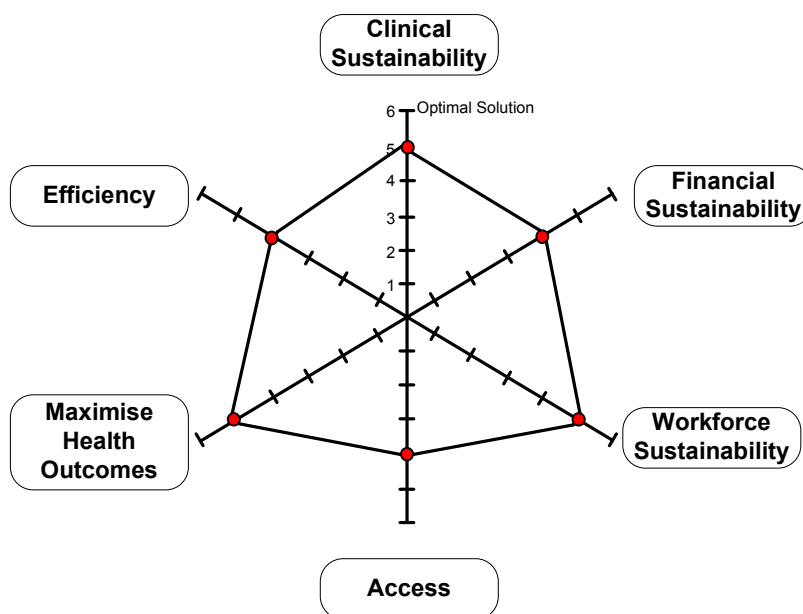
In this scenario there would be regular visiting specialists for both medical and surgical services. Support for surgical patients post operatively would be provided initially by visiting staff but beyond the first 24 hours would be provided by staff on the West Coast.

#### Summary comment

This option allows for the majority of services to continue to be provided on the West Coast but not as a 24 x 7 service. This does increase risks for certain groups of patients, e.g. obstetric services. Options to support this service include ensuring anaesthetic capability through employing MOSS with these skills.

| Option 3: Providing secondary services on site through developing relationships with other DHBs |   |  |
|---|---|--|
| Criteria  | Benefits and/or opportunities   | Weaknesses and/or barriers   |
| <b>Clinical sustainability</b>  | The range of work provided on the West Coast will be in line with clinical sustainability.<br><br>Service development opportunities available | Risk of contracted DHB withdrawing service where an issue arises at their local DHB. |

|   |  |   |
|---|--|---|
| <b>Score:5/6</b>                                    | during outreach team visits. Services provided will meet demand and will be of high quality  | Perception of treating the service as a nuisance and teams do not build clinical support relationships on the West Coast  |
| <b>Financial sustainability</b><br><b>Score:4/6</b> | Cost of contracting for service delivery on the West Coast is lower than the cost of delivering in the current model   | Risk of other DHBs increasing costs of services delivered<br><br>May cost more than taking the patient to the service   |
| <b>Workforce sustainability</b><br><b>Score:5/6</b> | Smaller number of services to retain a workforce to deliver. Effort able to be concentrated on training and education rather than recruitment                        | Risk of difficulty in recruiting GPs if there is no secondary service on the West Coast<br><br>Difficulty in recruiting nursing and other staff for the hospital when there is limited medical cover  |
| <b>Access</b><br><b>Score:4/6</b>                   | Appropriate access to services in line with New Zealand rates<br><br>Elective services and some acute delivered on the West Coast                                    | Access to services in line with DHB of service. Likely to be at a lower rate than the current West Coast access threshold   |
| <b>Maximise health outcomes</b><br><b>Score:5/6</b> | Improved primary and community services to maximise health outcomes for patients   | Potential risk to a small number of patients where treatment for an acute condition is delayed  |
| <b>Efficiency</b><br><b>Score: 4/6</b>              | Purpose built facility for short stay service delivery on the Coast to deliver primary, community and emergency healthcare, with a transport service to support this | Inefficient for patients who have to leave the Coast and whānau / family / friends to receive some healthcare<br><br>Less efficient use of facilities when not used on 24x7. Possible insufficient use of hospital space if current facilities are maintained |



