

Monograph No. 12

**Cardiovascular Disease
in
the ACT**



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Cardiovascular Disease in the ACT

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1 Introduction

Cardiovascular disease (CVD), one of the six national health priority areas, is the leading cause of death and disability in Australia and contributes significantly to poor quality of life and potential years of life lost. Cardiovascular disease refers to all diseases relating to the heart and blood vessels. The main diseases include: ischaemic heart disease (coronary heart disease), cerebrovascular disease, pulmonary heart disease, peripheral vascular disease, diseases of the arteries, veins, lymphatics, rheumatic heart disease and hypertension. Of these diseases, ischaemic heart disease and stroke rank as being the highest and second highest cause of death and disability respectively in Australia.

Most cardiovascular diseases are strongly influenced by lifestyle factors and thus preventable to a large degree. Lifestyle factors such as diet, exercise and smoking influence both onset and prognosis. Lifestyle modifications alter or delay the course of many cardiovascular diseases and can even prevent onset of some.

Although the rate of mortality from cardiovascular disease has declined considerably over the years it still poses a large burden on our health system in terms of disability and health care costs, which exceeds that of all other diseases. Of concern is the expected rise in both disability and health care costs arising from cardiovascular disease as a product of Australia's ageing population. Furthermore the potential for this rise is greater for the ACT since the Territory is ageing at a faster rate than the rest of Australia. During 1997 cardiovascular disease claimed a little over 48 percent of all deaths of people aged 75 years and over in the ACT. This rate is not only illustrative of the close association between cardiovascular disease and old age but also points toward future increases in cardiovascular disease burdens in the ACT as the ACT's population ages.

This monograph aims to present information from various data sets on the current status of cardiovascular disease in the ACT. The following pages look at the health risk behaviours of ACT people, as well as prevalence rates, cardiovascular disease related hospital separations and mortality.

2 Risk factors

Risk factors associated with cardiovascular disease include: being male; having a family history of cardiovascular disease; smoking; drinking; physical inactivity; being overweight; having hypertension; having high cholesterol; and having diabetes.

2.1 Behavioural and physiological risk factors

As with many other modern day chronic illnesses many of the risk factors associated with cardiovascular disease such as smoking, drinking, eating and exercise, are related to lifestyle. Lifestyle diseases are often the direct result of discretionary behaviours, that is behaviours that involve individual choice. This means such behaviours are both modifiable and preventable and thus pose the biggest challenge to health promotion activities and primary intervention initiatives.

Although there is much clinical evidence to support the link between these risk factors and cardiovascular disease nationally it is interesting to observe the epidemiological evidence from the 1995 National Health Survey which also supports confirmation of this link with regard to people in the ACT. According to this survey people in the ACT aged 50 years and over reporting cardiovascular disease, rate more highly on every behavioural risk factor when compared to people of the same age who did not report having cardiovascular disease (refer Table 1). This is especially the case with body weight where 57.9 percent of people with cardiovascular disease reported to be over weight or obese. This compares to only 43.9 percent of those without cardiovascular disease.

Table 1: Persons aged 50 years and over: Proportion of those with and without cardiovascular disease, by risk behaviours, ACT, 1995

	Without Cardiovascular Disease	With cardiovascular disease
Smoker status		
Smoker/ex-smoker	52.5	66.7
Never smoked	47.5	43.3
Alcohol risk levels		
No alcohol	72.1	70.6
Low	24	24.3
Hazardous/harmful	4	5.1
Exercise level		
Sedentary/ low exercise	62.7	72
Moderate exercise level	31.8	25.6
Vigorous exercise level	5.5	2.4*
Quetelet body mass Index ^(a)		
Acceptable weight	44.6	31.8
Overweight	33.9	40.6
Obese	10	17.3

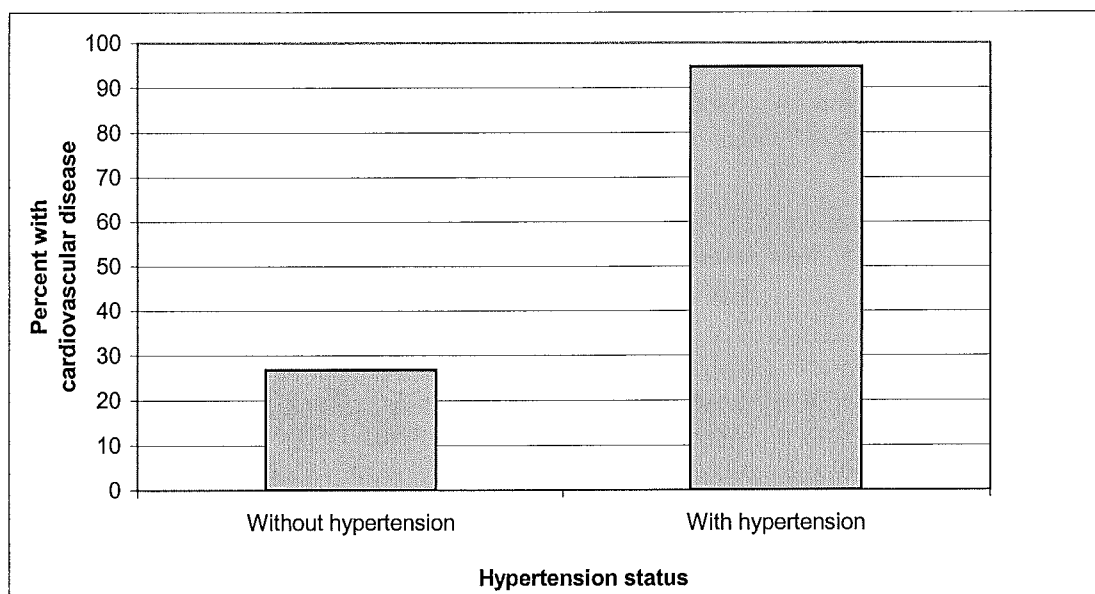
Source: ABS National Health Survey, 1995, confidentialised unit record, ACT

*Represents an RSE of between 25-50% , thus caution is advised in interpreting this figure

^(a): Quetelet body mass index is derived by dividing weight (kg) by the square of height (m²). The groups used are consistent with

The National Health Survey, 1995 also lends evidence to support the link between cardiovascular disease and those risk factors that are more physiological in nature. For example Figure 1 shows that people aged 50 years or more who reported having hypertension were over three times more likely to report having another cardiovascular disease.

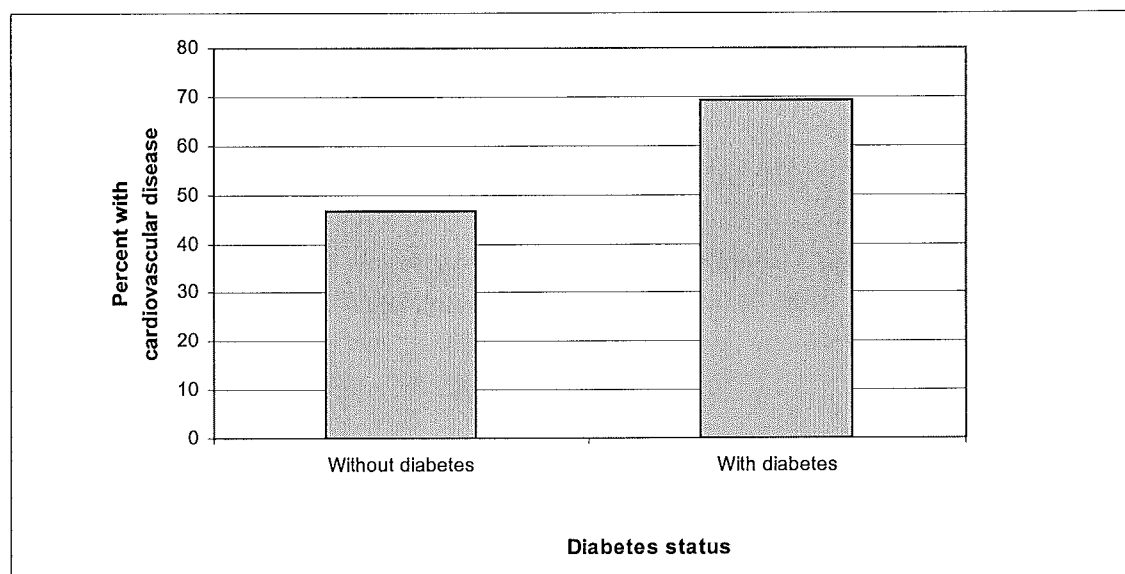
Figure 1: Proportion of people aged 50 years with and without hypertension by reported cardiovascular disease, ACT, 1995



Source: ABS National Health Survey, 1995, confidentialised unit record, ACT

Similarly, those people who said they had diabetes also reported higher rates of cardiovascular disease (69.5%) compared to those who did not report having diabetes (46.5%)(see Figure 2).

