

3 Avoidable mortality overview: Australia and New Zealand, 1997-2001

3.1 Total avoidable and unavoidable mortality

Almost three quarters (74.4%) of all deaths in New Zealand at ages 0 to 74 years over the period 1997 to 2001 are considered to be avoidable, marginally higher than the proportion for Australia (71.5%) (Figure 3.1, Table 3.1). Total mortality at 0 to 74 years accounted for 41.5% of deaths at all ages in Australia, and 43.7% in New Zealand.

The age-standardised death rate (ASR)¹ from avoidable mortality for New Zealand was 219.3 deaths per 100,000 population, approximately 24% higher than the rate of 176.6 for Australia. The New Zealand death rate for the remaining, or 'unavoidable' deaths, was 75.4 deaths per 100,000 population, approximately 7.4% higher than the rate for Australia of 70.2.

Deaths amenable to health care (amenable mortality, a subset of avoidable mortality)

¹ Directly standardised to the WHO population

accounted for 28.7% of all deaths at ages 0 to 74 years in Australia and 32.1% in New Zealand. The ASR was 94.2 for New Zealand, one third higher than the rate for Australia of 70.4.

Figure 3.1: Avoidable mortality (0 to 74 years), Australia and New Zealand, 1997-2001

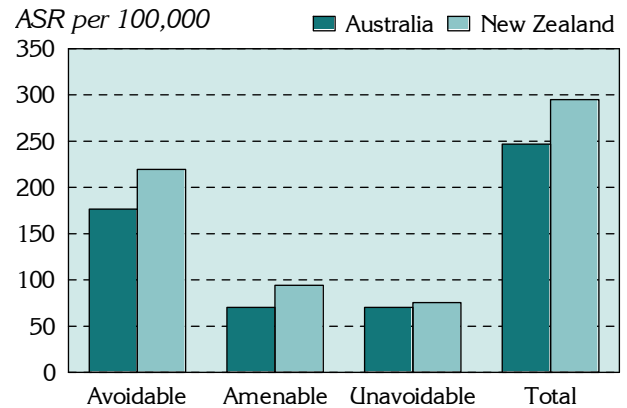


Table 3.1: Avoidable mortality (0 to 74 years), Australia and New Zealand, 1997-2001

Mortality category	Number		Per cent of total		ASR per 100,000		Rate ratio Aust:NZ
	Aust	NZ	Aust	NZ	Aust	NZ	
Avoidable mortality	189,845	44,272	71.5	74.4	176.6	219.3	0.81**
(Amenable mortality)	(76,249)	(19,130)	(28.7)	(32.1)	(70.4)	(94.2)	(0.75)**
Unavoidable mortality	75,582	15,249	28.5	25.6	70.2	75.4	0.93**
Total mortality	265,427	59,521	100.0	100.0	246.8	294.7	0.84**

Another way of measuring premature mortality is to calculate the number of years of life lost (YLL),² which takes into account the years a person could have expected to live at each age of death based on the average life expectancy at that age.

The numbers of YLL for Australia and New Zealand over the observation period are shown in Table 3.2 by mortality category. However, given the significant variance in the Australian and New Zealand population sizes, a comparison of the proportion of YLL for each country is also shown.

YLL from avoidable mortality accounted for 71.9% of total YLL (0 to 74 years) for Australia, less than the 74.4% for New Zealand (a ratio of 0.97**). Similarly, the proportion of YLL from amenable mortality of 28.0% for Australia was lower than the 31.9% for New Zealand (a ratio of 0.88**). At the same time, the proportion of YLL from unavoidable mortality in Australia (28.1%) was higher when compared to New Zealand (25.6%; a ratio of 1.10**).

² See Chapter 2, *Methods*

Table 3.2: Years of life lost (0 to 74 years), Australia and New Zealand, 1997-2001

Mortality category	Number ('000)		Per cent of total YLL		Ratio Aust:NZ
	Aust	NZ	Aust	NZ	
Avoidable mortality	3,327.4	756.7	71.9	74.4	0.97**
(Amenable mortality)	(1,298.4)	(324.1)	(28.0)	(31.9)	(0.88**)
Unavoidable mortality	1,303.3	260.7	28.1	25.6	1.10**
Total mortality	4,630.7	1,107.4	100.0	100.0	..

3.2 Avoidable mortality by age and sex

By sex

ASRs for avoidable mortality were higher for males than for females in both Australia and New Zealand (Figure 3.2, Table 3.3). The ASR for Australian males was 232.1 deaths per 100,000 males, almost twice the rate for females of 121.1 (a rate ratio of 1.92**). In New Zealand, the rate differential was smaller, with 274.2 deaths per 100,000 males and a rate of 164.4 for females (a rate ratio of 1.67**). The Australian rates were lower than those in New Zealand for both males (0.85**) and females (0.74**).

The proportion of male deaths from avoidable causes in Australia was 64.8%, notably higher than the 35.2% for females. Similarly, the proportion of male deaths in New Zealand was higher than that for females, at 61.2% and 38.8%, respectively.

Figure 3.2: Avoidable mortality (0 to 74 years) by sex, Australia and New Zealand, 1997-2001

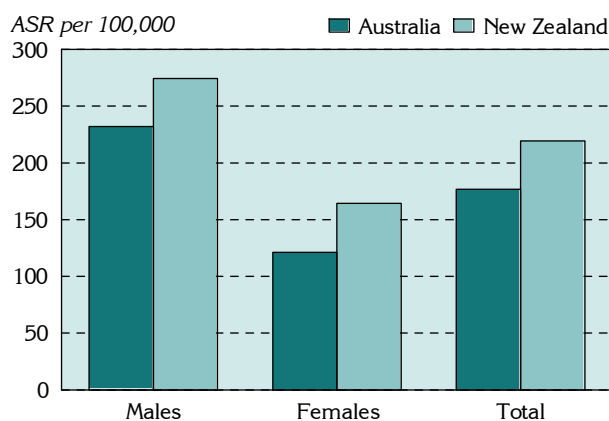


Table 3.3: Avoidable mortality (0 to 74 years) by sex, Australia and New Zealand, 1997-2001

Sex	Number		Per cent of total		ASR per 100,000		Rate ratio Aust: NZ
	Aust	NZ	Aust	NZ	Aust	NZ	
Males	123,026	27,089	64.8	61.2	232.1	274.2	0.85**
Females	66,819	17,183	35.2	38.8	121.1	164.4	0.74**
Total	189,845	44,272	100.0	100.0	176.6	219.3	0.81**
Rate ratio-M:F	..	..	..	..	1.92**	1.67**	..

By age

In both Australia and New Zealand, almost half of avoidable mortality at ages 0 to 74 years occurred in the 65 to 74 year age group (46.6% and 46.1%, respectively) (Table 3.4, Figure 3.3). The 45 to 64 year age group accounted for around one third of avoidable deaths (33.9% and 35.0%, respectively) in both countries, while the 25 to 44 year age group contributed just over one tenth (12.8% and 11.1%). The age groups below 25 years comprised 6.7% of avoidable mortality in Australia and 7.9% in New Zealand.

