Bay of Plenty District Health Board
Health Needs Assessment

Population Health Status Analysis 2001 - 2005

Key Points and Implications for Planning and Action

September 2005
Planning and Service Development
Planning & Funding Group
BOPDHB
Summary

In the five years since its establishment under the New Zealand Public Health and Disability Act 2000, the BOPDHB has gained considerable knowledge of the health and health care needs of the population and communities which live within the district. This report presents a brief overview of this knowledge and provides some of the latest population health status information available.

It is not intended to be a comprehensive report on all that we know about population health needs within the district but rather a summary and update that clarifies work that has been done to date and provides cross-references to other key reports including those completed by the Planning and Service Development Unit of the BOPDHB.

The report highlights key points relating to population health status and health needs and attempts to identify some of the implications of the information collected and actions required to address health needs.

A lot more detailed analysis lies behind this report which has already been used to inform the 2005 District Annual Planning (DAP) and District Strategic Planning (DSP) processes.

The key message of this report is that the BOPDHB needs to be more than just a funder and provider of health services if it is to influence population health status and meet the health needs of communities within the district. Approaches that are likely to assist with this include:

- Combining a population approach with accurate targeting of resources
- Addressing both health needs and health care needs
- Marketing the value of health to populations, communities and individuals
- Developing initiatives to address the social determinants of health
- Building intersectoral collaboration to address common risk factors embedded in physical, social and built environments
- Improving the quality of health promotion, prevention, early detection and primary health care interventions
- Extending the range and timeliness of health care services provided in communities
- Ensuring timely access to quality hospital services

The Planning and Service Development Unit has designed a number of Programmes of Care and Programmes of Collaboration as a framework for progressing the required service developments. It has also engaged in intersectoral activities with a wide range of agencies and commenced the formation of expert technical advisory groups to recommend priorities for service development to the CEO.

The key findings of this report can be found in each section of the document and the implications and actions have been summarised within each section.
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Report Outline

This report summarises key information related to the health needs of the BOPDHB population in 2005. It begins with an introduction which describes the district and provides some initial comments regarding issues and challenges the Board faces. Section 1 provides an overview of demographic and health status information based on data obtained from Statistics New Zealand and the Public Health Intelligence Unit of the Ministry of Health. It includes a comparison of BOPDHB mortality, hospitalisation and cancer registration rates with New Zealand as a whole and information from the New Zealand Health Survey 2002/03. Section 2 provides a synthesis of Health Needs Assessment information conducted by the BOPDHB between 2001 and 2004. The report format is outlined in more detail below. Section 3 summarises conclusions and recommendations based on this information.

Section 1: Demographic and Health Status Overview Information

This section provides up-to-date demographic and health status information for the BOPDHB and is based on the following information from Statistics New Zealand and the Public Health Intelligence group of the Ministry of Health:

- Census data
- Population projection data
- New Zealand Health Survey (2002/03)
- PHI Indicators (2004)
- PHI Online Data (2005)
- Health Inequalities Index (HII) Information (2005)

A summary of key points about health needs and their implications for planning and action is provided.

Section 2: Summary of Health Needs Assessment, 2001-2004

Section 2 of the report draws together summary information from previous analyses and reports completed by the Planning and Service Development Unit from 2001 to 2004 including:

- Preliminary health status report (2001)
- Update report on health status (2002)
- Reports on cancer and palliative care (2003)

Full details for these documents and others cited are provided in the reference list at the end of this report. The information is drawn together in health status categories which include disease types, population groups and intervention approaches. A summary is also provided of health status issues by age-group. For each category of information there is a summary of key points about health needs and their implications for planning and action.

Section 3: Conclusion and Recommendations

This section summarises the implications of this information.
INTRODUCTION
Introduction

The BOPDHB faces considerable challenges in seeking a balanced approach to meeting the health needs of the population and communities within the district. The Board must ensure affordable access to quality core health services while also establishing initiatives to enhance the health status of the population and communities.

Health Needs and Health Care Needs

The BOPDHB must consider both:

- **Health needs**: Effective activities and initiatives to improve population health status. This includes addressing the broader determinants of health such as the physical, social and built environment and factors such as diet, physical activity, tobacco, drugs and alcohol, risk taking behaviour, education, housing and material and social deprivation.

- **Health care needs**: Effective services and interventions including primary health care, community based services, specialist care, rehabilitation and palliative care.

Combining a Population Approach with Accurate Targeting

To improve the health status of communities a combination of a population approach and accurate targeting of initiatives and interventions is required. This must include robust methodologies for policy and programme prioritisation and investment and disinvestment decision making.

The population approach has the greatest potential for improving the health of the overall community because "a large number of people exposed to a small risk may generate many more cases than a small number exposed to a high risk." Examples could include interventions aimed at lowering the mean blood pressure or the average level of alcohol consumption of the BOPDHB population.

“The burden of ill health comes more from the many who are exposed to a low inconspicuous risk than from the few who face an obvious problem. This sets a limit to the effectiveness of an individual (high-risk) approach to prevention.”

However, accurate targeting is also required because, “a preventive measure that brings large benefits to the community offers little to each participating individual”.

Targeting interventions and initiatives to individuals and groups with the greatest risk level or highest health or health care needs is difficult because of limitations in the accuracy of the measurement of health status and limitations in the effectiveness of interventions. It is important to avoid the “ecological fallacy” of attributing the characteristics of a population (e.g. a geographical area or an ethnic group) to all individual members of that group.

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Geographic and Demographic Diversity

There is considerable variation within the Bay of Plenty population:

- On one side of the district there is the Western Bay of Plenty with one of the fastest population growth rates in New Zealand and a rapidly increasing population of older people. There are significant urban growth issues in this area.

- In contrast, the Eastern Bay of Plenty has a low population growth rate, a high level of deprivation and a young population.

- Some parts of Eastern Bay of Plenty such as the East Cape and the area around Murupara face significant geographical access issues.

It is important to realise that these descriptions are generalisations and throughout the Bay of Plenty there are diverse communities and neighbourhoods with unique characteristics and health needs.

Bay of Plenty District Health Board Area
Maori Health Needs

The Maori population is increasing rapidly in the Bay of Plenty and tailored initiatives based on evidence of effectiveness are required to meet their specific health needs. Planning must include consideration of the unique characteristics of the Maori population and it’s stage in the demographic and epidemiologic transitions. At the turn of the 20th century infant mortality among the Maori population was extremely high and the total Maori population in New Zealand was only around 40,000 people. These statistics improved dramatically during the 20th century with substantial increases in life expectancy of the Maori population, however there are still inequalities between Maori and non-Maori life-expectancy and also inequalities within the Maori population.

Socio-economic determinants are strongly correlated with population health status. Iwi within the district are working together on a wide range of economic development initiatives that are likely to have a positive impact on community and population health status in the long term. This should help improve Maori health status and improve health equity by reducing the inequalities between the health status of Maori and non-Maori. In the Bay of Plenty, life expectancy at birth (LE0) is increasing for Maori and the projected growth in the population of older people is proportionately higher for Maori than for non-Maori.

The Treaty of Waitangi, He Korowai Oranga and Maori models of health such as the draft Tangata Whenua Determinants of Health Framework being prepared by the BOPDHB Maori Health Runanga, guide the planning of health services for Maori within the district.

Ethnic and Cultural Diversity

There is increasing ethnic and cultural diversity in the Bay of Plenty. With the recent substantial growth in the population there have been increases in the number of people who were born overseas and in the population of Pacific Island and Asian people.

The needs of the diverse ethnic and cultural groups in the district must be considered in health planning because a “one size fits all” approach is likely to be ineffective. Evidence suggests that policies and programmes should be tailored to match the specific health needs of these groups.

Diversity of Health Need Groups

Within the BOPDHB population there are a variety of types of “population need groups”. The Planning and Service Development Unit has defined these need groups in the Programme of Care Framework that it has developed to organise the planning of tailored and targeted health interventions and services including:

- Most people are healthy most of the time (general population)
- Some people have a higher chance of suffering health problems (at risk)

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12 Bay of Plenty District Health Board (2004) Analysis to accompany the 2004 Health Needs Assessment Paper on Health, Equity and Partnerships with Community and Inform the Social Determinants of Health Programme of Care, Planning and Service Development Unit, Tauranga
- Some have early onset of certain conditions *(early conditions)*
- Some have serious health problems and/or functional limitations *(advanced conditions)*
- Some have a combination of health problems or complex co-morbidities *(multiple chronic conditions)*
- Some have conditions which have become life threatening *(end stage conditions)*

Each of these groups requires specific interventions that evidence suggests will best meet their needs and the BOPDHB is organising its planning of these interventions using *Programmes of Care* *(e.g. Oral Health, Older People, Acute Care, Modifiable Chronic Conditions)* and *Programmes of Collaboration* *(e.g. Social Determinants of Health)* 13.

**Marketing the Value of Health**

Health is a broad concept, which has a wide variety of meanings depending on perspective. It is a resource for daily living that provides the capacity to enjoy life and is often taken for granted. Therefore, while it is extremely valuable, people often don’t realise it until they, or a close friend or family member experience a significant health problem. Many people choose to do things which damage their health and sometimes greater value appears to be placed on short-term perceived benefit rather than on longer term gain and development. Examples include tobacco smoking, drug use, risk taking, passivity and overeating. The environments in which people live affect their range of choices and this context influences the extent of healthy behaviour. Healthy populations tend to include a greater share of people who are proactively minimising harmful behaviours and investing energy in their futures.

The BOPDHB needs to find a way to market the value of health and encourage people and communities to value health earlier. This will require policies, programmes and intersectoral collaboration to educate, motivate and activate individuals, groups and communities to value and demonstrate more health promoting and less health damaging behaviours, and create healthy environments. Strategic health planning and funding must consider the socio-economic circumstances in which people live and the broader determinants of health because these factors have a strong influence on individual health behaviour 14.

"It makes little sense to expect individuals to behave differently from their peers; it is more appropriate to seek a general change in behavioural norms and in the circumstances which facilitate their adoption" 15.

The BOPDHB is working towards developing collaborative approaches with other agencies to address the social determinants of health 16.

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13 More information on the BOPDHB Programmes of Care and Collaboration Framework is available from the Planning and Service Development Unit, Tauranga.
14 Bay of Plenty District Health Board (2004) *Health, Equity and Partnerships with Community: Evidence review, frameworks and models to accompany the 2004 Health Needs Assessment paper on population characteristics and inform the Social Determinants of Health Programme of Care Planning and Funding Group, Bay of Plenty District Health Board*
16 Bay of Plenty District Health Board (2004) *Social Determinants of Health Strategy and Programme of Collaboration Framework. Communities – Achieving Their Potential* Planning and Service Development Unit, Planning and Funding Group, Bay of Plenty District Health Board
SECTION 1:
Demographic and Health Status Overview Information

2005
Demographic Overview

The data utilised in this section is based on Statistics New Zealand census data and population projections.


- The BOPDHB population increased at its fastest rate between 1991 and 1996.
- In this period intercensal growth was over 2% per annum.

Population Estimate by Age and Ethnicity, 2005

- It is estimated that the BOPDHB population is nearly 200,000 people in 2005.
- Over one-quarter of the population are Maori (over 50,000 people).
Projected Population Change by Age Group

- In the current period, population growth is fastest among young people at over 4% per annum.
- The next fastest growth is among older people at over 3% per annum.

Between 2001 and 2021 population growth is projected to be fastest in older age groups.

Population growth is expected to slow for children and adults, while for people aged 65 years or more the rate will remain at around 3% per annum.
- By 2021, 21% of the BOPDHB population will be aged 65 years or more compared with 15% in 2001.

- 19% will be under 15 years compared with 24% in 2001.

Medium population projections prepared by Statistics New Zealand suggest that the BOPDHB population will be 240,000 by 2021.

Projections prepared by Professor Richard Bedford for the Smartgrowth initiative in the Western BOP suggest that growth will be even faster than this with the population in the Western BOP alone likely to reach 220,000 by 2021\(^\text{17}\).

The Eastern BOP population is expected to remain at around 50,000 between 2001 and 2021.

Socio-economic Deprivation

- Quintile 5 of the NZDep2001 index includes the 20% of New Zealand households with the highest level of socio-economic deprivation (poverty).

- Kawerau and Opotiki districts have the highest deprivation levels in the BOPDHB with nearly 70% of the population living in quintile 5 areas.

- The Western BOP area has the lowest level of deprivation in the district.

Because of the size of the population, Tauranga City has the highest number of people living in Quintile 5 areas even though less than 20% of the Tauranga population live in these areas.
Summary of BOPDHB data from the New Zealand Health Survey 2002/03

Analysis of the self-reported prevalence of chronic disease and risk factors based on data collected for the New Zealand Health Survey 2002/03 showed that the pattern was very similar for the BOPDHB and New Zealand as a whole.\(^{18}\)

**Chronic Diseases**

Although prevalence in the BOPDHB was slightly greater than New Zealand for all chronic diseases except COPD and asthma, none of these differences were statistically significant (the BOPDHB rate is similar to the average rate for New Zealand as a whole).

