



Avoidable Hospitalisations
Update to Health Needs Assessment
FY 2000/2001 and 2001/2002

Author Meryl Donaldson
Planning and Funding Directorate

July 2003

Table of contents

Table of contents	2
Summary	3
Background	4
Rates of PH, ASH and IP	7
Rates of avoidable hospitalisation by ethnic group	8
Cost of Avoidable Hospitalisations	9
Major Causes of avoidable hospitalisations	10
Avoidable hospitalisations and deprivation levels.....	11
Avoidable hospitalisations and geographical areas	11
Paediatric avoidable morbidity rates	13
Age specific and age standardised avoidable morbidity rates	15
Appendix 1	16
Appendix 2	18
Appendix 3	22

Table of tables

Table 1 % avoidable hospitalisations by ethnic group C&CDHB residents.....	5
Table 2 %avoidable hospitalisations by ethnic group in whole of NZ population	5
Table 3 PH, ASH and IP rates 1997/2000 and 2000/2001	7
Table 4 rates of avoidable hospitalisation for C&CDHB residents and NZ 2001/2002	8
Table 5 cost of AH per capita.....	9
Table 6 top 5 causes of avoidable hospitalisation by age group.....	10
Table 7 rate of AH and deprivation index by geographic area in 2000/2001	11
Table 8 Paediatric rates for major causes by ethnic group	13
Table 9 age standardised morbidity rates by ethnic group for major causes of AH 2001/2002	15

Table of figures

Figure 1 Change in % avoidable hospitalisations in NZ since 1997	6
Figure 2 %of hospitalisations that are avoidable 2000/2002.....	6
Figure 3 age specific rates of AH, C&CDHB and NZ populations	7
Figure 4 rates of avoidable hospitalisation by age/ethnic group C&CDHB	8
Figure 5 dollar cost of AH.....	9
Figure 6 top 10 avoidable conditions by cost 2000/2001	9
Figure 7 correlation between deprivation and avoidable hospitalisation.....	11
Figure 8 Avoidable hospitalisation rates by geographical area	12
Figure 9 Avoidable hospitalisation rates following road traffic accident by TLA	12
Figure 10 Decrease in paediatric (<15 years) asthma rates since 1997	14

Summary

Due to changes in the coding system for diseases and conditions that occurred in July 2000, the recent data on avoidable conditions and preventable injuries is not entirely comparable with previous data. Between financial year 1999 and financial year 2001 the percentage of hospitalisations that are avoidable appears to have fallen from 30% to 27% in New Zealand as a whole, and from 35% to 26% in C&CDHB. There is a currently unresolved disparity between admissions following sports injuries between 2000 and 2001, and also changes in the identification of respiratory diseases, hypertensive disease, tuberculosis and sexually transmitted diseases which may account for part of this apparent decrease. This makes it difficult if not impossible to identify any reliable trends in avoidable hospitalisations. However comparison between C&CDHB population and the whole of New Zealand population, and between ethnic groups or geographical areas in any year are still entirely valid.

The resident population of C&CDHB experiences a low annual rate¹ of avoidable hospitalisation at **27** avoidable admissions per thousand of population compared to the New Zealand population as a whole at **38** avoidable admissions per thousand of population. C&CDHB infants under 1 year apparently have a particularly low rate. This is shown in Figure 3. The single exception to these lower rates is for Pacific peoples in C&CDHB aged 1 to 14 years whose rate is slightly above that of Pacific people aged 1 to 14 in the whole of New Zealand by a factor of 1.15. The apparent improvement for C&CDHB compared to the whole of New Zealand and between 1999 and 2002 appears to have selectively favoured the “other” ethnic group, and to a small extent Maori.

Within C&CDHB, as in the whole of New Zealand, children and older adults experience the highest rates of avoidable hospitalisation. Maori and Pacific people experience significantly higher rates of avoidable hospitalisation than the “other” ethnic group in all age groups as shown in Figure 4. Pacific children in C&CDHB aged 1 to 14 years are 2.3 times as likely as the “other” ethnic group in C&CDHB to be admitted to hospital with a condition that is avoidable or an injury that is preventable.

Infectious respiratory diseases are the major cause of these avoidable admissions in children, while skin infections closely followed by road traffic accidents are the major conditions in younger adults. Angina and ischaemic heart diseases (previously referred to as “myocardial infarction”) are the major avoidable problems in the middle aged and older age groups.

The rate of hospitalisation following road traffic accidents is higher for Kapiti residents, and Kapiti residents aged 15-24 years are 5 times as likely to be admitted in this way as their counterparts in either Wellington or Porirua.

Deprivation as measured by the New Zealand Deprivation Index 2001 shows a strong correlation with the rate of avoidable hospitalisations (AH) as shown in Figure 5. The most deprived decile of our population has a rate of AH that is 2.3 times as high as that of the least deprived decile. The annual rate of AH for the least deprived decile is **24** admissions per thousand, and that of the most deprived decile is **57** admissions per thousand.

The Porirua population experiences higher rate of avoidable hospitalisation than Wellington or Kapiti residents, but this is also strongly correlated with deprivation and with ethnic groupings. It is highly likely that these factors account for the observed “geographical” difference, especially in children. 93% of Pacific children in Porirua live in the most deprived quintiles compared to 35% of children in Wellington.

Maori and Pacific people have very high rates of diabetes and heart diseases, and these occur at a very much earlier age than in the “Other” ethnic group. Maori aged 45-64 are 8 times as likely as the “Other” group to be admitted with congestive heart failure. Pacific people aged 45-65 are more than 11 times as likely as the “Other” group to be admitted with diabetes, and 7 times as likely to be admitted with a respiratory infection.

¹ All “rates” are calculated using the number of admissions for residents of C&CDHB at any public hospital in New Zealand, divided by the usually resident population of C&CDHB from census 2001. Admissions of non-C&CDHB residents at our own facilities are therefore excluded. Age standardisation is done using the age profile of the total C&CDHB population as the standard.

Background

“Avoidable hospitalisations” (AH) are admissions to hospital when the primary cause of admission is diagnosed as a preventable injury (IP) or an avoidable condition. Avoidable conditions can be categorised into 2 groups:

- Preventable Hospitalisations (PH) which result from diseases that are largely preventable by population-based health promotion strategies, such as smoking cessation.
- Ambulatory Sensitive Hospitalisations (ASH) which are sensitive to prophylactic or therapeutic interventions delivered in a primary health care setting, for example early diagnosis, immunisation, screening

Total avoidable hospitalisations (AH) = PH + ASH+ IP

Notes on methodology

Conditions and injuries are identified by codes in the ICD10 edition 2 codeset. Only the “primary” reason for admission to hospital is used, and conditions, which are recorded as contributing factors to other admissions are excluded. This is to ensure that each admission can only be counted once as either “avoidable” or “not avoidable”.

A list of the conditions considered to be “avoidable” is to be found in appendix 1.

Some avoidable conditions include elements of both PH and ASH components, and a calculation of the relative importance of each component is used.² A list of these is found in Appendix 1.

Preventable injuries (IP) are mainly accidents, including poisoning and deliberate self harm, but excluding injuries sustained as a result of assault. These are listed in Appendix 1.

Hospitalisations are only considered avoidable up to age 74, at which point 100% of hospitalisations are considered unavoidable.

The following analysis is for the resident population of C&CDHB aged under 75 years, using “prioritised” ethnic groups NZ Maori , Pacific peoples and “Other”. This means that any person who records both NZ Maori and Pacific ethnicity is deemed to be NZ Maori. People recording Cook Islands Maori are included in “Pacific peoples”. The “Other” ethnic group means all other people who are non-Maori and non-Pacific. The percentages in C&C DHB population are:

Maori	9.9%
Pacific	7.6%
Other	82.5%

The logic used to identify avoidable conditions was supplied by NZHIS, and a copy is found in Appendix 2. Data was analysed using SQL queries in an ACCESS database.

² Methodology taken from “Our Health, Our Future” MOH publication 1999.

