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Health Indicators in the ACT

Measures of health status and health services in the ACT

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FOREWORD

The Department of Health and Community Care has a deep commitment to evidence based decision making so that the best decisions can be made in the delivery of quality health care services for people in the Territory. I am therefore delighted to present this, the second major report on the health status of ACT residents.

The format for the report is designed so that we can determine not only what the situation is with various diseases and health interventions in the ACT, but how we compare with ourselves over time, how we compare with the rest of Australia, and even what we might expect in terms of incidence of diseases over the next few years.

The ACT compares favourably with the rest of Australia, and, encouragingly, there have been some significant improvements in our health over the past few years. This is wonderful news, but we cannot afford to sit back and be complacent. The information contained in this report will assist in identifying areas where energy and resources should be allocated (or continue to be allocated). With an ageing population, we can expect a shift in the needs of the community and we need to be prepared for those changes.

As users and providers of health services, I hope you find this publication useful in your understanding of the health status of ACT residents and in your endeavours to continually improve the health of those residents.

David Butt
Chief Executive
Department of Health and Community Care
January 1998

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Summary

The Territory has a younger population than the national average with a median age of 31.3 years in June 1996 compared to 34.0 years for Australia. Like the rest of Australia, the population is, however, ageing. While other states will roughly double their proportion of people aged 65 or more, the ACT proportion is expected to nearly triple theirs between now and 2051. The overall population has grown by 6.8 per cent since the 1991 Census to 299,242, including 2,898 Aborigines and Torres Strait Islanders, at the 1996 Census.

There were 4,396 births in 1996. As for the rest of Australia, ACT women are tending to have babies at a later age than previously. The ACT fertility rate of 1.7 children per woman is the lowest of all states and territories.

The 1996 Census results confirm that the ACT has a high socioeconomic profile. The ACT has considerably higher activity than the national average in public employment and higher education. It has considerably less activity in proportion of deaths, pensions, nursing home residence (all due to a younger age profile in the ACT), and technical and further education (offset by a high activity in other higher education). The ACT contributes proportionately more to gross domestic product than Australia generally.

With regard to health status, the ACT fares as well or better than other states and territories, with the exception of high risk drinking. Fortunately, this category has improved over the past five years.

The Australian Bureau of Statistics (ABS) National Health Survey 1995 results show ACT residents generally believe their health to be very good, although they suffer from more recent conditions of a minor nature than Australians generally. They suffer from respiratory conditions, both short and long term, more than Australians as a whole, but take health actions less often, especially with regard to doctor visits. They do not expose themselves to as many health risks as other Australians, with the notable exception of high alcohol consumption.

ACT standardised death rates, with the exceptions of two years for females (1990, 1994), are consistently below those for Australia. In 1996 it was 6.1 per 1,000 which was the lowest of all states and territories. The ACT infant mortality rate (5.7 per 1,000 live births) was the third lowest of all states and territories (Australian rate of 5.8). Less years of potential life are lost per 100,000 population in the ACT compared to the whole of Australia, regardless of our younger population (as the effects of age have been removed through standardisation). The major causes of death in the ACT and Australia are malignant neoplasms (cancer) and circulatory diseases (mainly ischaemic heart disease and cerebrovascular disease). Approximately 31 per cent of male and 28 per cent of female deaths were due to cancer and 23 per cent of male and 19 per cent of female deaths were due to ischaemic heart disease, in the ACT in 1996. There has been a dramatic decline in mortality from heart and cerebrovascular diseases over the past 20 or more years. Overall ACT rates continue to be lower than those of Australia, although the male and female death rate from cerebrovascular disease is slightly higher than that of Australians generally. In 1994 the ACT had the lowest death

rate for cardiovascular diseases in males, the fastest rate of decline in myocardial infarction in people, and the lowest cerebrovascular mortality rate in males (females had a relatively high death rate for CVD). Unfortunately, in 1996, cerebrovascular disease rates had risen for both sexes. The ACT and Victoria are the only states or territories which are likely to achieve national targets set for premature mortality from ischaemic heart disease.

The ACT has slightly lower death rates from cancer, suicide and mental illness, and considerably lower injury and asthma death rates than Australia as a whole.

The life expectancy for all ages has improved. People born in the ACT in 1996 recorded the highest expectation of life from birth of all states and territories: 81.6 years for females (compared to 81.1 years nationally) and 76.6 years for males (compared to 75.2 years nationally).

Since ACT hospitals service the region, approximately 20 per cent of all separations are for people living outside the ACT, mainly from NSW. In the 1996-97 year, there were 75,633 inpatient separations from all hospitals in the ACT, both public and private.

The most common presenting problems were digestive system disorders, neoplasms, circulatory diseases and musculoskeletal disorders.

The major causes for high length of stay in 1996-97 were mental disorders (average of 13.5 days), conditions originating in the perinatal period (7.8 days), immunity disorders (5.8 days), injury and poisoning (5.8 days), circulatory diseases (5.7 days), and neoplasms (4.5 days).

The proportion of private patients in public hospital beds continues to decline. In 1992-93, 30.5% of occupied bed days were used by private patients compared to 14.3% in 1996-97.

There is a difference in peak usage between males and females. It can be seen that separations are greatest for males in the 45-75 age range. Reasons for hospitalisation of this age group include diseases of the digestive system (12%), diseases of the circulatory system (8.6%), neoplasms (7.7%) and injury and poisoning(7.7%).

Females on the other hand, have more separations during the child-bearing ages of late teens to mid fifties than at other times in their lives. Major causes include those which are maternity related, complications of pregnancy events (28%), genitourinary problems (13%) and diseases of the digestive system (11%).

Details of mortality and morbidity concerning specific diseases are outlined in the various sections of this publication.

Health Indicators in the ACT

1. Introduction

This is the second publication outlining the health status of the ACT, the first being published in October 1995.[21] Since the ACT Department of Health and Community Care is committed to 'proudly leading Australia in maximising both community and individual health and well-being', it is timely to update the first publication, in order to ensure that movements in health status are monitored and considered in consolidation and planning of appropriate health and community services.

Although indicators are largely unchanged from the first report, some additions and refinements have been made to ensure their relevance and to allow examination of trends, in particular in the national and ACT health priorities focus areas. Data used in the publication rely heavily on national collections, and the ACT Hospital Morbidity Data Collection. Where possible, time series are used to show trends over time.

Developing a profile of health status

Determining the health status of a community is a difficult task. Many people do not seek assistance from health practitioners or hospital services for many of their ailments much of the time. Solely using hospital data will give a biased picture of morbidity. A study in England, for instance, found positive correlation between hospital admission and disease prevalence in only two of the seven diseases or procedures investigated (respiratory disease and depression, but not digestive disorders, musculoskeletal disorders, obesity and hip or knee pain).[22]

However, using hospital utilisation data in conjunction with other data collections, such as surveying medical practitioners and carrying out national health surveys, will capture most events. The last National Health Survey was administered in 1995-96 which makes its findings very relevant. The hospital data will assist in developing the profile if care is taken to take account of its limitations. (These limitations are outlined in Appendix 2).

The health status of people is also dependent on more than just individual physical and mental wellness. Many of the causes of ill health are outside the direct domain of medical intervention. Social, environmental, educational and economic factors all impact on an individual's health status and the risk levels associated with ill health.

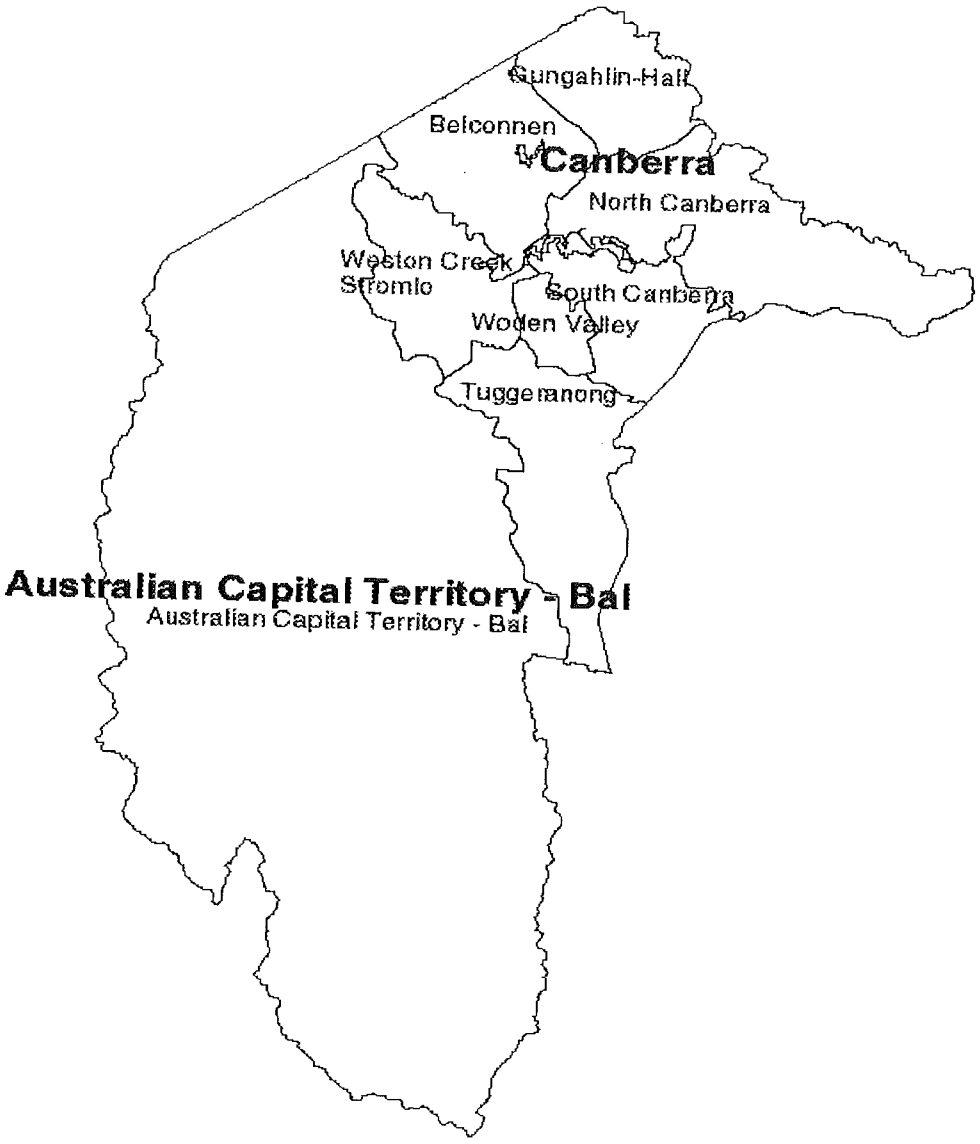
2. A demographic profile of the ACT

2.1 Environment

The ACT has an area of approximately 2,400 km² and is surrounded on all sides by New South Wales.[23] Consequently, the ACT provides substantial service to the surrounding NSW South East Region as well as to its own residents.

Almost all ACT residents live in metropolitan areas although about 85 per cent of the Territory's land mass is devoted to national parks, nature reserves, pine plantations and rural properties (refer Figure 1). The area around Canberra is mainly mountainous and the ACT is very fortunate in that it has good air and water quality. There are no heavy industries in the ACT.

Figure 1: Statistical divisions and subdivisions, ACT, 1996



Source: Australian Census 1996, Australian Bureau of Statistics, 1996

2.2 ACT population

There are slightly more males than females in the ACT. The Territory has a younger population than the national average with a median age of 31.3 years in June 1996 compared to 34.0 years for Australia. The median age for the ACT and Australia generally is increasing quite rapidly. This is reflected by the population composition. The ACT has 22.0 per cent of its population aged 0-14 years and only 7.3 per cent aged 65 years and over.[24] The ACT has a higher proportion of 20-45 year olds, especially 20-24 year olds, but relatively fewer people in the older groups than Australia. Census results for 1996 show that the ACT has 25.7 per cent of its population born overseas (in 1991 it was 23.6%), a third of whom came from the United Kingdom, Ireland or New Zealand. The majority of other foreign born residents mainly came from Europe and the former USSR. This compares to an Australian proportion of 26.1 per cent of people born overseas.[25]

Table 1 shows the small constant estimated growth in population in the ACT over the past 9 years. 1996 figures are derived from the 1996 Census, so are actual rather than estimated. The expected growth in the male population over the past three years or so has not eventuated. There has been a 6.8 per cent growth in overall population since the 1991 Census.

Table 1 : Estimated ACT population, 1988-96

Year	1988	1989	1990	1991	1992	1993	1994	1995	1996
Males	138220	141550	145427	144636	147132	150096	151269	153168	152804
Females	136935	139533	142627	144684	146586	148804	149598	150957	155221
Persons	275155	281083	288054	289320	293718	298900	300867	304125	308025

Source: *Population of the ACT*, ABS, Unpublished data
Estimated resident Population by Age and Sex in Statistical Local Areas . ABS Catalogue No. 3207.8
Demography Australian Capital Territory 1996. ABS Catalogue No. 3311.8

Table 2 shows that most of the ACT population is under 75 years old. However, it should be noted that, while other states will roughly double their proportion of people aged 65 or more, the ACT proportion is expected to nearly triple between now and 2051.[26]

Table 2: Estimated population aged less than 75 years, ACT, 1988-96

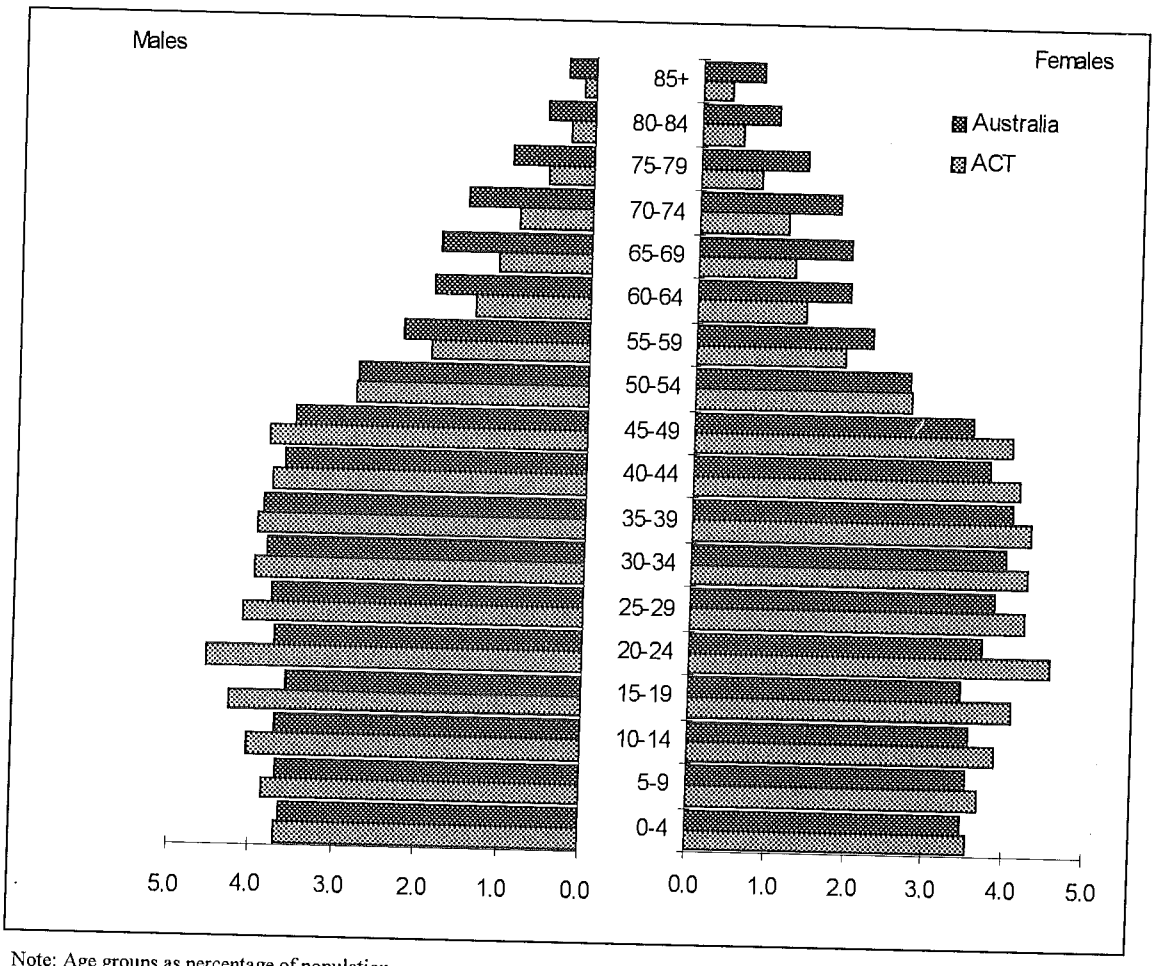
	1988	1989	1990	1991	1992	1993	1994	1995	1996
Males	135593	138361	141508	142421	145033	147603	148661	150332	152113
Females	133091	135165	137421	140862	142682	144488	145061	146123	147107
Persons	268684	273526	278929	283283	287715	292091	293722	296455	299220

Source: *Population of the ACT.* ABS unpublished data
Estimated resident population by sex and age, preliminary, States and Territories, June 1992-1996. ABS Catalogue No.3201.0

The ACT median age was 31 years at the 1996 Census compared to 29 years in 1991.

The distribution of the population in the ACT is different to that of Australia, as can be seen from Figure 2. The ACT population has higher proportions of people in the younger age groups from 0 to 49 years. In the older age groups, from 55 years and on, the ACT has smaller proportions than the general Australian population. In both the ACT and Australia generally, the majority of people aged greater than 65 years are women, and the preponderence of women becomes more marked as age increases.

Figure 2: Estimated % age distribution, males & females, ACT & Australia, 6 August 1996



Note: Age groups as percentage of population
Source: *Census of population and Housing,: selected social & housing characteristics ACT 1996*, ABS Cat No. 2015.8
Census of population and Housing : selected social & housing characteristics Australia 1996, ABS Cat. No. 2015.0

Age distributions vary considerably over populations in ACT town centres (refer Appendix 4). In summary, the longer established regions/areas of North Canberra, South Canberra and Woden Valley have relatively high proportions of people aged 65 years and over (greater than 11 per cent). The highest median ages were recorded in Woden Valley (36 years), South Canberra and Weston Creek-Stromlo (both 35 years).[27] On the other hand, the more recently established areas of Tuggeranong and Gungahlin-Hall have relatively high proportions of people aged 0-14 years (24 per cent and 30 per cent respectively), and very low proportions of people aged over 65 (less than 3 per cent for both). These areas also had the lowest median ages (28 years in Tuggeranong and 27 years in Gungahlin-Hall).[28] These differences in age structures result in considerable variation in the health care requirements of regional populations.

2.3 Aboriginal and Torres Strait Islander population

This group comprises only a very small proportion of the ACT population.[29] There were 1,593 people who identified as Aboriginal and Torres Strait Islanders in the ACT in 1991 and 2,898 in the 1996 Census. This represents an increase of 81.9 per cent, probably mainly due to an increased willingness to self-identify rather than dramatic increases in migration or births (There were 66 Indigenous births in 1996).

Although small in number, this population commands specific attention because its culture and needs differ from the mainstream. The group is extremely mobile, but generally tends to move within the local area rather than moving interstate. (Between 1986 and 1991, 93.8% changed addresses within the Local Area - it should be noted that the LA covers more than just the ACT). Its population has a much younger profile than the non-indigenous population, which is a reflection of higher fertility rates and lower life expectancy. The fertility rate is 2.6 compared to 1.8 for all ACT women, but is the lowest Indigenous rate for all states and territories. In the ACT more than 38 per cent of Indigenous persons were less than 15 years of age whereas there were less than 23 per cent in this age group in the total ACT population. This younger age pattern was evident for all age groups under 30 years of age. Equally noteable is the fact that less than three per cent of Indigenous persons were aged greater than 55 years compared to more than 12 per cent in the total ACT population. The age-structure of Indigenous persons in the ACT is representative of the total Australian Indigenous population.[30]

The Aboriginal and Torres Strait Islander community in the ACT has the highest education levels and labour force participation rates for all Indigenous people throughout Australia. Forty two per cent of Aboriginal families have a non-Aboriginal mother compared to the national figure of 30 per cent.[31]

The Aboriginal and Torres Strait Islander population is increasing slowly in the ACT and Australia generally, as can be seen from the following table.

Table 3: Aboriginal & Torres Strait Islander population, ACT, 1986-96

	1986	1991	1994	1996*
Population (number)	1384	1616	1969	2,899
Percentage of ACT population	0.55	0.58	0.65	0.97
Percentage of Australian Indigenous population	0.55	0.57	0.65	0.82

Source: ABS *Experimental Estimates of the Aboriginal and Torres Strait Islander Population*, Catalogue No. 3230.0
* ABS 1996 *Census results*, Catalogue No. 2015.8

2.4 Births

There were 2,155 female and 2,241 male births registered to mothers usually resident in the ACT, in 1996. This represents an increase of 7.2 per cent since 1986. The Australian increase was only 4.3 per cent. The crude birth rate is slowly declining over time.

