6 Amenable mortality: Australia, 1997-2001

6.1 Amenable mortality by age and sex

As noted in Chapter 4, 40.2% of avoidable deaths (or 28.7% of total deaths) at ages 0 to 74 years over the period 1997 to 2001 are considered to be amenable to health care.

Almost half (49.5%) of these deaths occurred in the 65 to 74 year age group, with more than one third (36.0%) at ages 45 to 64 years (Table 6.1). The 25 to 44 year age group comprised 7.8% of deaths

from amenable causes, with the age groups below 25 years accounting for 6.6%.

Death rates for amenable mortality ranged from 567.6 deaths per 100,000 population in the 65 to 74 year age group to 3.8 in the 1 to 14 year age group. Other high rates were for infants under one year of age (304.5 per 100,000 population) and in the 45 to 64 year age group (132.6).

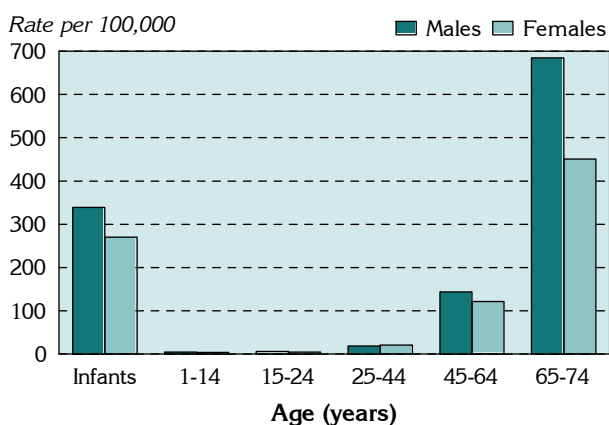**Table 6.1: Amenable mortality by age and sex, Australia, 1997-2001**

Age (years)	Number			Per cent of total	Rate per 100,000 population[1]			Rate ratio M:F
	Males	Females	Total		Males	Females	Total	
Infants (<1)	2,083	1,577	3,661	4.8	338.7	270.4	304.5	1.25**
1-14	399	302	701	0.9	4.2	3.4	3.8	1.24
15-24	428	294	722	0.9	6.3	4.5	5.4	1.40**
25-44	2,804	3,141	5,946	7.8	18.8	20.8	19.8	0.90**
45-64	14,934	12,531	27,464	36.0	143.4	121.7	132.6	1.18**
65-74	21,920	15,837	37,756	49.5	684.8	450.4	567.6	1.52**
Total	**42,568**	**33,682**	**76,250**	**100.0**	**79.4**	**61.4**	**70.4**	**1.29****

[1] **Rates are age standardised within age categories, except under 1 year**

Male death rates from amenable mortality were higher than female death rates in all but the 25 to 44 year age group, where the male rate was 10% lower than the females rate (a differential of 0.90**) (Table 6.1, Figure 6.1).

The highest rates of amenable mortality for both males and females were in the 65 to 74 year age group, with the male rate (684.8 deaths per 100,000 males) 1.52** times the female rate (450.4). The next highest differential was in the 15 to 25 year age group, with the male rate (6.3 deaths per 100,000 males) 1.40** times the female rate (4.5).

Figure 6.1: Amenable mortality by age and sex, Australia, 1997-2001

From 1997 to 2001, amenable mortality accounted for a total of 1.3 million years of life lost (YLL) for the 0 to 74 year age groups (Table 6.2). The largest numbers of YLL from amenable mortality were in the 45 to 64 year age group (517,600 years) and the 65 to 74 year age group (480,100). Together, these two age groups accounted for over three quarters (76.8%) of all YLL from deaths from amenable causes.

Table 6.2: YLL from amenable mortality by age and sex, Australia, 1997-2001

Age (years)	Number ('000)		
	Males	Females	Total
Infants (<1)	63.6	48.2	111.8
1-14	11.9	9.0	21.0
15-24	12.1	8.3	20.4
25-44	69.8	77.8	147.6
45-64	279.1	238.5	517.6
65-74	279.3	200.8	480.1
Total	**715.8**	**582.6**	**1,298.4**

The numbers of YLL were higher for males than for females in all age groups except the 25 to 44 year age group, where YLL were 10% higher for females than for males. The largest differentials in YLL between males and females were in the 15 to 24 year age group (males 46% higher) and 65 to 74 year age group (males 39% higher).

6.2 Amenable mortality by cause

Note: for three causes – diabetes, ischaemic heart disease and cerebrovascular diseases – only 50% of the total avoidable deaths were attributed as 'amenable' to health care intervention. Refer to Chapter 2, *Methods*, for further information.

Table 6.3 shows the number, number, age-standardised death rate, proportion of amenable deaths and YLL, for the major condition groups and individual causes included in the amenable mortality classification.

The highest rates of amenable mortality by major condition groups were for cancer, with a rate of 27.9 deaths per 100,000 population (40.2% of amenable deaths), with a similar rate for cardiovascular diseases (25.7, 38.5% of amenable deaths). These two major condition groups were responsible for over three quarters of amenable mortality at ages 0 to 74 years.

Similarly, the numbers of YLL for deaths from amenable causes were highest for these two major condition groups – cancer and cardiovascular diseases – accounting for 517,000 and 448,600 YLL, respectively.

Table 6.3: Amenable mortality (0 to 74 years) by major condition group and cause, Australia, 1997-2001

Major condition group/ cause	Number	ASR	Per cent of total	YLL ('000)
Infections	**3,120**	**2.9**	**4.1**	**54.3**
Tuberculosis	127	0.1	0.2	2.0
Selected invasive bacterial and protozoal infections	2,993	2.8	3.9	52.3
Cancer (malignant neoplasms)	**30,652**	**27.9**	**40.2**	**517.0**
Colorectal	13,008	11.7	17.1	206.3
Melanoma of skin	3,284	3.0	4.3	58.6
Nonmelanotic skin	686	0.6	0.9	10.5
Breast (female)	8,550	7.9	11.2	154.7
Cervix	908	0.8	1.2	17.1
Uterus	724	0.6	0.9	11.3
Bladder	1,635	1.4	2.1	23.7
Thyroid	225	0.2	0.3	3.7
Hodgkin's disease	208	0.2	0.3	4.0
Lymphoid leukaemia – acute/chronic	1,108	1.1	1.5	21.5
Benign	316	0.3	0.4	5.7
Nutritional, endocrine and metabolic conditions	**3,168**	**2.8**	**4.2**	**49.2**
Thyroid disorders	84	0.1	0.1	1.3
Diabetes	3,084	2.7	4.0	47.9
Neurological disorders	**1,000**	**1.0**	**1.3**	**23.2**
Epilepsy	1,000	1.0	1.3	23.2
Cardiovascular diseases	**29,368**	**25.7**	**38.5**	**448.6**
Rheumatic and other valvular heart disease	614	0.6	0.8	10.5
Hypertensive heart disease	619	0.5	0.8	9.9
Ischaemic heart disease	21,856	19.2	28.7	333.7
Cerebrovascular diseases	6,279	5.4	8.2	94.5
Genitourinary disorders	**2,072**	**1.8**	**2.7**	**31.2**
Nephritis and nephrosis	1,910	1.6	2.5	28.7
Obstructive uropathy and prostatic hyperplasia	162	0.1	0.2	2.5
Respiratory diseases	**390**	**0.4**	**0.5**	**10.4**
Asthma (0-44 years)	390	0.4	0.5	10.4
Digestive disorders	**1,676**	**1.5**	**2.2**	**26.7**
Peptic ulcer disease	664	0.6	0.9	10.1
Acute abdomen, appendicitis, intestinal obstruction, cholecystitis/ lithiasis, pancreatitis, hernia	1,012	0.9	1.3	16.5
Maternal and infant causes	**4,803**	**6.4**	**6.3**	**137.9**
Birth defects	3,278	4.2	4.3	91.4
Complications of perinatal period	1,525	2.1	2.0	46.5
Total amenable mortality	**76,249**	**70.4**	**100.0**	**1,298.4**

Of the top ten causes of amenable mortality, ischaemic heart disease ranked the highest, with a rate of 19.2 deaths per 100,000 population; colorectal cancer, with a rate of 11.7 deaths per 100,000 population, was ranked next (Table 6.4). Together, ischaemic heart disease and colorectal cancer accounted for almost half (45.8%) of deaths from amenable causes. The rates for the other eight causes ranged from 1.6 deaths per 100,000 population for nephritis and nephrosis to 7.9 deaths per 100,000 female population for breast cancer.

Ischaemic heart disease was also ranked highest for the number of YLL from these deaths, accounting for 333,710 YLL. Colorectal cancer and breast cancer were the next ranked causes, responsible for around 206,300 and 154,700 YLL, respectively.

Table 6.4: Top ten causes of amenable mortality (0 to 74 years), Australia, 1997-2001

Cause	Number	ASR	Per cent of total	YLL
Ischaemic heart disease	21,856	19.2	28.7	333,710
Colorectal cancer	13,008	11.7	17.1	206,296
Breast cancer (female)	8,550	7.9	11.2	154,683
Cerebrovascular diseases	6,279	5.4	8.2	94,496
Birth defects	3,278	4.2	4.3	91,362
Skin cancer	3,284	3.0	4.3	58,590
Selected invasive bacterial and protozoal infections	2,993	2.8	3.9	52,276
Diabetes	3,084	2.7	4.0	47,929
Complications of perinatal period	1,525	2.1	2.0	46,494
Nephritis and nephrosis	1,910	1.6	2.5	28,671
All causes	**76,249**	**70.4**	**100.0**	**1,298,430**

By age

Table 6.5 shows variations in amenable mortality by the major causes in selected age groups.

For infants, birth defects accounted for over half (54.5%) of the deaths from amenable causes, a rate of 166.2 deaths per 100,000 population. Complications of the perinatal period were responsible for a further 40.9% of these deaths n this age group, a rate of 124.3, followed by selected invasive bacterial and protozoal infections, which contributed 3.6% of deaths from amenable causes.