**Chronic Disease Prevalence, BOPDHB & New Zealand, New Zealand Health Survey 2002/03**

<table>
<thead>
<tr>
<th>Chronic Disease</th>
<th>BOPDHB</th>
<th>NZ</th>
<th>Ratio</th>
<th>Significant?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heart Disease</td>
<td>9.4</td>
<td>9.0</td>
<td>1.04</td>
<td>No</td>
</tr>
<tr>
<td>Stroke</td>
<td>2.0</td>
<td>1.7</td>
<td>1.18</td>
<td>No</td>
</tr>
<tr>
<td>Diabetes</td>
<td>4.2</td>
<td>4.1</td>
<td>1.02</td>
<td>No</td>
</tr>
<tr>
<td>Arthritis</td>
<td>13.5</td>
<td>13.4</td>
<td>1.01</td>
<td>No</td>
</tr>
<tr>
<td>Spinal Disorders*</td>
<td>24.8</td>
<td>23.7</td>
<td>1.05</td>
<td>No</td>
</tr>
<tr>
<td>Osteoporosis</td>
<td>2.4</td>
<td>1.8</td>
<td>1.33</td>
<td>No</td>
</tr>
<tr>
<td>Asthma</td>
<td>21.1</td>
<td>22</td>
<td>0.96</td>
<td>No</td>
</tr>
<tr>
<td>COPD</td>
<td>4.8</td>
<td>5.4</td>
<td>0.89</td>
<td>No</td>
</tr>
</tbody>
</table>

*Spinal disorders include disorders of the back or neck (eg, lumbago, sciatica, chronic back or neck pain, and vertebrae or disc problems). Spinal disorders are usually caused by injury, overuse, muscle disorders, pressure on a nerve or poor posture.\(^{19}\)

\(^{18}\) More detailed data from the New Zealand Health Survey 2002/03 is provided in Appendix 1

Risk Factors

The only risk factor measures for which there were statistically significant differences between the BOPDHB and NZ were:

- The BOPDHB had a higher rate of current smokers (28.6% vs. 23.4%)
- The BOPDHB had a lower rate of adequate consumption of fruit - two servings per day or more (49.0% vs. 53.9%)

<table>
<thead>
<tr>
<th>Risk Factors</th>
<th>BOPDHB</th>
<th>NZ</th>
<th>Ratio</th>
<th>Significant?</th>
</tr>
</thead>
<tbody>
<tr>
<td>High Blood Pressure</td>
<td>20.4</td>
<td>18.7</td>
<td>1.09</td>
<td>No</td>
</tr>
<tr>
<td>High Blood Cholesterol</td>
<td>14.0</td>
<td>13.7</td>
<td>1.02</td>
<td>No</td>
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<tr>
<td>Overweight</td>
<td>35.0</td>
<td>34.0</td>
<td>1.03</td>
<td>No</td>
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<tr>
<td>Obese</td>
<td>23.6</td>
<td>20.1</td>
<td>1.17</td>
<td>No</td>
</tr>
<tr>
<td>Overweight or Obese</td>
<td>58.6</td>
<td>54.0</td>
<td>1.09</td>
<td>No</td>
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<tr>
<td>Physical Activity &gt;= 150 min pw</td>
<td>74.5</td>
<td>74.0</td>
<td>1.01</td>
<td>No</td>
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<tr>
<td>Physical Activity &gt;= 150 min on 5 + days pw</td>
<td>54.0</td>
<td>52.5</td>
<td>1.03</td>
<td>No</td>
</tr>
<tr>
<td>Current Smoker</td>
<td>28.6</td>
<td>23.4</td>
<td>1.22</td>
<td>Yes</td>
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<tr>
<td>Marijuana (used last 12 months)</td>
<td>15.1</td>
<td>16.3</td>
<td>0.93</td>
<td>No</td>
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<tr>
<td>Fruit Consumption (2+ serves per day)</td>
<td>49.0</td>
<td>53.9</td>
<td>0.91</td>
<td>Yes</td>
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<tr>
<td>Vegetable Consumption (3+ serves per day)</td>
<td>68.1</td>
<td>67.3</td>
<td>1.01</td>
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<td>Hazardous Drinking</td>
<td>18.6</td>
<td>18.9</td>
<td>0.98</td>
<td>No</td>
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</table>
Maori and Non-Maori Comparison

For most chronic diseases and risk factors, the prevalence for Maori was higher than the prevalence for non-Maori.

Chronic Diseases

Rates for Maori in the BOPDHB area were statistically significantly higher than non-Maori rates for the following chronic diseases:

- Heart Disease
- Diabetes

<table>
<thead>
<tr>
<th>Chronic Disease</th>
<th>Maori</th>
<th>Non-Maori</th>
<th>Ratio</th>
<th>Significant?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heart Disease</td>
<td>13.5</td>
<td>8.5</td>
<td>1.59</td>
<td>Yes</td>
</tr>
<tr>
<td>Stroke</td>
<td>2.9</td>
<td>1.8</td>
<td>1.61</td>
<td>No</td>
</tr>
<tr>
<td>Diabetes</td>
<td>9.5</td>
<td>2.9</td>
<td>3.28</td>
<td>Yes</td>
</tr>
<tr>
<td>Arthritis</td>
<td>16.2</td>
<td>12.9</td>
<td>1.26</td>
<td>No</td>
</tr>
<tr>
<td>Spinal Disorders</td>
<td>19.5</td>
<td>26.0</td>
<td>0.75</td>
<td>No</td>
</tr>
<tr>
<td>Osteoporosis</td>
<td>1.2</td>
<td>2.6</td>
<td>0.46</td>
<td>No</td>
</tr>
<tr>
<td>Asthma</td>
<td>24.4</td>
<td>20.3</td>
<td>1.20</td>
<td>No</td>
</tr>
<tr>
<td>COPD</td>
<td>3.8</td>
<td>5.1</td>
<td>0.75</td>
<td>No</td>
</tr>
</tbody>
</table>

Risk Factors

The following risk factor rates were significantly higher for Maori compared with non-Maori in the BOPDHB area:

- High Blood Pressure
- Obesity
- Smoking
- Marijuana use

<table>
<thead>
<tr>
<th>Risk Factor</th>
<th>Maori</th>
<th>non-Maori</th>
<th>Ratio</th>
<th>Significant?</th>
</tr>
</thead>
<tbody>
<tr>
<td>High Blood Pressure</td>
<td>27.2</td>
<td>18.8</td>
<td>1.45</td>
<td>Yes</td>
</tr>
<tr>
<td>High Blood Cholesterol</td>
<td>14.0</td>
<td>14.0</td>
<td>1.00</td>
<td>No</td>
</tr>
<tr>
<td>Overweight</td>
<td>34.8</td>
<td>35.1</td>
<td>0.99</td>
<td>No</td>
</tr>
<tr>
<td>Obese</td>
<td>31.0</td>
<td>21.9</td>
<td>1.42</td>
<td>Yes</td>
</tr>
<tr>
<td>Overweight or Obese</td>
<td>65.8</td>
<td>57.0</td>
<td>1.15</td>
<td>No</td>
</tr>
<tr>
<td>Physical Activity &gt;= 150 min pw</td>
<td>75.6</td>
<td>74.3</td>
<td>1.02</td>
<td>No</td>
</tr>
<tr>
<td>Physical Activity &gt;= 150 min on 5 + days pw</td>
<td>56.7</td>
<td>53.4</td>
<td>1.06</td>
<td>No</td>
</tr>
<tr>
<td>Current Smoker</td>
<td>49.6</td>
<td>23.8</td>
<td>2.08</td>
<td>Yes</td>
</tr>
<tr>
<td>Marijuana (used last 12 months)</td>
<td>26.4</td>
<td>12.5</td>
<td>2.11</td>
<td>Yes</td>
</tr>
<tr>
<td>Fruit Consumption (2+ serves per day)</td>
<td>43.4</td>
<td>50.2</td>
<td>0.86</td>
<td>No</td>
</tr>
<tr>
<td>Vegetable Consumption (3+ serves per day)</td>
<td>63.9</td>
<td>69.1</td>
<td>0.92</td>
<td>No</td>
</tr>
<tr>
<td>Hazardous Drinking</td>
<td>25</td>
<td>17.1</td>
<td>1.46</td>
<td>No</td>
</tr>
</tbody>
</table>
Summary of PHI Health Indicators, 2004

Analysis of health indicator data collated by the Public Health Intelligence unit of the Ministry of Health\textsuperscript{20} showed the following positive health outcomes for the BOPDHB:

- The rate of ischaemic heart disease mortality among adults aged 25-64 (year 2000) was less than the New Zealand rate (the BOPDHB rate was 87% of the New Zealand rate).

- The rate of prostate cancer incidence among men aged 65 years or more, (year 2000) was less than half the New Zealand rate (44%).

- The rate of full breastfeeding at age 3 months (2002/03) was 7% higher than the New Zealand rate.

- The rate of whooping cough (pertussis) notifications\textsuperscript{21} (2002) was only one quarter (25%) of the New Zealand rate.

- The rate of Campylobacteriosis notifications (2002) was two thirds (66%) of the New Zealand rate.

- The rate of Cryptosporidiosis notifications (2002) was half (47.4%) of the New Zealand rate.

- The rate of Salmonellosis notifications (2002) was two thirds (68.3%) of the New Zealand rate.

However, the BOPDHB had a statistically significantly higher rate than New Zealand for the following health outcomes:

- The ambulatory sensitive hospitalisation rate (2002) was 2% higher.

- The rate of hospitalisation of children aged 0-4 for falls (2002) was 37% higher.

- The rate of hearing failure at school entry (2001/02) was 25% higher.

- The teenage (10–19 years) birth rate (2002) was 36% higher.

- The rate of meningococcal disease notifications (2002) was 90% higher.

Detailed data from the PHI health indicators report is provided in Appendix 2.


\textsuperscript{21} This and other lower notification rates observed for the BOPDHB may only indicate a reduced level of completeness in reporting rather than truly lower incidence rates.
Summary of PHI Online Data, 2005

Age-standardised rates can be used to compare mortality, ambulatory sensitive hospitalisation and cancer registrations. A summary comparing BOPDHB rates with rates for New Zealand as a whole, based on PHI Online\textsuperscript{22} data is provided below. An explanation of the data sources is provided in Appendix 3.

**Mortality Rates, 1997 - 2001**

- In general, overall mortality rates for the BOPDHB were less than New Zealand rates. The BOPDHB ischaemic heart disease mortality rate was significantly less than the New Zealand rate.

- The avoidable mortality rate for all people in the BOPDHB was higher than the New Zealand rate (but not statistically significant).

- BOPDHB non-Maori rates tended to be less than New Zealand non-Maori rates.

- The BOPDHB non-Maori avoidable mortality rate and lung cancer mortality rate were both less than the New Zealand rates and these differences were statistically significant.

- The BOPDHB Maori avoidable mortality rate and prostate cancer mortality rate were both greater than the rates for all Maori in New Zealand but these differences were not statistically significant.

<table>
<thead>
<tr>
<th>PHI Online Data</th>
<th>All People</th>
<th>Maori</th>
<th>Non-Maori</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Age-Standardised Mortality Rate/100,000</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Mortality</strong></td>
<td>BOPDHB</td>
<td>NZ</td>
<td>BOPDHB</td>
</tr>
<tr>
<td>Avoidable Mortality</td>
<td>218.2</td>
<td>208.3</td>
<td>531.8</td>
</tr>
<tr>
<td>Ischaemic Heart Disease</td>
<td>92.3</td>
<td>103.5</td>
<td>190.6</td>
</tr>
<tr>
<td>Breast Cancer</td>
<td>23.0</td>
<td>22.9</td>
<td>34.9</td>
</tr>
<tr>
<td>Prostate Cancer</td>
<td>21.2</td>
<td>22.4</td>
<td>57.9</td>
</tr>
<tr>
<td>Colo-rectal Cancer</td>
<td>18.6</td>
<td>20.8</td>
<td>21.1</td>
</tr>
<tr>
<td>Lung Cancer</td>
<td>24.9</td>
<td>27.1</td>
<td>73.3</td>
</tr>
<tr>
<td>Cervical Cancer</td>
<td>2.8</td>
<td>2.8</td>
<td>18.0</td>
</tr>
</tbody>
</table>

*Note: Shaded figures were significantly different*

Ambulatory Sensitive Hospitalisation, 1998-2002

- BOPDHB Ambulatory Sensitive Hospitalisation (ASH) rates were higher than New Zealand rates for all people, Maori and non-Maori. All these differences were statistically significant.

\textsuperscript{22} PHI Online is an internet based data service provided by the Public Health Intelligence unit of the Ministry of Health. \url{http://www.phionline.moh.govt.nz/}
Cancer Registrations, 1999-2003\textsuperscript{23}

- BOPDHB cancer registration rates tended to be less than New Zealand rates.

**PHI Online Data**

**Age-Standardised Ambulatory Sensitive Hospitalisation and Cancer Registration Rates/100,000**

<table>
<thead>
<tr>
<th>All People</th>
<th>Maori</th>
<th>Non-Maori</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hospitalisation</td>
<td>BOPDHB</td>
<td>NZ</td>
</tr>
<tr>
<td>ASH 1998-2002</td>
<td>3343.2</td>
<td>2736.9</td>
</tr>
<tr>
<td>Cancer Registrations</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Breast Cancer</td>
<td>86.2</td>
<td>97.4</td>
</tr>
<tr>
<td>Prostate Cancer</td>
<td>95.4</td>
<td>117.1</td>
</tr>
<tr>
<td>Colo-rectal Cancer</td>
<td>48.0</td>
<td>50.6</td>
</tr>
<tr>
<td>Lung Cancer</td>
<td>30.8</td>
<td>30.4</td>
</tr>
<tr>
<td>Cervical Cancer</td>
<td>8.6</td>
<td>8.7</td>
</tr>
</tbody>
</table>

*Note: Shaded figures were significantly different*

**Health Inequalities Index (HII) Information**

The Public Health Intelligence unit of the Ministry of Health have estimated total health inequality at national and health district levels for New Zealand for the period from 1999 to 2003. They also measured the contribution of neighbourhood deprivation and rurality to inequality.\textsuperscript{24}

The distributions of neighbourhood life expectancies were summarised by calculating a ‘health inequality index’ (HII) and the authors found that:

- Districts varied widely in their health inequality index, from 50% more to 60% less unequal than New Zealand as a whole
- The NZDep2001 deprivation index was related to neighbourhood life expectancy, but only among urban neighbourhoods
- Between 13% and 70% of health inequality within districts, and 27% for New Zealand as a whole, was ‘explained’ by neighbourhood deprivation, while a much smaller proportion was accounted for by rurality
- The range of life expectancy at birth was approximately 5 years across districts but over 28.5 years across neighbourhoods (from 64.7 to 93.3 years).