Table 4: Births, ACT, 1989-96

	1989 (b)	1990	1991	1992	1993	1994	1995	1996
Number	4137	4457	4756	4447	4414	4461	4415	4,396
Crude rate	15.0	15.8	16.5	15.1	14.8	14.8	14.5	14.3

Note: Births at year of registration. Crude birth rate is per 1,000 population b) Includes Jervis Bay Territory
Source: *Demography ACT*. ABS Catalogue No. 3311.8,
Births Australia 1996, ABS Catalogue No.3301.0

If a comparison is made of the age (of mother) specific birth rates for 1988 to 1996, it can be seen that the rate is decreasing in age groups to 34 years, but increasing in mothers aged 34+years (refer Table 5). Women aged 35 years and over accounted for

16 per cent of total births in 1996, but only 10 per cent in 1985. This trend is also occurring nationally.

In terms of median age, these have increased to 29.6 years (from 28.4 in 1985) for mothers and 31.8 years (from 30.8 in 1985) for fathers in the ACT. These values are consistent with the national median ages of 29.2 for mothers and 31.9 for fathers.

Table 5: Age-specific birth rates(a) by age group of mother, ACT, 1988-1996

Age group	1988	1989	1990	1991	1992	1993	1994	1995	1996
15-19(b)	12.4	11.9	13.3	14.0	13.7	14.4	13.2	14.8	14.4
20-24	68.7	64.1	65.2	63.8	53.9	51.7	51.5	49.8	44.9
25-29	132.8	128.3	132.5	129.2	126.4	120.4	116.0	112.8	112.5
30-34	97.9	101.1	106.0	106.0	106.2	104.5	111.1	108.1	105.8
35-39	36.2	35.0	36.0	40.8	36.1	39.0	42.8	45.9	48.7
40-44	6.2	6.2	5.6	5.4	5.9	6.0	6.3	6.9	8.9
45-49(c)	0.1	0.3	0.1	0.0	0.4	0.3	0.1	0.1	0.3
Fertility rate	1.772	1.734	1.794	1.796	1.712	1.681	1.705	1.692	1.677

(a) Rate per 1,000 mothers
(b) Includes births to mothers aged less than 15.
(c) Includes births to mothers aged 50 and over.
Source: *Demography, ACT*, ABS, Catalogue No. 3311.8,
Births Australia 1996, ABS Catalogue No.3301.0

Of all nuptial confinements registered in the ACT in 1995 (1996 data not yet available), 62 per cent were to both parents born in Australia and 10 per cent to both parents born in the same overseas country, the major countries being Vietnam, United Kingdom and the former Yugoslav Republic.

2.5 Fertility

As can be seen from the table above, the fertility rate (refer 16.5 for definition) has fluctuated around 1.7 children per woman. The Australian rate was 1.8 in 1996. The ACT fertility rate is the lowest of all states and territories.[32]

2.6 ACT compared to Australia

It is interesting to compare ACT and Australian major socioeconomic indicators in the development of a profile of the Territory. Table 6 outlines major factors. Since the ACT population makes up 1.7 per cent of the Australian population, any ACT proportions over 1.7 per cent indicate higher activity, and any proportions under 1.7 per cent indicate lower activity than would have been expected. This expectation assumes that the ACT population has a similar composition to that of Australia, which is not a correct assumption. Many of the reasons for discrepencies concern differing demographics, in particular age differences, as discussed below.

Table 6: Selected socioeconomic indicators, ACT compared to Australia, 1996

	Unit	Date/period	ACT	ACT %
Rate of population growth (Aust. = 1.4)		to June '96	1.1	-
Births registered	no.	1995	4415	1.7
Deaths registered	no.	1995	1114	0.9
Marriages registered	no.	1995	1753	1.6
Divorces	no.	1995	1787	3.6
Permanent settlers	no.	1995-96	1021	1.0
Labour force, annual average	'000	1995-96	170.4	1.9
Unemployment rate (Aust. = 8.5%)	%	1995-96	7.6	-
Participation rate (Aust. = 63.7%)	%	1995-96	73.7	-
Employed salary & wage earners:				
private	'000	March '95	55.9	1.3
public	'000	March '95	74.1	4.7
Mean weekly earnings in all jobs:				
males (Aust. = $680)	$	November '96	770	-
females (Aust. = $447)	$	November '96	562	-
Industrial disputes, days lost	'000	1996	21.0	2.3
Trade union membership	'000	30 June '96	45.7	1.9
Social:				
Age pensions	'000	30 June '96	12.0	0.7
Disability support pensions	'000	30 June '96	4.3	0.9
Sole parents pensions	'000	30 June '96	4.8	1.4
Basic family payments	'000	30 June '96	52.3	1.5
Nursing homes - government	beds	1 January '97	86	0.8
- private	beds	1 January '97	433	0.7
Hostels (includes respite)	beds	1 January '97	789	1.2
Medicare services:				
General practitioners	'000	1995-96	1429	1.4
Specialists and others	'000	1995-96	237	1.3
Education - student enrolment:				
Government	'000	1996	39.9	1.8
Non-government	'000	1996	21.4	2.3
Technical and further education	'000	1995	18.8	1.0
Higher education	'000	1996	20.0	3.3
Economy:				
Gross domestic product	$m	1995-96	10472	2.2
Average weekly household expenditure (Aust.= $812)	$	1993-94	1071	-

Note ACT % refers to the ACT proportion of total Australia
Source: *ACT in Focus 1997*. ABS Catalogue No. 1307.8

The above table shows that the ACT has considerably higher activity than the national average in public employment and higher education. It has considerably less activity in proportion of deaths, pensions, nursing home residence (all due to a younger age profile in the ACT), and technical and further education (offset by a high activity in other higher education). The number of industrial disputes where days were lost increased considerably from previous years (from 0.2% to 2.3%). This was probably due to the high activity in public employment which was under review in 1996), The ACT contributes proportionately more to gross domestic product than Australia generally.

The 1996 Census results confirm that the ACT has a high socioeconomic profile. It was found that 10.3 per cent (30,379) of Territorians were participating in post secondary education compared to the Australian average of 6 per cent. The median weekly personal income for people aged 15 years and over was $430 compared to the Australian median of $292. In the ACT 29.5 per cent of homes were owned by their occupants compared to 40.9 per cent of homes in Australia generally. However, the

ACT recorded the highest proportion of dwellings being purchased (34.5%). Median housing loan repayments were considerably higher in the ACT than for Australia generally ($923 per month compared to $780).

3. ACT general health indicators

3.1 Health status

With regard to health status, the ACT fares as well or better than other states and territories, with the exception of high risk drinking (refer Table 7). Fortunately, this category has improved over the past five years, but levels should continue to be monitored.

Table 7: Selected health indicators, ACT compared to Australia, 1995

Indicator	ACT	Australia	ACT compared with states & NT
Health status			
Male life expectancy at birth	76.2	75.0	highest
Female life expectancy at birth	81.6	80.8	highest
Total no. of deaths ('000)	1.1	125.1	n/a
Crude death rate (per 1,000)	3.7	6.9	lowest
Standardised death rate (per 100,000)	540	650	lowest
Infant mortality rate (per 1,000 live births)	4.8	5.7	lowest
Perinatal mortality rate (per 1,000 live births and fetal deaths combined)	8.1	8.1	4th highest
Cause of death			
Ischaemic heart disease (standardised rate per 100,000)	116	151	lowest
Cancer (standardised rate per 100,000)	168	178	2nd lowest
Road accidents (standardised rate per 100,000)	7	11	lowest
Suicide (standardised rate per 100,000)	12	13	lowest with NSW & Vic
Risk factors			
High risk drinkers (18 years and over) %	4.2	3.1	2nd highest after NT
Current smokers (18 years and over) %	22.8	23.7	2nd lowest after SA
Acceptable weight, (18 years and over) %	55.6	50.0	highest
Fully immunised children (3mths to 6yrs) %	63.5	52.1	highest

Source: *Australian Social Trends 1997*. ABS Catalogue No. 4102.0

3.2 Risk factors to good health

The Australian Bureau of Statistics (ABS) conducts a five yearly National Health Survey the last of which was conducted in the twelve months from January 1995 to January 1996 (refer Glossary). Results have recently been released.

The National Health Surveys give estimates of risk behaviour in Australia. ACT data is summarised below. ACT residents generally believe their health to be very good

(refer Table 8), although they suffer from more recent conditions of a minor nature than Australians generally (refer Table 9). They suffer from respiratory conditions, both short and long term, more than Australians as a whole, but take health actions less often, especially with regard to doctor visits (refer Table 11). They do not expose themselves to as many health risks as other Australians, with the notable exception of high alcohol consumption (although the rate is slowly dropping) (refer Table 12). Please note that rates are not standardised.

Table 8: Self-assessed health status, by rate, ACT & Australia

Self-assessed health status	ACT 1995	Aust 1995
Excellent	205	195
Very good	386	354
Good	270	284
Fair	110	126
Poor	30	40

Note: rate per 1,000 population Source: *National Health Surveys 1989-90 and 1995*, ABS. Catalogue No. 4364

Table 9: Reporting a recent condition, by rate, ACT & Australia

Type of condition	ACT 1995	Aust 1995
ACT above the national average in 1995		
Headache	233.5	131.4
Common cold	99.8	56.4
Cough or sore throat	40.7	28.6
Hayfever	63.6	27.6
Eczema, dermatitis	46.0	24.5
Asthma	85.8	65.1
Back problems	32.4	25.8
Influenza	43.2	31.7
ACT below the national average 1995		
Arthritis	44.1	48.5
Hypertension	74.0	82.6

Note: rate per 1,000 population
Source: *National Health Surveys1989-90 and 1995.* ABS Catalogue No. 4364

Table 10: Reporting a long-term condition, rate, ACT & Australia

Type of condition	ACT 1995	Aust 1995
ACT above the national average in 1995		
Myopia/short sighted	297.5	203.1
Hypermetropia/far-sighted	237.1	207.9
Other disorders of refraction	37.9	27.3
Hayfever	240.7	136.7
Asthma	145.3	110.9
Sinusitis	139.0	99.6
Allergy	99.1	56.9
Hypertension	103.7	101.8
Deafness	107.6	95.2
ACT below the national average in 1995		
Arthritis	127.8	145.8

Note: rate per 1,000 population Source: *National Health Surveys1989-90 and 1995.* ABS Catalogue No. 4364

Table 11: Whether took action in last two weeks, rate, ACT & Australia

Type of condition	ACT 1995	Aust 1995
ACT above the national average in 1995		
Dental	73.9	55.7
Seen or talked to anyone else	65.3	47.3
Total medications	714.7	687.5
Days away from work/school	92.7	75.4
Other reduced activity	92.5	75.2
Hospital inpatient	7.9	7.7
ACT below the national average in 1995		
Visit to hospital outpatient	22.9	27.5
Doctor consultation	211.5	232.9

Note: rate per 1,000 population Source: *National Health Surveys1989-90 and 1995.* ABS Catalogue No. 4364

Table 12: Selected health risk factors, standardised percentage, ACT & Australia, 1995

Type of condition	ACT 1995	Aust 1995
ACT above the national average		
Acceptable weight	54.7	49.8
Overweight	22.9	22.7
Ex-smoker	29.3	27.4
Never smoked	49.3	48.9
Low consumption of alcohol	54.4	47.1
Medium consumption of alcohol	5.4	5.2
High consumption of alcohol	4.2	3.1
Total who consume alcohol	64.1	55.4
Low exercise level	36.0	34.0
Medium exercise level	20.5	17.4
High exercise level	18.6	15.6
Total who exercised	75.1	67.0
ACT below the national average		
Underweight	9.6	9.9
Obese	7.2	7.8
Smoker	21.4	23.7
Did not consume alcohol	35.9	44.6
Did not exercise	24.9	33.0

Note: age & sex standardised to the Australian population Source: *National Health Surveys 1995.* ABS Catalogue No. 4364

4. ACT general mortality

The death rates of the ACT and Australian populations have declined considerably during this century, particularly in the past 20 years. Taking changes of an ageing population into account, the age-standardised death rates for Australia between 1921 and 1991, fell by 49 per cent for males and 62 per cent for females.[33] (Standardisation was calculated using the average of the 3 years around census years 1971, 1981, 1991. Note that Table 13 standardisation was calculated using the 1991 Australian population). This represented an annual decline of 0.98 per cent for males and 1.4 per cent for females. Over a 20 year period (1971-91) in the ACT, the age-standardised

death rate for males declined from 1405 to 762 per 100,000 population, and for females from 787 to 482 per 100,000 population. The rate for ACT persons declined from 1038 to 598 per 100,000 population. Using 1991 Australian population as the standard (Refer Table 8), a similar pattern of decrease occurred. Rates over the five years from 1991 have remained stable.

In 1985 the median age at death was 65.2 years for males and 72.5 years for females in the ACT. By 1996 they were 71.4 years for males (74.0 for Australia) and 77.5 for females (80.7 Australia). These ages are below the Australian median ages of 74.0 years (males) and 80.7 years (females).[34] The younger median ages are likely to be caused by the younger age distribution in the ACT.

The following table gives detail of the ACT mortality profile since 1988:

Table 13: Indicators of mortality, ACT, 1988-96

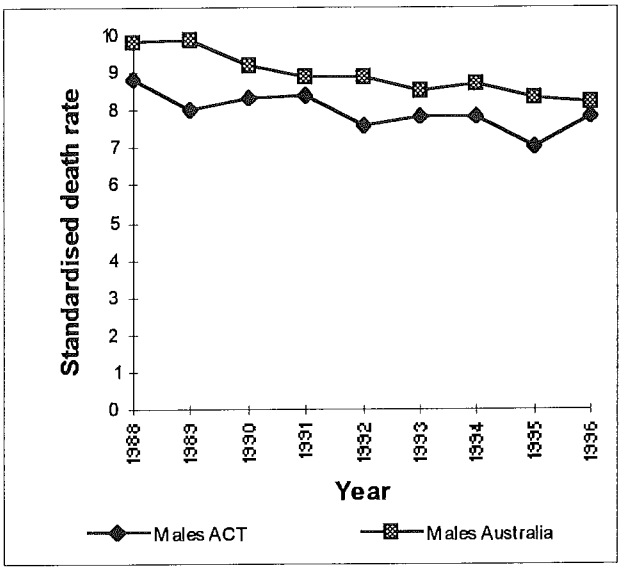
Indicator	1988	1989	1990	1991	1992	1993	1994	1995	1996
Number of deaths									
Males	566	537	594	605	578	632	644	593	698
Females	450	443	508	491	496	478	578	521	602
Total	1016	980	1102	1096	1074	1110	1222	1114	1300
Mortality rate per 100,000									
Males	409.5	379.4	408.5	418.3	392.8	421.1	425.7	387.2	472.2
Females	328.6	317.5	356.2	339.4	338.4	321.2	386.4	345.1	397.6
Total	369.2	348.7	390.6	379.5	365.0	371.4	406.2	366.4	434.4
Standardised mortality rate per 100,000									
Males	880	800	830	840	770	780	780	700	780
Females	530	510	550	500	490	440	510	440	490
Total	680	640	670	640	600	590	630	540	610
Infant mortality rate per 1,000 live births									
Males	n/a	7.3	11.6	9.9	7.1	6.7	6.3	2.6	5.4
Females	n/a	6.2	7.1	5.2	5.5	1.8	3.1	7.1	6.0
Total	8.1	6.5	9.0	8.0	6.0	4.0	5.0	4.8	5.7
Premature deaths (< 75 years)									
Males	397	370	424	412	367	397	425	374	421
Females	233	204	242	244	241	217	241	243	259
Total	630	574	666	656	608	614	666	617	680
Premature mortality rate per 100,000									
Males	292.8	267.4	301.0	292.1	253.7	269.0	285.9	248.8	276.8
Females	175.1	150.9	178.3	176.1	172.4	150.2	166.1	166.3	176.1
Total	234.5	209.9	240.6	234.4	213.4	210.2	226.7	208.1	227.3

Source: *Deaths Australia, 1993-95.* ABS Cat. No. 3302.0 ;
Causes of Death ACT. ABS unpublished data;
Demography ACT, 1990-95. ABS Cat No. 3311.8

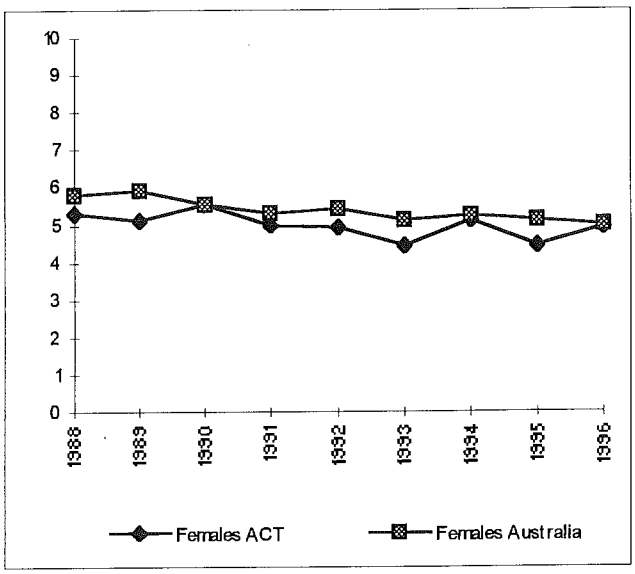
The standardised mortality rates, which are a good indicator of change and can be used to compare between ACT and Australian rates, can be converted to graphical form to clearly show the reduction in deaths over time (refer Figure 3). Standardisation of rates removes the majority of anomolies caused by differing age structures in populations. ACT standardised rates, with the exceptions of two years for females (1990, 1994), are consistently below those for Australia. In 1996 it was 6.1 per 1,000 which was the lowest of all states and territories.[35] The ACT infant mortality rate (5.7 per 1,000 live births) was the third lowest of all states and territories (Australian rate of 5.8).[36]

Figure 3: Standardised mortality rates per 100,000 population, ACT & Australia, 1988-96

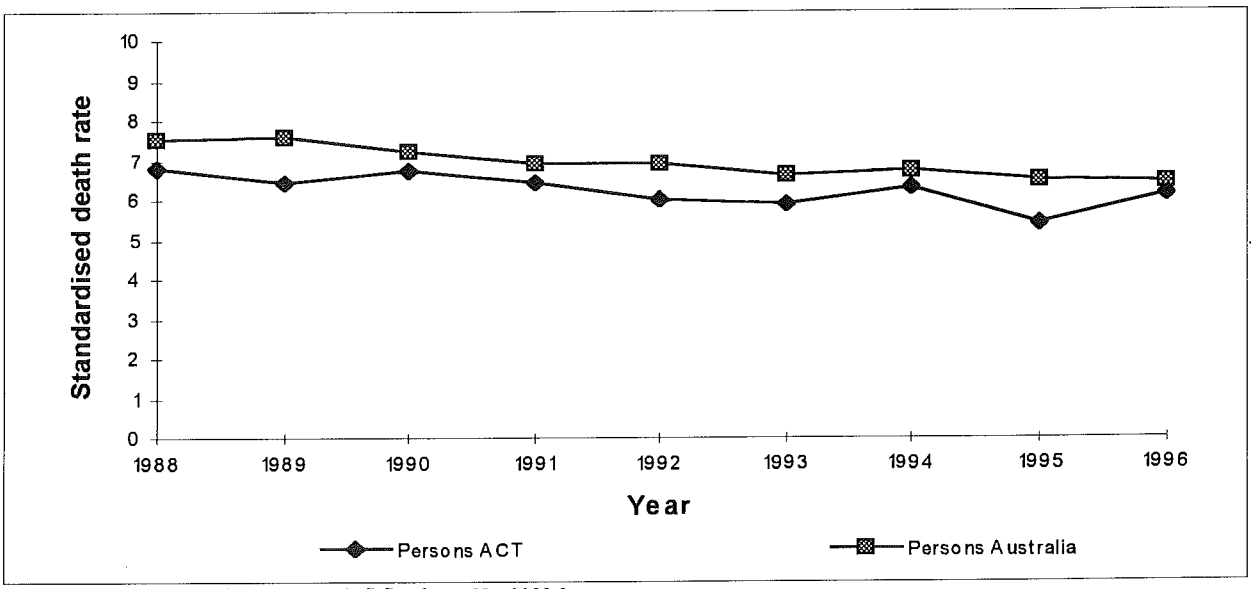
a) Males



b) Females



c) Persons



Source: *Deaths Australia, 1993-96, ABS Catalogue No. 3302.0*

4.1 Age-specific mortality

Age-specific death rates have declined or remained constant for males and females since 1985, with the exception of females aged under one year. Male death rates (1996) exceed female rates in all age groups except for children under one year of age, and for children aged five to fourteen where the rates are the same.

Table 14: Age-specific death rates(a), by sex, ACT, 1985-96

	1985	1990	1991	1992	1993	1994	1995		1996
Males									
under 1	9.8	11.6	9.9	7.1	6.7	6.3	2.6	under 1	5.4
1-9	0.3	0.2	0.2	0.4	0.3	0.3	0.3	1-4	0.3
10-19	0.6	0.6	0.7	0.2	0.2	0.5	0.2	5-14	0.2
20-29	1.5	1.0	1.0	1.1	0.9	0.7	0.8	15-24	1.0
30-39	1.0	0.9	1.0	1.2	1.5	1.1	1.3	25-34	1.0
40-49	1.3	2.2	2.2	2.0	1.7	2.5	1.6	35-44	1.4
50-59	7.3	6.0	4.7	4.2	4.8	5.7	5.2	45-54	2.6
60-69	17.7	20.3	19.1	15.3	16.9	15.5	13.3	55-64	8.4
70-79	51.1	44.8	43.9	39.9	42.1	41.4	33.3	65-74	25.7
80+	119.0	117.2	124.6	129.6	137.5	115.9	122.5	75-84	67.5
								85+	207.7
Females									
under 1	5.6	7.1	5.2	5.5	1.8	3.1	7.1	under 1	6.0
1-9	0.3	0.3	0.3	0.3	0.2	-	0.3	1-4	0.2
10-19	0.3	0.2	0.4	0.1	0.1	0.3	0.1	5-14	0.2
20-29	0.3	0.5	0.4	0.4	0.4	0.3	0.2	15-24	0.1
30-39	0.6	0.5	0.4	0.3	0.6	0.7	0.5	25-34	0.5
40-49	1.5	1.6	1.1	1.0	1.0	1.0	1.1	35-44	0.9
50-59	4.1	3.3	4.0	2.9	3.0	3.4	3.5	45-54	1.6
60-69	11.0	11.3	10.0	10.8	8.0	9.5	8.7	55-64	4.7
70-79	30.9	29.9	25.8	25.6	25.6	24.8	21.9	65-74	16.8
80+	90.0	98.9	92.5	93.1	84.7	110.3	84.7	75-84	45.8
								85+	137.