Death rates varied from 1,338.8 deaths per 100,000 population (Australia) and 1,640.4 (New Zealand) in the 65 to 74 year age group to 10.2

(Australia) and 16.5 (New Zealand) in the 1 to 14 year age groups.

The death rates from avoidable mortality in New Zealand were higher than the rates for Australia in each age group in the analysis. The highest rates for both Australia and New Zealand were in the 65 to 74 age group, where the Australian rate of 1,338.8 deaths per 100,000 population was 18.0% lower than the New Zealand rate of 1,640.4 (a rate ratio of 0.82**).

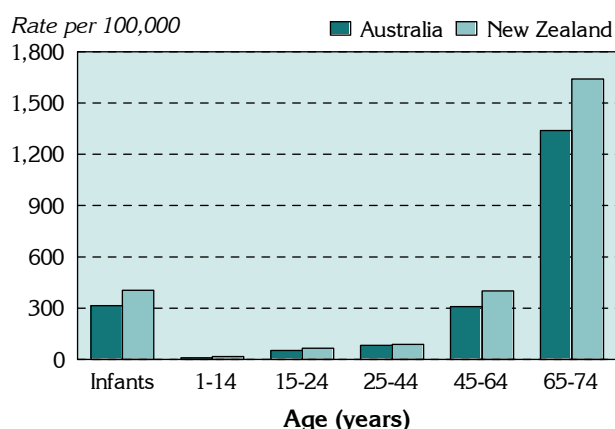
However, the greatest differential in the Australian and New Zealand rates was in the 1 to 14 year age group, where the Australian rate of 10.2 deaths per 100,000 population was 38% lower than the rate for New Zealand of 16.5 (a rate ratio of 0.62**).

Table 3.4: Avoidable mortality by age, Australia and New Zealand, 1997-2001

Age (years)	Number		Per cent of total		Rate per 100,000 ¹		Rate ratio Aust: NZ
	Aust	NZ	Aust	NZ	Aust	NZ	
Infants (<1)	3,791	1,109	2.0	2.5	315.4	405.8	0.78**
1-14	1,878	644	1.0	1.5	10.2	16.5	0.62**
15-24	7,045	1,712	3.7	3.9	52.0	66.4	0.78**
25-44	24,356	4,900	12.8	11.1	83.1	88.4	0.94**
45-64	64,282	15,511	33.9	35.0	309.6	401.5	0.77**
65-74	88,493	20,396	46.6	46.1	1,338.8	1,640.4	0.82**
Total	189,845	44,272	100.0	100.0	176.6	219.3	0.81**

¹ Rates are age standardised within age categories, except under 1 year

Figure 3.3: Avoidable mortality by age, Australia and New Zealand, 1997-2001



By age and sex

In each age group in the analysis, death rates from avoidable causes for both males and females were higher for New Zealand than for Australia (Table 3.5, Figure 3.4). The rates for males were higher than for females in each age group in both countries. The highest rates for both sexes were in the 65 to 74 year and 45 to 64 year age groups, and in infants under one year of age.

In Australia, the highest death rates for both sexes were in the 65 to 74 year age group, with the male rate of 1,760.4 per 100,000 males compared to 917.3 for females. The next highest rate for Australian males was in the 45 to 64 year age group, with an rate of 395.4 deaths per 100,000 males, compared to 223.8 (the third highest rate) for females. Infants also had high rates, with 349.7

deaths per 100,000 infant males and 281.1 for infant females.

Lower rates for avoidable mortality in Australia were in the 25 to 44 year age group, with 116.4 deaths per 100,000 males and 49.7 for females. In the 15 to 24 year age group, the rate for Australian males was 77.2 deaths per 100,000 males compared to 26.8 for females. The lowest rates were in the 1 to 14 year age group, with males having a rate of 12.0 deaths per 100,000 males, and females 8.3.

In New Zealand, the pattern of rates for both males and females was similar to that for Australia, with the highest rates for both sexes in the oldest and youngest age groups, and lower rates in the 1 to 44 year age groups.

The highest rates in New Zealand were in the 65 to 74 year age group, with rates of 2,075.1 deaths per 100,000 males and 1,205.6 for females. The next highest rate for New Zealand males was in the 45 to 64 year age group, with a rate of 479.6 deaths per 100,000 males. For females in this age group, the rate was 323.5 deaths per 100,000 females. Infants had rates of 448.0 deaths per 100,000 males and 363.5 for females.

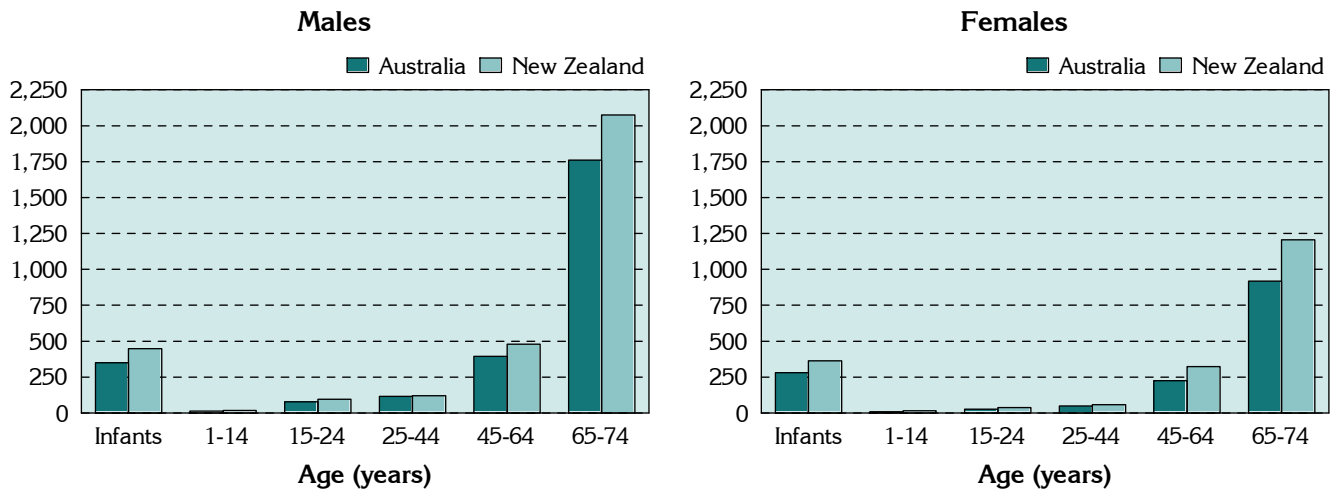
Lower rates for avoidable mortality in New Zealand were in the 25 to 44 year age group, with 119.5 deaths per 100,000 males and 57.4 for females. In the 15 to 24 year age group, the rates for New Zealand were 95.9 deaths per 100,000 males and 36.8 for females. The lowest rates in New Zealand were in the 1 to 14 year age group, with 18.4 deaths per 100,000 males and 14.5 for females.