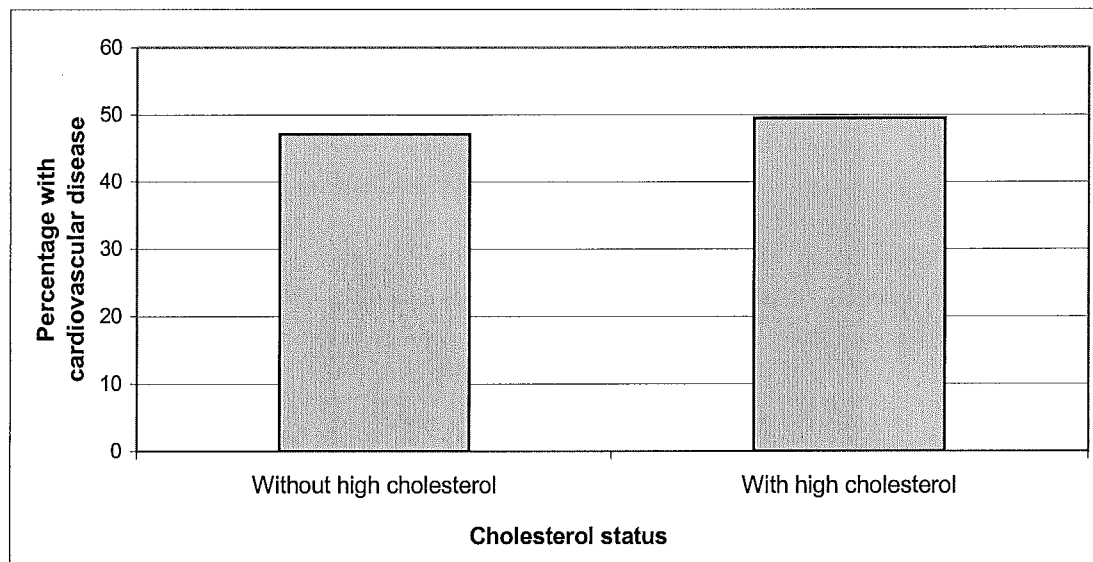
Figure 2: The proportion of people with & without diabetes aged 50 years & over also reporting to have cardiovascular disease, ACT, 1995



Source: ABS National Health Survey, 1995, confidentialised unit record, ACT

Although the difference is not as disparate Figure 3 below shows that people reporting high cholesterol are slightly more likely to report having cardiovascular disease (49.5%) than those not reporting high cholesterol (47.1%).

Figure 3: The proportion of people aged 50 years & over with & without high cholesterol reporting to also have cardiovascular disease, ACT, 1995



Source: ABS National Health Survey, 1995, confidentialised unit record, ACT

2.1.1 Risk behaviours - ACT Compared to Australia

Table 2 presents data comparing ACT with Australia on various risk behaviours. It can be seen that people in the ACT rate slightly more favourably on most health risk behaviours than Australians do generally. However with regard to alcohol intake people in the ACT tend to indulge slightly more than their Australian counterparts. Furthermore, examination of age specific differences indicate that older ACT people (> 50 years) tend to consume more alcohol than older Australians in general with over 3 percent more reporting to drink at either harmful or hazardous levels. This is of concern given the link not only between drinking and cardiovascular disease, but also the link between age and cardiovascular disease. With regard to weight ACT people rate slightly more poorly on being overweight (29.8%) than Australians (28.3%) do generally, however there are less people reporting to be obese in the ACT (9.4%) than Australia generally (10.4%). With smoking there were 2.3 percent less people reporting to be currently smoking in the ACT than in Australia generally. Similarly with exercise levels more people in the ACT (75 %) reported to be exercising at either low, moderate or vigorous levels than Australians as a whole (67 %). Only 24 percent of people in the ACT reported not participating in any exercise, compared to 36 percent of people living in Australia generally.

Comparisons between the 1995 and the 1989 National Health Survey results reveal there has been a reduction over time in the proportion of people in the ACT who rate poorly on risk factors such as smoking, alcohol consumption and exercise level. However, comparisons between the two surveys also reveal there has been a rise in the proportion of ACT people who are either overweight or obese. In 1995, 39.2 percent of ACT people reported to be either overweight or obese. This compares with only 31 percent in 1989. A similar pattern is found for Australia in general.

Table 2: Proportion of people aged 15 years & over by health risk behaviours, ACT & Australia, 1995

	ACT	Australia
Smoker status*		
Smoker	21.4	23.7
Ex-smoker	29.3	27.4
Never smoked	49.3	48.9
<i>Total</i>	<i>100.00</i>	<i>100.00</i>
Alcohol risk levels*		
Did not consume Alcohol	35.9	44.6
Low	54.4	47.1
Hazardous	5.4	5.2
Harmful	4.2	3.1
<i>Total</i>	<i>100.00</i>	<i>100.00</i>
Exercise level		
Sedentary exercise	24.9	33
Low exercise level	36	34
Moderate exercise level	20.5	17.4
Vigorous exercise level	18.6	15.6
<i>Total</i>	<i>100.00</i>	<i>100.00</i>
Quetelet body mass Index^(a)		
Underweight	9.6	9.9
Acceptable weight	45.5	42.7
Overweight	29.8	28.3
Obese	9.4	10.4
Not stated/not known	5.7	9.7
<i>Total</i>	<i>100.00</i>	<i>100.00</i>

Source: National Health Survey, 1995, ABS – Catalogue no. 4368.0

*Data was not collected on this variable for those aged under 18 years.

^(a): Quetelet body mass index is derived by dividing weight (kg) by the square of height (m²). The groups used are consistent with recommendations of the National Health & Medical Research Council.

2.1.2 Persons of lower socio-economic status

There is considerable evidence showing a clear link between socio-economic status and ill health¹. This link has been shown in two ways. Firstly, people of lower socio-economic status tend to consistently rate more highly on the various risk factors². Secondly, they rate more highly in the number of serious illnesses³.

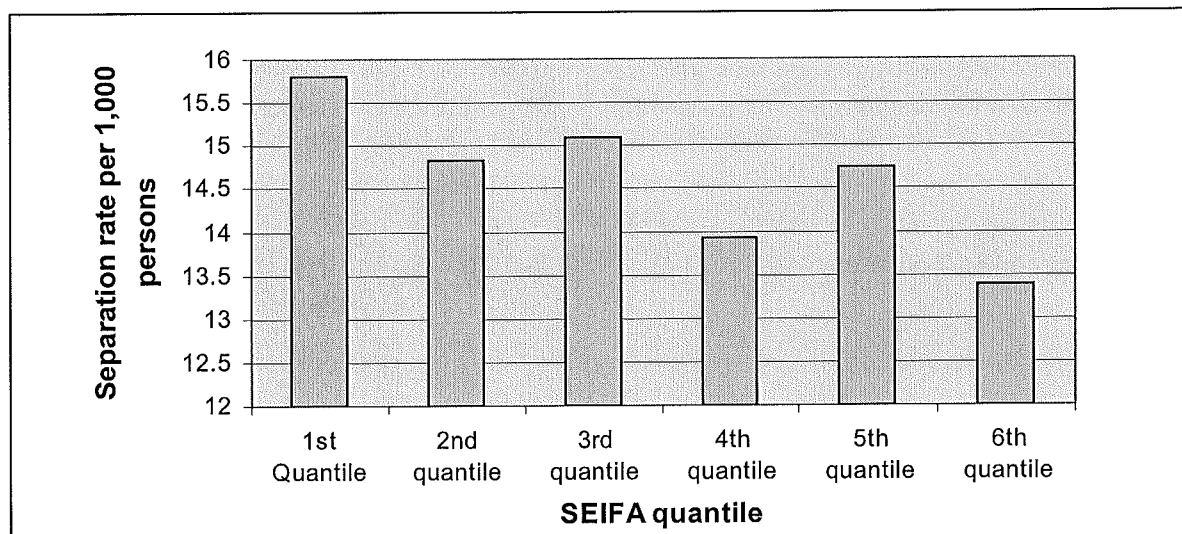
¹ Marmot, J & Wilkinson, R (1998) Social Determinants of Health: The Solid Facts. Copenhagen WHO Regional Office for Europe.

² ABS (1999) Australian Social Trends. Catalogue no. 4102.0. Commonwealth of Australia.

³ ABS, *ibid*, p65

One method used to measure socio-economic status on a population basis is to look at the area of usual residence of people. The Socio Economic Index for Areas (SEIFA) tool, developed by the Australian Bureau of Statistics,⁴ is used to apply a value of socio-economic disadvantage to residential areas ranging from the statistical subdivision level to collection district level. This value is derived from a complex formula which takes into consideration variables such as income, education, employment rate and home ownership. This has proved to be a reliable tool which consistently shows links between morbidity, mortality, and risk factors with socio-economic disadvantage. However, unlike the rest of the country, the ACT area make-up is much more homogenous with most suburbs comprising a broad mix of people from different socio-economic backgrounds. This homogeneity makes it more difficult to identify differences in socio-economic status between the subdivisions and suburbs in Canberra. Nevertheless, application of the SEIFA tool to ACT hospital data does pick up an association. Figure 5 presents hospital separation data for cardiovascular disease for people categorised by their SEIFA value. It can be seen that ACT people who live in an area belonging to the quantile of highest socioeconomic disadvantage (1st quantile) are being hospitalised for cardiovascular disease more often than people living in an area belonging to quantiles of less socioeconomic disadvantage. Similar patterns can be seen with regard to other chronic illnesses in the ACT. The anomaly of a high rate for the 5th quantile is unexplained at this stage and will require monitoring. (Due to the low number of deaths it is not possible to demonstrate this link with mortality in the ACT.)

Figure 4: Hospital separation rate per 1,000 persons for cardiovascular disease by SEIFA quantile, ACT, 1996-97



Source: ACT Hospital Morbidity Data Collection, 1996-97

Note: All rates are age standardised using direct standardisation method.

Range 1st to 6th quantile represents highest to lowest area of disadvantage.

⁴ ABS (1998) 1996 Census of Population and Housing: Socio-Economic Indexes for Areas. Catalogue no. 2039.0.