(a) Rates are per 1,000 population.
Note: There was one male Aboriginal or Torres Strait Islander death included in 1994 infant (under 1 yr) deaths. (Total of 21 deaths). This was the first year of recording Indigenous deaths. None were identified in 1995.
Note: Change in recording age groups for 1996. 1996 cannot therefore be compared with previous years. The ABS reports that there is little difference in rates from previous years if same age groups are used.
Source: *Demography ACT 1995.*, ABS Catalogue No. 3311.8 *Deaths Australia 1996,* Cataloque No. 3302.0

Estimates of years of potential life lost (refer Section 4.6) are made on the assumption that deaths occurring for people aged 1 to 75 years are considered untimely. Since healthy people would be expected to live until at least 75 years, it would be expected that a good proportion of deaths would occur after that age. This is certainly true for the ACT as is reflected in the following table.

Table 15: Deaths at age less than & more than 75 years, ACT, 1993-96

Year	1993	1994	1995	1996
More than 75 years				
Males	235	219	219	277
Females	261	337	278	343
Total	496	556	497	620
% total deaths	*45%*	*45%*	*45%*	*48%*
Less than 75 years				
Males	397	425	374	421
Females	217	241	243	259
Total	614	666	617	680
% total deaths	*55%*	*55%*	*55%*	*52%*

Source: *Deaths Australia.* ABS, Cat. No. 3302.0

4.2 Major causes of death

As shown in Table 16, it can be seen that the major causes of death in the ACT and Australia are malignant neoplasms (cancer), circulatory disease (mainly ischaemic heart disease and cerebrovascular disease (stroke). Approximately 31 per cent of male and 28 per cent of female deaths were due to cancer and 23 per cent of male and 19 per cent of female deaths were due to ischaemic heart disease, in the ACT in 1996.

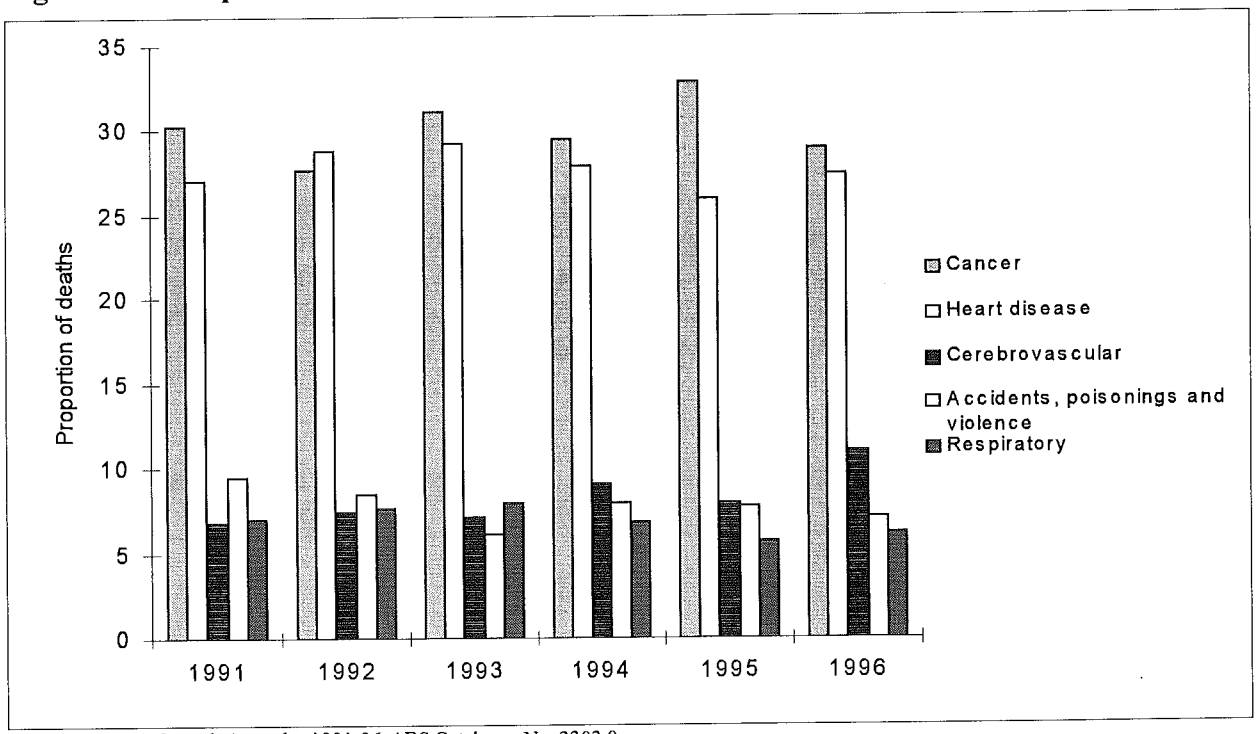
Table 16: Principal causes of death by sex, ACT & Australia, 1996

	ACT						Australia					
	Female		Male		Total		Female		Male		Total	
	No.	Rate	No.	Rate	No.	%	No.	Rate	No.	Rate	No.	%
Cause of death												
Malignant neoplasms	164	135	212	232	376	28.9	15084	141	19584	234	34668	26.9
Circulatory disease	256	210	266	332	522	40.2	27439	209	26550	328	53989	41.9
Accidents and suicides	28	18	64	47	92	7.1	2123	21	5431	61	7554	5.9
Respiratory system	40	34	41	52	81	6.2	4560	37	5733	72	10293	8.0
Digestive system	21	17	18	19	39	3.0	1871	15	2022	24	3893	3.0
Other diseases	93	71	97	95	190	14.6	9433	75	8881	105	18314	14.2

Note: standardised death rate per 100,000 persons

Source: *Causes of Death, Australia 1996.* ABS Catalogue No.3303.0,

Figure 4: Principal causes of death, ACT, 1991-96



Source: *Causes of Death Australia 1991-96.* ABS Catalogue No. 3303.0

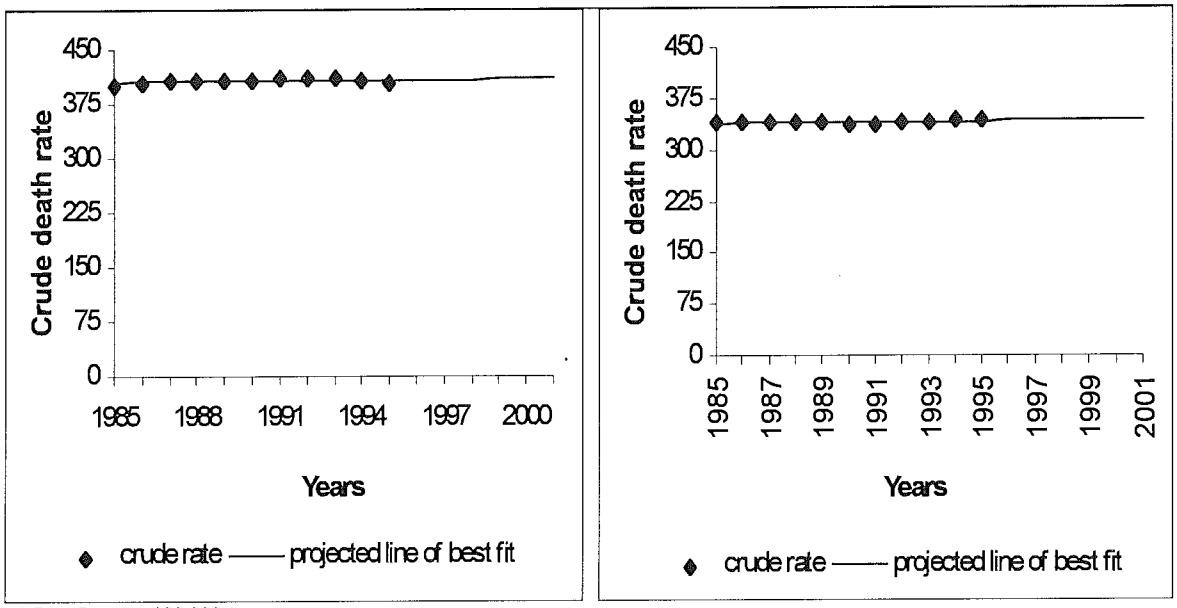
Details of trends in mortality for particular diseases are covered in sections related to specific diseases.

4.3 Projections of mortality to the year 2001

Projections of indicators can be used to assess future needs by policy makers, planners and service providers. Providing projection assumptions are met (refer Appendix 1), there will be little change in the overall crude death rate in the next 4 years.

The number of deaths in the ACT for males was 488 in 1985 and increased to 698 in 1996. Using the line of best fit the number of death in 2001 is estimated to be 667. However, we need to be aware of the fluctuations in the ACT (the number of deaths in 1994 for males was 644). For females, the number of deaths went from 408 in 1985 to 602 in 1996 and the estimated number for 2001 is 555 deaths. Again we need to note fluctuations in numbers (the number of deaths in 1994 for females was 578).

Figure 5: Crude death rates and projections of crude deaths rates(a), by sex, 1985-2001, all causes, ACT



(a) Rate Rate per 100,000

Source: *ACT Population Forecasts, 1996-2010 (medium series)*, Chief Minister's Dept
Estimated Resident Populations by Sex & Age, States & Territories of Australia, ABS Catalogue No. 3301.0
Causes of Death, Australia. ABS Catalogue. No. 3303.0

4.4 Indigenous people in the ACT

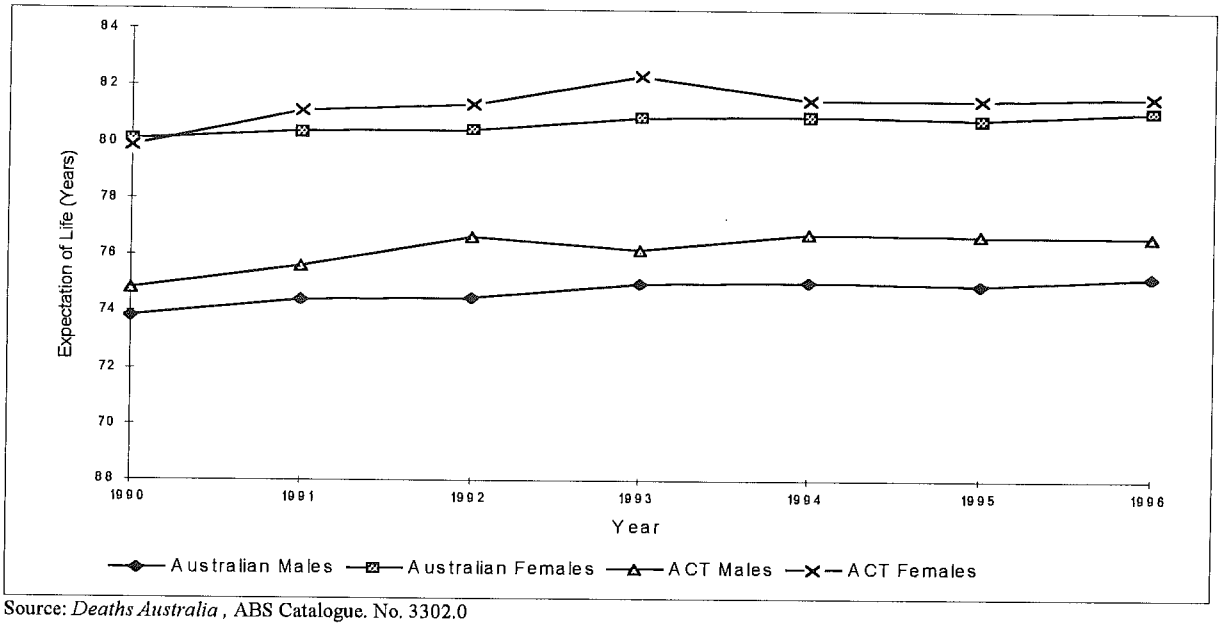
In 1993 and 1994 there was a total of 9 male and 10 female Indigenous deaths in the ACT, resulting in an age-standardised death rate of 17.2 and 43.6 per 1,000 persons respectively (NB Treat with caution due to the small numbers). The comparable rate for total Australia (Indigenous and non-Indigenous) was considerably lower at 8.4 and 5.4 per 1,000 persons respectively. In summary, although Indigenous persons in the ACT are more likely than their interstate counterparts to stay on at school longer, be employed at a greater rate particularly in the public sector and have a higher income, they were still likely to die at a much greater rate than the rest of the ACT population. Indigenous females in particular, have a huge mortality differential.[37]

There were 2 male and 3 female Indigenous deaths in 1996, 2 of which were from cardiovascular disease and 3 from injury and poisoning.

4.5 Expectation of Life at Birth

Since the standardised death rates have declined (from 6.7 per 1,000 persons in 1985 to 6.1 in 1996) the life expectancy for all ages has improved. People born in the ACT in 1996 recorded the highest expectation of life from birth of all states and territories: 81.6 years for females (compared to 81.1 years nationally) and 76.6 years for males (compared to 75.2 years nationally).[38] This trend has been constant over the years, as shown in Figure 6.

Figure 6: Expectation of life, by sex, ACT & Australia, 1990-96



Source: *Deaths Australia*, ABS Catalogue. No. 3302.0

4.6 Years of potential life lost

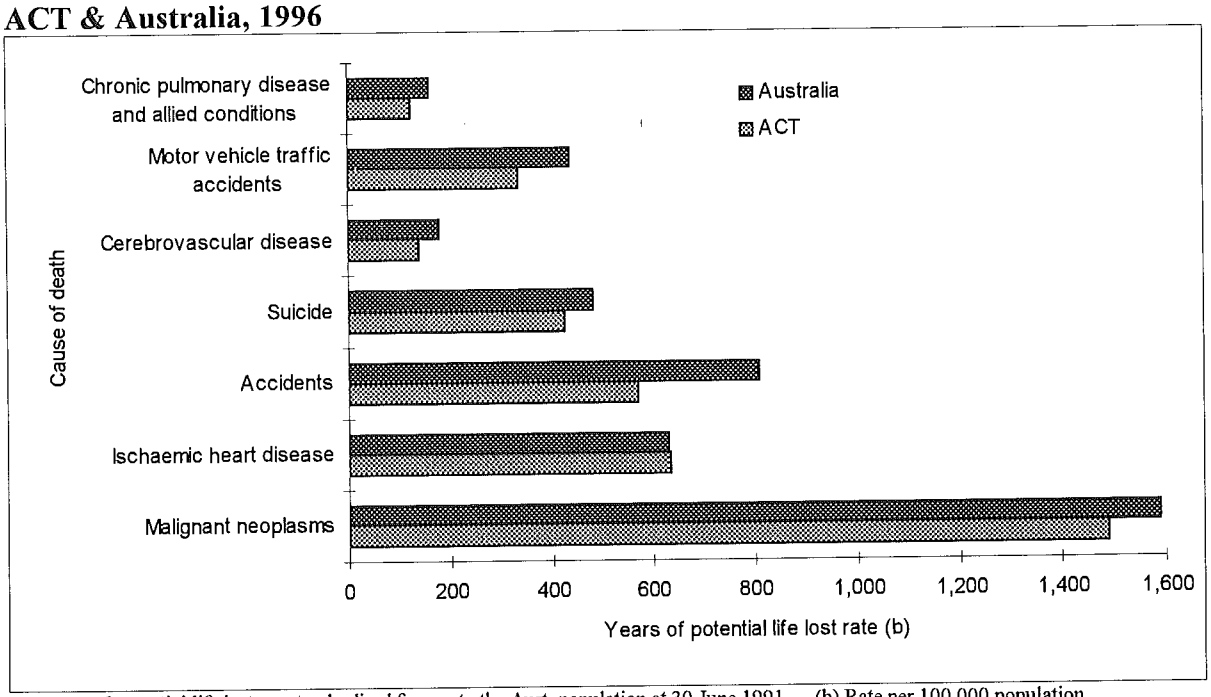
Estimates of years of potential life lost (YPLL) were calculated for deaths of persons aged 1 to 75 years based on the assumption that deaths occurring during this period are considered untimely.[39]

In conjunction with morbidity information, estimates of YPLL can assist those working on health service provision by providing a clearer picture of overall needs. Deaths tend to occur at an older age. However, many more life years are lost when deaths occur in younger people. This is clearly reflected in the distribution of ACT deaths and YPLL for suicides and accidents (refer Table 17). Figure 7 complements Table 17 and outlines the leading causes of death by rates for YPLL. It compares ACT rates with those for Australia and shows that ACT rates in 1996 are lower for all leading causes except ischaemic heart disease, where the rates are similar. That is, overall, less years of life are lost per 100,000 population in the ACT compared to the whole of Australia, regardless of our younger population (as the effects of age have been removed through standardisation).

Table 17 shows that in 1996, cancer (malignant neoplasms) had the highest percentage of deaths and YPLL in the ACT. Ischaemic heart disease and cerebrovascular disease had far higher proportions of deaths than YPLL for those causes, whereas suicides and accidents are the reverse (small proportion of deaths, but high proportion of YPLL).

This is to be expected given that those who die from heart disease are generally older and those who die in accidents and who commit suicide are mainly younger males.

Figure 7: Leading causes of death by rates for years of potential life lost (1-75 yrs), (a) ACT & Australia, 1996



(a) Years of potential life lost are standardised for age to the Aust. population at 30 June 1991. (b) Rate per 100,000 population aged < 75 years.
Source: *Causes of Death Australia.* ABS Catalogue No. 3303.0 and *Causes of Death ACT.* ABS unpublished data.

Table 17: Years of potential life lost (1-75 yrs) & no. of deaths, by selected causes of death, ACT, 1996

Cause of death category (ICD)	Number		Percentage	
	YPLL	DEATHS	YPLL	DEATH
Neoplasms				
Malignant neoplasms (140-208)	4459	376	33	29
Injury - accidents, poisoning, violence				
Accidents (E800-E949)	1707	51	13	4
Motor vehicle traffic accidents (E810-E819)	999	25	7	2
Suicide (E950-E959)	1268	37	9	3
Diseases of the circulatory system				
Ischaemic heart disease (410-414)	1895	273	14	21
Cerebrovascular disease (430-438)	411	134	3	10
Disease of arteries, arterioles and capillaries (440-448))	68	26	0	2
Diseases of the respiratory system				
Chronic obstructive pulmonary disease and allied conditions (490-496)	362	55	3	4
Pneumonia and influenza (480-487)	71	13	1	1
Diseases of the digestive system				
Chronic liver disease and cirrhosis (571)	184	11	1	1
Endocrine, nutritional, metabolic diseases & immunity disorders				
Diabetes mellitus (250)	188	25	1	2
Diseases of the nervous system				
Hereditary and degenerative diseases of central nervous system (330-337)	203	21	1	2
Nephritis, nephrotic syndrome and nephrosis (580-589)	157	23	1	2
Mental disorders				
Senile and presenile organic psychotic conditions (290)	23	17	0	1
All causes	13584	1300	100	100

Note: Years of potential life lost are standardised for age to Australian population at 30 June 1991.
Source: *Causes of Death ACT, 1996.* ABS Catalogue No. 3303.0. Unpublished data.

5. ACT general morbidity

5.1 ACT Quality of Life Surveys

The Quality of Life Project[40] is a collaborative project between the Epidemiology Unit in the Department of Health and Community Care and the National Centre for Cultural Heritage at the University of Canberra. It aims to provide an overview of the changing health related quality of life for people residing in the ACT. It has operated for four years and, to date, has surveyed randomly selected ACT people, asking them to rate their health-related quality of life using the Medical Outcomes Study's Short Form 36 (SF-36) (refer 16.4).

Results from the 1994 and 1995 project show that, within the ACT population, there are some interesting findings with regard to the various scores.

It was found that physical functioning scores deteriorated with age, the middle-aged group (45-64 years) reported worse general health than other groups, older people (65+ years) were significantly more likely to have good mental health. In relation to gender, women tended to score lower than men for scales related to mental health, but higher for general health. Employed people had higher physical functioning scores, general health and mental health, but lower role-emotional scores than part-time or unemployed people. Those who were married or de facto and who had children were likely to have worse mental health than those who were married or de facto without children or who were single without children. Interestingly, all scales except the mental health measure were significantly associated with disability status.

These results give baseline data for the overall ACT population and will assist policy makers and planners to target groups within the population in order to achieve better health outcomes for those in particular need.