Table 3.5: Avoidable mortality by age and sex, Australia and New Zealand, 1997-2001

Age (years)	Number				Rate per 100,000 population ¹			
	Australia		New Zealand		Australia		New Zealand	
	Males	Females	Males	Females	Males	Females	Males	Females
<1	2,151	1,640	628	482	349.7	281.1	448.0	363.5
1-14	1,132	746	369	276	12.0	8.3	18.4	14.5
15-24	5,289	1,756	1,239	473	77.2	26.8	95.9	36.8
25-44	16,967	7,389	3,211	1,688	116.4	49.7	119.5	57.4
45-64	41,251	23,031	9,181	6,330	395.4	223.8	479.6	323.5
65-74	56,236	32,257	12,461	7,935	1,760.4	917.3	2,075.1	1,205.6
Total	123,026	66,819	27,089	17,183	232.1	121.1	274.2	164.4

¹ Rates are age standardised within age categories, except under 1 year

Figure 3.4: Avoidable mortality by age and sex, Australia and New Zealand, 1997-2001
Rate per 100,000 population



3.3 Avoidable mortality by cause

The ten top causes of avoidable mortality over the period from 1997 to 2001 were similar in both countries. Ischaemic heart disease, which accounted for almost one quarter of deaths in Australia (23.0%) and New Zealand (24.9%) was the major cause of death from avoidable mortality (Table 3.6). However, the rate of deaths per 100,000 population from ischaemic heart disease was notably higher (52.1) in New Zealand than in Australia (38.4), with the difference in IHD rates accounting for almost one third (32.1%) of the overall difference in avoidable mortality rates between Australia and New Zealand (of 42.7 deaths per 100,000 population). Lung cancer was the next major cause, responsible for just over one tenth of deaths in both Australia (11.2%, a rate of 18.9 deaths per 100,000 population) and New Zealand (10.3%, 21.6).

The proportion of deaths from suicide and self inflicted injuries was slightly higher in Australia (6.5%, a rate of 13.0 deaths per 100,000 population) than in New Zealand (5.8%, 14.9), while for colorectal cancer the reverse was the case (6.9%, a rate of 11.7 and 7.2%, 15.2, respectively).

Cerebrovascular diseases were the fifth rated cause of avoidable mortality in both Australia and New Zealand, resulting in similar proportions of death: 6.6% (a rate of 10.8 deaths per 100,000

population) for Australia, and 6.9% (a rate of 14.3) for New Zealand.

The rate of deaths from road traffic injuries in Australia (9.0 deaths per 100,000 population, 4.3%) was two thirds that for New Zealand (12.9, 5.0%). Similarly, the rate of deaths from COPD for Australia (8.9, 5.5%) was just over two thirds the rate for New Zealand (12.4, 6.2%).

The proportion of deaths from breast cancer was similar for both countries (4.5% and 4.8%), however the rate of deaths in Australia was lower than the rate for New Zealand (7.9, compared to 10.4 deaths per 100,000 females). The ninth rated cause of avoidable deaths was diabetes, which resulted in 3.2% of deaths in Australia (a rate of 5.4) and 4.1% in New Zealand (8.7).

Deaths from alcohol related disease show a different pattern from the top nine rated causes, with Australia having a higher proportion (2.4%) and a higher rate (4.4 deaths per 100,000 population) of mortality compared to New Zealand (1.3% of deaths and a rate of 2.9).

The proportion of deaths from birth defects was similar in both countries (1.7% and 1.9%), with the Australian rate (4.2 deaths per 100,000 population) lower than that for New Zealand (5.2).

Table 3.6: Major causes of avoidable mortality (0 to 74 years), Australia and New Zealand, 1997-2001

Cause	Number		Per cent of total		ASR		Rank ¹	
	Aust	NZ	Aust	NZ	Aust	NZ	Aust	NZ
Ischaemic heart disease	43,712	11,030	23.0	24.9	38.4	52.1	1	1
Lung cancer	21,208	4,543	11.2	10.3	18.9	21.6	2	2
Suicide and self inflicted injuries	12,393	2,588	6.5	5.8	13.0	14.9	3	4
Colorectal cancer	13,008	3,193	6.9	7.2	11.7	15.2	4	3
Cerebrovascular diseases	12,558	3,073	6.6	6.9	10.8	14.3	5	5
Road traffic injuries	8,138	2,198	4.3	5.0	9.0	12.9	6	6
COPD (45-74 years)	10,395	2,734	5.5	6.2	8.9	12.4	7	7
Breast cancer	8,550	2,147	4.5	4.8	7.9	10.4	8	8
Diabetes	6,169	1,821	3.2	4.1	5.4	8.7	9	9
Alcohol related disease	4,621	579	2.4	1.3	4.4	2.9	10	15
Birth defects	3,278	843	1.7	1.9	4.2	5.2	11	10
All causes	189,845	44,272	100.0	100.0	176.6	219.3	..	..

¹ Rank is the rank order of the ASRs for the top ten causes of death for each country

By sex

The major causes of avoidable deaths (apart from breast cancer in women) were similar for males and females in both Australia and New Zealand (Table 3.7). Ischaemic heart disease was the leading cause of avoidable mortality for males (25.9% and 29.6% of total avoidable deaths) and females (17.7% and 17.6%) in both countries.

Death rates in New Zealand were higher than the rates in Australia (with the exception of lung cancer in males, for which there was little variation). The differentials between the Australian and New Zealand rates were higher for females, ranging from 0.60** for COPD to 0.82** for suicide and self inflicted injuries. Road traffic injuries ranked higher for males in New Zealand (fourth) compared to males in Australia (seventh).

