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## MORTALITY AND MORBIDITY

### Key Findings

- Both males and females in Wairarapa have a slightly poorer life expectancy than the New Zealand average, with males living on average 74.1 years and females 79.6 years.
- The top three causes of mortality in the Wairarapa from 1999 to 2001 were diseases of the circulatory system, cancer and diseases of the respiratory system.
- The total standardised mortality rate for Maori is significantly greater than the non-Maori Wairarapa population and the overall national rate.
- People in NZDep2001 quintile areas 4 and 5 are more likely to die of avoidable causes than those in quintile 1 and 3.
- The top three causes of avoidable hospitalisation in the Wairarapa DHB from 1999 to 2001 resulted from the musculoskeletal system, the circulatory system and the digestive system.
- The Wairarapa DHB avoidable hospitalisation rate is significantly higher than the national rate in 2002/03 and increasing.

### OVERVIEW

Illness status, morbidity and mortality, are often used as a proxy for health status as it has been more difficult to measure more holistic concepts of health in ways which allow measurement across the whole population.

This section presents information on measures of illness, morbidity and mortality from which levels of need can be inferred. However, caution is required in attributing need solely on the basis of mortality and utilisation measures. The measures often reflect the availability and accessibility of services more than demand.

#### Interpretation of figures

The interpretation of rates for mortality and morbidity for DHBs can be problematic. The actual numbers are often very small and therefore rates become unstable e.g. where a single additional case can change the rate. This is a particular problem for the Wairarapa DHB given its small population size.

Where possible, confidence levels have been given when rates are compared with other DHBs and nationally. Where the national rate lies outside the confidence level for the DHB it cannot be said that there is a statistically significant difference between the rates. This is not to say that there is not a difference, rather that this cannot be proved statistically.

Standardisation of rates has been used and explanation of the standardisation used accompanies the rate. Standardisation is used to make rates comparable when population structures, age, ethnicity, socioeconomic status, differs between the Wairarapa DHB and the comparison population, usually the New Zealand population.

Numbers and rates are calculated based on the domicile of the patient rather than the place of treatment.

## Life Expectancy

Life expectancy is a summary measure of population health, reflecting mortality at all ages from all causes. Life expectancy at birth is an estimation of the age to which children born now can expect to live to should current mortality rates persist for the whole of their life.

### Current levels and trends

Females have a longer life expectancy at birth than males and non Maori have a greater life expectancy at birth than Maori. Since 1980 the female advantage over males has decreased as male life expectancy has improved more than that of females.

There is a correlation between life expectancy and deprivation. Using 1998-2000 data for females, life expectancy varies from 77.2 years for the most deprived to 82.8 years for the least deprived.<sup>1</sup>

Both males and females in Wairarapa have a slightly poorer life expectancy than the New Zealand average, with males living on average 74.1 years and females 79.6 years.

**Table 1: Life Expectancy at birth, 1999 - 2001**

	Male	Female
Wairarapa	74.7	79.6
New Zealand	76.0	80.9

Source: TAS Demographic Overview

Life expectancy in both New Zealand and Wairarapa is expected to continue to increase for the period until 2026. However, Wairarapa life expectancy is predicted to remain slightly below the national figures throughout this period.

## Mortality

### Major causes of death

The top three causes of mortality in the Wairarapa DHB from 1999 to 2001 were diseases of the circulatory system, resulting in 42% of deaths, cancers resulting in a further 28% of deaths and diseases of the respiratory system resulting in 9% of deaths.

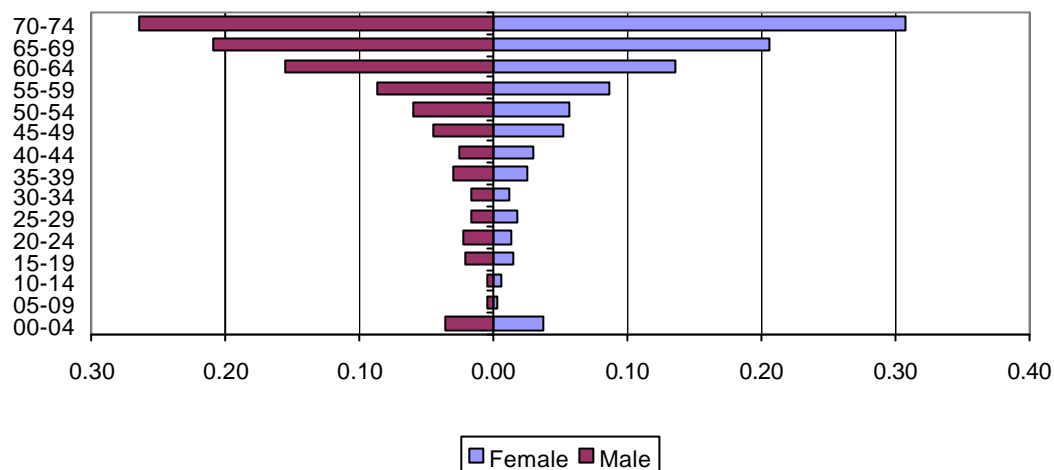
Standardised mortality ratio, or the ratio of observed to expected mortality rates, as shown in Tables 2 and 3 below show no significant variance from national rates.

