Cardiovascular disease

Coronary heart disease

Stroke

Heart failure

Peripheral vascular disease

Rheumatic fever and rheumatic heart disease

International comparisons

Australian Institute of Health and Welfare

Australian Facts

Cardiovascular disease is Australia's greatest health problem. It kills more people than any other disease (almost 51,000 deaths in 1998) and creates enormous costs for the health care system. It also places a heavy burden on individuals and the community due to the resulting disabilities. However, over the last few decades there have been substantial and continuing falls in death rates, improvements in some risk factor levels, and major advances in treatment and care.

What is cardiovascular disease?

In this report, cardiovascular disease refers to all diseases involving the heart and blood vessels. It includes International Classification of Diseases codes 390–459 in ICD-9 and codes G45, G46 and I00–I99 in ICD-10 (see **Methods and data sources** section for an explanation of the codes).

In Australia, the types of cardiovascular disease that pose the biggest cardiovascular problems are coronary heart disease, stroke, peripheral vascular disease and heart failure. Rheumatic fever and rheumatic heart disease are also significant conditions among Aboriginal and Torres Strait Islander peoples. These different forms of cardiovascular disease are discussed in later sections of this report.

The main underlying problem in cardiovascular disease in Australia is atherosclerosis, a process that clogs blood-supply vessels with deposits containing cholesterol and other substances, often associated with blood clots. It is most serious when it affects the blood supply to the heart, causing angina or heart attack, or to the brain, which can lead to a stroke.

Risk factors for cardiovascular disease

The major preventable risk factors for cardiovascular disease are tobacco smoking, high blood pressure, high blood cholesterol, overweight and obesity, insufficient physical activity and diabetes. For stroke, atrial fibrillation is a further risk factor. Risk strongly increases with age and is higher for males, Indigenous Australians and people from lower socioeconomic groups. Research continues on other possible risk factors, including stress and social factors.

How many Australians have cardiovascular conditions?

In 1995, an estimated 2.8 million Australians, 16% of the population, had cardiovascular conditions.[4]

Sex and age

There was no significant difference in the proportion of males and females reporting cardiovascular conditions in 1995—16% for females and 14.5% for males.

The prevalence of cardiovascular conditions increases dramatically with age. For example, more than 60% of people aged 75 and over had a cardiovascular condition in 1995 compared with less than 9% of those aged under 35.

Aboriginal and Torres Strait Islander peoples[5]

Aboriginal and Torres Strait Islander peoples are more likely to have cardiovascular conditions than other Australians across almost all age groups. For example, in the 25–44 age group, 23% of Indigenous Australians reported cardiovascular conditions compared with 16% among other Australians.

General practice consultations

In 1999–00, cardiovascular problems represented 11% of all problems managed by general practitioners. Hypertension was the most common cardiovascular problem managed and was the most frequent problem seen in general practice overall, accounting for 5.7% of all problems. Other common cardiovascular problems managed were coronary heart disease (1.1% of all problems), presentation for a cardiac check-up (0.9%) and heart failure (0.6%).

Burden of disease

Cardiovascular disease was estimated to account for 22% of the disease burden in Australia in 1996, 33% of premature mortality and 9% of years of equivalent 'healthy' life lost through disease, impairment and disability. Coronary heart disease and stroke accounted for almost 57% and 25% of the cardiovascular disease burden, respectively.

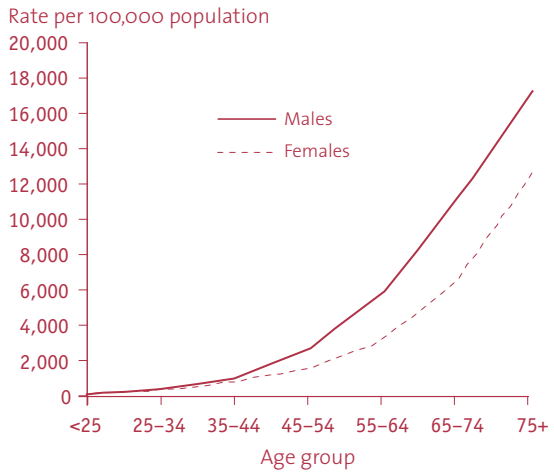
Hospitalisation[6]

In 1998–99, there were 437,717 hospitalisations where cardiovascular disease was the principal diagnosis (7% of all hospitalisations). Of these, 36% were attributed to coronary heart disease, 12% to stroke, 10% to heart failure, 3% to peripheral vascular disease and 0.5% to rheumatic fever and rheumatic heart disease.

Sex and age

Males are more likely to be hospitalised for cardiovascular disease than females. Hospital use for cardiovascular disease increases with age. For example, although men and women aged 65 and over represent only 12% of the total population, they accounted for almost 60% of hospitalisations for cardiovascular disease in 1998–99.

HOSPITALISATIONS FOR CARDIOVASCULAR DISEASE, 1998–99



Source: AIHW National Hospital Morbidity Database.

Length of stay in hospital

There was a marked decline in the average length of stay in hospital for cardiovascular disease from 7.6 days in 1993–94 to 5.5 days in 1998–99. Those hospitalised for stroke in 1998–99 tended to stay the longest (on average 9.5 days), followed by heart failure (8.2 days), peripheral vascular disease (8.0 days), rheumatic fever and rheumatic heart disease (7.5 days), and coronary heart disease (4.7 days). In comparison, the average length of stay for non-cardiovascular disease was 3.7 days.

Although males are more likely than females to be hospitalised for cardiovascular disease, females tended to stay in hospital longer (on average 5.8 days compared with 5.2 days for males).

Number of hospital beds occupied

Patients hospitalised for cardiovascular disease occupied approximately one in ten hospital beds on any day in 1998–99 (an average of 6,581 beds per day). Those hospitalised for coronary heart disease accounted for 30.7% of these, followed by stroke (20.7%), heart failure (14.3%), peripheral vascular disease (4.6%), and rheumatic fever and rheumatic heart disease (0.7%).

Males were more likely than females to occupy hospital beds for cardiovascular disease, with an average of 3,509 beds per day for males compared with 3,072 beds per day for females.

Deaths in hospital

In 1998–99, there were 18,606 hospitalisations for cardiovascular disease where the patient died in hospital (4.3% of cardiovascular disease hospitalisations). Those hospitalised for stroke tended to have the highest in-hospital mortality (10.7% of stroke hospitalisations), followed by heart failure (8.9%), peripheral vascular disease (8.2%), coronary heart disease (2.9%), and rheumatic fever and rheumatic heart disease (2.4%).

Females hospitalised for cardiovascular disease are more likely than males to die in hospital (4.7% compared with 3.9%).