Table 3.7: Major causes of avoidable mortality (0 to 74 years) by sex, Australia and New Zealand, 1997-2001

Cause and sex	Number		Per cent of total in sex group		ASR		Rank ¹	
	Aust	NZ	Aust	NZ	Aust	NZ	Aust	NZ
Males								
Ischaemic heart disease	31,881	8,006	25.9	29.6	57.2	77.5	1	1
Lung cancer	14,563	2,725	11.8	10.1	26.2	26.3	2	2
Suicide and self inflicted injuries	9,808	1,995	8.0	7.4	20.6	23.2	3	3
Colorectal cancer	7,823	1,821	6.4	6.7	14.2	17.7	4	5
Cerebrovascular diseases	7,213	1,633	5.9	6.0	12.8	15.6	5	6
COPD (45 to 74 years)	6,513	1,517	5.3	5.6	11.3	14.0	6	7
Road traffic injuries	5,893	1,522	4.8	5.6	13.1	18.0	7	4
Diabetes	3,752	1,083	3.0	4.0	6.8	10.6	8	8
Alcohol related disease	3,658	446	3.0	1.6	6.9	4.5	9	13
Accidental poisonings	2,433	71	2.0	0.3	5.2	0.8	10	33
Stomach cancer	2,232	568	1.8	2.1	4.0	5.5	11	9
Birth defects	1,803	446	1.5	1.6	4.6	5.5	19	10
Females								
Ischaemic heart disease	11,831	3,025	17.7	17.6	19.5	26.8	1	1
Breast cancer	8,550	2,147	12.8	12.5	15.7	20.8	2	2
Lung cancer	6,645	1,818	9.9	10.6	11.6	16.8	3	3
Cerebrovascular diseases	5,345	1,440	8.0	8.4	8.9	13.0	4	4
Colorectal cancer	5,185	1,372	7.8	8.0	9.1	12.7	5	5
COPD (45 to 74 years)	3,882	1,217	5.8	7.1	6.4	10.7	6	6
Suicide and self inflicted injuries	2,585	593	3.9	3.5	5.4	6.6	7	9
Diabetes	2,417	738	3.6	4.3	4.1	6.8	8	8
Road traffic injuries	2,245	676	3.4	3.9	5.0	7.7	9	7
Birth defects	1,475	397	2.2	2.3	3.9	4.9	10	10

¹ Rank is the rank order of ASRs for the top ten causes of death for each country within the relevant sex group

By age

Table 3.8 shows the variation in avoidable mortality by the top three causes in selected age groups.

The top three causes of death for infants under one year of age were the same for both countries, although the top two rankings differed.

Birth defects were the top ranked cause of infant death in Australia, responsible for 52.6% of avoidable deaths (a rate of 166.2 deaths per 100,000 population) and the second highest in New Zealand (35.5% of deaths, a rate of 144.2). Complications of the perinatal period were the highest cause of infant mortality in New Zealand, resulting in more than half (54.3%) of infant deaths (a rate of 220.5), and more than one third (39.5%) of deaths (second to birth defects) in Australia, (a rate of 124.3).

In the 1 to 14 year age group, deaths from road traffic injuries were the major cause of mortality in both countries, resulting in 29.4% of deaths in Australia (a rate of 3.0), with a similar proportion in New Zealand (29.0%, a rate of 4.7). The proportion of deaths from drownings was higher in Australia for this age group (15.5%) compared to New Zealand (10.9%), but the death rates were similar (1.6 and 1.8, respectively).

Birth defects were a principal cause of mortality for children (as with infants), resulting in 14.9% of deaths in Australia (a rate of 1.5), and 16.3% in New Zealand (a rate of 2.7).

Deaths from road traffic injuries resulted in more than one third of deaths of young people in the 15 to 24 year age group in both Australia (35.0%, a rate of 18.3 deaths per 100,000 population) and New Zealand (37.6%, a rate of 24.9). The proportion and rate of deaths from suicide and self inflicted injuries were lower in Australia (29.5%, a rate of 15.2) compared to New Zealand (36.9%, 24.5). Accidental poisonings were responsible for a notably higher proportion of deaths in Australia (8.5%, a rate of 4.4) than New Zealand (1.4%, 0.9).

Suicide and self inflicted injuries, and road traffic injuries, were again the top causes of avoidable mortality in the 25 to 44 year age group in both countries. One quarter of deaths in Australia (25.6%) and New Zealand (25.1%) resulted from suicide and self inflicted injuries, with similar death rates (21.6 and 23.1, respectively). The proportion and rate of deaths from road traffic injuries was higher in New Zealand (16.1%, a rate of 14.9) than in Australia (11.8%, 10.0). Deaths from accidental poisonings were again much more prevalent in Australia (8.6%, a rate of 7.3) than New Zealand (0.9%, 0.8).

In the 45 to 64 year age group, the top three ranked causes of avoidable mortality – ischaemic heart disease, lung cancer and colorectal cancer – were the same for both countries. Ischaemic heart disease resulted in a slightly higher proportion of deaths in New Zealand (26.6%) than Australia (23.5%), but the rate was substantially higher in New Zealand (107.1 deaths per 100,000 population) compared to Australia (72.9). Deaths from lung cancer contributed similar proportions for both countries (13.2% and 12.0%, respectively), but the rate was notably higher in New Zealand (48.4) than Australia (41.1). The proportion of deaths resulting from colorectal cancer in this age group was similar for both Australia (8.8%, a rate of 27.4) and New Zealand (8.6%, 34.7).

Ischaemic heart disease and lung cancer were again the top two causes of death in the 65 to 74 year age group in both Australia and New Zealand. Ischaemic heart disease resulted in just under one third of deaths in each country (30.1% and 31.3%, respectively), but the rate was notably higher in New Zealand (515.4, compared to 402.1 in Australia).

Lung cancer was responsible for 13.8% of deaths (a rate of 187.8) in Australia, and 12.5% (a rate of 206.7) in New Zealand in this age group. Both cerebrovascular diseases and COPD accounted for around one tenth of deaths in both countries (9.3% and 8.9%, respectively, in Australia, and 9.1% and 10.0% in New Zealand).

Table 3.8: Major causes of avoidable mortality by age, Australia and New Zealand, 1997-2001

Cause and age	Number		Per cent of total in age group		Rate ¹		Rank ²	
	Aust	NZ	Aust	NZ	Aust	NZ	Aust	NZ
Infants (<1 year)								
Birth defects	1,995	394	52.6	35.5	166.2	144.2	1	2
Complications of perinatal period	1,497	602	39.5	54.3	124.3	220.5	2	1
Selected invasive bacterial and protozoal infections	131	58	3.5	5.2	10.9	20.9	3	3
1-14 years								
Road traffic injuries	552	187	29.4	29.0	3.0	4.7	1	1
Drownings	292	70	15.5	10.9	1.6	1.8	2	3
Birth defects	280	105	14.9	16.3	1.5	2.7	3	2
15-24 years								
Road traffic injuries	2,468	643	35.0	37.6	18.3	24.9	1	1
Suicide and self inflicted injuries	2,075	631	29.5	36.9	15.2	24.5	2	2
Accidental poisonings	600	24	8.5	1.4	4.4	0.9	3	10
Birth defects	164	57	2.3	3.3	1.2	2.2	6	3
25-44 years								
Suicide and self inflicted injuries	6,245	1,229	25.6	25.1	21.6	23.1	1	1
Road traffic injuries	2,863	788	11.8	16.1	10.0	14.9	2	2
Accidental poisonings	2,095	43	8.6	0.9	7.3	0.8	3	22
Ischaemic heart disease	1,960	523	8.0	10.7	6.4	9.0	4	3
45-64 years								
Ischaemic heart disease	15,118	4,120	23.5	26.6	72.9	107.1	1	1
Lung cancer	8,468	1,865	13.2	12.0	41.1	48.4	2	2
Colorectal cancer	5,658	1,337	8.8	8.6	27.4	34.7	3	3
65-74 years								
Ischaemic heart disease	26,594	6,382	30.1	31.3	402.1	515.4	1	1
Lung cancer	12,235	2,548	13.8	12.5	187.8	206.7	2	2
Cerebrovascular diseases	8,207	1,859	9.3	9.1	121.7	147.4	3	4
COPD	7,864	2,033	8.9	10.0	118.4	161.5	4	3

¹ Rates are age standardised within age categories, except under 1 year

² Rank is the rank order of ASRs for the top three causes of death for each country within the relevant age group: more than three causes are listed where the rank order differs between countries

3.4 Avoidable mortality by geographic area

An overview of the rates of avoidable mortality in Australia, by Statistical Subdivision, and in New Zealand, by District Health Board, are shown in Map 3.1.