Avoidable Hospitalisation Trends

Since 1 July 2000 the coding system for diseases and conditions that is in use in New Zealand has changed from ICD edition 9 to ICD edition 10. For many conditions the ICD10 codes are not directly comparable with the previous system. In mid June 2003 NZHIS provided a set of codes that can be used to identify the avoidable conditions used in previous analyses, but this has not been entirely without problems. In particular, the number of hospitalisations believed to be due to sports injuries has not been comparable. For example between FY 2000/2001 and FY 2001/2002 there was an apparent 90% drop in the number of hospitalisations due to sports injuries. This is not a valid conclusion and NZHIS are investigating possible coding explanations.

There has also been a problem with differentiation between some ENT and upper respiratory tract infections (ICD10 code J06), and between hypertensive disease and congestive heart failure (ICD10 code I110). Tuberculosis which was included in the previous codeset has now been excluded, and myocardial infarction is now referred to as ischaemic heart disease. Ectopic pregnancy which was previously included in sexually transmitted diseases is now a separate condition. The extent to which recent data can be compared to older data is somewhat problematical. Between 1997 and 2000 the percentage of hospitalisations that are avoidable for C&CDHB residents was 35%, while for the 2 most recent years using the new coding system it is 27.5% and 26% respectively.

The following tables compare the percentage of hospitalisations that are avoidable for the resident population of C&CDHB aged under 75, no matter where the patients were admitted, with the population of the whole of New Zealand aged under 75.

Table 1 % avoidable hospitalisations by ethnic group C&CDHB residents

2000/2001	Capital and Coast resident population			
	Maori	Other	Pacific	all ethnic grps
% Avoidable (PH and ASH)	26.4	23.7	28.5	24.5
% Preventable Injury (PI)	3.4	3.0	2.0	*2.9
% total avoidable (AH)	29.8	26.7	30.5	27.5
2001/2002	NZ population			
% Avoidable (PH and ASH)	26.3	22.7	28.6	23.8
% Preventable Injury (PI)	2.1	2.3	1.7	*2.2
% total avoidable (AH)	28.4	25.0	30.3	26.0

Table 2 %avoidable hospitalisations by ethnic group in whole of NZ population

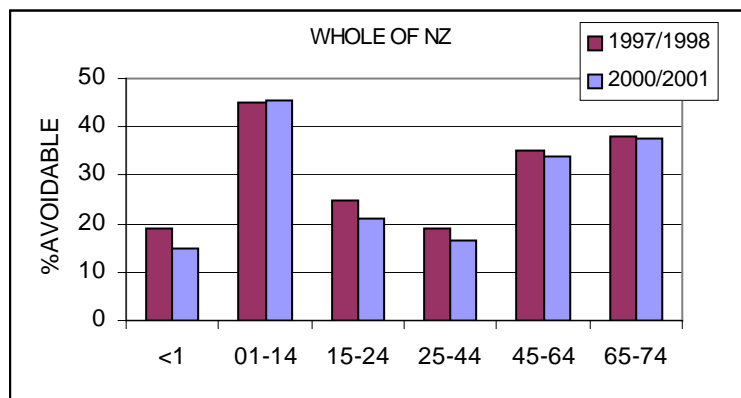
2000/2001	NZ population			
	Maori	Other	Pacific	all ethnic grps
% Avoidable (PH and ASH)	26.8	23.6	26.5	24.4
% Preventable Injury (PI)	3.8	3.4	2.6	*3.4
% total avoidable (AH)	30.6	27.0	29.1	27.8
2001/2002	NZ population			
% Avoidable (PH and ASH)	27.0	23.7	26.9	24.5
% Preventable Injury (PI)	3.0	2.8	1.8	*2.8
% total avoidable (AH)	30.0	26.5	28.7	27.3

*The number of preventable injuries is not comparable between 2000/2001 and 2001/2002.

The figures in **bold** type indicate where the C&CDHB population has higher rates than their counterparts in New Zealand. As can be seen, the % avoidable hospitalisations is higher for both Maori and Pacific peoples in both C&CDHB and New Zealand as a whole. Pacific peoples in C&CDHB are slightly worse off than their counterparts in the whole of New Zealand, while Maori in C&CDHB are doing slightly better. These figures are not age standardised and a comparison of the actual rates per thousand of population by age group is given later.

The percentage of hospitalisations that are avoidable varies with age. In our Health Needs Assessment we compared the percentage of hospitalisations that were avoidable for C&CDHB with the percentage for the whole of New Zealand, by age groups. The following graph shows the change in the whole of New Zealand since then, using the new coding system. It is impossible to say whether the marked decrease for some agegroups is a result of the changed coding system or a real change. While the percentage is generally down, it is noticeable that there is actually a slight increase in the agegroup worst affected by avoidable hospitalisation ie. those aged 1-14 years, possibly linked with increasing child poverty.

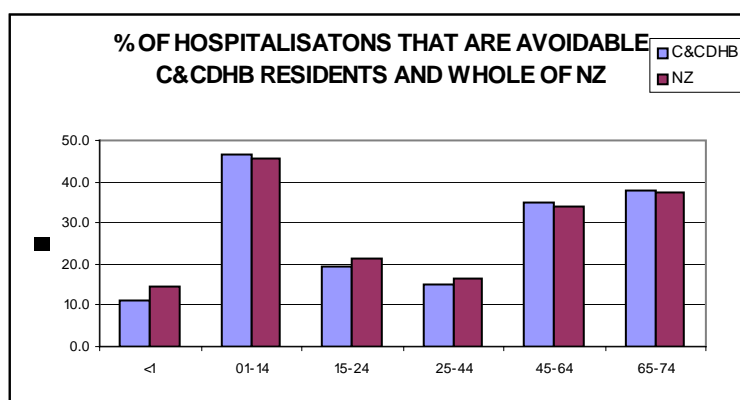
Figure 1 Change in % avoidable hospitalisations in NZ since 1997



The following graph compares the percentage of hospitalisations that is avoidable for the resident population of C&CDHB with that for all New Zealand residents in 2001/2002. This graph differs significantly from the same graph for 1997-2000 with an apparent halving of the percentage of hospitalisations that are avoidable for the age group <1 year.

Again it is noticeable that in addition to the increase in AH for children aged 1-14 in the New Zealand population as a whole, agegroup 1-14 in C&CDHB also has a higher percentage of AH than in New Zealand as a whole.

Figure 2 %of hospitalisations that are avoidable 2000/2002

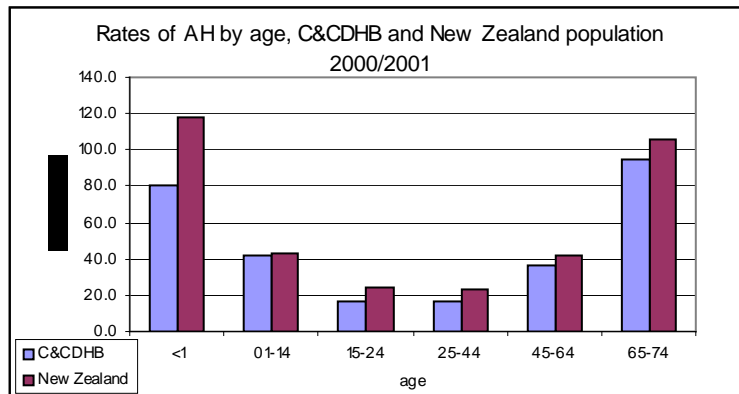


While percentage AH is useful to measure changes in the general pattern of hospitalisation, it is too blunt an instrument to allow comparison of the health status of population subgroups. The following sections analyse this by calculation of age specific and age standardised “rates” of AH.

Rates of PH, ASH and IP

The following rates were calculated on the number of admissions to hospitals for C&CDHB residents (no matter where they were admitted) in 2000/2001 and for the population of the whole of New Zealand. The denominator for all rate calculations is the usually resident population count from census 2001.

Figure 3 age specific rates of AH, C&CDHB and NZ populations



The C&CDHB population clearly enjoys lower avoidable hospitalisation rates than the rest of New Zealand.