2.1.3 Aboriginal and Torres Strait Islander persons

People of Aboriginal and Torres Strait Islander descent generally rate more poorly on socio-economic status indicators than Australian people as a whole. In addition, in comparison to the rest of Australia Indigenous people have much higher death rates and morbidity rates due to most causes. With regard to cardiovascular disease, the death rate for Indigenous males is more than double that for non Indigenous males and for Indigenous females more than three times the rate of non Indigenous females⁵. (Due to very low numbers in the ACT comparisons of Indigenous death rates cannot be made.)

When examining Australia as a whole, people of Aboriginal and Torres Strait Islander descent tend to rate poorly in terms of risk behaviours. For example it is estimated that 44 percent of Indigenous Australians are regular smokers compared to 20 percent of non Indigenous Australians⁶. Another risk factor Indigenous Australians rate poorly on is body weight. Results from The National Aboriginal and Torres Strait Islander Survey (NATSIS, 1994) estimated that 25 percent of Indigenous males and 28 percent of Indigenous females can be classified as obese⁷. (Again due to very small numbers, investigations into these factors concerning ACT Indigenous people are difficult to make.)

2.2 An emerging issue – Dental health and cardiovascular disease

Evidence from several studies reveal a possible causative link between dental health and cardiovascular disease⁸. It is postulated that periodontal disease is a risk factor for the formation of fatty plaques in arteries and thromboembolic events. This indicates that poor dental health care is a risk factor for developing cardiovascular disease. Investigation of The National Health Survey data set reveals that slightly more people in the ACT with cardiovascular disease reported to also have dental problems than that reported by the general population of the ACT. However this difference was not statistically significant. This may well be due to limitations in the data. More clinical and epidemiological research is needed in order to investigate this link and the associated causal pathways further.

⁵ AIHW (1998) Australia's Health. Canberra. Catalogue no. AUS10.

⁶ Barac, J., Luke, P. & Phongkham, O, (1999) Epidemiology Unit. ACT Department of Health and Community Care. Drug Related Health in the ACT, Health Series no. 24. ACT Government Printer.

⁷ ABS and AIHW (1999), The Health and Welfare of Australia's Aboriginal and Torres Strait Islander Peoples. Catalogue no. 4704.0.

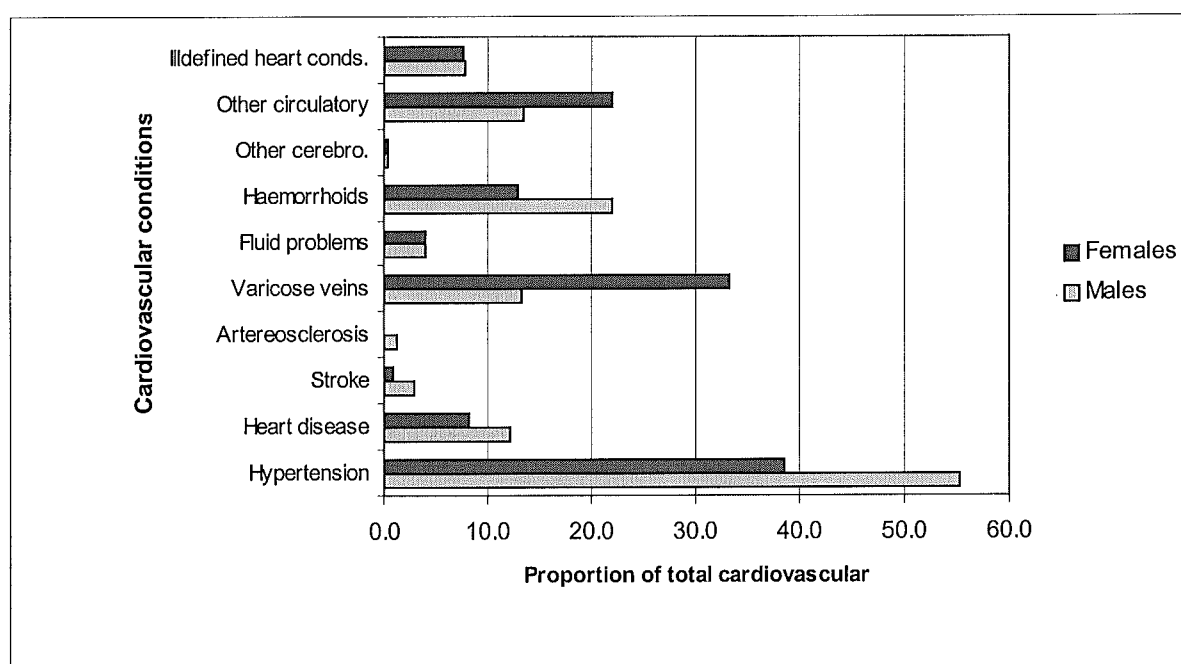
⁸ See Deborah Cole (1999) Is there a link between Oral Health and General Health?, New Journal of the Health Issues Centre Inc. Melbourne, for an account of some studies.

3 Morbidity

In addition to the high level of human suffering, cardiovascular disease creates an enormous cost for the health care system in Australia. In 1993-94, it accounted for \$3.7 billion or 12 percent of total direct health system costs⁹. The indirect costs in terms of lost earnings and sick leave inflate this figure further. Findings from the National Health Survey, 1995, estimate there to be approximately 3.8 million Australians reporting to have a cardiovascular condition. This equates to over 21.4 percent of the total population. The most common cardiovascular condition reported was hypertension (50 %), followed by arteriosclerosis (25.5 %).

In the ACT, 56,237 persons or 18.5 percent of the ACT population reported having at least one type of cardiovascular condition in 1995 (NHS, 1995). The sex breakdown of this estimate is 41.8 percent male and 58.2 percent female, which is similar to Australian proportions as a whole (Male=41 %, Female=59 %). Of the different types of cardiovascular conditions, hypertension ranks as being the most common condition for both males (55 %) and females (38 %) (see Figure 5). This is followed by haemorrhoids for males (22 %) and varicose veins for females (33.3 %).

Figure 5: Proportion of people with cardiovascular disease by type of cardiovascular disease and sex, ACT, 1995



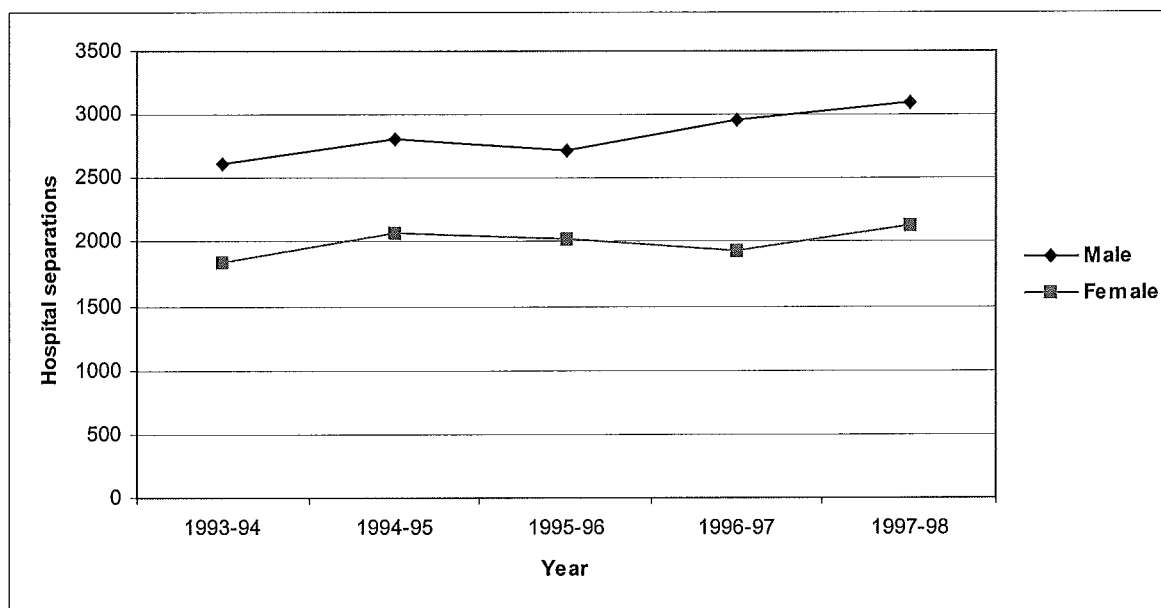
Source: ABS National Health Survey, 1995, confidentialised unit record, ACT, 1995

3.1 Hospital inpatient separations

During 1997-98 there were 5225 (males=3095, females=2130) separations involving a primary diagnosis of cardiovascular disease. It can be seen in Figure 6 that the number of separations, especially for males, has grown slightly over the period 1993-98.

⁹ AIHW and The National Heart Foundation (1999) Heart, Stroke and Vascular disease: Australian Facts. AIHW Cat. No. CVD 7.