In the 1 to 14 year age group, deaths from birth defects accounted for 39.9% of amenable mortality, a rate of 1.5 deaths per 100,000 population. Acute/ chronic lymphoid leukaemia (18.4%) and selected invasive bacterial and protozoal infections (16.8%) were responsible for over one third of deaths from amenable causes in this age group, with approximately 8.0% from each of epilepsy and asthma.

For the 15 to 24 year age group, amenable mortality from birth defects accounted for 22.7% of all deaths, a rate of 1.2 deaths per 100,000 population. The next four highest causes of death each accounted for between 11% and 16% of amenable mortality in this age group, with rates ranging from 0.6 deaths per 100,000 population for both asthma and selected invasive bacterial and protozoal infections to 0.9 deaths per 100,000 population for epilepsy.

In the 25 to 44 year age group, the top two causes of death were responsible for over one third of amenable mortality (35.7%). Breast cancer (females only) accounted for 19.2% of amenable mortality, a rate of 3.7 deaths per 100,000 population, and ischaemic heart disease resulted in 16.5%, a rate of 3.2. Skin cancer (9.1%), colorectal cancer (9.2%) and epilepsy (7.1%) comprised a further one quarter (25.4%) of deaths from amenable causes in this age group.

At ages 45 to 64 years, over one quarter (27.5%) of deaths from amenable causes were from ischaemic heart disease, a rate of 36.4 deaths per 100,000 population. Colorectal cancer ranked second, with 20.6% of deaths in this age group, a rate of 27.4, followed by breast cancer (females only), comprising 17.3% of deaths, a rate of 22.9. One in eight deaths from amenable causes in the 45 to 64 age group were due to cerebrovascular diseases (6.5%) and skin cancer (5.3%).

Ischaemic heart disease and colorectal cancer were also the major causes of amenable mortality in the 65 to 74 year age group. Ischaemic heart disease accounted for 35.2% of amenable deaths (a rate of 201.1 deaths per 100,000 population) and colorectal cancer was responsible for 18.0% of amenable deaths (103.1 deaths per 100,000 population). Just less than one quarter of deaths from amenable causes in this age group were from cerebrovascular diseases (10.9%), breast cancer (females only, 7.0%) and diabetes (4.8%).

Table 6.5: Amenable mortality by major cause and age, Australia, 1997-2001

Age (years)	Cause	Number	Rate per 100,000[1]	% of total in age group	YLL
Infants (<1)	Birth defects	1,995	166.2	54.5	60,907
	Complications of perinatal period	1,497	124.3	40.9	45,703
	Selected invasive bacterial and protozoal infections	131	10.9	3.6	3,999
1-14	Birth defects	280	1.5	39.9	8,417
	Lymphoid leukaemia – acute/chronic	129	0.7	18.4	3,843
	Selected invasive bacterial and protozoal infections	118	0.6	16.8	3,555
	Asthma	57	0.3	8.1	1,693
	Epilepsy	56	0.3	8.0	1,672
15-24	Birth defects	164	1.2	22.7	4,657
	Epilepsy	115	0.9	15.9	3,253
	Lymphoid leukaemia – acute/chronic	99	0.7	13.7	2,817
	Asthma	81	0.6	11.2	2,288
	Selected invasive bacterial and protozoal infections	78	0.6	10.8	2,215
25-44	Breast cancer (female)	1,143	3.7	19.2	27,900
	Ischaemic heart disease	980	3.2	16.5	24,024
	Colorectal cancer	548	1.8	9.2	13,450
	Skin cancer	542	1.8	9.1	13,520
	Epilepsy	425	1.5	7.1	10,774
45-64	Ischaemic heart disease	7,559	36.4	27.5	140,706
	Colorectal cancer	5,658	27.4	20.6	105,023
	Breast cancer (female)	4,742	22.9	17.3	92,198
	Cerebrovascular diseases	1,783	8.6	6.5	33,282
	Skin cancer	1,451	7.0	5.3	27,870
65-74	Ischaemic heart disease	13,297	201.1	35.2	168,412
	Colorectal cancer	6,781	103.1	18.0	87,231
	Cerebrovascular diseases	4,103	60.8	10.9	51,340
	Breast cancer (female)	2,658	38.6	7.0	34,389
	Diabetes	1,809	27.3	4.8	23,044

[1] **Rates are age standardised within age categories, except under 1 year**

As noted previously, death rates from amenable mortality are highest at older ages; however, there are also substantial numbers of deaths at younger ages. The impact of these deaths is illustrated in Table 6.5 by the measure of years of life lost (YLL).

For infants, approximately 60,900 YLL were a result of amenable mortality from birth defects, with deaths from complications of the perinatal period accounting for 45,700 YLL. For the 1 to 14 and 15 to 24 year age groups, YLL from birth defects ranked highest, with over 8,400 YLL and 3,800 YLL, respectively.

Deaths from breast cancer in the 25 to 44 year age group were responsible for 27,900 YLL among females, followed by ischaemic heart disease, with over 24,000 YLL.

For the 45 to 64 and 65 to 74 year age groups, ischaemic heart disease accounted for the largest number of YLL from deaths from amenable causes (approximately 140,700 and 168,400 YLL, respectively).

Although the rate of mortality from colorectal cancer in the 65 to 74 year age group was almost four times (3.76[**]) the rate in the 45 to 64 year age group, the number of YLL in the 45 to 64 year age group was larger (approximately 105,000 YLL, compared to 87,200).

Similarly, in the 45 to 64 year age group, YLL from breast cancer in females were approximately 92,200 compared to 34,400 in the 65 to 74 year age group (but with rates of 22.9 deaths per 100,000 population and 38.6 deaths per 100,000 population, respectively).

By age and sex

The main causes impacting amenable mortality at different ages show interesting variations when further analysed by sex (Table 6.6).

Apart from for infants and the 15 to 24 year age group (and a marginal difference in the 1 to 14 year age group), the ranking of the main causes of death for amenable mortality differed for males and females. At older ages this difference is in part due to the impact of breast cancer for females.

For infants, birth defects were responsible for over half the deaths from amenable causes (57.7% of female infant deaths and 52.1% of male infant deaths). Complications of the perinatal period accounted for the majority of the remaining amenable infant deaths (43.2% for infant males and 37.7% for infant females). (Note: only the top three causes of infant death are shown in Table 6.6, due to the lower numbers for the next ranked causes.)

For the 1 to 14 year age group, birth defects were responsible for 39.3% of deaths from amenable causes for males and 41.4% for females. Acute/ chronic lymphoid leukaemia was responsible for a further 20.5% of male deaths and 15.5% of female deaths. Selected invasive bacterial and protozoal infections accounted for 15.8% of these deaths for males and 15.5% for females. Asthma and epilepsy were the next ranked causes.

In the 15 to 24 year age group, the major causes of mortality were similarly ranked for both males and females. Birth defects were responsible for almost one quarter of deaths from amenable causes – 22.7% of male deaths and 23.1% of female deaths. Epilepsy and acute/ chronic lymphoid leukaemia were responsible for approximately equal proportions of these deaths for males and females.

For the 25 to 44 year age group, the rank order of amenable mortality for males and females varied. Ischaemic heart disease was responsible for 28.6% of male deaths from amenable causes (ranked first) but just 5.6% of female deaths (ranked fifth). The rates for ischaemic heart disease were 5.3 for males and 1.2 for females, a differential of 4.42[**]. For males, the next highest causes of death were skin cancer, epilepsy and colorectal cancer, each contributing to between 9% and 11% of male deaths from amenable causes. For females, deaths from breast cancer ranked highest, accounting for over one third (36.3%) of female deaths from amenable causes in this age group, with a rate of 7.4 deaths per 100,000 females. The next highest rates of deaths from amenable causes for females were colorectal cancer, accounting for 8.6% of these female deaths, and skin cancer, accounting for 7.5%.

Ischaemic heart disease accounted for 40.2% of male deaths from amenable causes at ages 45 to 64 years, with colorectal cancer ranked second, accounting for 22.6% of these male deaths. Deaths from breast cancer ranked highest for females in this age group, and were responsible for 37.8% of deaths from amenable causes for females, a rate of 45.8 deaths per 100,000 females. Colorectal cancer ranked second, contributing to 18.2% of these female deaths, followed by ischaemic heart disease (12.4%). The male rate of deaths from ischaemic heart disease (57.7 deaths per 100,000 males) was almost four times (3.80[**]) the female rate (15.2 deaths per 100,000 females).

Causes of amenable mortality were ranked the same for males and females in the 65 to 74 year age group, with the exception of breast cancer for females (ranked second). Ischaemic heart disease was responsible for 41.6% of deaths of males from amenable causes 26.4% of females; the male rate (285.0 deaths per 100,000 population) was almost two and a half times (2.41[**]) the female rate (117.2). Colorectal cancer was responsible for a further 18.9% of amenable male deaths and 16.6% of amenable female deaths. Breast cancer was responsible for 16.8% of deaths from amenable causes for females.