The age specific rate for each of the three components (primary preventable, ambulatory sensitive and injury preventable) are shown below. Comparisons are given between C&CDHB population and the New Zealand population, and between the rates for 1997/2000 (averaged over 3 years) and 2000/2001. The results for 1997/2000 are shown first for both populations, followed by the rates for 2000/2001 for both populations.

Table 3 PH, ASH and IP rates 1997/2000 and 2000/2001

1997/2000	Primary preventable		Ambulatory sensitive		Injury preventable	
	C&C DHB	NZ	C&C DHB	NZ	C&C DHB	NZ
Rate per 1,000						
<1	6.9	8.0	96.0	93.0	1.6	1.0
01-14	3.7	1.0	40.2	19.0	7.1	6.0
15-24	0.8	1.0	11.4	10.0	6.5	8.0
25-44	1.4	2.0	11.0	10.0	4.1	5.0
45-64	7.8	9.0	21.4	21.0	2.2	3.0
65-74	26.4	26.0	59.0	51.0	2.5	3.0

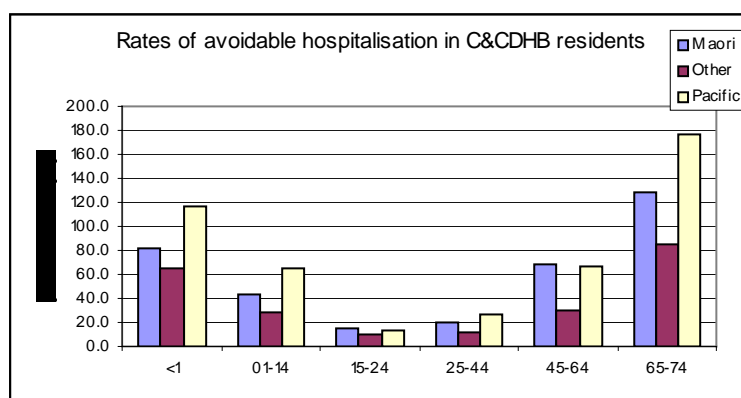
2000/2001	Primary preventable		Ambulatory sensitive		Injury preventable	
	CCDHB	NZ	CCDHB	NZ	CCDHB	NZ
rate per 1,000						
<1	4.1	6.6	76.7	109.8	0.0	1.1
01-14	4.2	3.3	32.6	33.5	4.5	6.3
15-24	0.5	1.1	10.8	14.1	4.7	8.7
25-44	1.8	2.2	11.5	15.7	3.5	5.0
45-64	10.8	10.7	24.2	29.3	1.9	2.1
65-74	34.2	34.1	58.5	70.0	1.5	1.8

In the 1997/2000 data C&CDHB children aged 1-14 years had rates of admissions for all 3 avoidable components that were slightly above the New Zealand norm. There have been significant increases in the New Zealand rates since then, and the C&CDHB rates have fallen. As a result our population now has lower rates in all age groups except primary preventable conditions in age group 1-14.

Rates of avoidable hospitalisation by ethnic group

The following rates were calculated on the number of admissions to hospitals for C&CDHB residents (no matter where they were admitted) averaged over 2 financial years (2000/2001 and 2001/2002). The reason for this is that the number of cases in one year in the older age groups is quite small for Maori and Pacific peoples, leading to lower statistical certainty using single year data.

Figure 4 rates of avoidable hospitalisation by age/ethnic group C&CDHB



The rates for both Maori and Pacific peoples are higher than for “others” at all age groups, and particularly in the youngest and oldest age groups. The “relative risk” for Maori is highest in agegroup 45-64, where they are 2.2 times as likely to be admitted with an avoidable condition or preventable injury as the “other” group. For Pacific peoples, the relative risk is greatest in agegroup 1-14 where they are 2.3 times as likely to be admitted with an avoidable condition or preventable injury as “others”, and 1.5 times as likely to be admitted as Maori.

Comparing these rates for residents of C&CDHB with rates for the whole of New Zealand population, our avoidable hospitalisation rates compare very favourably in nearly all age and ethnic groups. The single exception is for Pacific children aged 1 to 14 years in C&CDHB who have a higher rate than their counterparts in the whole of New Zealand. The corresponding figures for Maori in this age group are very close to the New Zealand norm, while the “other” group in C&CDHB enjoys a significantly lower rate than the whole New Zealand population.

In our data for 1997-2000 rates for this age group were higher for all ethnic groups. The apparent improvement (subject to the validity of the coding changes) has selectively favoured the “other” ethnic group and, to a very small extent, Maori.

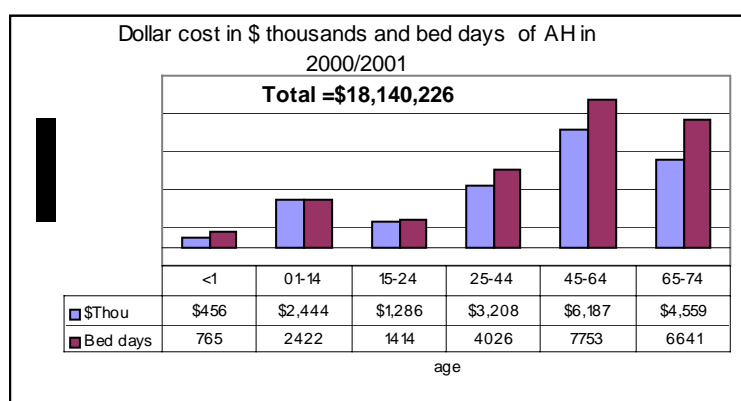
Table 4 rates of avoidable hospitalisation for C&CDHB residents and NZ 2001/2002

AGE	Maori		Other		Pacific	
	C&CDHB	NZ	C&CDHB	NZ	C&CDHB	NZ
<1	81.8	116.8	65.6	94.4	117.4	181.1
01-14	43.5	45.0	28.2	37.1	64.9	56.3
15-24	14.4	24.6	10.8	21.3	13.7	21.5
25-44	19.6	31.7	11.7	20.3	26.3	27.3
45-64	68.3	76.4	30.4	39.3	66.2	72.5
65-74	128.8	166.7	85.8	102.8	176.5	184.9

Cost of Avoidable Hospitalisations

The direct cost of avoidable hospitalisations can easily be measured in dollar terms by the caseweight paid for the treatment. The “opportunity cost” can be measured by the number of hospital bed days utilised that could otherwise have been available for other acute or elective treatment. There is a secondary cost where an avoidable condition is a contributory cause to a “non-avoidable” admission. For example we recently found that diabetes alone added at least \$2,700,000 to the cost of treatment of “non-diabetes” conditions for diabetic patients in 2001/2002. The total impact on the patients, their families and the wider community, in terms of school attendance or working days lost, travel costs, continuing cost of GP visits and prescriptions after discharge, resulting long term disability, benefits paid etc. are obviously much more difficult to assess. The direct cost (caseweight value actually paid) for avoidable hospitalisations for C&CDHB residents in 2000/2001 was \$18,140,226. The cost in \$thousands and bed days are shown below by age group.

Figure 5 dollar cost of AH



Clearly the older age groups incur the highest costs, despite the smaller size of the population group. The cost per capita (based on census 2001 population) is shown below.

Table 5 cost of AH per capita

AGE	cost per capita
<1	\$125
01-14	\$52
15-24	\$36
25-44	\$39
45-64	\$121
65-74	\$330

Figure 6 top 10 avoidable conditions by cost 2000/2001

	Caseweight cost	age group most affected
ANGINA	\$2,725,015	45+
ISCHAEMIC HEART DISEASE	\$2,149,182	45+
RESPIRATORY INFECTIONS	\$979,439	0-14
CELLULITIS	\$897,173	24-44
ROAD TRAFFIC INJURY	\$764,784	15-24
STROKE	\$756,965	45-64
COLO-RECTAL CANCER	\$727,189	45+
ASTHMA	\$684,552	1-14
CORD	\$628,975	65+
CONGESTIVE HEART FAILURE	\$601,459	45+

Major Causes of avoidable hospitalisations

The top 5 causes of avoidable hospitalisations in each age group are shown below. In most agegroups these are the same conditions but not in the same order as the top 5 in 1997-2000. This may be partly attributable to the change in coding systems from ICD9 to ICD10. The differences are most marked for ENT and respiratory infections in the younger age groups, road traffic injury and cellulitis in the 15-44 age groups.