## 8.4 Comparison of options

### A note of caution

The tables provided in this section summarise the overall ratings and the spread of those ratings across options. We have emphasised earlier in the report that the scores used here are rudimentary, and must be considered within a wider context. We do not have either a causal model or the weights that would attach to such a model to allow the numbers to be added or compared in an appropriate manner. The scores are thus included to assist with identification of dominance on particular criteria. Whilst not putting great weight on the numbers, we observe that options two and three stand out as being preferable compared to the enhanced status quo.

The results of the analysis are presented below in one table to highlight the relative strengths and weaknesses of each option considered.

|                                     | Clinical sustainability | Financial sustainability | Workforce sustainability | Access | Maximise health outcomes | Efficiency |
|-------------------------------------|-------------------------|--------------------------|--------------------------|--------|--------------------------|------------|
| Enhanced status quo                 | 2                       | 2                        | 1                        | 4      | 3                        | 2          |
| Contract all secondary services out | 4                       | 5                        | 4                        | 4      | 4                        | 6          |
| Contract in secondary services      | 5                       | 4                        | 5                        | 4      | 5                        | 4          |

The following table shows the spread of ratings against the criteria for all options, to help illustrate the relative positioning of each solution.

| Spread of ratings against criteria |     |     |     |                 |    |    |
|------------------------------------|-----|-----|-----|-----------------|----|----|
|                                    | 1   | 2   | 3   | 4               | 5  | 6  |
| <b>Clinical sustainability</b>     |     | ESQ |     | CO              | CI |    |
| <b>Financial sustainability</b>    |     | ESQ |     | CI              | CO |    |
| <b>Workforce sustainability</b>    | ESQ |     |     | CO              | CI |    |
| <b>Access</b>                      |     |     |     | ESQ<br>CO<br>CI |    |    |
| <b>Maximise health outcomes</b>    |     |     | ESQ | CO              | CI |    |
| <b>Efficiency</b>                  |     | ESQ |     | CI              |    | CO |

| Legend   |     |
|--|-----|
| 1. Enhanced status quo   | ESQ |
| 2. Contract all secondary services out                               | CO  |
| 3. Secondary services provided by clinicians from other DHBs on site | CI  |

## 8.5 Patient oriented case studies

In order to illustrate the three options we have proposed three case studies from a patient perspective below.

| Obstetric Emergency – Wendy is a 22 year old secretary in her second pregnancy who lives in Westport. She has planned a home birth but during labour the midwife becomes concerned and recommends she be transferred to hospital under the care of an obstetrician |   |  |
|--|---|--|
| Current  | Patient to Service                                      | Service to Patient                                       |
| The midwife contacts the obstetrician at Grey Hospital   | The midwife contacts the on-call obstetrician at Nelson | The midwife contacts the on-call obstetrician to discuss |

|  |  |   |
|--|--|---|
| <p>and discusses Wendy’s case.</p> <p>The obstetrician recommends Wendy is transferred to the hospital as soon as possible.</p> <p>The airport is closed on this day, so an ambulance is called and the midwife travels with Wendy to Grey Hospital for appropriate care.</p> <p>The time from the original call until arrival at the hospital is about 3 hours.</p> | <p>Hospital and discusses Wendy’s case.</p> <p>The obstetrician recommends Wendy is transferred to the hospital as soon as possible.</p> <p>The airport is closed on this day, so a helicopter is called and the flight crew from Nelson travel with Wendy to Nelson Hospital for appropriate care.</p> <p>The time from the original call until arrival at the hospital is about 1.5 hours.</p> | <p>Wendy’s case. This happens to be a day when the obstetrician is providing a visiting service to Grey Hospital.</p> <p>The obstetrician recommends Wendy is transferred to the hospital as soon as possible.</p> <p>The airport is closed on this day, so an ambulance is called and the midwife travels with Wendy to Grey Hospital for appropriate care.</p> <p>The time from the original call until arrival at the hospital is about 3 hours.</p> |
|--|--|---|