**Bay of Plenty District Health Board Data**

- The BOPDHB was found to have a similar life expectancy (78.5 years) to New Zealand as a whole (79.0 years).
- The BOPDHB was ranked 10th in terms of life expectancy out of the 21 DHBs in New Zealand and 14th in terms of inequality (where 1 is best and 21 is worst).

\textsuperscript{23} Lung cancer data is for the period 1997-2001

Implications for Planning and Action

- There is rapid population growth in the Western Bay of Plenty which is expected to continue. The majority of this growth is driven by internal migration from other parts of New Zealand. The BOPDHB must plan for this growth and ensure appropriate health care service capacity is available to meet their needs. It is also important that the physical and social environment is supportive to the health status of people moving in to the area.

- The BOPDHB population is aging and there will be significantly more people in older age groups. Interventions are required to promote the health of the next cohort of older people, provide adequate services for the current cohort and develop community based services and residential options. This requires action now to ensure the development of appropriate services and a workforce with appropriate skills and competencies to meet their needs.

- The proportion of the population who are children is expected to decline and it is important that the BOPDHB invests in their health status to ensure community and economic sustainability of the future population as well as the ability to support older people.

- There are areas within both the Eastern Bay of Plenty and Western Bay of Plenty that have high socio-economic deprivation. Although Maori have a greater proportion of their population living in high deprivation areas, there is also a significant number of non-Maori who live in these areas. Populations with lower socio-economic status tend to have poorer health status and higher health needs. The BOPDHB must plan for and develop interventions to meet these needs.

- Maori in the Bay of Plenty have high rates of heart disease and diabetes compared with non-Maori which significantly contributes to premature mortality and health inequality. However, variations within the Maori population in these health outcomes are unclear and justify further analysis. This requires individual anonymous primary health care data aggregated to sub-group level to support accurate targeting based on need.

- Maori in the Bay of Plenty have high rates of tobacco smoking, marijuana use, poor diet, obesity and high blood pressure and the BOPDHB population as a whole also has moderately high rates of these risk factors. These risk factors are causally linked to chronic conditions such as heart disease, cancer, diabetes and respiratory disease and the BOPDHB should focus on evidence based strategies that address these risk factors within the context of the social and economic environment.

- The Bay of Plenty has a high rate of avoidable ambulatory sensitive hospitalisation which effective primary health care could prevent.

- Other significant issues identified include child falls resulting in hospitalisation, high hearing impairment among children and a high teenage birth rate. These should be addressed through the Programmes of Care framework.
Population Characteristics and Trends

Key Points

- The Bay of Plenty District Health Board has a diverse population with marked differences between East and West.

- The Eastern Bay of Plenty has a young population, a high proportion of Maori, slow population growth and a high level of poverty.

- The Western Bay of Plenty has an older population with a lower proportion of Maori, one of the fastest population growth rates in New Zealand and a relatively low level of poverty.

- There are some areas with high deprivation scattered throughout the district. In fact half of the population in NZDep2001 Quintile 5 live in the Western BOP and half live in the Eastern BOP.

- Half of the population in NZDep2001 Quintile 5 are Maori and half are non-Maori.

- Life expectancy is nearly five years lower in the Eastern Bay of Plenty compared with the Western Bay of Plenty.

- Because population growth is much more rapid in the Western BOP, it is expected that 78.8% of the BOPDHB population will live in the West by 2021 compared with 72.3% in 2001.

- The Maori population is growing at a slightly faster rate than non-Maori so that by 2021, 27.1% of the population will be Maori compared with 25.8% in 2001.

- The BOPDHB population as a whole is aging so that by 2021, 18.8% of the population will be aged under 15 years compared with 24% in 2001 and 9.7% will be aged 75 years or more compared with 6.6% in 2001.

Implications for Planning and Action

- In general, populations with lower socio-economic status have poorer health status and higher health needs. The BOPDHB must plan and develop healthy environments and interventions to meet these needs.

- This will require targeting of interventions across the district by geography, demography and other factors defining groups with high health needs.

- The BOPDHB must anticipate an aging population. There will be significantly more people in older age groups and plans and actions are required to improve their health status and ensure appropriate service capacity to meet their needs.

- Although the child population is expected to decrease in most areas, it is likely to increase in the Western BOP and this will require service capacity planning.
Common Risk Factors

Key Points

Some of the most prevalent diseases, conditions and injuries have similar risk factors including for example:\(^{25}\).

- Issues beginning in early childhood
- Low socio-economic status
- Tobacco smoking
- Poor diet
- High blood cholesterol
- High blood pressure
- Psychosocial stress
- Obesity
- Risk taking
- Late detection of health problems
- Misuse of alcohol and other drugs
- Adverse social and physical environment factors

Early childhood development affects later life chances. In fact the “Barker Hypothesis” suggests that even pre-birth events and weight at the time of birth are associated with adult risk of health problems such as cardiovascular disease and that early childhood development is an extremely important time in terms of impact on health status in later life\(^{26}\). Other studies have shown that low birthweight is associated with poorer cognitive performance in later life.\(^{27}\)

Implications for Planning and Action

- The evidence of issues originating in gestation and early childhood suggests that the BOPDHB should improve the quality\(^{28}\) of pre-natal and early childhood interventions not only just for the sake of child health, but also to ensure future population health status gains.

- Reduced tobacco smoking, increased physical activity and improved diet are key objectives if the health status of the Bay of Plenty population is to be improved. This will assist with a wide variety of health problems such as cardiovascular disease, cancer and diabetes. The BOPDHB should target these risk factors using the Programmes of Care Framework.

- Risk taking among younger people is a key risk factor for injuries and sexually transmitted diseases. Rates tend to be higher among males and Maori. Building a "safety culture" is needed to reduce the prevalence of these conditions. The BOPDHB should collaborate with other agencies, communities and Iwi to progressively work towards this goal.

- Most health problems are complex and require multi-faceted solutions including early detection of disease and interventions to reduce avoidable mortality and hospitalisation. In order to reduce these risk factors, improve health status and meet ongoing health care needs, the BOPDHB should address service improvements across the continuum, from health protection and promotion, to illness prevention, treatment, rehabilitation and palliative care, through the Programmes of Care Framework.


\(^{28}\) Quality dimensions include timeliness, effectiveness, appropriateness, efficiency, person centredness and safety
The BOPDHB should promote healthy public policy, work with other agencies to mitigate the negative effects of adverse social and physical environment factors and improve the environment to enhance health status, using the Programmes of Collaboration Framework.

Enhanced primary care through PHOs, NGO services, improved community support services and better inter-relationships between providers and sectors are important to reduce and mitigate the identified common risk factors and improve population health status. The BOPDHB should support the sustainability and interconnectedness of PHOs and NGOs and the improvement of primary health care and community service capacity and capability.

**Premature Death**

In this analysis *premature* death is defined as all deaths occurring before the age of 65 years.

**Key Points**

- One quarter of all deaths in the Bay of Plenty District Health Board area occur among people aged less than 65 years.
- Just over 60% of Maori deaths occur before the age of 65 years compared with just under 18% for non-Maori. This reflects the younger age structure and higher mortality rate of the Maori population.
- Cancer is the leading cause accounting for one third of all premature deaths, however for Maori, injury and poisoning is the leading cause accounting for over one quarter of all premature deaths.
- Injury and poisoning is also the second leading cause of premature death overall accounting for nearly one quarter of all premature deaths.
- Diseases of the circulatory system are the third highest cause of premature death overall.
- Endocrine, nutritional and metabolic diseases are the fourth highest cause. This is largely due to diabetes and is much more prevalent among Maori.

**Implications for Planning and Action**

To improve the premature death statistics the BOPDHB needs to develop interventions which prevent the following conditions:

- Cancer
- Injury and poisoning
- Cardiovascular disease
- Diabetes

This requires initiatives and actions identified earlier in this report including prevention interventions, health promotion, primary health care enhancement and working collaboratively towards building a safety culture in Bay of Plenty communities.
Injury and Poisoning

Key Points

- Injury and poisoning is the leading cause of premature death for Maori and the second highest cause of premature death for non-Maori in the BOPDHB area. It is the fourth highest cause of death overall.

- The BOPDHB injury mortality rate is much higher than the New Zealand rate.

- The unintentional injury mortality rate for children is nearly three times the New Zealand rate.

- The unintentional injury mortality rate for young people aged 15-24 is nearly twice the New Zealand rate.

- The unintentional injury mortality rate for people aged 25-44 is one and a half times the New Zealand rate.

- The main causes of injury related deaths are motor vehicle crashes and suicide.

- The BOPDHB has the third highest youth suicide mortality rate out of all DHBs in New Zealand.

- Injury related preventable hospitalisation rates for children aged 5 to 14 and for young people aged 15 to 24 are higher than New Zealand rates.

- The main causes of injury related hospitalisation for children are pedal cycle accidents and accidental falls from playground equipment.

- Motor vehicle crashes, attempted suicide and violence related injuries are the main causes of injury related hospitalisation for young people aged 15-24 years.

- Diseases of the musculoskeletal system account for over one in ten hospital admissions (11%) and a large proportion of these are due to potentially avoidable accidents and injuries.

- Some injury deaths and hospital admissions are due to violence. According to the Injury Prevention Research Centre (2002) assault is one of the top five injury related reasons for hospitalisation among Maori aged 15-24 years.

In addition to the above findings, a recent study of children presenting with injuries at the Whakatane Hospital Emergency Department\(^\text{29}\) showed that the following causes of injury were of particular concern:

- Motorcycle and ATV (all terrain vehicle) accidents
- Skateboard injuries
- Horseriding injuries
- Trampoline injuries

A recent Tauranga study showed that falls, suicide, motor vehicle crashes, cutting and piercing injuries, assaults and cycle accidents were the main injury issues\(^\text{30}\).


\(^\text{30}\)
Implications for Planning and Action

As noted earlier in this report injury is a major cause of premature mortality in the Bay of Plenty. The BOPDHB also has a higher injury rate than New Zealand and must work in collaboration with other agencies, particularly the Accident Compensation Corporation and Land Transport New Zealand, to develop interventions which reduce the incidence and prevalence of injury especially those caused by:

- Peddle cycle accidents and falls from playground equipment for children
- Suicide and motor vehicle crashes among youth and young adults
- Falls among older people, particularly the old, old (85 years or more)
- Motor vehicle crashes
- Violence and assaults

A recent study in Tauranga showed that injury rates were higher in low socio-economic areas and this suggests that the social and economic determinants of injury must be addressed along with behavioural and environmental factors.

Chronic Conditions and Co-morbidity

This section summarises key points from a report completed in 2003 by the Planning and Service Development Unit on Chronic Conditions and Co-morbidity in the Bay of Plenty District Health Board Population.

Key Points

Chronic conditions such as cancer, cardiovascular disease, diabetes, chronic respiratory disease and depression account for most of the burden of disease in New Zealand today. However the health sector has developed from a system designed primarily for infectious diseases and associated acute illnesses which were the dominant causes of the burden of disease in the first half of the 20th century. Consequently the current health sector is orientated toward episodic care and does not adequately cater for the need for prevention, detection, ongoing management, continuity of care and recognition of co-morbidities - the simultaneous presence of multiple chronic conditions in individuals and populations. This is part of the reason for the currently inadequate provision of supportive (including palliative) care.

"This focus on temporary or acute health care needs is reflected in the current system’s emphasis on illness diagnosis, patient initiated consultations and curative or symptom relieving treatments.”

Chronic conditions and co-morbidity are costly, in terms of the high financial cost of caring for people with multiple chronic conditions, diminished population health status and quality of life and the ultimate impact on a country’s or a district’s economic potential.

Although multiple chronic conditions may be complex in both their causation and disease management requirements, most share a “handful” of common risk factors

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such as tobacco smoking, physical inactivity, unhealthy eating practices and excess alcohol consumption. There is great potential for preventative interventions to address these risk factors thus reducing the future prevalence of these conditions.

There is also potential for improvements in early detection and management for people with early manifestations of these conditions, care planning to reduce the progression of severity and complexity for people who already have these health problems and availability of supportive care particularly at the end stage of these conditions.

Key points for each of the major chronic diseases covered by the BOPDHB report are listed below followed by a discussion of implications for planning.