Table 6.6: Amenable mortality by major cause, age and sex, Australia, 1997-2001

Age (years)	Cause	Males				Females			
		Number	Rate[1]	Per cent[2]	Rank[3]	Number	Rate[1]	Per cent[2]	Rank[3]
<1	Birth defects	1,085	176.4	52.1	1	910	156.0	57.7	1
	Complications of perinatal period	901	146.5	43.3	2	596	102.1	37.8	2
	Selected invasive bacterial and protozoal infections	75	12.2	3.6	3	56	9.6	3.5	3
1-14	Birth defects	156	1.7	39.1	1	124	1.4	41.1	1
	Lymphoid leukaemia – acute/chronic	82	0.9	20.6	2	47	0.5	15.6	3
	Selected invasive bacterial and protozoal infections	63	0.7	15.8	3	55	0.6	18.2	2
	Asthma	31	0.3	7.8	4	26	0.3	8.6	4
	Epilepsy	31	0.3	7.8	4	25	0.3	8.3	4
15-24	Birth defects	97	1.4	22.7	1	67	1.0	22.8	1
	Epilepsy	78	1.1	18.2	2	37	0.6	12.6	2
	Lymphoid leukaemia – acute/chronic	69	1.0	16.1	3	30	0.5	10.2	3
	Asthma	47	0.7	11.0	4	34	0.5	11.6	3
	Selected invasive bacterial and protozoal infections	43	0.6	10.0	5	35	0.5	11.9	3
25-44	Ischaemic heart disease	804	5.3	28.7	1	176	1.2	5.6	5
	Skin cancer	306	2.0	10.9	2	236	1.6	7.5	3
	Epilepsy	281	1.9	10.0	3	144	1.0	4.6	7
	Colorectal cancer	277	1.8	9.9	4	271	1.8	8.6	2
	Breast cancer	–	..	..	..	1,143	7.4	36.4	1
	Cervical cancer	–	..	..	..	207	1.4	6.6	4
45-64	Ischaemic heart disease	6,006	57.7	40.2	1	1,553	15.2	12.4	3
	Colorectal cancer	3,381	32.6	22.6	2	2,277	22.2	18.2	2
	Cerebrovascular diseases	1,066	10.3	7.1	3	717	7.0	5.7	4
	Skin cancer	965	9.2	6.5	4	486	4.7	3.9	5
	Breast cancer	–	..	..	..	4,742	45.8	37.8	1
65-74	Ischaemic heart disease	9,118	285.0	41.6	1	4,178	117.2	26.4	1
	Colorectal cancer	4,153	130.7	18.9	2	2,628	75.6	16.6	3
	Cerebrovascular diseases	2,333	72.3	10.6	3	1,770	49.4	11.2	4
	Diabetes	1,073	33.6	4.9	4	736	20.9	4.6	5
	Breast cancer	–	..	..	..	2,658	77.2	16.8	2

[1] Rates are age standardised within age categories, except under 1 year
[2] Per cent is the proportion of total amenable deaths within the relevant age-sex group
[3] Rank is the rank order of rates for the top four causes of death for males and females: more than four causes are listed where the rank order differs for males and females

6.3 Amenable mortality by area

By state/ territory and area

There is minimal variation in the rates of amenable mortality for all causes for ages 0 to 74 by state/ territory and area within the jurisdiction, apart from the Northern Territory (Table 6.7). The rates of mortality from causes amenable mortality were highest in the Northern Territory (a rate of 148.4), with the remaining state/ territory rates ranging from 63.5 in the Australian Capital Territory to 75.5 in Tasmania.

The differential in the rates between the rest of state/ territory areas and the capital cities was highest in Northern Territory (a rate ratio of 2.36[**]) and lowest in Tasmania (0.94). For the remaining jurisdictions, the differentials in rates between the rest of state areas and the capital cities ranged from 1.10[**] in New South Wales to 1.18[**] in Western Australia.

Table 6.7: Amenable mortality (0 to 74 years) by area, Australia, 1997-2001

State/ Territory	Capital city (CC) and other major urban centres (MUC)		Rest of state/ territory areas (ROS)		Rate ratio ROS: CC/MUC	Whole of state/ territory[1]	
	Number	ASR	Number	ASR		Number	ASR
New South Wales[2]	18,227	68.3	8,118	75.1	1.10[**]	26,374	70.3
Victoria	13,097	65.3	5,305	73.0	1.12[**]	18,406	67.4
Queensland	8,930	70.4	5,645	79.8	1.13[**]	14,323	73.9
South Australia	4,563	68.6	1,987	77.3	1.13[**]	6,556	71.1
Western Australia	4,574	62.8	1,934	73.8	1.18[**]	6,517	65.8
Tasmania	894	78.1	1,238	73.3	0.94	2,140	75.5
Northern Territory	353	91.8	620	216.2	2.36[**]	996	148.4
Australian Capital Territory[3]	1,079	68.3	#	..	..	932	63.5
Total	51,717	67.5	24,589	77.0	1.14[**]	76,249	70.4

[#] Not shown or not calculated, as there are fewer than 5 deaths over the period shown
[1] Total for *Whole of State/ Territory* includes 'Other Territories' (Jervis Bay, Christmas Island and Cocos Islands)
[2] NSW *Rest of state* areas include Tweed Heads
[3] ACT *Capital city and other major urban centres* comprises Canberra, Queanbeyan and Yarrowlumla A (Pt A)

Introduction to map and text pages

The following pages examine amenable mortality, based on area of usual residence of the deceased.

The analysis includes text and maps showing total amenable mortality: the individual causes have not been mapped as those with larger numbers (ischaemic heart disease, colorectal, breast cancer and cerebrovascular diseases) have the same patterns (albeit some with lower rates) in terms of mortality, as mapped in *Section 4.4*; and the remaining causes had insufficient numbers to be mapped.

For further information related to the map pages, refer to the 'Introduction to map and text pages' in *Section 4.4*.

Keys to the areas mapped are included in *Appendix 1.4*.

The numbers and rates by SSD are available at www.publichealth.gov.au.

All causes: amenable mortality (0 to 74 years), capital cities, Australia, 1997-2001

Capital cities

Over the period 1997 to 2001, deaths from amenable mortality ranged from a rate of 63.0 deaths per 100,000 population in Perth to a rate of 88.3 in Darwin (Table 6.8). The rate for all capitals combined was 66.9 deaths per 100,000 population.

Table 6.8: Amenable mortality from all causes, capital cities, Australia, 1997-2001

ASR per 100,000 population

Sydney	Melbourne	Brisbane	Adelaide	Perth	Hobart	Darwin	Canberra	All capitals
66.7	64.9	71.5	68.6	62.8	78.1	91.8	63.4	66.8

Other major urban centres

Rates in the other major urban centres ranged from 62.3 deaths per 100,000 population in the Sunshine Coast to 90.3 in Townsville-Thuringowa (details in Table A4, Appendix 1.3).

By Statistical Subdivision (SSD)

For **Sydney**, the rates varied substantially, with over one third of areas in both the highest and lowest ranges (Map 6.1). The highest rates were in Inner Sydney (79.7 deaths per 100,000 population), Blacktown (79.2), and Outer South Western Sydney (77.9) SSDs, and the lowest were in Central Northern Sydney (50.8), Northern Beaches (52.6) and Lower Northern Sydney (56.6).

Rates were lower in **Melbourne**, with the highest rates in Inner Melbourne (76.5 deaths per 100,000 population), Greater Dandenong City (73.6) and Melton-Wyndham (73.4). Lowest rates were in Eastern Middle Melbourne (54.4), Boroondara City (56.3) and Northern Outer Melbourne (59.3).

In **Brisbane**, the highest rates were in Redcliffe City (85.5 deaths per 100,000 population), Ipswich City (84.6) and Gold Coast City Part A (77.4). Rates were lowest in Redland Shire (59.3) and Beaudesert Shire Part A (60.3).

The rates of amenable mortality in **Adelaide** were within a smaller range, varying from 73.5 deaths in Northern Adelaide to 63.4 in Southern Adelaide.

The rates were comparatively low in **Perth**, ranging from 57.0 deaths per 100,000 population in North Metropolitan to 67.3 in East Metropolitan.

Residents of **Hobart** had the second highest rate of amenable mortality (78.1 deaths per 100,000 population) of all the capital cities (after Darwin).

The rates in **Darwin** were comparatively high, with the two highest rates of all capital cities in Palmerston-East Arm (94.8) Darwin City (94.3).

In **Canberra**, rates were comparatively low, varying from 76.2 in South Canberra to 52.4 in Gunghalin-Hall (the lowest rate of all capital city SSDs).

By socioeconomic status

For all capital cities and other major urban centres combined, there was an almost uninterrupted socioeconomic gradient in death rates from amenable causes for both males and females (Figure 6.2).

Rates for males were higher than for females in each decile, ranging from 55.3 male deaths per 100,000 population in the least disadvantaged areas to 91.5 in the most disadvantaged areas. The rates for females ranged from 49.6 in the least disadvantaged areas to 68.3 in the most disadvantaged areas.

The differential in the rates between the most disadvantaged areas and least disadvantaged areas was greater for males (1.65[**]) than for females (1.38[**]).