**Medical Emergency – John is a 65 year old, who is semi retired and living in Karamea and has developed severe abdominal pain while playing golf. His golfing partners have called the local ambulance service**

| <b>Current</b>  | <b>Patient to Service</b>   | <b>Service to Patient</b>  |
|---|---|--|
| <p>The volunteer ambulance driver assesses John and recognises that he requires urgent hospital treatment. He contacts the ED at Buller Hospital to discuss John’s case.</p> <p>The recommendation at Buller ED is for John to be transferred to Grey hospital as soon as possible.</p> <p>While the ambulance drives to Greymouth the ED medical staff contacts the Greymouth surgeon to alert them of John’s arrival.</p> <p>The ambulance staff contact ED on route where cell phone coverage is available to keep</p> | <p>The volunteer ambulance driver assesses John and recognises that he requires urgent hospital treatment. He contacts the ED at Buller Hospital to discuss John’s case.</p> <p>The recommendation at Buller ED is for John to be transferred to Buller ED as soon as possible.</p> <p>While the ambulance drives to Westport the ED medical staff contacts the surgical team at Christchurch Hospital to alert them of a possible admission.</p> <p>The ambulance staff contact ED on route where cell phone coverage is available to keep</p> | <p>The volunteer ambulance driver assesses John and recognises that he requires urgent hospital treatment. He contacts the ED at Buller Hospital to discuss John’s case.</p> <p>The recommendation at Buller ED is for John to be transferred to the ED as soon as possible and after initial assessment the patient is transferred to Grey hospital.</p> <p>While the ambulance drives to Greymouth the ED medical staff contacts the visiting surgeon who is operating in Grey Hospital on that day to alert them of John’s arrival.</p> |

|  |   |   |
|--|---|---|
| <p>them updated on John's condition.</p> <p>On arrival John is quickly assessed and taken to theatre for emergency surgery.</p> <p>The time from the original call until arrival at the hospital is about 3.5 hours.</p> | <p>them updated on John's condition.</p> <p>As John's condition has deteriorated en route, the fixed wing aircraft is dispatched from Christchurch to transfer John to Christchurch Hospital as soon as he has been stabilised at Buller hospital (this would take approx 2.5 hours).</p> <p>The ED staff establish video linkage with the surgeon at Christchurch Hospital for support in managing John's condition prior to transfer.</p> <p>John is then transferred to Christchurch Hospital for surgery until he is well enough to be transferred to Buller Hospital for short term post operative care.</p> <p>The time from the original call until arrival at Christchurch hospital is about 4.5 hours.</p> | <p>The ambulance staff contact ED on route where cell phone coverage is available to keep them updated on John's condition.</p> <p>On arrival John is quickly assessed and taken to theatre for emergency surgery.</p> <p>The time from the original call until arrival at the hospital is about 3.5 hours.</p> |
|--|---|---|

**Road Trauma – A car accident near Fox Glacier has left one person, a Swedish tourist critically injured**

| <b>Current</b>  | <b>Patient to Service</b>   | <b>Service to Patient</b>   |
|---|---|---|
| <p>The PRIME trained nurse has called the ambulance and local GP to assist at the scene of the accident.</p> <p>A phone call to the Emergency Department identifies that the patient has head injuries and is likely to</p> | <p>The PRIME trained nurse has called the ambulance and local GP to assist at the scene of the accident.</p> <p>A phone call to the Grey Hospital Emergency Department identifies that the patient has head injuries and is</p> | <p>The PRIME trained nurse has called the ambulance and local GP to assist at the scene of the accident.</p> <p>A phone call to the Grey Hospital Emergency Department identifies that the patient has head injuries and is</p> |