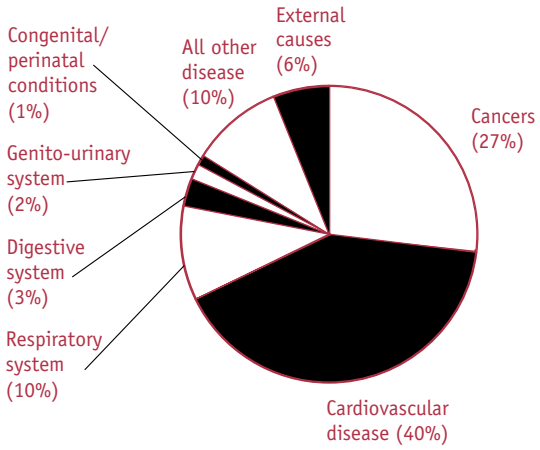
Deaths[7]

Cardiovascular disease was the leading cause of death among Australians in 1998, accounting for 50,797 deaths (40% of all deaths).

Coronary heart disease was the major cardiovascular cause of death, accounting for 55% of all such deaths, followed by stroke (24%), heart failure (5%), peripheral vascular disease (4%) and rheumatic fever and rheumatic heart disease (0.5%).

Congenital anomalies related to the circulatory system accounted for 204 deaths in 1998, accounting for one-third of deaths from congenital anomalies and 0.2% of all deaths.

Proportion of deaths by major disease categories, 1999



Source: ABS 2000.

Trends

Over the period 1987–98, death rates from cardiovascular disease declined at a rate of 3.9% per year for males and 3.7% per year for females, a faster rate than for all causes combined (2.3% and 1.9% respectively). This produced a total decline of 37.0% among males and 35.2% among females over this 12-year period. This decline is partly due to improved survival following cardiovascular events, and partly due to falls in the rate at which people get the disease, owing to improvements in and better management of the associated risk factors.

Deaths from congenital anomalies related to the circulatory system have been declining since the early 1970s. Over the period 1972–98, there was a decline in death rates of 64% for both males and females.

Sex and age

Males are more likely to die from cardiovascular disease than females across all age groups, with males aged under 75 experiencing death rates up to three times those of females of the same age in 1998. Among the elderly (75 and over age group), more women die from cardiovascular disease than men, with the death rates among elderly women approaching those of men of the same age. This excess number among elderly women can be explained by the much greater number of women than men who live into old age.

Although cardiovascular disease is a common cause of death among middle-aged Australians, it kills an even greater proportion of older people. Among those aged 75 and over, cardiovascular disease accounts for 49% of all deaths.

Socioeconomic groups

People from lower socioeconomic groups are more likely to die from cardiovascular disease than those from higher socioeconomic groups. In 1997, people aged 25–64 living in the most disadvantaged group of the population died from cardiovascular disease at around twice the rate of those living in the least disadvantaged group. This difference in death rates has existed since at least the 1970s.

Aboriginal and Torres Strait Islander peoples[8]

Aboriginal and Torres Strait Islander peoples died from cardiovascular disease at twice the rate of other Australians in 1996–98. The difference is especially great among those aged 25–64, where Indigenous Australian death rates were seven and ten times those of other Australian men and women, respectively.

Urban, rural and remote areas

Death rates from cardiovascular disease were higher in rural areas than in urban areas in 1996–98. Rates in remote areas were not significantly different from those in rural and urban areas.

States and Territories

Death rates for cardiovascular disease varied between the States and Territories from 27% above the national average to 10% below the national average in 1996–98. Death rates were generally higher in Tasmania, New South Wales and the Northern Territory, and lowest in Western Australia.

Further information

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Detailed data

Refer to the **Statistical tables** section.

Main data sources

1995 National Health Survey (Australian Bureau of Statistics).

National Hospital Morbidity Database (Australian Institute of Health and Welfare).

National Mortality Database (Australian Institute of Health and Welfare).

Further reading

Australian Bureau of Statistics 1997. 1995 National Health Survey: cardiovascular and related conditions, Australia. ABS Cat. No. 4372.0. Canberra: AGPS.

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Did you know?

- No other group of diseases in Australia costs the health care system more than cardiovascular disease. In 1993–94, it accounted for $3.7 billion, 12% of total direct health system costs.
- People born in Australia are more likely to die from cardiovascular disease than Australian residents who were born overseas.
- Australians are 26% more likely to die from cardiovascular disease than from cancer.
- Every day around 139 Australians die from cardiovascular disease.

Coronary heart disease

Coronary heart disease, one type of cardiovascular disease, is the largest single cause of death in Australia, claiming almost 28,000 lives in 1998. It kills almost three times more people than the third most common cause of death in Australia which is lung and breast cancer combined. However, death rates from coronary heart disease have fallen substantially, by almost 65% since the late 1960s.

What is coronary heart disease?

Coronary heart disease (ischaemic heart disease), ICD-9 codes 410–414 and ICD-10 codes I20–I25, is the most common cause of sudden death in Australia. It consists mainly of acute myocardial infarction (heart attack) and angina. A heart attack occurs when a vessel supplying blood to the heart muscle suddenly becomes blocked by a blood clot. This is a medical emergency and the blockage will lead to death of some heart muscle unless the clot can be quickly dissolved by drugs or treated by catheter procedures in hospital. Angina is a temporary chest pain or discomfort caused by a reduced blood supply to the heart muscle.

Among Australians having a heart attack, over four in ten will be dead within a year but over half of all heart attack deaths will occur before the person reaches hospital. About 25% of those who have a heart attack die within an hour of their first-ever symptoms. In individuals with known coronary heart disease having a second heart attack, the risk of sudden death may increase dramatically.

Risk factors for coronary heart disease

The major preventable risk factors for coronary heart disease are tobacco smoking, high blood pressure, high blood cholesterol, overweight and obesity, and insufficient physical activity. Dietary factors and diabetes have also been associated with a higher risk of coronary heart disease. Men, older Australians, Indigenous Australians and people from lower socioeconomic groups are at greater risk of developing coronary heart disease than other Australians.

How many Australians have coronary heart disease?

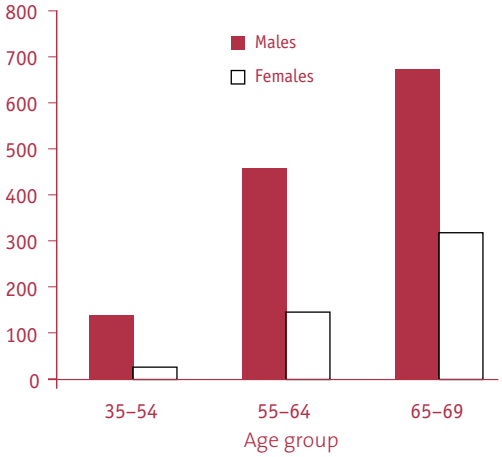
No national data are available on the number of Australians who have coronary heart disease. However, the Universities of Newcastle and Western Australia and the Queensland Department of Health have developed a method to estimate the rate of heart attacks among people aged 35–69.

In 1997–98 there were an estimated 18,817 coronary heart disease events (mainly heart attacks) in Australia among people aged 35–69. Non-fatal heart attacks represented two-thirds of all such cases (12,457 cases).

Sex and age

Non-fatal heart attacks were three times more common among men than women in the 35–69 age group in 1997–98. Rates of heart attacks also increase dramatically with age.