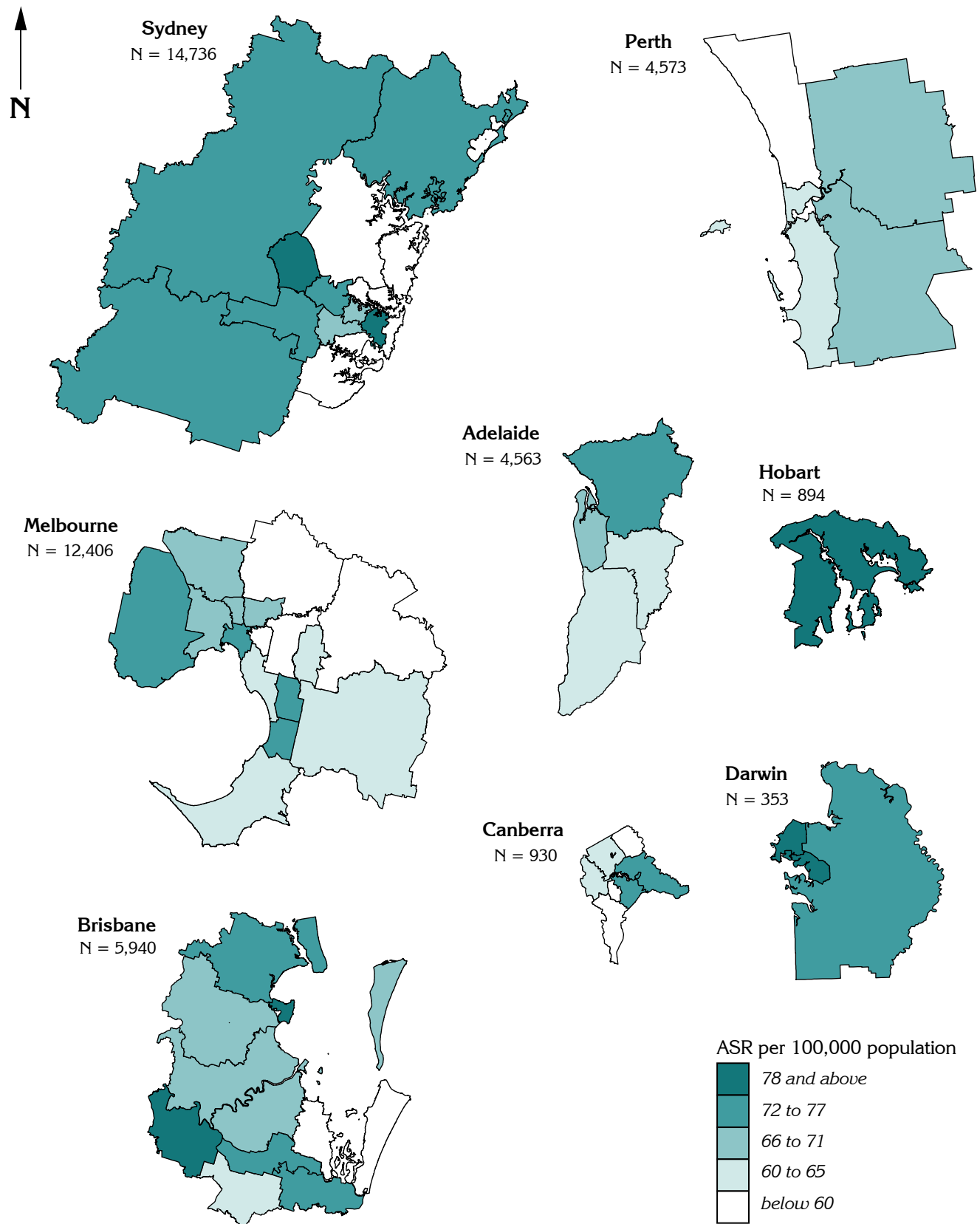**Figure 6.2: Amenable mortality from all causes by socioeconomic status and sex, capital cities and other major urban centres, Australia, 1997-2001**
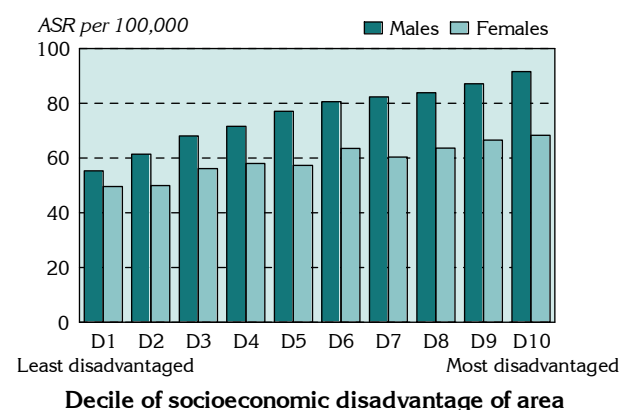
Decile of socioeconomic disadvantage of area

Map 6.1

All causes: amenable mortality (0 to 74 years), capital cities, Australia, 1997-2001

age standardised deaths per 100,000 population by Statistical Subdivision

N

Sydney
N = 14,736

Perth
N = 4,573

Adelaide
N = 4,563

Hobart
N = 894

Melbourne
N = 12,406

Darwin
N = 353

Canberra
N = 930

Brisbane
N = 5,940

ASR per 100,000 population

78 and above

72 to 77

66 to 71

60 to 65

below 60

Details of map boundaries are in Appendix 1.4

Australian and New Zealand Atlas of Avoidable Mortality

All causes: amenable mortality (0 to 74 years), Australia, 1997-2001

States/ Territories

Death rates from amenable mortality were higher in the rest of state/ territory areas than in the capital cities in all jurisdictions except Tasmania, where the rate was five per cent lower (Table 6.9). The rate in the rest of territory area was substantially higher in the Northern Territory, with 216.2 deaths per 100,000 population, compared with 91.8 in Darwin, a differential of 2.34[**].

Table 6.9: Amenable mortality from all causes by area, Australia, 1997-2001

ASR per 100,000 population

Area	NSW	Vic	Qld	SA	WA	Tas	NT	ACT	All
Capital city	66.7	64.9	71.5	68.6	62.8	78.1	91.8	63.4	66.8
Other major urban centres	75.9	72.9	68.2	..	..	..	..	..	72.2
Rest of state/ territory areas	75.4	73.0	79.8	77.3	73.8	73.3	216.2	#	77.0
Whole of state/ territory	**70.3**	**67.4**	**73.9**	**71.7**	**65.8**	**75.5**	**148.4**	**63.5**	**70.4**

By Statistical Subdivision (SSD)

For **New South Wales**, rates were highest in Upper Darling (118.3 deaths per 100,000 population), Macquarie-Barwon (112.1) and North Central Plain (99.6) (Map 6.2). Rates were lowest in Tweed Heads (67.0), Lower Murrumbidgee (67.1), Illawarra Balance (67.2) and Port Macquarie (67.3).

Rates were lower in **Victoria**, with the highest rates in Glenelg (86.1 deaths per 100,000 population) and Mildura Rural City Part A (85.3), and the lowest in East Ovens-Murray (58.4), East Barwon (58.7) and South Loddon (59.0).

In **Queensland**, rates were highest in North West (124.2 deaths per 100,000 population), Rockhampton (98.1) and South West (95.8). The lowest rates were in Sunshine Coast (62.3), Moreton Balance (65.4) and Gold Coast City Part B (65.7).

Rates of amenable mortality in **South Australia** were highest in Far North (126.2 deaths per 100,000 population), West Coast (101.6) and Flinders Ranges (95.5). Rates were lowest in Barossa (57.8) and Mt Lofty Ranges (58.1)

Rates in **Perth** varied substantially, with the two highest rates across Australia, apart from in the Northern Territory, in Fitzroy (172. deaths per 100,000 population) and Ord (156.3). The lowest rate of all the rest of Australia areas was in Lakes (52.4), followed by Campion (59.7).

Rates in **Tasmania** were highest in North Eastern (86.6 deaths per 100,000 population) and Burnie-Devonport (76.1), and lowest in Central North (63.5) and North Western Rural (65.6).

In the **Northern Territory**, the rates for all SSDs were over two and a half times the Australian rate (70.4), and the highest across Australia, apart from in Finniss (63.9, 6 deaths). The highest rates were in Bathurst-Melville (332.1 deaths per 100,000 population) and Alligator (326.9).

By remoteness

The graph of death rates by remoteness shows (opposite page) the lowest rate, of 69.4, in the Inner Regional areas, increasing to 84.4 in the Remote areas, followed by a sharp increase to 135.0 in the Very Remote areas. The numbers of deaths from amenable mortality decline rapidly across the remoteness classes.

By socioeconomic status

For males, there was a socioeconomic gradient in the rates of all rest of state/ territory areas combined: for females, the pattern was less clear (Figure 6.3), although the female rate was lowest in Decile 1 and highest in Decile 10.

Rates for males were higher than females, ranging from 66.6 in the least disadvantaged areas to 117.1 in the most disadvantaged areas. The female rates ranged from 57.4 in the least disadvantaged areas to 91.5 in the most disadvantaged areas. The differential in the rates between the most disadvantaged areas and least disadvantaged areas was 1.76[**] for males and 1.59[**] for females.

Figure 6.3: Amenable mortality from all causes by socioeconomic status and sex, rest of states/ territories, Australia, 1997-2001


Decile of socioeconomic disadvantage of area
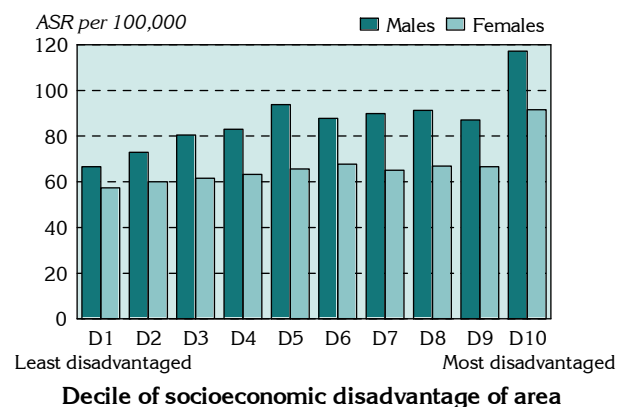
Map 6.2
All causes: amenable mortality (0 to 74 years), Australia, 1997-2001
age standardised deaths per 100,000 population by Statistical Subdivision

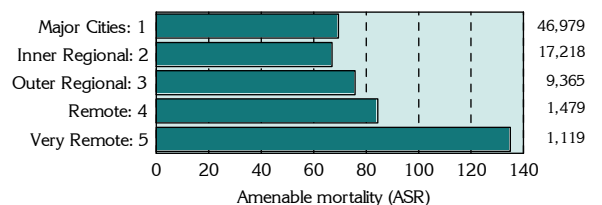**Map legend for SSDs not distinguishable**

- Coffs Harbour
- Port Macquarie
- Hervey Bay City Part A
- Mackay City Part A
- Townsville City Part A
- Bunbury
- Geraldton
- Kalgoorlie/Boulder City Part A