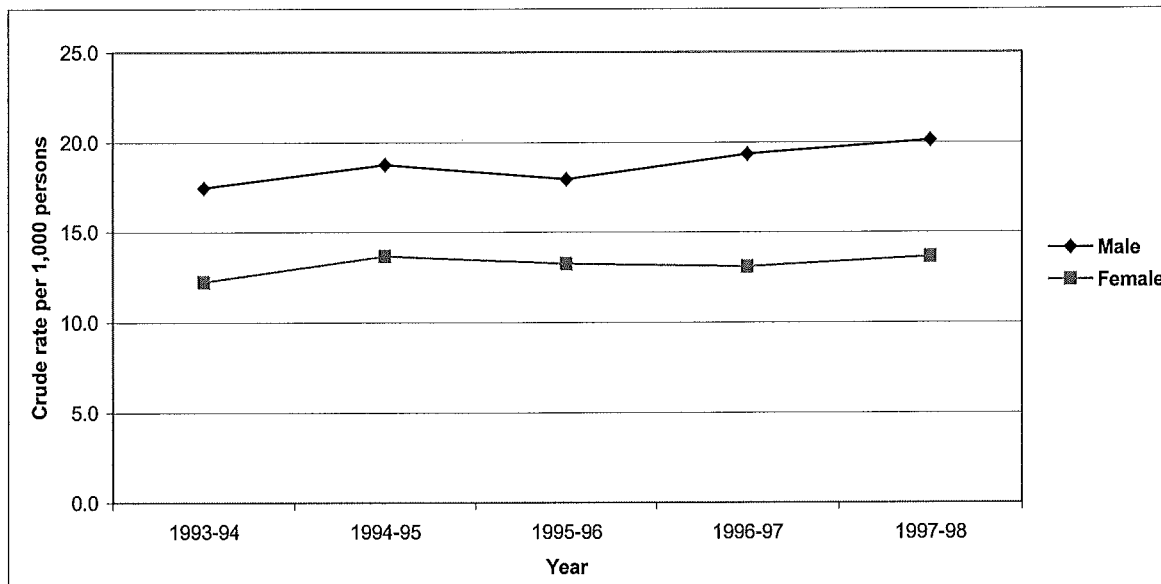
Figure 6: No. of hospital separations for cardiovascular disease by sex, 1993-98



Source: ACT Hospital Morbidity Data Collection, 1993-98

However, when looking at crude rates it can be seen that the rate per 1,000 separations has only varied between 17.5 and 20 for males and 12 and 14 for females over this period (refer Figure 7).

Figure 7: Crude hospital separation rate for cardiovascular disease, ACT, 1993-98



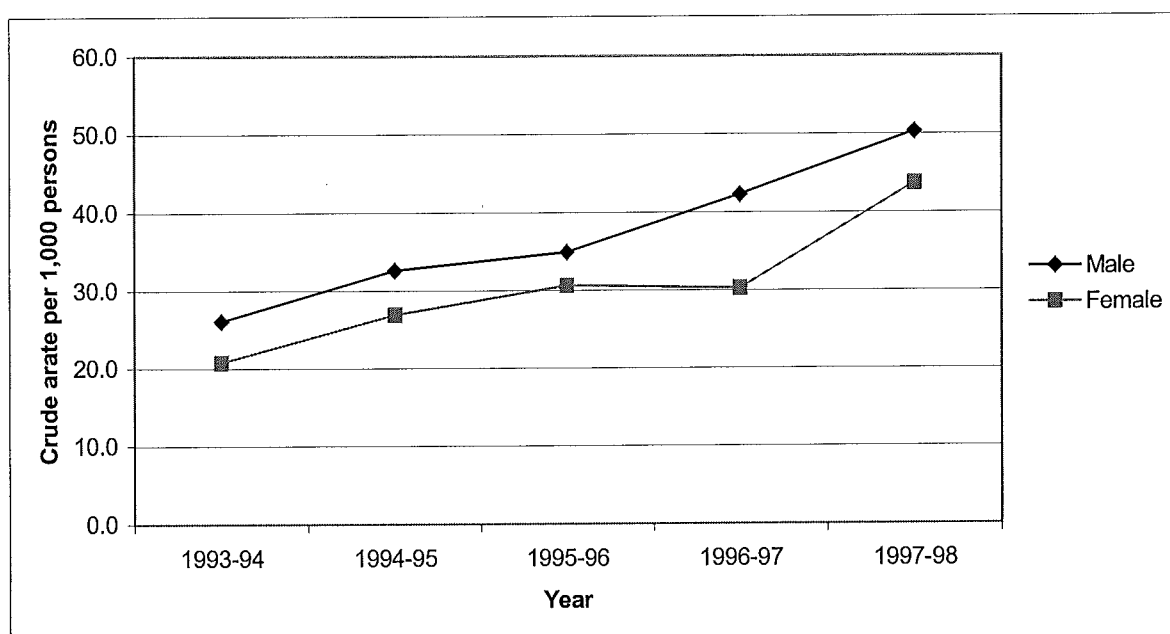
Source: ACT Hospital Morbidity Data Collection, 1993-1998

Note: Crude rate per 1,000 persons
Rate includes non-ACT residents.

During the period 1993-98 cardiovascular disease accounted for approximately 7 percent of all hospital separations (5225). This proportion remained fairly stable over this period. It should be noted however that this proportion only refers to people being principally treated for cardiovascular disease. It does not account for those people who are being hospitalised for other conditions who also have an underlying cardiovascular condition, which in many cases require treatment while in hospital.

In 1997 there was a total of 12,844 separations involving a secondary diagnosis of cardiovascular disease. Figure 8 shows that over the period 1993-98 there has been a steep increase in the number of separations involving a secondary diagnosis of cardiovascular disease. This contrasts with the very slight increase in separations involving a principal diagnosis of cardiovascular disease. This phenomenon is partly explained by the substantial changes and improvements in coding practices over the years. Another reason may be associated with the general ageing of the ACT population and with it, the increase in age related illness. It may also be the result of better management of cardiovascular disease, resulting in a smaller stable number of persons requiring hospitalisation for a principal cause.

Figure 8: Crude rate of principal & secondary diagnosis of cardiovascular disease by sex, 1993-98



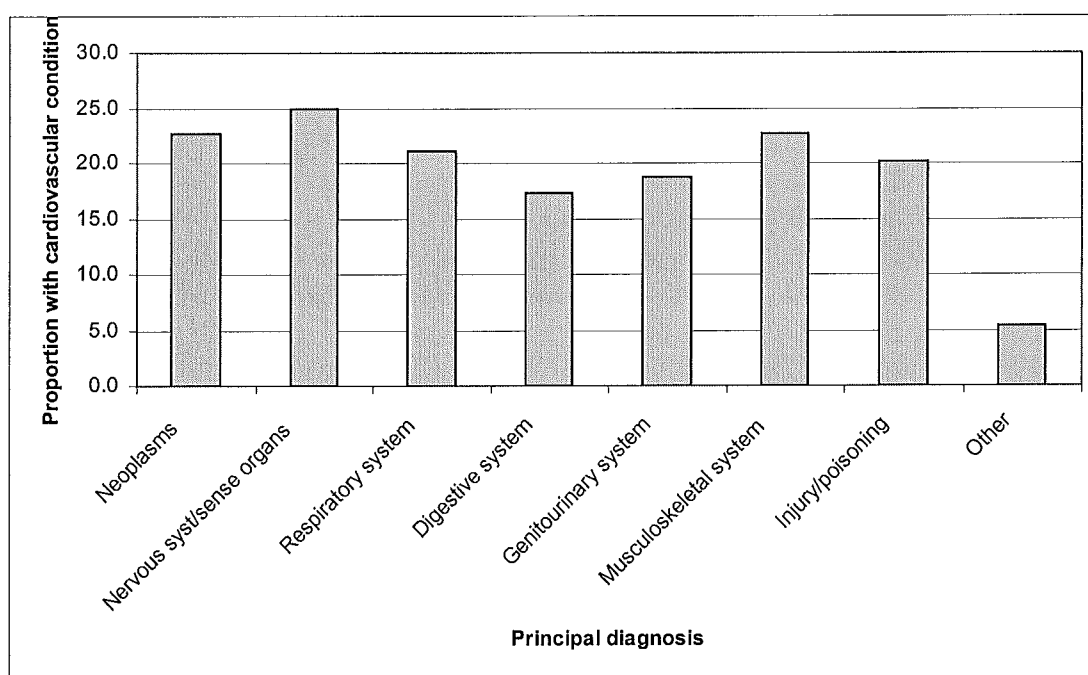
Source: ACT Morbidity Data Collection, 1993-1998

Note: Rate per 1,000 persons

Rate includes non ACT residents.

Of those separations with a secondary diagnosis of cardiovascular disease 27.4 percent (n=3517) involved another diagnosis of cardiovascular disease. This is demonstrative of the high co-morbidity existing between different cardiovascular conditions. It can be seen in Figure 9 that for many hospitalisations a large proportion of people have underlying cardiovascular conditions. Of these hospitalisations, people being principally treated for disorders involving the nervous system (24.9%), neoplasms (22.7%) and the musculoskeletal system (22.7%) had the highest proportion of secondary diagnoses of disorders of the cardiovascular system.

Figure 9: Proportion of different principal diagnoses separations that also have a secondary diagnosis of cardiovascular disease, ACT, 1997-98



Source: ACT Hospital Morbidity Data Collection, 1997-98

3.1.1 Non – ACT residents

Hospital separations data are collected routinely from the four ACT hospitals (The Canberra Hospital, Calvary Public, Calvary Private, John James Memorial Private, with the new Capital Hospital data being included in future collections). It should be noted that data include interstate patients. However information on patients usual place of residence was not provided by the private hospitals for 1997-98. Data provided by the public hospitals show that in the case of cardiovascular disease, interstate patients accounted for approximately 27.6 percent of public hospital separations during 1997-98. This is 2.6 percent more than the percentage for interstate separations for other reasons (25 %).

