

# Overview of current trends

## Australia

### Cardiovascular disease (or diseases of the circulatory system)

Cardiovascular disease was the leading cause of death among Australians in 1996, accounting for 53,990 deaths or 42% of deaths from all causes (Table 1). Males were more likely to die from cardiovascular diseases than were females across almost all age groups, the exception being the 85 and over age group, where twice as many females died from cardiovascular diseases in 1996 than did males.

While cardiovascular disease remains Australia's greatest health problem there have been significant improvements in cardiovascular death rates in recent decades. The peak occurred in 1968 and since then death rates from cardiovascular disease have declined by over 60% among males and females.

Current annual rates of decline of cardiovascular mortality are 3.7% for males and 3.6% for females (Table 1). The decline in cardiovascular mortality has been occurring at all ages, with the greatest annual rate of decline among males and females aged between 45 and 59 (over 6%) (Figure 1). The decline in cardiovascular mortality has been more rapid than that for total mortality that is declining at a rate of 2.2% among males and 1.9% among females (Table 1).

**Table 1: Proportion of cardiovascular deaths in 1996, and annual rate of change in the age-standardised death rate (all ages), 1985–1996**

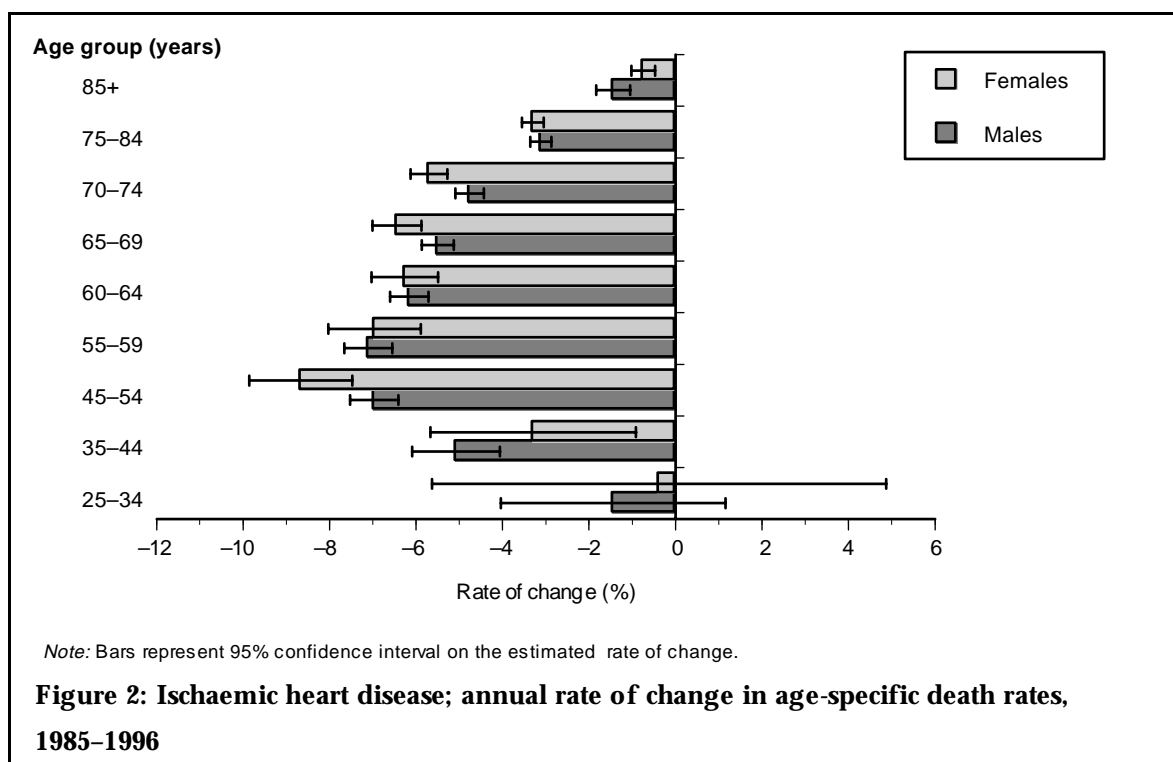
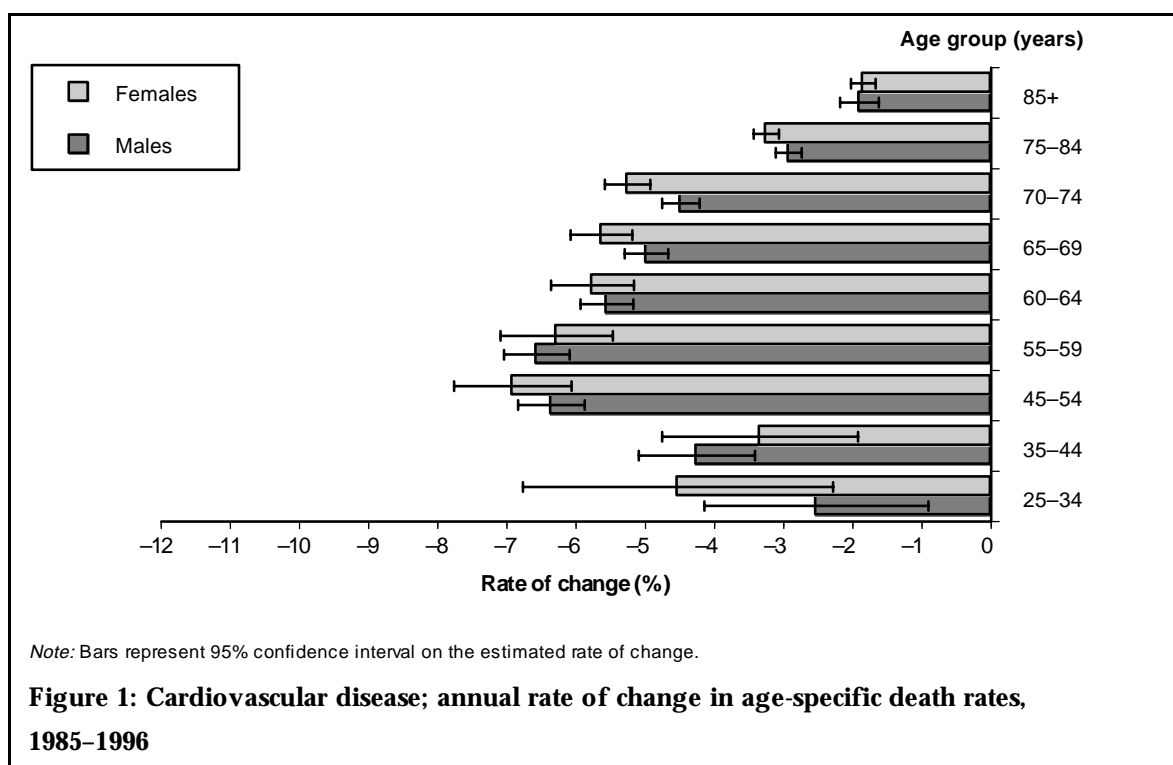
Sub-category	Males			Females		
	Proportion of CVD* (%)	Annual rate of change (%)	95% confidence limits	Proportion of CVD (%)	Annual rate of change (%)	95% confidence limits
Ischaemic heart disease	60.6	-4.0	-4.1, -3.9	49.4	-3.6	-3.7, -3.5
Acute myocardial infarction	36.4	-5.5	-5.6, -5.4	29.5	-4.7	-4.9, -4.6
Other ischaemic heart disease	24.2	-1.1	-1.3, -1.0	19.8	-1.4	-1.6, -1.2
Cerebrovascular disease	19.6	-3.4	-3.5, -3.2	27.7	-3.8	-4.0, -3.6
Heart failure	4.1	-3.8	-4.1, -3.4	6.6	-3.5	-3.8, -3.1
Peripheral vascular disease	4.4	-2.1	-2.4, -1.7	3.1	-0.6	-1.1, -0.1
Hypertensive disease	1.7	-3.5	-4.0, -2.9	2.4	-3.5	-4.1, -2.9
Atherosclerosis	1.1	-7.8	-8.3, -7.2	1.9	-9.1	-9.6, -8.5
Rheumatic heart disease	0.5	-4.5	-5.6, -3.5	0.8	-4.2	-5.0, -3.3
Other cardiovascular disease	8.1	-1.9	-2.2, -1.6	8.1	-1.8	-2.2, -1.5
<b>Cardiovascular disease (N)</b>	<b>26,550</b>	<b>-3.7</b>	<b>-3.8, -3.6</b>	<b>27,440</b>	<b>-3.6</b>	<b>-3.7, -3.5</b>
<i>All causes</i>	<i>68,206</i>	<i>-2.2</i>	<i>-2.2, -2.1</i>	<i>60,513</i>	<i>-1.9</i>	<i>-2.0, -1.9</i>

\* Cardiovascular disease

Australia has the ninth lowest death rate from cardiovascular disease out of the 29 OECD countries. However, given that Australian death rates are 71% higher than for Hong Kong (for males) and 55% higher than for France (for females), this indicates the potential for further reductions in the cardiovascular mortality rate in Australia (AIHW 1998).