Table 6 top 5 causes of avoidable hospitalisation by age group

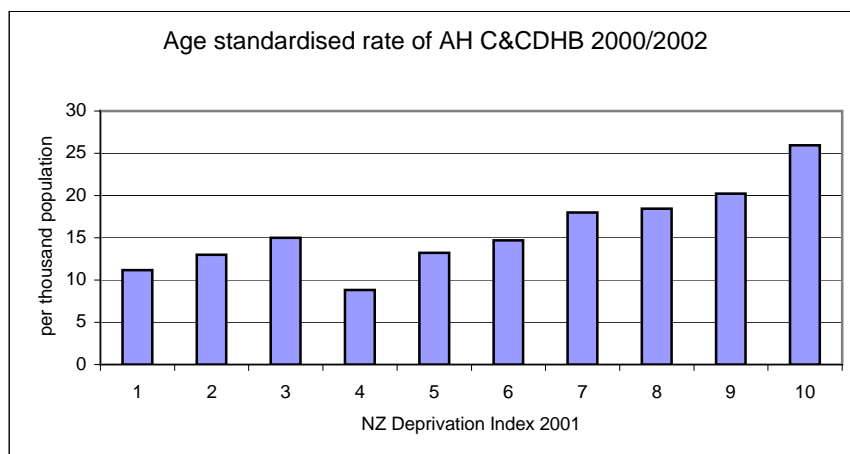
AGEBAND	CONDITION	CASES	% OF TOTAL HOSPITALISATIONS
<1	ENT INFECTIONS	118	2.5
	GASTROENTERITIS	113	2.4
	KIDNEY/URINARY INFECTION	56	1.2
	FAILURE TO THRIVE	52	1.1
	RESPIRATORY INFECTIONS	47	1.0
1-14	ENT INFECTIONS	864	10.9
	DENTAL CONDITIONS	726	9.2
	ASTHMA	354	4.5
	GASTROENTERITIS	320	4.0
	RESPIRATORY INFECTIONS	285	3.6
15-24	CELLULITIS	177	3.1
	ROAD TRAFFIC INJURY	102	1.8
	ASTHMA	99	1.7
	RUPTURED APPENDIX	90	1.6
	KIDNEY/URINARY INFECTION	89	1.6
25-44	CELLULITIS	375	2.1
	INFLAMMATORY DIS. PELVIC ORGANS/ECTOPIC PREGNANCY	239	1.3
	ROAD TRAFFIC INJURY	200	1.1
	ANGINA	192	1.1
	ASTHMA	188	1.1
45-64	ANGINA	763	7.2
	ISCHAEMIC HEART DISEASE (MI)	461	4.3
	CELLULITIS	253	2.4
	RESPIRATORY INFECTIONS	212	2.0
	BREAST CANCER	190	1.8
65-74	ANGINA	513	7.6
	ISCHAEMIC HEART DISEASE (MI)	352	5.2
	CORD	242	3.6
	CONGESTIVE HEART FAILURE	192	2.9
	STROKE	167	2.5

The fact that cellulitis is now the most frequent cause of avoidable hospitalisation in those aged 15-44 is of some concern, if the data is in fact comparable with earlier years. In previous years cellulitis was responsible for 2.4% of avoidable hospitalisations in the 15-24 agegroup, and 1.6% in the 25-44 agegroup. The figures for the most recent 2 years are now 3.1% and 2.1% respectively. The age standardised rates for all avoidable conditions are shown in a following section.

Avoidable hospitalisations and deprivation levels

Using the New Zealand Deprivation Index 2001, as applied at census area unit level, there is an obvious correlation between deprivation and rates of avoidable hospitalisation. As deprivation scores in C&CDHB are themselves strongly correlated with ethnic group, the rates of AH by deprivation decile were age standardised using the total C&CDHB population as the standard, to make them comparable.

Figure 7 correlation between deprivation and avoidable hospitalisation



The population living in the most deprived deciles are 2.3 times as likely to be admitted to hospital with an avoidable condition or preventable accident as their counterparts in the least deprived deciles.

A feature of this graph is the low level of differentiation between the lowest level of deprivation and the middle levels of deprivation (deciles 1-5), compared to the very high level of differentiation between the middle and the highest deprivation levels (deciles 6-10). There is a small relative risk (1.1) between decile 1 and decile 5, but there is a large relative risk (1.8) between decile 6 and decile 10. This conforms with the finding that Pacific children are worst affected by avoidable conditions, since 84% of Pacific children now live in the most deprived quintiles.

Avoidable hospitalisations and geographical areas

The C&CDHB population includes 3 territorial local authorities (TLA) which are geographically well defined areas - Wellington TLA, Porirua TLA and Kapiti Coast TLA. The 3 populations differ markedly in ethnic diversity and in age structure as well as employment status and income levels. The profiles of deprivation are significantly different and the weighted average deprivation score is significantly higher in Porirua.

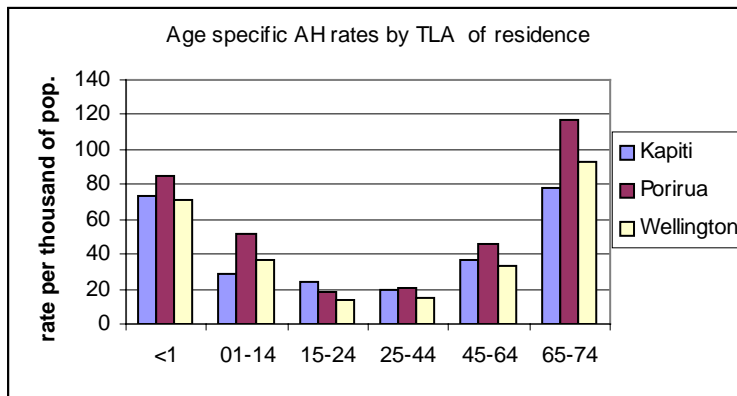
Age standardised rates of AH for the 3 TLA's show that the Porirua population has a significantly higher rate than either Wellington or Kapiti. Higher deprivation levels probably account for most of the observed differences.

Table 7 rate of AH and deprivation index by geographic area in 2000/2001

	AH RATE	NZDEP01 SCORE
Kapiti	30.4	4.7
Porirua	38.7	6.3
Wellington	28.7	4

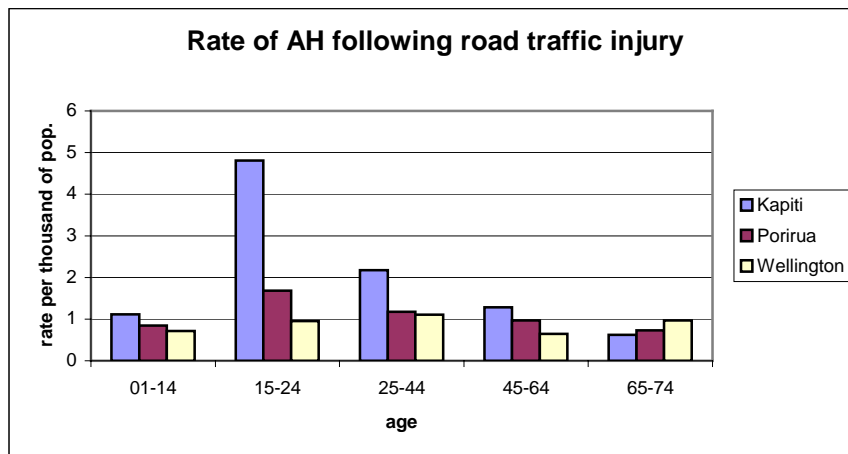
Age specific rates of AH for the geographical areas show that the highest relative risk for Porirua residents occurs in the 1-14 and 65-74 age groups.

