



2001

Queensland Government

Queensland Health

# information

## CIRCULAR

Health Information Centre

### Coronary heart disease in Queensland

Michael Coory, Health Information Centre, Information &amp; Business Management Branch

#### Summary

In Queensland, as in Australia and the rest of the developed world, much progress has already been made in the fight against heart disease. Death rates have continued to decline since the late 1960s, and the rate of decline has been faster than the decline for all deaths combined.

Experts have attributed the favourable trends to better control of risk factors (e.g., smoking, high blood cholesterol, high blood pressure) and better treatments (e.g., thrombolysis).

However, coronary heart disease is still the leading cause-of-death for both men and women in Queensland. Substantial reductions in the rates of coronary heart disease could be achieved if the mean level of blood cholesterol in the population was reduced by 0.5mmol/l, smoking prevalence was halved and the prevalence of physical inactivity was reduced to 25%.

A national report has found that for people who already have coronary heart disease, the risk of death and disability can be reduced by appropriate use of coronary rehabilitation, coronary bypass surgery, coronary angioplasty, aspirin, beta blockers and ACE inhibitors. Drugs aimed specifically at control of high blood cholesterol and high blood pressure will also reduce the risk, as will reductions in the prevalence of smoking and physical inactivity.

In Queensland, as in Australia and the rest of the developed world, there are groups of people who experience higher mortality from coronary heart disease than the rest of the population. Specifically, these are Indigenous people, people who live in the remote parts of the state and people who are socioeconomically disadvantaged.

Mortality from coronary heart disease among Indigenous people is more than twice as high (i.e., more than 100% higher) than that for the rest of Queensland.

Remote areas of Queensland have statistically significantly higher rates of mortality from coronary heart disease than the state average, by about 25%. Much of this excess can be attributed to the higher proportion of Indigenous people who live in the remote areas of the state.

Socioeconomically disadvantaged areas have higher

death rates for coronary heart disease than the state average, by about 15%. This pattern has not changed over the past decade and is seen throughout Australia.

The differences in the rates of heart disease according to Indigenous status, remoteness and socioeconomic disadvantage would undoubtedly be reduced by improved access to effective treatments. However, there is even greater potential for reducing inequalities by reducing the prevalence of risk factors such as high blood cholesterol, high blood pressure and smoking.

#### Aims

This Information Circular provides Queensland-specific information on rates of coronary heart disease. The aims of the Circular are to:

- Benchmark rates of coronary heart disease in Queensland with those of the other Australian states and territories, and internationally.
- Examine trends in mortality from coronary heart disease in Queensland.
- Compare rates of coronary heart disease for all of Queensland with those of special populations, namely: Indigenous people, remote populations, and socioeconomically disadvantaged groups.

#### Cardiovascular disease and coronary heart disease

*Cardiovascular disease* (sometimes called *circulatory disease*) comprises all diseases of the heart and blood vessels. It includes coronary heart disease, stroke, heart failure and peripheral vascular disease. The main underlying process is known as atherosclerosis, which clogs the blood vessels, thereby reducing blood flow. This is most serious when it affects the heart causing *coronary heart disease* or the brain, causing *stroke*.

Most cardiovascular deaths are due to coronary heart disease (Table 1, Appendix A).

#### Disease burden due to coronary heart disease

There are various measures of disease burden, including the number of deaths, the number of years-of-life-lost, and disability adjusted life years or DALYs. On any measure, coronary heart disease ranks highly.

#### Numbers of deaths

Based on absolute numbers, coronary heart disease is the leading cause-of-death for both men and women (Table 2, Appendix A).

### Potential years of life lost

Potential years of life lost provides one method for determining those causes of death that contribute most to premature mortality. Deaths that occur at younger ages are given greater weight than those that occur at older ages.

For men, coronary heart disease is at number two, after suicide. For women, coronary heart disease is also at number two, after breast cancer (Table 3, Appendix A).

### Disability Adjusted Life Year (DALY)

The concept of Disability Adjusted Life Year (DALY) is an attempt to combine information on deaths, disability and illness. One DALY is a lost year of healthy life and is calculated as a combination of years-of-life lost to premature deaths and healthy years-of-life lost to disability or illness. Table 4 (Appendix A) shows the 10 leading causes of disease burden in Queensland. These are preliminary figures based on work done by the Australian Institute of Health & Welfare at a national level<sup>1</sup>. Coronary heart disease ranks at number one for both men and women, accounting for more than 10% of the total DALYs.