Non-fatal heart attacks, 1997–98



Source: AIHW National Hospital Morbidity Database.

Trends

Trends in rates of heart attacks among men and women aged 35–64 have been monitored in Newcastle and Perth, as part of the World Health Organization's multinational Monitoring of Trends and Determinants in Cardiovascular Disease (MONICA) project. Rates of non-fatal heart attacks have fallen significantly, between 2.5% and 3.7% per year during the period 1984–93.

Rates of first heart attacks (both fatal and non-fatal) among middle-aged Australians also fell during the period 1984–93.

General practice consultations

Data from the 1999–00 study of general practice activity in Australia show that coronary heart disease accounted for 1,650 of a total 153,857 problems. This equated to 1% of all problems managed.

Burden of disease

Coronary heart disease was the leading cause of disease burden in Australia in 1996. It accounted for 12% of disease burden, 20% of premature mortality and 3% of years of equivalent 'healthy' life lost through disease, impairment and disability. Coronary heart disease accounts for almost 57% of the cardiovascular disease burden.

Hospitalisation[9]

In 1998–99, there were 158,131 hospitalisations where coronary heart disease was the principal diagnosis (3% of all hospitalisations). Coronary heart disease accounted for 36% of all hospitalisations for cardiovascular disease.

Acute myocardial infarction (heart attack) accounted for 33,908 hospitalisations in 1998–99, 21% of hospitalisations for coronary heart disease.

Sex and age

Males were more than twice as likely to be hospitalised for coronary heart disease as females. Hospital use for coronary heart disease increases rapidly with age, with 59% of such cases being aged 65 and over in 1998–99.

Length of stay in hospital

The average length of stay in hospital for coronary heart disease was 4.7 days in 1998–99, a decline from 1993–94 when the average length of stay was 5.9 days. Those hospitalised for coronary heart disease tended to stay for a shorter period than those hospitalised for other major cardiovascular conditions, diabetes and most cancers. Males tended to have a shorter average length of stay than females, 4.5 days compared with 4.9 days in 1998–99.

Patients hospitalised for coronary heart disease occupied 3.3% of hospital beds on any day in 1998–99 (an average of 2,018 beds per day).

Deaths in hospital

In 1998–99, there were 4,622 hospitalisations for coronary heart disease where the patient died in hospital (2.9% of coronary heart disease hospitalisations). Females hospitalised for coronary heart disease were more likely to die in hospital than males (3.9% compared with 2.4%).

While the in-hospital mortality rate for coronary heart disease was only 2.9%, for acute myocardial infarction (a major presentation of coronary heart disease) the rate was more than three times as high at 10.4% in 1998–99 (3,534 hospitalisations). Females hospitalised for acute myocardial infarction are more likely to die in hospital than males (14.8% compared with 8.1%).

Expenditure

The average total expenditure per admission for acute myocardial infarction (heart attack) was $5,898 in 1998–99. This figure includes overhead and administrative costs, which account for 22% of the average total expenditure per admission.

Australian Facts

Deaths[10]

Coronary heart disease (mainly heart attacks) was the leading cardiovascular cause of death, accounting for 27,825 deaths (22% of all deaths) in Australia in 1998. Acute myocardial infarctions (heart attacks) account for 59% of deaths from coronary heart disease.

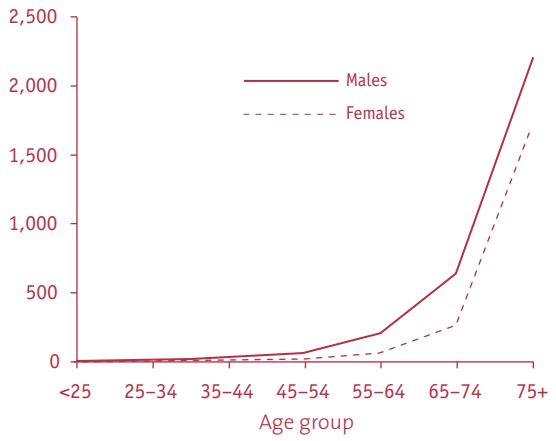
Trends

Coronary heart disease death rates have continued the decline that began in the 1960s and fell at a rate of 4.3% per year among males and 4.1% per year among females for the period 1987–98. This produced a total decline of 39.0% among males and 38.0% among females over this 12-year period.

Sex and age

Overall, males were almost twice as likely to die from coronary heart disease as females in 1998, with males aged 25–64 having death rates three to five times those of females. However, in the 85 and over age group, twice as many women died from coronary heart disease as did men. This can be explained by the much greater number of women than men who live into old age.

DEATH RATES FROM CORONARY HEART DISEASE, 1998



Source: AIHW National Mortality Database.

Socioeconomic groups

People from lower socioeconomic groups are more likely to die from coronary heart disease than those from higher socioeconomic groups. In 1997, people aged 25–64 from the most disadvantaged group were around twice as likely to die from coronary heart disease as those from the least disadvantaged group. This pattern has been observed for at least the last 30 years.

Aboriginal and Torres Strait Islander peoples[11]

Aboriginal and Torres Strait Islander peoples died from coronary heart disease at around twice the rate of other Australians in 1996–98. The difference is even greater among adults aged 25–64, where Indigenous Australian death rates were six and eight times those of other Australian men and women, respectively.

Urban, rural and remote areas

Among males, death rates from coronary heart disease were slightly higher in rural areas than in urban areas in 1996–98. For females there were no significant differences in coronary heart disease death rates across urban, rural and remote areas of Australia.

States and Territories

Death rates from coronary heart disease in 1996–98 were generally lower in Western Australia and Victoria, while for the remaining States and Territories there were no significant differences in coronary heart disease death rates.

Further information

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Detailed data

Refer to the **Statistical tables** section.

Main data sources

National Hospital Morbidity Database (Australian Institute of Health and Welfare).

National Mortality Database (Australian Institute of Health and Welfare).

Further reading

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Did you know?

- For a 40-year-old, the risk of having coronary heart disease at some time in their future life is one in two for men and one in three for women.
- Every day, around 76 Australians die from coronary heart disease.
- Coronary heart disease is the most costly cardiovascular disease for the health care system, accounting for 24% of total cardiovascular disease costs. In 1993–94, coronary heart disease amounted to $894 million in direct health system costs.

Stroke

Stroke, one form of cardiovascular disease, is Australia's second greatest killer after coronary heart disease, claiming almost 12,000 lives in 1998. It is the leading cause of long-term disability in adults and it places great demands on family members and caregivers. Death rates from stroke have been falling since the 1950s. Given the rapid ageing of the Australian population, however, and a slowing down of the decline in stroke death rates in recent years, the number of people dying from stroke and those surviving with a permanent disability is likely to increase in the future.

What is stroke?

The term 'stroke' in this report refers to cerebrovascular disease, ICD-9 codes 430–438 and ICD-10 codes G45, G46 and I60–I69. Cerebrovascular disease includes ischaemic stroke, haemorrhagic stroke, transient ischaemic attack and other cerebrovascular diseases. Ischaemic stroke occurs when an artery supplying blood to a part of the brain suddenly becomes blocked, while haemorrhagic stroke is when an artery supplying blood to a part of the brain suddenly bleeds. These can damage part of the brain, which in turn can impair a range of functions including movement of body parts and communication. Ischaemic stroke occurs more than five times as often as haemorrhagic stroke.