Figure 8 Avoidable hospitalisation rates by geographical area



The higher rates of AH for Kapiti residents in the 15-24 age group were unexpected and proved to be due to higher rates of road traffic accidents, presumably due to the longer distances travelled by road by people commuting to Wellington or Porirua. The rate of AH following road traffic injury in this age group of Kapiti residents is more than 5 times higher than the rate for their Wellington counterparts.

Figure 9 Avoidable hospitalisation rates following road traffic accident by TLA



Paediatric avoidable morbidity rates

With the change to coding systems in July 2000, we now have only 2 years worth of data available in a consistent dataset. In previous analysis we used 4 years data combined, and as a result we had significant numbers of admissions even in the smaller ethnic/age categories. With only 2 years data, there are relatively small numbers of admissions for Pacific and for the older age groups. While this was sufficient for the analysis of all "AH" by ethnic/age group, it means that analysis at the level of each of the 45 conditions is statistically very sensitive to small variations. At this detailed level, age specific rates for the Maori and Pacific population are much more reliable than age standardised.

0-14 years - The following are the age specific rates for the major causes of AH in the agegroup 0-14 years.

Table 8 Paediatric rates for major causes by ethnic group

2001/2002	Rate per thousand of population		
	Maori	Other	Pacific
Age 0-14			
Asthma	4.5	2.9	7.3
Cellulitis	3.7	1.4	6.1
Dental conditions	10.2	4.7	17.9
ENT infections	13.9	7.6	16.5
Gastroenteritis	3.2	4.6	3.8
Kidney/urinary infections	0.8	1.5	2.1
Respiratory infections	2.9	1.3	5.8

Clearly Pacific and Maori children are experiencing very high rates of admission for all infectious conditions. The "Other" group has a higher rate than either Maori or Pacific for only one disease - gastroenteritis.

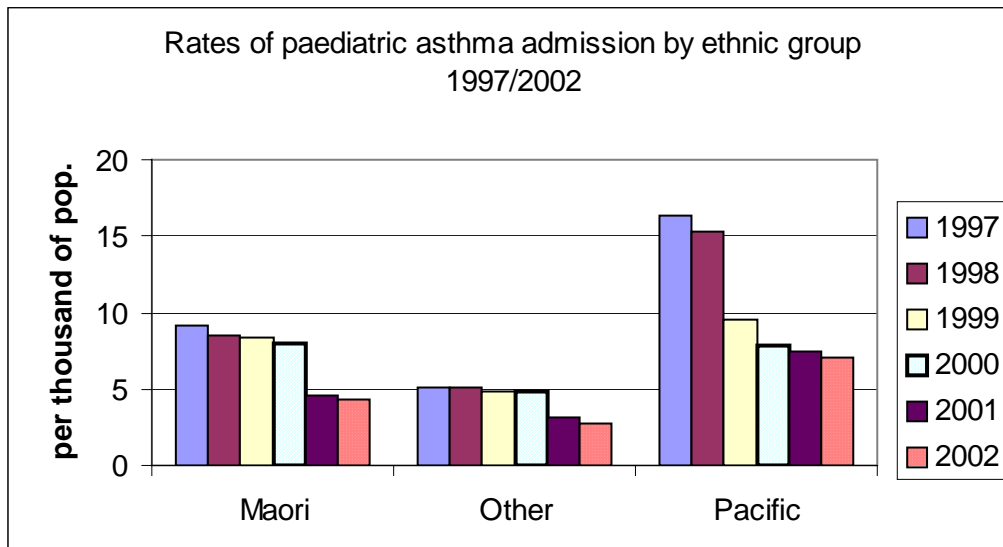
The highest rates for Maori and Pacific children are for dental conditions. The most frequently recorded treatments are the removal of teeth. Over half of the teeth removed are permanent teeth, a disastrous situation at such an early age. Dental conditions are considered to be preventable by both population level health promotion and primary healthcare interventions. These are obviously less effective or less accessible for Maori and Pacific children.

The most frequent ENT condition that causes hospitalisation of Maori and Pacific children is otitis media requiring grommet insertion. For "other" children it is acute upper respiratory tract infections. ENT infections are considered to be preventable by primary healthcare interventions. Those upper respiratory tract infections now included in "ENT conditions" were previously included in "Respiratory conditions" which causes some inconsistency with previous data. Using the previous coding system Respiratory conditions were one of the top 5 major causes of AH.

Cellulitis includes abscesses and other deep tissue infections and can occur at any age if minor skin infections are not treated. However in the Pacific population admissions for cellulitis peak in the 1- 4 years age group. In the "other" group admissions peak in the 20-24 years age group. As cellulitis is preventable by effective primary healthcare, this indicates that access to primary healthcare is particularly poor for Pacific children under 5, despite substantial subsidies. (The same pattern is also seen for respiratory infections.)

Asthma admissions have continued to decrease since 1996. The graph below shows that coding systems are not entirely consistent, with an obvious discontinuity between 2000 and 2001 when the coding system changed. However the rate of decrease for Pacific children has been much slower than for the other 2 groups in the last 2 years.

Figure 10 Decrease in paediatric (<15 years) asthma rates since 1997



Note discontinuity between 2000 (diagonal pattern) and 2001 due to coding system change.

Making allowance for the difference in coding systems, it is possible that asthma admissions for Pacific children have not decreased at all in the last 2 years. Adult admissions for asthma increased slightly in 2001.

Age specific and age standardised avoidable morbidity rates

A complete table of both age specific and age standardised rates for all avoidable conditions is in Appendix 3.

The following table shows the age standardised morbidity rates by ethnic group for those conditions with morbidity rates greater than 200 per thousand of population. Note: breast cancer affects a small number of males but not enough to calculate a reliable morbidity rate, so they are excluded.

Table 9 age standardised morbidity rates by ethnic group for major causes of AH 2001/2002

Condition	rate per 100,000			relative risk compared to "Other"		
	Maori	Other	Pacific	Maori	Pacific	
Angina	399	309	368	1.3		1.2
Asthma	319	143	427	2.2		3.0
Breast cancer (female)	253	202	190	1.3		0.9
Cellulitis	424	195	531	2.2		2.7
Congestive heart failure	244	55	210	4.4		3.8
C.O.R.D.	352	91	272	3.9		3.0
Dental conditions	263	129	442	2.0		3.4
Diabetes	168	50	391	3.4		7.8
ENT infections	334	184	378	1.8		2.1
Inflammatory disease of pelvic organs /ectopic pregnancy	233	130	235	1.8		1.8
Ischaemic heart disease	230	179	284	1.3		1.6
Respiratory infections	416	134	704	3.1		5.3

Congestive heart failure shows the highest relative risk for Maori compared to the "Other" group.

Diabetes and respiratory conditions show the highest relative risk for Pacific people compared to the "Other" group.

As in previous years, the heart diseases and diabetes affect Maori and Pacific people at much earlier ages than in the "Other" group.

Congestive heart disease now affects Maori in age group 45-64 years at more than 8 times the rate it affects the "Other" group (see Appendix 3), with Pacific people not far behind at 6 times the rate of the "Other" group. Although hypertensive disease is not one of the top causes of AH, the rate for Maori is still 10 times that of the "Other" group at 33.7 per hundred thousand compared with 3.0 for "Others". Pacific people have apparently low morbidity rates compared to Maori, which perhaps requires some investigation into GP referral rates.

Diabetes now affects Pacific people in the 45-64 years age group at 11 times the rate of the "Other" group. Even in age group 25-44, the rate for Pacific people is 8 times that of the "Other" group.

Cancers

While Maori and Pacific women's Breast cancer morbidity rates compare not too unfavourably with the "other" group, Cervical cancer morbidity rates for both Maori and Pacific women are very low. The cancer registration rates should reveal if this is a true difference or due to differences in presentation or services.

Similarly Colo-rectal cancer morbidity is surprisingly low for Maori, and needs further investigation of cancer registrations and services.

Appendix 1

Conditions that are considered preventable by interventions at the population level.

CONDITION	PH
HIV/AIDS	1
Oral cancers	1
Lung cancer	1
Nutrition	1
Alcohol-related	1
Ischaemic heart disease	1

Conditions that are considered ambulatory sensitive (preventable by primary healthcare).