### Trends in mortality

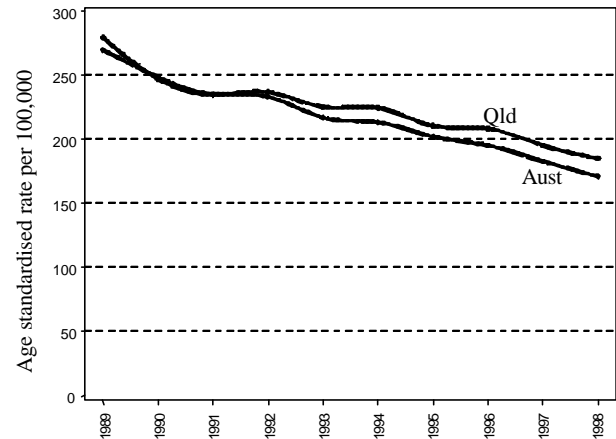
There has been a continuous decline in mortality from coronary heart disease in Queensland, Australia, and most of the developed world since the late 1960s. The decreasing trend is continuing for both men and women and has occurred more rapidly than for all-cause mortality. Specifically, mortality from coronary heart disease decreased by 4.0% per year for men and 3.9% for women. In contrast, all-cause mortality decreased by 2.3% for men and 1.1% for women (Table 5, Appendix A).

Experts believe that the decline is owed to two factors: 1. decreased disease incidence through better control of risk factors (e.g., high blood cholesterol, cigarette smoking, high blood pressure) and 2. decreased case fatality rates through better treatments (e.g., thrombolysis).

### Interstate comparisons

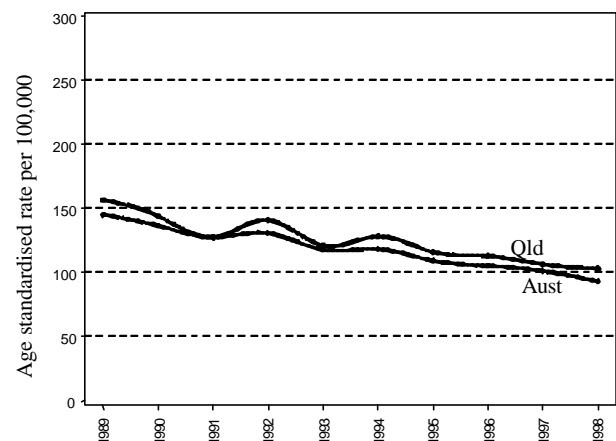
Throughout the 1990s, Queensland's death rates for coronary heart disease were the highest of all the states (with the possible exception of Tasmania). The decreasing trend for coronary heart disease in Queensland is about the same as that for all of Australia, so that Queensland's relative position has not improved (Table 6, Appendix A and Figures 1 & 2).

Figure 1: Trends in directly age standardised mortality rates<sup>1</sup> for coronary heart disease, males, Queensland and Australia, 1989 to 1998



1. Directly age standardised to the 1991 Australian Standard Population  
Source: Death Registration Data Set

Figure 2: Trends in directly age standardised mortality rates<sup>1</sup> for coronary heart disease, females, Queensland and Australia, 1989 to 1998



1. Directly age standardised to the 1991 Australian Standard Population  
Source: Death Registration Data Set

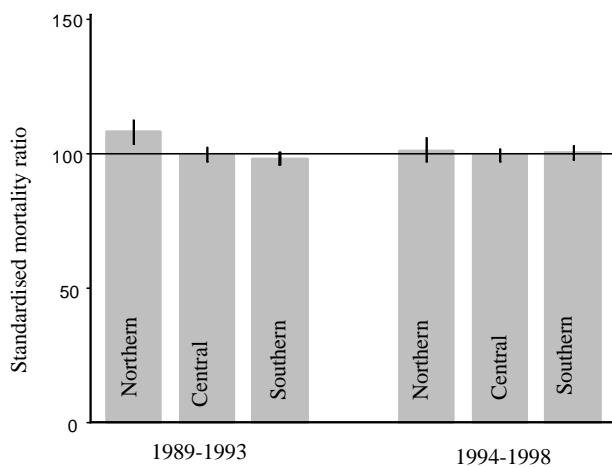
### International comparisons

Comparison with other countries shows that there is potential for further reductions in the death rates for coronary heart disease in Queensland and Australia. Death rates in Queensland are three times greater than those for Japan and more than two times greater than those for Hong Kong, France and Spain (Figures 3 & 4, Appendix B).