### Ischaemic heart disease (or coronary heart disease)

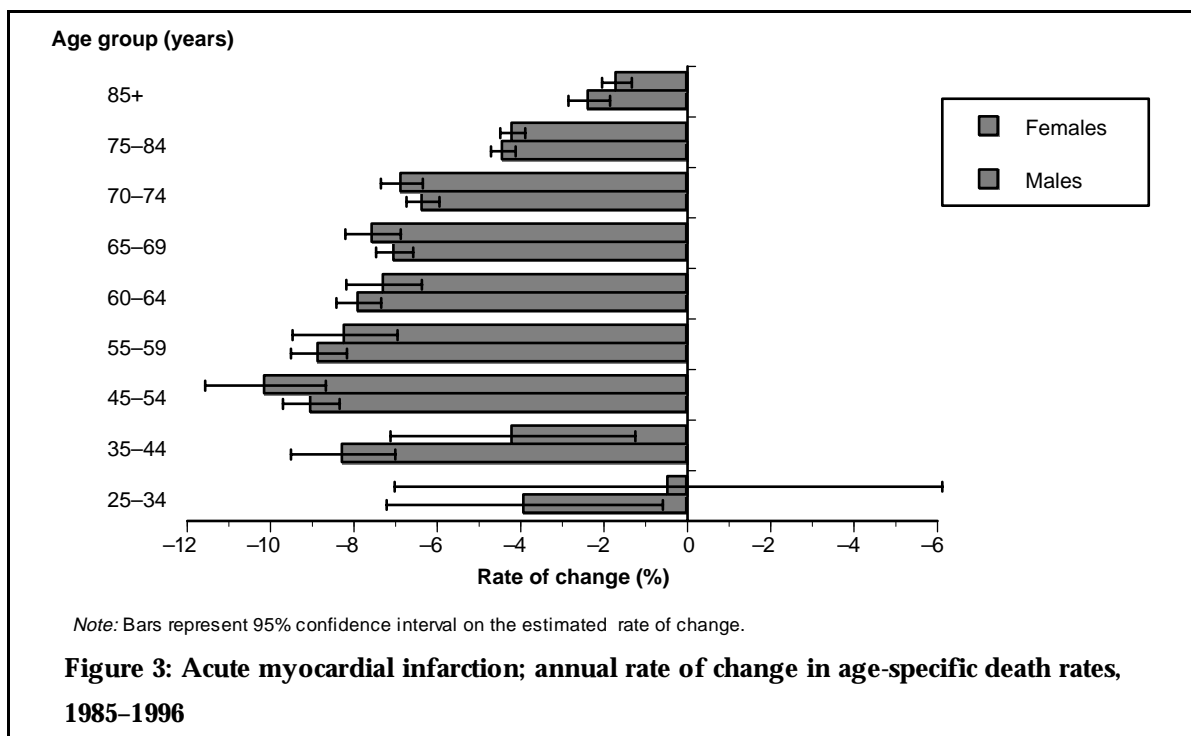
Ischaemic heart disease was the major cardiovascular cause of death, representing 55% of all such deaths. Mortality from ischaemic heart disease has continued the decline that began in the 1960s and is currently declining at a rate of 4% per year among males and 3.6% per year among females. Rates of decline have been greatest among the 45–54 age group, 7% per year among males and 9% per year among females (Figure 2).



### Acute myocardial infarction (or heart attack)

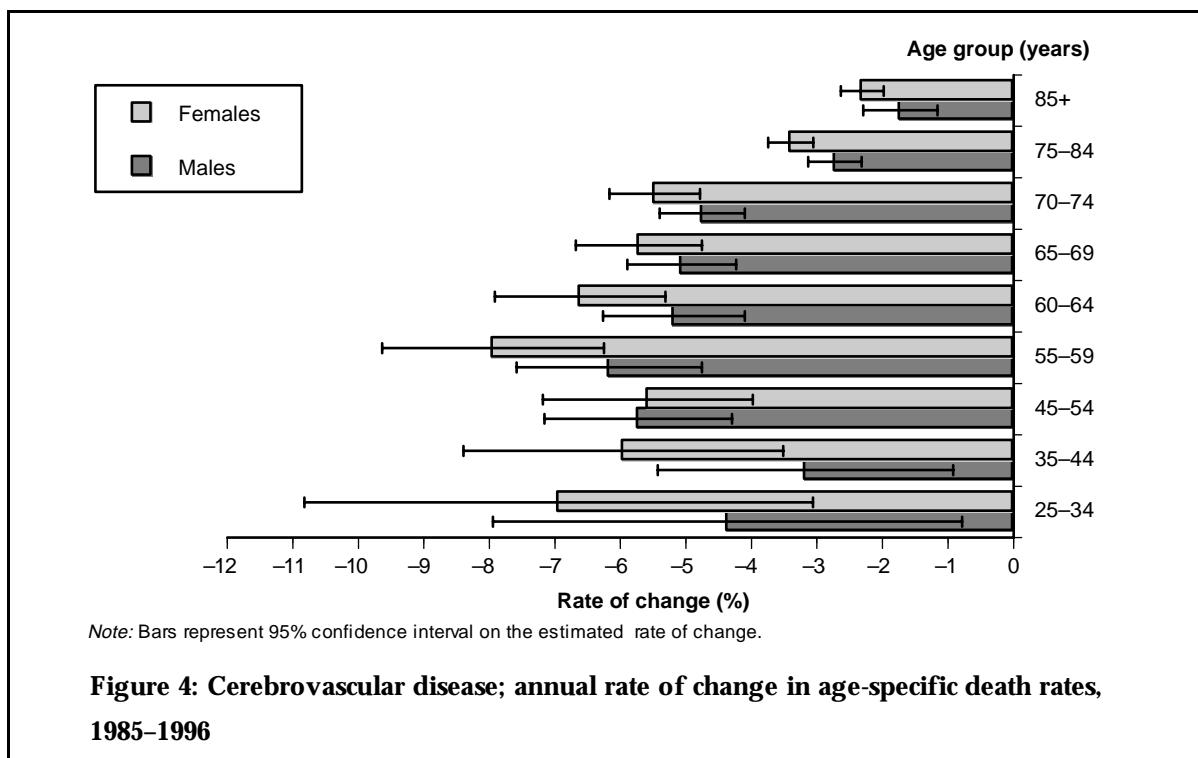
Mortality from acute myocardial infarction, the major contributor to ischaemic heart disease mortality (60% of such deaths), has been declining slightly faster than ischaemic heart disease at an annual rate of 5.5% among males and 4.7% among females.

The differential in rates of decline between the sexes was highest in the 35–44 age group, where the male rate of decline was twice that of the female rate of decline. There were significant rates of decline at all ages, but the rates were greatest among females aged 45–54 (10%) and males aged 45–59 (9%) (Figure 3).



### Cerebrovascular disease (or stroke)

Mortality from cerebrovascular disease, the second leading cardiovascular cause of death (contributing 24% of cardiovascular deaths) has been declining at a rate of 3.4% among males and 3.8% among females. The largest sex differentials in rates of decline occurred in the 35-44 age group, where the female rate of decline was almost twice that of the male rate (6% compared to 3.2%). Rates of decline were highest for the 55-59 age group (6.2% for males and 7.9% for females), with lower rates of decline with increasing age (Figure 4).