5.2 Hospital utilisation

The majority of hospital services are provided by the two major public hospitals; The Canberra Hospital including the Detox Unit and the Renal Satellite, and Calvary Hospital including Calvary Nursing Home beds. These hospitals provided approximately 81 per cent of hospital inpatient admissions, accounted for approximately 84 per cent of occupied bed days and almost all outpatient services in the ACT in 1995-96. Other hospital services are provided by two private hospitals; Calvary Private and John James Memorial. There are also 5 recognised day-only private hospitals.

On average, approximately 20 per cent of all separations were by people living outside the ACT, mainly NSW residents. In some areas, the percentage can be as high as 50 per cent. This percentage has been reasonably constant over the last five years.

The breakdown of hospital activity is outlined in Table 18.

Table 18: Hospital separations, all hospitals, ACT, 1993-97

	1993-94		1994-95		1995-96		1996-97	
Indicator	Number	Rate(a)	Number	Rate(a)	Number	Rate(a)	Number	Rate(a)
Public hospitals								
Males	17253	11494.6	20706	13688.2	20592	13444.1	20295	13076.0
Females	23502	15793.9	25901	17313.7	25858	17129.4	24914	16357.1
Unknown/not stated	3		0		6		0	
-all	40755	13635.0	46607	15490.9	46456	15275.3	45209	14701.6
-obstetric (b)	6122	7855.3	5226	16743.8	4575	5906.8	4405	5696.1
All hospitals								
Males	21300	14190.9	25575	16907.0	24583	16049.0	25037	16132.3
Females	28426	19103.0	32530	21744.9	31599	20929.1	31577	20731.7
Unknown/not stated	3				6		0	
-all	49726	16636.3	58105	19312.5	56182	18473.3	56614	18410.4
-obstetric (b)	6261	8033.6	6118	7894.9	5601	7231.5	5569	7201.2

(a) Crude rate per 100,000 population, using mid-year ACT population and ACT resident separations only (no interstate separations)
(b) ACT females aged 15 to 44 are used as the population for obstetric rates.
Source: *ACT Hospital Morbidity Data Collection, 1993-97*

Indigenous people in the ACT

Although there is an Aboriginal and Torres Strait Islander identifier on hospital separation data collected in the ACT, a recent validation of Indigenous persons who were admitted to hospital in two consecutive years revealed that 20 per cent were inconsistent in self-identification. This problem is not unique to the ACT. Any separation data is likely to be an under estimation of the true usage patterns. There was a significantly higher proportion of asthma separations and for diseases of the cardiovascular system for males; and for diabetes mellitus, and injury for Indigenous persons generally. Of interest was the significantly lower proportion of neoplasm separations, reflecting in part the younger age structure of the Indigenous population.

Indigenous separations have increased dramatically in this last year. As mentioned in Section 2.3 this is probably due to an increased willingness to self-identify and also, the establishment of an Aboriginal Liaison Officer position based at The Canberra Hospital.

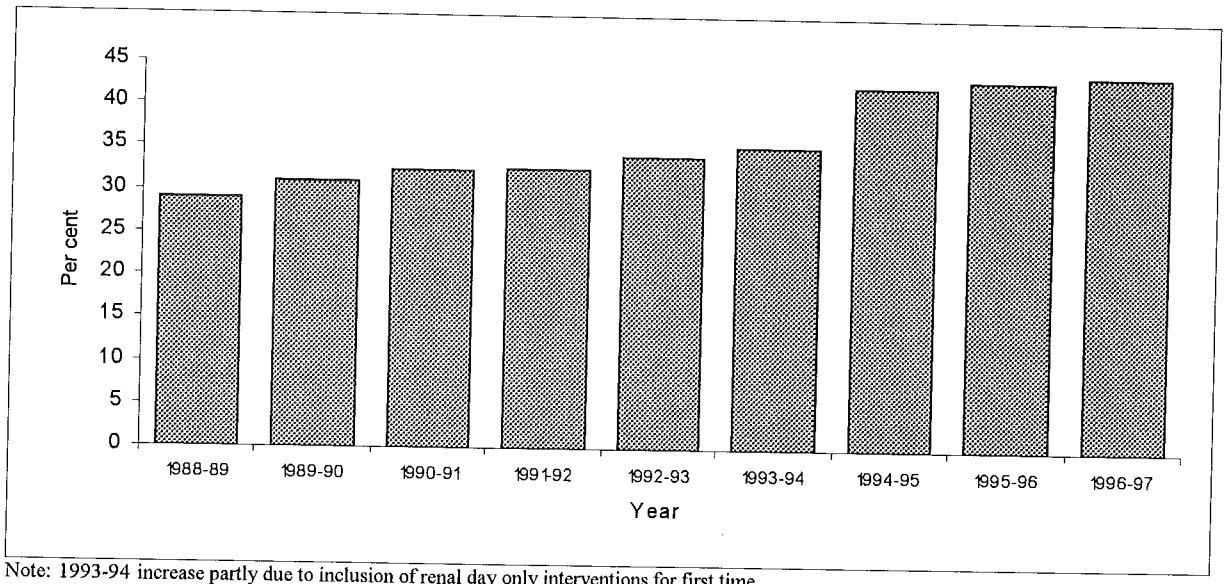
Table 19: Hospital separations for Aboriginal & Torres Strait Islander patients, by sex, ACT, 1993-97

Sex	1993-94	1994-95	1995-96	1996-97
Males	111	186	205	433
Females	149	127	134	255
Total	260	313	339	689

Source: *ACT Hospital Morbidity Data Collection, 1993-97*

In line with national and international trends, Figures 8 and 9 show that there has been an increase in the use of day only treatment and a decrease in the overall average length of hospital stay, for all people.

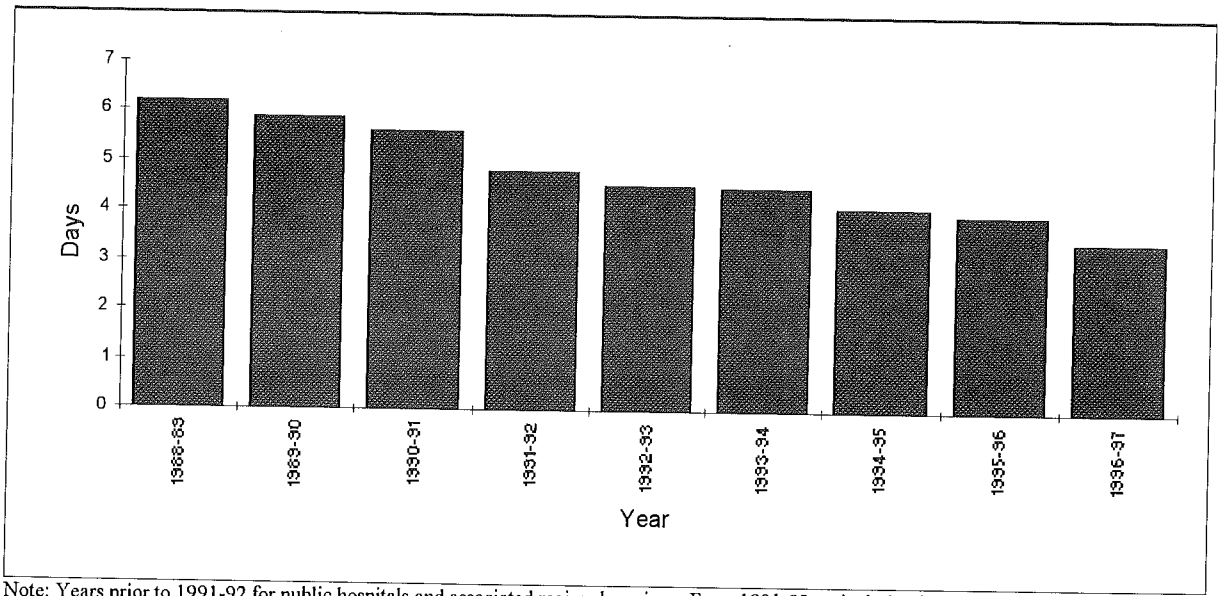
Figure 8: Day only separations as a percentage of total separations, ACT hospitals, 1988-97



Note: 1993-94 increase partly due to inclusion of renal day only interventions for first time
Source: *Annual Report 1993-94*. ACT Department of Health
ACT Hospitals Morbidity Data Collection 1992-97

Numbers of separations alone will not give a true indication of the level or severity of the reason for hospitalisation. An examination of average length of stay will assist in gauging acuity, although the improved discharge protocols and continuity of care will have had an impact on the reduced length of stay.

Figure 9: Average length of stay, ACT hospitals, 1988-97

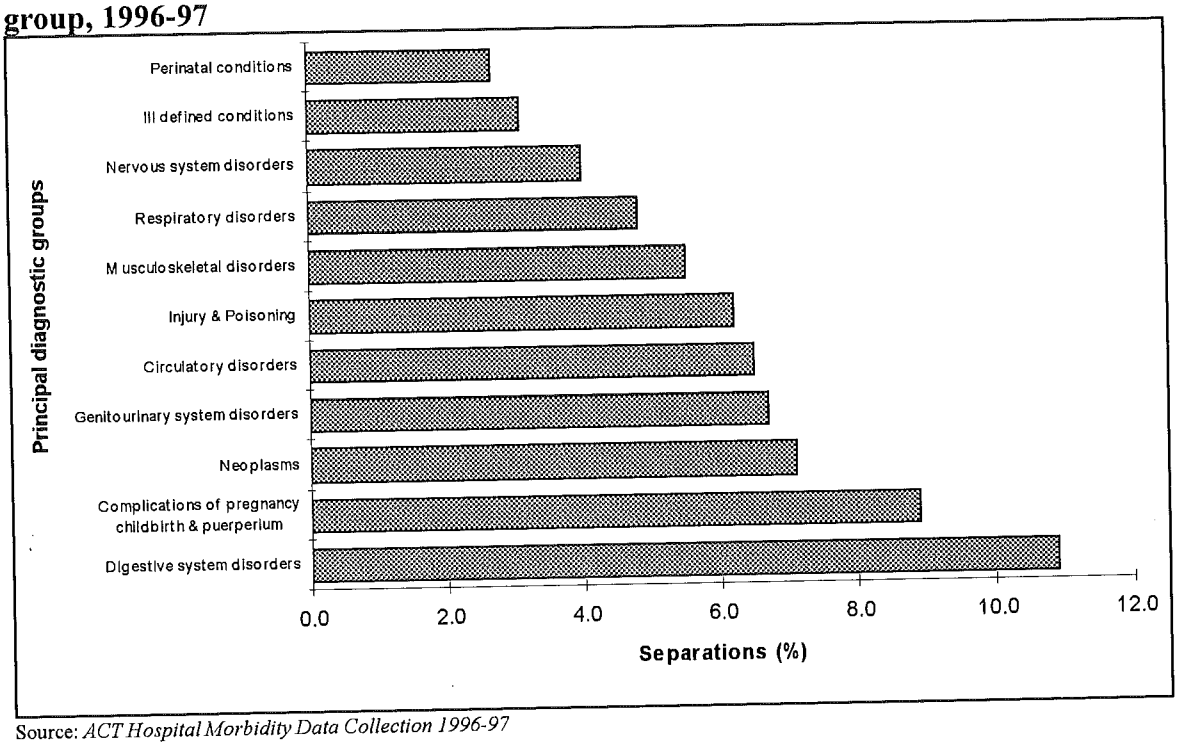


Note: Years prior to 1991-92 for public hospitals and associated regional services. From 1991-92 on includes data from Calvary Private and John James Hospitals.
Source: *Annual Report 1993-94*. ACT Department of Health
ACT Hospital Morbidity Data Collection 1991-96

The major causes for high length of stay in 1996-97 were mental disorders (average of 13.5 days), conditions originating in the perinatal period (7.8 days), injury and poisoning (5.8 days), circulatory diseases (5.7 days), and neoplasms (4.5 days).

In the 1996-97 year, there were 75,633 inpatient separations from all hospitals in the ACT, both public and private. The most common presenting problems are outlined in Figure 10.

Figure 10: ACT hospital separations by most common principal diagnostic group, 1996-97



Source: *ACT Hospital Morbidity Data Collection 1996-97*

Tables 20 and 21 give a broad profile of principal diagnoses and procedures which are carried out in ACT hospitals. They are grouped according to ICD-9 codes which are internationally recognised as an appropriate way of coding hospital separations (refer Appendix 3). It should be noted that ICD-9 codes listed denote the principal reason for treatment, but not necessarily the underlying cause (eg a person may present with and be treated for, pneumonia and be recorded as a pneumonia patient, but the main condition may be lung cancer).

Table 20 gives a broad picture of hospital utilisation in 1996-97. It can be seen that there were 42,272 inpatients, but 75,633 separations. Of the 75,633 separations, there were 49,321 people only 42,272 of whom stayed over one or more nights. This indicates that some people have had more than one episode in hospital.

When you combine the number of separations with the proportion of time spent in hospital, an indication of where the heavy utilisation occurs, emerges. It can be seen that the principal diagnoses, excluding childbirth, which have the highest number of separations also generally have high proportions of lengths of stay in the hospital. The only major exception is for acute mental disorders where the number of separations is comparatively small (2 % of all separations), but the length of stay the highest (8% of all hospital days). The average length of stay for people with mental disorders is 13.5 days which is considerably higher than for all other diagnoses.

Table 20: ACT hospitals - summary of activity, 1996-97

	Separations	Inpatients	TLOS	ALOS	MDN
Sex					
male	34570	18571	113787	3.3	1
female	41062	23700	147353	3.6	1
unknown	1	1	2	2.0	2
Total	75633	42272	261142	3.5	1
Principal diagnosis					
infectious and parasitic disease	1134	1000	4639	4.1	2
neoplasms	5354	2907	24044	4.5	1
endocrine, nutritional & metabolic disease, & immunity disorders	714	399	3088	4.3	2
diseases of the blood and blood forming organs	978	405	2330	2.4	0
mental disorders	1525	1425	20515	13.5	8
diseases of the nervous system & sense organs	3047	1456	6989	2.3	0
diseases of the circulatory system	4895	3622	27893	5.7	3
diseases of the respiratory system	3657	3366	16031	4.4	2
diseases of the digestive system	8274	3845	18975	2.3	0
diseases of the genito-urinary system	5101	2661	13701	2.7	1
complications of pregnancy, childbirth and the puerperium	6705	5928	26626	4.0	3
diseases of the skin and subcutaneous tissue	1042	546	3787	3.6	1
diseases of the musculoskeletal system and connective tissue	4179	2909	17286	4.1	2
congenital anomalies	778	532	2577	3.3	2
some conditions originating in perinatal period	2023	1918	15729	7.8	5
signs, symptoms and ill-defined conditions	2379	1603	6335	2.7	1
injury and poisoning	4706	4036	27177	5.8	2
supplementary classification of factors	19141	3713	23407	1.2	0
Total	75632	42271	261129	3.5	1
Principal medical procedure					
operations on the nervous system	1176	770	7522	6.4	2
operations on the endocrine system	101	74	647	6.4	4
operations on the eye	1058	538	983	0.9	1
operations on the ear	1091	237	449	0.4	0
operations on the nose, mouth and pharynx	3587	1519	3305	0.9	0
operations on the respiratory system	607	436	5584	9.2	5
operations on the cardiovascular system	12058	1380	9291	0.8	0
operations on haemic and lymphatic systems	557	274	2977	5.3	0
operations on the digestive system	8806	3925	26274	3.0	0
operations on the urinary system	1318	944	5897	4.5	2
operations on the male genital organs	1293	842	4618	3.6	2
operations on the female genital organs	3855	1607	8013	2.1	0
obstetrical procedures	3948	3907	20438	5.2	5
operations on the musculoskeletal system	6326	4681	28610	4.5	2
operations on the integumentary system	2607	957	5391	2.1	0
miscellaneous diagnostic and therapeutic procedures	11771	6259	65381	5.6	1
Total	60159	28350	195380	3.2	1
Total external cause of injury and poisoning	7942	6940	62594	7.9	3
Usual residence					
ACT	56613	31788	192457	3.4	1
Non-ACT	15058	7899	53921	3.6	1
Unknown/missing	3962	2585	14764	3.73	1
Total	75633	42272	261142	3.5	1

Note. 'Some of the patients may have had more than one separation, but for different diagnoses. They may have separated from more than one hospital. Consequently, it is not possible to give accurate no.s of individuals using the hospital system, nor how many times they were admitted. The inpatient data should therefore be treated with caution.
Source: *ACT Hospital Morbidity Data Collection, 1996-97*

In comparing principal diagnoses over time (1992-97), most diagnoses have decreased in their percentage of total separations. The exceptions are infectious and parasitic disease (from 1.3 % to 1.5 % of total hospital separations), and diseases of the blood and blood forming organs (from 0.8 % to 1.3%) (*marginal increases*) and supplementary classification of factors (18.6%to 26.7%) (*large increase*). The increase in the latter classification needs investigation to ensure that it is not being used indiscriminately. Table 21 details the number of separations by length of stay for various sub-categories. These have been nominated because of public interest. Note the large number of dialysis and chemotherapy treatments in the supplementary classification of factors. These treatments are nearly all administered in less than one day and, due to their large number, skew the overall average length of stay.

Table 21: Estimated no. of hospital separations for selected principal diagnosis, by sex, by length of stay, ACT, 1996-97

		Length of stay (days)								
Principal diagnosis	Sex	<1	1	2	3	4-7	8-14	15+	ALOS	Median
Infectious and parasitic diseases	M	45	121	142	94	99	38	24	4.4	2
	F	89	104	149	77	94	35	23	3.8	2
AIDS/HIV	M	1	0	0	0	0	0	1	8.0	8
	F	-	-	-	-	-	-	-	-	-
Neoplasms	M	1226	244	165	121	327	358	224	4.6	1
	F	1212	233	146	109	529	276	184	4.4	1
Malignant neoplasms	M	833	185	133	105	291	330	210	5.4	2
	F	610	157	103	66	259	202	165	5.4	2
Benign:-uterus	F	52	5	4	10	182	42	3	5.2	6
Endocrine, nutritional and metabolic	M	171	21	34	13	44	41	18	3.6	0.5
diseases and immunity disorders	F	113	29	34	37	85	45	29	5.0	3
Diabetes meillitus	M	5	7	15	8	29	24	12	6.9	5.5
	F	3	14	15	16	32	26	13	7.8	5
Mental disorders	M	44	75	48	64	135	138	203	13.1	7
	F	56	78	41	53	161	194	235	13.8	8
Psychoses	M	18	31	22	35	92	106	174	16.2	9
	F	30	24	12	22	86	110	188	17.7	11
Neuroses	M	1	4	2	3	6	7	4	8.7	5
	F	7	7	7	8	14	25	15	8.9	7
Diseases of the respiratory system	M	174	628	391	187	346	170	87	4.1	2
	F	117	487	303	165	313	190	99	4.7	2
Pneumonia	M	2	11	48	50	116	58	27	7.0	5
	F	4	8	29	37	106	74	31	7.9	6
Bronchitis	M	5	2	7	4	7	6	3	7.7	3
	F	0	3	3	3	9	13	2	7.1	6
Emphysema	M	1	0	1	0	12	8	6	13.5	8.5
	F	0	1	1	0	4	3	7	20.3	11.5
Asthma	M	19	93	100	36	41	10	0	2.4	2
	F	15	53	51	36	65	26	6	3.8	3
Diseases of the genitourinary system	M	350	244	155	119	373	115	52	3.6	2
	F	2090	305	189	142	646	260	61	2.3	0
Hyperplasia of the prostate	M	98	25	12	32	179	45	23	4.9	4
Supplementary classification of factors	M	7894	371	299	348	579	96	91	1.1	0
	F	7505	312	336	399	705	99	107	1.3	0
Sterilisation	M	89	3	0	0	0	0	0	0.0	0
	F	215	23	2	0	3	0	0	0.2	0
Normal neonate	M	55	228	237	306	470	13	0	3.1	3
	F	53	181	254	349	552	22	0	3.3	3
Extracorporeal dialysis	M	5251	0	0	0	0	0	0	0.0	0
	F	4395	0	0	0	0	0	0	0.0	0
Maintenance chemotherapy	M	1783	9	4	2	5	2	0	0.0	0
	F	2234	11	3	0	2	0	0	0.0	0

Source: *ACT Hospital Morbidity Data Collection, 1996-97*

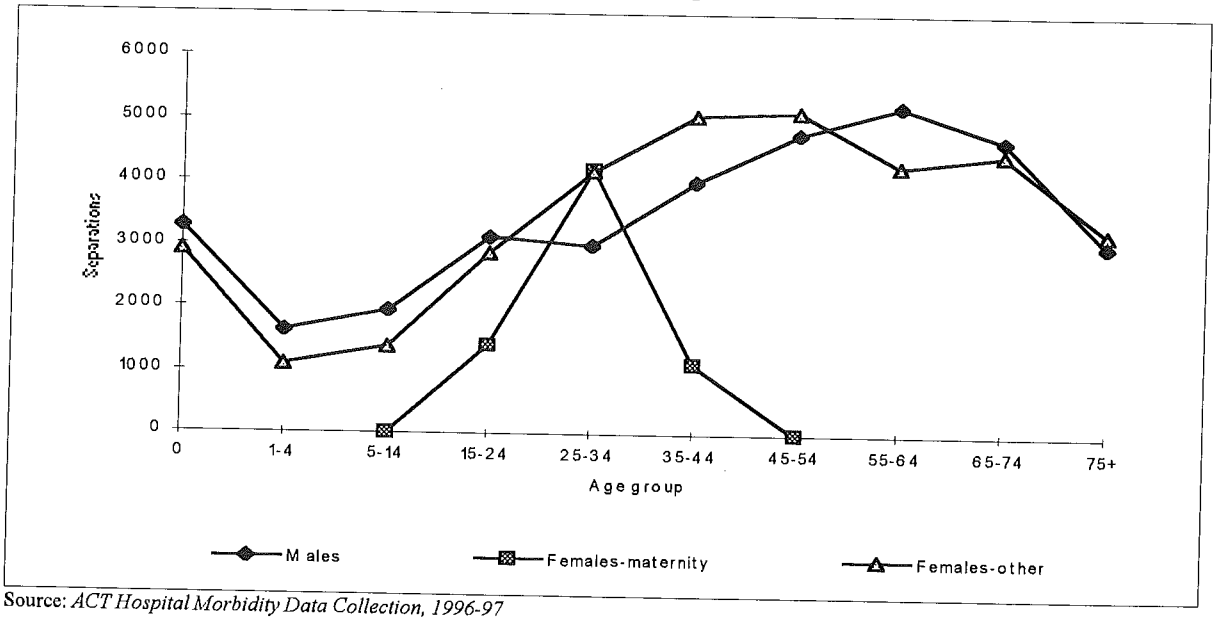
The proportion of private patients in public hospital beds continues to decline. In 1992-93, 30.5% of occupied bed days were used by private patients compared to 14.3% in 1996-97.