## Variation across Queensland Health Zones

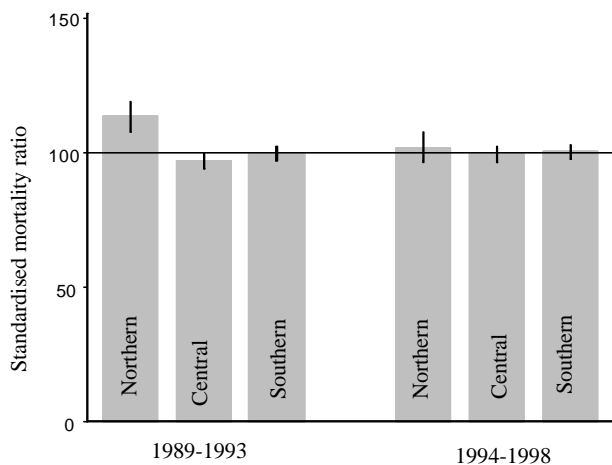
There are currently no differences in death rates for coronary heart disease across the three Queensland Health Zones. This may represent an improvement on the situation for 1989 to 1993, when the Northern Zone appeared to have higher rates (by about 10%) than the Southern or Central Zone (Figures 5 & 6).

**Figure 5: Comparison of age standardised mortality ratios<sup>1</sup> for coronary heart disease across Zones, males, 1989-1993 & 1994-1998**



1. Indirectly age standardised to the Queensland population for each year. The Queensland average is standardised to 100.  
Source: Death Registration Data Set

**Figure 6: Comparison of age standardised mortality ratios<sup>1</sup> for coronary heart disease across Zones, females, 1989-1993 & 1994-1998**



1. Indirectly age standardised to the Queensland population for each year. The Queensland average is standardised to 100.  
Source: Death Registration Data Set

## Special populations

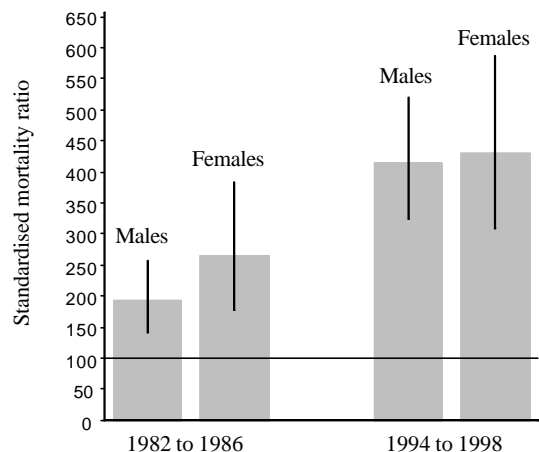
In Queensland, as in Australia and the rest of the developed world, there are groups of people who experience higher mortality from coronary heart disease than the rest of the population. Specifically, these are people who live in the remote parts of the state, people who are socioeconomically disadvantaged and Indigenous people. There is, of course, considerable overlap among these groups. Indigenous people comprise a significant proportion of the population in remote areas; they also suffer more socioeconomic disadvantage than the rest of the community.

### Variation by Indigenous status

Mortality from coronary heart disease among Indigenous people is more than twice as high (i.e., more than 100% higher) than that for the rest of Queensland.

The available data suggest that the extremely high rates for coronary heart disease among Indigenous people have worsened over the last few years (Figure 7).

**Figure 7: Age standardised mortality ratios<sup>1</sup> for coronary heart disease among Indigenous people in rural and remote Indigenous communities in Queensland, 1982-1986 and 1994-1996**



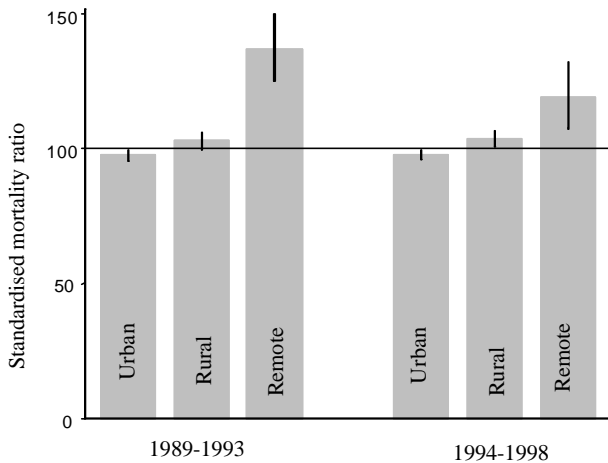
Source: Death Registration Data Set

### Variation by geographic remoteness

Remote areas in Queensland have statistically significantly higher rates of mortality from coronary heart disease than urban or rural areas, by about 25% (Figures 8 & 9). This pattern has not changed over the last decade and is seen throughout Australia<sup>2,3</sup>.