**Cardiovascular Disease**

- Cardiovascular diseases (diseases of the circulatory system) are the leading cause of illness in the Bay of Plenty accounting for 41% of all mortality and 13% of hospital admissions.
- BOPDHB mortality and hospitalisation rates are higher than New Zealand rates, particularly for males and Maori and for people aged 25-64.
- The main types of cardiovascular disease are coronary heart disease (this is also known as ischaemic heart disease and includes acute myocardial infarction), cerebrovascular disease (stroke), hypertensive disease (high blood pressure), cardiomyopathy and chronic rheumatic heart disease.
- Key risk factors for coronary heart disease include tobacco smoking, high cholesterol, high blood pressure, obesity, diabetes, low socio-economic status, family history of the disease and ethnicity.
- A large number of these illnesses could be prevented through reduced tobacco smoking, increased physical activity and improved diet.

**Cancer**

- Cancer is the leading cause for premature death in the BOPDHB area accounting for one-third of all deaths occurring before the age of 65
- Cancer is also the second leading cause of all deaths in the BOPDHB area, accounting for 27% of all deaths
- The leading cancers causing death in the BOPDHB area are lung, breast, prostate and colorectal
- BOPDHB cancer death rates are higher than New Zealand rates, particularly for males and Maori
- Compared with the rest of New Zealand the BOP has high rates of lung cancer, melanoma among non-Maori men and breast cancer among Maori women.
- Nearly 70% of people in the BOPDHB area who died from cancer were age 65 or more
Approximately 400 BOPDHB people die from cancer each year

In line with New Zealand projections the BOPDHB area can expect a 24% increase in the number of people dying from cancer in the next decade

The average age of cancer deaths for Maori is approximately 60 years compared to 72 years for non-Maori

The age-standardised cancer registration and mortality rates are higher in the EBOP than in the WBOP

The male melanoma mortality rate in the BOPDHB areas is 1.5 times the New Zealand rate

Cancer registrations have substantially increased over the last decade only in the Western Bay of Plenty (WBOP) while numbers are static in the Eastern Bay of Plenty (EBOP).

Maori represent 12% of BOPDHB people hospitalised for specialist oncology treatment

One-third of hospital discharges for specialist oncology are for people from the EBOP

One-quarter of BOPDHB cancer registrations and deaths are for people from the EBOP and this is similar to the proportion of population of BOPDHB people who live in the EBOP

Nearly 20% of cancer discharges were for children receiving specialist paediatric oncology treatment at Starship Children’s hospital

The most common sites of cancer registrations for BOPDHB people are colorectal, prostate, female breast, melanoma, lung, leukaemias and lymphomas

For most cancers sites the BOPDHB registration rate is lower than the New Zealand average however, the melanoma rate is 23% greater than the NZ registration rate.

Although 24% of the BOPDHB population are Maori only 10% of cancer registrations are Maori, reflecting the different age structure of Maori and non-Maori

The average age of cancer registrations for Maori in the BOPDHB area is 51 years compared to 64 years for non-Maori

Kawerau has the highest age-standardised cancer registration rate of all the Territorial Authorities within New Zealand (note Kawerau also has the highest smoking rate other than the Chatham Islands)

In 1998 there were 211 cancer registrations for people from the EBOP (55 from Opotiki district, 25 from Kawerau district and 131 from Whakatane district)
Diabetes

- Endocrine, nutritional and metabolic diseases and immunity disorders are the fifth highest cause of death (4% of all deaths) and the fourth highest cause of premature death for Maori (7% of deaths before age 65).
- Diabetes is the main disease in this group of conditions and prevalence is particularly high among Maori, especially males aged 45-64 years.

Respiratory Disease

- Diseases of the respiratory system are the third highest cause of death (9% of all deaths) for BOP people. Most of these deaths are due to chronic obstructive pulmonary disease and allied conditions including chronic bronchitis, emphysema, asthma and chronic airways obstruction.
- The BOPDHB mortality rate for respiratory disease is similar to the New Zealand rate.
- Compared to other DHBs the BOP has the fourth highest hospitalisation rate for diseases of the respiratory system.
- Nearly one in ten hospital admissions are for diseases of the respiratory system (9%).
- Diseases of the respiratory system are the leading cause of hospitalisation for BOPDHB children (21%).
- Asthma is a key cause of respiratory disease related hospitalisation for children. Over 62% of people admitted to hospital for asthma are children.
- Over half of all admissions of infants for diseases of the respiratory system are due to acute bronchiolitis and this is much more common among Maori infants.
- Respiratory disease is the third highest cause of hospitalisation for people aged over 65 years.

Chronic Mental Illness

- The BOPDHB report highlighted the increasing prevalence of depression and it’s frequent co-morbidity with chronic disease such as diabetes.
- Analysis of public hospital discharge data showed that where the principal diagnosis was mental illness, the most common additional diagnoses were for diabetes, heart disease, and diseases of the respiratory system.
- The Ministry of Health has developed guidelines for managing co-existing psychiatric and substance use disorders and the assessment and management of people with co-existing substance abuse and mental health disorders.

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• The co-morbidity of depression with chronic diseases such as cancer and advanced cardiovascular disease is also well demonstrated\(^{37}\).

• A recent meta-analysis found that the presence of diabetes doubles the odds of co-morbid depression\(^{38}\).

• In 2001 the World Health Organisation estimated that mental and behavioural disorders account for more than 12% of the global burden of disease and that this need not be so because in most cases they can be diagnosed and treated cost-effectively\(^{19}\).

**Implications for Planning and Action**

The BOPDHB can anticipate increasing population health and function need, due to the rising burden of chronic conditions and co-morbidities. This is partly due to the rapidly increasing population of older people (for whom the prevalence of chronic conditions is higher) and partly due to rising trends in prevalence of major risk factors - for example the prevalence of obesity has nearly doubled in the Bay of Plenty in the last decade. Not all people with chronic disease are old and for Maori, the prevalence of chronic disease and co-morbidity is high among people aged 45-64 years.

The BOPDHB should target organised health interventions to meet the needs identified in this report using the Programmes of Care Framework. This will ensure that the best interventions are accessible for populations of need across the continuum of care activities. The Modifiable Chronic Conditions Programmes of Care will place particular emphasis on effective and accessible prevention and chronic condition management interventions across the lifecourse, informed by the non-medical determinants of health and the pattern of co-morbidities. Recommended actions are outlined in more detail in the conclusion section of this report.

This approach is consistent with the knowledge from international literature including evidence-based practice, priority population health objectives identified in the New Zealand Health Strategy, local data on the current and projected burden of chronic disease and associated co-morbidities, and the priorities identified in the BOPDHB District Strategic Plan.

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Palliative Care

This section is based on a review of need for palliative care conducted by the BOPDHB Planning and Service Development Unit in 2003\(^\text{40}\). Key points and implications for planning are summarised below.

**Key Points**

The following key points are based on a synthesis of all the health needs assessment information streams and the conceptual model used in the palliative care review:

- The Bay of Plenty District Health Board population was 178,128 people in March 2001 and 123,960 were adults aged 20 years or more. The adult population is projected to increase to 136,650 by 2006.

- The palliative care needs of specific population groups should be met through a comprehensive generalist service which meets the unique needs of Maori, children, older people and people with disabilities.

- Redesigning the approach to funding palliative care services to reduce systems barriers, constraints and bottlenecks through ensuring and supporting a range of service providers to enable collaborative, synergistic, concatenated care for people with chronic progressive conditions.

- Maori have identified the importance to them of the opportunity to die at home supported and surrounded by their Whanau in order to complete culturally specific bereavement processes. For Maori living in small isolated communities, access to outpatient clinics, medications and clinical care out of hours care, has a significant impact on the ability of the patient and whanau to manage at home.

- Palliative care needs of children and young people can be provided within the community with close support from public hospital in-patient paediatric services.

- Paediatric palliative care focuses on supporting the family so the child is able to die at home.

- The review focused on a ‘palliative approach model’ that considers the necessary elements for quality end-of-life care for cancer and people with long-term, advanced chronic conditions (e.g. organ system failure, dementia, frailty etc). It recommended the following core elements:
  - Primary care as the first point of contact and mechanism for patient and family/whanau continuity management
  - Establishment of a ‘palliative care network’ comprising all providers of palliative care services led by an agreed champion and formalised under agreed terms of reference. The purpose of the network was to establish trusting relationships, share knowledge and resources, develop common service protocols and enable the delivery of seamless care to clients.
  - Multiple points of entry and single point of assessment and coordination

\(^\text{40}\) Bay of Plenty District Health Board (2003) *Palliative Care in the Bay of Plenty District Health Board: Evaluation of Need and Proposed New Directions Planning and Service Development, Tauranga*
To address current physical and workforce capacity constraints in both community and secondary care aiming for bed provision of 6.8/100,000 (>15 years of age).

Ensuring the palliative care network recognises the unique needs of Maori, children, older people and people with disabilities and organises their services in a way which meets these needs appropriately.

Developing, within the palliative care network, a multidisciplinary district palliative care team focused on coordinating palliative care activities and interventions for populations of need with chronic progressive conditions.

Redesigning the approach to funding palliative care services to reduce systems barriers, constraints and bottlenecks through ensuring and supporting a range of service providers to enable collaborative, synergistic, concatenated care for people with chronic progressive conditions.

Ensuring that Programmes of Care incorporate interventions that include palliative care components within the PoC Framework to enable improvements in care for populations of need.

Child Palliative Care Epidemiology

- UK epidemiological studies show that there are at least 10/10,000 of the childhood population aged 0-19 years in need of palliative care. One recent study states that “in the U.K., estimates are that 1:10,000 children die annually of chronic conditions and 1:1000 children live with chronic, life-limiting conditions”.

- In the Bay of Plenty District Health Board area there were 54,204 children aged 0-19 in 2001. This suggests that there are approximately 54 children in need of palliative care in the Bay of Plenty.

- UK incidence rates applied to the Bay of Plenty child population suggest that there are also five children dying each year from non-cancer chronic conditions in the Bay of Plenty.

- Recent mortality data shows that there were an average of four deaths per year from cancer among children aged 0-19 years in the Bay of Plenty District Health Board area between 1997 and 1999. This is 7% of all deaths for this age group.

- Higginson (1997) suggests that the main disease types for children which may result in death and require a palliative care period are:
  - Cancer
  - Endocrine, nutritional or immune disorders
  - Diseases of the nervous system and senses
  - Congenital disorders

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42 Cited in National Hospice and Palliative Care Organization (2001) A Call for Change: Recommendations to Improve the Care of Children Living with Life-Threatening Conditions, Alexandria, VA, USA.
Population Changes and Need for Palliative Care

- Population increases are likely to result in an increased need for palliative care although the impact will be modified by any changes in the incidence of cancer and non-cancer chronic conditions. Approximately 80% of current palliative care patients are aged 65 years or more and therefore growth in the population of this age group is a particularly important determinant of need for palliative care. However this driver of increasing need is partially counterbalanced by an overall trend of improving health status among older people. In New Zealand there has been at least a 35% reduction in age-specific mortality rates for people aged 65 years or more since 1980\(^\text{44}\).

- It is important that palliative care services are able to meet the particular needs of older people including those with chronic conditions living at home with inadequate support. Also, people with disabilities have complex co-ordination and care management requirements and services need to be flexible to meet their specific needs for palliative care services.

Implications for Planning and Action

Two years following the complete reorganisation of palliative care service in the Bay of Plenty, a number of recommendations from the ‘Palliative Care Review’ need to be advanced. These include:

- The existing Palliative Care Network needs to be strengthened and it is proposed that it should be aligned to the Technical Advisory Group to the CEO system to ensure adequate secretariat support, clarity of direction and capacity to provide advice for future developments. These will include:

  - Ensuring the network encompasses communities, volunteers, service users, specialist palliative care services and local practitioners.
  - Ensuring the palliative care network recognises the unique needs of Maori, children, older people and people with disabilities and organises their services in a way which meets these needs appropriately.

- The establishment of a multidisciplinary district palliative care team focused on coordinating palliative care activities and interventions for people requiring end-of-life care.

- Ensuring that Programmes of Care incorporate interventions that include palliative care components within the PoC Framework to enable improvements in care for populations of need.

The following were also considered to be important priorities for development:

- To encourage increased financial and voluntary community support to enable expert palliative care advice for home care teams and/or developing hospice at home models.

- To ensure inpatient palliative care is only provided for:
  - timely respite care
  - symptom control if existing services are unable to meet the needs of patients and their family/whanau within the home environment

- To ensure all palliative care is responsive to the unique needs of key populations identified by the Board including Maori, children, older people and people with disabilities. Providers must recognise that different populations have varying palliative care needs which require unique interventions to enable appropriate care and plan and deliver services accordingly.

- To ensure the diversity of populations in need of palliative care is recognised when planning and providing palliative care interventions including, for example, differences resulting from urban/rural environments, cancer/other chronic progressive diseases, male/female, supported/isolated social environments and low deprivation/high deprivation.

- To move away from palliative care experts providing day to day care and instead, incorporating palliative care expert advice into a comprehensive range of palliative care services.

- To increase the emphasis of palliative care specialist and expert services on developing and delivering ongoing education programmes. In particular education programmes that provide information on sound practice to a full range of primary care, secondary care, home care, residential care and facility care providers and to provide appropriate information to communities, patients and families/whanau.

- To increase the development of appropriate quality standards, referral protocols, case management guidelines and pain and symptom-control methods to enable better care at all levels for people who need these services.

- To increase the presence, coordination and collaboration between hospice, specialist palliative care and other providers with hospital-based providers to ensure more appropriate palliative care options are available to complement curative care for chronic progressive conditions.