About one-third of those who have had a stroke will die within 12 months. A further one-third are permanently disabled, with some degree of paralysis of one side of the body, difficulty in communicating, or a range of other problems that may affect their quality of life and their ability to function in society.

Risk factors for stroke

Risk factors for stroke include high blood pressure, tobacco smoking, heavy alcohol consumption, high blood cholesterol, overweight and obesity, and insufficient physical activity. Transient ischaemic attack, atrial fibrillation, diabetes and history of heart attacks are also associated with an increased risk of stroke.

How many Australians have a stroke?

Each year, around 40,000 Australians have an ischaemic or haemorrhagic stroke, with 73% of these being first-ever strokes. The 1995 National Health Survey estimated that 116,500 Australians, 0.6% of the population, had at some time in their lives had a stroke.

Sex and age

More women are affected by stroke than men, due to the larger number of elderly women. However, the proportion of men with stroke is 30% higher than for women.

Stroke is more common among older Australians, with around 50% of all strokes occurring in those aged 75 years and over.

Disability due to stroke

The 1998 Survey of Disability, Ageing and Carers found that there were an estimated 63,530 Australians with a disability whose main condition was a stroke. Over 75% of stroke sufferers with a disability needed assistance with self-care, mobility or communication.

Burden of disease

Stroke was the second leading cause of disease burden in Australia in 1996. It accounted for 5% of disease burden in Australia, 7% of premature mortality and 3% of years of equivalent 'healthy' life lost through disease, impairment and disability. Stroke accounted for 24% of cardiovascular disease burden.

Hospitalisation[12]

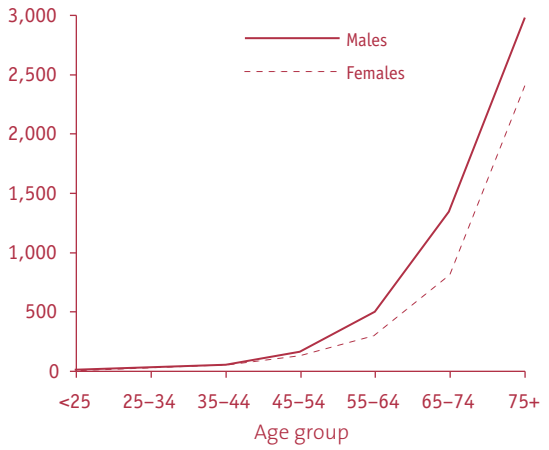
In 1998–99, there were 52,439 hospitalisations where stroke was the principal diagnosis (0.9% of all hospitalisations). Stroke accounted for 12% of all hospitalisations for cardiovascular disease.

Ischaemic stroke accounted for 43% of stroke hospitalisations, while haemorrhagic stroke accounted for 14% and transient ischaemic attack for 23%.

Sex and age

Males were more likely to be hospitalised for stroke than females. Hospital use for stroke increased rapidly among older Australians, with more than three-quarters of such cases being aged 65 and over in 1998–99.

Hospitalisations for stroke, 1998–99



Source: AIHW National Hospital Morbidity Database.

Length of stay in hospital

The average length of stay in hospital for stroke was 9.5 days in 1998–99, a decline from 1993–94 when the average length of stay was 15.6 days. The length of stay in hospital for stroke was almost twice that for other cardiovascular disease in 1998–99 (9.5 days compared with 4.9 days). Length of stay in hospital for stroke was generally higher for females than for males (10.4 days compared with 8.6 days).

Patients hospitalised for stroke occupied 2.2% of hospital beds on any day in 1998–99, an average of 1,364 beds per day.

Deaths in hospital

In 1998–99, there were 5,612 hospitalisations for stroke where the patient died in hospital. The in-hospital death rate for stroke admissions was more than three times that for other cardiovascular disease (10.7% compared with 3.4%).

Females hospitalised for stroke were more likely to die in hospital than males (12.3% compared with 9.2%).

Expenditure

The average total expenditure per admission for ischaemic stroke was $6,250 in 1998–99. This figure includes overhead and administrative costs, which account for 24% of the average total expenditure per admission.

The average total expenditure per admission for transient ischaemic attacks was $2,255 in 1998–99, with overhead and administrative costs accounting for 24% of total expenditure per admission.

Deaths[13]

Stroke was the second most common cause of death among Australians in 1998, accounting for 11,982 deaths, 9% of deaths from all causes. A comparison across OECD countries shows that Australian stroke death rates were, however, among the lowest of the 16 countries for which data were compared.

Trends

Between 1987 and 1998, death rates from stroke declined at a rate of 3.4% per year among males and 3.6% per year among females. This produced a total decline of 34.9% among males and 34.7% among females over this 12-year period.

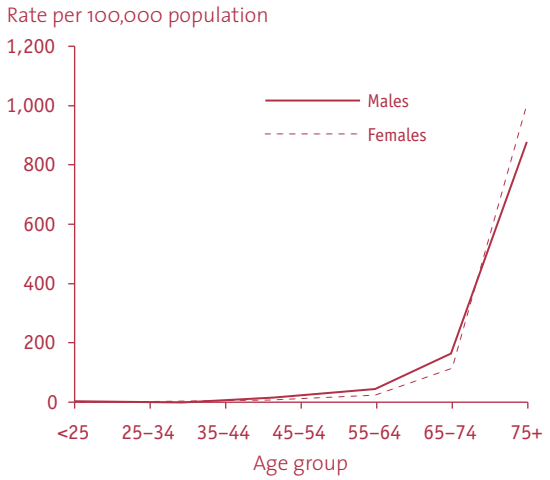
Sex and age

Males are slightly more likely to die from stroke than females across most age groups. Males aged 45–74 had death rates 1.3 times those of females in 1998. The difference in stroke death rates between males and females is not as marked as for coronary heart disease.

Although the age-specific death rates from stroke are generally higher among males than females (the exceptions being the 75 and over and the under-25 age groups), the actual number of deaths is greater for females. This apparent inconsistency can be explained by the greater number of women than men who live into old age, where death rates from stroke are considerably higher.

Stroke death rates increase dramatically with age, with 78% of all deaths from stroke occurring among those aged 75 and over.

DEATH RATES FROM STROKE, 1998



Source: AIHW National Mortality Database.

Socioeconomic groups

In 1997, people aged 25–64 from the most disadvantaged group were almost twice as likely to die from stroke as those in the least disadvantaged group.

Aboriginal and Torres Strait Islander peoples[14]

Aboriginal and Torres Strait Islander peoples died from stroke at twice the rate of other Australians in 1996–98. The difference is even greater among adults aged 25–64, where Indigenous Australian death rates were seven and eight times those of other Australian men and women, respectively.

Urban, rural and remote areas

There were no significant differences in stroke death rates across urban, rural and remote areas of Australia in 1996–98.