Age-specific hospital separations

Figure 11 gives an overall profile of how hospital services were utilised in 1996-97 in relation to age categories. There is a difference in peak usage between males and females. It can be seen that separations are greatest for males in the 45-74 age range. Reasons for hospitalisation for this age group include diseases of the digestive system (12%), diseases of the circulatory system (8.6%), neoplasms (7.7%), and injury and poisoning (7.7%).

Females on the other hand, have more separations during the child-bearing ages of late teens to mid fifties than at other times in their lives. Major causes include those which are maternity related, complications of pregnancy events (28%), genitourinary problems (13%) and diseases of the digestive system (11%).

Figure 11: ACT hospital separations, by sex, by age, 1996-97



Source: *ACT Hospital Morbidity Data Collection, 1996-97*

A summary of age and sex related separations is given in Table 22. It can be seen that different age groups have separations for different major disease groups. The youngest groups (1-14 years) tend to be hospitalised for respiratory problems, injury and poisoning, digestive or nervous system problems. As people age, separations are more often related to complications of pregnancy, musculoskeletal problems, digestive system problems, injury and poisoning and genitourinary problems. From approximately 40 years of age, circulatory system problems and cancer become major reasons for hospitalisation.

Table 22: ACT hospital separations for high volume diagnostic groups, by sex, by age, 1996-97

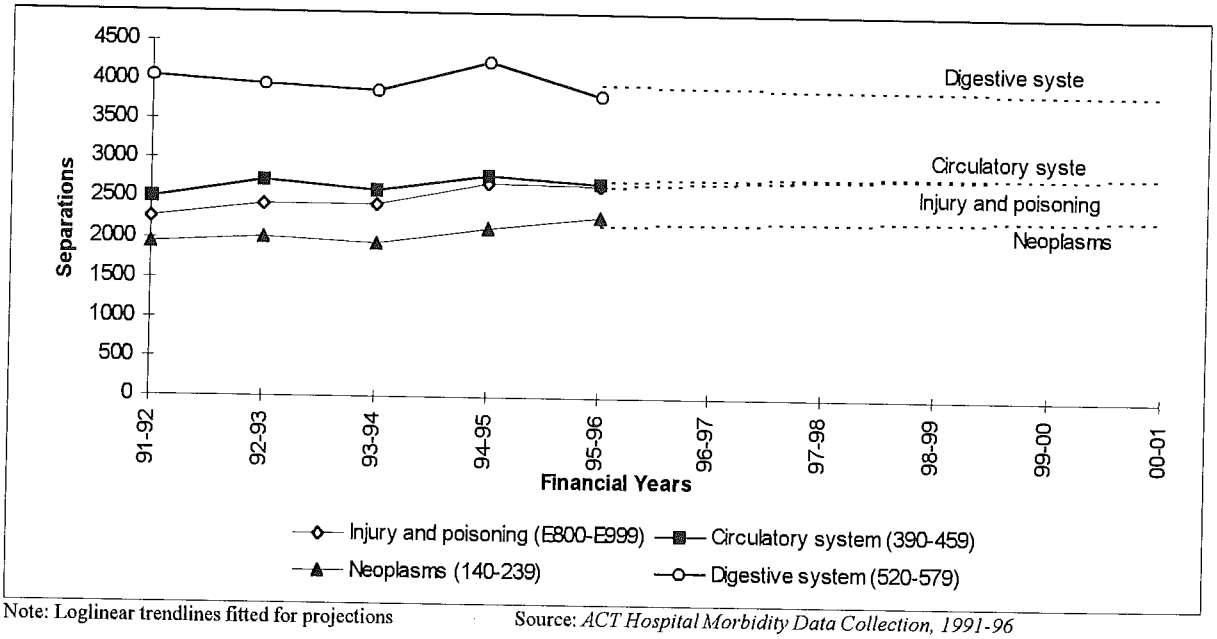
Age (years)	Sex	Most frequent major diagnostic groups(a)
1- 4	M & F	Respiratory disorders (26%, 21%), in particular, Asthma (8%), Nervous system disorders (18%, 17%), Infectious/parasitic diseases (13%, 15%), Injury & poisoning (8%, 9%)
5-14	M & F	Injury & poisoning (20%, 16%), Respiratory disorders (15%, 19%), Nervous system disorders (13%, 13%), Digestive system disorders (11%, 13%)
15-24	M & F	Complications of Pregnancy (0%, 33%), Digestive system disorders (17%, 19%), Injury & poisoning (19%, 6%), Musculoskeletal disorders (10%, 4%), Respiratory disorders (5%, 6%)
25-34	M & F	Digestive system disorders (19%, 7%), Genitourinary disorders (3%, 10%), Musculoskeletal & connective tissue disorders(13%, 2%), Injury & poisoning (15%, 3%), Mental disorders (6%, 2%)
35-44	M & F	Complications of Pregnancy (0%, 18%), Genitourinary disorders (4%, 17%), Digestive system disorders (15%, 9%), Musculoskeletal disorders (10%, 5%), Neoplasms (5%, 7%), Injury & poisoning (8%, 4%), Circulatory system disorders (5%, 2%)
45-54	M & F	Digestive system disorders (15%, 13%), Genitourinary disorders (5%, 15%), Neoplasms (9%, 14%), Circulatory system disorders(11%, 5%), Musculoskeletal disorders (6%, 6%)
55-64	M & F	Circulatory system disorders (12%, 8%), Digestive system disorders (10%, 11%), Neoplasms (11%, 9%), Genitourinary disorders (5%, 7%), Musculoskeletal disorders (6%, 8%)
65-74	M & F	Circulatory system disorders (18%, 10%), Neoplasms (16%, 10%), Digestive system disorders (11%, 10%), Musculoskeletal disorders (7%, 7%), Genitourinary disorders (6%, 4%),
75+	M & F	Circulatory system disorders (21%, 21%), Neoplasms (15%, 11%), Digestive system disorders (10%, 11%), Injury & poisoning (7%, 11%), Nervous system disorders (6%, 10%),Genitourinary disorders (6%, 4%)

(a) Percentages refer to the percentage of all separations for that particular age group , male then female percentages shown.
Source: *ACT Hospital Morbidity Data Collection, 1996-97*

Projections of morbidity for selected causes to the year 2001

Figures 12 and 13 show projections for separations due to selected diagnoses for males and females. For males, the line of best fit predicted a decline in the number of separations due to diseases of the digestive system, with projections of 4,019 in 1991-92, 3954 in 1996-97 and 3,901 in 2000-01 (refer Figure 12). Male separations for disorders of the circulatory system were predicted to rise, with 2,553 separations predicted for 1991-92, 2,789 for 1996-97 and 2,857 for 2000-01. Slight but constant increases in separations for injury and poisoning and for neoplasms were projected. Separations for injury and poisoning were predicted to exceed separations for circulatory diseases by the year 2000 (2,869 male separations). Separations due to neoplasms were also predicted to rise for males with projections of 1,892 for 1991-92, 2,211 for 1996-97 and 2,302 for 2000-01.

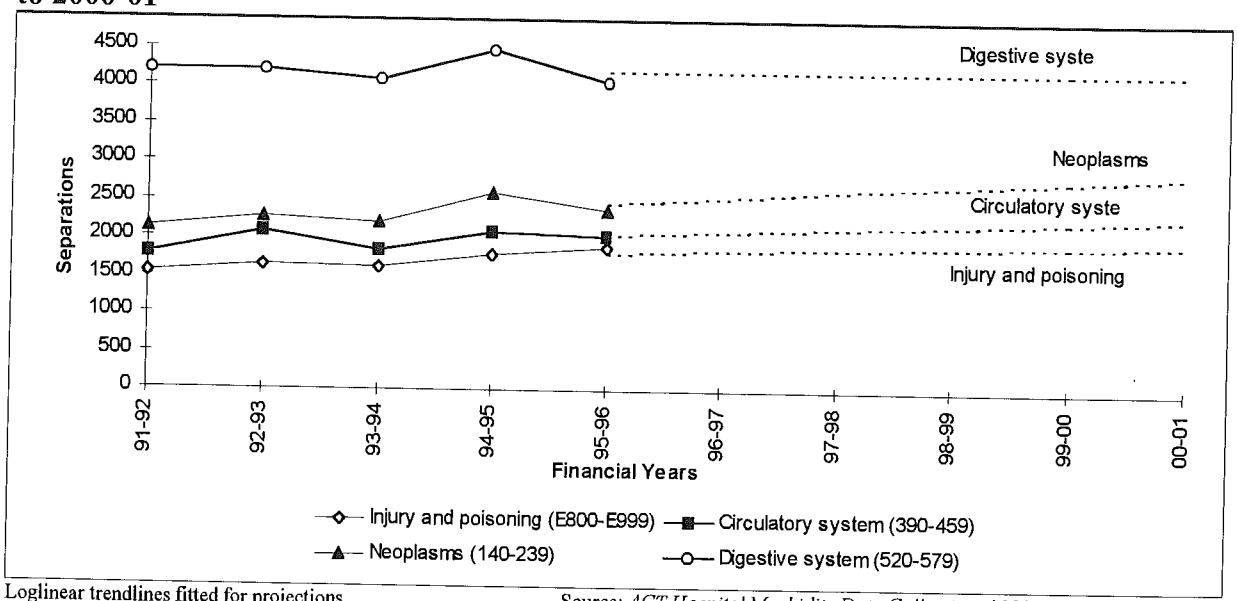
Figure 12 : ACT hospital separations, selected causes, males, 1991-96, projected to 2000-01



Note: Loglinear trendlines fitted for projections Source: *ACT Hospital Morbidity Data Collection, 1991-96*

The pattern of projections for females differs to that for males (refer Figure 13). The line of best fit indicated stable numbers of separations for digestive disorders, predicting 4,206 female separations for these disorders in 1991-92, 4,210 separations in 1996-97 and 4,210 in 2000-01. Female separations due to neoplasms were predicted to increase with 2,155 predicted in 1991-92, 2,551 in 1996-97 and 2,868 in 2000-01. The line of best fit predicted that female separations for circulatory disorders will rise with 1,867 predicted in 1991-92, 2,105 in 1996-97 and 2,295 in 2000-01. Separations due to injury and poisoning for females were projected to remain below those for circulatory problems with 1,510 projected for 1991-92, 1,850 for 1996-97 and 1,947 for 2000-01.

Figure 13: ACT hospital separations, selected causes, females, 1991-96, projected to 2000-01

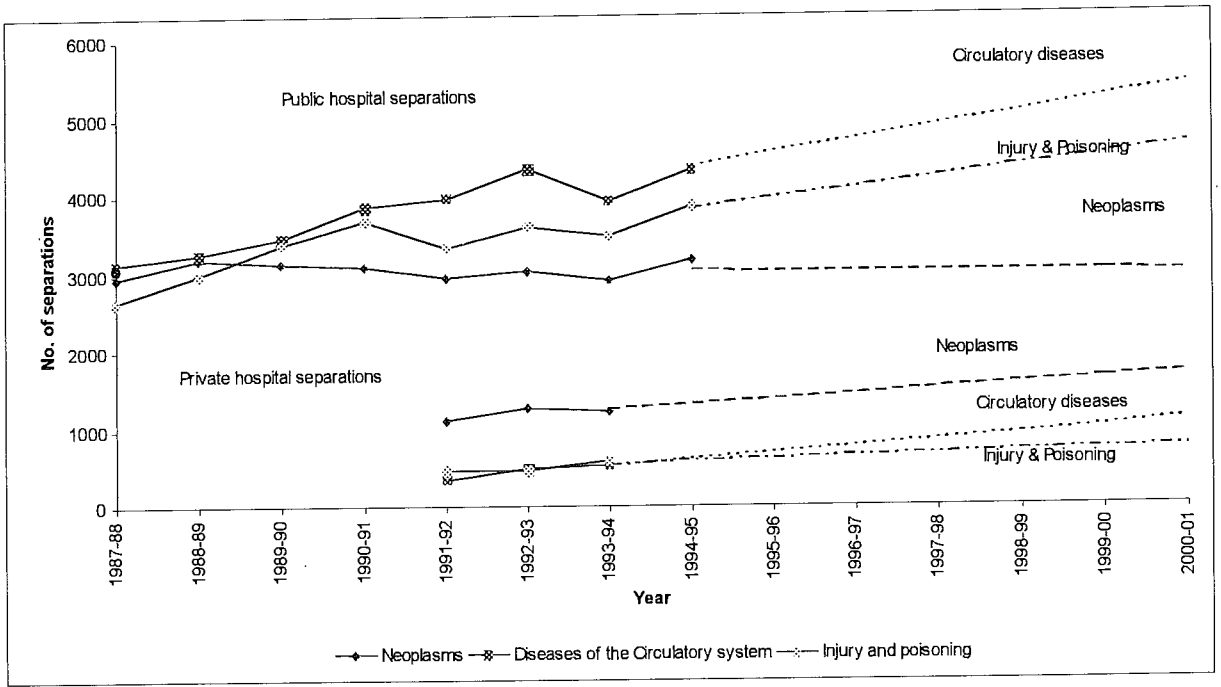


Loglinear trendlines fitted for projections Source: *ACT Hospital Morbidity Data Collection, 1991-96*

Comparing projections of the number of separations for various causes reveals some differences between the ACT's public and private hospitals (refer Figure 14). In public

hospitals, separations for circulatory problems and injury and poisoning were predicted to increase steadily over the next 4 financial years, while separations for neoplasms were predicted to decline slightly. Public hospitals, separations for circulatory problems were projected to be 5,416 by 2000-02, while separations for injury and poisoning were predicted to reach 4,644. The line of best fit projected that public hospital separations for neoplasms will decline to 3,019 by 2000-01. In the private hospitals separations for neoplasms were predicted to reach 1,719 by 2000-01. Private hospital separations for circulatory diseases were projected to become more frequent than those for injury and poisoning (1,122 separations vs 766). Note that the projections for private hospitals were based on morbidity data for only 3 financial years and therefore should be interpreted with caution.

Figure 14: Separations, by selected causes, all ACT hospitals, 1987-95, projected to 2001



Source: *Hospital Morbidity Data Collection, 1988-96*

5.3 Service utilisation

A broad picture of public and hospital based health utilisation can be found in the Department of Health and Community Care *Annual Reports*. Since 1996-97 data is presented in a different, more comprehensive way, they are generally not comparable with previous years.

5.4 Community grants

In recognition of the crucial role of non-government involvement in enhancing the health of the Territory, the ACT Department of Health and Community Care administers a range of grants to non-government organisations with the aim of providing complementary health-related services that are not provided by Government. The larger grants allocated in 1995-96 include those to:
ACT IV League, AIDS Action Council, Needle Exchange Program, Family Planning Association, YWCA, ACT Hospice Palliative Care Society, Winnunga Nimmitya, Women's Centre for Health Matters, ADDInc, Alcohol and Drug Foundation ACT, Burrangiri Centre, Sobering Up Shelter, ACT Society for the Physically Handicapped, Australian Red Cross, Regional Community Services, CENTACARE, Community Options, FaBRic, Focus ACT, HACC-Home Help, Home Help ACT Inc, L'arche Genesaret, and Respite Care ACT. (Refer ACT Department of Health and Community Care *Annual Report* for a detailed list).

6. Profile of cardiovascular disease

6.1 Mortality

The Australian study conducted by the WHO MONICA Project found that, over a ten year period (1984-93), mortality rates for cardiovascular diseases declined significantly. This was due to mortality rates from coronary heart disease (also known as ischaemic heart disease), and cerebrovascular disease (also known as stroke) declining by over 50 per cent in males and females. There were no significant changes in other heart disease mortality rates.[41] A 1996 report released by the National Heart Foundation in Australia supports these findings.[42]

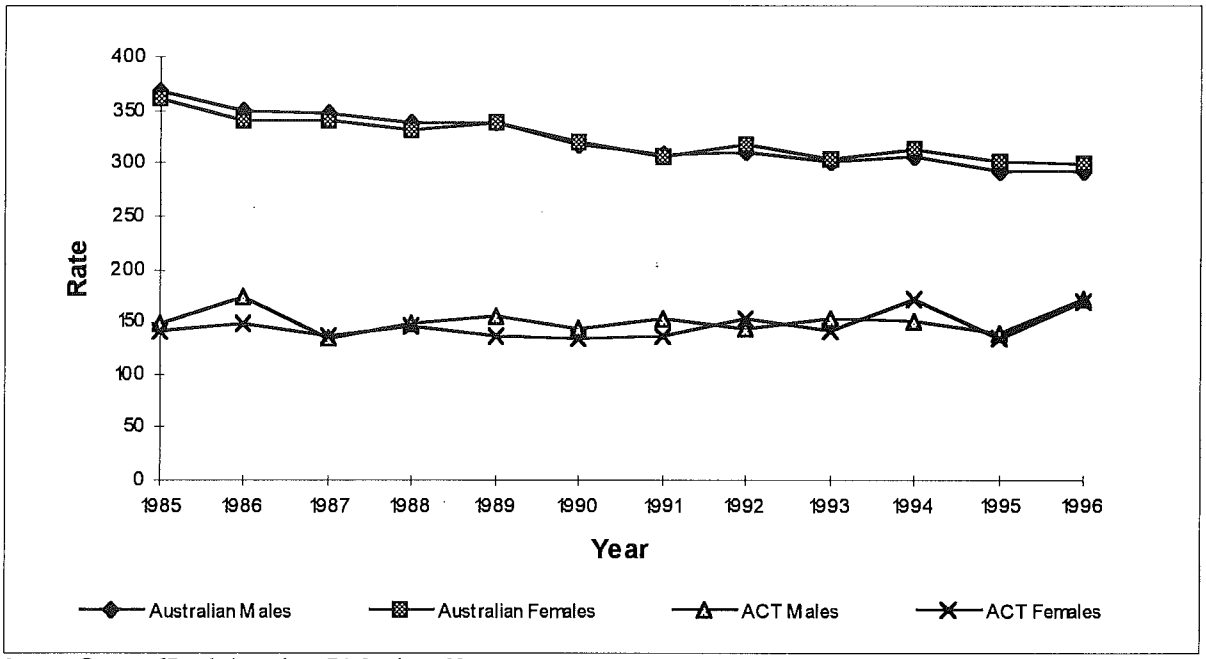
Cardiovascular diseases, which rank as the highest cause of death in Australia, accounted for 40.2 per cent of deaths from all causes in 1996 (27.4% of all deaths were caused by heart disease and 10.3% of all deaths by cerebrovascular disease).[43]

Although there has been an overall reduction in deaths from cardiovascular diseases in Australia since the 1970s, these diseases continue to be major contributors to mortality.[44] In 1994, the ACT had the lowest death rate for cardiovascular diseases in males, the fastest rate of decline in myocardial infarction in people, and the lowest cerebrovascular mortality rate in males (females have a relatively high death rate for CVD) (refer comments re 1996 rates 3 pages on). The ACT and Victoria are the only states or territories which are likely to achieve national targets set for premature mortality from ischaemic heart disease.[45]

Cardiovascular diseases accounted for 522 (40%) of the 1,300 ACT deaths recorded in 1996. Of these there were 273 deaths (52%) due to coronary heart disease and 134 (26%) due to

cerebrovascular disease.[46] There has actually been no major change in the death rate for cardiovascular diseases over the last seven years (refer Figure 15). This is a result of the relatively young population in the ACT. However, with the expected gradual ageing of the population, the crude death rate is likely to slowly increase unless there are major improvements in terms of preventive measures or treatment. When expressed as crude mortality rates, the ACT rates are considerably lower than for Australia - as shown in the time series in Figure 15.