CONDITION	ASH
Immunisation preventable	1
Hepatitis and liver cancer	1
Sexually transmitted diseases	1
Cervical cancer	1
Thyroid disease	1
Dehydration	1
Epilepsy	1
ENT infections	1
Rheumatic fever/heart disease	1
Angina	1
Congestive heart failure	1
Respiratory infections	1
Asthma	1
Peptic ulcer	1
Ruptured appendix	1
Obstructed hernia	1
Kidney/urinary infection	1
Cellulitis	1
Failure to thrive	1
Gangrene	1
Inflammatory pelvic disease/ectopic pregnancy	1

Conditions with both components

CONDITION	PH	ASH
Tuberculosis	0.5	0.5
Skin cancers	0.5	0.5
Colo-rectal cancer	0.7	0.3
Breast cancer	0.3	0.7
Gastroenteritis	0.2	0.8
Other infections	0.2	0.8
Diabetes	0.2	0.8
Hypertensive disease	0.3	0.7
Stroke	0.5	0.5
CORD	0.6	0.4

Dental conditions	0.4	0.6
-------------------	-----	-----

Injuries that are considered preventable (IP)

CONDITION	IP
Road traffic injury	1
Swimming pool	1
Poisoning	1
Recreation injury	1
Sports injury	1
Fire	1
Drowning	1
Suicide attempt	1

Appendix 2

NB codes J06 and I110 were mapped twice, leading to some anomalies.

```
/* codes for morbidity data to the actual name. */
if age < 75 then
do;
  if icdsf_1 in ('I426','K292')
    OR icds_1 in ('F10','K70')
    then condition = 'Alcohol-related conditions';
  if icdsf_1 in ('I240','I248','I249') OR 'R072' <= icdsf_1 <=
'R074'
    OR icds_1 = 'I20' then condition = 'Angina';
  if icds_1 in ('J45','J46')
    then condition = 'Asthma';
  if icds_1 = 'C50'
    THEN condition = 'Breast cancer';
  if icdsf_1 in
('L010','L028','L029','L032','L033','L038','L039','L049','L050','L059
',
          'L080','L088','L089','L980') OR 'L020' <= icdsf_1
<= 'L024' OR
    icd1 IN ('L0301','L0302','L0310','L0311')
    then condition = 'Cellulitis';
  if icds_1 = 'C53'
    then condition = 'Cervical cancer';
  if 'C18' <= icds_1 <= 'C20' OR icdsf_1 IN ('C210','C211','C218')

    then condition = 'Colo-rectal cancer';
  if icds_1 in ('J81','I50') OR icdsf_1='I110'
    then condition = 'Congestive heart failure';
    cc=0;
  do i = 1 to &w;
    IF 'J41' <= subsicd{i} <='J44' OR subsicd{i} = 'J47' then
cc=1;
  end;
  if 'J41' <= icds_1 <='J44' OR icds_1 = 'J47' OR (icds_1='J20'
AND cc=1)
    then condition = 'CORD';
  if icds_1 = 'E86' OR icdsf_1= 'E870'
    then condition = 'Dehydration';
  if 'K02' <= icds_1 <= 'K06' OR 'K12' <= icds_1 <= 'K13' OR
icds_1='K08'
    OR icdsf_1 in ('K098','K099')
    then condition = 'Dental conditions';
  if 'E10' <= icdsf_1 <='E14'
    then condition = 'Diabetes';
  if 'H65' <= icds_1 <= 'H67' OR 'J01' <= icds_1 <= 'J03' OR
icds_1 in ('H70','J06') OR icdsf_1 = 'J312'
    then condition = 'ENT infections';
  if 'G40' <= icds_1 <= 'G41' OR icds_1 in ('O15','R56')
    then condition = 'Epilepsy';
  if icdsf_1='R633' OR icds_1 = 'R62'
    then condition = 'Failure to thrive';
  if icds_1 = 'R02'
    then condition = 'Gangrene';
  if 'A00' <= icds_1 <= 'A09' OR icds_1 = 'K52'
```

```

        then condition = 'Gastroenteritis';
        if 'B159' <= icdsf_1 <= 'B162' OR 'B169' <= icdsf_1 <= 'B172'
OR
        'B180' <= icdsf_1 <= 'B182' OR icdsf_1 in
('B150', 'B178', 'B190', 'B199',
    'C220', 'C221', 'C229')
        then condition = 'Hepatitis and liver cancer';
        if 'B20' <= icds_1 <= 'B24'
        then condition = 'HIV/AIDS';
        if 'I129' <= icdsf_1 <= 'I132' OR icdsf_1 in
('E876', 'I110', 'I119', 'I120',
    'I139', 'I150', 'I151', 'I158', 'I674') OR icds_1='I10'
        then condition = 'Hypertensive disease';
        if 'A360' <= icdsf_1 <= 'A363' OR 'A368' <= icdsf_1 <= 'A371'
OR
        'B058' <= icdsf_1 <= 'B060' OR 'B260' <= icdsf_1 <= 'B263' OR
        icdsf_1 in
('A378', 'A379', 'A803', 'A804', 'A809', 'B050', 'B052', 'B053', 'B068', 'B069',
    'B268', 'B269', 'G000', 'G630', 'I410', 'K678', 'K770', 'P350')
        OR icds_1 in ('A33', 'A35') OR icd1 = 'M0149'
        then condition = 'Immunisation-preventable';
        if icds_1 in ('I21', 'I23', 'I25')
        then condition = 'Ischaemic heart disease';
        if icdsf_1 in ('N136', 'N159', 'N390') OR 'N10' <= icds_1 <=
'N12'
        then condition = 'Kidney/urinary infection';
        if icds_1 = 'C34'
        then condition = 'Lung cancer';
        if 'E40' <= icds_1 <= 'E43' OR 'E45' <= icds_1 <= 'E46' OR
        'D50' <= icds_1 <= 'D53' OR 'E53' <= icds_1 <= 'E54' OR
        icds_1 in ('E50', 'E56') OR icdsf_1 in ('E550', 'E643')
        then condition = 'Nutrition';
        if icd1 in
('K4000', 'K4001', 'K4010', 'K4011', 'K4030', 'K4031', 'K4040', 'K4041') OR
        icdsf_1 in
('K410', 'K411', 'K413', 'K414', 'K420', 'K421', 'K430', 'K431', 'K440', 'K441',
    'K450', 'K451', 'K460', 'K461')
        then condition = 'Obstructed hernia';
        if icds_1 in ('C01', 'C12') OR
        'C020' <= icdsf_1 <= 'C024' OR 'C028' <= icdsf_1 <= 'C031' OR
        'C039' <= icdsf_1 <= 'C041' OR 'C048' <= icdsf_1 <= 'C052' OR
        'C059' <= icdsf_1 <= 'C062' OR 'C068' <= icdsf_1 <= 'C069' OR
        'C090' <= icdsf_1 <= 'C091' OR 'C099' <= icdsf_1 <= 'C103' OR
        'C108' <= icdsf_1 <= 'C109' OR 'C130' <= icdsf_1 <= 'C132' OR
        'C138' <= icdsf_1 <= 'C140' OR 'C320' <= icdsf_1 <= 'C323' OR
        'C328' <= icdsf_1 <= 'C329' OR icdsf_1 in ('C142', 'C148')
        then condition = 'Oral cancers';
        if 'B50' <= icds_1 <= 'B54' OR 'P37' <= icds_1 <= 'P39' OR
        icds_1 in ('A23', 'A28', 'A38', 'A46', 'P23', 'P35') OR icdsf_1
in ('J020', 'O868')
        then condition = 'Other infections';
        if 'K25' <= icds_1 <= 'K28'
        then condition = 'Peptic ulcer';
        if 'J10' <= icds_1 <= 'J15' OR icds_1 in ('J00', 'J06', 'J18') OR