In Australia, ASRs of avoidable mortality were substantially highest in the Northern Territory (a rate of 361.3 deaths per 100,000 population), with the remaining state/ territory rates ranging from 150.2 in the Australia Capital Territory to 192.0 in Tasmania (see Table 4.8, *Section 4.4*).

The differential in rates between the rest of the state/ territory areas and the capital cities and other major urban centres was also largest in the Northern Territory, with the rest of territory areas being more than twice the rate in Darwin (a rate ratio of 1.99^{**}). Tasmania was the only area with fewer avoidable deaths in the rest of the state than in Hobart (7.0% fewer, a rate ratio of 0.93^{*}).

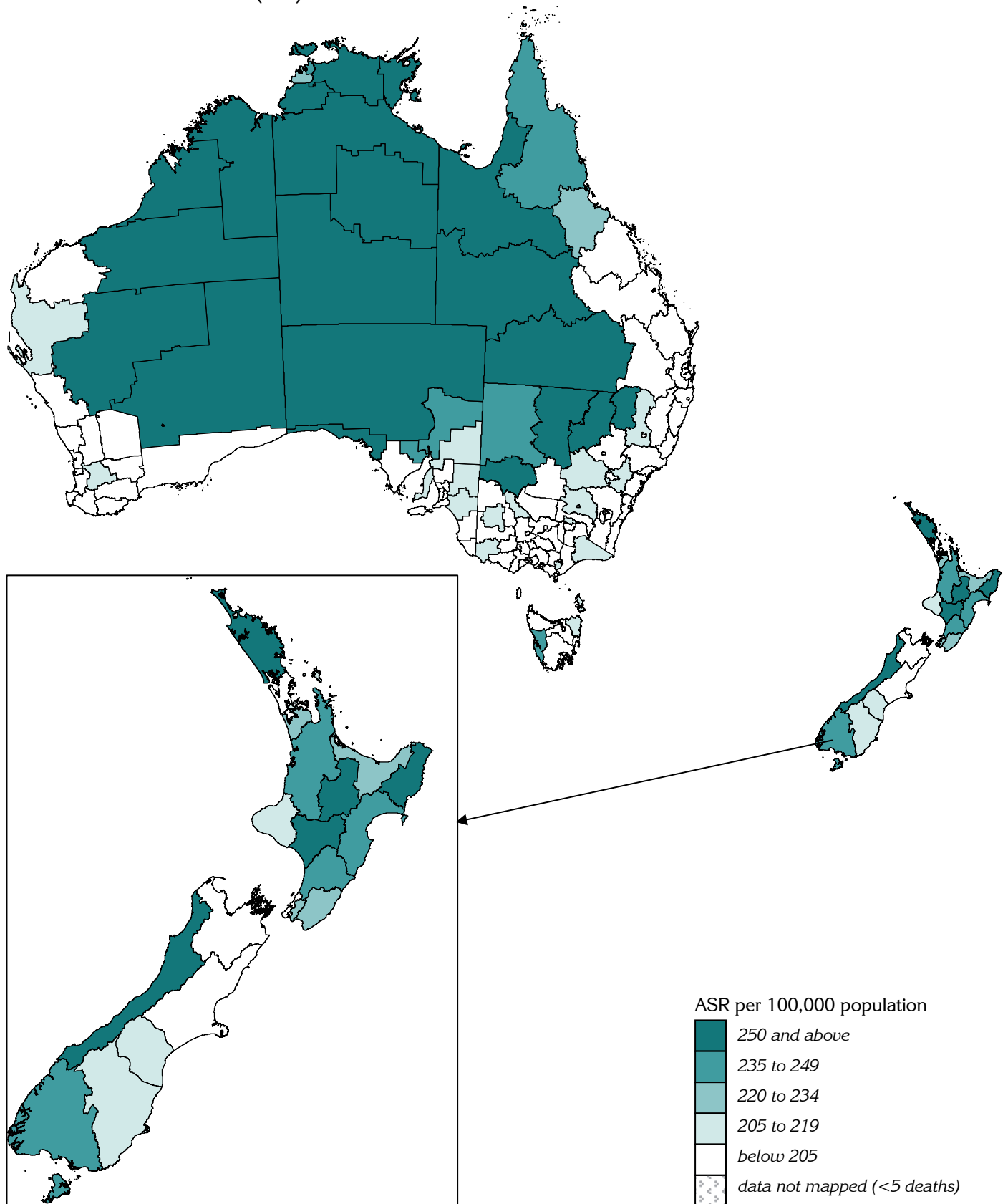
In New Zealand the highest rates of death from avoidable causes were in the North Island, with the Tairāwhiti District Health Board having the highest rate (319.1 deaths per 100,000 population), and the remaining District Health Board rates varying from 177.4 deaths per 100,000 population in Waitemata to 283.5 in Lakes (see Table 5.8, *Section 5.4*).

Map 3.1 is included as a summary map only – detailed maps of avoidable mortality and descriptions are provided in *Sections 4.4* (Australia) and *5.4* (New Zealand). Maps of amenable mortality are included in *Sections 6.3* (Australia) and *7.3* (New Zealand).

Map 3.1

All causes: avoidable mortality (0 to 74 years), Australia and New Zealand, 1997-2001

age standardised deaths per 100,000 population by Statistical Subdivision (Aust);
District Health Board (NZ)



Details of map boundaries are in Appendix 1.4

3.5 Avoidable mortality by socioeconomic status/ deprivation

This section examines avoidable mortality by socioeconomic disadvantage for Australia (measured using the IRSD) and deprivation for New Zealand (measured using the NZDep96 index). The calculation of age-standardised death rates by quintile and the relevant indexes are described in Chapter 2, *Methods*.

By sex

There is a clear socioeconomic gradient in the rates of avoidable mortality for the total populations in Australia and New Zealand and for both males and females in each country (Table 3.9, Figure 3.5). The highest ASR for the Australian population was 213.9 deaths per 100,000 population in Quintile 5 and the lowest was 131.8 in Quintile 1, a differential in rates of 1.62** between the most disadvantaged areas and the least disadvantaged areas. For New Zealand, the differential in ASRs between quintiles was 2.30**, varying from 325.4 deaths per 100,000 population in the most deprived areas (Quintile 5) to 141.5 in the least deprived areas (Quintile 1).