States and Territories

Death rates from stroke in 1996–98 were generally lower in Victoria and higher in Tasmania and New South Wales.

Further information

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Detailed data

Refer to the **Statistical tables** section.

Main data sources

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Did you know?

- For a 45-year-old, the risk of having a stroke before age 85 is one in four for men and one in five for women.
- About 25% of all people who have a stroke die within the first month of their stroke.
- Australians born in Europe are more likely to have a stroke than their Australian-born counterparts.

Heart failure

Heart failure, an increasingly important type of cardiovascular disease, is more common among elderly Australians and people who have had a heart attack. The prevalence of this condition is likely to increase considerably as the population ages. Heart failure accounted for more than 2,500 deaths in 1998. The cost of heart failure treatment exceeds that of all types of cancers combined.

What is heart failure?

Heart failure, ICD-9 code 428 and ICD-10 code I50, occurs when the heart is unable to pump blood adequately to the rest of the body. There are many causes of heart failure, notably heart attack, high blood pressure or a damaged heart valve. Symptoms commonly seen in people with heart failure are fatigue and breathlessness. Heart failure that causes swelling of the ankles and lung congestion is called congestive heart failure.

The most common medical treatments for heart failure are ACE (angiotensin-converting enzyme) inhibitors and diuretics.

Risk factors for heart failure

The most important predisposing factors for heart failure are coronary heart disease and high blood pressure. High blood cholesterol, diabetes, tobacco smoking, overweight and obesity, and insufficient physical activity have also been associated with an increased risk of heart failure, probably largely because they increase the risk of coronary heart disease.

How many Australians have heart failure?

No national data are available on the number of Australians who have heart failure.

General practice consultations

Data from the 1999–00 study of general practice activity in Australia show that heart failure accounted for 893 of a total 153,857 problems. This equated to 0.6% of all problems managed.

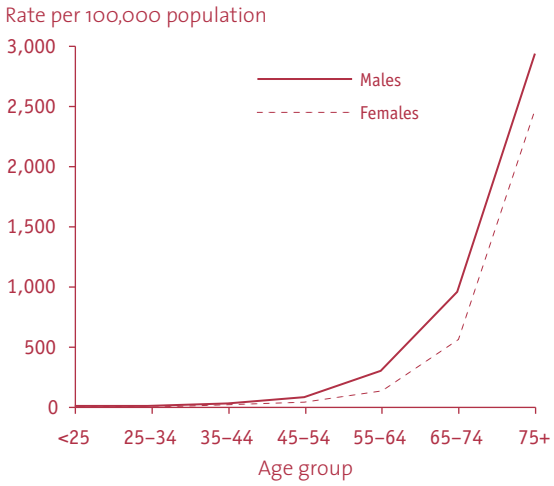
Hospitalisation[15]

In 1998–99, there were 41,894 hospitalisations where heart failure was the principal diagnosis (0.7% of all hospitalisations). Heart failure accounted for 10% of all hospitalisations for cardiovascular disease.

Sex and age

Males are more likely to be hospitalised for heart failure than females. Hospital use for heart failure tends to increase with age, with those aged 65 and over accounting for 86% of all hospitalisations for heart failure.

Hospitalisations for heart failure, 1998–99



Source: AIHW National Hospital Morbidity Database.

Length of stay in hospital

There has been a decline in the average length of stay in hospital for heart failure, from 10.6 days in 1993–94 to 8.2 days in 1998–99. Although males are more likely to be hospitalised for heart failure than females, females tended to have a longer average length of stay in hospital in 1998–99 (8.8 days compared with 7.6 days).

Patients hospitalised for heart failure occupied 1.5% of hospital beds on any day in 1998–99, an average of 941 beds per day.

Deaths in hospital

In 1998–99, there were 3,725 hospitalisations for heart failure where the patient died in hospital (8.9% of heart failure hospitalisations). Females hospitalised for heart failure were more likely than males to die in hospital (9.2% compared with 8.6% in 1998–99).

Deaths[16]

Heart failure is the third largest cause of cardiovascular deaths in Australia, accounting for 2,555 deaths, 2.0% of deaths from all causes in 1998.

Trends

Death rates from heart failure declined at a rate of 4.3% per year for males and 4.4% per year for females between 1987 and 1998. This produced a total decline of 39.4% among both males and females over this 12-year period.

Sex and age

In 1998, more females died from heart failure than males, but death rates among males aged under 75 were at least as high as for females. This apparent inconsistency can be explained by the greater number of women than men who live to be over 75, where death rates from heart failure are considerably higher.

Deaths from heart failure occur mainly among older Australians, with 90% of such deaths occurring among those aged 75 and over.

Socioeconomic groups

There was no significant difference between heart failure death rates in the most and least disadvantaged groups in 1997.

Aboriginal and Torres Strait Islander peoples[17]

Among Aboriginal and Torres Strait Islander peoples there are relatively few deaths attributed to heart failure. This may be a reflection of the younger age structure of Indigenous Australians compared with the overall Australian population. Over the five-year period 1994 to 1998, 28 Indigenous Australian males and 31 Indigenous Australian females died from heart failure. In 1996–98 Indigenous Australians were three times as likely to die from heart failure as other Australians.

Urban, rural and remote areas

Heart failure death rates among females were lower in urban areas than in rural and remote areas in 1996–98. For males living in rural areas, heart failure death rates were higher than for those living in urban areas.

HEART FAILURE DEATH RATES, 1996–98

	Males	Females
	Rate per 100,000 population	
Urban areas	12.2	10.6
Rural areas	15.3	13.2
Remote areas	17.7	16.4
Australia	**13.2**	**11.4**

Note: Death rates have been age-standardised to the 1991 Australian population.

Source: AIHW National Mortality Database.

States and Territory[18]

In 1996–98, heart failure death rates were generally lower in Queensland and Western Australia, while for the remaining States and Territory there were no significant differences in heart failure death rates.

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Detailed data

Refer to the **Statistical tables** section.

Main data sources

National Hospital Morbidity Database (Australian Institute of Health and Welfare).

National Mortality Database (Australian Institute of Health and Welfare).

Further reading

Australian Institute of Health and Welfare 2000. Australia's health 2000: the seventh biennial health report of the Australian Institute of Health and Welfare. AIHW Cat. No. AUS 19. Canberra: AIHW.

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Did you know?

- Heart failure accounted for one of the largest number of patient days in hospital among cardiovascular conditions and ranked seventh highest for hospital patient days overall in 1998–99.
- Direct health care costs for heart failure amounted to $416 million in 1993–94 (11% of cardiovascular disease costs), the fourth highest among cardiovascular conditions after high blood pressure, coronary heart disease and stroke.

Peripheral vascular disease

Peripheral vascular disease, one form of cardiovascular disease, occurs mainly among older people, and its prevalence is likely to increase significantly as the population ages. Peripheral vascular disease directly claimed over 2,000 lives in Australia in 1998.

What is peripheral vascular disease?