Figure 15: Crude mortality rate for CVD, by sex, ACT & Australia, 1985-96

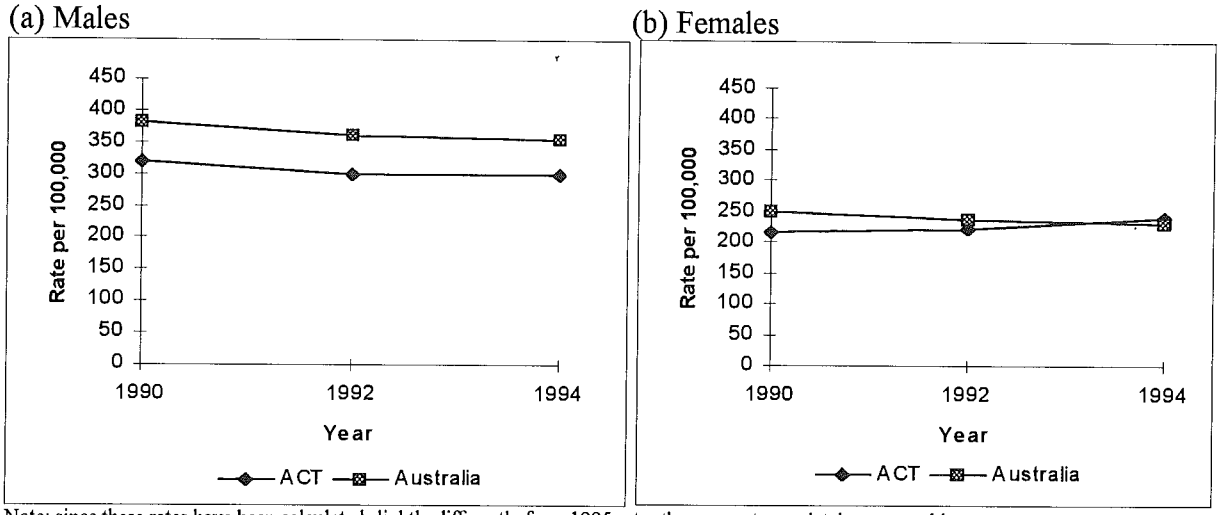


Source: *Causes of Death Australia*. ABS Catalogue No. 3303.0
Estimated Resident Population By Sex and Age States and Territories of Australia, ABS Catalogue No. 3201.0

In 1996 in the ACT, male and female cardiovascular death rates per 100,000 population were 171 for males and 168 for females compared to Australian males at 292 and females at 299.

Age standardisation, using the 30 June 1991 Australian population, brings the 1996 ACT rates closer to those of Australia, with 257 (ACT) compared to 265 (Australia) for males and 263 (ACT) compared to 274 (Australia) for females. This implies that the differences in crude rates for females can mostly be attributed to the ACT having a younger population. For males however, a significant component may not be due to age, but other factors. It can be seen that ACT males and females have smaller cardiovascular disease differentials than the Australian average.

Figure 16: Age-standardised mortality rates, all CVD, by sex, Australia & ACT, 1990-94



Note: since these rates have been calculated slightly differently from 1995 rates they are not completely comparable.
Source: *Australia's Health Series*, Australian Institute of Health & Welfare.

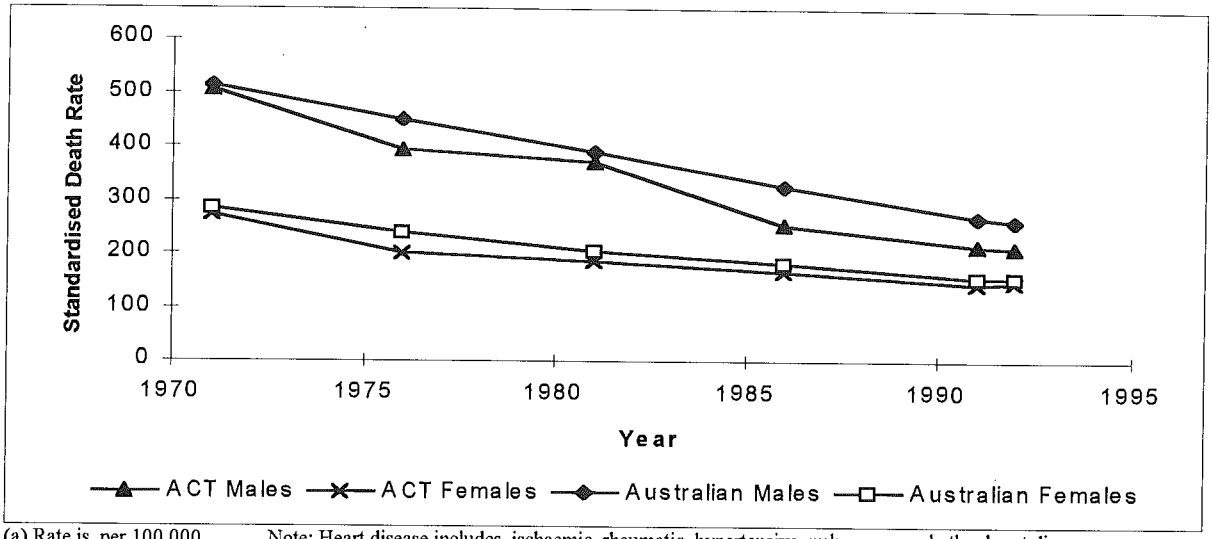
Table 23: Mortality caused by cardiovascular disease, ACT, 1993-96

	1993		1994		1995		1996	
Indicator	No.	Rate(a)	No.	Rate(a)	No.	Rate(a)	No.	Rate(a)
All deaths from ischaemic heart disease								
Males	134	89.3	144	95.2	127	82.9	160	103.6
Females	90	60.5	119	79.5	92	60.9	113	74.1
Persons	224	74.9	263	87.4	219	72.0	273	89.0
Premature deaths from ischaemic heart								
Males < 75 years	84	56.9	90	60.5	74	49.2	88	58.2
Females < 75 years	24	16.6	30	20.7	13	8.9	34	23.1
Persons < 75 years	108	37.0	120	40.9	87	29.3	122	40.9
All deaths from cerebrovascular disease								
Males	35	23.3	39	25.8	36	23.5	53	34.3
Females	44	29.6	72	48.1	52	34.4	81	53.1
Persons	79	26.4	111	36.9	88	28.9	134	43.7
Premature deaths from cerebrovascular								
Males < 75 years	15	10.2	17	11.4	12	8.0	17	11.2
Females < 75 years	12	8.3	20	13.8	10	6.8	16	10.9
Persons < 75 years	27	9.2	37	12.6	22	7.4	33	11.1

(a) Crude rate per 100,000
Source: *Causes of Death ACT 1993-96.* ABS unpublished data
Demography, ACT, ABS Catalogue No. 3201.0
ACT population 1993-96. ABS unpublished data, population at 30 June 1993-96

Using age standardised rates over a longer period of time shows the trends in mortality due to cardiovascular disease. It can be seen from Figures 17 and 18 that there has been a dramatic decline in mortality from heart and cerebrovascular diseases over the past 20 or more years. ACT rates continue to be lower than those of Australia, although the female death rate from heart disease is very close to that of Australian females.

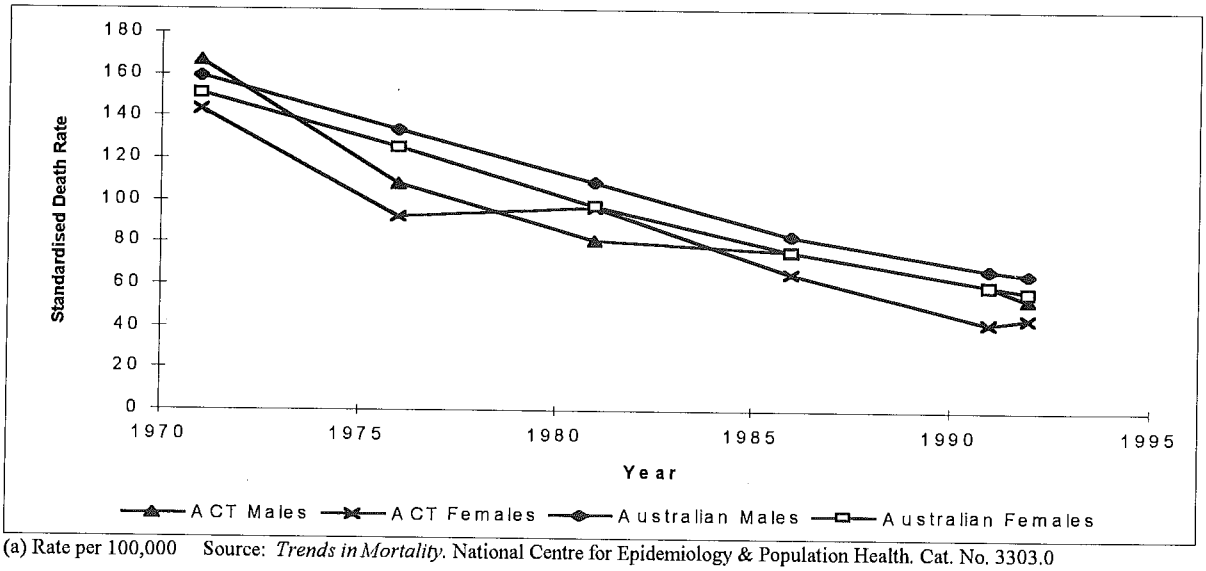
Figure 17: Age-standardised mortality rates(a) for heart disease, by sex, ACT & Australia, total for three years around census years 1971 to 1991, and for 1992



(a) Rate is per 100,000 Note: Heart disease includes ischaemic, rheumatic, hypertensive, pulmonary and other heart disease
Source: *Trends in Mortality*, National Centre for Epidemiology & Population Health, Catalogue No. 3303.0

With regard to *ischaemic heart disease*, 1996 standardised rates (using 1991 standard population) show that ACT males have a considerably lower death rate than Australian males (151 compared to 161 per 100,000). The ACT female rate also compares favourably with that of Australia (115 compared to 136 per 100,000). (NB. Due to the small numbers however, fluctuations occur over time). 1996 standardised rates for *cerebrovascular disease* have similar fluctuations to those for ischaemic heart disease. The male death rate in the ACT was 54 per 100,000 population compared to 52 for Australia. The female rate was 84 compared to 76 for Australia. As expected, death mainly occurs from the disease in the above 65 years age groups.

Figure 18: Age-standardised mortality rates(a), cerebrovascular disease, by sex, ACT & Australia, total for three years around census years 1971 to 1991, and for 1992



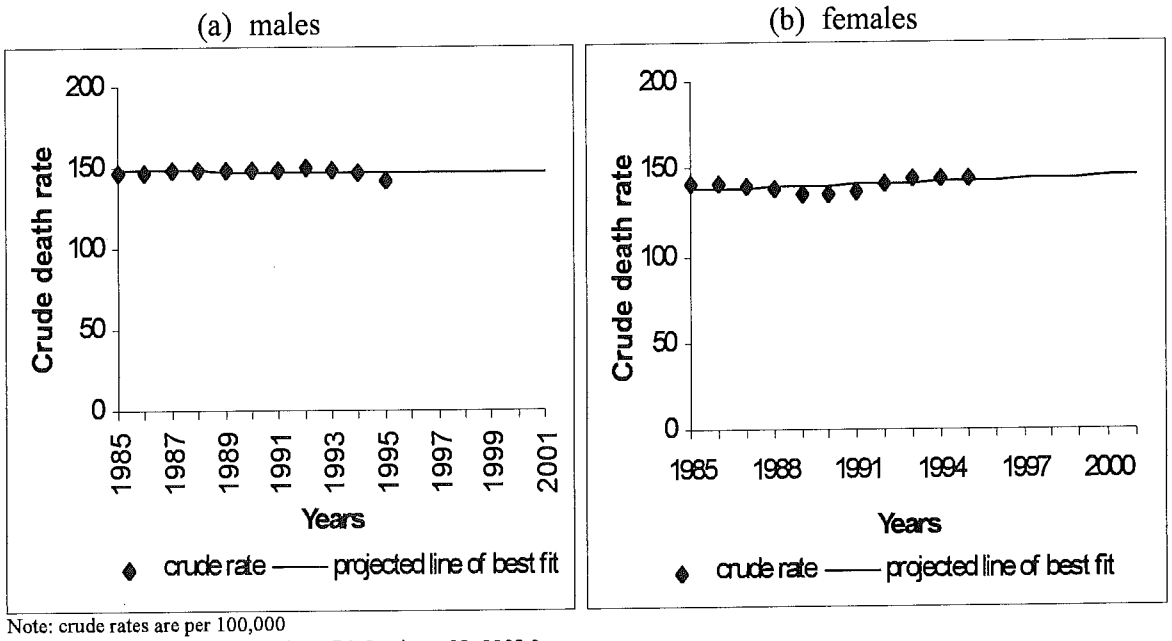
(a) Rate per 100,000 Source: *Trends in Mortality*. National Centre for Epidemiology & Population Health. Cat. No. 3303.0

6.1.1 Projections of mortality to the year 2001

Crude death rates for both sexes for all cardiovascular diseases have increased slightly over the period 1985 to 1995. The overall trend for both sexes is for an increase in the five years to 2001, with the female death rate increasing at a faster rate than the male death rate. This will be influenced by the fact that the ACT has an ageing population and, since females tend to outlive males, the female rate will rise more quickly than that of males. In 1995 there were 200 deaths (in 1994 there was an unusually high number, 257 deaths) for all cardiovascular disease in females.

Using the projected best line of fit for crude rates for cardiovascular diseases (refer Figure 19) to work back and calculate the absolute number of deaths, we get the following results. In 1985 there were 188 male deaths and 174 females deaths predicted, increasing to 225 for males and 215 for females in 1995. It is estimated that there would be 239 male deaths and 235 female deaths from cardiovascular diseases for usual residents of the ACT in the year 2001 (using population forecasts from the ACT Chief Minister's Department).

Figure 19: Crude death rate (smoothed) for all CVD, projections to the year 2001, ACT



Note: crude rates are per 100,000
Source : *Causes of Death Australia.* ABS Catalogue No 3303.0

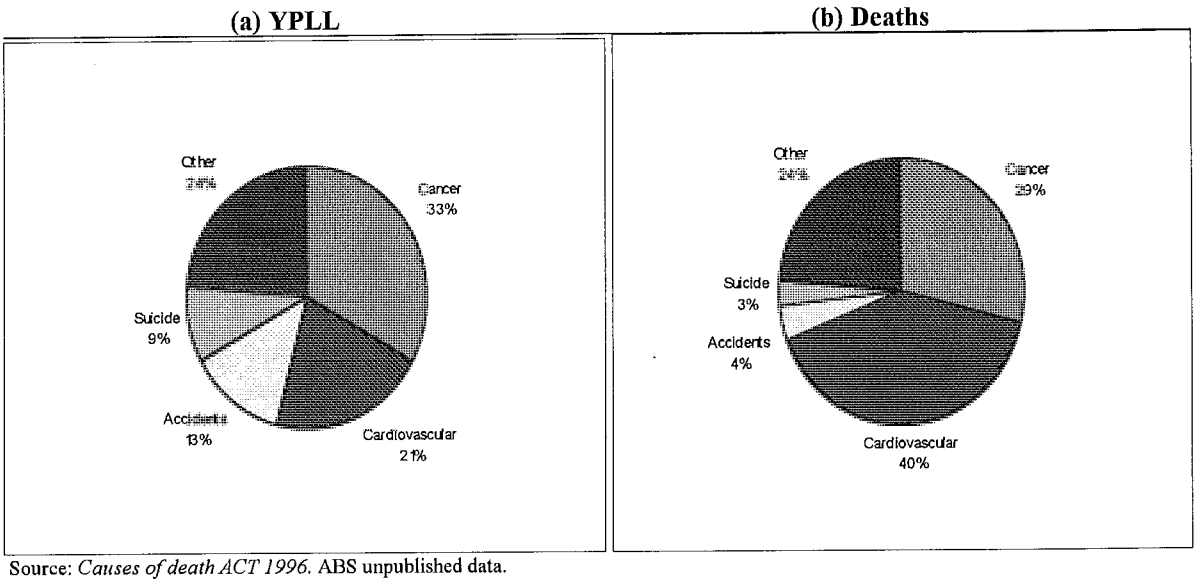
Years of potential life lost through cardiovascular disease mortality

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 (refer Appendix 1 for methodology).

As a result of early deaths, there were 13,584 years of potential life lost in the ACT in 1996. 2,852 (21%) YPLL were caused by cardiovascular diseases. Of these, 1,895 years (14%) were for coronary heart disease and 411 (3%) years for cerebrovascular

disease. It can be noted from Figure 20: 20 that, although cardiovascular diseases accounted for the highest proportion of deaths in the ACT in 1996, they only accounted for the second highest YPLL. This is due to the fact that, with the introduction of innovative drug, lifestyle and physical therapies and the development of more effective medical interventions, people with heart disease are tending to live longer and thus, not lose large amounts of potential years of life.[47]

Figure 20: Leading causes of death and YPLL, ACT, 1996



Source: *Causes of death ACT 1996.* ABS unpublished data.

6.2 *Morbidity*

National Health Survey 1995

After the Northern Territory, the ACT had the lowest standardised rate for reported *recent* cardiovascular diseases in Australia. (106.0 per 1000 population compared to 120.4 for Australia). With regard reported *long-term* cardiovascular diseases, the ACT did not fare so well. It had a standardised rate of 210.5 cases per 1000 population compared to 199.8 for Australia. This was the second highest rate of all states and territories. Hypertension was the major condition reported (crude rate of 103.7 per 1000 population) followed by varicose veins (58.1 per 1000 population), haemorroids (38.6 per 1000) and heart disease (21.6 per 1000).

Hospital separations

In 1996-97 there were 4,895 principal diagnosis *cardiovascular disease* separations (2,959 males, 1,936 females) which accounted for approximately 6.5% of all hospital inpatient separations.

Table 24: shows a reduction over time in the proportion of separations with a principal diagnosis of CVD and a corresponding increase in the proportion of separations with CVD as a secondary diagnosis (for all diagnoses where CVD is identified). There have been substantial alterations and refinements to coding practices during this time which may account for these changes.

Table 24: Hospital separations for CVD, principal & secondary diagnosis, ACT, 1991-97

	91-92		92-93		93-94		94-95		95-96		96-97	
	no.	%	no.	%	no.	%	no.	%	no.	%	no.	%
CVD - principal	4307	66.8	4820	68.2	4440	63.4	4883	54.5	4747	47.5	4895	40.1
CVD - secondary	2143	33.2	2249	31.8	2562	36.6	4072	45.5	5238	52.5	7302	59.9
Total	6450	100	7069	100.0	7002	100	8955	100	9985	100	12197	100

Note: Cardiothoracic surgery did not commence at the hospital until 1997
Source: *ACT Hospital Morbidity Data Collection*

The average length of stay for cardiovascular disease was 5.7 days in 1996-97.

6.3 Health goals and targets

The ACT Department of Health and Community Care developed health goals and targets for cardiovascular disease in 1994 after considerable deliberation and consultation with key stakeholders. An implementation process for the Territory has been established and is being overseen by the Health Outcomes Group.

The goals and targets are:

Table 25 ACT health goals and targets for cardiovascular diseases

Goal	Target
1. Increase coordination between ACT cardiovascular services and agencies	
2. Reduce mortality due to cardiovascular conditions	a) Reduce by 20% the ave. annual cardiovascular mortality rate for people aged 25-74 years b) Increase the proportion of adults who can recognise the symptoms of cardiac arrest & perform cardiopulmonary resuscitation to at least 40% c) Increase the proportion of people who present to hospital within one hour of onset of acute cardiovascular symptoms to at least 90% d) Increase the proportion of all staff working in health care environments who are proficient in cardiopulmonary resuscitation techniques to at least 100% of health care practitioners & 60% of non-clinical staff
3. Reduce the prevalence of cardiovascular risk factors in the community	a) Increase the proportion of adults who had their blood pressure measured within the previous 12 months, to 80% of males and 85% of females b) Reduce by 25% the proportion of adults who have plasma cholesterol levels greater than 6.5mmol/L c) Increase to 80% the proportion of adults who report participation in regular leisure-time exercise
4. Improve the quality of life of people with cardiovascular conditions.	a) Ensure that all people who survive a heart attack, cardiac surgery or stroke are able to access a comprehensive rehabilitation program b) Increase to 75% the proportion of people who participate in a comprehensive rehabilitation program after a heart attack, cardiac surgery or stroke c) Increase the proportion of people who return to work within 6 months (for those who wish to, and for whom this is a realistic option), to 95% following cardiac surgery, and 80% following heart attack

Source: *ACT Health Goals and Targets for the Year 2000.* ACT Dept of Health, 1994

7. Profile of cancer

Cancer is a malignant growth of human tissue that has the potential to invade tissue beyond its site of origin. Leukaemia is a form of cancer. Neoplasm is the term which refers to malignant or non-malignant abnormal growths or tumours.
Approximately one in four people will develop a cancer (not including non-melanocytic cancer) during their life time.[48] Although not all cancers are fatal, cancer is the major cause of premature mortality in Australia. The risk of cancer is lowest in late childhood, but increases with age thereafter. As the ACT moves towards an older population (and more efficient diagnostic tools such as Pap smears for cervical cancer and used), it can

be expected that there will be an increase in the incidence of cancer in the Territory. This can be seen by comparing 1988-92 with 1993-97 incidence.