## Other cardiovascular diseases

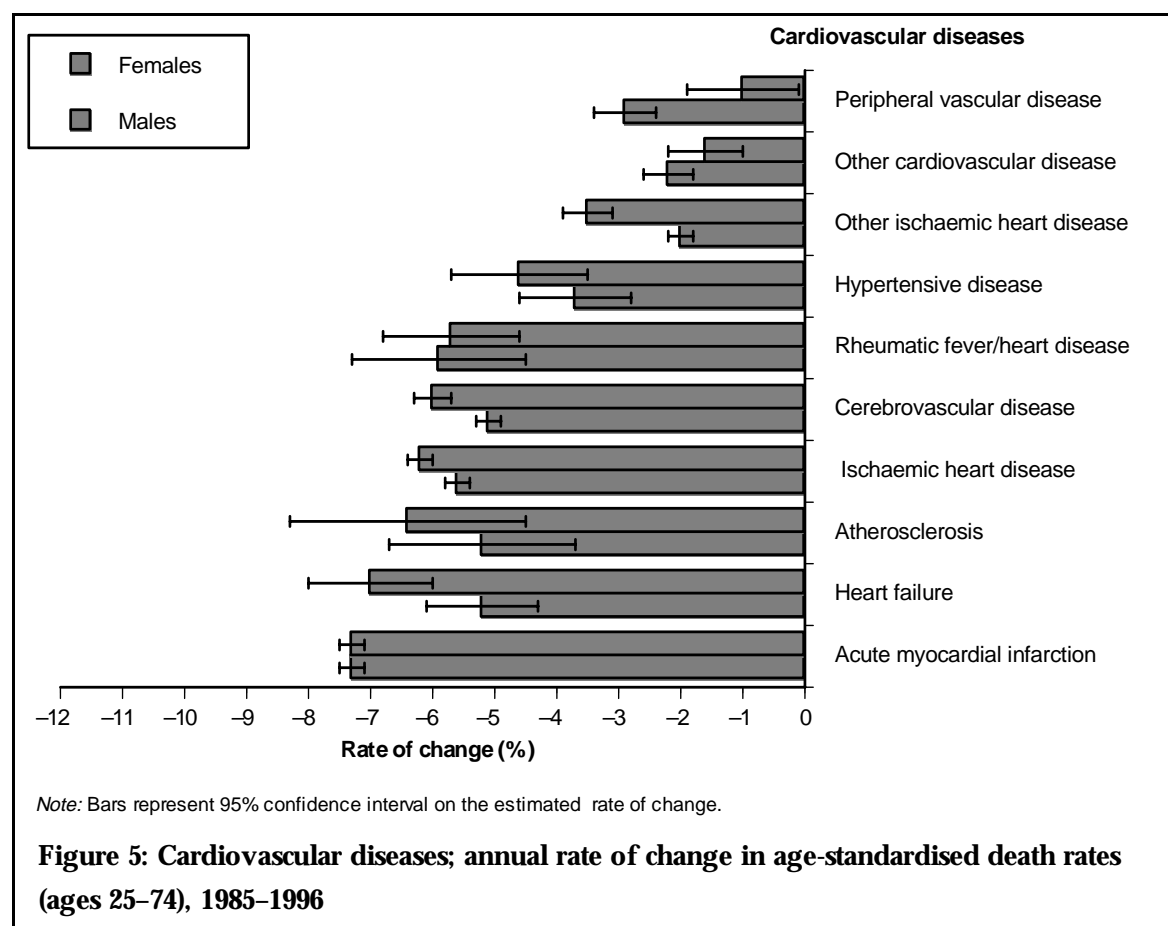
Mortality from heart failure, peripheral vascular disease, hypertensive disease, and rheumatic heart disease were also declining, with rates of decline slowest for peripheral vascular disease (2.1% among males and 0.6% among females). Death rates attributed to atherosclerosis were declining at a faster rate per year than any of the other cardiovascular diseases (7.8% and 9.1% among males and females respectively), with rates of decline higher in older age groups.

## National targets for cardiovascular disease

The report *Better Health Outcomes for Australians* recommends that national targets for premature mortality (25–74 years) from ischaemic heart disease be set at 1,100 deaths per million population among males and 400 deaths per million population among females, for the year 2000. In 1985 age-standardised death rates from ischaemic heart disease (for the 25–74 age group) were 2,661 and 991 deaths per million population for males and females respectively. By 1996 these rates had declined to 1,415 and 495 deaths per million population. If the current rates of decline continue these rates will decrease further by the year 2000 to 1,122 deaths per million population among males and 397 among females.

## Age group 25–74

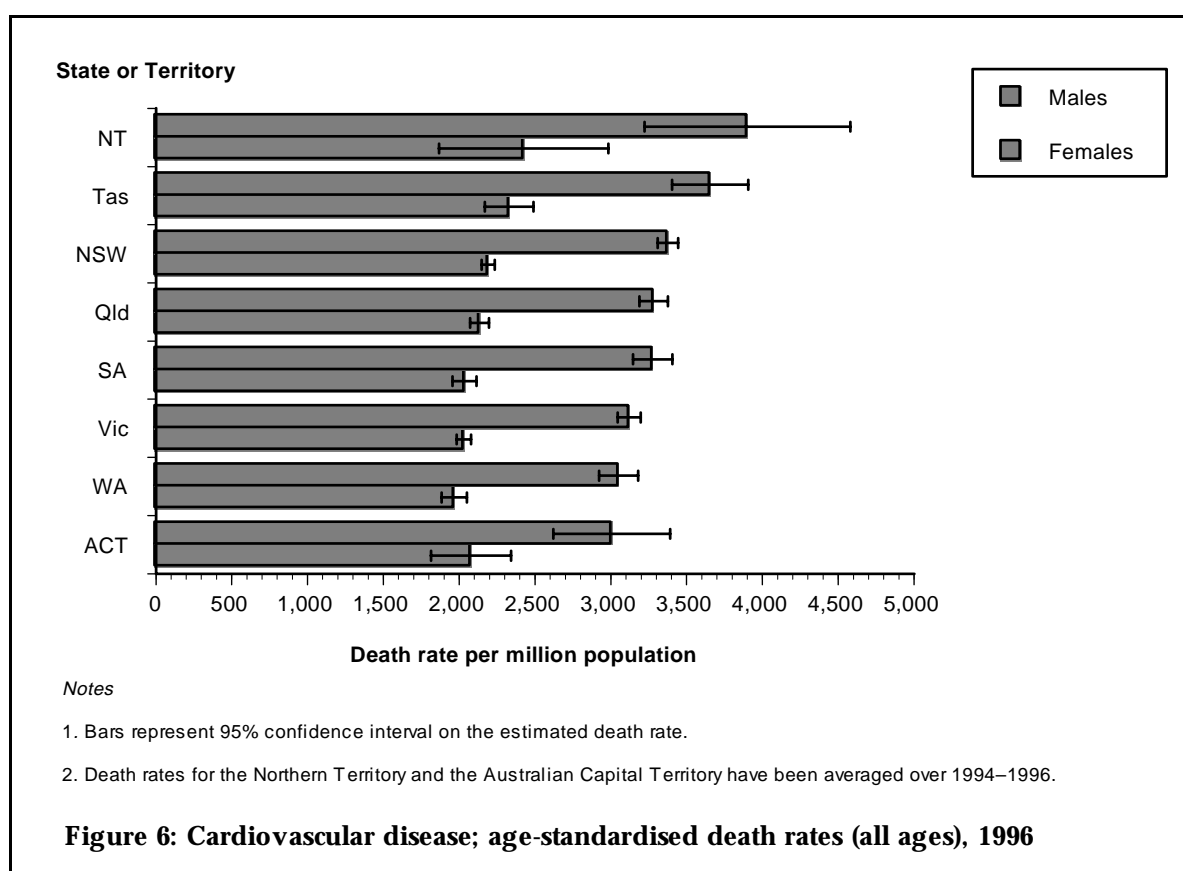
Annual rates of decline for each cardiovascular disease were generally greater for the 25–74 age group than that for all ages, reflecting the slower declines in mortality among the very old. Among those aged 25–74 most cardiovascular diseases were declining by at least 5% per year among males and females (Figure 5). For the 25–74 age group mortality from cardiovascular diseases as a proportion of all causes was significantly lower than that for all ages (31% compared to 42%). For further details see the detailed mortality profiles for Australia.



## States and Territories

### Cardiovascular disease

Mortality from all cardiovascular diseases was highest in the Northern Territory at 3,900 and 2,426 deaths per million population for males and females respectively in 1994–96<sup>2</sup>. This high mortality rate in the Northern Territory can mainly be attributed to the relatively large proportion of Indigenous people in the Territory (26%) compared to the rest of Australia (less than 3%), among whom death rates are two times higher than for other Australians (discussed in more detail in the *Indigenous population* section of this report). Of the remaining States and Territories, death rates were highest in Tasmania and lowest in the Australian Capital Territory for males and Western Australia for females (Figure 6).