3.1.2 Aboriginal & Torres Strait Islander People

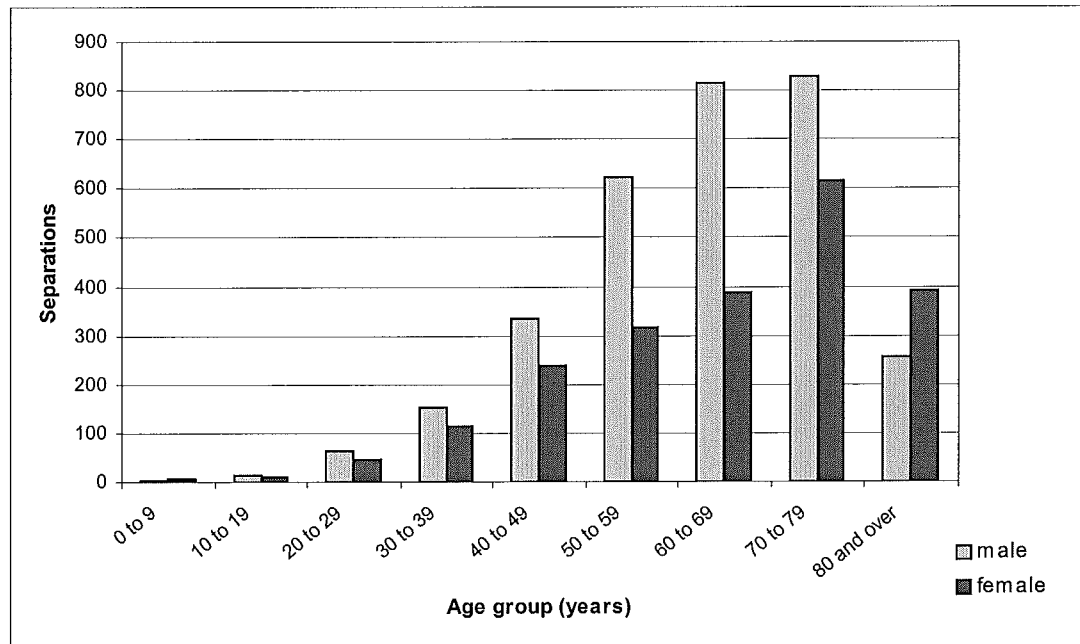
People identifying as Aboriginal or Torres Strait Islander accounted for only 0.4 per cent of separations for cardiovascular disease (13 females and 10 males) during 1997-98. This low number can in part be attributed to errors in coding for Indigenous people in the 1997-98 data set. However, it can also be attributed in part to the relatively small number of Indigenous people living in and around the ACT region as well as the ACT Indigenous population being relatively young.

3.1.3 Age & sex for cardiovascular disease separations

Figure 10 shows the age and gender breakdown for ACT hospital separations for cardiovascular disease. It can be seen that the possibility of hospital admission increases with age, particularly after 50 years of age and peaks at the 70 to 79 year age group for both males and females. Both male and female separations then decline sharply. This is particularly the case for males and can be attributed to their general increased mortality when compared to females. It is interesting to note that in the previous five years the

number of separations for males consistently peaked at the 60-69 year age group. However in 1997-98 the male peak occurs in an older age group. This may indicate improvements in which males with cardiovascular disease manage their treatment. However, it may also be due to the ACT's ageing population. This change should be monitored to ascertain future trends. It should also be noted that males outnumbered females for all age group separations except for the oldest age group.

Figure 10: ACT hospital inpatient separations, by principal diagnosis of CVD, by age & sex, 1997-98



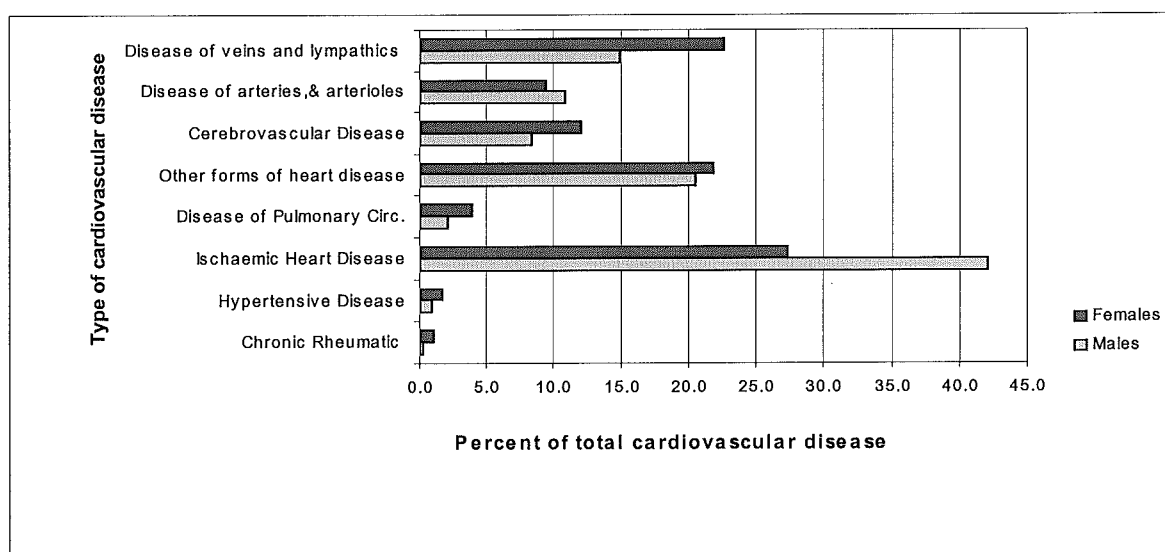
Source: ACT Hospital Morbidity Data Collection, 1997-98

3.1.4 Types of cardiovascular disease

Figure 11 shows the breakdown of cardiovascular separations into the various types. It can be seen that ischaemic heart disease accounts for the largest proportion of all cardiovascular separations for both males (42.1%) and females (27.3%). This is followed by diseases of the veins and lymphatics for females (22.7%) and other forms of heart disease for males (20.5%).

Like Australians in general, of the different types of cardiovascular disease the most common among ACT people are ischaemic heart disease (coronary heart disease) and cerebrovascular disease (stroke). However other conditions such as peripheral vascular disease are not as common but are predicted to increase with the ageing of the population. This prediction coupled with the potentially disabling effects of such diseases give cause for growing concern.

Figure 11: Type of CVD as a proportion of all cardiovascular disease separations, by sex, ACT, 1997-98



Source: ACT Hospital Morbidity Data Collection, 1997-98

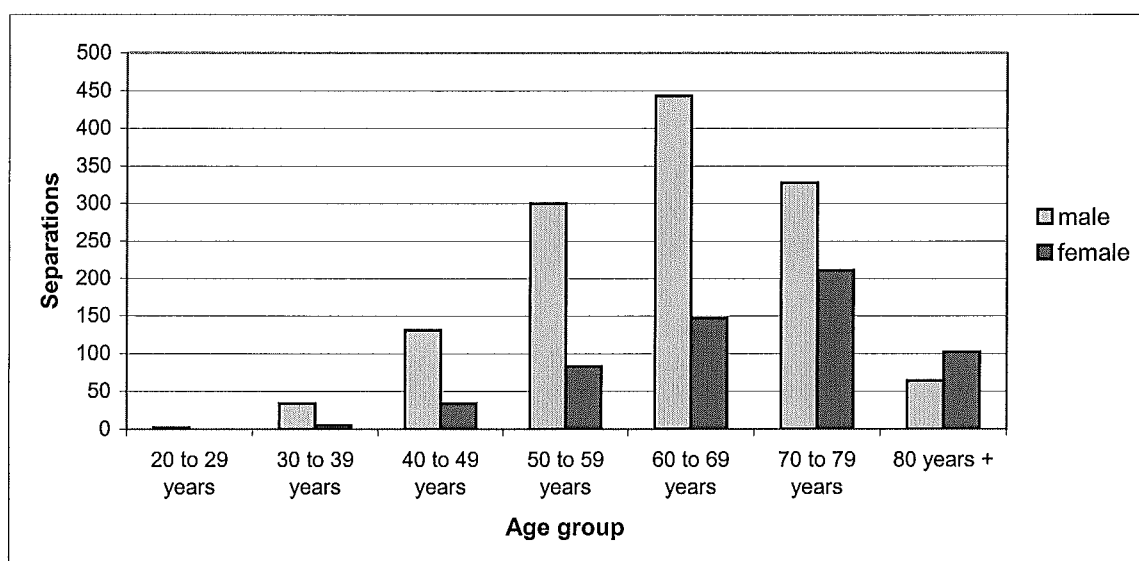
3.1.4.1 Ischaemic Heart Disease

Although the incidence of ischaemic heart disease (coronary heart disease) has fallen over the years it is still a major cause of sickness and disability. It is difficult to estimate how many Australians have ischaemic heart disease as national data sets do not have a specific item for this condition. However a method developed by the Universities of Newcastle and Western Australia and the Queensland Department of Health estimate that in 1995-96 there were 19,910 ischaemic heart disease events in Australia among people age 35 to 69 years¹⁰. Hospital morbidity data gives some indication of rates for this disease in the ACT. In 1997-98 there were 1,884 separations for ischaemic heart disease in ACT hospitals (1302 males, 582 females). This equates to a little over 36 percent of all cardiovascular disease separations. Of those separations in public hospitals, 32 percent were non ACT residents. Figure 12 shows the number of hospital separations for people with a principal diagnosis of ischaemic heart disease in the ACT during 1997-98. It can be seen that male separations are greater than females in every age group except the 80 years and over group, where females dominate. Males peak in the 60-69 year age group and females in the 70-79 year age group.

The main mode of separation recorded for people being hospitalised for ischaemic heart disease was 'going home/other/welfare' (83 percent, n=1563) this was followed by 'transferred to another acute hospital' (13.3 percent, n=250).

¹⁰ Cited AIHW and The National Health Foundation (1999) Ibid. p9.