Peripheral vascular disease, ICD-9 codes 441–444 and ICD-10 codes I71–I74, occurs due to a reduced arterial blood supply to the legs. It ranges from asymptomatic disease, through pain on walking, to pain at rest and limb-threatening reduced blood supply that can lead to amputation. The major cause of death in people with peripheral vascular disease is coronary heart disease, reflecting the generalised nature of the disease process.

Risk factors for peripheral vascular disease

The major preventable risk factors for peripheral vascular disease include diabetes, tobacco smoking, high blood cholesterol, high blood pressure and overweight and obesity.

How many Australians have peripheral vascular disease?

No national data are available on the number of Australians who have peripheral vascular disease.

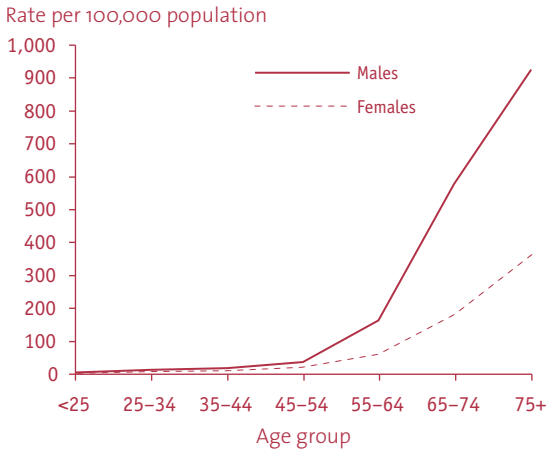
Hospitalisation[19]

In 1998–99, there were 13,612 hospitalisations where peripheral vascular disease was the principal diagnosis (0.2% of all hospitalisations). Peripheral vascular disease accounted for 3% of all hospitalisations for cardiovascular disease.

Sex and age

Males are almost three times as likely to be hospitalised for peripheral vascular disease as females. Hospital use for peripheral vascular disease tends to increase with age, with those aged 65 and over accounting for over three-quarters of all hospitalisations for peripheral vascular disease in 1998–99.

Hospitalisations for peripheral vascular disease, 1998–99



Source: AIHW National Hospital Morbidity Database.

Length of stay in hospital

The average length of stay in hospital for peripheral vascular disease was 8.0 days in 1998–99, a decline from 1993–94 when the average length of stay was 10.4 days. Males had a similar length of stay to females, 8.0 days compared with 8.2 days in 1998–99.

Patients hospitalised for peripheral vascular disease occupied 0.5% of hospital beds on any day in 1998–99, an average of 300 beds per day.

Deaths in hospital

In 1998–99, there were 1,118 hospitalisations for peripheral vascular disease where the patient died in hospital (8.2% of peripheral vascular disease hospitalisations). Females hospitalised for peripheral vascular disease were more likely than males to die in hospital (9.6% compared with 7.5%).

Australian Facts

Deaths[20]

Peripheral vascular disease accounted for 2,087 deaths, 1.6% of deaths from all causes in 1998.

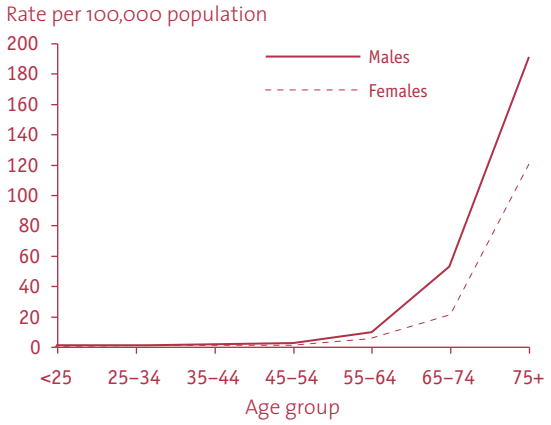
Trends

Deaths from peripheral vascular disease declined at a rate of 2.9% per year for males and 1.2% per year for females between 1987 and 1998. This produced a total decline of 27.8% among males and 6.8% among females over this 12-year period. Death rates from this disease have been falling at a slower rate than for the other major forms of cardiovascular disease.

Sex and age

In 1998, males were twice as likely to die from peripheral vascular disease as females. Peripheral vascular disease increases dramatically with age, with 69% of deaths occurring among those aged 75 and over.

DEATH RATES FROM PERIPHERAL VASCULAR DISEASE, 1998



Source: AIHW National Mortality Database.

Socioeconomic groups

Males from the most disadvantaged group were 1.6 times as likely to die from peripheral vascular disease as those from the least disadvantaged group in 1997. Among females there was no significant difference in peripheral vascular disease death rates between the most and least disadvantaged groups.

Aboriginal and Torres Strait Islander peoples[21]

Among Aboriginal and Torres Strait Islander peoples there are relatively few deaths attributed to peripheral vascular disease. This may be a reflection of the younger age structure of Indigenous Australians compared with the overall Australian population. Over the five-year period 1994 to 1998, eight Indigenous Australian males and seven Indigenous Australian females died from peripheral vascular disease. In 1996–98, there were no significant differences in peripheral vascular disease death rates between Indigenous Australians and other Australians.

Urban, rural and remote areas

There were no significant differences in peripheral vascular disease death rates among urban, rural and remote areas of Australia in 1996–98.

States and Territory[22]

Death rates from peripheral vascular disease in 1996–98 were generally lower in Victoria, while for the remaining States and Territory there were no significant differences in peripheral vascular disease death rates.

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Detailed data

Refer to the **Statistical tables** section.

Main data sources

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National Mortality Database (Australian Institute of Health and Welfare).

Further reading

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Waters A-M, Armstrong T & Senes-Ferrari S 1998. Medical care of cardiovascular disease in Australia. Cardiovascular Disease Series No. 7. AIHW Cat. No. CVD 4. Canberra: AIHW.

Did you know?

- Direct health care costs for peripheral vascular disease amounted to $179.5 million in 1993–94, 5% of all cardiovascular disease costs.
- There were 788 amputations for peripheral vascular disease in 1998–99.

Rheumatic fever and rheumatic heart disease

Rheumatic fever and rheumatic heart disease accounted for less than 300 deaths in 1998. Although this type of cardiovascular disease is rare among the Australian population overall, rates among Indigenous Australians living in remote areas are very high. Since the 1950s, acute rheumatic fever and rheumatic heart disease have largely become diseases of economically disadvantaged people.

What is rheumatic fever and rheumatic heart disease?

Rheumatic fever, ICD-9 codes 390–392 and ICD-10 codes I00–I02, is caused by Group A *Streptococcus* bacteria associated with infections of the throat and skin. It occurs mainly in children and young adults and may affect the heart valves, the heart muscle and its lining, the joints and the brain. Recurrences of rheumatic fever lead to cumulative heart damage and can be almost completely prevented by strict follow-up and monthly injections of penicillin.

Rheumatic heart disease, ICD-9 codes 393–398 and ICD-10 codes I05–I09, is the damage done to the heart muscle and heart valves by an attack of acute rheumatic fever.