For Australian males, the highest ASR was 281.2 deaths per 100,000 males in Quintile 5, and the lowest was 168.2 in Quintile 1, a differential of 1.67**. The range in ASRs for females was from

146.6 deaths per 100,000 females in the most disadvantaged areas to 95.4 in the least disadvantaged areas, a differential of 1.54**.

The ASRs for males in New Zealand varied from 405.6 deaths per 100,000 males in Quintile 5 to 175.4 in Quintile 1, a differential of 2.31**. The differential of 2.28** for ASRs for females in New Zealand was similar to that for males, with rates varying from 245.2 deaths per 100,000 females in the most deprived areas to 107.6 in the least deprived areas.

In both countries there were marked increases in the number of excess deaths³ by disadvantage/ deprivation, for the total population as well as for males and females.

For the Australian population, if mortality in all socioeconomic groups equalled that of the least disadvantaged group (those in Quintile 1), there would have been 46,958 fewer avoidable deaths over the five year observation period (accounting for 24.7% of total avoidable mortality). Under this measure, there would have been 14,015 fewer avoidable deaths (31.7% of total avoidable mortality) in New Zealand.

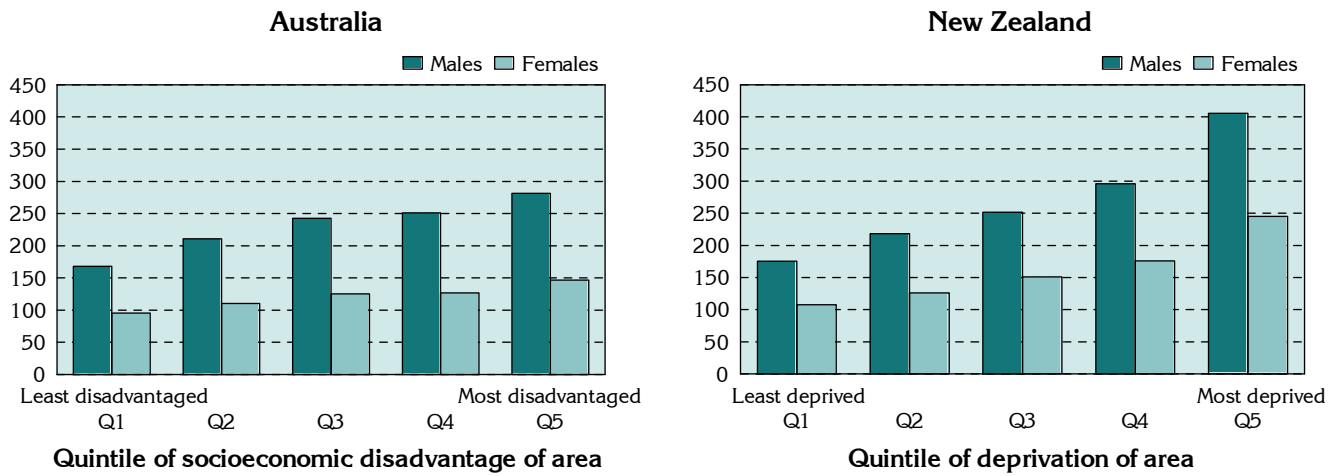
³ See Chapter 2, *Methods*

Table 3.9: Avoidable mortality (0 to 74 years) by socioeconomic status/ deprivation and sex, Australia and New Zealand, 1997-2001

Quintile and sex	Number		ASR per 100,000		Excess deaths	
	Aust	NZ	Aust	NZ	Aust	NZ
Males						
1: Least disadvantaged/ deprived	17,381	3,132	168.2	175.4	(0)	(0)
2	21,546	4,116	210.6	218.1	4,309	794
3	25,903	4,921	242.8	251.7	7,861	1,461
4	27,567	6,275	251.0	296.0	8,894	2,473
5: Most disadvantaged/ deprived	30,203	7,176	281.2	405.6	11,949	4,002
Total	123,026	27,089	232.1	274.2	33,013	8,730
Rate ratio–Quintile 5:Quintile 1	..	..	1.67**	2.31****	..	..
Females						
1: Least disadvantaged/ deprived	10,606	2,001	95.4	107.6	(0)	(0)
2	11,783	2,510	110.5	126.3	1,630	360
3	13,668	3,142	125.1	150.8	3,193	881
4	14,467	4,033	126.9	175.8	3,543	1,503
5: Most disadvantaged/ deprived	16,202	4,610	146.6	245.2	5,579	2,541
Total	66,819	17,183	121.1	164.4	13,945	5,285
Rate ratio–Quintile 5:Quintile 1	..	..	1.54**	2.28****	..	..
Total persons						
1: Least disadvantaged/ deprived	27,987	5,133	131.8	141.5	(0)	(0)
2	33,329	6,626	160.5	172.2	5,939	1,154
3	39,571	8,064	184.0	201.2	11,054	2,342
4	42,034	10,309	188.9	325.9	12,437	3,976
5: Most disadvantaged/ deprived	46,405	11,785	213.9	325.4	17,528	6,543
Total	189,845	44,272	176.6	219.3	46,958	14,015
Rate ratio–Quintile 5:Quintile 1	..	..	1.62**	2.30****	..	..

Figure 3.5: Avoidable mortality (0 to 74 years) by socioeconomic status/ deprivation and sex, Australia and New Zealand, 1997-2001

ASR per 100,000 population



3.6 Avoidable mortality by Indigenous status and ethnicity

Indigenous people comprise 2.4% of the Australian population (ABS 2002), and 14.7% of the New Zealand population. Results are also included for the Pacific population, who are an important ethnic minority group, comprising a further 6.5% of the New Zealand population (Statistics New Zealand 2002).

In Australia, the ASR for deaths from avoidable causes for the Indigenous population (616.7 deaths per 100,000 population) is more than triple that for the non-Indigenous population (171.9), a rate ratio of 3.59** (Figure 3.6, Table 3.10). Both the Indigenous rate and the differential with the non-Indigenous population are above those for the comparable groups in New Zealand.

The differential in rates of avoidable deaths in New Zealand for Māori compared to European/ others is 2.88** (533.3 deaths per 100,000 population compared to 184.9). For Pacific peoples the rate is 2.15** times the rate for European/ others (398.1 deaths per 100,000 population compared to 184.9).

In both Australia and New Zealand, years of life lost (YLL) from avoidable mortality accounted for over

seventy per cent of total YLL at ages 0 to 74. In Australia, the per cent of YLL from avoidable mortality was higher for the Indigenous population (75.5%) than the non-Indigenous (72.1%). In New Zealand, the proportion of YLL from avoidable mortality was highest for Māori (76.5%), followed by Pacific peoples (75.2%) and European/ others (73.7%).