- Due to the predicted population ageing in the BOPDHB and the concomitant increase in cancer cases and people with end-of-life care needs for chronic conditions, the BOPDHB requires a methodology to assist with accurate targeting for palliative care services. This targeting must be based on robust epidemiological analysis. It is recommended that the BOPDHB work with the Ministry of health to develop an understanding of the patterns of the epidemiology of the last part of life. This would require mapping of trends and variations over time across jurisdictions (ie. short period of evident decline (e.g. cancer death); chronic condition with exacerbations and sudden dying (e.g. organ system failure – heart, lung, kidney, liver); a long dwindling (typical of frailty, neuromuscular disorders and dementia).
Sexual and Reproductive Health

A comprehensive report on sexual and reproductive health issues was completed in 1997 by Midland Health\(^45\) and a brief summary of Bay of Plenty District Health Board issues was presented in the 2002 Health Status update\(^46\). The summary below is based on the 2002 update and although there are many aspects of sexual and reproductive health, it only covers sexually transmitted diseases and teenage pregnancy.

**Key Points**

**Sexually Transmitted Diseases**

The Annual Surveillance Report from the Institute of Environmental Science and Research (ESR) summarises statistics on sexually transmitted infections from sexual health clinics and laboratory surveillance in New Zealand including data from Waikato and Bay of Plenty laboratories. Some key findings from this report are summarised below.

- The prevalence of STIs is generally highest among younger people. Over 60% of gonorrhoea, chlamydia and genital warts cases were among people aged less than 25 years. The exception is genital herpes which is more prevalent among people aged 40-49 years.

- STIs are generally more common among Maori although cases of genital herpes are more common among non-Maori.

- Chlamidya and gonorrhoea cases have increased markedly since 1996.

- The Chlamydia\(^47\) rate in the Waikato/ BOP was found to be 5 times the rate in Australia and 4 times the rate in Canada. The chlamidya rate among people aged 15-19 years in the Waikato/ BOP was 5 times the rate in the UK.

- The gonorrhoea rate in the Waikato/ BOP was found to be 3-4 times the rate in Canada and twice the rate in Australia.

**Teenage Pregnancy**

- The BOP has a high rate of birth to teenagers. In 2001 it was 40.4 per 1,000 women aged 15-19 years compared with 29.1 per 1,000 for New Zealand as a whole.

- The Bay of Plenty also has a higher rate of hospitalisation for termination of pregnancy than New Zealand as a whole.


\(^47\) Rates of this nature could be interpreted to indicate good access and follow-up locally rather than an marked level of STIs.
Implications for Planning and Action

- Sexual and reproductive health issues are areas of significant need due to their impact on ‘healthy starts for infants’, life-course development, ability to achieve a supportive socio-economic level, community norms development and, not least, the spread of communicable and serious sexually transmitted life-threatening infections (i.e. Chlamydia, HIV/AIDS, hepatitis C and syphilis). Most sexual health policy and programmes have been focused on teenagers – an important group for focus – however, the broader need and societal impact for young adults and their families must also be addressed.

- As recommended by the Child & Youth Technical Advisory group, the BOPDHB must increase efforts in terms of prevention and health promotion programmes should be strengthened around the prevention of sexually transmitted diseases and reduction of unplanned/unwanted teenage pregnancy. Programme design also needs to consider other youth health issues such as risk-taking behaviours.

- The BOPDHB should lead the development of a sexual health strategy and Programme of Care. This will require collaboration with PHOs, NGOs and other sectors.

Oral Health

Key Points

- Compared with the rest of New Zealand the BOPDHB has poor oral health with one of the highest rates of missing and filled teeth and the lowest rates of “caries free” in New Zealand. 48

The BOPDHB 2001 report on population health status 49 showed that:

- For both five year olds and form two children, the oral health of Maori is worse than non-Maori.

- Oral health status in the Bay of Plenty is worse than the Midland region and New Zealand as a whole.

- Eastern Bay of Plenty children generally have worse oral health status than Western Bay of Plenty children but Eastern Bay of Plenty Maori children appear to have slightly better oral health status than Western Bay of Plenty Maori children.

- Fluoridation has a protective effect on oral health with a higher caries free rate and lower number of missing and filled teeth in fluoridated areas compared with non-fluoridated areas.

Based on evidence of need, Oral health was one of the first Programmes of Care 50 was developed in 2002. Since, there has been phase implementation of key interventions including:

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- Evaluation of Public-health funded Oral Health Promotion programmes report completed. An Oral Health Advisory group (OHAG) was established to develop an action plan to address the evaluation report’s recommendations.

- Dental services waiting lists in both Tauranga and Whakatane Hospitals have been addressed and a new oral health surgical list has been established in Whakatane.

- Based on a review of need, an oral health service for people with serious mental illness has been established.

- The Board’s mandate to influence the adoption of universal water fluoridation by Local Government is currently being progressed.

- A national review of School Dental Service facilities has been conducted by the Ministry of Health and the BOPDHB has developed an action to address required improvements. Currently, the BOPDHB is working with educational authorities while awaiting further information from the Ministry of Health before proceeding further.

**Implications for Planning and Action**

It is recommended that further implementation of the packaged interventions for the Oral Health Programme of Care includes:

- Increased resourcing of agents to influence Local Government around fluoridation of water supplies

- The BOPDHB Public Health Strategy should emphasise:
  - A coordinated and resilient approach to population health promotion programme components to the development and maintenance of ‘healthy eating, healthy teeth’.
  - Prevention strategies to address the causes of poor oral health (from children through to older people) including promotion of oral hygiene, use of fluoride, prevention of oral injury and introduction of cancer control mechanisms.

- Continual improvement of access to a range of co-ordinated dental health services for the BOPDHB’s population priority groups.

- Strengthening primary health care surveillance of and response to oral health.

- Further work is required to better understand the level of need for oral health services for older people, people with disabilities and people with long-term chronic conditions.
Mental Health and Alcohol and Drug Issues

A report written in 2004 by the Planning and Service Development Unit provided a summary of quantitative information to assist with planning mental health services in the Bay of Plenty District Health Board area. It was "Phase 1" of a more comprehensive approach that will be developed over the next few years. Information collated in the report included mental health prevalence estimates from psychiatric epidemiology studies applied to the Bay of Plenty District Health Board population, demographic indicators of mental health needs, suicide data and service utilisation data. The key points presented below are drawn from this report.

Key Points

While information has not been specifically presented in the report on co-morbidity it is important to recognise that people may have a complex mix of conditions and needs including both physical health problems and one or more mental health problems. It is also important to recognise that different demographic groups have different mental health needs. Children, young people, adults and older people all have specific mental health needs and people from different geographical areas, ethnic origin, genders and income groups also have multiple diverse problems and needs.

Prevalence estimates from the Ministry of Health's Mental Health Toolkit for DHBs and 2001/2004 data for the adult population aged 18-64 years suggest that there are the following numbers of adults with mental health problems and needs in the Bay of Plenty District Health Board area:

- 60-65 people with high support needs (0.06%)
- 3000-3200 with severe mental health disorders (3%)
- 5000-5300 with moderate to severe mental health disorders (5%)
- 12000-13000 with mild to moderate mental health disorders (12%)

Mental Health Toolkit prevalence estimates for children and young people and 2001/2004 population data suggest the following numbers of children and young people with mental health needs in the Bay of Plenty District Health Board area:

- 280-285 children aged under 10 years (1%)
- 580-600 children aged 10-14 years (3.9%)
- 630-720 young people aged 15-19 years (5.5%)

Other prevalence estimates provide different numbers and a wide range of different studies and the estimated numbers of people affected in the Bay of Plenty District Health Board are presented in this report.

Based on population distribution, 72% of people affected are likely to reside in the Western Bay of Plenty and 28% are likely to reside in the Eastern Bay of Plenty. However, the demographic characteristics of the population associated with mental health need suggest that the share in the Eastern Bay of Plenty may be greater (for example increased needs due to deprivation, age structure and ethnicity profile). On the other hand the Western Bay of Plenty population is increasing at a much faster rate than the Eastern Bay of Plenty so that by 2006 it is expected that 75% of the Bay of Plenty District Health Board population will live in the Western Bay of Plenty.
Other key points from the mental health report 2004 include the following:

- The different characteristics of geographical areas must be taken into account when planning mental health services. In general the Eastern Bay of Plenty has a younger population, a higher proportion of Maori, more geographical isolation, a lower average education level, higher unemployment, more people per household, a higher proportion of one parent families and more socio-economic deprivation overall.

- The Western Bay of Plenty has a rapidly growing population, a high proportion of older people and an increasing population of children and young people. It is also important to recognise the diversity within areas. For example, there are some areas of high deprivation in the Western Bay of Plenty and areas of low deprivation in the Eastern Bay of Plenty. There are also likely to be some people with low needs living in high deprivation areas and some people with high needs living in low deprivation areas.

- The analysis has not considered the additional impacts of rurality or urbanisation.

- The Bay of Plenty has higher rates of suicide mortality and hospitalisation for self-inflicted harm than New Zealand as a whole. The highest rates are among young people aged less than 30 years.

- The Bay of Plenty District Health Board has the third highest youth suicide mortality rate out of all New Zealand DHBs. Maori males have the highest mortality rate and non-Maori females have the highest hospitalisation rate for self-inflicted harm.

- In 2003, there were 130 people admitted to Bay of Plenty District Health Board facilities for intentional self-harm. Nearly 70% were female and 80% of cases were various types of intentional self-poisoning. One in ten patients was from outside the Bay of Plenty District Health Board area.

- National data does not suggest that the Bay of Plenty District Health Board has a high rate of inpatient hospitalisation for mental health problems compared with other DHBs.

Mental Health Information Collection (MHINC) data for Bay of Plenty District Health Board mental health services shows that:

- A total of nearly 5700 Bay of Plenty District Health Board residents clients were seen by mental health services in 2003. This is 3.1% of the Bay of Plenty District Health Board population. Over 3800 clients were from the Western Bay of Plenty and over 1800 were from the Eastern Bay of Plenty.

- The most common category of conditions overall was schizophrenia and other psychotic disorders followed by mood disorders and substance related disorders.

- Schizophrenia and other psychotic disorders were the leading conditions for males and for Maori and mood disorders were the leading conditions for females and for non-Maori. A greater proportion of conditions were substance related for males and for Maori.
There were approximately 1600 occasions of service per month between 2001 and 2003. About one quarter of mental health clients were Maori and this is similar to the proportion of Maori in the population.

MHINC inpatient data shows that in 2003 there were over 400 client contacts and approximately 8000 bed days were utilised.

A total of 1446 people were admitted to Bay of Plenty District Health Board inpatient facilities in 2003 with a mental health diagnosis code (in the ICD 10 range F00 to F99). The most frequent diagnoses overall were schizophrenia, mental and behavioural disorders due to use of alcohol, dementia, bipolar disorders and depression.

This summary has only provided a small selection of the main findings of the mental health report. Much more detailed information was in the report including data on the prescribing of atypical anti-psychotics and on the number of mental health residential care and support service placements in the Bay of Plenty.

The BOPDHB has initiated “phase II” of the Mental Health Needs Assessment which is a qualitative whole of population study to determine the current experience of mental health issues. This work is due for completion in January 2006. Information from Phases I and II will be analysed to inform the development of a Mental Health Programme of Care in April 2006.

Implications for Planning and Action

- The BOPDHB will utilise the Mental Health PoC to appropriately prioritise effective intervention packages across the population continuum of need from July 2006. Consideration must be given to providing adequate personal health funds to address non-blueprint ring-fenced mental health needs. Priorities flagged at this time will address:
  - Improvements in mental health care in primary health care settings
  - Planning for the expected increase in the prevalence of depression and develop services appropriately
  - Accurate targeting of programmes to ensure prevention and better management of mental health issues within community-based settings

- Given the high prevalence of schizophrenia, suicide rate and substance disorders, particularly in Maori males, the BOPDHB should ensure sufficient resources (capacity and capability) are available for early detection and support of at-risk men and their families.

- The quantitative study flagged the future population increase in mood disorders and depression. This, in the context of an ageing population, suggests that an increasing prevalence of early dementia linked with social isolation and frailty will require targeted programmes. This builds on plans to study the epidemiology of the last years of life using cross-sectoral expertise and community deliberative processes for analysis.
Frailty among Older People

In 2004 the BOPDHB Planning and Service Development Unit worked with Dr. Patrick Barrett from the University of Waikato on a study to examine frailty among older people. The concept of frailty was investigated and data from the New Zealand Survey of Older People 2000 were analysed to gain information on the characteristics of frail older people in the Bay of Plenty and New Zealand. This was the first phase of a multi-phase project investigating frailty that is being undertaken by the BOPDHB together with the University of Waikato.

Phase one of the study involved reviewing international literature on frailty including studies of both physical and social aspects of frailty and analysis of data from the New Zealand survey of nearly 3000 older people conducted in the year 2000.

Analyses focused on questions on a variety of aspects of health and functional ability which were used to define a sub-sample of frail older people. This included self reported:

- Health status
- Use of health treatments and services
- Physical problems
- Mood problems
- Appetite fluctuation & weight loss
- Impact on daily living

The combination of variables used to define frailty was similar to those identified in the international literature particularly through the work of Fried (2001) and Strawbridge (1998).

The quantitative analyses in phase one gave an indication of the characteristics of frail older people and results of this analysis was used to inform phase two of the study which involved in-depth qualitative interviews with a small sample of older people in the Bay of Plenty. The study was carried using ‘peer interviewers from the older age group’ in order to solicit more appropriate and accurate information. This study was subsequently analysed from a qualitative perspective and is currently in draft prior to publication.

This research explores the social transitions to frailty and what the BOPDHB can do to support older people and reduce the incidence of premature frailty in our district. It also attempts to understand resilience and what can be done to increase it’s prevalence among older people.