Risk factors for rheumatic fever and rheumatic heart disease

Poverty and overcrowding, poor sanitary conditions, lack of education and limited access to medical care for adequate diagnosis and treatment are recognised as contributing factors to this disease in Australia.

Disease rates in the Top End of the Northern Territory

A register of people with known or suspected rheumatic fever and rheumatic heart disease has been established in the Top End of the Northern Territory. This section draws on data from this register.

Acute rheumatic fever

Current rates

In 1999, Indigenous children aged 5–14 years accounted for almost half of all cases of acute rheumatic fever among Indigenous Australians in the Top End of Australia's Northern Territory (17 cases). There were 191 cases for every 100,000 Indigenous children aged 5–14. In contrast, there were no reported cases of acute rheumatic fever among other Australian children in 1999.

Trends

Acute rheumatic fever among Indigenous children in the Top End has declined over the last six years. In 1994–99 the rate of Indigenous children aged 5–14 years with acute rheumatic fever was 202 per 100,000 population, compared with 254 per 100,000 population in 1988–93.

Acute rheumatic fever among Aboriginal and Torres Strait Islander peoples in the Top End of the Northern Territory, 1988–99

	5–14 years		All ages	
Year	Rate[(a)]	No.	Rate[(a)]	No.
1988–93	*254*	*91*	—	—
1994	204	18	84	27
1995	148	13	78	25
1996	238	21	105	38
1997	159	14	69	25
1998	270	24	101	36
1999	191	17	101	37
1994–99	*202*	*107*	*90*	*188*

(a) Rate per 100,000 population.

Source: AIHW Rheumatic Heart Disease Register.

Rheumatic heart disease

Current rates

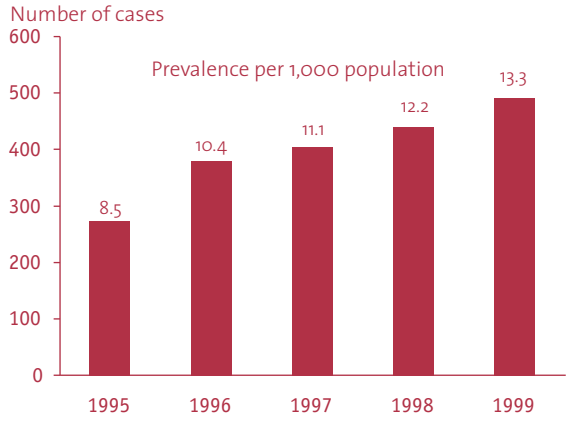
In 1999, there were 528 people with rheumatic heart disease in the Top End of Australia's Northern Territory, of whom 93% were Aboriginal and Torres Strait Islander peoples (490 cases). Rheumatic heart disease was present in 49 children aged 5–14 (9% of all cases), of whom all were Indigenous

Australians. The prevalence of rheumatic heart disease among Indigenous Australians was 13.3 per 1,000 in 1999. In contrast, among other Australians the rate was 0.34 per 1,000.

Trends

The prevalence of rheumatic heart disease is increasing in the Top End of the Northern Territory. In 1999, there were 13.3 cases per 1,000 Indigenous people, compared with 8.5 per 1,000 in 1995. This increase could be due to an improvement in the reporting and awareness of the condition and its symptoms rather than an actual rise in the number of cases.

Rheumatic heart disease among Indigenous Australians, Top End of the Northern Territory, 1995–99



Source: AIHW Rheumatic Heart Disease Register.

Hospitalisation[23]

In 1998–99, there were 2,122 hospitalisations with rheumatic fever and rheumatic heart disease as the principal diagnosis in Australia (0.04% of all hospitalisations). Rheumatic fever and rheumatic heart disease accounted for 0.5% of all hospitalisations for cardiovascular disease.

Although Aboriginal and Torres Strait Islander peoples represent about 2% of the population, they accounted for 14% of hospitalisations for rheumatic fever and rheumatic heart disease in 1998–99.

Sex and age

Females were more likely to be hospitalised for rheumatic heart disease and rheumatic fever than males in 1998–99. Hospital use for rheumatic heart disease increased with age up to 80 years, with 60% of such cases aged 50–79. Rheumatic fever is more common among the younger age groups. Of the hospitalisations for rheumatic fever, 57% occurred among those aged 5–19.

Length of stay in hospital

The average length of stay in hospital for rheumatic fever and rheumatic heart disease in 1998–99 was 7.5 days, a marginal decline from 1993–94 when the average length of stay was 7.9 days. Males had a longer average length of stay than females for these conditions, on average 8.0 days compared with 7.3 days; however, this difference was not statistically significant.

Patients hospitalised for rheumatic fever and rheumatic heart disease occupied 0.07% of hospital beds on any day in 1998–99, an average of 44 beds per day.

Deaths in hospital

In 1998–99, there were 51 hospitalisations for rheumatic fever and rheumatic heart disease where the patient died in hospital (2.4% of rheumatic fever and rheumatic heart disease hospitalisations). For rheumatic fever and rheumatic heart disease there was no significant difference between male and female in-hospital death rates.

Deaths[24]

Rheumatic fever and rheumatic heart disease accounted for 258 deaths in Australia, 0.2% of deaths from all causes in 1998.

Trends

Death rates from rheumatic fever and rheumatic heart disease declined at a rate of 5.2% per year for males and 4.8% per year for females between 1987 and 1998. This produced a total decline of 52.4% among males and 48.3% among females over this 12-year period. These death rates have been falling faster than for many of the other cardiovascular diseases. The rapid decline in death rates from this disease may be due to improvements in living conditions and better access to medical care among disadvantaged Australians.

Australian Facts

Sex and age

Women aged over 65 were almost twice as likely to die from rheumatic fever and rheumatic heart disease as males in the same age group in 1998. Half of the deaths occurred among those aged 75 and over.

Socioeconomic groups

The number of deaths from rheumatic fever and rheumatic heart disease in each group of socioeconomic disadvantage is too small to draw any reliable conclusions.

Aboriginal and Torres Strait Islander peoples[25]

Aboriginal and Torres Strait Islander peoples are far more likely to die from rheumatic fever and rheumatic heart disease than other Australians. In 1996–98, Indigenous Australian males were 13 times and Indigenous Australian females 14 times as likely to die from rheumatic fever and rheumatic heart disease as other Australians.

Urban, rural and remote areas

Among females, death rates from rheumatic fever and rheumatic heart disease were higher in remote areas than in urban and rural areas in 1996–98. For males, there were no significant differences in rheumatic fever and rheumatic heart disease death rates across urban, rural and remote areas of Australia.

States and Territories

Most deaths from rheumatic fever and rheumatic heart disease occurred in New South Wales, Victoria and Queensland. The remaining States and Territories accounted for 27% of all such deaths in 1996–98. There were no significant differences in rheumatic fever and rheumatic heart disease death rates across the States and Territories.

Further information

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Detailed data

Refer to the **Statistical tables** section.

Main data sources

National Hospital Morbidity Database (Australian Institute of Health and Welfare).

National Mortality Database (Australian Institute of Health and Welfare).