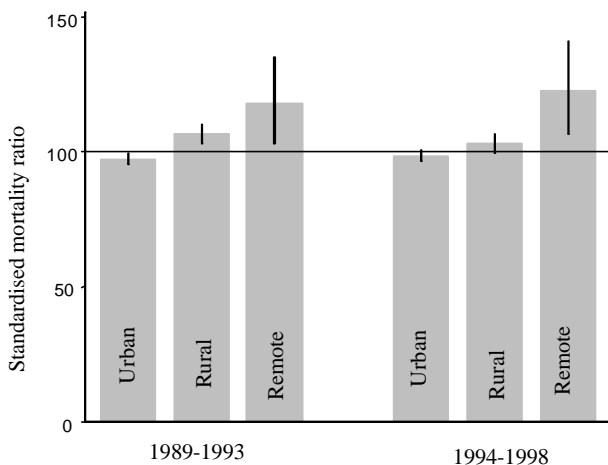
Much of the excess mortality in remote areas is believed to be owed to the higher proportion of Indigenous people who live in these areas<sup>4</sup>.

**Figure 8: Variation in age standardised mortality ratios<sup>1</sup> for coronary heart disease by geographic remoteness, males, 1989-93 & 1994-98**



1. Indirectly age standardised to the Queensland population for each year. The Queensland average is standardised to 100. Source: Death Registration Data Set

**Figure 9. Variation in age standardised mortality ratios<sup>1</sup> for coronary heart disease by geographic remoteness, females, 1989-93 & 1994-98**

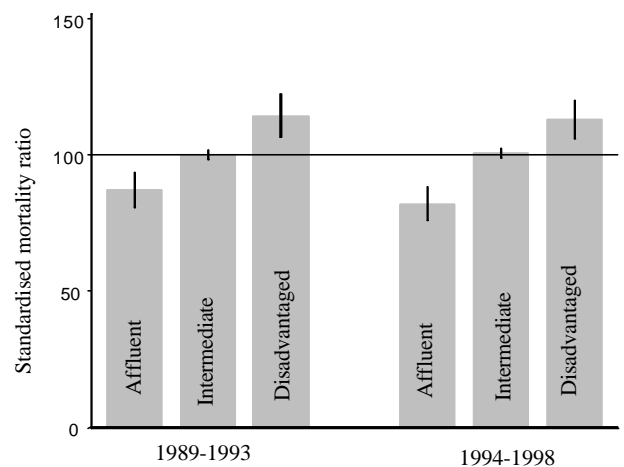


1. Indirectly age standardised to the Queensland population for each year. The Queensland average is standardised to 100. Source: Death Registration Data Set

**Variation by economic disadvantage**

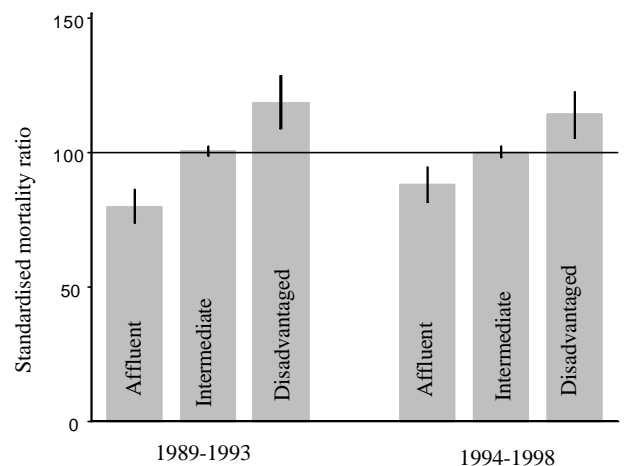
Poorer areas in Queensland have higher rates of mortality from coronary heart disease, by about 15% (Figures 10 & 11). This pattern has not changed over the past decade. It is also seen in the other states of Australia<sup>1,2</sup>.