|  |  |  |
|--|--|--|
| <p>require transfer to Christchurch Hospital. The medical staff at Grey advise on a direct transfer to Christchurch hospital.</p> <p>Before transfer the patient is assessed and stabilised by the team on the ground and the air ambulance transfer team and the patient is transferred to Christchurch Hospital.</p> <p>The time from the original call until arrival at Christchurch hospital is about 3 hours.</p> | <p>likely to require urgent transfer to Hospital.</p> <p>The air ambulance at Christchurch Hospital is notified by ED staff who fly to the accident scene to transfer the patient directly to Christchurch Hospital.</p> <p>The time from the original call until arrival at Christchurch hospital is about 3 hours.</p> | <p>likely to require urgent transfer to Hospital.</p> <p>The air ambulance at Christchurch Hospital is notified by ED staff who fly to the accident scene to transfer the patient directly to Christchurch Hospital.</p> <p>The time from the original call until arrival at Christchurch hospital is about 3 hours.</p> |
|--|--|--|

## 9 Comment and reflections

The West Coast probably has a more difficult combination of issues than those challenging most DHBs to a greater or lesser degree, with its isolation and lack of private services posing particular problems for recruitment and easy access to care.

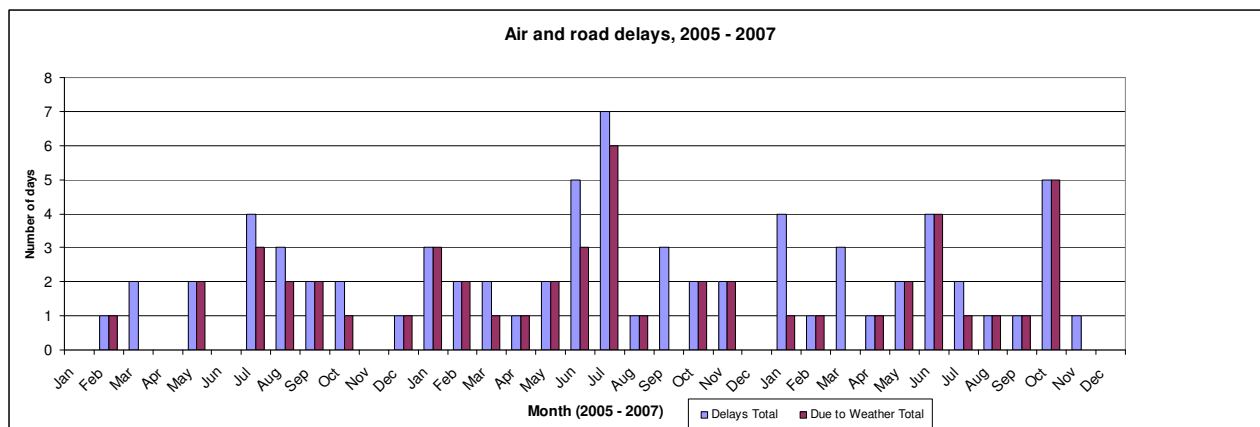
We highlight and analyse further three important issues – transport, workforce sustainability and funding status.

Our general observation is that the current model of care is not sustainable and there are frequent occasions when one or more clinical services are in crisis making the clinical model increasingly hard to sustain as availability of staff becomes more difficult. There are clear directions around both building up the level of community based services, integrating with primary care services and networking with other DHBs which need to be pursued with vigour.

### 9.1 Transport

The importance of effective transport on the Coast has been continuously underlined by stakeholders on the Coast, and in particular the difficulty around transport out of the Coast in times of inclement weather conditions. The nature of transport linkages is seen as a major inhibitor to change in the model of service delivered on the West Coast.