Rheumatic Heart Disease Register (Australian Institute of Health and Welfare and Department of Health and Aged Care).

Further reading

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Did you know?

- Prevalence of rheumatic heart disease among Aboriginal and Torres Strait Islander peoples is one of the highest in the world.
- Rheumatic heart disease remains the leading cause of heart disease among children and young adults in many developing countries.
- The World Health Organization estimates that 12 million people worldwide are affected by rheumatic fever and rheumatic heart disease, with 400,000 deaths annually.

International comparisons

Cardiovascular disease is a major health and economic burden throughout the world, especially in developed countries. However, rates of cardiovascular disease are increasing dramatically in developing countries. It is estimated that coronary heart disease will become the single leading public health problem for the world by 2020, replacing transmissible diseases such as infections. The following mortality comparisons are presented using data for selected countries from 1996. Where 1996 data were not available, 1995 data were used (Spain, Norway and Italy). While providing an overview of the global impact cardiovascular disease has, caution must be used when comparing death rates between countries as data were collected in different years, using different methods.

Cardiovascular disease

Cardiovascular disease includes coronary heart disease, stroke and other forms of heart and vascular disease. In the mid-1990s the Russian Federation had the worst death rates from cardiovascular disease of the 18 countries compared. Their death rate was three times that of Australia for both males and females. Males in Japan had the lowest death rate for cardiovascular disease, the Russian Federation rate being about four and a half times greater. For females, the lowest death rates were found in France and Japan, with rates less than a quarter of those in the Russian Federation.

Australian death rates ranked towards the lower end of the 18 countries compared (sixth lowest for males and fifth lowest for females). The Australian death rate for males was one and a half times the lowest rate—that of Japanese males. Similarly, for Australian females the death rate was one and a half times the lowest rate—that of French females.

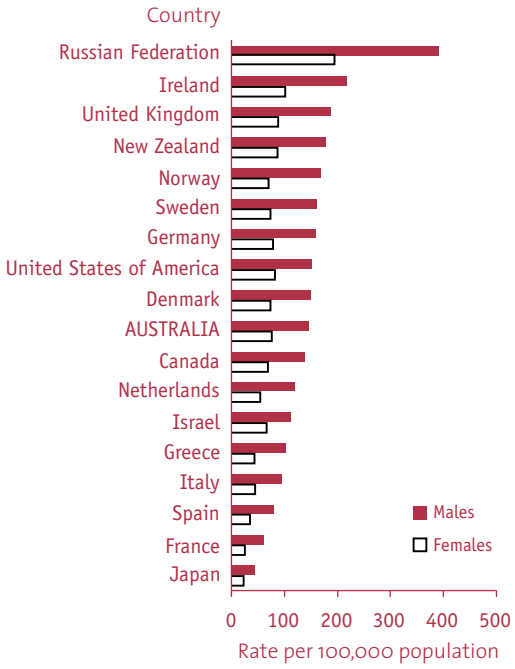
Trends

During the period 1950 to 1993–94, death rates for cardiovascular disease declined in the eleven countries compared for which data are available. Among males, Australia and Canada experienced the greatest fall in death rates (57%). Australian females recorded a greater decline (62%) than Australian males. Canada, France and Japan were the only countries to exceed Australia's decrease in female death rates.

Coronary heart disease

Coronary heart disease is the major cause of death in Australia. It is caused by blockages in the coronary arteries that supply blood to the heart muscle. Australian death rates from coronary heart disease rank towards the middle of those countries compared (ninth lowest for males and tenth lowest for females). Coronary heart disease death rates tend to be lower in Asian and Mediterranean countries. There have been significant errors in recording coronary heart disease deaths in numerous developed countries, including Spain, Italy, Japan and France. However, even after correcting for these errors, these countries are still found to have low death rates. The highest death rates were recorded in the Russian Federation. Their death rates were more than two and a half times higher than those in Australia.

DEATH RATES FROM CORONARY HEART DISEASE FOR SELECTED COUNTRIES, 1995–96



Note: Death rates have been standardised to the 2000 WHO standard population.

Sources: WHO 2000; AIHW National Mortality Database.

Australian Facts

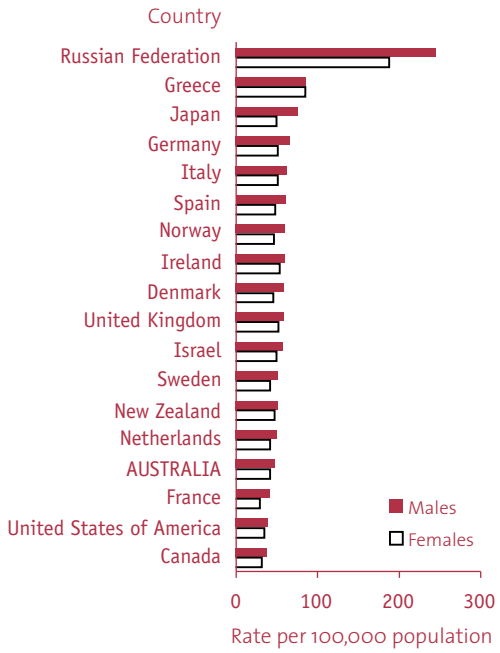
Trends

In recent decades, death rates for coronary heart disease have declined in Australia and other Western countries. In particular, in Australia, Canada, Italy, Japan and the United States, the male and female coronary heart disease death rates more than halved between 1960 and 1993. However, rates have actually increased in Eastern Europe, the Russian Federation, and a number of other countries in the developing world.

Stroke

Stroke death rates in Australia were among the lowest of those countries compared here (fourth lowest for both males and females). The Australian stroke death rate for males was 20% higher than that recorded in the United States. Females in France had the lowest death rates for stroke, and the rate for Australian females was one and a half times that in France.

DEATH RATES FROM STROKE FOR SELECTED COUNTRIES, 1995–96



Note: Death rates have been standardised to the 2000 WHO standard population.

Sources: WHO 2000; AIHW National Mortality Database.

Trends

Between 1970 and 1993, declines in stroke death rate were rapid for the 13 countries compared for which data are available. Almost all countries saw falls in stroke death rates of greater than 30% except for Greece, where the rate of decline was around 10%. Australian stroke death rates declined by 61% for males and 64% for females during 1970–94. France and Japan were the only countries to exceed Australia's rate of decrease in stroke death rates.

Risk factors

Cardiovascular disease is related to a number of risk factors. Some of these are smoking, high blood pressure, high blood cholesterol, overweight and obesity, and poor nutrition. Variation in cardiovascular disease death rates for different countries may be partly attributed to different diets and lifestyles. It is difficult to make accurate risk factor comparisons between countries as there are often differences in survey designs, definitions of risk and data collection methods. Further, data for international comparisons tend to be dated and do not reflect current levels. However, from available data, Australia appears to have similar risk factor patterns to other Western countries.

Further information

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Further reading

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Did you know?

- Asian and Mediterranean countries generally have the lowest coronary heart disease death rates.
- The highest stroke death rates are recorded in the Russian Federation and the lowest rates are recorded in North America.