52 For more information from this survey see the following two reports: Ministry of Social Policy (2001). Living Standards of Older New Zealanders: A Technical Account, Ministry of Social Policy, Wellington. Statistics New Zealand (2004) Older New Zealanders – 65 and Beyond. Wellington. This research was conducted with the assistance of the Ministry of Social Development, and access to data from the Survey of Older People was provided under conditions specified by Statistics New Zealand to ensure confidentiality provisions of the Statistics Act were maintained.
Key Points

- The overall prevalence of frailty was approximately 8%.
- The prevalence of frailty varied from 6% for people aged 65-74 to 9% for people aged 75-84 and 20% for people aged over 85 years.
- The prevalence of frailty was slightly higher for women (9%) compared with men (7%).
- The prevalence of frailty among Maori (11.5%) was higher than for New Zealand European (7.9%) and Pacific Island people (6.9%).
- The prevalence of frailty was 4.7% among those legally married. Of those who had never married, it was 7.3%, among those who were divorced it was 10.6%, among those widowed it was 11.4%, and among those separated it was 16.4%.
- Of those who rated their health as poor, 39.2% were in the frail group, of those who rated their health as fair, 15.1% were in the frail group, and of those who rated their health as good, very good or excellent, 7.8 percent were in the frail group.
- The prevalence of frailty was higher among people of lower socio-economic status.
- In terms of social support, the prevalence of frailty was higher for those contacted either very frequently or infrequently - prevalence was lowest for those with a medium level of contact.
- Among older people the narrowing of social networks can be both a cause and a result of increasing frailty.
- Fluctuating health, fear of falls, perceived safety at night and unwillingness to burden family members are key factors that affect the social contact levels of frail older people.
- Appropriate housing and adequate home based support are important factors affecting the quality of life of frail older people.
- Medical and surgical misfortune, falls, medical misdiagnosis and death of a long-term partner were the most reported ‘tipping points’ in terms of triggering transitions into frailty.
- Some frailty is preventable, for example through access to and participation in adequate, appropriate physical activity which evidence demonstrates can reduce wasting of major muscle groups (sarcopaenia).

Implications for Planning and Action

The evidence reviewed on frailty suggests that the BOPDHB should:

- Work with national and local agencies to explore the epidemiology of the last years of life, determine which conditions and combination of conditions are most prevalent and develop trend data over time.
Further implement the Health of Older People Programme of Care in particular to address the needs of populations with advanced functional decline (frail older people). This should include packaged interventions which:

- support social support networks for frail older people
- address the increased ‘risks’ for frail people from organised health care delivery systems
- provides for primary health care coordinated, continuity-of-care management systems to support frail older people and their caregivers
- provides supportive and restorative services (i.e. hearing and visual aids, mobility prosthetics, etc.)
- includes collaborative actions for environmental maintenance and ‘urban redesign’ initiatives that enable frail older people to remain physically active within safe communities.
- improves home based and supportive living services for frail older people
- develops high-quality Specialist Health Services for Older People (as per Ministry of Health Guideline October 2004)

Work collaboratively with other agencies and the Public Health Directorate to address strategies to assist the young-old in their ‘preparation for ageing’

Develop prevention programmes which appropriately increase the physical activity levels of older people

Improve home based support services for frail older people

Social Determinants of Health

In 2004, the BOPDHB Planning and Service Development Unit prepared a report on Bay of Plenty District Health Board Population Characteristics to inform decisions regarding approaches and actions that could be used to influence and address the “upstream” determinants of population health status. Some of the findings in this report are summarised below:

Key points

- There is rapid population growth in the Western Bay of Plenty
- There is a high level of deprivation in many Eastern Bay of Plenty areas
- Some parts of the Western BOP have high deprivation and some parts of the Eastern BOP have low deprivation. In fact, nearly half the BOPDHB population who live in high deprivation areas (NZDep2001 Quintile 5) live in the Western BOP.
- Although 60% of Maori live in high deprivation areas compared with 20% of non-Maori, half of the 48,000 people living in Quintile 5 areas are Maori and half are non-Maori.

56 Bay of Plenty District Health Board (2004) Analysis to accompany the 2004 Health Needs Assessment Paper on Health, Equity and Partnerships with Community and Inform the Social Determinants of Health Programme of Care, Planning and Service Development Unit, Tauranga
Between 1996 and 2001 the child population in Eastern BOP districts decreased while in the same period the child population in Western Bay of Plenty increased substantially.

Tauranga is the only area within the district that can expect significant growth in the child population in the next decade.

Between February 2002 and February 2003 the number of businesses in the Western BOP District increased by over 10% compared with a New Zealand average of fewer than 5%. This is the second fastest growth rate of all local government authorities in New Zealand.

Among older agegroups the projected population growth rate is higher for Maori than for non-Maori.

The rate of voluntary or unpaid work outside the household is higher in the Eastern Bay of Plenty compared with the Western Bay of Plenty.

Local government voter turnout is higher in the Eastern Bay of Plenty while general election voter turnout is higher in the Western Bay of Plenty.

Trends that occurred between 1991 and 2001 give an indication of the direction in which some social indicators are moving. Some of the trends identified in this report are listed below.

- There has been a rapid increase in the number of families and in living density in the Western Bay of Plenty
- The prevalence of one parent families has increased in all areas
- The prevalence of one person households has declined slightly for Europeans but increased slightly for Maori
- There has been a decrease in the prevalence of home ownership in all areas
- The number of residents per household has reduced in all areas
- The proportion of multi-family households has increased in all areas
- The number of bedrooms per household has increased the number of people per bedroom has decreased and the equivalised housing index has improved

Other trends identified show that the proportion of the population:

- who are children has decreased in all areas except Tauranga
- who are young people aged 15-24 has decreased in all areas
- who are aged 65 or more has increased in all areas
- who are unemployed has decreased in all areas except Kawerau
- part time work has increased in all areas except Opotiki
who biked, walked or jogged to work has decreased in all areas

- with access to motor vehicles has increased in all areas
- who are married has decreased in all areas
- who are separated, divorced or widowed has increased in all areas
- who were born overseas increased in Western BOP, Tauranga and Whakatane but decreased in Kawerau and Opotiki.

Another part of the planning work for deciding how to address the social determinants of health was a comprehensive review of national and international literature which revealed evidence that showed that the social and economic makeup of a society has far reaching consequences for health.

“The primary determinants of disease are mainly economic and social, and therefore its remedies must also be economic and social”

The literature review showed that communities that are characterised by public participation in decision-making, mutual trust and reciprocity (social cohesion) and a culture of social inclusion tend to have better health.

There is variation of these factors between and within Bay of Plenty communities. Therefore, any planned actions to address social determinants of health must be tailored to the unique mix of these factors within communities.

The following themes were found to be important when planning social determinants interventions:

- Social deprivation is just as significant as material deprivation in contributing to poor health outcomes.
- Communities and their perceptions, and, central and local agency analytical perspectives, are both important and must be balanced.
- Social factors can cause psycho-social stress which contributes to poor health status.
- Actions to address social determinants must be genuine and not merely symbolic.
- Traditional power bases may not have all the answers or be the most appropriate to initiate action.
- The environmental as well as the individual and social context must be considered.

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57 Bay of Plenty District Health Board (2004) Health, Equity and Partnerships with Community: Evidence review, frameworks and models to accompany the 2004 Health Needs Assessment paper on population characteristics and inform the Social Determinants of Health Programme of Care Planning and Funding Group, Bay of Plenty District Health Board

- Collective community benefit depends on reciprocity and joint action and ensuring an inclusive approach.

- Community health is achieved by learning through active participation and action.

- Social capital, cohesion and inclusiveness are usually thought of as positive but may also have negative aspects.

- Community involvement and engagement works best when processes are participatory and involve rich and vibrant social interaction. This can be addressed through the use of a variety of evidence-based processes that accurately measure, incorporate and reflect community viewpoints (deliberative processes).

**Implications for Planning and Action**

In its consideration of the social determinants of health the analyses described above suggest that the BOPDHB should:

- Acknowledge the impact of rapid population growth on diminishing social capital and sense of community; and, progress collaborative relationships to address the consequences of change and the need to foster community connectedness.

- Utilise deliberative processes to enable communities to accurately assess their internal social cohesion and social inclusion and to enhance and build on existing social capital.

- Ensure that it uses measures of both material and social deprivation in a balanced approach to inform decision-making and is sensitive to the potential to stigmatise communities.

The BOPDHB has developed a way of addressing the issues identified by preparing a Social Determinants of Health Strategy and Programme of Collaboration Framework. The following approaches have been initiated to address the social determinants and inequity issues and build community health:

- Actualising the BOPDHB role in community health governance

- Building health by association (bridging, bonding and linking) through enhancing community relationships, building trust and encouraging reciprocity

- Raising awareness of the social determinants of health

- Developing BOPDHB organisational capacity to become effective stewards of community health

- Continue to develop the BOPDHB as a learning organisation with the capability to respond flexibly to emergent social issues – including social cohesion, inclusiveness and the broader social determinants

- Ensuring social determinants interventions and actions are high quality and sustainable

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59 Bay of Plenty District Health Board (2004) *Social Determinants of Health Strategy and Programme of Collaboration Framework. Communities – Achieving Their Potential.* Planning and Service Development Unit, Planning and Service Development Unit, Bay of Plenty District Health Board
These approaches and the associated actions are explained in more detail in the strategy and programme of collaboration document.

Implementation of the Programme of Collaboration since the initiation of the above includes the following actions:

- Establishment of collaborative relationships regionally and locally that support the achievement of community outcomes through Local Government Long-Term Council Community Plans (LTCCPs)
- Working collaboratively with central government agencies to develop whole system service delivery models and approaches
- Working with local authorities to assess the social and health impacts of urban change such as intensification, in order to mitigate negative impacts and encourage positive impacts.
- Developing a Public Health Strategy for the BOPDHB in collaboration with the Ministry of Health Public Health Directorate
- Preparing a population health strategy which integrates Public Health Strategy and the BOPDHB Primary Health Care Concept Plan 2002.
- Investigating the housing needs for People with Disabilities within the BOPDHB and Lakes DHB areas. This study is a joint project with Lakes DHB and Taupo and Tauranga City Councils and Housing New Zealand.
- Initiating work with the Energy Efficiency and Conservation Authority (EECA), and local philanthropic organisations to improve the physical environment of older housing stock in Tauranga. This will focus on insulation and dehumidification.
- Nationally commissioned work under the jurisdiction of the BOPDHB Maori Health Runanga to develop a Tangata Whenua model of determinants of health.
- A number of population level initiatives to address environmental and social barriers to healthy eating, healthy actions (HEHA), and the achievement of injury prevention.

International evidence and local information has shown that population health status is strongly influenced by social determinants. The Social Determinants of Health Strategy and Programme of Collaboration Framework highlights the BOPDHB’s opportunity to take a leadership and stewardship role.

Implementation of these social determinants approaches and actions will assist in achieving the BOPDHB’s vision of “Healthy Thriving Communities”.
Health Status by Age Group

Low Birth Weight Babies

In 2004, the Planning and Service Development unit prepared a report on Low Birth Weight Babies for the Community and Public Health Advisory Committee as a result of a recently observed increase in the rate of babies born with a weight of less than 2000 grams.

Key Points:

This report showed that within the BOPDHB, there has been:

- A slight increase in the prevalence of low birth weight babies in the last decade
- A slight increase in the prevalence of multiple births
- Little clarity around the extent of utilisation of assisted reproduction technologies and the possible impact on the increasing trend for low birth weight infants.
- A high rate of births to mothers under the age of twenty years
- A higher proportion of low-birthweight among Maori
- No data collected on the pre-natal nutritional status of mothers of newborns
- There is a significant prevalence of current smoking in mothers of newborns, equating to almost a third of mothers admitted for birth.
- Admission to hospital of women for spontaneous abortion was associated with a significant rate of cigarette smoking

Implications for Planning and Action

Given the importance of ‘healthy starts’ in early life to future health and development of adults, the Planning and Service Development Unit identified a number of proactive interventions to stabilise or hopefully reduce the BOPDHB trend toward an increasing proportion of low birthweight babies including:

- Focusing additional planning, funding and provider resources on stopping cigarette smoking during pregnancy including the need to influence other funders
- Through funding contracts, smoking cessation interventions into pre-natal care and education forums were included to address opportunities to influence positive behaviours
- Through partnerships and funding, the content and structure of prenatal care programmes and interventions has been expanded

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Through planning, partnerships and funding, promote a pre-pregnancy counselling programme focused on women’s health

Working with fertility experts locally and regionally around better information for women considering assisted reproduction as to the increased risks in singleton and twin pregnancies

The above recommendations should be considered by the Child and Youth Technical Advisory Group to the Chief Executive Officer of the BOPDHB and provide advice to advance work by the Planning and Funding Group to develop evidence-based interventions that address ‘healthy starts.’

Health Status of Infants and Children (aged 0-14 years)

Information in this section was derived from the Health Status Update completed by the Planning and Funding Unit in 2002.