**Table 2: Wairarapa DHB Total Population Mortality, 1999 to 2001**

International Classification of Disease [ICD] Chapter	Number of Deaths	Standardised Mortality Ratio
Infectious and parasitic diseases	1	–
Neoplasms	183	0.97
Endocrine, nutritional and metabolic diseases and immunity disorders	28	1.21
Blood and blood-forming organs	2	–
Mental disorders	9	0.49
Nervous system and sense organs	15	0.89
Diseases of the circulatory system	292	1.06
Diseases of the respiratory system	66	1.05
Diseases of the digestive system	25	1.45
Diseases of the genitourinary system	11	1.23
Complications of pregnancy childbirth and the puerperium	0	–
Diseases of the skin and subcutaneous tissue	0	–
Diseases of the musculoskeletal system and connective tissue	8	1.60
Congenital anomalies	2	–
Certain conditions originating in the perinatal period	5	2.15
Symptoms signs and ill-defined conditions	2	–
Injury and poisoning	46	1.37
<b>Total</b>	<b>695</b>	<b>1.04</b>

## Age Profile

**Figure 1: Wairarapa DHB, Mortality Age Gender Profile, 1988 to 2001.**



## Ethnicity

The total standardised mortality rate for Maori is significantly greater than the non Maori Wairarapa population and the overall national rate.

**Table 3: Wairarapa DHB Maori Population Mortality, 1999 to 2001**

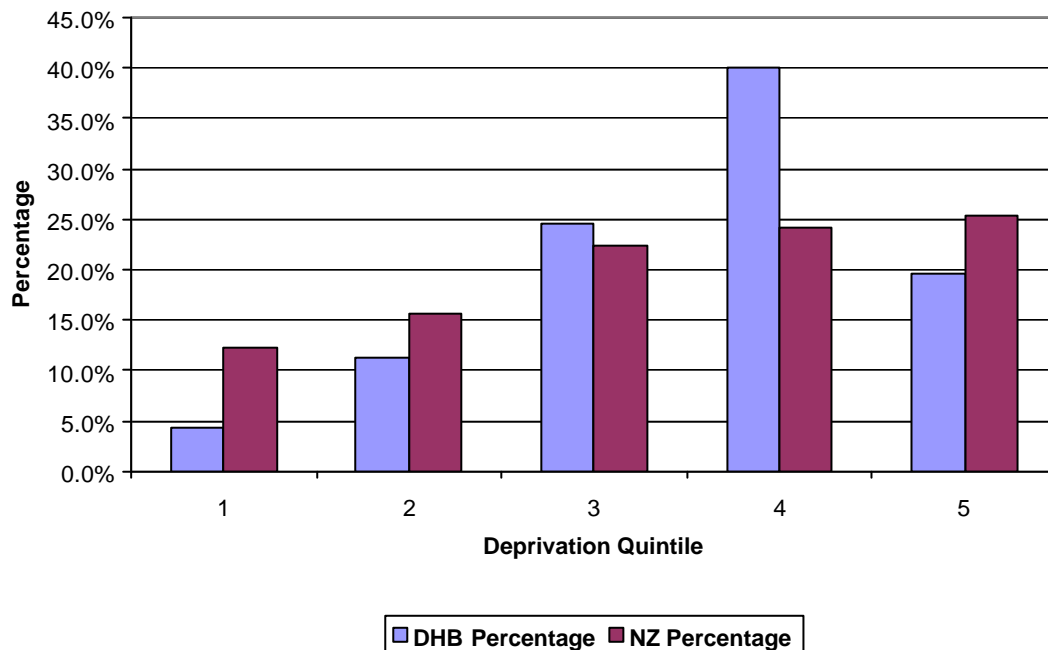
International Classification of Disease [ICD] Chapter	Number of Deaths	Standardised Mortality Ratio
Infectious and parasitic diseases	0	–
Neoplasms	19	1.95
Endocrine, nutritional and metabolic diseases and immunity disorders	6	4.83
Blood and blood-forming organs	1	–
Mental disorders	1	–
Nervous system and sense organs	2	–
Diseases of the circulatory system	23	2.65
Diseases of the respiratory system	3	–
Diseases of the digestive system	2	–
Diseases of the genitourinary system	0	–
Complications of pregnancy childbirth and the puerperium	0	–
Diseases of the skin and subcutaneous tissue	0	–

Diseases of the musculoskeletal system and connective tissue	0	–
Congenital anomalies	2	–
Certain conditions originating in the perinatal period	1	–
Symptoms signs and ill-defined conditions	0	–
Injury and poisoning	8	1.88
<b>Total</b>	<b>68</b>	<b>2.21</b>

## Deprivation

The highest volume proportion is deprivation quintile 4. The quintile with the greatest proportion of volume nationally is quintile 5.