The Australian trend of decreasing cardiovascular mortality and higher rates of decline from cardiovascular disease than from all causes, remained consistent across all the States and Territories (Table 2). New South Wales had the largest rate of decline among males (4%) and Tasmania the largest among females (3.9%), with rates of decline also high among males in Victoria and females in New South Wales. The Northern Territory had the lowest rate of decline from cardiovascular mortality among both males and females (0.7% and 2.1% respectively). This slower rate of decline is mainly attributed to the relatively large proportion of Indigenous people in the Territory (26% compared to less than 3% elsewhere), among whom rates of decline in the 25–64 age group are considerably lower. Death rates among Indigenous people in the Northern Territory are declining at a slower rate than among

2. For reliability, death rates in the Northern Territory and the Australian Capital Territory have been averaged over three years (1994–1996). For the States, death rates relate to the most recent year, 1996. For further details see *Introduction*.

Indigenous people in Western Australia, South Australia and the Northern Territory combined (see the *Indigenous population* section). Differences in mortality among Indigenous people living in the Northern Territory compared with those living in Western Australia and South Australia may reflect the diversity of Australia's Indigenous population (ATSIHWIU 1997).

**Table 2: Selected cardiovascular diseases and all causes; annual rate of change in age-standardised death rates (all ages), 1985–1996 (%)**

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT
<b>Males</b>								
Ischaemic heart disease	-4.4	-4.0	-3.6	-3.9	-3.8	-4.0	-3.7	-1.5
Acute myocardial infarction	-6.0	-5.2	-4.6	-6.1	-5.4	-5.2	-5.1	-1.4
Cerebrovascular disease	-4.1	-3.2	-3.1	-2.1	-2.6	-2.3	-3.3	0.4
Cardiovascular disease	-4.0	-3.7	-3.5	-3.5	-3.4	-3.2	-3.0	-0.7
<i>All causes</i>	-2.5	-2.2	-2.1	-1.9	-1.7	-1.6	-2.2	-1.5
<b>Females</b>								
Ischaemic heart disease	-3.8	-3.6	-3.0	-3.5	-3.7	-3.7	-3.3	-2.7
Acute myocardial infarction	-5.1	-4.3	-4.1	-5.2	-5.1	-4.4	-5.0	-3.3
Cerebrovascular disease	-4.2	-4.3	-3.5	-2.3	-2.7	-4.5	-2.0	3.8
Cardiovascular disease	-3.8	-3.7	-3.1	-3.2	-3.2	-3.9	-2.8	-2.1
<i>All causes</i>	-2.2	-2.0	-1.7	-1.5	-1.5	-1.9	-2.2	-0.8

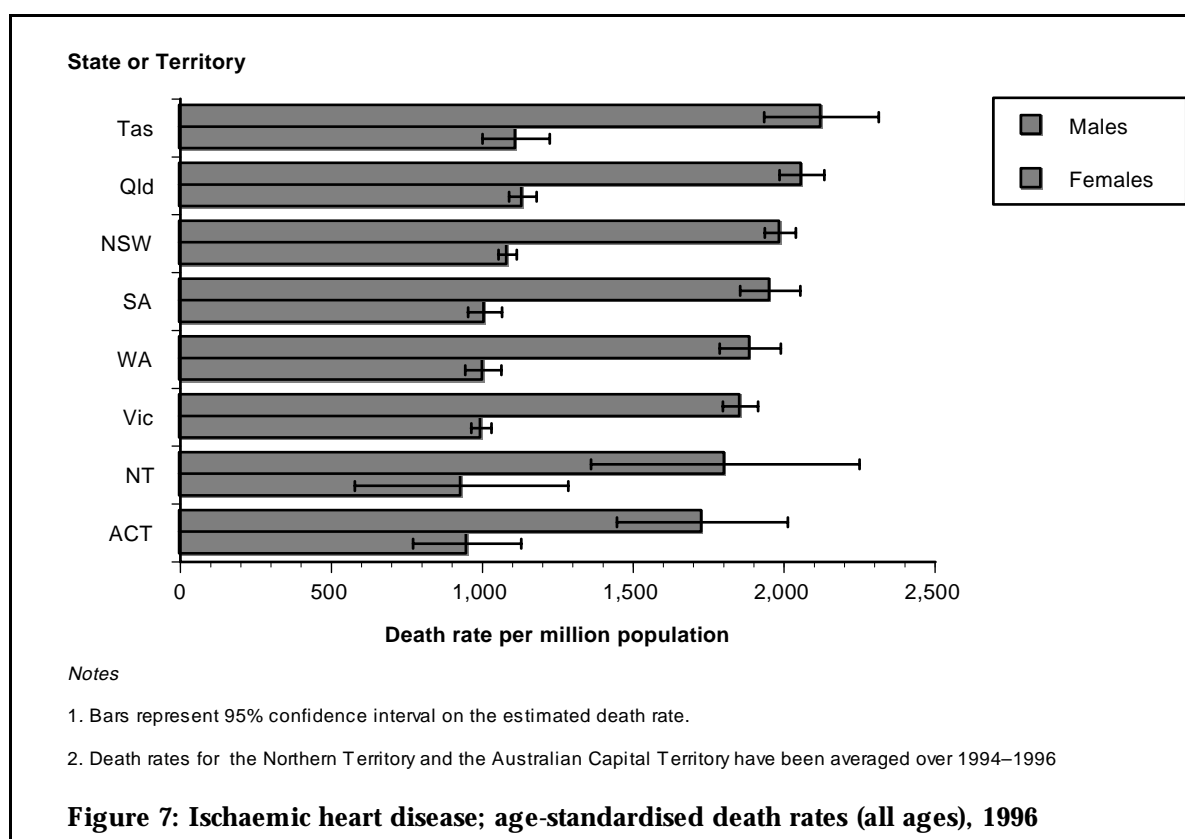
Note: 95% confidence limits for annual rates of change are all within 0.2 of the estimated rate.

### Ischaemic heart disease

Mortality from ischaemic heart disease for both males and females was highest in Tasmania and Queensland, followed by New South Wales. The Australian Capital Territory and the Northern Territory had the lowest death rates for males and females in 1994–1996 (Figure 7). The Northern Territory has moved from having the highest overall death rate from cardiovascular diseases to the lowest for ischaemic heart disease. This may be attributable to the distribution of cardiovascular deaths in the Northern Territory. Ischaemic heart disease accounted for a lower proportion of cardiovascular deaths in the Northern Territory (43%) than in the other States and Territories (55%), due mainly to high mortality from other causes such as other cardiovascular diseases<sup>3</sup> (15% of deaths in the Northern Territory compared to 8% elsewhere).

Rates of decline in ischaemic heart disease mortality were again slowest in the Northern Territory, decreasing at a rate of 1.5% per year for males and 2.7% per year for females. For the remaining States and Territories rates of decline were largest in New South Wales (4.4% for males and 3.8% for females) followed by Tasmania (Table 2).