**Figure 10: Variation in age standardised mortality ratios for coronary heart disease by economic disadvantage, males, 1989-1993 & 1994-1998**



1. Indirectly age standardised to the Queensland population for each year. The Queensland average is standardised to 100. Source: Death Registration Data Set

**Figure 11. Variation in age standardised mortality ratios<sup>1</sup> for coronary heart disease by economic disadvantage, females, 1989-1993 & 1994-1998**



1. Indirectly age standardised to the Queensland population for each year. The Queensland average is standardised to 100. Source: Death Registration Data Set

## Scope for improvement

Experts believe that further reductions in death and disability from coronary heart disease could be achieved relatively inexpensively through population strategies to reduce smoking, high blood cholesterol, high blood pressure, physical inactivity and obesity<sup>5</sup>.

For example, substantial reductions in the rates of coronary heart disease could be achieved if the mean level of blood cholesterol in the population was reduced by 0.5mmol/l, smoking prevalence was halved and the prevalence of physical inactivity was reduced to 25%<sup>6</sup>.

A national report has found that for people who already have coronary heart disease, the risk of death and disability can be reduced by appropriate use of coronary rehabilitation, coronary bypass surgery, coronary angioplasty, aspirin, beta blockers and ACE inhibitors. Drugs aimed specifically at control of high blood cholesterol and high blood pressure will also reduce the risk, as will reductions in the prevalence of smoking and physical inactivity<sup>7,8</sup>.

Of concern are the differences in death rates across Queensland according to remoteness, affluence and Indigenous status. Although these inequalities would be partially reduced by improved access to effective treatments, there is even greater potential for reducing inequalities through a comprehensive approach to reducing risk factors such as high blood cholesterol, high blood pressure and smoking<sup>9</sup>. The National Health Priority Areas (NHPA) Report on Cardiovascular Health has recommended that primary prevention and treatment should not be seen as competitive and that both need to be adequately funded under a balanced, comprehensive and coordinated approach<sup>9</sup>.

The authors of the NHPA Report asserted that policy initiatives to address inequalities in coronary heart disease require coordination across sectors of government<sup>9</sup>. For example, many remote areas need better supplies of fresh fruit and vegetables. This may require transport subsidies and grants to upgrade storage facilities.

## References

1. Mathers C, Vos T, Stevenson C. The burden of disease and injury in Australia. Canberra, AIHW, 1999.
2. Glover J, Harris K, Tennant S. A Social Health Atlas of Australia. 2<sup>nd</sup> ed. Adelaide, Public Health Information & Development Unit, 1999.
3. Sexton PT, Sexton TLH. Excess coronary mortality among Australian men and women living outside capital city statistical divisions. *Med J Aust* 2000;172:370-374.
4. Strong K, Trickett P, Titulaer I, Bhatia K. Health in Rural and Remote Australia. AIHW, Canberra, 1998.
5. Australian Institute of Health & Welfare, Heart Foundation. Heart Stroke and Vascular Diseases, Australian Facts. AIHW, Canberra, 1999.
6. McElduff P, Dobson AJ, Jamrozik K, Hobbs MST. Opportunities for control of coronary heart disease in Australia. *Aust NZ J Public Health*, in press.
7. McElduff P, Dobson AJ, Jamrozik K, Hobbs MST, Ring I. Reducing coronary heart disease in Australia: assessing the potential. AIHW, Canberra, in press.
8. Godlee F (executive editor). *Clinical Evidence*. London, BMJ Publishing Group, 2000.
9. Commonwealth Dept of Health and Aged Care, Australian Institute of Health and Welfare. National Health Priority Areas Report. Cardiovascular Health. Canberra, AIHW, 1999.

## Technical notes

### **Statistical local areas (SLAs)**

Statistical local areas (SLAs) were the building blocks of the geographic areas used in this study. SLAs are part of the ABS's Australian Standard Geographic Classification and were the smallest spatial units for which data on both the numerator (deaths) and denominator (population) were available. They correspond either to local government areas (LGAs), or to suburbs in larger LGAs. SLAs cover the state without gaps or overlaps. There are 446 SLAs in Queensland with a median population of 5359 (range: 236 to 65457).

### **Remoteness**

Remoteness was based on the *Rural, Remote & Metropolitan Area Classification* published by the Dept. of Primary Industries and Energy and the then Dept. of Human Services and Health in 1994. This scheme uses an index of remoteness that incorporates population density and distance to large population centres. Remoteness is commonly associated with mining activities, broadacre farming and Indigenous communities.