Figure 12: ACT hospital separations for principal diagnosis of ischaemic heart disease, by age and sex, 1997-98



Source: ACT Hospital Morbidity Data Collection

3.1.4.2 Cerebrovascular disease

Cerebrovascular disease or 'stroke' is Australia's second biggest killer¹¹. It is also responsible for considerable levels of illness and disability among survivors, causing approximately 25 percent of all chronic disability in Australia¹².

During 1997-98 there were 515 separations for cerebrovascular disease in ACT hospitals (259 males, 256 females). This equates to 9.9 per cent of cardiovascular disease separations. The crude rate was 168.5 per 100,000 for males and 163.9 for females. For those being treated in public hospitals 27 percent were non ACT residents.

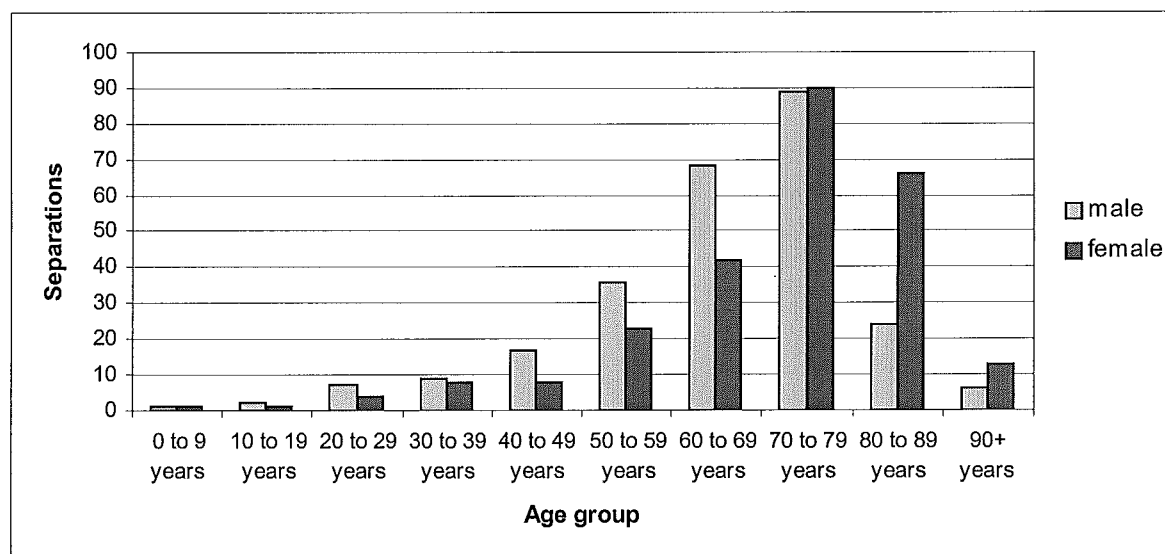
Figure 13 shows the number of hospital separations for people with a principal diagnosis of cerebrovascular disease in the ACT in 1997-98. It can be seen that males have a high number of separations between the ages of 60 and 80 years. Females on the other hand, peak between the ages of 70 and 90 years.

The main mode of separation recorded for people being hospitalised for cerebrovascular disease was 'home/other/welfare institution' (60%, n=313). This was followed by 'died' (11.8%, n=61).

¹¹ AIHW and The National Heart Foundation (1999). Ibid, p13

¹² NHMRC (1997) Prevention of Stroke: A guide for General Practitioners. Commonwealth of Australia.

Figure 13: ACT hospital separations for principal diagnosis of cerebrovascular disease, 1997-98



Source: ACT Hospital Morbidity Data Collection

3.1.4.3 Hypertension

Hypertension refers to an elevation of the blood pressure, especially the diastolic pressure. The risk of both ischaemic heart disease and stroke increases as the level of blood pressure increases. On average, people with hypertension have a 2 to 4 fold increased risk of developing these diseases than other people of the same age without hypertension. Even when blood pressure is controlled there is still an increased risk of heart disease for people with hypertension.

Research indicates a relationship between hypertension and socio-economic status. Aboriginal people are particularly at risk. Single women and women with partners but no dependants have lower rates of hypertension than women with partners and dependants.

The National Health Survey 1995 found that 8.5 percent of ACT people reported a recent and/or long-term condition of hypertension as opposed to the national average of 10.7 percent. This estimate is slightly less than that of the 1989-90 National Health Survey where 9.0 percent of ACT people reported having this condition.

With regard to acute cases of hypertension, there were only 64 separations involving a primary diagnosis of hypertension from ACT hospitals. This equates to 1.2 per cent of all cardiovascular disease separations.

The main mode of separation recorded for people being hospitalised for hypertensive disease was 'home/other/welfare institution' (90.6%, n=58). This was followed by 'discharged/transferred to nursing home' (6.3%, n=4).

3.1.4.4 Peripheral vascular disease

There is no readily available data on prevalence of peripheral vascular disease (PVD) in Australia. Peripheral vascular disease accounted for 0.3 percent of all Australian

hospitalisations in 1996-97. During this time 635 amputations were performed for this disease¹³. With regard to the ACT there was a total of 173 separations involving a principal diagnosis of PVD (120 males, 53 females) during 1997-98. Of these, one separation involved an amputation.

The main mode of separation recorded for people being hospitalised for peripheral vascular disease was 'home/other/welfare institution' (87.3%, n=151). This was followed by 'died' (8.1%, n=14).

3.1.5 Average length of stay

Table 3 shows the average length of stay (ALOS) for people being hospitalised for cardiovascular disease. It can be seen that the ALOS for all cardiovascular disease is 5 days. This is slightly higher than the ALOS for all hospital separations in the ACT (4 days) but lower than for this same condition in 1993-94 (6.3 days). Of the different cardiovascular conditions, people being hospitalised for cerebrovascular disease had the longest ALOS for both males (13) and females (14).

Table 3: Average length of stay (ALOS) in ACT hospitals by sex, ACT, 1997-98

Cardiovascular type	Males	Females	Persons
Rheumatic heart disease	5	11	9
Hypertensive disease	5	5	5
Ischaemic heart disease	4	5	4
Disease of pulmonary circulation	9	7	8
Other forms of heart disease	5	7	6
Cerebrovascular disease	13	14	13
Disease of arteries, arterioles and capillaries	7	6	6
Disease of veins and lymphatics and Other diseases of the circulatory system	2	3	3
<i>ALOS all cardiovascular disease</i>	5	6	5

Source: ACT Hospital Morbidity Data Collection, 1997-98

¹³ AIHW and The National Heart Foundation (1999), Ibid. p19.

4 Mortality

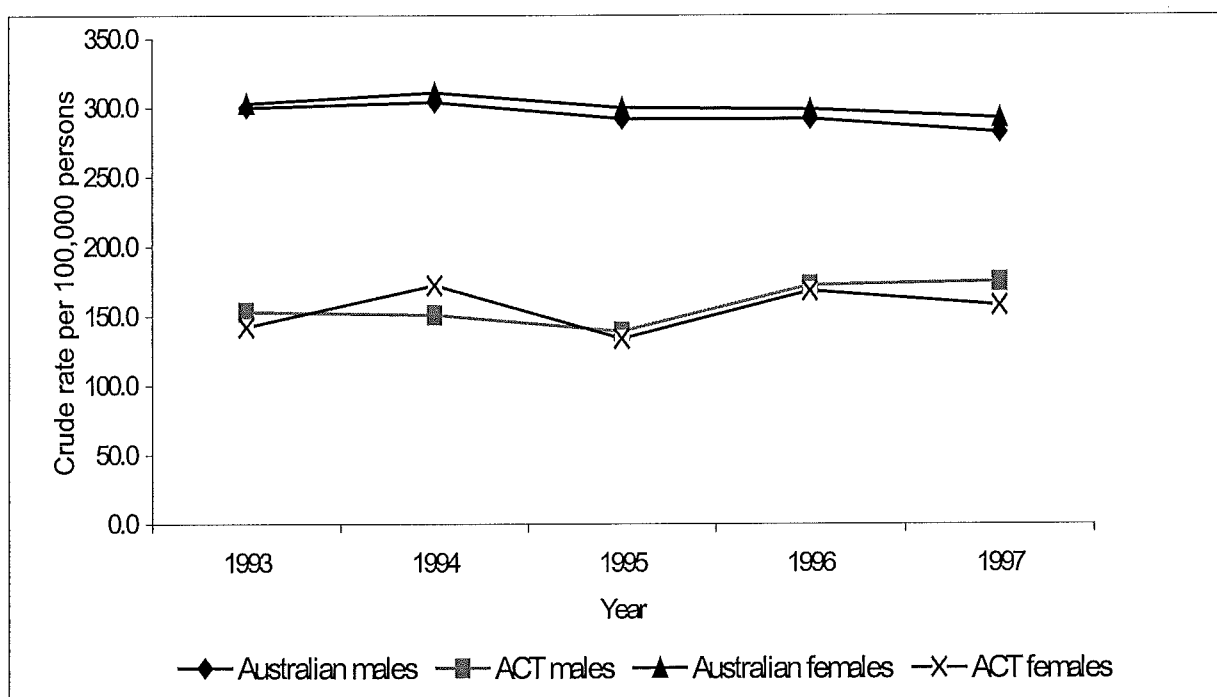
4.1 General

During 1997, cardiovascular disease accounted for 40.7 percent of all deaths in Australia. This proportion has dropped by nearly 2 percent since 1993. However cardiovascular disease still remains the main cause of death of Australians. Females accounted for 51 percent of all deaths due to cardiovascular disease and males 49 percent. Ischaemic heart disease (55.2 %) and cerebrovascular disease (23 %) accounted for the majority of CVD deaths.