**Figure 2: Wairarapa DHB, Total Mortality: Deprivation Proportion Profile**



## Avoidable mortality

The concept of avoidable mortality includes deaths that are potentially preventable through population-based interventions (e.g. health promotion) as well as those responsive to preventive and curative interventions at an individual level. A cut-off age of 75 years has been applied. The list of conditions for which avoidable mortality was calculated is available in Appendix 3 of “An Indication of New Zealanders’ Health, 2004” Public Health Intelligence, Ministry of Health.

Avoidable mortality data indicates potential areas where gains can be made through health promotion, disease prevention and treatment.

Overall, between 1980 and 2000 avoidable mortality in New Zealand decreased by approximately 40 percent. During the same period, unavoidable mortality also decreased by 20 percent.

Almost 80 percent of all avoidable deaths occur in those aged 45–74 years, dominated by chronic disease such as ischemic heart disease, diabetes, and smoking-related cancers.

Maori and Pacific peoples have considerably higher avoidable mortality rates than the European/Other and Asian ethnic groups. Males have higher avoidable mortality rates compared to females across all ethnic groups.

The top 10 causes of avoidable mortality in the Wairarapa are shown in Table 4. The Wairarapa and the national “top 10” are the same and with the exception of diabetes and breast cancer ranked in the same order.

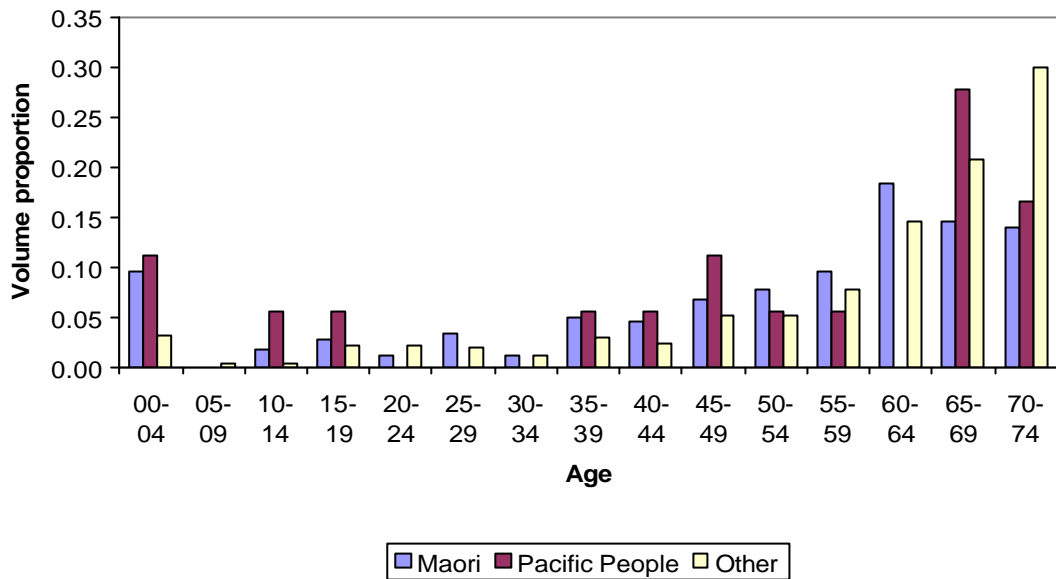
**Table 4: Wairarapa DHB, Top 10 Causes of Avoidable Mortality, 1999 to, 2001**

Condition	DHB Volume	%of DHB Total	% of NZ Total
Ischaemic heart disease	717	14.7%	14.4%
Stroke	370	7.6%	7.0%
CORD	283	5.8%	5.2%
Lung cancer	242	5.0%	5.0%
Colo-rectal cancer	214	4.4%	4.0%
Respiratory infections	186	3.8%	3.4%
Road traffic injury	111	2.3%	2.2%
Diabetes	108	2.2%	2.0%
Breast cancer	89	1.8%	2.2%
Suicide	72	1.5%	1.9%

### Age Profile

The Maori age group with the highest mortality is the 60-64 age group, while for non-Maori, non Pacific Island the age group with the highest mortality is the 70-74 age group. For Pacific people the age group with the highest mortality is the 65 to 69 age group. For all ethnicities the 5 – 9 age group has the lowest mortality.