### ***Economic disadvantage***

Economic disadvantage was based on the Australian Bureau of Statistics' index of economic disadvantage for small areas (Cat No 2039.0). Using this index, statistical local areas (SLAs) were ranked from the most to the least disadvantaged. The ABS index is based on the percentage of people in the SLA with low income, low educational attainment or who are unemployed or employed in relatively unskilled occupations. The top 10% was assigned to the *disadvantaged* group, the bottom 10% to the *affluent* group and the middle 80% to the *intermediate* group. The middle 80% was not further subdivided because: (1) many of these SLAs were not homogeneous and included neighbourhoods with markedly different socio-economic characteristics and (2) the relative ranking of some of these SLAs changed over time. In contrast, the top and bottom 10% were relatively homogeneous and their rankings did not change significantly over time.

### ***Indigenous data***

In Queensland, about 12,700 Indigenous people (12% of the state total) live in easily-identifiable communities in the rural and remote parts of the state. This circular used information for people, whose address at the time of their death was given as one of these communities, to obtain Indigenous mortality rates for coronary heart disease. Indigenous death data from all of Queensland is only available from the Australian Bureau of Statistics for the year 1998. Because the Indigenous population is relatively small, data for one year is not enough to obtain precise estimates of mortality.

### ***Age-standardised rates***

*Directly age-standardised rates (ASR).* The directly standardised rate for a given population is the weighted sum of the age-sex specific rates for that population. For direct standardisation, age-sex specific rates for Queensland are multiplied by the corresponding age-sex specific populations of a standard or reference population (Australia 1991) and summed, yielding an expected count for the reference population. This expected count is divided by the total reference population to give the directly standardised rate.

*Indirectly age-standardised rates.* For indirect standardisation, age-sex specific rates for Queensland are multiplied by the corresponding age-sex specific populations for a specific geographical area, yielding an expected count. The observed number of cases for each geographic area is divided by the expected number and multiplied by 100 to give a standardised incidence ratio

(SIR). A standardised incidence ratio value of 110 indicates incidence rates 10 per cent above that of the reference group (Queensland), whereas an SIR of 90 indicates incidence rates 10 per cent below that of the reference group.

## APPENDIX A

**Table 1: Percentage of cardiovascular deaths by type, Queensland, 1997 & 1998**

Cause of death	Males		Cause of death	Females	
	No. deaths per year	Per cent		No. deaths per year	Per cent
Coronary heart disease	2,913	64.2	Coronary heart disease	2,356	53.2
Stroke	849	18.7	Stroke	1,189	26.8
Aortic aneurysm or dissection	152	3.4	Congestive heart disease	174	3.9
Congestive heart failure	122	2.7	Hypertensive heart disease	107	2.4
Hypertensive heart disease	59	1.3	Aortic aneurysm or dissection	94	2.1
Rheumatic heart disease	22	0.5	Rheumatic heart disease	33	0.7
Other cardiovascular disease	417	9.2	Other cardiovascular disease	478	10.8
All cardiovascular disease	4,534	100.0	All cardiovascular disease	4,431	100.0

Source: Death registration data set

**Table 2: Leading causes of death based on numbers of deaths, Queensland, 1997 & 1998**

Cause of death	Males		Cause of death	Females	
	No. deaths per year	Per cent		No. deaths per year	Per cent
Coronary heart disease	2,913	24.1	Coronary heart disease	2,356	23.4
Lung cancer	872	7.2	Stroke	1,189	11.8
Stroke	849	7.0	Breast cancer	427	4.2
COPD <sup>1</sup>	616	5.1	Pneumonia	375	3.7
Suicide	444	3.7	Bowel cancer	375	3.7
Bowel cancer	443	3.7	Lung cancer	339	3.4
Prostate cancer	441	3.7	COPD <sup>1</sup>	309	3.1
Pneumonia	343	2.8	Diabetes	238	2.4
Diabetes	258	2.1	Dementia	202	2.0
Road-transport injury	231	1.9	Suicide	113	1.1
Dementia	116	1.0	Road-transport injury	101	1.0
All causes	12,075	100.0	All causes	10,058	100.0