N

Darwin

Perth

Brisbane

Adelaide

Sydney

Canberra

Melbourne

Hobart
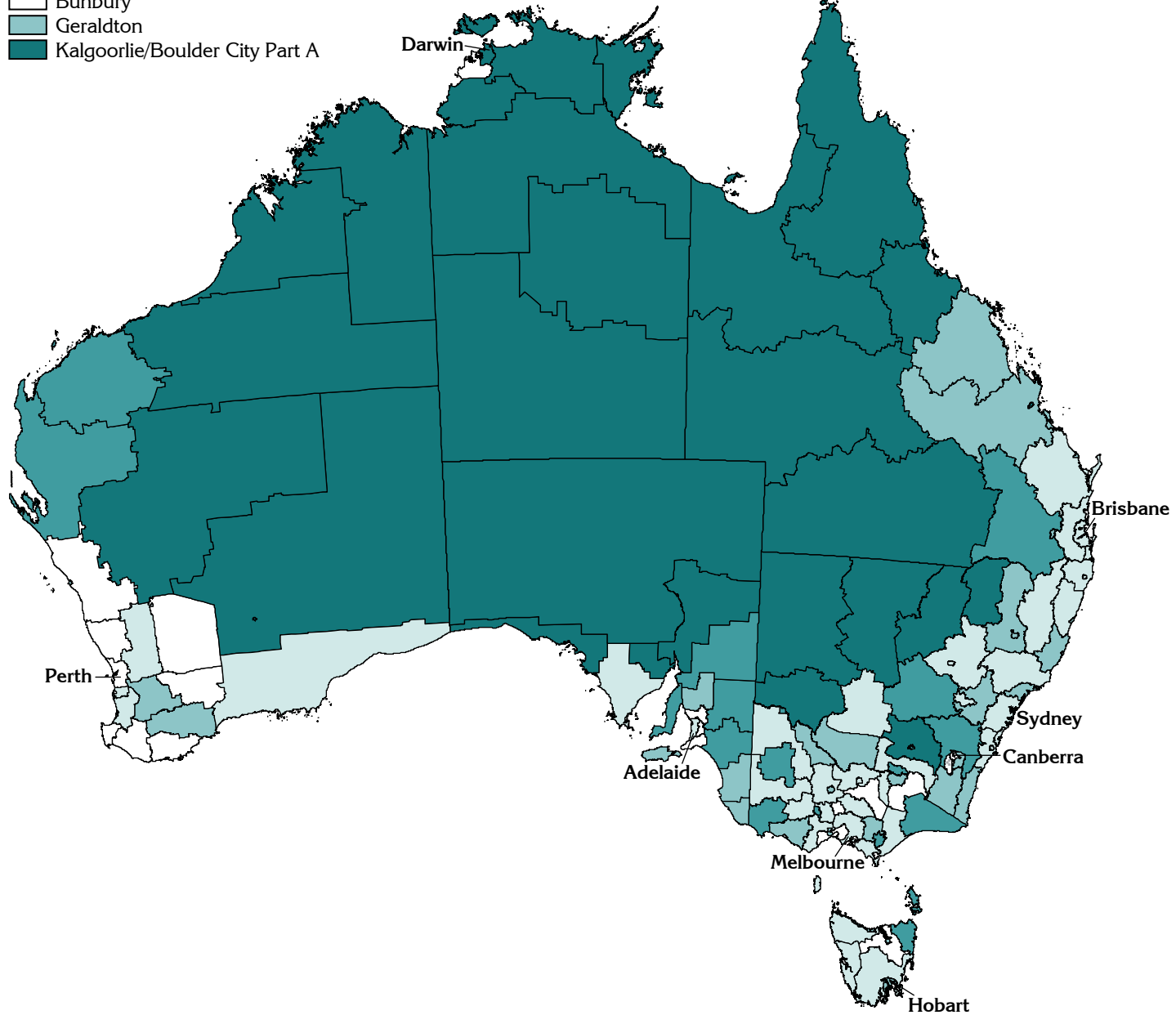
ASR per 100,000 population

- 88 and above
- 80 to 87
- 72 to 79
- 64 to 71
- below 64
- data not mapped (<5 deaths)

ASGC Remoteness classification

	Deaths
Major Cities: 1	46,979
Inner Regional: 2	17,218
Outer Regional: 3	9,365
Remote: 4	1,479
Very Remote: 5	1,119

0   20   40   60   80   100   120   140
Amenable mortality (ASR)

Details of map boundaries are in Appendix 1.4

Australian and New Zealand Atlas of Avoidable Mortality

6.4 Amenable mortality by socioeconomic status

This section examines amenable mortality by socioeconomic status. The calculation of rates by decile, and the particular measure of socioeconomic disadvantage used (the IRSD), are described in Chapter 2, *Methods*.

By area

Figure 6.4 and Table 6.10 show amenable mortality for the capital cities and other major urban centres, and the rest of state/ territory areas. For each decile, there was a differential in the rates between the rest of state/ territory areas and the capital cities and other major urban centres of around 10% to 20%, apart from Decile 9, where there was no effective difference in the rates, and Decile 10, where the differential was a notable 31%.

For both the capital cities and other major urban centres areas, and the rest of state/ territory areas, there is a socioeconomic gradient in the rates of amenable mortality, with the highest rate in the most disadvantaged areas in the rest of state/ territory areas.

The differentials in rates between the most disadvantaged areas and least disadvantaged areas, were 1.52** for the capital cities and other major urban centres, and 1.68** for the rest of state/ territory areas.

Figure 6.4: Amenable mortality (0 to 74 years) by socioeconomic status and area, Australia, 1997-2001
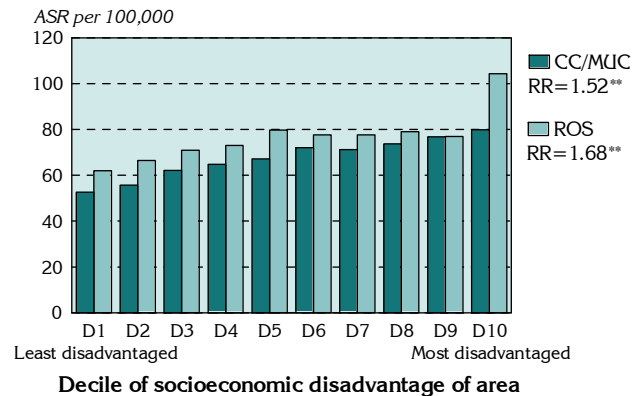

Table 6.10: Amenable mortality (0 to 74 years) by socioeconomic status and area, Australia, 1997-2001

| Decile	Capital cities (CC) and other major urban centres (MUC)		Rest of states/ territories (ROS)		Rate ratio ROS: CC/MUC	Australia	
	Number	ASR	Number	ASR		Number	ASR
1: Least disadvantaged	4,076	52.6	1,891	62.0	1.18**	5,617	53.7
2	4,159	55.7	2,051	66.4	1.19**	6,335	58.8
3	4,887	62.2	2,096	71.0	1.14**	6,560	64.0
4	4,701	64.8	2,312	73.1	1.13**	7,000	66.7
5	4,990	67.2	2,491	79.7	1.19**	7,626	71.2
6	5,442	72.1	2,618	77.7	1.08**	7,944	72.4
7	5,559	71.3	2,550	77.6	1.09**	8,383	75.1
8	5,873	73.7	2,587	79.1	1.07**	8,560	74.6
9	6,002	76.8	2,585	76.9	1.00	8,767	78.1
10: Most disadvantaged	6,276	79.9	3,010	104.3	1.31**	9,365	86.9
Total	51,717	67.5	24,589	77.0	1.14**	76,250	70.4
RR–Decile 10:Decile 1	..	1.52**	..	1.68**	..	..	1.62**

By state/ territory and sex

The charts in Figure 6.5 show death rates for amenable mortality by decile of socioeconomic status by state/ territory and by sex. For all jurisdictions, there is a pattern of the least disadvantaged areas with the lowest rates and the most disadvantaged areas with the highest rates. Apart from a variable pattern in Tasmania and the Australian Capital Territory, there was a gradient in rates in all states and territories, which was generally clearer for males than for females.

The differentials in rates were larger for males than for females in all jurisdictions apart from the Northern Territory, where rates for females in the most disadvantaged areas were over six times (6.17**) those in the least disadvantaged areas. For males, the differential was over three and a half (3.74**).

Figure 6.5: Amenable mortality (0 to 74 years) by socioeconomic status, state/ territory and sex, Australia, 1997-2001
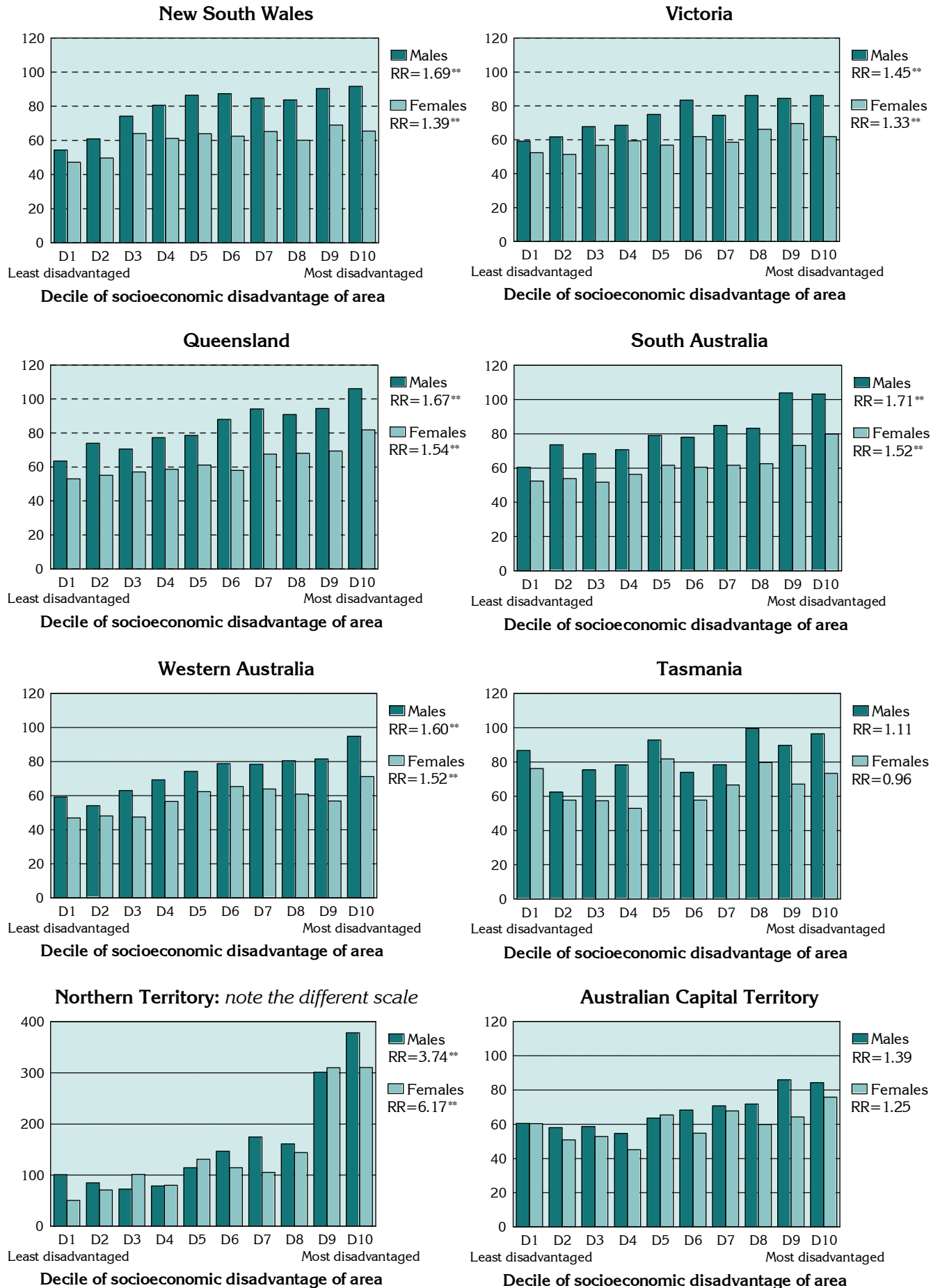
ASR per 100,000 population