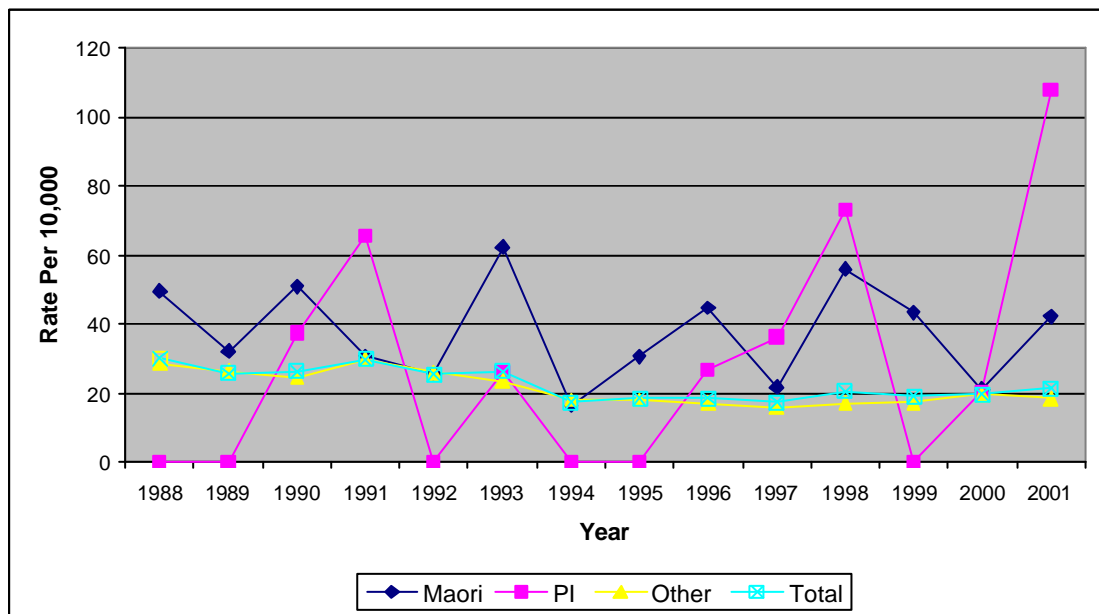
**Figure 3: Wairarapa DHB, Age Ethnicity Volume Proportion Profile**



**Ethnicity Profile**

Maori and Pacific peoples have higher rates than the “Other” ethnic group.

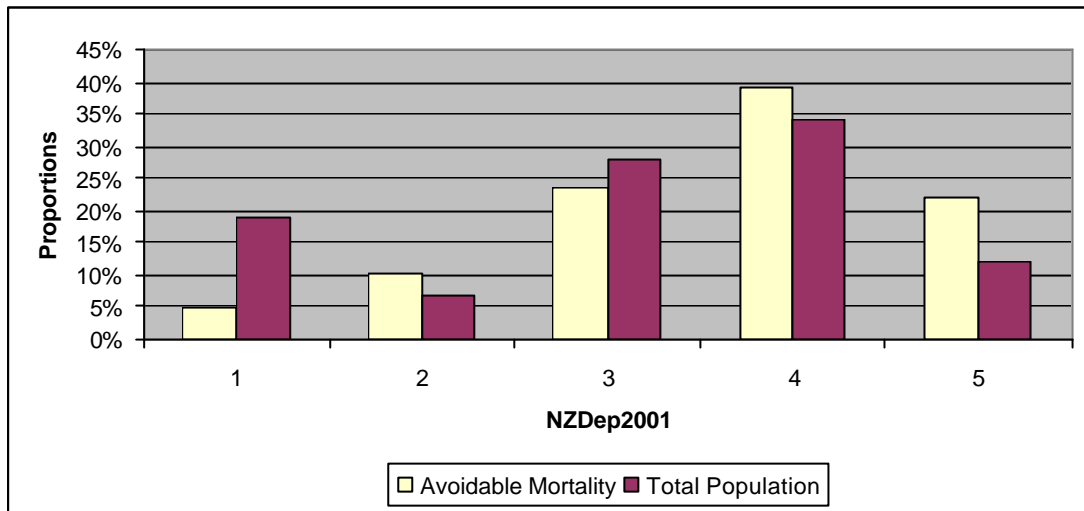
**Figure 4: Wairarapa DHB, Ethnicity Age standardised Rate Per 10,000**



## Deprivation Profile

Avoidable mortality shows has an association with socioeconomic deprivation. Figure 5 shows that people in NZDep2001 quintile areas 4 and 5 are more likely to die of avoidable causes than those in quintile 1 and 3.