The capacity to transfer to Christchurch is a dominating feature of transport concerns, but in a future model of care transport to other centres such as Nelson or Otago may well prove to be less difficult. In order to determine the actual difficulty (as opposed to the perceived or anecdotal idea) of getting into and out of the Coast, we requested information on emergency transfers by air and road from Canterbury DHB, St John Ambulances, and Opus New Zealand. We also requested the frequency of airport closures from Air New Zealand (Westport and Hokitika) and Air West Coast (Greymouth).



The above graph shows the total air and road delays for the three year period over 2005 – 2007.<sup>55</sup> Road delays were given on the basis of days on which the road to Christchurch was closed for over two hours or more. Air delays were given on the basis of times that a request could not be met, due to either the weather or aircraft/crew availability. The total delays due to weather, over both road and air to Christchurch, can be observed in the above graph. In terms of air ambulance requests alone, of 400 total requests 18% could not be met, 15% due to the weather. In terms of road and air, approximately 73% of requests that could not be met were due to weather.

The total number of ambulance requests by road was not available, however St John Ambulance estimated that the road to Canterbury was fully closed on two or three occasions per year. However, the road through Arthurs Pass and through Lewis Pass can often suffer adverse conditions such as snow or flooding which can double the normal driving time and make emergency transfers much more risky than would otherwise be expected. Transporting within the Coast seems to pose less of a problem. Road ambulances may be perturbed by road difficulties such as slips, bridge closures or flooding, but in such cases jet boats, four wheel drive vehicles and helicopters are used.

St John commented too on the air rescue service from the Coast to Christchurch. Fixed wing transport appears to be much more reliable than helicopter, with the availability to fly over 90% of the time in all seasons. In comparison, helicopter service is less reliable in the dark and in winter, when only 60-70% of missions can be completed. In the day however, winter or summer, approximately 80-90% of missions can be completed.

Air rescue service within the West Coast according to St John had an over 90% completion rate in the day time (all seasons) compared with 75% at night time (all seasons).

To complete the picture, over the last year (December 2006 – December 2007) there have been 36 days when at least one flight in either Hokitika or Westport was subject to weather cancellations or diversions. On seven days in the year (1.9% of the year) both airports were closed to at least one flight. Air West Coast estimated that takeoff was impossible from Greymouth on five days during winter over the last year.

However, this data is of limited use due to the following reasons :

- Air and road data are not directly comparable as the air information from Canterbury is not date specific: in any one day, many flights could not have met requests or just one, and the severity of the weather could vary considerably, affecting whether or not other parts of the Coast would be closed (by road or air).

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<sup>55</sup> This table contains information on Air ambulance requests obtained from Canterbury DHB and on road delays/closures obtained from Opus New Zealand, November 2007.

- It was not possible to determine days in which both the roads and air access were closed.
- It was not possible to find out the details of patients driving ambulance requests to determine the severity of the reasons for calling the ambulance, and by consequence, the result of a delay in service.
- Some of the data is anecdotal and should be considered with caution.

In short, however, the issue of transportation is significant and the risk of not being able to transfer needs to be weighed carefully in any further design of models of care.

## 9.2 Workforce and clinical sustainability

There is consensus that the workforce issues are both expensive (due to locum cover) and unsustainable. There is a general feeling that the workforce situation will get worse rather than better with an increasing trend to sub-specialisation and increasing pressure to increase medical rosters from 1:3 to 1:4.

Secondary services face significant overcapacity on the West Coast and a further issue will be the extent to which clinical quality can be maintained given the low throughput of patients. At the moment, there are operations being performed at the DHB that we would not expect to see undertaken at any other hospitals in the country.

The availability of staff will get considerably worse as staff are sought both elsewhere in New Zealand and in Australia to support the major building programmes underway.