Key Points:

- There are over 40,000 children in the BOPDHB area and 38% are Maori.
- The main causes of death for children are Sudden Infant Death Syndrome (SIDS), perinatal conditions, congenital anomalies (birth defects), injury and poisoning, and cancer.
- The BOPDHB mortality rates for both infants and children are higher than the New Zealand rates.
- The BOPDHB unintentional injury mortality rate for children is over twice the New Zealand rate.
- For infants, the BOP mortality rate is higher than the NZ rate overall and for congenital anomalies, injury and poisoning and symptoms, signs and ill-defined conditions. It is only statistically significantly higher for symptoms, signs and ill-defined conditions (nearly all of these deaths are due to Sudden Infant Death Syndrome or SIDS).
- For children aged 1-14 years the BOP mortality rate is higher than the NZ rate overall and for injury and poisoning and cancer. However these differences are not statistically significant.
- The main causes of hospitalisation for BOP children are diseases of the respiratory system, perinatal conditions and injury and poisoning.
- The majority of perinatal admissions for infants are due to low birthweight, pre-term babies and respiratory problems around the time of birth.
- Over half of all admissions of infants for diseases of the respiratory system are due to acute bronchiolitis and this is much more common among Maori infants.
- Asthma is a key cause of respiratory disease related hospitalisation for children. Over 60% of people admitted to hospital for asthma are children.
BOPDHB children have poor oral health with one of the highest rates of missing and filled teeth (MFT) and lowest rates of “caries free” in New Zealand.

The BOPDHB has one of the highest proportions of five year old children failing school entry hearing screening tests in New Zealand.

Implications for Planning and Action

The BOPDHB should develop services across the continuum of activities within the Programmes of Care Framework which:

- Addresses teenage pregnancies, reduced maternal smoking, improvement in maternal nutritional status, improves access to midwifery services, improves uptake rates to breast-feeding, careful monitoring of women utilising assisted reproductive technologies and reduced overall cigarette smoking in reproductive-age women. These interventions should reduce the prevalence of perinatal conditions related to low birthweight and pre-term babies.

- In addition to interventions outlined above in order to reduce high mortality rate from Sudden Infant Death Syndrome, the following must be implemented:
  - The organisation for local forensic scene examination.
  - The formation of a local Child and Youth Mortality Review Group as a sub-group of the Child and Youth Technical Advisory Group
  - Strengthen interventions around known effective SIDS risk prevention methodologies
  - More evidence-based well-child visits and maternal support services

- In addition to all of the above, interventions are also required that focus on improving the local environment within which infants live (e.g. smoke-free homes and housing insulation and dehumidification) to reduce the prevalence of hearing deficits and diseases of the respiratory system, especially acute bronchiolitis among Maori infants and asthma among children.

- Participate collaboratively with cross-sector partners to embed a safety culture and reduce the prevalence of injury and poisoning, especially pedal cycle accidents and accidental falls from playground equipment.

- Continue to implement the evidence-based interventions targeting the poor oral health status in children.

The Planning and Service Development Unit has started addressing the needs of this age group by providing secretariat support for a Child and Youth Health Technical Advisory Group chaired by a local senior paediatrician and made up of cross-sectoral stakeholders from Bay of Plenty child health service providers and agencies such as the Special Education Group of the Ministry of Education and Child, Youth and Family services.

This group provides the Chief Executive of the District Health Board with advice on bottom up and expert opinion on appropriate strategies and approaches to address child and youth health needs and issues and improving health status.
One of the first initiatives of this group was to prioritise perceived needs and gaps in services for children and youth, with the first action area being mild to moderate disruptive behaviour and developmental disorders in children and youth. The aim is to develop a pathway to collaborative, integrated models and approaches to service development and delivery.

Health Status of Young People (aged 15 - 24 years)

Information in this section was derived from the Health Status Update completed by the Planning and Funding Unit in 2002.

Key Points

- There are nearly 20,000 young people living in the BOPDHB area and 33% are Maori.

- The main causes of death in this age group are injury and poisoning (72%) and cancers (6%) and 70 percent of deaths in this age group are male.

- The BOPDHB mortality rate is higher than the New Zealand rate overall and for injury and poisoning. Both of these differences are statistically significant.

- The BOPDHB had the third highest youth suicide mortality rate out of all New Zealand DHBs in the 1996-2000 periods. A total of 36 young people died from suicide in this period to give a rate of 35.8/100,000. This is an average of 7 deaths per year. There were a particularly high number of deaths in 1997.

- The main causes of hospitalisation in this age group are pregnancy and birth (43%) and diseases of the musculoskeletal system (10%) and digestive system (7%).

- Injury and poisoning accounts for 5% of hospital admissions for young people in the BOP and it is also a significant cause of visits to hospital emergency departments. Some admissions and emergency department visits are related to interpersonal violence and some are alcohol related.

- According to the Injury Prevention Research Centre the main causes of injury related hospitalisation in New Zealand for young people are motor vehicle crashes, falls, attempted suicide, assault, and striking an object or person.

- Motor vehicle crashes, attempted suicide and violence related injuries are the main causes of injury related hospitalisation for young people in the BOP.

- The recent New Zealand youth health status report released by the Ministry of Health (2002) highlighted the following health issues for youth; injuries, sexual and reproductive health issues, tobacco use, nutrition, physical activity, obesity, mental illness, alcohol and drug use (especially cannabis) and gambling.

- The Annual Surveillance Report 2001 by the Institute of Environmental Science and Research (ESR) on Sexually Transmitted Infections in New Zealand showed that the BOP has a high rate of chlamidya and gonorrhoea.

- The BOP has a high rate of birth to teenage mothers compared with New Zealand as a whole.
Implications for Planning and Action

Considering the above information on the health status of young people, the BOPDHB should:

- Further engage in partnerships and collaboratives to progress intersectoral approaches to injury prevention focusing primarily on the causes and prevention of youth suicide, motor vehicle crashes and interpersonal violence.

- Complete a review of need for youth sexual and reproductive health interventions to develop a strategy addressed within the Programme of Care (across the continuum from prevention through to primary care and community and hospital based services). This approach should focus particularly on preventing sexually transmitted diseases and unintended pregnancies.

- Work with communities, the Public Health Directorate and local public health providers, PHOs and NGOs to develop approaches that provide youth with the skills and resiliency to make healthy choices in regard to alcohol and other drugs.

- Work with other agencies to improve dangerous physical and social environments and mitigate against risk-taking behaviour among young people.

Health Status of Adults (aged 25-64 years)

Information in this section was derived from the Health Status Update completed by the Planning and Funding Unit in 2002.

Key Points

- There are nearly 90,000 adults in the BOPDHB area and 20% are Maori.

- The main causes of death for specific age groups of adults are injury and poisoning, cancers and diseases of the circulatory system.

- Cancers are the leading cause of premature death due to large numbers among people aged 55-64 years.

- For adults aged 25-44 years, 70 percent of deaths are male and for adults aged 45-64 years, 60 percent of deaths are male.

- For adults aged 25-44 years the BOP mortality rate is higher than the New Zealand rate overall and for injury and poisoning and neoplasms. All these differences are statistically significant.

- For adults aged 45-64 years the BOP mortality rate is higher than the New Zealand rate overall and for cardiovascular disease, type II diabetes, injury and poisoning and cancers. However these differences are not statistically significant.

- The main causes of hospitalisation for adults are pregnancy and birth and diseases of the circulatory, digestive and musculoskeletal systems.

- The BOPDHB has adult hospitalisation rates that are at least 1.5 times the New Zealand rate for diseases of the liver and pancreas, burns and mental health conditions among older adults (45-64 years).
Implications for Planning and Action

In summary, key health issues for adults in the BOP identified in this analysis include:

- Injury and poisoning, including burns
- Cancers (the leading cause of premature death)
- Diseases of the circulatory system, particularly ischaemic heart disease (including acute myocardial infarction) and cerebrovascular disease.
- Diseases of the digestive system such as gastric ulcers, diseases of the intestine and peritoneum and chronic liver disease and cirrhosis
- Endocrine, nutritional and metabolic diseases (especially diabetes)
- Mental health conditions

Clearly, for this age group, although some of the injury issues common to younger people remain, chronic conditions\(^{62}\) contribute most to morbidity and mortality, therefore the BOPDHB should:

- Accelerate the implementation of the Modifiable Chronic Conditions Programme of Care packaged interventions including the establishment of the Population Health Strategic Action Unit, Prevent Care Plus, Pre-Care Plus, BOPDHB Care Plus and Post Care Plus.
- Use these Modifiable Chronic Conditions Programme of Care interventions to address activities across the continuum such as prevention, early detection and treatment of chronic conditions such as cancer, cardiovascular disease, diabetes, respiratory conditions, gastrointestinal disorders, neuromusculoskeletal and mental health conditions.
- Work with PHOs to organise a Primary Health Care Information Management Strategy aligned to the Diabetes Information Technology Upgrade Project (Ministry of Health) that will support the delivery of the above packaged interventions and programmes.
- Review the need for secondary services interventions for the whole of the BOPDHB, across acute and elective service lines and recommend investment, disinvestment and redesign options
- Work to further implement the regional services plans for non-surgical cancer services and rheumatology services and, work with the implementation steering group on the regional cardiac services report.

Health Status of Older People (aged 65 years or more)

Information in this section was derived from the Health Status Update completed by the Planning and Funding Unit in 2002.

Key Points

- There are over 25,000 people aged 65 years or more in the BOPDHB area and 7% are Maori.
- The main causes of death for older people are cancers, cardiovascular diseases including stroke, respiratory diseases, gastrointestinal diseases and type II diabetes.
- For older people aged 65-74 years the BOP mortality rate is higher than the NZ rate overall and for diseases of the circulatory system, urinary and reproductive systems, respiratory system, digestive system, and type II diabetes. However these differences are not statistically significant.
- For older people aged 75 years or more the BOPDHB mortality rate is higher than the New Zealand rate overall and for diseases of the digestive system, diseases of musculoskeletal system and connective tissue and injury and poisoning. However these differences are not statistically significant.
- The main causes of hospitalisation for older people are diseases of the circulatory system, musculoskeletal system, digestive system and respiratory system.
- The BOPDHB has hospitalisation rates for older people that are at least 1.5 times the New Zealand rate for "pre MDC" conditions (includes major transplants, tracheostomy etc.), Burns, Substance Use, Kidney, Urinary, Blood, Immunity, and Cancer among oldest groups.
- Accidental falls are a major cause of hospital admission for older people in the BOP, accounting for nearly one third of all injury related hospitalisations in 2001.

Implications for Planning and Action

The prevalence and impact of modifiable chronic conditions which emerges as a significant health and function issue in adulthood, continues and intensifies in the older age group. As a result, all of the recommendations outlined for adults should also be implemented for the older age group. Additionally, the BOPDHB should:

- Implementing the report on the ‘Redesign of Specialist Health Services for Older People’ aligned to the New Zealand Health of Older People Strategy and local BOPDHB planning initiatives.
- Accelerate the implementation of quality health and disability support services across the continuum of care.

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- Work with other agencies to address the unique needs of frail older people utilising information obtained through quantitative and qualitative research on frailty among older people in the BOPDHB area and information proposed to be obtained through the epidemiology of end-of-life project.

- Organise a collaborative approaches to design and implement evidence-based interventions that address falls, including those in hospital and in residential care facilities.

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SECTION 3:

Conclusion and Recommendations
Conclusion and Recommendations

This report has collated population health needs assessment work conducted for the BOPDHB by the Planning and Service Development Unit over the last four years. It has also updated information, where possible, including a summary of current planning and service development initiatives. This conclusion section of the report organises recommendations for BOPDHB action for District Annual Planning under the following broad themes which reflect the District Strategic Plan 2005:

1. Programmes of Collaboration to Improve Population Health
2. Programmes of Care to Improve Health Care and Health Outcomes
3. Reducing inequalities through accurate targeting to improve health equity
4. Addressing knowledge and resource gaps

1. Programmes of Collaboration to Improve Population Health

International evidence and local information shows that population health status is strongly influenced by social determinants. Tangata Whenua determinants are an important influence on the health status of Maori. The District Health Board has agreed to take a leadership and stewardship role in working with other agencies to build social capital and overcome social and economic challenges to population health. This work must continue to be supported and further developed because it is critically important to enable the achievement of the Board’s vision of “Healthy Thriving Communities”.

The essential approaches and associated actions are explained in more detail in the Social Determinants of Health Strategy and Programme of Collaboration document which highlights the BOPDHB's opportunity and responsibility to take a stewardship role.

There are two parts to this, creating collaboratives and a population health culture.

1.1 Creating collaboratives with other agencies to address the social determinants of population health

Collaboration involves investing and working together at a strategic level toward a common goal. The Planning and Service Development Unit has commenced this work, is leading and participating in some cross-sectoral initiatives and has plans to progress collaborative strategies such as Public Health, Primary Health and Community Deliberative processes. The Programme of Collaboration is the key planning tool to organise and implement this collaborative approach.

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Bay of Plenty District Health Board (2004) Social Determinants of Health Strategy and Programme of Collaboration Framework. Communities – Achieving Their Potential. Planning and Service Development Unit, Planning and Service Development Unit, Bay of Plenty District Health Board
1.2 Creating a population health culture

A population health culture involves all people and structures within communities taking active responsibility to create health and wellbeing. There is strong evidence that the health status of communities can be improved by a population based approach.⁶⁷

The District Health Board has the opportunity to take actions which contribute toward furthering the creation of a population health culture by:

- Marketing health to populations and communities by, for example, positively influencing community norms around common risk factors such as smoking, diet, physical activity, alcohol and substance use, psychosocial stress, sexual activity and risk taking behaviour.

- Finding innovative ways to reduce the population prevalence of tobacco smoking, increase physical activity participation and improve diet to overcome key obstacles to population health status and assist with a wide variety of health problems, particularly modifiable chronic conditions such as cardiovascular disease, cancer, respiratory disease and diabetes.