Figure 3.6: Avoidable mortality (0 to 74 years) by Indigenous status/ ethnicity, Australia and New Zealand, 1997-2001

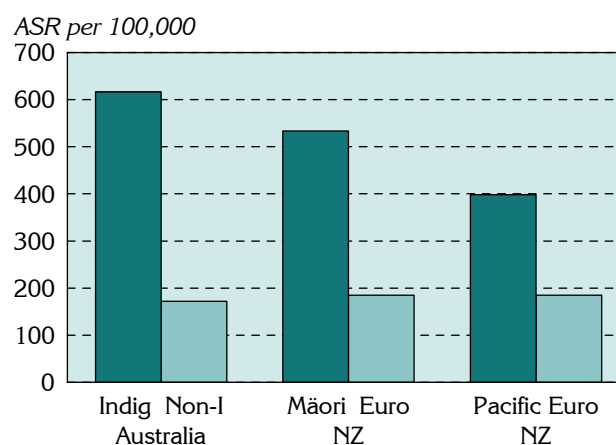


Table 3.10: Avoidable mortality (0 to 74 years) by Indigenous status/ ethnicity, Australia (Qld, SA, WA, NT)¹ and New Zealand, 1997-2001

Country and Indigenous status/ ethnicity	Number	Per cent of total deaths ²	ASR	YLL ('000)	Per cent of total YLL ³
Australia					
Indigenous	4,838	76.2	616.7	104.6	75.5
Non-Indigenous	65,793	71.9	171.9	1,152.5	72.1
Rate ratio-Indigenous:Non-Indigenous	..	..	3.59****	..	..
New Zealand					
Māori	8,449	77.4	533.3	163.2	76.5
Pacific peoples	2,332	76.1	398.1	44.8	75.2
European/ others	33,491	73.5	184.9	548.8	73.7
Rate ratio-Māori:European/ others	..	..	2.88****	..	..
Rate ratio-Pacific:European/ others	..	..	2.15****	..	..

¹ This analysis has been limited to data from the jurisdictions considered by the ABS to have the most complete coverage of Indigenous deaths (refer to Section 4.6)

² Avoidable mortality as a percentage of total deaths at ages 0 to 74 for the relevant ethnic group

³ YLL from avoidable mortality as a per cent of total YLL at ages 0 to 74 for the relevant ethnic group

By sex

Indigenous males in Australia had a markedly higher ASR for deaths from avoidable causes than both Indigenous females and non-Indigenous males (Table 3.11, Figure 3.7). However, because of the relatively high rate of deaths of Indigenous females, the ratio of male to female rates was lower for the Indigenous than for the non-Indigenous population.

The ASR for Indigenous males in Australia (754.7 deaths per 100,000 males) was more than three times (3.31**) that for non-Indigenous Australian males (227.8 deaths per 100,000 males). For Indigenous females, the ASR (478.8 deaths per 100,000 females) was more than four times (4.13**) that for non-Indigenous Australian females (115.9 deaths per 100,000 females).

Māori males had an ASR of 625.8 deaths per 100,000 population (17.8% of avoidable male deaths) compared to 440.8 for Māori females (a rate ratio of 1.42**), and 234.4 for European/ other New Zealand males (a rate ratio of 2.67**). The ASR for Māori females (440.8 deaths per 100,000 population) was more than three times (3.26**) the rate for European/ other females of 135.4.

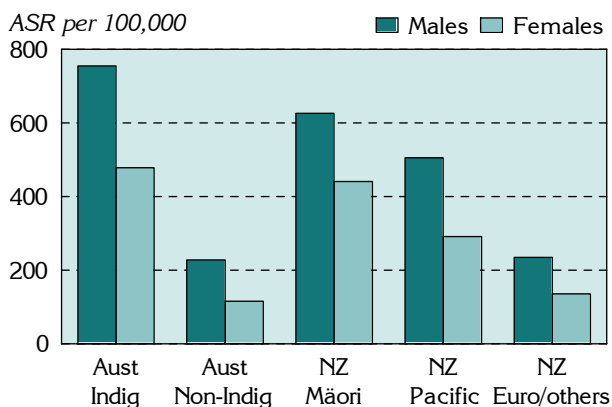
The male Pacific peoples ASR of 505.1 deaths per 100,000 males was notably higher than those for female Pacific peoples (291.0 deaths per 100,000 females, a rate ratio of 1.74**) and European/ other males (234.4, a rate ratio of 2.15**).

Table 3.11: Avoidable mortality (0 to 74 years) by Indigenous status/ ethnicity and sex, Australia (Qld, WA, SA, NT)¹ and New Zealand, 1997-2001

Country and Indigenous status/ ethnicity	Number		ASR		Rate ratio M:F
	Males	Females	Males	Females	
Australia					
Indigenous	2,888	1,950	754.7	478.8	1.58**
Non-Indigenous	43,282	22,511	227.8	115.9	1.97**
Rate ratio–Indigenous:Non-Indigenous	..	..	3.31**	4.13**	..
New Zealand					
Māori	4,870	3,579	625.8	440.8	1.42**
Pacific peoples	1,412	919	505.1	291.0	1.74**
European/ others	20,806	12,685	234.4	135.4	1.73**
Rate ratio–Māori:European/ others	..	..	2.67**	3.26**	..
Rate ratio–Pacific:European/ others	..	..	2.15**	2.15**	..

¹ This analysis has been limited to data from the jurisdictions considered by the ABS to have the most complete coverage of Indigenous deaths (refer to Section 4.6)

Figure 3.7: Avoidable mortality (0 to 74 years) by Indigenous status/ ethnicity and sex, Australia and New Zealand, 1997-2001



3.7 Amenable mortality

By sex

ASRs for amenable mortality were higher for males than for females in both Australia and New Zealand (Table 3.12, Figure 3.8).

The ASR for Australian males was 79.4 deaths per 100,000 males, 30.0% higher than the rate for females of 61.4 deaths per 100,000 females (a rate ratio of 1.29**).

In New Zealand, the differential in rates between the sexes was smaller (1.21**), with 103.1 deaths per 100,000 males and 85.4 for females. The Australian rates were around 25% lower than in New Zealand for both males (0.77**) and females (0.72**).

Over half (55.8%) of male deaths in Australia were from amenable causes, compared to 44.2% for females.

In New Zealand, the gap was slightly smaller, with amenable mortality accounting for 53.8% of male deaths and 46.2% of female deaths.