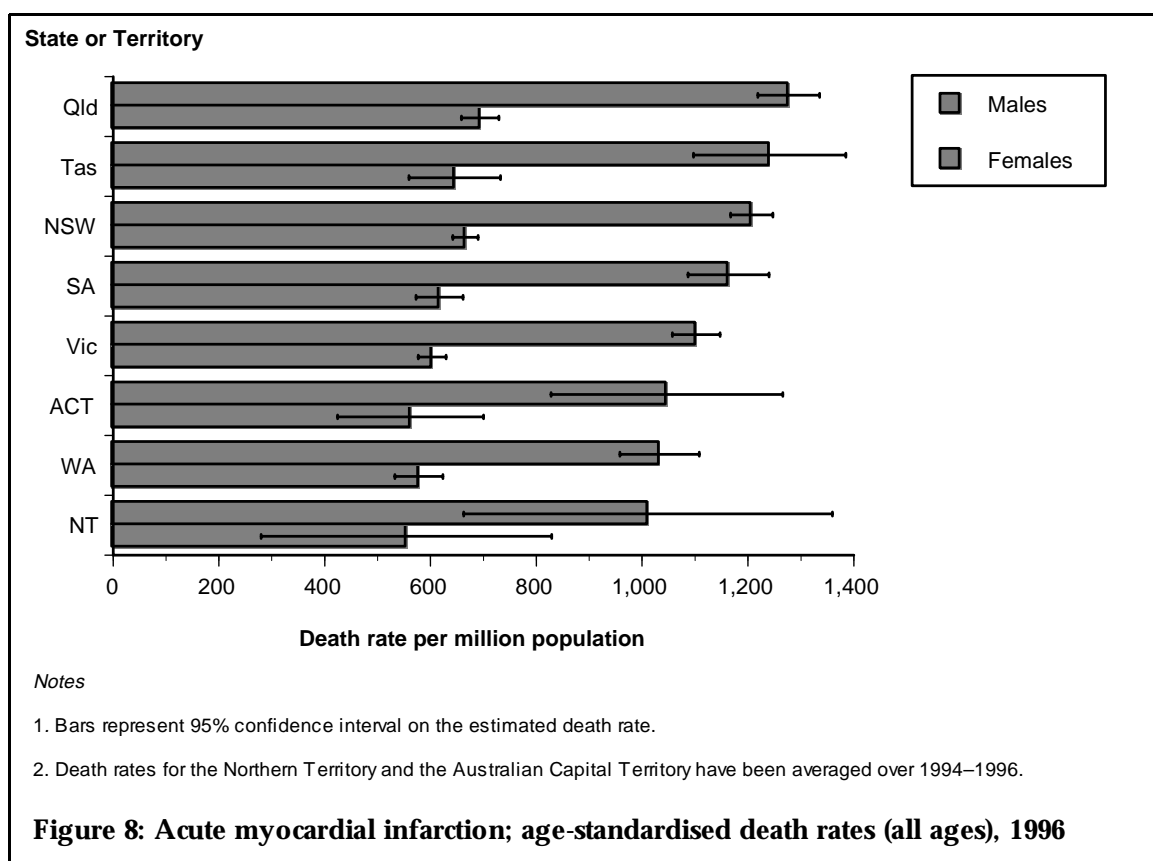
3. Includes such diseases as pulmonary circulation, other forms of heart disease, diseases of the arteries, arterioles and capillaries, and diseases of veins and lymphatics, and other diseases of the circulatory system.



### Acute myocardial infarction

Death rates attributed to acute myocardial infarction were highest in Queensland (1,277 and 694 deaths per million population for males and females respectively) and lowest in the Northern Territory (Figure 8). The Northern Territory had a lower proportion of cardiovascular deaths from acute myocardial infarction than the rest of Australia (24% compared with 33%).

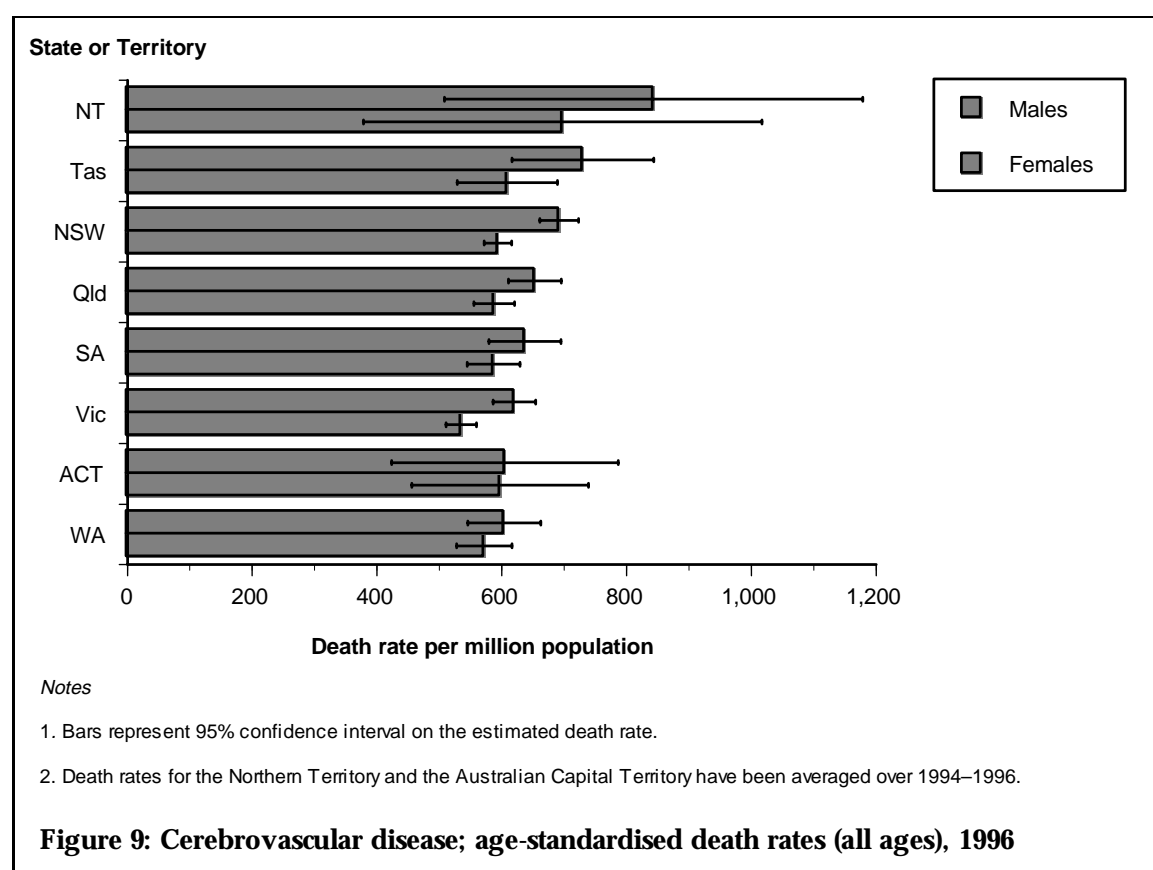
Mortality from acute myocardial infarction was declining at a faster rate than for ischaemic heart disease overall, with the greatest rate of decline occurring in Western Australia (6.1% for males and 5.2% for females). Rates of decline were also high in New South Wales and South Australia, while the lowest rates of decline were seen in the Northern Territory (1.4% and 3.3% respectively for males and females) (Table 2).



### Cerebrovascular disease

The Northern Territory had the highest death rate from cerebrovascular disease in 1994–1996 and was the only State or Territory where death rates increased over the period 1985–1996. The rate of increase was 0.4% per year for males and 3.8% per year for females. Mortality from cerebrovascular disease was also high in Tasmania and New South Wales and lowest in Western Australia for males and Victoria for females. Rates of decline among males was greatest in New South Wales (4.1% per year), while among females Tasmania had the greatest rate of decline of 4.5% per year (Figure 9 and Table 2).





### Projections for the year 2000

In the year 2000, based on current rates of decline, death rates for ischaemic heart disease between ages 25–74 will continue to be lowest in the Australian Capital Territory, Victoria and Western Australia and highest in the Northern Territory, South Australia (for males), Tasmania (for females) and Queensland (Table 3).

**Table 3: Year 2000 projections\* for ischaemic heart disease; age-standardised death rates and 95% confidence intervals (25–74)**

State and Territory	Males		Females	
	Rate	95% Confidence limit	Rate	95% Confidence limit
New South Wales	1,112	1,098–1,126	413	405–422
Victoria	1,041	1,028–1,055	352	344–359
Queensland	1,206	1,191–1,221	435	426–444
Western Australia	1,098	1,084–1,112	373	365–381
South Australia	1,238	1,223–1,253	382	374–390
Tasmania	1,194	1,180–1,209	488	478–497
Australian Capital Territory	912	899–925	276	269–283
Northern Territory	1,478	1,461–1,496	938	922–954
<b>Australia</b>	<b>1,122</b>	<b>1,108–1,137</b>	<b>397</b>	<b>389–405</b>

\* The projected age-standardised death rates for the year 2000 have been calculated using a Poisson regression model.

## Indigenous population

The identification of Indigenous people is not accurately recorded in death registrations in all States and Territories, which means that a reliable national picture of Indigenous mortality cannot be obtained. Since 1993 identification of Indigenous people on death records in Western Australia, South Australia and the Northern Territory has been of an acceptable quality, with registration of Indigenous deaths estimated to be over 90% complete in these jurisdictions (ABS 1993). The information from these States and Territory has been combined to produce quasi-national estimates of death rates for the Indigenous population. For comparability the non-Indigenous estimates also include data from only Western Australia, South Australia and the Northern Territory.