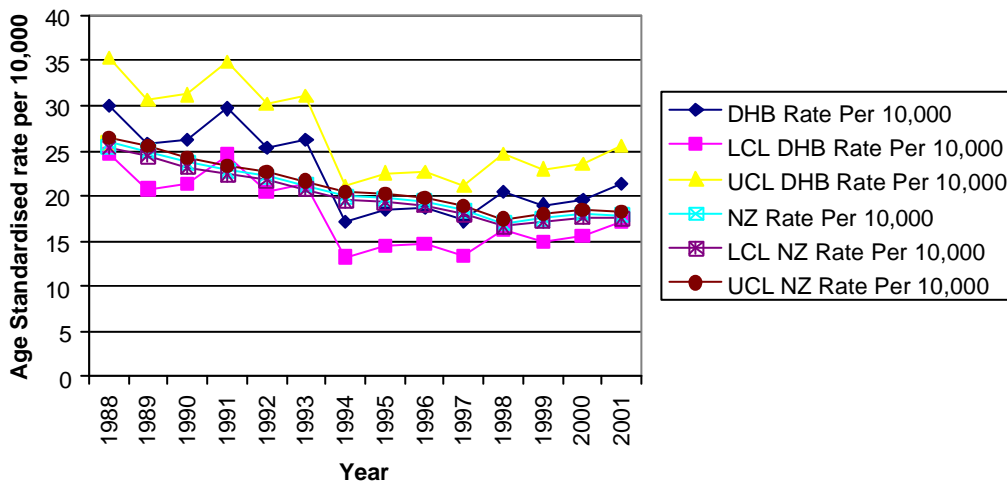
**Figure 5: Wairarapa DHB Avoidable Mortality, Deprivation Proportion Profile**



## Trend

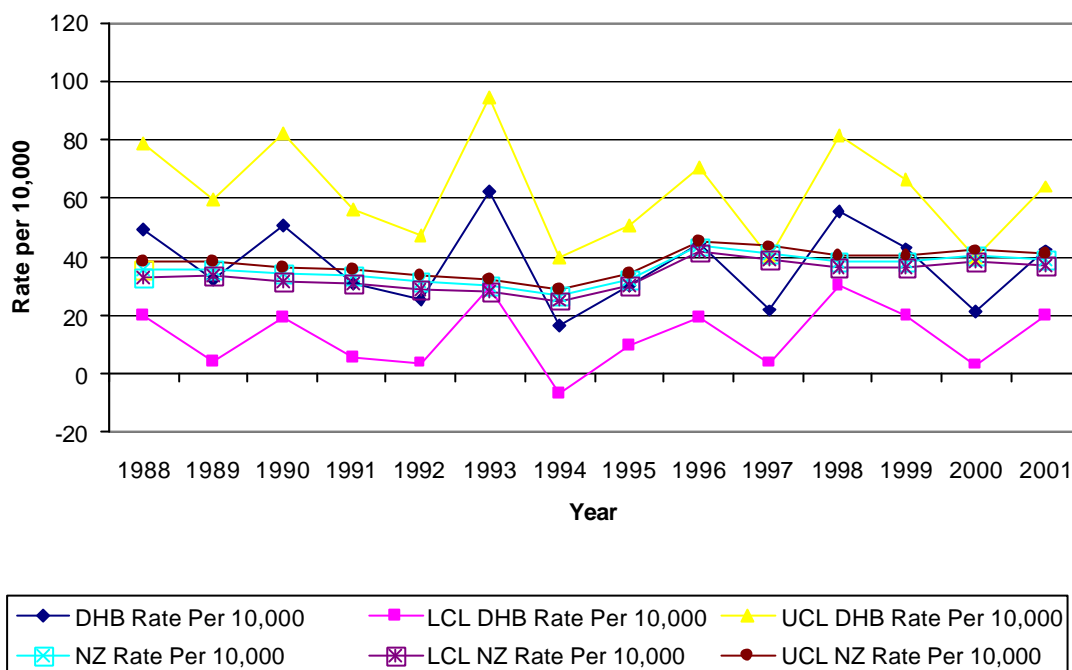
The Wairarapa standardised mortality rate is generally, but not significantly, higher than the national rate and is decreasing by 0.82 persons per 10,000 in the population per year. This is greater than the national rate of 0.66.

**Figure 6: Wairarapa DHB, Age Standardised Mortality Rate per 10,000.**



The Maori standardised mortality rate is decreasing by 0.37 persons, per 10,000 in the population per year, less than the national Maori rate of 0.56.

**Figure 7: Wairarapa DHB, Maori Age Standardised Mortality Rate per 10,000.**



## Hospitalisations (Morbidity)

Hospitalisations or admissions to hospital are used as a proxy for measuring disease or injury severity. An admission that is categorised as potentially avoidable is one that could in theory have been prevented. All other admissions are classified as unavoidable admissions. The analysis in this section confines itself to studying the condition as it relates to the population, aged below 75 years old.

The top three causes of hospitalisation in the Wairarapa DHB from 1999 to 2001 resulted from the musculoskeletal system, contributing to 14% of discharges, the circulatory system, contributing to 12% of discharges and the digestive system contributing to 11% of discharges.

The standardised discharge ratios<sup>1</sup> are shown in Table 5 below. Wairarapa has significantly higher standardised discharge ratios than expected across all ethnic groups. Those figures in bold indicate a significantly higher ratio than expected.

<sup>1</sup> The Standardised discharge ratio is the observed to expected discharge rates. Expected rates are calculated on the age and socioeconomic deprivation structure of each DHB.