Note: Rate ratio (RR) is the ratio of the rate in Decile 10 areas compared to the rate in Decile 1

By state/ territory and area

Figure 6.6 shows death rates for amenable mortality by decile of socioeconomic status in the capital city/ other major urban centre and rest of state/ territory areas by jurisdiction. For all areas the least disadvantaged areas had the lowest rates and the most disadvantaged areas had the highest rates. There was also a socioeconomic gradient evident in the rates of amenable mortality, although this was less clear in Western Australia or in Darwin (the capital city area of the Northern Territory).

The differentials in rates were larger in the rest of state areas than in the capital city/ other major urban centre areas in all but New South Wales and Queensland. The largest differentials were in the rest of territory areas in Northern Territory, with rates in the most disadvantaged areas more than three times (a rate ratio of 3.18**) those in the least disadvantaged areas.

In South Australia, the differentials in rates were around 70%. In the rest of state areas in Western Australia, the rates in the most disadvantaged areas were more than 80% higher (a rate ratio of 1.82**) than those in the least disadvantaged areas.

Figure 6.6: Amenable mortality (0 to 74 years) by socioeconomic status, state/ territory and area, Australia, 1997-2001
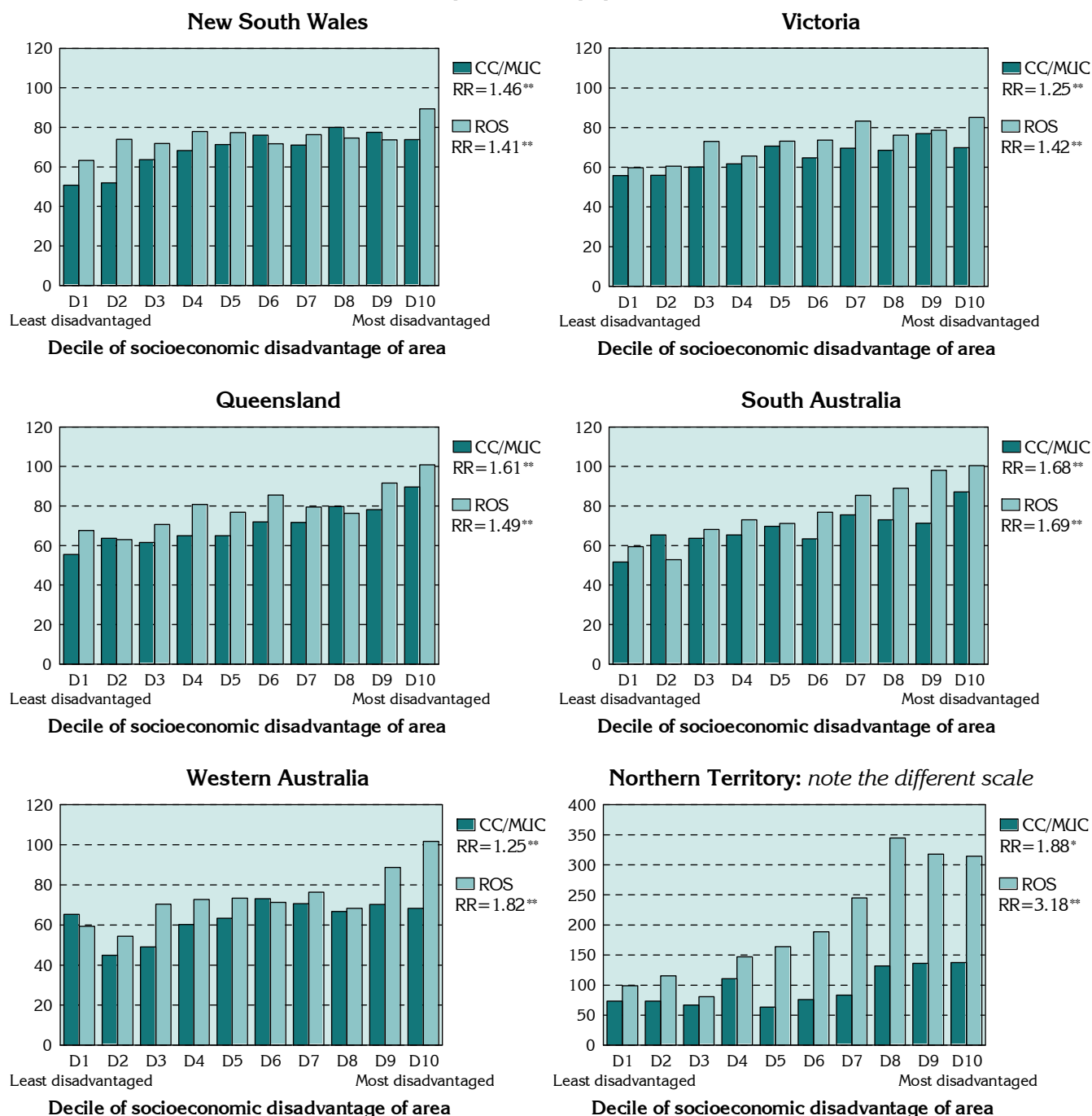
ASR per 100,000 population

Note: Rate ratio (RR) is the ratio of the rate in Decile 10 areas compared to the rate in Decile 1

By excess deaths[1]

For the total population, and for both males and females, there was a gradient by socioeconomic disadvantage of area in the number of excess deaths, with the fewest excess deaths in Quintile 2 (less disadvantaged) and the most excess deaths in Quintile 5 (most disadvantaged) (Table 6.11).

If mortality in all of the socioeconomic groups equalled that of the least disadvantaged group (Quintile 1), total amenable deaths would be reduced from 76,250 (see Table 6.10, page 146) to 61,108. The 15,142 excess deaths that occurred over the observation period accounted for almost twenty per cent (19.9%) of total amenable mortality.

[1] See Chapter 2, *Methods*

For males, these excess deaths totalled 9,711 deaths (64% of total excess deaths), almost 80% more than the 5,430 for females.

Male excess deaths were also between 60% and 80% above those for females in each quintile. In Quintiles 2 and 3, there were 1,212 (64.3% of excess deaths in these areas) and 2,171 (64.7%) male excess deaths, respectively, compared to 672 (35.7%) and 1,184 (35.3%) for females.

Excess deaths for males in Quintile 4 represented 2,780 deaths (66.4%), compared to 1,409 deaths (33.6%) for females. In the most disadvantaged areas (Quintile 5), male excess deaths represented 3,548 deaths (62.1%) compared to 2,166 for females (37.9%).

Table 6.11: Excess deaths[1] from amenable mortality (0 to 74 years) by quintile of socioeconomic status and sex, Australia, 1997-2001

| Sex | Number | | | | | Total | Per cent |
	Q1	Q2	Q3	Q4	Q5	(Q1:Q5)	of total
Males	(0)	1,212	2,171	2,780	3,548	**9,711**	64.1
Females	(0)	672	1,184	1,409	2,166	**5,430**	35.9
Total	**(0)**	**1,884**	**3,355**	**4,189**	**5,714**	**15,142**	**100.0**
Ratio–M:F	**..**	**1.80**	**1.83**	**1.97**	**1.64**	**1.79**	**..**

[1] **Excess deaths is the difference between the observed and expected number of deaths, calculated between Quintile 1 (least disadvantaged) and the quintile under analysis**

By excess deaths and age

The number of excess deaths increased with age, apart from in the 15 to 24 year age group (Table 6.12). Almost 85.0% of excess deaths (12,832 deaths) occurred in the 45 to 64 year and 65 to 74 year age groups.

Among those aged 65 to 74 years, there were 6,804 excess deaths (44.9% of excess deaths), marginally more than the 6,028 (39.8%) in the 45 to 64 year age group. The smallest number of excess deaths, 167 (1.1%), occurred in the 15 to 24 year age group. In the 0 to 14 year age group, there were 712 (4.7%) excess deaths, half of the 1,430 (9.4%) in the 25 to 44 year age group.

The pattern of excess deaths within each socioeconomic status grouping was similar to that for the Australia as a whole, with the largest numbers (between 40% and 50% of excess deaths in each Quintile) in the 45 to 64 year and 65 to 74 year age groups, and the smallest (less than 1.5%) in the 15 to 24 year age group.

In Quintile 2, there were 855 excess deaths in the 65 to 74 year age group (45.4% of the excess deaths in these areas), marginally more than the 778 in those aged 45 to 64 years (41.3%). The 15 to 24 year age group had 14 excess deaths (0.7%).