Table 26: Most common cancers, by age, by sex, ACT, 1988-92

a) 1988-92

	0-14 years	15-44 years	45-64 years	65+ years
Males	**n = 31** leukaemias (30%) brain (23%) bone (13%)	**n = 254** melanoma (28%) lymphomas (11%) testis (10%)	**n = 510** colon (16%) lung (16%) melanoma (15%)	**n = 814** prostate (24%) lung (16%) colon (9%)
Females	**n = 16** brain (19%) leukaemias (19%) kidney (19%)	**n = 338** breast (36%) melanoma (26%) cervix (9%)	**n = 639** breast (37%) melanoma (10%) colon (7%)	**n = 621** breast (20%) colon (14%) lung (9%)

Note: Per cent of all cancers in an age group in brackets
Source: Briscoe N, *Cancer in the Australian Capital Territory 1983-92, 1996*

b) 1993-97

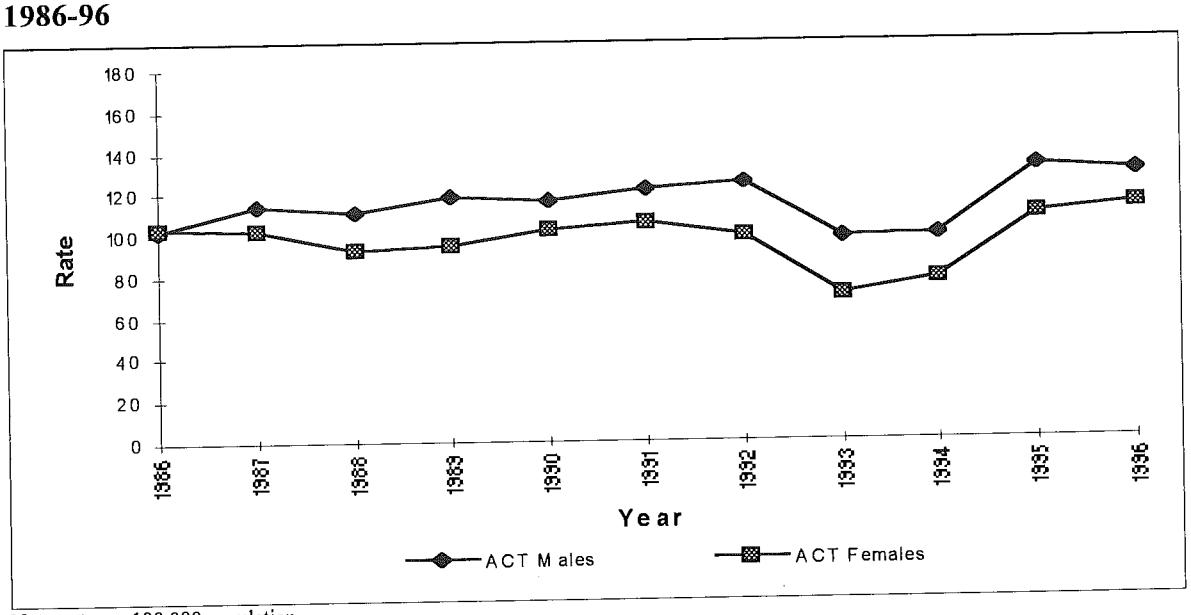
	0-14 years	15-44 years	45-64 years	65+ years
Males	**n = 30** leukaemias (17%) brain (10%) Hodgkins disease (10%)	**n = 282** melanoma (25%) testis (14%) Colon(6%)	**n = 837** prostate (24%) colon (12%) melanoma (11%)	**n = 1263** prostate (37%) lung (9%) colon (9%)
Females	**n = 22** leukaemias (32%) brain (14%) Hodgkins disease (14%)	**n = 450** breast (29%) cervix (21%) melanoma (17%)	**n = 833** breast (43%) melanoma (10%) colon (7%)	**n = 834** breast (21%) colon (11%) trachea (9%)

Note: Per cent of all cancers in an age group in brackets. Time period to November 1997.
Source: Briscoe N, *Cancer in the Australian Capital Territory 1983-92, 1996*

7.1 Mortality

Mortality from malignant neoplasms (cancer) in the ACT has fluctuated over time, due to the small numbers of people and low incidence of death in the ACT. Consequently, three year moving averages are shown in the following figure. It would appear that there is little change in the trends.

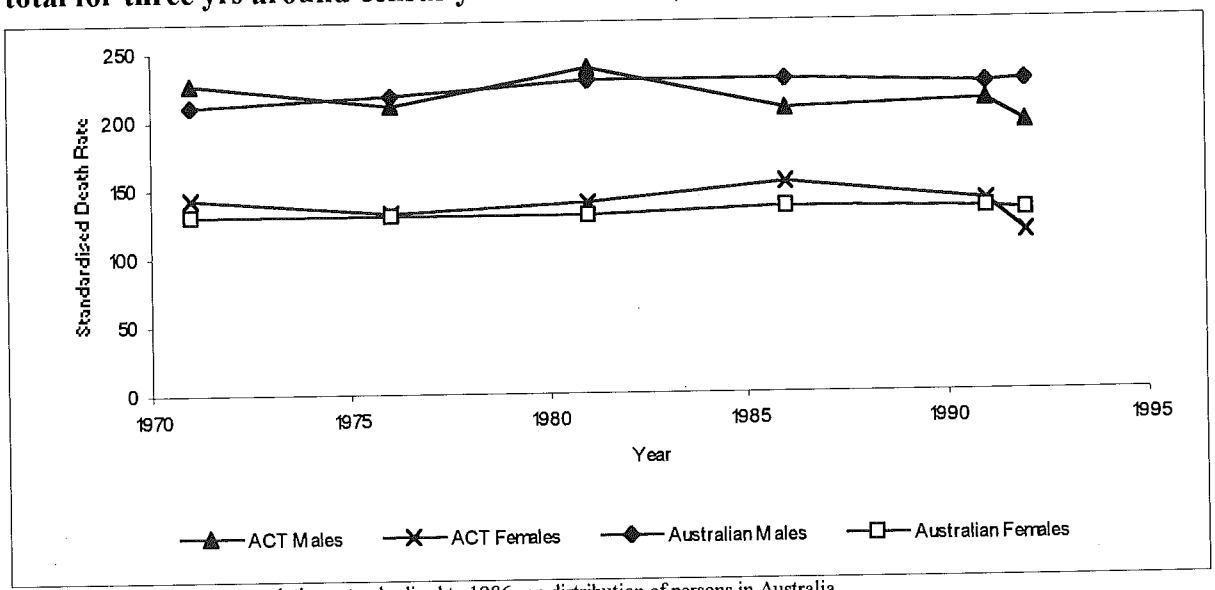
Figure 21: Cancer mortality, crude rates, 3 yr moving averages, by sex, ACT, 1986-96



Note: rate per 100,000 population
Source: *Causes of Death Australia.* ABS Catalogue No. 3303.0

A valid comparison between the ACT and Australian rates necessitates the standardisation of rates. Figure 22 shows a comparison between the Territory and Australia over time, to 1992.

Figure 22: Age-standardised mortality rates for cancer, by sex, ACT & Australia, total for three yrs around census yrs 1971 to 1991, and for 1992



Note: rate is per 100,000 population, standardised to 1986 age distribution of persons in Australia
Source: *Trends in Mortality,* National Centre for Epidemiology & Population Health, Catalogue No 3303.0

It can be seen that the ACT has slightly lower death rates from cancers than Australia as a whole. In 1994, the ACT standardised death rate from cancer was 175 per 100,000 population (Australian rate of 181), in 1995 the ACT rate was 168 (Australian rate of 178) and in 1996, the ACT rate was 172 (Australian rate of 177).

Table 27 outlines mortality caused by specific cancers. Major cancers causing death are lung, colorectal and prostate cancers in males, and breast, colorectal and lung cancers in females.

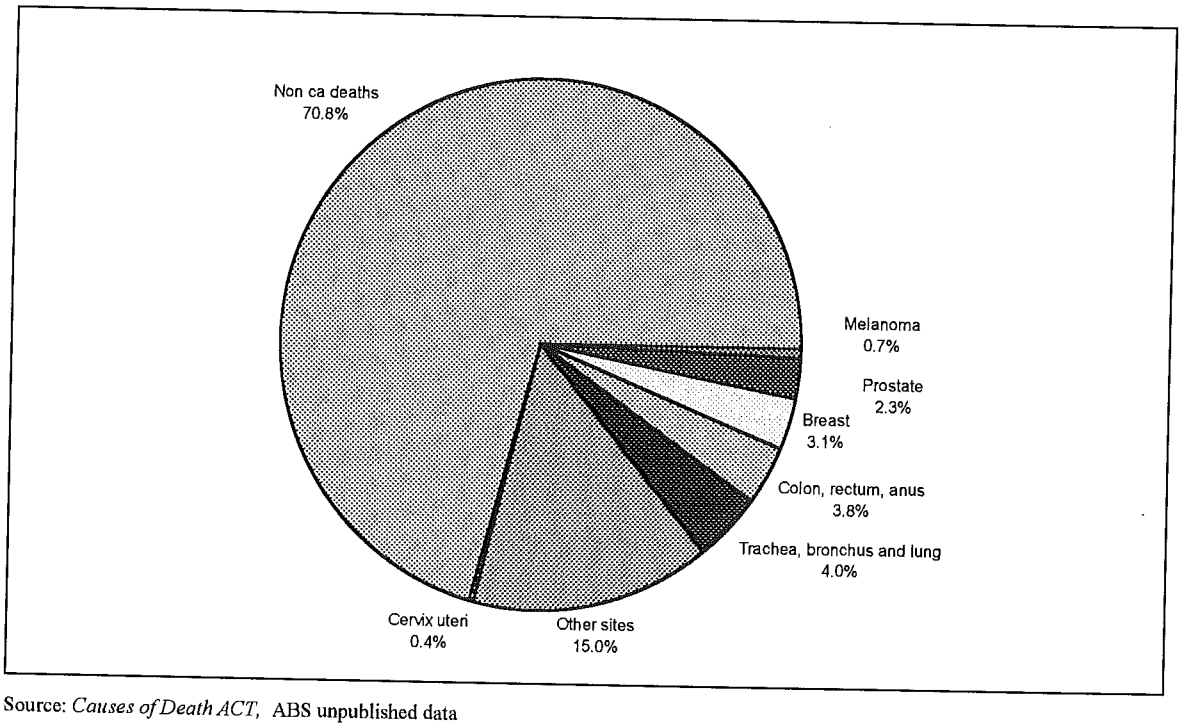
Table 27: Mortality caused by cancer, ACT, 1993-96

Indicator	1993		1994		1995		1996	
	No.	Ratea)	No.	Ratea)	No.	Ratea)	No.	Ratea)
Deaths from all cancer								
Males	204	135.9	208	137.5	186	121.4	212	136.6
Females	141	94.8	146	97.6	179	118.6	164	107.7
Lung, trachea and bronchus cancer								
Males	43	28.6	34	22.5	33	21.5	34	21.9
Females	19	12.8	22	14.7	17	11.3	18	11.8
Colorectal cancer								
Males	29	19.3	35	23.1	28	18.3	32	20.6
Females	29	19.5	16	10.7	27	17.9	17	11.2
Prostate cancer								
Males	26	17.3	27	17.8	25	16.3	30	19.3
Breast cancer								
Males					-			
Females	35	23.5	27	18.0	39	25.8	40	26.3
Females aged 50-69	12	60.1	15	73.0	19	89.5	19	86.4
Malignant melanoma								
Males	4	2.7	6	4.0	5	3.3	4	2.6
Females	2	1.3	2	1.3	6	4.0	5	3.3
Cervical cancer								
Females	1	0.7	3	2.0	7	4.6	5	3.3

Note: Crude rate per 100,000 population
Source: *Causes of Death ACT 1993-5.* ABS Unpublished
ACT population 1993-6. ABS

Figure 23 shows the proportion of deaths from particular cancers in 1996.

Figure 23: Proportions of cancer mortality, by site, 1996



Source: *Causes of Death ACT,* ABS unpublished data

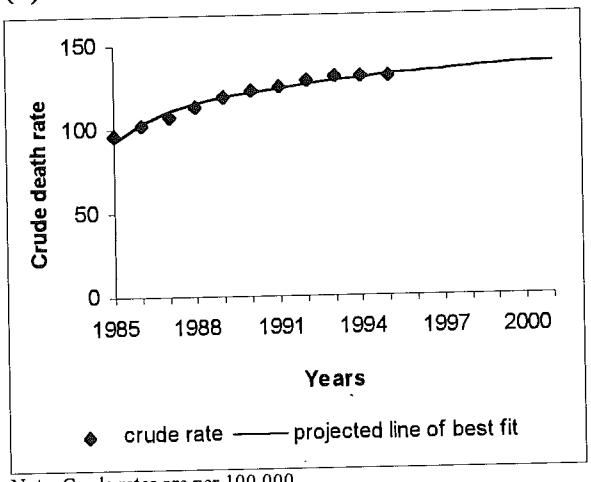
7.1.1 Projections of mortality to the year 2001

The number of deaths due to cancer has increased for both males and females over time. Deaths increased for males from 118 in 1985 to 212 in 1996 and for females from 117 to 164. Overall, crude mortality rates for cancer are increasing for both males and females.

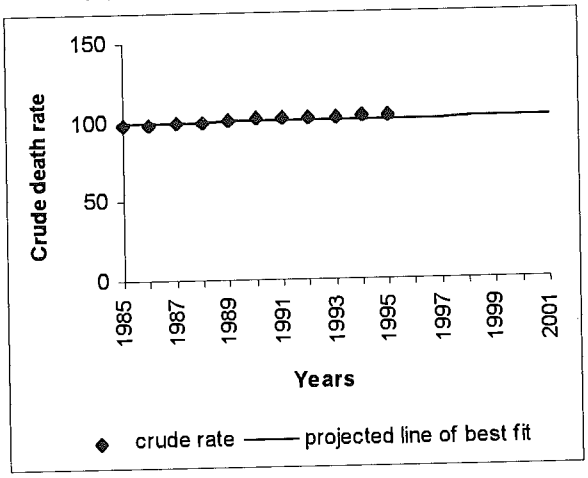
The following graph shows the estimated mortality rates after smoothing and projection. The line of best fit estimates the number of deaths for males to be 117 in 1985, 205 in 1996 and 226 in 2001. For females, the equivalent estimates are 126 in 1985, 154 in 1996 and 164 in 2001. It is important to note that fluctuations in ACT numbers are incorporated into these estimates.

Figure 24: Crude death rate (smoothed) for all cancers, projections to the year 2001,

(a) males



(b) females



Note: Crude rates are per 100,000
Source : *Causes of death Australia.* ABS Catalogue No 3303.0

7.2 Morbidity

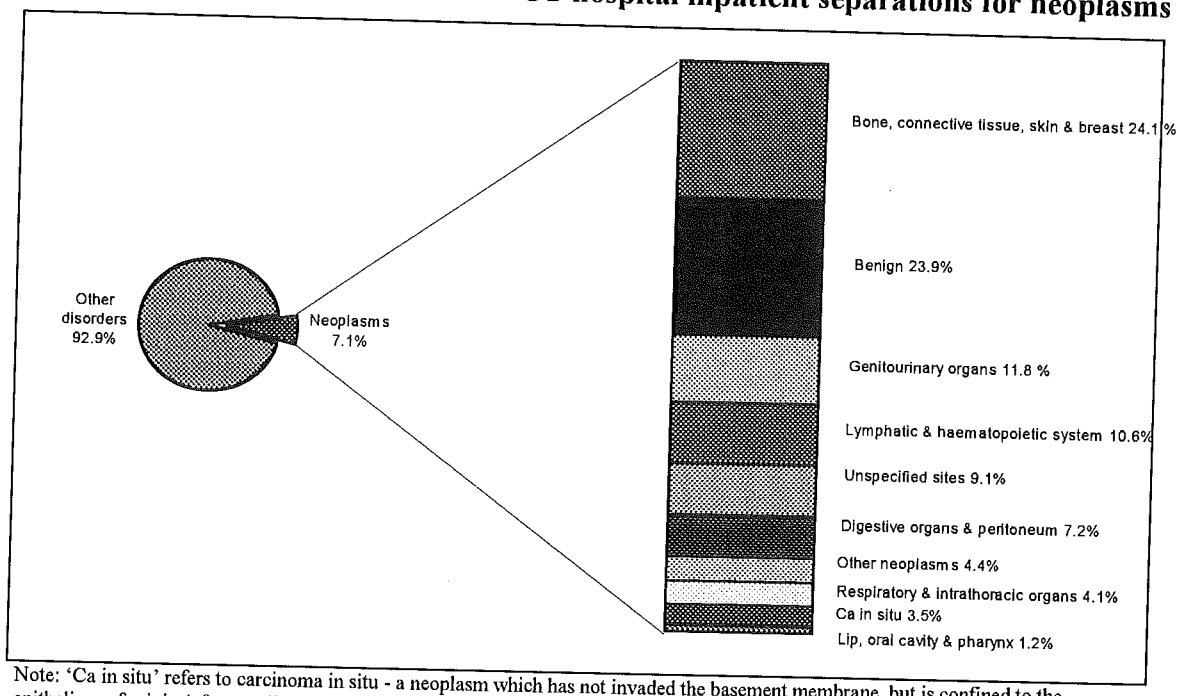
Public and private hospital morbidity data give a broad profile of acute interventions.

Table 28: Hospital separations for cancer, principal & secondary diagnosis, ACT, 1991-97

	91-92		92-93		93-94		94-95		95-96		96- 97	
	no.	%	no.	%	no.	%	no.	%	no.	%	no.	%
Principal	2499	71.0	2533	67.6	2560	66.9	2981	62.5	3035	60.7	3649	*
Secondary	1020	29.0	1213	32.4	1267	33.1	1789	37.5	1961	39.3	*	*
Total	3519	100.0	3746	100.0	3827	100.0	4770	100.0	4996	100.0	100.0	100.0

* Coding for secondary diagnosis has changed dramatically, making it difficult to estimate a comparable figure in 1996-97.
Source: *ACT Hospital Morbidity Data Collection*

Figure 25: Breakdown of 1996-97 ACT hospital inpatient separations for neoplasms



Note: 'Ca in situ' refers to carcinoma in situ - a neoplasm which has not invaded the basement membrane, but is confined to the epithelium of origin (often applies to such neoplasms in the uterine cervix).
Source: *ACT Hospital Morbidity Data Collection.*

In 1996-97, the average length of stay in hospital for males was 4.6 days compared to 4.4 days for females.

7.3 Screening

The National Health Survey in 1995 surveyed women on their use of breast and cervical cancer screening. The results are shown in Table 29:

Table 29: Rate(a) of use of breast & cervical cancer screening, women aged 18 yrs or more, by age, ACT, 1995

	Ag group (years)						
	18-24	25-34	35-44	45-64	65-74	75+	Total
Breast examinations							
By doctor/medical assistant	313.9	702.4	845.1	882.9	779.8	649.4	711.3
Regularly examines own breasts	492.1	635.6	696.3	673.7	719.7	460.9	630.1
Period since last mammogram							
Less than 1 year	*18.3	*26.2	95.8	346.1	190.4	*106.5	134.4
1 year to less than 2 years	**	*17.4	72.2	243.1	131.3	*44.4	97.4
2 years to less than 3 years	**	*14.6	60.9	42.2	*107.5	**	34.3
3 years to less than 4 years	**	*19.3	36.7	*13.5	**	**	16.3
4 years to less than 5 years	**	**	*16.6	*19.1	*48.2	**	11.5
5 or more years	**	*23.6	59.6	32.5	*67.4	*112.1	37.3
No mammogram	910.5	869.1	630.0	244.9	309.9	737.0	626.1
Not stated	59.4	*11.3	*17.7	47.4	**	**	30.7
Period since last Pap smear test							
Less than 1 year	327.7	476.2	458.4	339.4	130.1	**	370.9
1 year to less than 2 years	179.7	282.0	239.0	321.1	186.4	**	246.3
2 years to less than 3 years	61.5	76.2	122.8	95.7	*92.1	*68.3	89.6
3 years to less than 4 years	*12.9	**	45.8	*17.4	131.5	**	26.2
4 years to less than 5 years	**	**	*23.5	*15.2	*32.3	**	12.8
5 or more years	**	*20.6	67.5	105.1	226.9	314.8	73.8
No Pap smear test	390.4	112.7	*19.3	54.4	175.3	465.4	146.8
Not stated	*27.6	*22.2	*23.8	30.5	**	**	24.5
Has had a hysterectomy	**	*20.5	141.3	263.0	155.1	429.0	132.1

Note: Estimates are based on the 97.1% and 92.5% of eligible women who responded to this section of the Survey in 1989-90 and 1995 respectively.
(a) Rate per 1,000 women of same age. * refers to data being subject to variability between 25% and 50% ** refers to data being subject to high relative standard error.
Source: *National Health Survey First Results 1995*. ABS Catalogue No. 4392.0

If you compare these results with the findings in the 1989-90 survey, it can be seen that the rate of hysterectomy has increased (from 65.3 to 132.1 per 1,000 population). There is a slight trend for women to undertake breast self-examination (from 586.7 to 630.1) rather than relying on doctors (from 720.1 to 711.3). There are considerably more women, especially over 45 years who have had a mammogram in the past two years (from approximately 54 to 116 per 1,000 population). This is probably due to the Mammography Screening Program introduced after the 1989-90 Survey.

With regard to a comparison between the ACT and Australia generally, ACT women tended to have more Pap smear tests , but fewer mammograms than other Australian women, in the first 3 categories (less than 1 year to less than 3 years). In the target age group of 45-64 years however, ACT rates for mammography were higher than those of Australia. ACT women had fewer hysterectomies (132 per 1,000 women) than Australian women generally (155.4).

The ACT Department of Health and Community Care administers a Women's Health Program which offers free mammography and cervical screening to women. Table 30 shows activity over a three year period.