The number of people who identified themselves as Indigenous in the 1996 Census was about a third higher than the number who did so in 1991, a difference much larger than can be explained by natural increase (Cunningham 1998). These changes in Indigenous identification make interpretation of long-term trends difficult. In this report, population estimates for 1992–1996 are based on the 1996 Census, while the 1991 estimate is taken from the 1991 Census. By examining data over a relatively short time period (1991–1996), this lessens the impact of changes in Indigenous identification.

Over the period 1991–1996, mortality has been declining among Indigenous females at a rate of 3.1% per year, but increasing slightly among Indigenous males (0.9%). This equates to 2,923 and 2,217 deaths among Indigenous males and females respectively between 1991 and 1996. Indigenous Australians had higher rates of death than non-Indigenous Australians for most cardiovascular causes of death. Obesity and smoking are more prevalent among Indigenous people than other Australians, which places them at a greater risk of developing health problems such as heart disease (AIHW 1998; Cunningham 1997; Cunningham & Mackerras 1998).

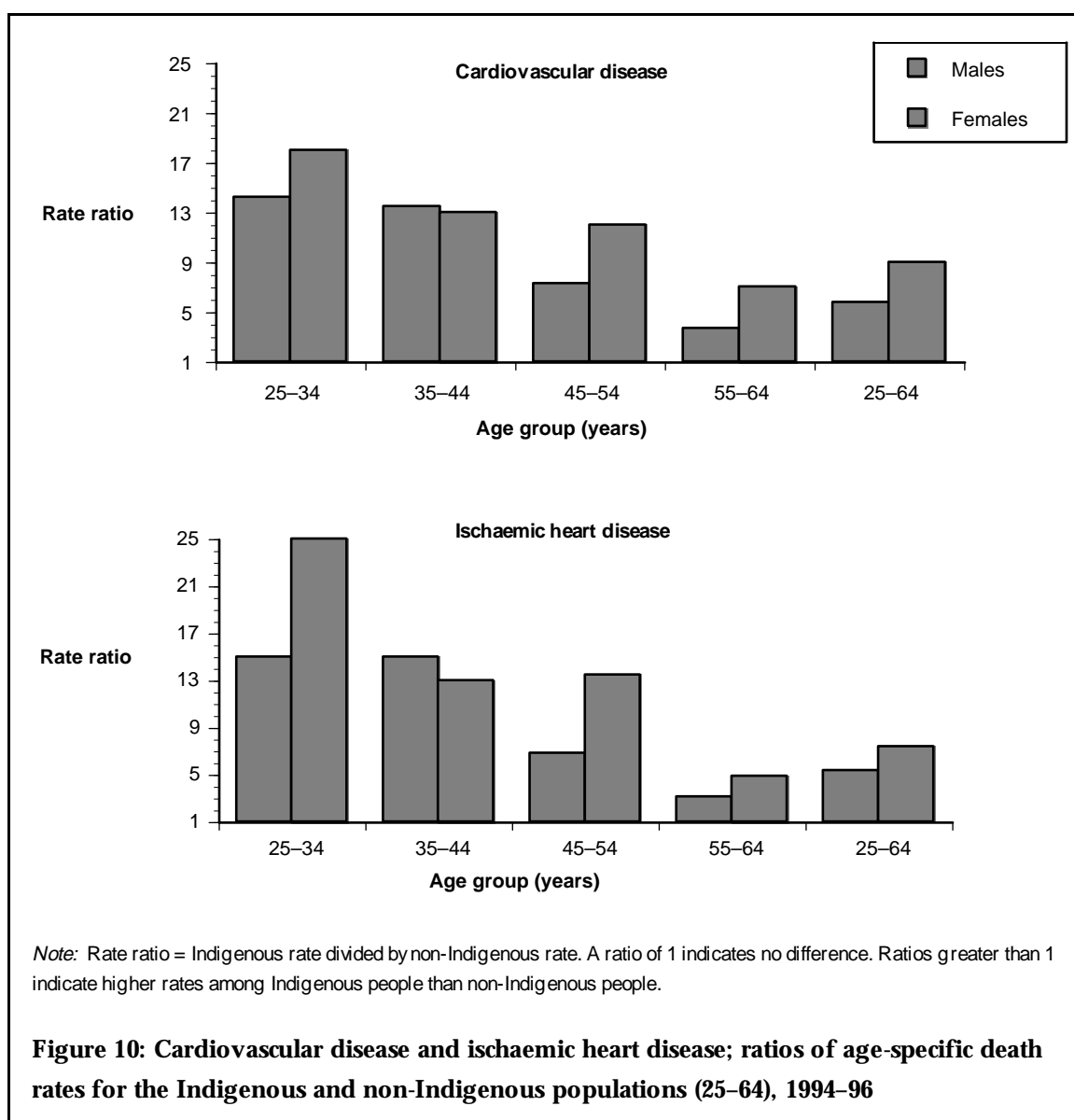
## Cardiovascular disease

Over the period 1994–1996 cardiovascular diseases accounted for 28% of all deaths of Indigenous people, a significantly lower proportion than that evident among the non-Indigenous population (42%). However, mortality from diabetes, road traffic accidents and respiratory diseases constituted a higher proportion of all deaths for Indigenous people, compared with other Australians, with these proportions about two to three times higher among the Indigenous population (ABS 1997).

While cardiovascular diseases comprised a smaller proportion of all deaths among the Indigenous population compared with other Australians, the age-standardised cardiovascular disease death rates for Indigenous people in 1994–1996 were two times greater than non-Indigenous rates. This ratio was greater among adults of working age (25–64), for whom Indigenous people had six and nine times the cardiovascular death rate for non-Indigenous males and females respectively. The difference in rates between the Indigenous and non-Indigenous populations was greater in relative terms for females than for males across almost all age groups. In fact, the death rates were greater at all ages for the Indigenous population compared to other Australians, with the greatest difference in relative terms occurring in the younger age groups (Figure 10).

Mortality from cardiovascular disease among the Indigenous population has been declining at a rate of 5.2% for females, while for males there was no statistically significant rate of change over the period 1991–1996. The female rate of decline is a recent shift, with previous published data pointing to an increase in cardiovascular mortality of 2% for females between 1985 and 1994 (Anderson et al. 1996). While caution needs to be taken in interpreting these results due to changes in Indigenous population estimates, it is possible that a new trend may be developing for Indigenous females.

Over the period 1991–1996 the decline in death rates for Indigenous females was considerably greater than among non-Indigenous females (5.2% compared to 2.6%). For males, the pattern was not so clear with mortality declining by 3.1% per year among the non-Indigenous population, while among the Indigenous population there was no significant rate of change over the period (Figure 11). For the 25–64 age group, however, mortality among Indigenous males was declining by 2.5% per year, a slower rate than that for the corresponding non-Indigenous population (4.6%).