Source: Death registration data set

1. Chronic obstructive pulmonary disease, that is, chronic bronchitis & emphysema

**Table 3: Leading causes of death based on potential years of life lost, Queensland, 1997 & 1998**

Cause of death	Males		Cause of death	Females	
	PYLL <sup>1</sup>	Per cent		PYLL <sup>1</sup>	Per cent
Suicide	15,690	13.2	Breast cancer	5,243	8.4
Coronary heart disease	14,985	12.6	Coronary heart disease	4,426	7.1
Road-transport injury	9,365	7.9	Suicide	3,853	6.2
Lung cancer	6,126	5.2	Perinatal conditions	3,734	6.0
Perinatal conditions	5,655	4.8	Road-transport injury	3,650	5.8
Congenital anomalies	4,840	4.1	Congenital anomalies	3,456	5.5
Bowel cancer	3,541	3.0	Lung cancer	2,790	4.5
Stroke	2,901	2.4	Bowel cancer	2,430	3.9
COPD <sup>2</sup>	2,123	1.8	Stroke	2,284	3.7
SIDS <sup>3</sup>	1,813	1.5	COPD <sup>1</sup>	1,238	2.0
Diabetes	1,645	1.4	Diabetes	1,115	1.8
All causes	118,738	100.0	All causes	62,490	100.0

Source: Death registration data set

1. Potential years of life lost (to age 75 years)

2. Chronic obstructive pulmonary disease, that is, chronic bronchitis & emphysema

3. Sudden infant death syndrome

**Table 4: Leading causes of disease burden, Queensland, 1997 & 1998**

Males		Females	
Condition	Per cent of total DALYs <sup>1</sup>	Condition	Per cent of total DALYs <sup>1</sup>
Coronary heart disease	13.9	Coronary heart disease	11.2
Stroke	4.6	Stroke	6.2
Lung cancer	4.6	Depression	4.8
COPD <sup>2</sup>	4.3	Dementia	4.7
Suicide	3.7	Breast cancer	4.6
Road-transport injury	3.0	COPD <sup>2</sup>	3.1
Diabetes	3.0	Asthma	3.1
Depression	2.7	Diabetes	3.0
Bowel cancer	2.7	Osteoarthritis	2.9
Dementia	2.5	Bowel cancer	2.7

1. Preliminary

2. Chronic obstructive pulmonary disease, that is, chronic bronchitis & emphysema

**Table 5: Annual percentage change in age-standardised mortality rates, Queensland, 1989 to 1998**

	Annual percentage change	
	Males	Females
Coronary heart disease	-4.0	-3.9
Stroke	-3.4	-3.2
All cardiovascular disease	-4.0	-3.7
All-cause mortality	-2.3	-1.8

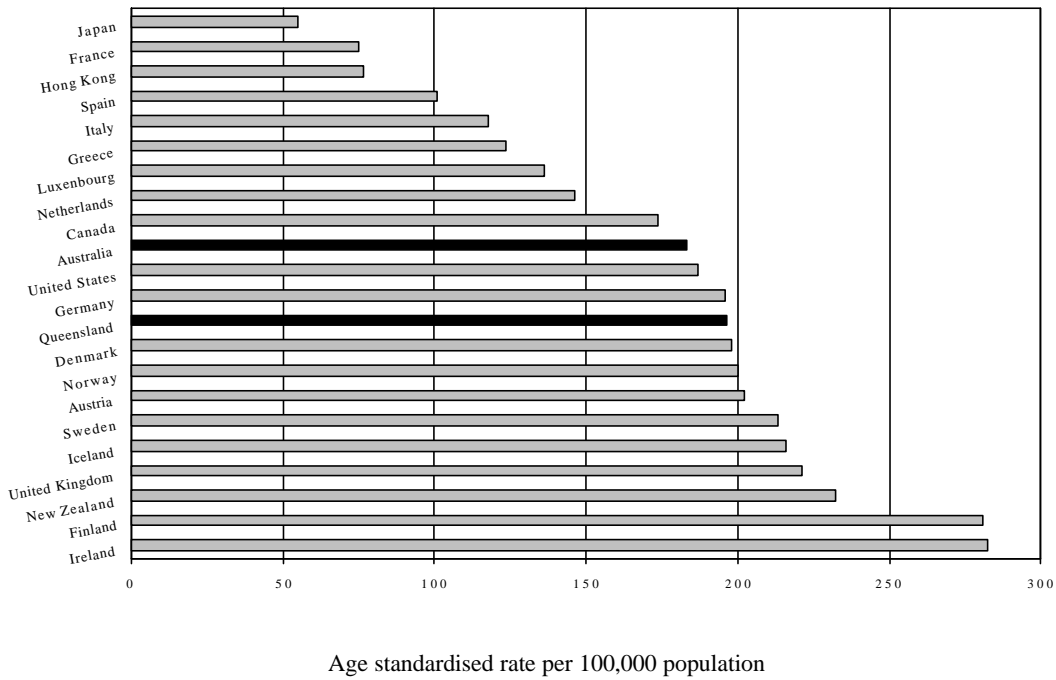
**Table 6: State variations in mortality from coronary heart disease  
Directly age standardised rates, 1996 to 1998  
Annual percentage change, 1989 to 1998**