- Reducing risk taking among younger people because this is a key contributory factor for injuries, sexually transmitted diseases and unintended pregnancies. A "safety culture" is an essential part of a population health culture.

- Encouraging cooperation between a wide range of parties involved in population health related initiatives such as Ministry of Health funded Public Health providers, PHOs, NGOs, community trusts and philanthropic organisations.

- Continuing the implementation of the population health components of Programmes of Care and activities which mitigate the negative effects of adverse social and physical environment factors

- Enhancing the role of Primary Health Organisations, so that they contribute to building a population health culture.

- Contributing to the development of interagency healthy public policy focused on improving population health

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2. Programmes of Care to Improve Health and Disability Support Care and Outcomes

This population needs assessment has identified current need and disparities in health status. In addition, the BOPDHB can anticipate increasing population health and function need.

A range of prioritised interventions are required to meet these needs and the BOPDHB is organising evidence-based interventions using the Programmes of Care (PoC) Framework. Key priorities include:

- Reducing the prevalence, impact and severity of chronic conditions and improve the management of co-morbidities
- Addressing high injury rates particularly for children, youth, young adults and older people.
- Enhancing maternal health, enabling healthy starts for infants and improving child health status.
- Addressing the unique health needs of young people related to risk taking and psycho-social stress
- Reducing frailty and promoting resilience among older people
- Improving population mental health status

3. Reducing inequalities through accurate targeting to improve health equity

Inequalities are differences in health status between groups and health equity in this context involves reducing differentials in health outcomes to the maximum extent possible.

This report has reviewed health status information on the whole of the BOPDHB population. It includes some comparisons which indicate inequalities in health status, for example between Maori and non-Maori and between age-groups. It does indicate geographic variations in socio-economic status (NZDep2001) but does not directly analyse geographic variations in health status (for example urban/rural, sub-district or neighbourhood levels).

Inequalities can be considered from many perspectives but the data available for this report only permits limited comparative approaches. At least the following target groups are identified as important for addressing health inequalities in the district:
3.1 Maori with poor health status

In general, Maori have poorer health status than non-Maori for a wide range of risk factors and health conditions. For some indicators BOPDHB Maori have poorer health status than New Zealand Maori as a whole. There is also variation in health status within the Maori population in the BOPDHB but this requires further analysis.

3.2 People with poor health status

Inequalities affect a wide variety of sub-groups who have poorer health status including:

- People from low socio-economic groups
- People with chronic conditions and/or co-morbidities
- Older people, particularly those with frailty
- People with severe mental illness
- Children with disabling injuries or those with birth defects
- People from a range of specific groups such as homeless people, new immigrants and some ethnic minorities

4. Addressing knowledge and resource gaps

Knowledge covers the range of types of information necessary to ensure accurate tailoring and targeting of interventions and resources to address the Board’s statutory requirements under the New Zealand Health and Disability Act 2000. Resources in this context refers to funding distribution, health services distribution, workforce and provider competencies and the health literacy level within the population of the BOPDHB.

In preparing this report, while comprehensive in scope and detail, it is apparent that there are various and numerous knowledge and resource gaps that must be addressed including:

- Understanding around the social construction and epidemiology of disability
- Bottom up primary health care information aggregated by Primary Health Organisations from unit record data including health risk assessment, diagnoses, care programmes and continuity mechanisms in addition to regularly collected and reported enrolment information.
- Improved information about current workforce competencies, capabilities and capacity, the geographic distribution of this workforce and the necessary actions required to meet current and future need.
- Sub-district analysis of health status and health services to enable better targeting of interventions across the district by geography, demography and other factors defining groups with high health needs.

- Strengthening BOPDHB knowledge management capability and capacity, including the use of information technology, to enhance collaboration, population health, change-leadership, accurate targeting, monitoring and evaluation.
## Appendix 1

Self Reported Prevalence of Conditions and Risk Factors, New Zealand Health Survey 2002/03 (% reporting condition)

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<thead>
<tr>
<th>Condition</th>
<th>BOPDHB</th>
<th>NZ</th>
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<tbody>
<tr>
<td>Heart Disease 15+</td>
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## Self Reported Prevalence of Conditions and Risk Factors, New Zealand Health Survey 2002/03 (% reporting condition)

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<td>Maori</td>
<td>49.6*</td>
<td>47.2*</td>
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<td>All</td>
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<tr>
<td>Marijuana (ever)</td>
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<td>57.9*</td>
<td>57.4*</td>
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<td>27.3*</td>
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<td>Hazardous drinking AUDIT GE8</td>
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<tr>
<td>Phys Active &gt;150min/wk</td>
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<td>All</td>
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<td>Phys Active &gt;150min/wk on 5+days per week</td>
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</tr>
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<td>52.5</td>
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<td>Fruit &gt;=2serves/day</td>
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<td></td>
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<td>46.3</td>
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<td>54.8*</td>
</tr>
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<td>49.0</td>
<td>53.9*</td>
</tr>
<tr>
<td>Vege &gt;=3seves/day</td>
<td></td>
<td></td>
</tr>
<tr>
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<td>63.9</td>
<td>65.6</td>
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<td>non-Maori</td>
<td>69.1</td>
<td>67.6</td>
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<td>All</td>
<td>68.1</td>
<td>67.3</td>
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<tr>
<td>Fruit &gt;=2serves/day &amp; Vege &gt;=3serves/day</td>
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<tr>
<td>Maori</td>
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<td>34.7</td>
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<tr>
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<td>37.3</td>
<td>40.5</td>
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## Appendix 2
### PHI Indicators 2004

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Indicators</th>
<th>Ratio (BOPDHB Rate/NZ Rate)</th>
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<tr>
<td>Whole Population</td>
<td>Ambulatory sensitive hospitalisations, 2002</td>
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<td>Avoidable mortality, 2000</td>
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<td>Infants &amp; Children (0–4 years)</td>
<td>Infant mortality rate, 2000</td>
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<td></td>
<td>Low birthweight, 2000/01</td>
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<td>Breastfeeding, 2002/03</td>
<td>106.8</td>
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<td></td>
<td>Burns (hospitalisations), 2002</td>
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<tr>
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<td>Falls (hospitalisations), 2002</td>
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<td>Poisoning (hospitalisations), 2002</td>
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<td>Children (5–14 years)</td>
<td>Hearing failure at school entry, 2001/02</td>
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<td>Unintentional injuries (mortality), 2000</td>
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<td>Asthma (hospitalisations), 2002</td>
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<td>Youth (15–24 years)</td>
<td>Teenage birth rate (10–19 years), 2002</td>
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<td>Youth suicide, 2000</td>
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<td>Motor vehicle accidents (mortality), 2000</td>
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<td>Adults (25–64 years)</td>
<td>Ischaemic heart disease (mortality), 2000</td>
<td>83.3</td>
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<td>Lung cancer (incidence), 2000</td>
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<td>Lung cancer (mortality), 2000</td>
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<td>Colorectal cancer (mortality), 2000</td>
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<td>Melanoma (incidence), 2000</td>
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<td>Melanoma (mortality), 2000</td>
<td>74.6</td>
</tr>
<tr>
<td></td>
<td>Cervical cancer (incidence), 2000</td>
<td>123</td>
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<tr>
<td></td>
<td>Cervical cancer (mortality), 2000</td>
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<td>Breast cancer (incidence), 2000</td>
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<tr>
<td></td>
<td>Breast cancer (mortality), 2000</td>
<td>96.1</td>
</tr>
</tbody>
</table>

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Notes:
(2) The Ratio column compares the BOPDHB rate with the NZ rate. Where the difference is statistically significant it is highlighted in bold. A number less than 100 and in bold is a BOPDHB rate that is significantly lower than the NZ rate. A number greater than 100 and in bold is a BOPDHB rate that is significantly higher than the NZ rate.
### Appendix 2 (continued)
**PHI Indicators 2004**

#### Adults (65+ years)

<table>
<thead>
<tr>
<th>Indicator</th>
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<tr>
<td>Ischaemic heart disease (mortality), 2000</td>
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<tr>
<td>Stroke (mortality), 2000</td>
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<td>Falls (hospitalisations), 2002</td>
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<tr>
<td>Lung cancer (incidence), 2000</td>
<td>88.2</td>
</tr>
<tr>
<td>Lung cancer (mortality), 2000</td>
<td>101</td>
</tr>
<tr>
<td>Colorectal cancer (incidence), 2000</td>
<td>93.3</td>
</tr>
<tr>
<td>Colorectal cancer (mortality), 2000</td>
<td>127.3</td>
</tr>
<tr>
<td>Melanoma (incidence), 2000</td>
<td>73.1</td>
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<tr>
<td>Melanoma (mortality), 2000</td>
<td>97.6</td>
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<tr>
<td>Cervical cancer (incidence), 2000</td>
<td>126.2</td>
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<tr>
<td>Cervical cancer (mortality), 2000</td>
<td>72.2</td>
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<tr>
<td>Breast cancer (incidence), 2000</td>
<td>81.7</td>
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<tr>
<td>Breast cancer (mortality), 2000</td>
<td>90.1</td>
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<tr>
<td>Prostate cancer (incidence), 2000</td>
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<tr>
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#### Infectious disease

<table>
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<td>Infectious disease related mortality, 2000</td>
<td>97.8</td>
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<tr>
<td>Tuberculosis (notifications), 2002</td>
<td>54</td>
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<tr>
<td>Whooping cough (pertussis) (notifications), 2002</td>
<td>24.9</td>
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<tr>
<td>Meningococcal disease (notifications), 2002</td>
<td>191.6</td>
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<tr>
<td>Hepatitis B (notifications), 2002</td>
<td>131.9</td>
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<tr>
<td>Rheumatic fever (initial attack) (notifications), 2002</td>
<td>213.8</td>
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<tr>
<td>Campylobacteriosis (notifications), 2002</td>
<td>66.0</td>
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<tr>
<td>Cryptosporidiosis (notifications), 2002</td>
<td>47.4</td>
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<tr>
<td>Giardiasis (notifications), 2002</td>
<td>84.2</td>
</tr>
<tr>
<td>Salmonellosis (notifications), 2002</td>
<td>68.3</td>
</tr>
</tbody>
</table>

---

Notes:

2. The Ratio column compares the BOPDHB rate with the NZ rate. Where the difference is statistically significant it is highlighted in bold. A number less than 100 and in bold is a BOPDHB rate that is significantly lower than the NZ rate. A number greater than 100 and in bold is a BOPDHB rate that is significantly higher than the NZ rate.
Appendix 3
Explanation of PHI Online datasets

PHI Online is an internet based data service provided by the Public Health Intelligence unit of the Ministry of Health - see http://www.phionline.moh.govt.nz/
These explanatory data notes are provided on the website.

Mortality Data
All mortality data is for the period 1997-2001 and based on the June1997 to June 2003 projected population. The data is adjusted to the New Zealand Census Mortality Study (NZCMS) for the years prior to 2000. The figures are expressed as a count per 100,000 population. If the sample was less than 5, the rates are suppressed. Avoidable mortality is related to the ages 0 - 74 yrs. Mortality figures form part of NZHIS’ Mortality Collection, which classifies the underlying cause of death for all deaths registered in New Zealand, using the ICD-10-AM 2nd Edition and the WHO Rules and Guidelines for Mortality Coding. The mortality statistics are compiled according to the year the death is registered. Causes of deaths for data before 2000 are recorded in ICD-9-CM-A and have not been mapped forward to ICD-10-AM.

Ambulatory Sensitive Hospitalisations (A. S. H.)
Ambulatory sensitive hospitalisations are hospitalisations resulting from disease sensitive to prophylactic or therapeutic interventions deliverable in a primary health care setting. Examples of these are vaccine preventable diseases, early recognition and excision of melanoma, effective glycaemic control in people with diabetes (Our Health, Our Future - Hauora Pakari, Koiora Roa - The Health of New Zealanders 1999, MoH). This data is sourced from the National Minimum Dataset (Hospital Events). The figures are expressed as a count per 100,000 population. If the sample was less than 5 in total, the rates are suppressed.

Cancer Registration Data
All cancer registration data except lung cancer are for the period 1999-2003. Lung cancer is for the period 1997-2001. The figures are expressed as a count per 100,000 population. If the sample was less than 5 in total, the rates are suppressed. Registration figures originate from the New Zealand Cancer Registry, which is a population-based register of all primary malignant diseases diagnosed in New Zealand, excluding squamous cell and basal cell skin cancers. The tumours are classified using the WHO International Statistical Classification of Diseases and Related Health Problems (ICD), and the WHO International Classification of Diseases for Oncology (ICD-O). All data is mapped forward to ICD-10.
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Bay of Plenty District Health Board (2004) Social Determinants of Health Strategy and Programme of Collaboration Framework. Communities – Achieving Their Potential Planning and Service Development Unit, Planning and Funding Group, Bay of Plenty District Health Board

Bay of Plenty District Health Board (2004) Health, Equity and Partnerships with Community: Evidence review, frameworks and models to accompany the 2004 Health Needs Assessment paper on population characteristics and inform the Social Determinants of Health Programme of Care Planning and Funding Group, Bay of Plenty District Health Board


Midland Health (1997). Sexual and Reproductive Health in the Midland Health Region. Hamilton: Health and Disability Analysis Unit, Health and Disability Analysis Unit..


National Hospice and Palliative Care Organization (2001) *A Call for Change: Recommendations to Improve the Care of Children Living with Life-Threatening Conditions*, Alexandria, VA, USA.