**Table 5: Wairarapa DHB, Standardised Hospital Discharge ratios, by Major Diagnostic Category 2001/02**

MDC				
Name	Maori	Pacific	Other	Total
Pre MDC	–	–	1.23	1.04
Nervous system	<b>1.59</b>	–	<b>1.34</b>	<b>1.35</b>
Eye	1.11	–	0.76	0.78
Ear, Nose, Mouth and Throat	<b>1.60</b>	1.43	<b>1.37</b>	<b>1.42</b>
Respiratory system	<b>2.25</b>	<b>3.08</b>	0.93	1.14
Circulatory system	<b>1.67</b>	<b>2.42</b>	0.93	1.00
Digestive system	<b>1.64</b>	0.99	<b>1.22</b>	<b>1.27</b>
Liver, pancreas	<b>2.33</b>	–	<b>1.39</b>	<b>1.47</b>
Musculoskeletal system	1.40	–	<b>1.68</b>	<b>1.63</b>
Skin, breast	1.07	–	1.14	1.11
Endocrine, nutrition	–	–	1.12	1.01
Kidney, urinary	1.51	–	1.15	1.19
Male reproductive	1.84	–	1.36	1.43
Female reproductive	1.49	–	1.10	1.15
Pregnancy, birth	<b>1.45</b>	0.92	0.87	0.98
Newborns	0.33	–	0.54	0.48
Blood, immunity	–	–	0.99	0.88
Cancer	–	<b>21.58</b>	1.25	1.39
Infection, parasites	0.97	–	1.17	1.16
Mental health	–	–	1.68	1.43
Substance Use	<b>7.98</b>	–	1.33	2.24
Injury, Poisoning	1.36	–	1.28	<b>1.30</b>
Burns	–	–	–	–
Other contacts	–	–	1.25	1.17
<b>Total</b>	<b>1.42</b>	<b>1.37</b>	<b>1.13</b>	<b>1.18</b>

### **Avoidable hospitalisation**

Avoidable hospitalisations are hospitalisations which result from diseases and conditions sensitive to interventions delivered through primary health care, and which could therefore potentially be avoided.

This measure partly reflects effectiveness and access to primary health care. An avoidable hospitalisation is a theoretical judgement based on the patient's main diagnosis and does not necessarily reflect individual circumstances. Beyond the age of 75 years, the classification becomes increasingly problematic due to the increasing prevalence of co-morbidities. As a result, the calculations used in this section are restricted to people under the age of 75 years. A list of conditions for which hospitalisations were considered as preventable is given in Appendix 3 of "Our Health, Our Future" (Ministry of Health 1999).

The Wairarapa DHB number of potentially avoidable hospitalisations in 2002/03 was 30.5%. This is higher than the national average of 27.0% and was an increase of 1% over the previous year.

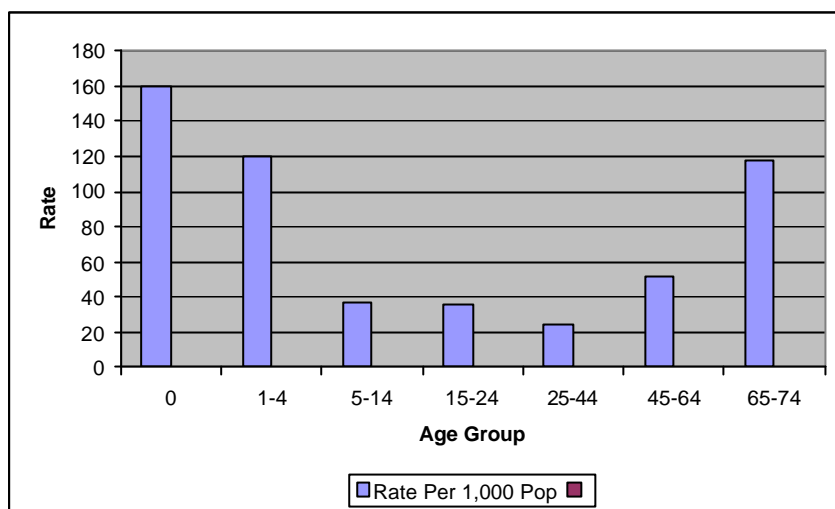
**Table 6: Top 10 causes of avoidable hospitalisations**

Condition	Volume	% of DHB Total	% of NZ Total
Angina	2242	4.3%	4.1%
Respiratory infections	1728	3.3%	2.5%
Road traffic injury	1019	1.9%	1.5%
Gastroenteritis	884	1.7%	1.5%
ENT infections	863	1.6%	1.6%
Ischaemic heart disease	846	1.6%	1.5%
Congestive heart failure	836	1.6%	1.5%
CORD	770	1.5%	1.4%
Asthma	746	1.4%	1.4%
Cellulitis	658	1.3%	1.7%

### Age Profile

The rates for avoidable hospitalisation are highest in the under 1, 1 to 4 and 65 to 74 year ages groups.