	Males		Females.	
	Average rate <sup>1</sup> 1996 to 1998	APC <sup>2</sup> 1989 to 1998	Average rate <sup>1</sup> 1996 to 1998	APC <sup>2</sup> 1989 to 1998
NSW	185.2	-5.0	103.4	-4.2
Vic	172.3	-4.9	94.2	-4.0
Qld	196.1	-4.0	107.6	-3.9
WA	187.1	-5.0	98.8	-4.3
SA	170.4	-4.7	89.2	-4.3
Tas	195.9	-4.6	101.0	-4.9
Australia	183.0	-4.7	99.9	-4.2



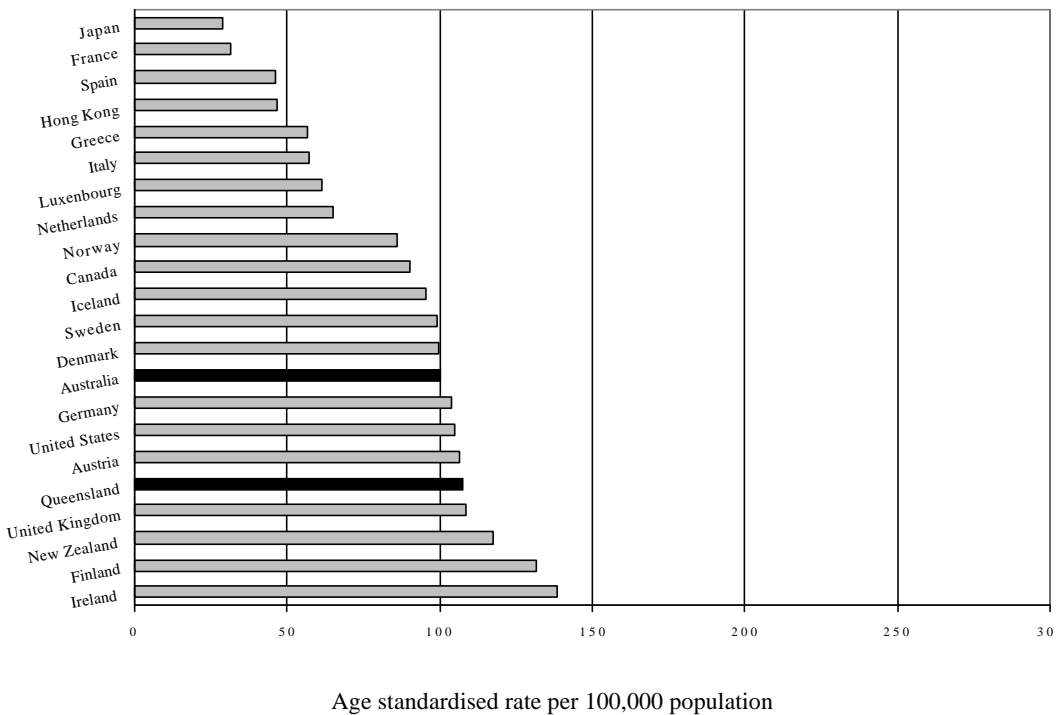
**APPENDIX B**

**Figure 3: International comparison of directly age standardised mortality rates<sup>1</sup> for coronary heart disease, males, various years (1996 to 1998)**



1. Directly age standardised to the 1991 Australian Standard Population  
 Source: World Health Organisation, Health Statistics Collection

**Figure 4: International comparison of directly age standardised mortality rates<sup>1</sup> for coronary heart disease, females, various years (1996 to 1998)**



1. Directly age standardised to the 1991 Australian Standard Population  
 Source: World Health Organisation, Health Statistics Collection