In the ACT there were 512 recorded deaths due to cardiovascular disease in 1997. This accounted for 38.4 percent of all deaths in the ACT for that year. For those deaths occurring in the 75 years and over age group, cardiovascular disease accounted for 48.1 percent (50% of all male deaths and 46.9% of all female deaths). Unlike Australia as a whole, ACT cardiovascular deaths were dominated by males (52.1%). Like the rest of Australia, most ACT cardiovascular disease deaths were due to ischaemic heart disease (52 %) and cerebrovascular disease (25 %).

In comparison to Australia as a whole crude death rates for cardiovascular disease over the period 1993-97 have been consistently lower for both ACT males and ACT females (refer Figure 14). However unlike Australia as a whole where there has been a slight decline in the crude death rate for cardiovascular disease over the years, the crude rate for the ACT has gone up slightly over the years. This is attributable in part to the inexplicable fluctuations that normally result when small numbers are involved. The situation should however, continue to be monitored.

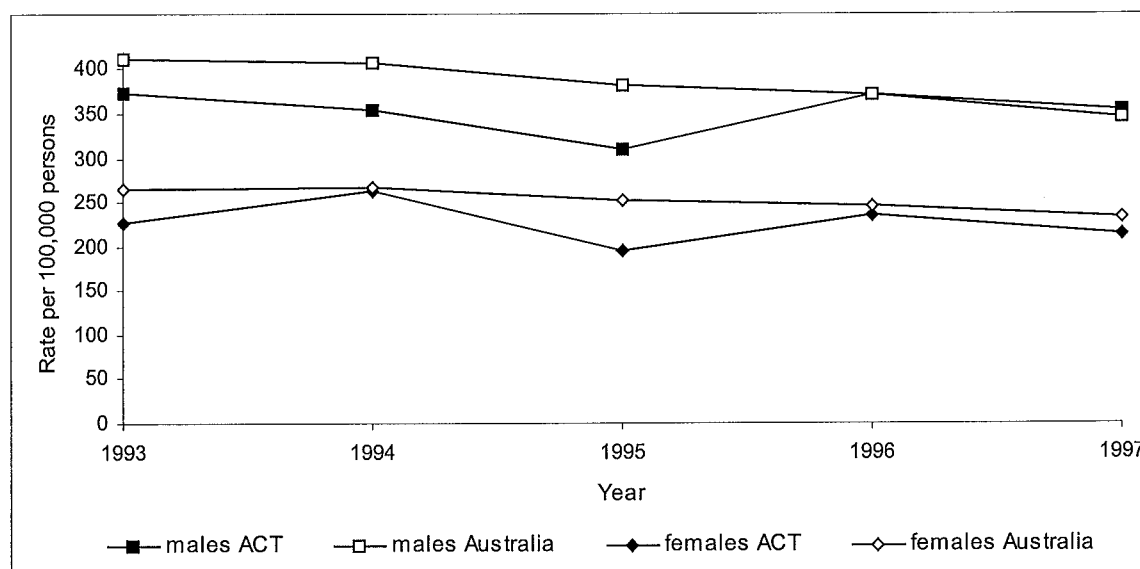
Figure 14: Crude mortality rate for cardiovascular disease by sex, ACT & Australia, 1993-97



Source: ABS Deaths Data, confidentialised unit record, 1997.
Note: Rate per 1,000 persons

Age standardised rates however indicate that this rise may also be due in part to an acceleration in the aged population of the ACT (see Figure 15). It can be seen that when rates are standardised both ACT males and females are more aligned with their Australian counterparts. Moreover in 1997, the age standardised rate for cardiovascular disease in ACT males was slightly higher (354 per 100,000 persons) than Australian males (345 per 100,000 persons). ACT females showed only a slightly lower (215 per 100,000 persons) rate than that seen for Australian females (233 per 100,000 persons).

Figure 15: Standardised rate for mortality due to cardiovascular disease by year & sex, ACT & Australia, 1993-97



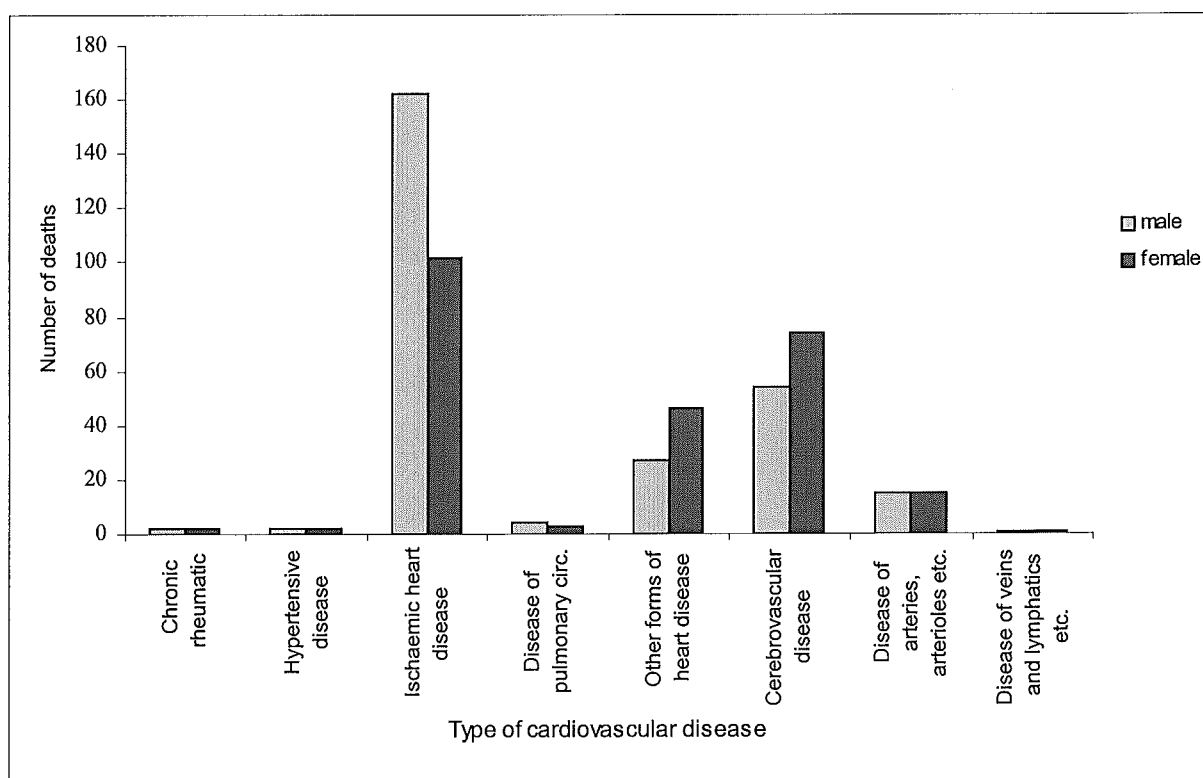
Note: Age & sex standardisation using indirect method using 1996 Australian death rates.
 Source: ABS Deaths Data confidentialised unit record 1997-98.

4.2 Types of cardiovascular disease contributing to mortality

During 1997, of the different types of cardiovascular disease, ischaemic heart disease (52%, n=264) and cerebrovascular disease (25%, n=128) were the main causes of mortality for both males and females in the ACT (see Figure 16). Males accounted for 61.4 percent (n=162) of ischaemic heart disease deaths and females accounted for 57.8 percent (n=74) of cerebrovascular disease deaths. The proportion of male deaths (61.4%) due to ischaemic heart disease is 7.8 percent higher than the proportion of Australian male deaths from this same cause (53.6%). However the proportion of ACT females deaths (57.8%) due to cerebrovascular disease is similar to that of Australian females (60%). Of all cardiovascular disease deaths in the ACT during 1997 only 118 (23%) were attributable to cardiovascular diseases other than ischaemic and cerebrovascular.

Figure 16: No. of deaths due to cardiovascular disease by type and sex, ACT,1997

Source: ABS Deaths Data, confidentialised unit record, 1997



Of all male deaths due to ischaemic heart disease, 55 percent were aged under 75 years (see Figure 17). In contrast only 32 percent of female deaths from ischaemic heart disease were in this age group. Also with males, 40.7 percent of cerebrovascular deaths were aged under 75 years. With females, only 19 percent were in this same age group. This seems to be a reflection of the general vulnerability males have towards premature death from most causes.

Figure 17: No. & percent of deaths & premature deaths due to ischaemic heart disease & cerebrovascular disease by sex, ACT, 1997

	Males		Females	
	No.	%	No.	%
Ischaemic heart disease				
Premature deaths (<75 years)	90	55	33	32
Deaths >75 years	72	45	69	68
All deaths	162	100	102	100
Cerebrovascular disease				
Premature deaths (<75 years)	22	40.7	14	19
Death >75 years	32	59.3	60	81
All deaths	54	100	74	100

Source: ABS Causes of Death Data, confidentialised unit record, 1997

4.3 Multiple causes of death

In 1997 additional information concerning causes of death was made available in the Australian Bureau of Statistics Causes of Death Database. Both underlying and associated causes of deaths were coded. This makes investigations into determining patterns of association between different conditions easier. In Australia, of all cardiovascular disease deaths in 1997, the major associated condition recorded was hypertensive disease. For instance with 17.3 percent of deaths resulting from ischaemic heart disease, hypertensive disease was recorded as an associated condition. Also, with cerebrovascular disease deaths, 20 percent were coded as featuring hypertensive disease as an associated condition. With regard to non cardiovascular associated conditions, pneumonia (4.4 %) and diabetes (8.7 %) were the most commonly associated conditions with ischaemic heart disease. With cerebrovascular disease, pneumonia (12.2 %) was the most commonly associated condition.