There were 1,596 excess deaths in the 65 to 74 year age group, just under half (47.6%) of all excess deaths in Quintile 3, compared to 1,361 (40.6%) among those aged 45 to 64 years. The smallest number of excess deaths in Quintile 3 (38) was in the 15 to 24 year age group (1.1%).

The 65 to 74 year age group in Quintile 4 had 1,876 excess deaths, 44.8% of deaths in these areas, compared to 1,641 in those aged 45 to 64 years (39.2%). There were 52 excess deaths in the 15 to 24 year age group, 1.2% of total excess deaths in these areas.

In Quintile 5, the 65 to 74 year age group had 2,478 excess deaths (43.4%), marginally more than the 2,248 (39.3%) in those aged 45 to 64 years. The 15 to 24 year age group had 63 excess deaths (1.1%).

Table 6.12: Excess deaths from amenable mortality (0 to 74 years) by quintile of socioeconomic status and age, Australia, 1997-2001

Age (years)	Number					Total	Per cent
	Q1	Q2	Q3	Q4	Q5	(Q2:Q5)	of total
0-14	(0)	47	103	221	341	**712**	4.7
15-24	(0)	14	38	52	63	**167**	1.1
25-44	(0)	191	258	398	584	**1,430**	9.4
45-64	(0)	778	1,361	1,641	2,248	**6,028**	39.8
65-74	(0)	855	1,596	1,876	2,478	**6,804**	44.9
Total	**(0)**	**1,884**	**3,355**	**4,189**	**5,714**	**15,142**	**100.0**

By excess deaths, age and sex

Excess deaths of males represented between one and a half and three times those for females in each age group of the analysis, apart from in the 0 to 24 year age group, where numbers differed little (Table 6.13). The pattern varied between the sexes, with the smallest number for males in the 0 to 24 year age group (459 deaths) and, for females, in the 25 to 44 year age group (375).

In the 0 to 24 year age group, the number of excess deaths of males (459 deaths; 52.2% of excess deaths in the age group) was only marginally higher than for females (420; 47.8%). In the 25 to 44 year age group, however, there were 1,055 excess deaths of males (73.8% of excess deaths), almost three times the 375 excess deaths of females (26.2%). There were almost twice as many excess deaths in males aged 45 to 64 years (4,012, 66.6% of excess deaths in the age group) compared to females (2,016, 33.4%). In the 65 to 74 year age group male excess deaths totalled 4,185 (61.5% of excess deaths), compared to 2,619 for females (38.5%).

In Quintile 2, the largest number of male excess deaths was in the 45 to 64 year age group (524 deaths, 43.2% of male excess deaths in these areas); while for females, the largest number was in the 65 to 74 year age group (366 deaths, 54.5%). In the 0 to 24 year age group, both the number and proportion of female excess deaths (41 deaths, 6.1%) were higher than for males (19, 1.6%). Conversely, in the 25 to 44 year age group, the number and proportion for males (180 deaths, 14.9%) were higher than for females (11, 1.6%).

In Quintile 3, the largest number of excess deaths for both males and females were in the 65 to 74 year (1,009 deaths, 43.0% for males; 586, 49.5% for females) and the 45 to 64 year age groups (914, 42.1% and 446, 37.7%, respectively). The smallest number of excess deaths was in the 0 to 24 year age group for males (53 deaths, 2.4%) and the 25 to 44 year age group for females (63, 5.3%).

In Quintile 4, the largest numbers of excess deaths were again in the 65 to 74 year age group, with 1,195 deaths (43.0%) for males and 681 (48.3%) for females; and in the 45 to 64 year age group, with 1,138 (40.9%) and 503 (35.7%) deaths, respectively.

The largest numbers of excess deaths in Quintile 5 were in the 65 to 74 and 45 to 64 year age groups, together accounting for 2,927 deaths (82.5%) for males and 1,799 (93.1%) for females. The smallest numbers were in the 0 to 24 year age group, with 228 deaths (6.4%) for males and 175 (8.1%) for females.

Table 6.13: Excess deaths from amenable mortality (0 to 74 years) by quintile of socioeconomic status, age and sex, Australia, 1997-2001

Age (years) and sex	Number					Total (Q2:Q5)	Per cent of total
	Q1	Q2	Q3	Q4	Q5		
Males							
0-24	(0)	19	53	158	228	**459**	4.7
25-44	(0)	180	194	289	393	**1,055**	10.9
45-64	(0)	524	914	1,138	1,436	**4,012**	41.3
65-74	(0)	489	1,009	1,195	1,491	**4,185**	43.1
Total	**(0)**	**1,212**	**2,171**	**2,780**	**3,548**	**9,711**	**100.0**
Females							
0-24	(0)	41	88	115	175	**420**	7.7
25-44	(0)	11	63	110	191	**375**	6.9
45-64	(0)	254	446	503	812	**2,016**	37.1
65-74	(0)	366	586	681	987	**2,619**	48.2
Total	**(0)**	**672**	**1,184**	**1,409**	**2,166**	**5,430**	**100.0**
Ratio–M:F							
0-24	..	0.46	0.60	1.37	1.30	**1.09**	..
25-44	..	16.36	3.08	2.63	2.06	**2.81**	..
45-64	..	2.06	2.05	2.26	1.77	**1.99**	..
65-74	..	1.34	1.72	1.75	1.51	**1.60**	..
Total	**..**	**1.80**	**1.83**	**1.97**	**1.64**	**1.79**	**..**

6.5 Amenable mortality by Indigenous status

This analysis has been limited to data from the jurisdictions considered by the Australian Bureau of Statistics to have the most complete coverage of Indigenous deaths: that is, they are considered to have the highest proportions of Indigenous deaths that are registered as such (refer to *Section 4.6*).

By sex

As noted in *Section 4.6*, 40% of avoidable mortality (for both Indigenous and non-Indigenous Australians) is considered to be from amenable causes.

However, there are notable differences in death rates from amenable causes when examined by Indigenous status.

The overall amenable mortality rate for the Indigenous population (264.7 deaths per 100,000 Indigenous population) was almost four (3.85**) times the rate for the non-Indigenous population (68.8 deaths per 100,000 population) (Table 6.14).

The rate for Indigenous males (298.8 deaths per 100,000 males) was 1.30** times that for Indigenous females (230.7), and 3.81** times the rate for non-Indigenous males (78.4). The differential in death rates for Indigenous and non-Indigenous females was marginally higher than for males, at 3.90** (230.7 deaths per 100,000 females and 59.1 for non-Indigenous females).

Table 6.14: Amenable mortality (0 to 74 years) by Indigenous status and sex, Queensland, South Australia, Western Australia and Northern Territory, 1997-2001

Sex	Number			ASR per 100,000 population			Rate ratio
	Indigenous	Non-Indigenous	Total	Indigenous	Non-Indigenous	Total	I:Non-I
Males	1,032	15,016	16,048	298.8	78.4	82.3	3.81**
Females	942	11,402	12,344	230.7	59.1	62.7	3.90**
Total	1,974	26,419	28,392	264.7	68.8	72.5	3.85**
RR–M:F	..	..	..	1.30**	1.33**	1.31**	..

By age

Amenable mortality rates were much higher for the Indigenous population than for the non-Indigenous population for all of the age groups in the analysis (Figure 6.7, Table 6.15). Whilst the highest amenable mortality rate for both the Indigenous and non-Indigenous populations was in the 65 to 74 year age group, the highest rate differentials were in the 25 to 44 year and 45 to 64 year age groups.

In the 25 to 44 year age group, Indigenous mortality from amenable causes (123.6 deaths per 100,000 population) was 6.65** times the non-Indigenous rate (18.6). The rate for the Indigenous population aged 45 to 64 years (597.2 deaths per 100,000 population) was 4.67** times that for the non-Indigenous population (128.0).

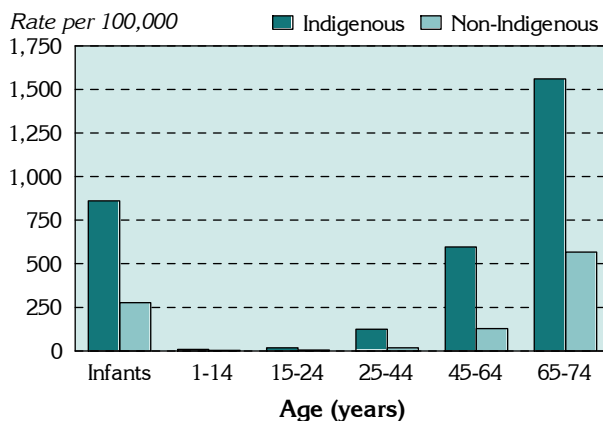### Figure 6.7: Amenable mortality by Indigenous status and age, Qld, SA, WA and NT,1997-2001

Table 6.15: Amenable mortality by Indigenous status and age, Queensland, South Australia, Western Australia and Northern Territory, 1997-2001

Age (years)	Number		Rate per 100,000 population[1]		Rate ratio
	Indigenous	Non-Indigenous	Indigenous	Non-Indigenous	Indig:Non-Indig
Infants (<1)	258	1,172	861.6	276.7	3.11**
1-14	43	238	8.5	3.7	2.30**
15-24	44	251	17.2	5.2	3.31**
25-44	455	2,008	123.6	18.6	6.65**
45-64	771	9,617	597.2	128.0	4.67**
65-74	404	13,134	1,559.7	566.4	2.75**
Total	1,974	26,419	264.7	68.8	3.85**

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

As was the case for avoidable mortality, the impact of amenable mortality on the Indigenous population is most evident at ages below 45 years than for the non-Indigenous population, for whom the impact is more noticeable at older ages.

For example, the proportion of years of life lost (YLL) from amenable causes for Indigenous infants under one year of age (18.6%) was over twice that of non-Indigenous infants (8.0%) (Table 6.16). Similarly, the proportions of YLL for Indigenous children aged 1 to 14 years (3.0%) and young people aged from 15 to 24 years (3.0%) were almost twice (1.9** times) those in the non-Indigenous population.