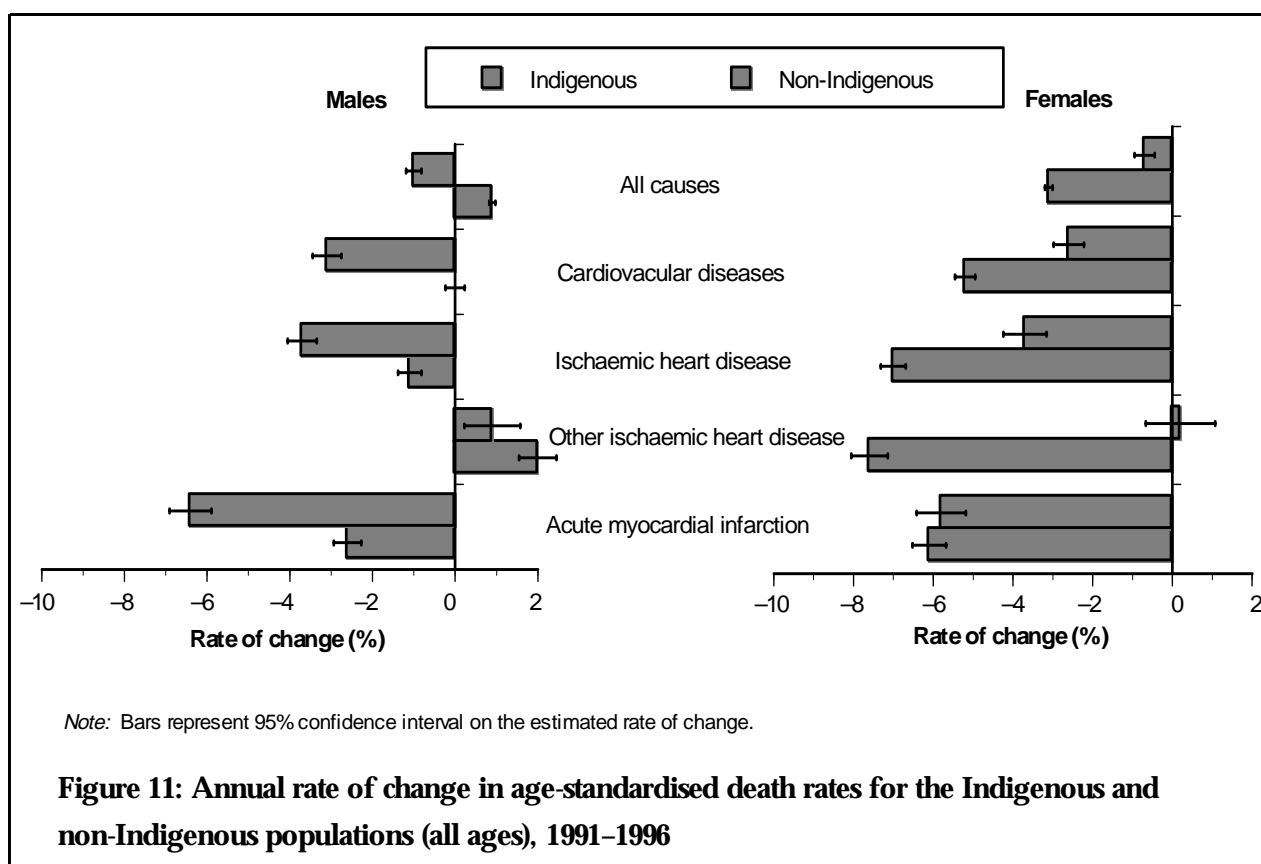


### Ischaemic heart disease

Ischaemic heart disease remained the leading contributor to mortality from cardiovascular diseases for Indigenous people, 55% among males and 41% among females in 1994-1996. Mortality from this cause was declining at a rate of 1.1% per year among Indigenous males, a slower rate than that for non-Indigenous males (3.7%). For females, however, Indigenous death rates declined at a greater rate than non-Indigenous death rates (7% compared to 3.7%) over the period 1991-1996 (Figure 11).

National targets for the Indigenous population endorsed by the Australian Health Ministers Advisory Committee are set at reducing mortality from ischaemic heart disease by 50% in 10 years. Based on current rates of decline, Indigenous females, with rates of decline of 7% per year, are achieving the national target, while Indigenous males (annual decline of 1.1%) are not.

Death rates from ischaemic heart disease for the Indigenous population in 1994-1996 were 1.6 times greater than for other Australians. For the 25-64 age group the difference was even more pronounced, with Indigenous males and females having five and seven times the expected death rate of their non-Indigenous counterparts. The greatest difference between the Indigenous and non-Indigenous populations occurred in the younger age groups (Figure 10).



### Acute myocardial infarction

Between 1991 and 1996 mortality from acute myocardial infarction for Indigenous males was declining slightly faster than for ischaemic heart disease at a rate of 2.6%. Rates of decline were considerably slower among Indigenous males (2.6%) compared with non-Indigenous males (6.4%). For females, rates of decline were similar for the Indigenous and non-Indigenous populations, although slightly higher among the Indigenous population, 6.1% compared to 5.8% (Figure 11).

### Cerebrovascular disease

Mortality from cerebrovascular disease among the Indigenous population is relatively small. Between 1991 and 1996 there were only 150 and 154 deaths from cerebrovascular disease identified in Indigenous males and females respectively. Due to the small number of deaths in each of the age-specific groups no accurate trend analysis can be undertaken for this cause of death.

## Urban, rural and remote areas

### Cardiovascular disease

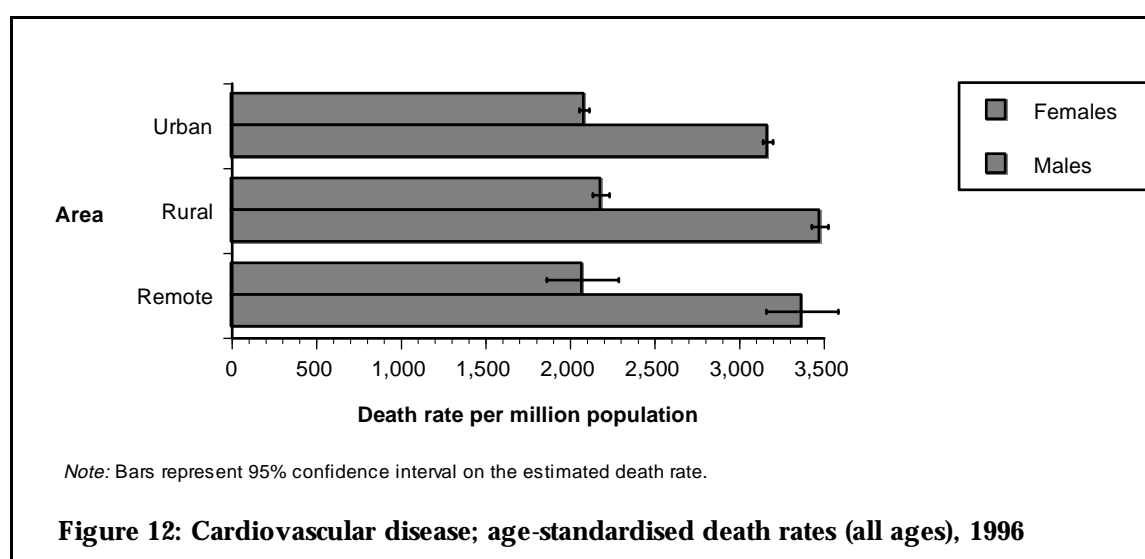
Mortality differences between urban, rural and remote areas are influenced by the proportion of Indigenous people in each area. While the proportion of Indigenous people in urban and rural areas is too small to influence their mortality rates, the relatively high concentration in remote areas (18%) could have a considerable impact on differentials between remote and other areas. Mortality differentials between areas may also reflect differences in access to, and use of, health services. Knowledge of, and attitudes to, illness could also be contributory factors, as could socioeconomic factors.

For males, death rates from cardiovascular disease tended to be slightly higher in rural and remote areas than in urban areas, largely due to ischaemic heart disease (Table 4 and Figure 12). For females, cardiovascular death rates showed little difference across these areas.

**Table 4: Selected cardiovascular diseases and all causes; age-standardised death rates and rate ratios for urban, rural and remote areas (all ages), 1996**

	Urban			Rural			Remote		
	Rate	SE (rate)	Ratio	Rate	SE (rate)	Ratio	Rate	SE (rate)	Ratio
<b>Males</b>									
Ischaemic heart disease	1,897	18.2	1	2,081	29.4	1.10	2,114	114.3	1.11
Acute myocardial infarction	1,126	14.1	1	1,280	23.1	1.14	1,183	85.6	1.05
Cerebrovascular disease	645	10.9	1	688	17.3	1.07	516	58.4	0.80
Cardiovascular disease	3,168	23.4	1	3,476	37.7	1.10	3,370	143.4	1.06
All causes	7,998	36.1	1	8,575	58.1	1.07	9,448	226.4	1.18
<b>Females</b>									
Ischaemic heart disease	1,039	10.8	1	1,101	18.0	1.06	974	75.3	0.94
Acute myocardial infarction	633	8.5	1	663	14.2	1.05	563	57.9	0.89
Cerebrovascular disease	578	7.9	1	575	12.9	0.99	544	56.6	0.94
Cardiovascular disease	2,083	15.0	1	2,182	25.0	1.05	2,073	108.5	1.0
All causes	4,942	23.9	1	5,120	39.7	1.04	5,746	176.4	1.17

Note: Ratio = rural or remote rate divided by urban rate. A ratio of 1 indicates no difference from urban areas. Ratios greater than 1 indicate higher rates among rural and remote areas compared with urban areas.



There were no marked differences in rates of decline in cardiovascular mortality across urban, rural and remote areas (Table 5). In all three areas and for both sexes, change was more rapid for cardiovascular mortality than for mortality from all causes (Table 5).