Figure 3.8: Amenable mortality (0 to 74 years) by sex, Australia and New Zealand, 1997-2001

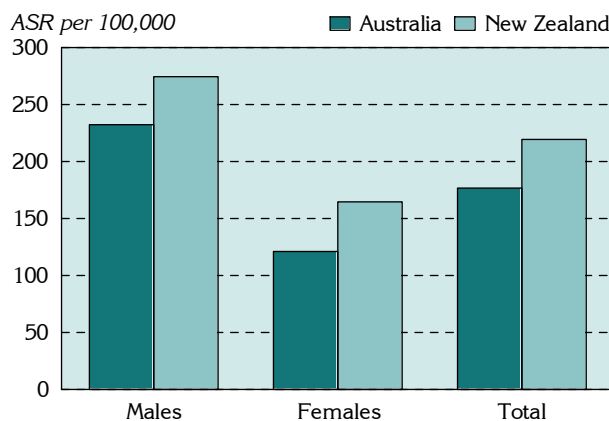


Table 3.12: Amenable mortality (0 to 74 years) by sex, Australia and New Zealand, 1997-2001

Sex	Number		Per cent of total		ASR		Rate ratio Aust:NZ
	Aust	NZ	Aust	NZ	Aust	NZ	
Males	45,568	10,300	55.8	53.8	79.4	103.1	0.77**
Females	33,682	8,830	44.2	46.2	61.4	85.4	0.72**
Total	76,249	19,130	100.0	100.0	70.4	94.2	0.75**
Rate ratio-M:F	..	..	..	..	1.29**	1.21**	..

By age

In Australia and New Zealand, almost half of amenable deaths at ages 0 to 74 years occurred in the 65 to 74 year age group (49.5% and 46.1%, respectively) (Table 3.13, Figure 3.9). The 45 to 64 year age group accounted for just over one third of amenable mortality in both countries (36.0% and 38.0%, respectively), and the 25 to 44 year age group contributed one in twelve amenable deaths (7.8% and 8.1%, respectively). The age groups below 25 years comprised 6.7% of amenable mortality in Australia and 7.8% in New Zealand.

Death rates from amenable mortality in New Zealand were higher than the rates for Australia in each age group in the analysis. The highest rates for both Australia and New Zealand were in the 65 to 74 age group, where the Australian rate of 567.6 deaths per 100,000 population was 20.0% lower than the New Zealand rate of 707.7 (a rate ratio of 0.80**).

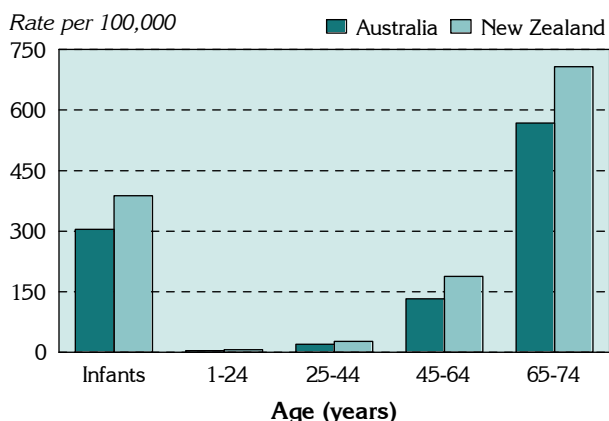
The largest differential in the Australian and New Zealand rates was in the one to 24 year age group, where the Australian rate of 4.4 deaths per 100,000 population was 34.3% lower than the rate for New Zealand of 6.7 (a rate ratio of 0.66**).

Table 3.13: Amenable mortality by age, Australia and New Zealand, 1997-2001

Age (years)	Number		Per cent of total		Rate per 100,000 ¹		Rate ratio Aust:NZ
	Aust	NZ	Aust	NZ	Aust	NZ	
Infants (<1)	3,661	1,060	4.8	5.5	304.5	387.9	0.78**
1-24	1,422	433	1.9	2.3	4.4	6.7	0.66**
25-44	2,946	1,557	7.8	8.1	19.8	26.9	0.74**
45-64	27,464	7,261	36.0	38.0	132.6	187.7	0.71**
65-74	37,756	8,819	49.5	46.1	567.6	707.7	0.80**
Total	76,249	19,130	100.0	100.0	70.4	94.2	0.75**

¹ Rates are age standardised within age categories, except under 1 year

Figure 3.9: Amenable mortality by age, Australia and New Zealand, 1997-2001



By age and sex

In each age group in the analysis, rates of death for both males and females for amenable mortality were higher for New Zealand than for Australia (Table 3.14, Figure 3.10). With the exception of the 25 to 44 year age group (where rates for females were marginally higher), the rates for males were higher than for females in each age group in both countries. The highest rates for both sexes were at the oldest and youngest ages.

In Australia, the highest death rates for males and females from amenable mortality were in the 65 to 74 year age group. The rate for males in this age group was 684.8 deaths per 100,000 males, compared to a rate of 450.4 for females. The next

highest rates were for infants, with rates of 338.7 deaths per 100,000 infant males and 270.4 for infant females. Males in the 45 to 64 year age group had rates of 143.4 deaths per 100,000 males, compared to 121.7 for females.

There were notably lower rates in Australia for amenable mortality in the 24 to 44 year age group, with 20.8 deaths per 100,000 females and 18.8 for males. The lowest rates were in the 1 to 24 year age group, with males having a rate of 5.1 deaths per 100,000 males, and females a rate of 3.8.

In New Zealand, the pattern of rates for amenable mortality for males and females was similar to that for Australia, with the highest rates in the two oldest age groups, and for infants.

The highest rates for both males and females in New Zealand were in the 65 to 74 year age group, with a rate for males of 838.5 deaths per 100,000 males and for females of 576.9. The next highest rates were for infants, with rates of 423.1 deaths per 100,000 infant males and 352.8 for infant females in this age group. In the 45 to 64 year age group, the rate for males was 194.0 deaths per 100,000 males, compared to 181.4 for females.

There were much lower rates for amenable mortality in the 25 to 44 year age group, with 27.9 deaths per 100,000 females and 25.9 for males. The lowest rates in New Zealand were in the 1 to 24 year age group, with males having a rate of 7.2 deaths per 100,000 males, and females a rate of 6.2.

Table 3.14: Amenable mortality by age and sex, Australia and New Zealand, 1997-2001

Age (years)	Number				Rate per 100,000 population ¹			
	Australia		New Zealand		Australia		New Zealand	
	Males	Females	Males	Females	Males	Females	Males	Females
<1	2,083	1,577	593	467	338.7	270.4	423.1	352.8
1-24	827	596	235	198	5.1	3.8	7.2	6.2
25-44	2,804	3,142	724	833	18.8	20.8	25.9	27.9
45-64	14,934	12,531	3,712	3,549	143.4	121.7	194.0	181.4
65-74	21,920	15,837	5,036	3,783	684.8	450.4	838.5	576.9
Total	42,568	33,683	10,300	8,830	79.4	61.4	103.1	85.4

¹ Rates are age standardised within age categories, except under 1 year

Figure 3.10: Amenable mortality by age and sex, Australia and New Zealand, 1997-2001
Rate per 100,000 population