```

```

        icdsf_1='J168'
        then condition = 'Respiratory infections';
    if 'I00' <= icds_1 <= 'I02' OR 'I05' <= icds_1 <= 'I09'
        then condition = 'Rheumatic fever/heart disease';
    if icdsf_1 in ('K350','K359')
        then condition = 'Ruptured appendix';
    if 'A50' <= icds_1 <= 'A64'
        then condition = 'Sexually-transmitted diseases';
    if 'N70' <= icds_1 <= 'N77' OR icds_1='O00'
        then condition = 'Inflammatory disease of female pelvic
organs & ectopic pregnancy';
    if 'C43' <= icds_1 <= 'C44'
        then condition = 'Skin cancers';
    if 'I63' <= icds_1 <= 'I66' OR icds_1 = 'I61' OR icdsf_1='I678'
        then condition = 'Stroke';
    if 'E038' <= icdsf_1 <= 'E042' OR 'E049' <= icdsf_1 <= 'E053'
OR
        icdsf_1 in ('E031','E032','E058','E059','E890')
        then condition = 'Thyroid disease';
    end;

/* FINAL INJURY PREVENTABLE ICD10 CODES -
/* Format statement mapping underlying diagnosis */
/* codes for morbidity data to the actual name. - Preventable
Injuries */

    if age < 75 AND ("S00" <= icds_1 <= "S99" OR "T00" <= icds_1 <=
"T98") then
    do;
        do i = 1 to 5;
            IF "X00" <= subecod{i} <= "X09"
                THEN condition2="Burns and scalds";
            end;
        do i = 1 to 5;
            IF subecod{i} IN ("W65","W66","W69","W70","W73","W74")
                THEN condition2="Drowning";
            end;
        do i = 1 to 5;
            IF subecod{i} = "W09"
                THEN condition2="Falls from playground equipment";
            end;
        do i = 1 to 5;
            IF "Y10" <= subecod{i} <= "Y34"
                THEN condition2="Indeterminately caused injuries";
            end;
        do i = 1 to 5;
            IF "X40" <= subecod{i} <= "X49"
                THEN condition2="Poisoning";
            end;
        do i = 1 to 5;
            IF "V10" <= subecod{i} <= "V82" OR subecod{i} = "V87"
                THEN condition2="Road traffic injury";
            end;
        do i = 1 to 5;
            IF 'V01' <= subecod{i} <= 'Y34' then
                do;
                    if substr(ecodes{i},5,1)='0' THEN condition2="Sports
injuries";
                end;
            end;

```

```
        end;
    end;
do i = 1 to 5;
    IF "W67" <= subecod{i} <= "W68"
        THEN condition2="Swimming pool accidents";
    end;
do i = 1 to 5;
    IF 'X60' <= subecod{i} <= 'X84'
        THEN condition2="Suicide";
    end;
end;
```

Appendix 3

AGE SPECIFIC

AVOIDABLE CONDITION	AGE	Maori	Other	Pacific
ALCOHOL-RELATED	01-14	6.40	0.00	0.00
ALCOHOL-RELATED	15-24	0.00	7.04	15.04
ALCOHOL-RELATED	25-44	6.49	15.34	17.12
ALCOHOL-RELATED	45-64	16.67	60.42	36.08
ALCOHOL-RELATED	65-74	108.23	42.84	0.00
age standardised		13.60	22.23	16.23
ANGINA	01-14	6.40	4.46	0.00
ANGINA	15-24	44.59	24.64	15.04
ANGINA	25-44	168.61	106.65	171.20
ANGINA	45-64	1016.67	715.18	919.91
ANGINA	65-74	1839.83	1861.81	1764.71
age standardised		398.64	308.68	368.05
ASTHMA	<1	314.47	230.95	586.85
ASTHMA	01-14	460.48	297.09	736.75
ASTHMA	15-24	267.56	123.18	75.21
ASTHMA	25-44	168.61	91.31	316.73
ASTHMA	45-64	466.67	118.65	541.13
ASTHMA	65-74	324.68	42.84	490.20
age standardised		319.41	142.93	427.42
BREAST CANCER	25-44	134.11	70.43	129.32
BREAST CANCER	45-64	459.32	369.22	142.45
BREAST CANCER	65-74	210.97	381.00	724.64
age standardised		253.05	202.46	190.29
CELLULITIS	<1	393.08	384.91	1056.34
CELLULITIS	01-14	370.94	117.35	575.02
CELLULITIS	15-24	278.71	239.33	240.67
CELLULITIS	25-44	402.08	183.36	530.73
CELLULITIS	45-64	550.00	216.42	432.90
CELLULITIS	65-74	649.35	288.23	1372.55
age standardised		423.59	195.34	531.19
CERVICAL CANCER	25-44	12.19	35.22	16.17
CERVICAL CANCER	45-64	0.00	30.23	0.00
CERVICAL CANCER	65-74	0.00	59.76	0.00
age standardised		6.85	35.83	9.08
COLO-RECTAL CANCER	15-24	0.00	5.28	0.00
COLO-RECTAL CANCER	25-44	12.97	12.42	8.56
COLO-RECTAL CANCER	45-64	83.33	73.61	216.45
COLO-RECTAL CANCER	65-74	0.00	401.18	0.00
age standardised		22.81	44.97	50.44
CONGESTIVE HEART FAILURE	<1	0.00	19.25	0.00
CONGESTIVE HEART FAILURE	01-14	0.00	1.49	0.00
CONGESTIVE HEART FAILURE	15-24	0.00	3.52	15.04
CONGESTIVE HEART FAILURE	25-44	25.94	5.11	8.56
CONGESTIVE HEART FAILURE	45-64	633.33	72.51	432.90
CONGESTIVE HEART FAILURE	65-74	1623.38	615.41	1862.75
age standardised		243.68	55.14	210.12
CORD	01-14	12.79	7.43	17.97
CORD	25-44	25.94	14.61	111.28
CORD	45-64	616.67	120.84	342.71
CORD	65-74	2597.40	775.10	1862.75
age standardised		352.14	90.62	272.52

DEHYDRATION	<1	0.00	0.00	117.37
DEHYDRATION	01-14	6.40	4.46	8.98
DEHYDRATION	15-24	11.15	0.00	0.00
DEHYDRATION	25-44	6.49	5.11	17.12
DEHYDRATION	45-64	66.67	15.38	36.08
DEHYDRATION	65-74	108.23	35.05	98.04
age standardised		26.28	8.13	23.33
DENTAL CONDITIONS	<1	0.00	38.49	0.00
DENTAL CONDITIONS	01-14	1106.42	503.57	1922.73
DENTAL CONDITIONS	15-24	55.74	40.47	30.08
DENTAL CONDITIONS	25-44	32.43	36.53	77.04
DENTAL CONDITIONS	45-64	66.67	29.66	108.23
DENTAL CONDITIONS	65-74	108.23	27.26	0.00
age standardised		263.40	129.00	441.89
DIABETES	01-14	6.40	31.19	35.94
DIABETES	15-24	11.15	40.47	30.08
DIABETES	25-44	51.88	32.14	256.81
DIABETES	45-64	466.67	67.01	793.65
DIABETES	65-74	757.58	202.54	1960.78
age standardised		168.16	50.44	391.50
ENT INFECTIONS	<1	2044.03	1308.70	2816.90
ENT INFECTIONS	01-14	1336.66	714.50	1563.34
ENT INFECTIONS	15-24	33.44	58.07	45.13
ENT INFECTIONS	25-44	38.91	18.26	8.56
ENT INFECTIONS	45-64	66.67	15.38	18.04
ENT INFECTIONS	65-74	0.00	15.58	98.04
age standardised		334.09	183.78	378.05
EPILEPSY	<1	628.93	558.12	0.00
EPILEPSY	01-14	204.66	261.44	314.47
EPILEPSY	15-24	55.74	54.55	90.25
EPILEPSY	25-44	64.85	50.41	42.80
EPILEPSY	45-64	66.67	49.44	54.11
EPILEPSY	65-74	108.23	140.22	0.00
age standardised		103.32	106.50	104.04
FAILURE TO THRIVE	<1	314.47	827.56	586.85
GANGRENE	25-44	0.00	2.19	0.00
GANGRENE	45-64	16.67	3.30	0.00
GANGRENE	65-74	0.00	7.79	0.00
age standardised		3.65	1.95	0.00
GASTROENTERITIS	<1	1493.71	1462.66	2112.68
GASTROENTERITIS	01-14	223.84	381.76	251.57
GASTROENTERITIS	15-24	89.19	73.91	30.08
GASTROENTERITIS	25-44	103.76	58.44	68.48
GASTROENTERITIS	45-64	150.00	68.11	252.53
GASTROENTERITIS	65-74	324.68	128.53	392.16
age standardised		170.55	154.05	190.75
HEPATITIS AND LIVER CANCER	15-24	22.30	1.76	0.00
HEPATITIS AND LIVER CANCER	25-44	6.49	16.80	25.68
HEPATITIS AND LIVER CANCER	45-64	83.33	26.37	36.08
HEPATITIS AND LIVER CANCER	65-74	108.23	31.16	196.08
age standardised		30.37	13.78	28.47
HIV/AIDS	25-44	6.49	3.65	0.00
HIV/AIDS	45-64	0.00	1.10	0.00
age standardised		8.76	4.46	6.08