During 1997 in the ACT the most commonly associated conditions with ischaemic heart disease and cerebrovascular disease deaths was other cardiovascular diseases (see Table 4). Of these other cardiovascular diseases, cerebrovascular disease deaths was most commonly associated with hypertension (22.7%). Other forms of heart disease were most commonly associated with ischaemic heart disease (36.4%).

Of those associated conditions that were non cardiovascular disease related, respiratory conditions were the most common with both ischaemic heart disease deaths (14.8 %) and cerebrovascular disease deaths (28.9%). Diabetes contributed to 8.7 percent of ischaemic heart deaths and 9.4 percent of cerebrovascular disease deaths.

Table 4: The no. & proportion of associated conditions underlying deaths due to cerebrovascular & ischaemic heart disease, ACT, 1997

Associated conditions	Ischaemic heart		Cerebrovascular	
	n	%	N	% ^(a)
Infectious & parasitic diseases	1	0.4	6	4.7
Neoplasms	15	5.7	2	1.6
Endocrine	23	8.7	12	9.4
Mental disorders	11	4.2	16	12.5
Nervous system	9	3.4	14	10.9
Cardiovascular disease	153	57.9	64.0	50.0
<i>Hypertension</i>	<i>(36)</i>	<i>(13.6)</i>	<i>(29)</i>	<i>(22.7)</i>
<i>Other forms of heart disease</i>	<i>(96)</i>	<i>(36.4)</i>	<i>(15)</i>	<i>(11.7)</i>
<i>Other forms of circulatory disease</i>	<i>(21)</i>	<i>(7.9)</i>	<i>(20)</i>	<i>(15.6)</i>
Diseases of the respiratory system	39	14.8	37	28.9
Symptoms & ill defined conditions	24	9.1	30	23.4
Other	52	19.7	18	14.1
<i>(Total deaths)</i>	<i>264</i>	<i>(100)</i>	<i>128</i>	<i>(100)</i>

(a) As there was often more than one associated condition per death this percentage is based on the total number of deaths for either cerebrovascular disease or ischaemic heart disease.

Source: ABS Deaths data, ACT, 1997

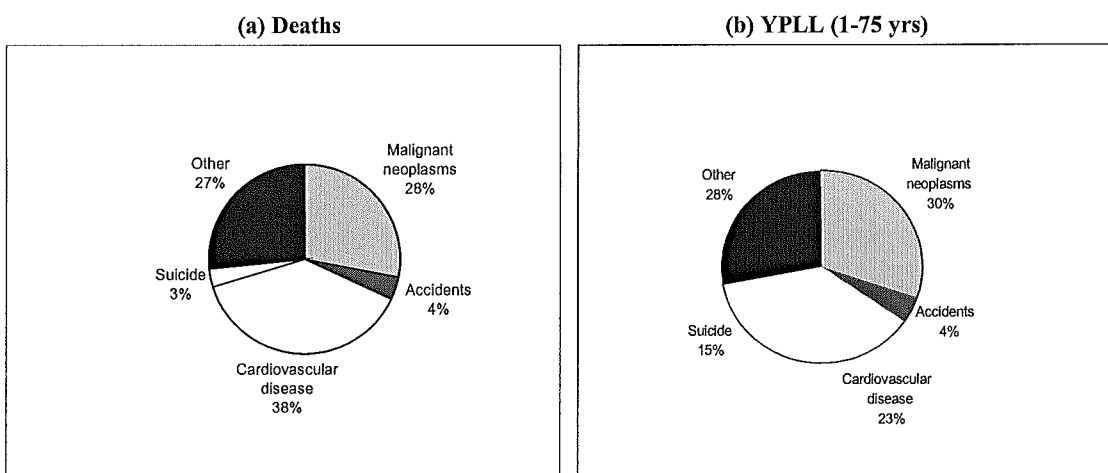
4.3.1 Years of potential life lost through cardiovascular disease mortality

The estimation of years of potential life lost (YPLL) can assist those working on health service provision by providing a clearer picture of overall needs for people suffering from certain conditions. This estimation in relation to cardiovascular disease is based on the assumption that deaths from cardiovascular disease occurring earlier than standard life expectancies are untimely and thus YPLL give an indication of premature mortality.

In the ACT during 1997 there were 12,715 years of YPLL resulting from premature death (<75 years). Of these, 2,618 (21 %) YPLL resulted from cardiovascular disease. The proportion of YPLL caused by cardiovascular disease has dropped slightly in the last 3 years. In 1994, 22 percent YPLL resulted from cardiovascular disease.

Figure 18 shows that, although cardiovascular disease accounted for 38 percent of all deaths in the ACT in 1997, it only accounted for 21 percent of the total years of potential life lost due to mortality for those aged under 75 years. This finding is expected given the strong association between cardiovascular disease and old age.

Figure 18: Leading causes of death & YPLL for people 1-75 years, ACT, 1997

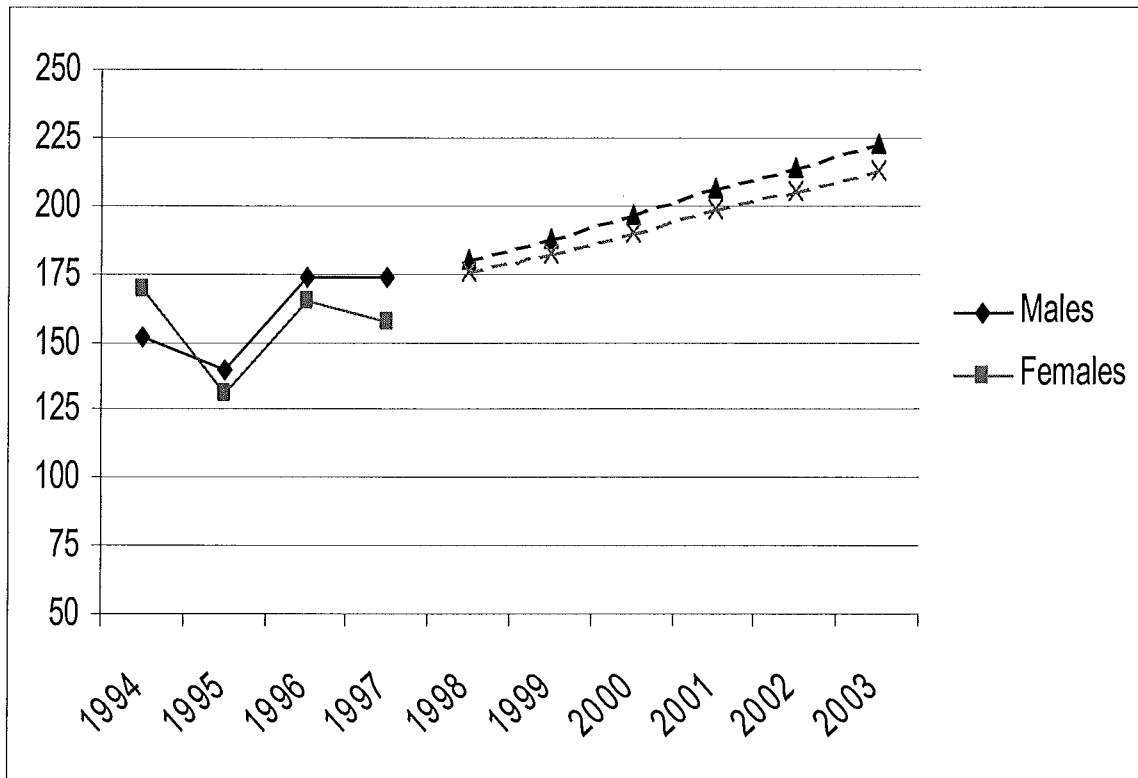


Source: ABS deaths data, confidentialised unit records, 1997

4.4 Mortality projections for cardiovascular disease

The ageing of the ACT population has implications for projected crude death rates for cardiovascular disease in the ACT. It is projected that the crude death rate for cardiovascular disease in the ACT will rise from 173.8 per 100,000 for males in 1997 to 222.7 in 2003 (see Figure 21). This equates to a difference of 48.9 per 100,000 males. With females the crude rate is projected to rise from 156.9 per 100,000 to 213.3 in 2003. This difference equates to 56.4 per 100,000 indicating mortality from cardiovascular disease for females will increase at a faster rate than males. The acceleration in the aged population of the ACT and the projected increase in not only cardiovascular disease but other diseases, have important implications for health service planning and provision in the ACT.

Figure 21: Crude mortality rate & projections for cardiovascular disease by sex, ACT, 1994-2003



Source: ABS Causes of death data set, 1994-97

Technical Note

Projections

Projections are calculated using the following methodology. Age- and sex- specific death rates are calculated in 5 year year age groups up to 80 plus for the ACT for each of the four years 1994, 1995, 1996 and 1997 using ABS deaths unit record files. The ACT populations used to calculate the rates are from the ABS Cat no 3201.0., "Population by age and sex; Australian States and Territories", published in December 1997. The average of the age- & sex- specific rates are then calculated for the four years 1994-97. These average rates are then multiplied by population estimates for 1997 from the ABS and ACT population forecasts 1998-2003 provided by the Chief Ministers Office. These are calculated in 5 year age and sex groups up to 80 plus to give the expected numbers of deaths for years 1998-2003.