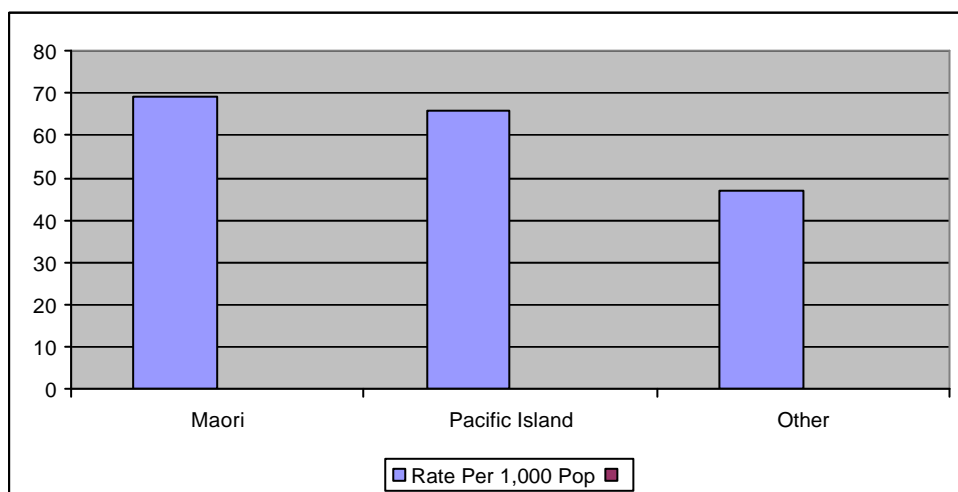
**Figure 8: Avoidable Hospitalisations by Age Group, 2002/2003**



### Ethnicity Profile

People in the other category have the lowest rates of avoidable hospitalisation when compared with Pacific Island and Maori people.

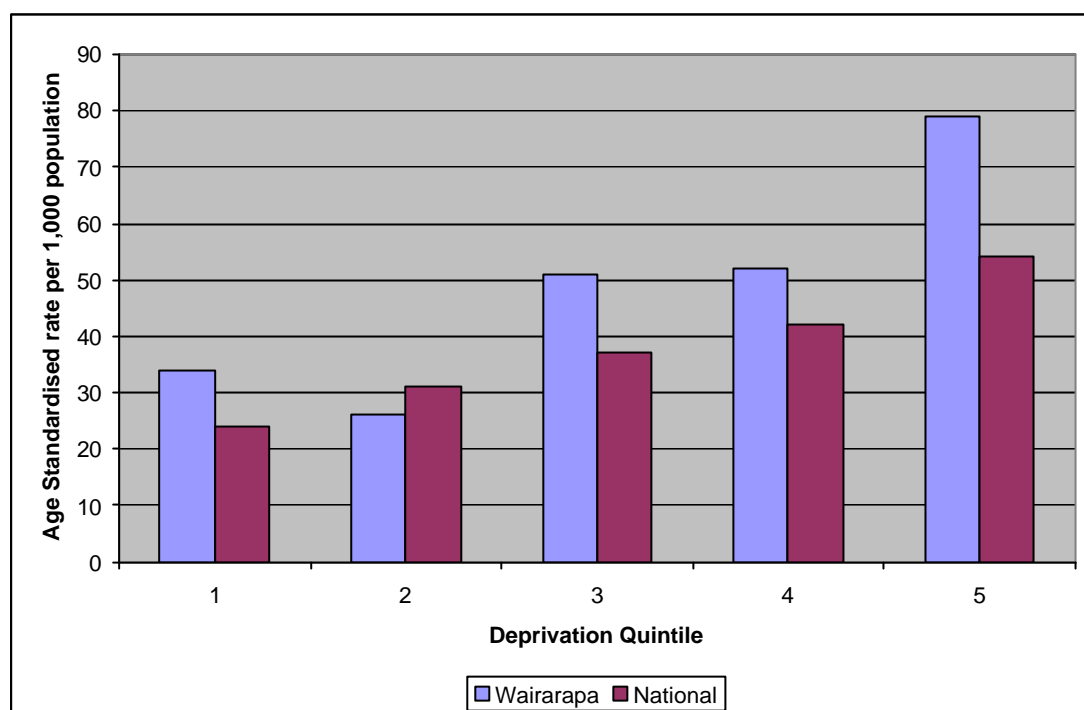
**Figure 9: Avoidable Hospitalisations by Ethnic Group, 2002/2003**



### Deprivation Profile

Rates for avoidable hospitalisation are generally higher in more deprived areas. Wairarapa follows this pattern.