HYPERTENSIVE DISEASE	01-14	0.00	1.49	0.00
HYPERTENSIVE DISEASE	15-24	0.00	1.76	0.00
HYPERTENSIVE DISEASE	25-44	25.94	2.92	0.00
HYPERTENSIVE DISEASE	45-64	83.33	4.39	18.04
HYPERTENSIVE DISEASE	65-74	108.23	7.79	0.00
age standardised		33.74	3.02	3.95
IMMUNISATION PREVENTABLE	<1	786.16	96.23	469.48
IMMUNISATION PREVENTABLE	01-14	12.79	5.94	0.00
IMMUNISATION PREVENTABLE	15-24	0.00	1.76	0.00
IMMUNISATION PREVENTABLE	25-44	0.00	0.73	8.56
age standardised		14.87	3.23	10.34
INFLAMMATORY DIS. PELVIC ORGANS/ECTOPIC PREGNANCY	01-14	13.21	3.03	18.38
INFLAMMATORY DIS. PELVIC ORGANS/ECTOPIC PREGNANCY	15-24	189.87	197.76	297.09
INFLAMMATORY DIS. PELVIC ORGANS/ECTOPIC PREGNANCY	25-44	451.11	242.28	484.97
INFLAMMATORY DIS. PELVIC ORGANS/ECTOPIC PREGNANCY	45-64	164.04	43.18	35.61
INFLAMMATORY DIS. PELVIC ORGANS/ECTOPIC PREGNANCY	65-74	0.00	14.94	0.00
age standardised		232.72	130.38	234.59
ISCHAEMIC HEART DISEASE	25-44	64.85	33.60	68.48
ISCHAEMIC HEART DISEASE	45-64	683.33	426.25	577.20
ISCHAEMIC HEART DISEASE	65-74	974.03	1246.40	2254.90
age standardised		229.95	178.74	283.55
KIDNEY/URINARY INFECTION	<1	628.93	769.82	938.97
KIDNEY/URINARY INFECTION	01-14	38.37	99.52	152.74
KIDNEY/URINARY INFECTION	15-24	156.08	109.10	195.55
KIDNEY/URINARY INFECTION	25-44	58.37	53.33	136.96
KIDNEY/URINARY INFECTION	45-64	166.67	53.83	144.30
KIDNEY/URINARY INFECTION	65-74	108.23	132.43	294.12
age standardised		105.07	87.23	172.63
LUNG CANCER	25-44	33.44	7.04	60.17
LUNG CANCER	45-64	129.70	73.05	0.00
LUNG CANCER	65-74	16.67	86.79	54.11
age standardised		54.28	45.71	21.17
NUTRITION	<1	78.62	38.49	0.00
NUTRITION	01-14	6.40	4.46	17.97
NUTRITION	15-24	0.00	1.76	0.00
NUTRITION	25-44	19.46	11.69	8.56
NUTRITION	45-64	66.67	25.27	54.11
NUTRITION	65-74	0.00	97.37	98.04
age standardised		21.43	15.65	20.64
OBSTRUCTED HERNIA	<1	235.85	76.98	117.37
OBSTRUCTED HERNIA	01-14	0.00	2.97	17.97
OBSTRUCTED HERNIA	15-24	11.15	1.76	0.00
OBSTRUCTED HERNIA	25-44	25.94	5.84	0.00
OBSTRUCTED HERNIA	45-64	33.33	12.08	36.08
OBSTRUCTED HERNIA	65-74	108.23	38.95	490.20
age standardised		28.19	9.07	42.28
ORAL CANCERS	01-14	0.00	2.97	0.00
ORAL CANCERS	25-44	0.00	2.92	0.00
ORAL CANCERS	45-64	0.00	14.28	0.00
ORAL CANCERS	65-74	0.00	38.95	0.00
age standardised		0.00	7.05	0.00
OTHER INFECT	<1	157.23	423.40	586.85

OTHER INFECT	01-14	0.00	2.97	8.98
OTHER INFECT	15-24	0.00	1.76	0.00
OTHER INFECT	25-44	0.00	5.84	8.56
OTHER INFECT	45-64	0.00	2.20	18.04
age standardised		2.46	10.02	17.94
PEPTIC ULCER	15-24	6.49	2.19	25.68
PEPTIC ULCER	25-44	50.00	5.49	36.08
PEPTIC ULCER	45-64	216.45	85.69	980.39
PEPTIC ULCER	65-74	432.90	116.85	196.08
age standardised		51.55	16.06	90.16
RESP INFECTIONS	<1	83.14	20.80	179.69
RESP INFECTIONS	01-14	646.60	251.65	1263.54
RESP INFECTIONS	15-24	51.88	17.53	102.72
RESP INFECTIONS	25-44	350.00	95.58	378.79
RESP INFECTIONS	45-64	2272.73	584.25	4019.61
RESP INFECTIONS	65-74	1190.48	494.66	1960.78
age standardised		416.04	133.89	703.60
RHEUM FEVER/H DIS	01-14	22.30	3.52	15.04
RHEUM FEVER/H DIS	15-24	12.97	0.00	25.68
RHEUM FEVER/H DIS	25-44	50.00	2.20	18.04
RHEUM FEVER/H DIS	45-64	649.35	7.79	98.04
RHEUM FEVER/H DIS	65-74	108.23	58.42	0.00
age standardised		63.66	4.93	21.06
RUPTURED APPENDIX	01-14	115.12	93.58	89.85
RUPTURED APPENDIX	15-24	144.93	121.42	120.34
RUPTURED APPENDIX	25-44	58.37	86.93	102.72
RUPTURED APPENDIX	45-64	66.67	36.25	72.15
RUPTURED APPENDIX	65-74	0.00	31.16	0.00
age standardised		80.64	77.85	88.49
STD	<1			
STD	15-24	33.44	12.32	30.08
STD	25-44	19.46	2.19	17.12
STD	45-64	0.00	1.10	0.00
age standardised		11.99	2.92	10.66
SKIN CANCERS	<1	0.00	38.49	0.00
SKIN CANCERS	01-14	0.00	19.31	0.00
SKIN CANCERS	15-24	11.15	5.28	0.00
SKIN CANCERS	25-44	12.97	42.37	0.00
SKIN CANCERS	45-64	16.67	156.00	0.00
SKIN CANCERS	65-74	0.00	572.56	0.00
age standardised		9.92	88.12	0.00
STROKE	<1	0.00	19.25	0.00
STROKE	01-14	6.40	0.00	0.00
STROKE	15-24	0.00	3.52	0.00
STROKE	25-44	25.94	9.50	0.00
STROKE	45-64	200.00	117.55	468.98
STROKE	65-74	865.80	556.98	1568.63
age standardised		105.30	62.80	195.34
THYROID DISEASE	01-14	0.00	0.00	8.98
THYROID DISEASE	15-24	0.00	1.76	15.04
THYROID DISEASE	25-44	12.97	8.04	8.56
THYROID DISEASE	45-64	33.33	12.08	0.00
THYROID DISEASE	65-74	108.23	31.16	0.00
age standardised		18.24	7.58	7.13