## 9.3 Funding status

The comparative funding received by West Coast District Health Board is, at present, relatively high. According to funding figures provided by the District Health Board for the year ending 14 December 2007<sup>56</sup>, the West Coast had \$95,950,008 in total funding. If we take the most recent NZ Statistics census 2006 population figures, the funding per capita amounts to \$2,985. This figure is the highest per capita level in the country as can be seen from the table below.

| District Health Board | Per capita funding as at 14 December 2007 |
|-----------------------|---|
| <b>West Coast</b>     | <b>\$2,985.38</b>                         |
| Whanganui             | \$2,720.56                                |
| Wairarapa             | \$2,397.95                                |
| Tairāwhiti            | \$2,358.67                                |

<sup>56</sup> “Outsourced Services for year ending June 2007”. West Coast DHB.

|                    |            |
|--------------------|------------|
| Northland          | \$2,357.36 |
| South Canterbury   | \$2,336.39 |
| Bay of Plenty      | \$2,271.98 |
| Otago              | \$2,266.06 |
| MidCentral         | \$2,263.23 |
| Taranaki           | \$2,235.46 |
| Nelson Marlborough | \$2,235.07 |
| Hawkes Bay         | \$2,215.81 |
| Lakes              | \$2,170.79 |
| Waikato            | \$2,033.12 |
| Canterbury         | \$2,016.96 |
| Auckland           | \$1,936.02 |
| Southland          | \$1,930.41 |
| Hutt               | \$1,916.31 |
| Counties Manukau   | \$1,907.61 |
| Waitemata          | \$1,900.85 |
| Capital & Coast    | \$1,812.18 |

According to information from the West Coast DHB's outsourced services, for the year ending 30 June 2007 there was \$3,403,000 spent over budget and the major cause of this variance was outsourced medical personnel in secondary services. A major contributing factor to this high per capita status is an increased reliance on locum staff. DHB management and clinicians confirm this and have indicated that the West Coast, due to its difficulty in recruiting and retaining employed medical personnel, is forced to hire locum staff at exorbitant rates. The situation is a difficult one and is driven by the MECA requirements to have a 1:3 call roster. In the period reviewed, (2006/2007) 8.33 FTE locum cover would be needed to comply with this call roster, excluding any special leave or absences. Continuing difficulties in recruitment and retention would indicate that the expenditure on locum cover is set to worsen and further extend the budget of the West Coast into secondary care in somewhat of a vicious circle that leads to higher levels of service required to retain capacity. The funding deficit is also driven in part by a high investment in primary care practices and, within that, the requirement for GPs working under the MECA to attach 30% of their time to non-clinical work. In short, the West Coast has an extensive investment in primary care together with an extensive investment in secondary care.

## 9.4 LECG view on most appropriate model of care

On a final note, it is worth drawing a picture of what we would want to see by way of successful models of care. Modern models of care as identified by the Ministry of Health<sup>57</sup>, present the following characteristics which are also objectives and concur with what we would want to see in models of care adopted by West Coast DHB:

- Clinical staff from multiple disciplines working together in a complementary way to improve both efficiency and health outcomes.
- Treatment carried out in as close to patients' homes as practically and clinically possible, thus supporting goals of independence, whilst minimising secondary care costs.
- Clinical staff integrated across primary and secondary care to allow a more seamless care pathway.
- Specialist services integrated into the base clinic or hospital through networked clinical services with a reciprocal flow in and out of the West Coast to other DHBs that maximises clinicians' time with patients.
- Appropriate communication technologies and electronic transfer of information used as far as possible.
- Emergency and trauma service linked in with and supported by one of the regional trauma hubs.
- Public confidence maintained in emergency care services within the West Coast. Levels of access to services, their location and their risk being clear to the public.
- Clinical services sustainable in terms of funding imperatives and workforce conditions. Clinical services carried out in an environment of collaboration yet one that offers clarity about the mandates of all parties, decision rights, and decision-making processes.
- The best level of quality possible within equitable budgets maintained as the benchmark for service provision across the West Coast.

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<sup>57</sup> Ministry of Health's *Guide to health service planning and capital investment (February, 2006)*

## 10 List of articles consulted

A list of the articles and internet sites that we consulted in the course of this project follows to provide information for the interested reader.

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