**Figure 10: Avoidable Hospitalisations by Deprivation Quintile, 2002/2003**



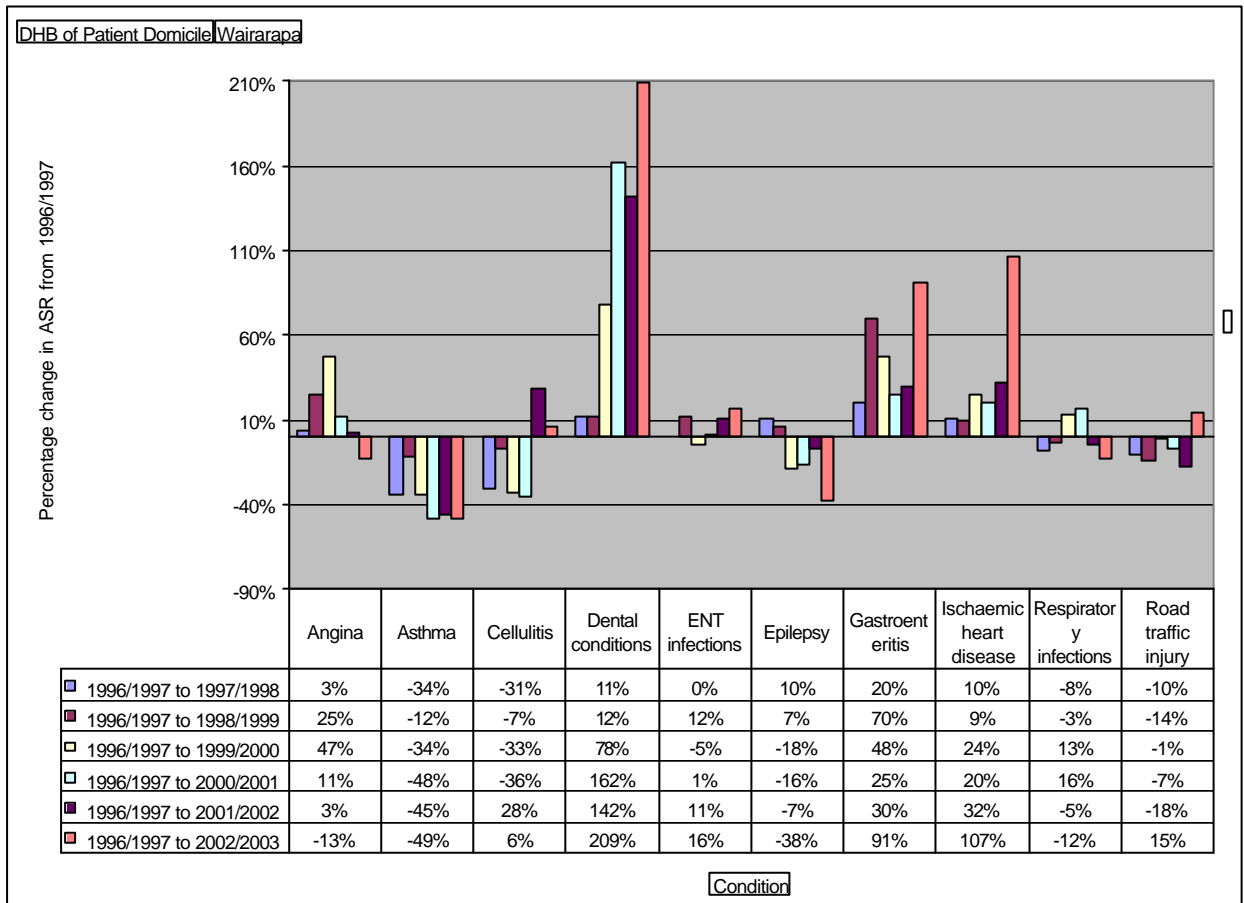
## Trends

Figure 11 below illustrates the percentage change in avoidable hospitalisations over the period 1997/97 to 2002/03 by the top 10 conditions. The table shows:

1. Dental condition rates have increased dramatically above the 1996/1997 rates by 162%, 142% and 209% in the last 3 years.
2. Gastroenteritis rates peaked in 1998/1999 at 70% above the base year and then fell back to 30% above in 2001/2002 then peaked again in 2002/2003 to 91% above 1996/1997.
3. Ischaemic heart disease has been 10% to 20% above 1996/1997 rates, then jumped to 107% over in 2002/2003.
4. Asthma rates have fallen by about -45 to -50% in the last 3 years.
5. Cellulitis rates fell below 1996/1997 levels by about -30% for the first 4 years, then rose by 28% and 6%.
6. Angina rates have been between 3% and 47% above 1996/1997 levels, except in 2002/2003 when they fell to -13% below.
7. Respiratory infection and ENT infection rates have fluctuated over the period. In the last 2 years Respiratory infections have been -5% and -12% below 1996/1997 levels and ENT infections 11% and 16% over.

8. Epilepsy rates have fallen over the last 4 years to -38% below the base rate in 2002/2003.
9. Road traffic injury rates have been below 1996/1997 levels by about -10% to -20% except in 2002/2003 where the rate was 15% over.

**Figure 11: Percentage Change in avoidable hospitalisation from 1996/1997 to 2002/2003, by Top 10 Conditions**



<sup>1</sup> Ministry of Health 2001