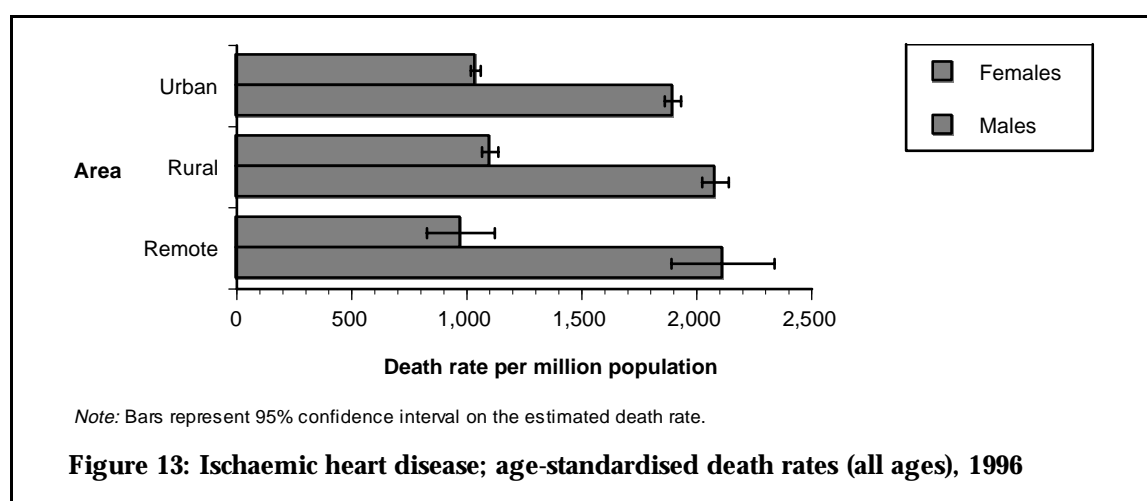
**Table 5: Selected cardiovascular diseases and all causes; annual rate of change in the age-standardised death rate (all ages) in urban, rural and remote areas, 1986–1996**

	Males			Females		
	Urban	Rural	Remote	Urban	Rural	Remote
Ischaemic heart disease	-4.2	-3.5	-3.1	-3.9	-3.2	-3.9
Acute myocardial infarction	-5.8	-5.0	-5.2	-5.1	-4.5	-5.3
Cerebrovascular disease	-3.2	-2.8	-2.9	-3.4	-3.4	-3.1
Cardiovascular disease	-3.7	-3.3	-3.0	-3.5	-3.2	-3.7
<b>All causes</b>	<b>-2.2</b>	<b>-1.8</b>	<b>-2.0</b>	<b>-1.6</b>	<b>-1.7</b>	<b>-1.8</b>

Note: All annual rates of change are statistically significant at the 1% level.

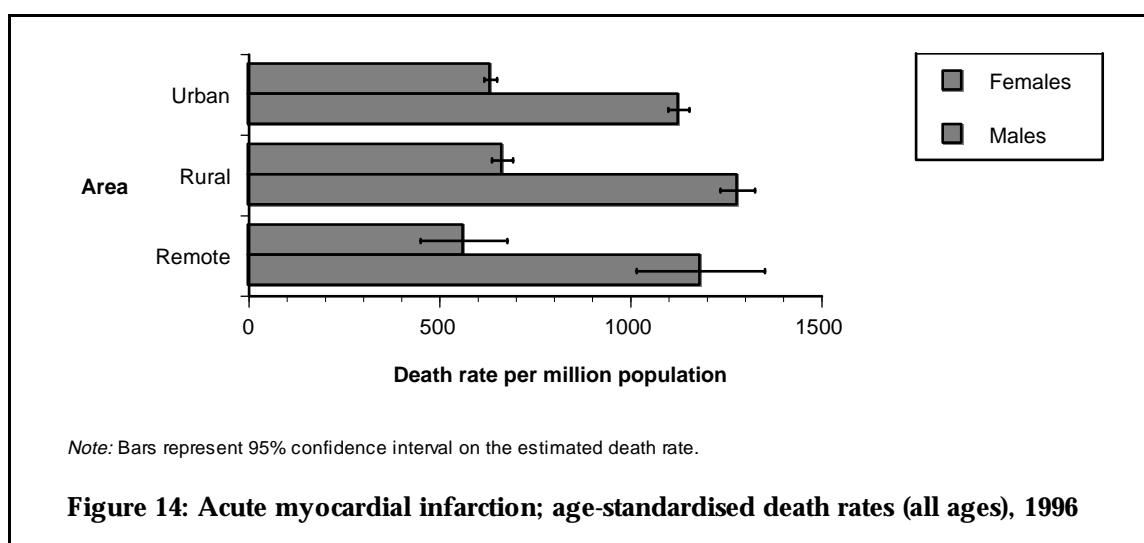
### Ischaemic heart disease

Mortality from ischaemic heart disease was 10–11% higher among rural and remote males compared to urban males (Figure 13 and Table 4). There was less variation in the level of ischaemic heart disease mortality among females. The annual rates of change varied slightly across the three areas, 4.2% among urban males to 3.1% among remote males (Table 5). The rates of decline for urban and remote females were similar and slightly higher than for their rural counterparts.



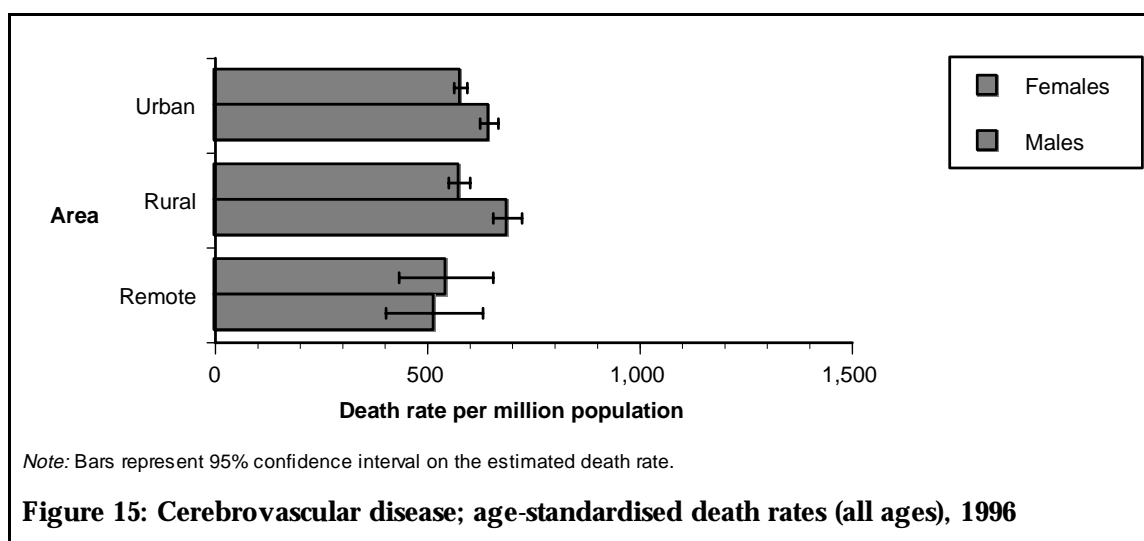
### Acute myocardial infarction

Acute myocardial infarction accounted for about 60% of ischaemic heart disease deaths in urban and rural areas, and 57% in remote areas. Mortality attributed to acute myocardial infarction was 14% higher among rural males compared to urban males, and was about 10% lower for remote females compared with their urban counterparts (Figure 14 and Table 4). The mortality rate for acute myocardial infarction declined faster than for ischaemic heart disease. Urban, rural and remote areas all showed a rapid decline, with urban areas in the lead for males (5.8%) and remote areas in the lead for females (5.3%) (Table 5).



### Cerebrovascular disease

In 1996, cerebrovascular disease accounted for a higher proportion of all cardiovascular deaths among females than among males, in all three areas. The cerebrovascular mortality rate was lowest for remote males, 20% lower than for urban males (Figure 15 and Table 4). The mortality rate was highest for rural males. There was virtually no difference across the three areas for females. Cerebrovascular mortality was declining at about 3% per year in all three areas (Table 5).



### Age group 25–74

Premature deaths (between ages 25–74) accounted for 41–42% of all cardiovascular deaths among males in both urban and rural areas, and about 57% in remote areas. The proportion varied more among females, from 18% in urban areas and 20% in rural, to 36% in remote areas. In this age range, mortality differentials across the three areas were generally more pronounced than for all ages.