For the 25 to 44 year age group, the proportion of YLL from amenable mortality in the Indigenous population (26.9% of YLL) was almost two and a half times that of the non-Indigenous population (11.1%).

In the remaining age groups analysed, the differentials in YLL are reversed, with proportions of YLL in the Indigenous population less than those for the non-Indigenous population. The proportion of YLL for the Indigenous population aged 45 to 64 years (35.8%) was 12% less that of the non-Indigenous population (40.5%) and in the 65 to 74 year age group, the proportion in the Indigenous population (12.7%) was approximately one third that of the non-Indigenous population (37.3%).

Table 6.16: YLL from amenable mortality by Indigenous status and age, Queensland, South Australia, Western Australia and Northern Territory, 1997-2001

| Age (years) | Number | | Per cent | | Ratio: |
	Indigenous	Non-Indigenous	Indigenous	Non-Indigenous	Indig:Non-Indig
Infants (<1)	7,861	35,781	18.6	8.0	2.34**
1-14	1,274	7,125	3.0	1.6	1.90**
15-24	1,246	7,096	3.0	1.6	1.87**
25-44	11,361	49,803	26.9	11.1	2.42**
45-64	15,082	181,421	35.8	40.5	0.88**
65-74	5,350	167,113	12.7	37.3	0.34**
Total	**42,175**	**448,338**	**100.0**	**100.0**	**..**

Indigenous deaths by age and sex

Rates of death from amenable causes were higher for Indigenous males than for Indigenous females in all age groups (Figure 6.8, Table 6.17). While the highest rates for both males (1,569.5 deaths per 100,000 Indigenous males) and females (1,477.4) were in the 65 to 74 year age group, the largest differential in rates was in the 15 to 24 year age group, where the rate for males (22.7 deaths per 100,000 males) was almost twice (1.94*) that for females (11.7). Indigenous males aged 25 to 44 years (143.5 deaths per 100,000 males) were one third (1.37**) more likely to die from amenable causes than Indigenous females at these ages (104.8).

Figure 6.8: Amenable mortality by age and sex, Indigenous population, Qld, SA, WA and NT, 1997-2001
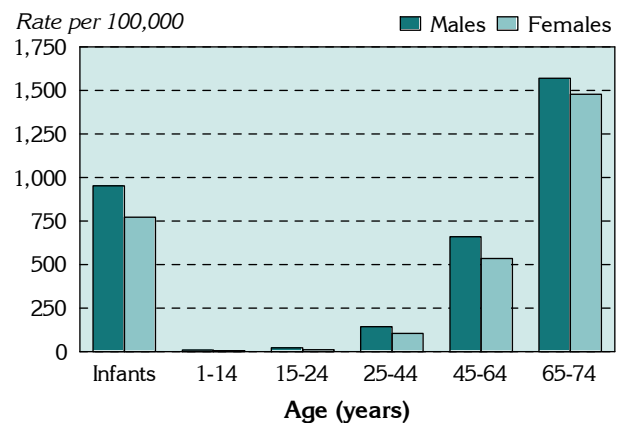

Table 6.17: Amenable mortality by age and sex, Indigenous population, Queensland, South Australia, Western Australia and Northern Territory, 1997-2001

| Age (years) | Number | | | % of total amenable mortality | Rate per 100,000 population[1] | | | Rate ratio Males: Females |
	Males	Females	Total		Males	Females	Total	
Infants (<1)	144	114	258	13.1	951.3	772.1	861.6	1.23
1-14	25	18	43	2.2	9.6	7.4	8.5	1.30
15-24	29	15	44	2.2	22.7	11.7	17.2	1.94*
25-44	257	197	455	23.0	143.5	104.8	123.6	1.37**
45-64	396	375	771	39.0	660.4	536.0	597.2	1.23**
65-74	181	222	404	20.5	1,569.5	1,477.4	1,559.7	1.06
Total	**1,032**	**941**	**1,975**	**100.0**	**298.8**	**230.7**	**264.7**	**1.30**

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

153

By cause

Ischaemic heart disease was the highest ranking cause of amenable mortality for both the Indigenous (an ASR of 91.8 deaths per 100,000 population) and non-Indigenous (an ASR of 18.9) populations, resulting in over one quarter of deaths in both population groups (25.8% and 28.9%, respectively) (Table 6.18). The next highest death rate for the Indigenous population was from diabetes, with an ASR of 43.9 deaths per 100,000 population (13.1% of deaths from amenable causes), seventeen times the non-Indigenous rate, of 2.5 deaths per 100,000 population (3.7%).

Selective invasive bacterial and protozoal infections resulted in 27.7 deaths per 100,000 population in the Indigenous population (11.6%), more than ten times the rate in the non-Indigenous population (2.6 deaths per 100,000 population; 3.7%). The Indigenous death rate for nephritis and nephrosis (26.4 deaths per 100,000 population; 7.8%) was more than twenty times the rate for the non-Indigenous population (1.3; 2%).

Deaths from rheumatic and other valvular heart diseases (11.7 deaths per 100,000 Indigenous population, 4.4% of deaths) were ranked sixth, much higher than in the non-Indigenous population (nineteenth).

Table 6.18: Amenable mortality (0 to 74 years) by Indigenous status and major cause, Queensland, South Australia, Western Australia and Northern Territory, 1997-2001

Cause	Indigenous				Non-Indigenous			
	Number	ASR	Per cent[1]	Rank[2]	Number	ASR	Per cent[1]	Rank[2]
Ischaemic heart disease	510	91.8	25.8	1	7,632	18.9	28.9	1
Diabetes	258	43.9	13.1	2	986	2.5	3.7	8
Selected invasive bacterial and protozoal infections	228	27.7	11.6	3	986	2.6	3.7	7
Nephritis and nephrosis	154	26.4	7.8	4	518	1.3	2.0	11
Cerebrovascular diseases	132	22.8	6.7	5	2,082	8.1	7.9	4
Rheumatic and other valvular heart diseases	86	11.7	4.4	6	183	0.5	0.6	19
Birth defects	155	8.9	7.9	7	1,143	4.2	4.3	5
Colorectal cancer	42	7.2	2.1	8	4,733	12.0	17.9	2
Breast cancer (female)	52	7	2.6	9	2,963	7.7	11.2	3
Digestive disorders	43	6.7	2.2	10	348	0.9	1.3	14
Skin cancer	#	0.7	0.2	22	1,285	3.3	4.9	6
Complications of the perinatal period	117	6	5.9	11	455	1.8	1.7	9
Bladder cancer	8	1.6	0.4	17	625	1.5	2.4	10

Not shown or not calculated, as there are fewer than 5 deaths over the period shown
[1] Per cent is the proportion of total amenable deaths within the Indigenous and non-Indigenous population groups
[2] Rank is the rank order of ASRs for the top ten causes of death for Indigenous and non-Indigenous populations

By socioeconomic status

There is a clear socioeconomic gradient in the rates of amenable mortality for both the Indigenous and non-Indigenous populations, with the lowest rates in the least disadvantaged areas (Quintile 1) and the highest in the most disadvantaged areas (Quintile 5) (Table 6.19, Figure 6.9).

The gradient in ASR is much more pronounced for the Indigenous population than for the non-Indigenous, with the differential in Indigenous/ non-Indigenous rates increasing from double (2.04**) in the least disadvantaged areas to more than four times (4.39**) in the most disadvantaged areas.

The highest ASR for the Indigenous population was 367.2 deaths per 100,000 population in Quintile 5 and the lowest was 114.8 in Quintile 1, a differential in rates of 3.20** between the most disadvantaged areas and the least disadvantaged areas.

For the non-Indigenous population, the differential in ASRs between the most and least disadvantaged areas was 1.49**, ranging from 83.7 deaths per 100,000 population in the most disadvantaged areas to 56.3 in the least disadvantaged areas.

Figure 6.9: Amenable mortality (0 to 74 years) by Indigenous status and socioeconomic status, Qld, SA, WA and NT, 1997-2001
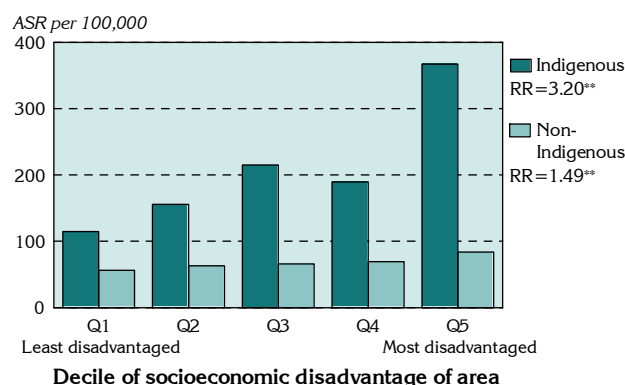
The greatest differential in rates between the Indigenous and non-Indigenous populations was in the most disadvantaged areas (Quintile 5), where the Indigenous rate (367.2 deaths per 100,000 population) was more than four times (4.39[**]) that of the non-Indigenous population (83.7). In the least disadvantaged areas, the Indigenous rate (114.8 deaths per 100,000 population) was twice (2.04[**]) that of the non-Indigenous population (56.3).

Table 6.19: Amenable mortality (0 to 74 years) by Indigenous status and socioeconomic status, Queensland, South Australia, Western Australia and Northern Territory, 1997-2001

Quintile	Number		ASR per 100,000 population		Rate ratio
	Indigenous	Non-Indigenous	Indigenous	Non-Indigenous	Indig:Non-Indig
1: Least disadvantaged	38	3,117	114.8	56.3	2.04[**]
2	167	5,147	155.7	62.9	2.48[**]
3	256	4,521	214.9	65.7	3.27[**]
4	322	6,112	189.6	69.1	2.74[**]
5: Most disadvantaged	1,164	7,504	367.2	83.7	4.39[**]
Total	**1,974**	**26,419**	**264.7**	**68.8**	**3.85[**]**
RR–Quintile 5:Quintile 1	**..**	**..**	**3.20[**]**	**1.49[**]**	**..**

This page intentionally left blank