Table 30: Breast cancer screening, ACT Women's Health Program, 1993-97

Type of screening	1993-94	1994-95	1995-96	1996-97
Breast cancer screening				
NSW	1,059	2,050	5,011	6,116
Total	9,057	10,937	15,084	16,293
Cervical cancer screening				
Total	-	-	33,038	35,663

Source: ACT Breast Screening Program

7.4 ACT goals and targets

The ACT Department of Health and Community Care developed health goals and targets for cancer in 1994 after considerable deliberation and consultation with key stakeholders. An implementation process for the Territory has been established and is being overseen by the Health Outcomes Group. The goals and targets are:

Table 31: Goals and targets for cancer, ACT

Focus Area	Identified Targets for Individual Goals
1. Improve coordination, communication and consultation among cancer services in the ACT.	
2. Improve the quality of life for people with cancer and their families and friends.	
3. Provide high quality treatment for people with cancer.	
4. Reduce the incidence and mortality of cancer.	a) Reduce the level of tobacco smoking & eliminate smoking in public enclosed places b) Increase the 5 yr survival rate for people who have lung cancer c) Maintain the incidence of melanoma at 30 per 100,000 males & 25 per 100,000 females d) Increase the proportion of people using sunscreen by 80% e) Increase the 5 yr survival rate for people with melanoma f) Reduce the mortality from breast cancer to 47 deaths per 100,000 women aged 50-69 years by 2004 g) Increase the proportion of 50-69 yr old women who have had a screening mammogram under the National Program for the Early Detection of Breast Cancer to 70% by June 1995 h) Increase the proportion of women 50-69 yrs old who have screening at 2 yearly intervals under the NPEDBC to 55% i) Increase the 5 year survival rate for women who have breast cancer j) Reduce the incidence of cervical cancer to 13 per 100,000 among females aged 20-69 years k) Increase the proportion of women who have ever had a Pap smear to 90% l) Increase the 5 yr survival for people with cervical cancer m) Maintain the mortality from colorectal cancer to 20 deaths per 100,000 for males & 15 deaths per 100,000 for females n) Increase fibre consumption (via fruit, vegetables, breads & cereals) & decrease fat consumption o) Increase the 5 yr survival rate for people who have colorectal cancer

Source: *ACT Health Goals and Targets for the year 2000.* ACT Dept. of Health, 1994

8. Profile of injury

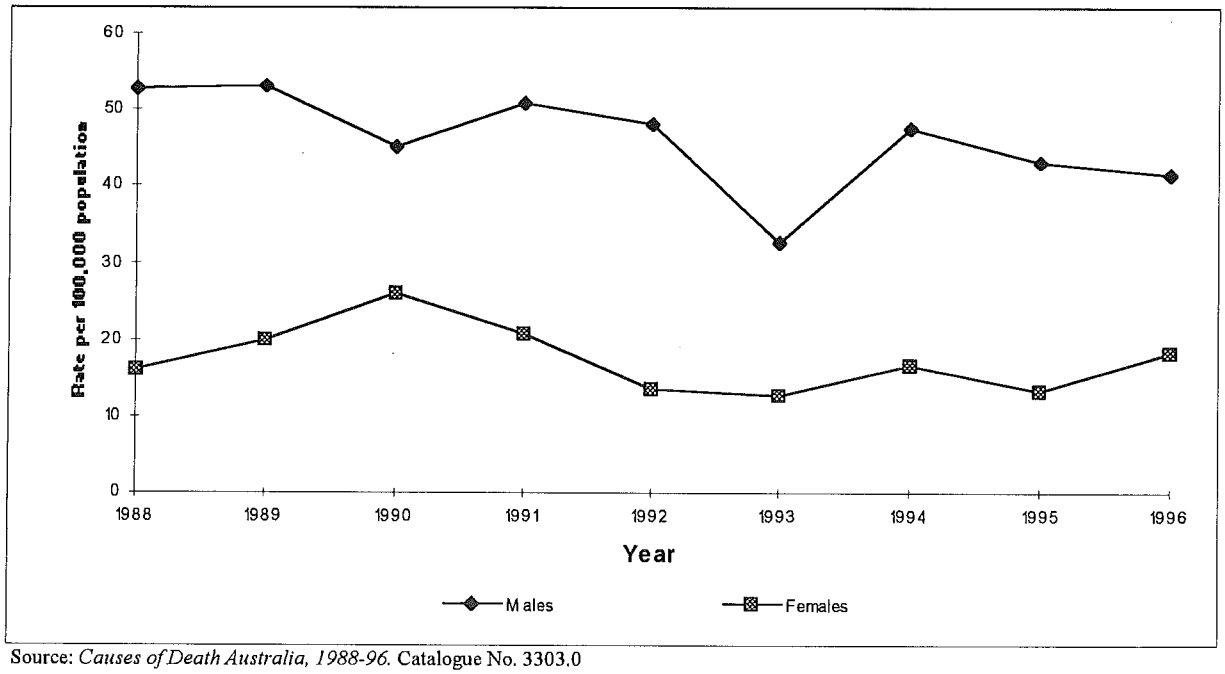
Injuries in Australia, and indeed in most developed countries, are a major public health problem which impact on virtually all people at some time.

An injury is defined as any physical, psychological or social harm to a person, that is caused by an external agent of force.[49] The external cause may be physical, chemical or psychological. The injury may be unintentional or intentional. Unintentional injury covers such issues as motor accidents, falls, burns, sporting and occupational injuries and accidental poisonings, most of which are preventable. Intentional injury (also preventable) may be administered by external forces or be self-inflicted and covers such issues as domestic violence, child abuse, sexual assault, other forms of assault and suicide. Suicide, which usually has mental illness as a contributing factor, is also discussed in the mental illness section (Section 8).

8.1 Mortality

The number of deaths caused by injury in the ACT is relatively small, although injury is the fourth most common cause of death in the Territory. The small numbers result in a fluctuating pattern over the years. There were 92 injury deaths (64 males, 28 females) in the ACT in 1996.

Figure 26: Crude mortality rates from all causes of injury, ACT, 1988-96



Source: *Causes of Death Australia, 1988-96.* Catalogue No. 3303.0

A valid comparison between the ACT and Australian rates necessitates the standardisation of rates. Table 32 shows that the Territory rates compare favourably with Australian rates.

Table 32: Age-standardised mortality rates(a) for injury, by sex, ACT & Australia, 1996

	ACT	Australia
Males	42.3	59.2
Females	19.4	22.4

(a) Standardised to 1991 Census population, rate is per 100,000
Source: *Causes of Deat Australia. 1995.* ABS Catalogue No. 3303.0

It can be seen from Table 33 that a large majority of deaths caused by injury occur in the young ages of 15 to 44 (76.6 per cent of male injury deaths, 64.3 per cent of female injury deaths).

Table 33: Deaths caused by injury, by sex, by age, ACT, 1996

		Age groups									
Selected external causes	Sex	0-	5-	15-	25-	35-	45-	55-	65-	75+	Total
Motor vehicle traffic accidents	**M**	0	0	9	1	3	1	0	0	3	17
	F	0	3	1	2	1	0	0	0	1	8
Air & space transport accidents	**M**	0	0	0	0	0	1	0	0	0	1
Accidental poisoning by drugs	**M**	0	0	3	0	2	1	0	0	1	7
medicinal sub's biologicals	**F**	0	0	0	0	0	0	0	0	0	0
Accidental falls	**M**	0	0	0	0	1	0	0	0	3	4
	F	0	0	0	0	0	0	0	1	2	3
Accidents caused by fire	**M**	0	0	0	0	0	0	0	0	0	0
& flames	**F**	0	0	0	0	0	1	0	0	0	1
Accidents due to natural	**M**	0	0	0	0	0	0	0	0	0	0
or environmental factors	**F**	0	0	0	0	0	0	0	0	1	1
Accidents due to submersion	**M**	0	1	1	0	0	1	1	0	0	4
suffocation, or foreign bodies	**F**	1	0	0	0	1	0	0	0	0	2
Late effects of accidental injury	**M**	0	0	0	0	0	0	0	1	0	1
	F	0	0	0	0	1	0	0	0	0	1
Suicide & self inflicted	**M**	0	0	5	6	8	2	5	0	0	26
injury	**F**	0	0	2	2	2	4	0	1	0	11
Homicide, injury purposely	**M**	0	0	0	1	0	0	0	0	0	1
inflicted by others	**F**	0	0	0	0	0	0	0	0	0	0
Other causes of injury	**M**	0	0	2	1	0	0	0	0	0	3
	F	0	0	0	0	0	1	0	0	0	1
Total	**M**	**0**	**1**	**20**	**9**	**14**	**6**	**6**	**1**	**7**	**64**
	F	**1**	**3**	**3**	**4**	**5**	**6**	**0**	**2**	**4**	**28**

Source: *Causes of Death Australia 1995.* ABS unpublished data

A time series showing age groups and causes of death for areas of particular interest is given in Table 34.

Table 34: Mortality caused by selected injury, ACT, 1993-96

	1993		1994		1995		19 96	
	No.	Rate	No.	Rate	No.	Rate	No.	Rate
All injuries								
Males	49	32.6	72	47.6	66	43.1	64	41.2
Females	19	12.8	25	16.7	20	13.2	28	18.4
Total population	68	22.8	97	32.2	86	28.3	92	29.9
Falls								
Males, aged 65+	0	0.0	5	56.2	2	21.6	3	30.9
Females, aged 65+	2	17.6	2	17.0	2	16.5	3	24.0
All people, all ages	5	1.7	8	2.7	6	2.0	7	2.3
Homicide								
Males, aged 20-39	0	0.0	1	1.8	1	1.8	1	1.8
Females, aged 20-39	0	0.0	0	0.0	0	0.0	0	0.0
Children aged 0-9	0	0.0	0	0.0	0	0.0	0	0.0
Total population	1	0.3	4	0.3	2	0.3	1	0.3
Drowning								
Boys 0-4	2	17.1	1	8.7	1	8.8	0	0.0
Girls 0-4	1	9.0	0	0.0	2	18.1	1	9.1
Total population	4	1.3	1	0.3	4	1.3	6	2.0
Motor vehicle traffic accidents								
Males	8	5.3	22	14.5	12	7.8	17	11.0
Females	3	2.0	8	5.3	8	5.3	8	5.3
Boys 0-14	0	0.0	4	11.7	0	0.0	0	0.0
Girls 0-14	0	0.0	0		0	0.0	3	9.3
Young males 15-24	4	13.8	8	27.5	5	17.2	9	31.4
Young females 15-24	1	3.6	1	3.6	1	3.6	1	3.7
Older males 65+	0	0.0	1	11.2	1	10.8	3	30.9
Older females 65+	0	0.0	1	8.5	2	16.5	1	8.0
Total population	11	3.7	30	10.0	20	6.6	25	8.1
Fire, burns & scalds								
People under 55	1	0.4	4	1.5	1	0.4	1	0.4
People over 55	0	0.0	0	0.0	0	0.0	0	0.0
Total population	1	0.3	4	1.3	1	0.3	1	0.3

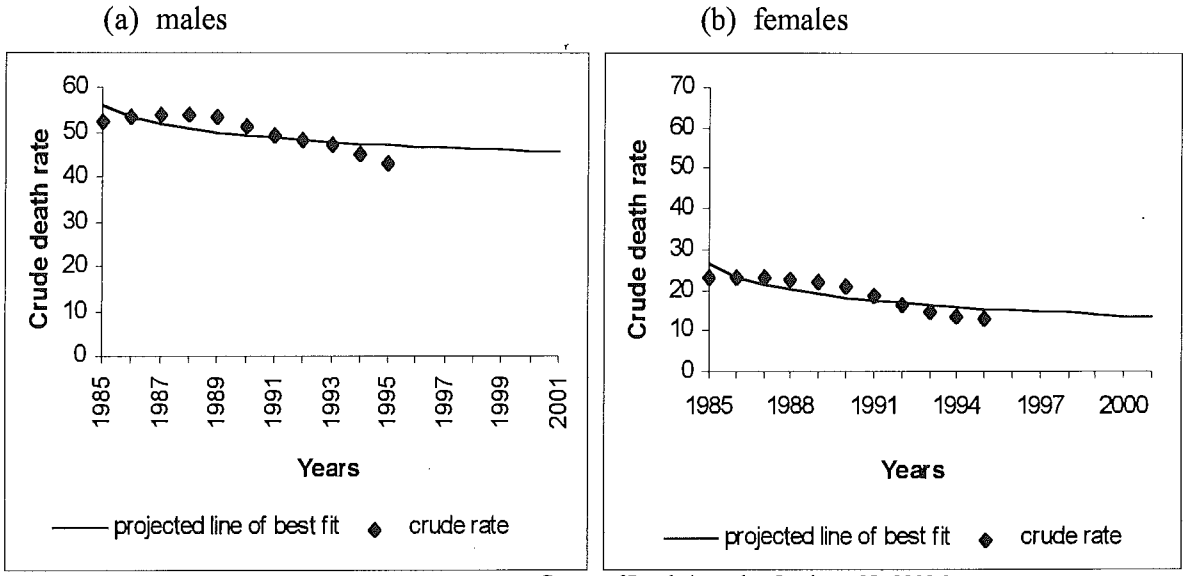
Note: Crude rate per 100,000 population
Source: *Causes of Death ACT 1993-96.* ABS unpublished data.

8.1.1 Projections of injury mortality to the year 2001

In 1996, there were 64 male and 28 female deaths due to injury compared with 66 male and 29 female deaths in 1985. It is important to note that the number of injury deaths for males and females is relatively low with fair variation over the last 10 years.

The number of deaths predicted using the line of best fit are 71 for males and 34 for females in 1985, 72 for males and 23 for females in 1995 and 74 for males and 22 for females in 2001. The line of best fit shows decreases in crude rates for both males and females with the female rate decreasing faster (Figure 27). As the majority of injuries involve males in the 15-44 age group, the decrease in injury may be a reflection of the decreasing proportion of the population in this group. With an increase in the number of elderly we may see a different type of injury profile begin to emerge in ACT figures.

Figure 27: Crude death rate(a) (smoothed) for all injury, projections to the year 2001, ACT

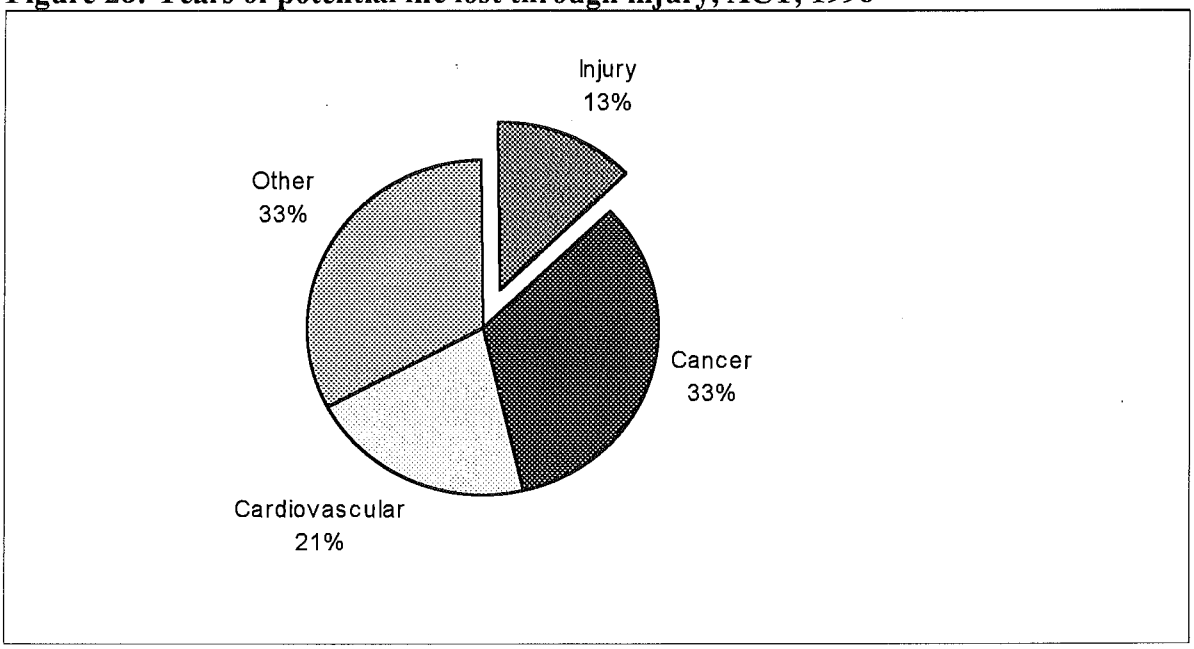


(a) Crude rates are per 100,000 Source : *Causes of Death Australia.* Catalogue No 3303.0

Years of potential life lost

Death by injury, since it is most prevalent in younger people (especially in the 15 to 24 years age range where a large proportion of deaths are due to sports, motor vehicle accidents and suicide), accounts for a high loss of years of potential life. As Figure 28 shows, injury deaths accounted for 29 per cent of the total YPLL (3,974 years) in the ACT in 1996. This is a serious loss when you consider injury causes accounted for just 8.7 per cent of all deaths. There were 1,268 YPLL of potential life lost (9%) due to suicide and 999 YPLL (7%) due to motor vehicle traffic accidents.

Figure 28: Years of potential life lost through injury, ACT, 1996



Note: YPLL is Standardised to Australian pop.as at 30 June 1991
Source: *Cause of Deaths ACT 1996.* ABS unpublished data

8.2 Morbidity

The National Health Survey 1995 surveyed conditions arising as a result of an accident or incident. It found that the most common injuries in the ACT were dislocations and sprains (36%), fractures (18%), bruising and crushing (15%) and open wounds. The most common circumstances of injury were falls (29%), single or long-term exposure to a harmful factor (19%), hitting something or being hit by something (19%), and vehicle accident (17%). The most common places of occurrence were at work (29%), while travelling (16%), outside home or someone else's home (13%) and inside home or someone else's home (11%). These profiles are similar to those of Australia generally, although Australia had considerably more accidents at work (39%) than in the ACT workplace.

Hospital activity

There were 7,933 separations from ACT hospitals for external causes of injury and poisonings in 1996-97. Of these, 54.9 per cent were males and 45.1 per cent were females.

Table 35: Estimated no. of ACT hospital separations from external causes of injury or poisoning, by sex, by age, 1996-97

Selected external causes	Sex	Age groups 0	1-	5-	15-	25-	35-	45-	55-	65-	75+	Total
Motor vehicle traffic accidents	M	0	2	18	73	47	39	27	12	8	10	236
	F	1	5	16	35	29	18	22	11	6	12	155
Motor vehicle non-traffic accidents	M	0	1	5	9	11	1	7	0	1	2	37
	F	0	1	2	2	1	2	0	0	0	0	8
Other road vehicle accidents	M	0	3	42	11	13	7	13	4	0	3	96
	F	0	3	24	11	9	8	1	1	3	1	61
Water transport accidents	M	0	0	1	1	0	0	1	1	0	0	4
	F	0	0	0	2	0	0	0	0	0	0	2
Air and space transport accidents	M	0	0	0	1	1	0	1	2	0	0	5
Vehicle accidents not elsewhere classifiable	M	0	0	10	29	14	10	7	1	0	0	71
	F	1	0	5	5	6	6	2	2	2	0	29
Accidental poisoning by	M	1	12	1	4	7	4	4	0	5	2	40
Drugs, medicaments & biologicals	F	0	11	1	4	7	8	4	0	3	7	45
Accidental poisoning by other solid, liquid	M	1	4	1	4	3	0	1	0	0	0	14
Substances, gases and vapours	F	1	3	2	1	1	1	0	0	0	0	9
Misadventure to patients	M	2	0	0	3	1	2	4	3	1	4	20
During surgical and medical care	F	0	0	0	1	8	6	5	3	5	2	30
Surgical & medical procedures causing	M	18	27	39	70	104	109	140	249	349	243	1348
Abnormal reaction/later complication no misadventure	F	3	9	28	68	139	229	225	162	247	203	1313
Accidental falls	M	3	52	155	123	79	49	53	42	52	125	733
	F	7	40	86	39	29	29	53	55	125	324	787
Accidents caused by fire and flames	M	0	0	1	4	3	2	1	0	0	0	11
	F	0	2	0	1	1	1	2	0	0	1	8
Accidents due to natural & envionmental	M	0	5	7	2	8	6	6	1	3	2	40
Factors	F	2	5	7	9	7	3	3	4	0	1	41
Accidents caused by submersion, suffocation	M	6	11	9	3	2	5	11	4	6	0	57
& foreign bodies	F	0	11	12	5	3	1	9	2	1	4	48
Struck accidentally by falling object	M	0	1	3	5	6	6	4	5	0	1	31
	F	0	0	4	2	0	0	0	0	0	1	7
Caught accidentally in or between objects	M	0	13	4	2	5	5	3	3	1	0	36
	F	0	5	4	3	1	1	1	2	0	0	17
Striking against or struck accidentally	M	0	2	12	16	7	8	0	4	0	1	50
By object or person	F	1	2	6	3	3	0	4	0	2	3	24
Accidents caused by machines	M	0	2	1	6	9	16	17	13	7	1	72
	F	0	0	0	3	0	1	0	0	0	0	4
Accident caused by cutting & piercing	M	1	7	22	55	45	26	17	7	6	3	189
Instrument or object	F	2	8	8	16	14	7	6	4	2	1	68
Accidents cause by hot substance or object,	M	1	7	4	2	5	1	1	1	0	1	23
Caustic or corrosive material, steam	F	2	1	0	1	2	1	0	1	1	3	12
Overexertion or strenuous movements	M	0	2	4	6	14	12	9	9	1	1	58
	F	0	1	0	7	2	7	2	3	6	3	31
Late effects of accidental injury	M	0	2	17	64	90	61	41	17	10	3	305
	F	0	0	12	20	31	26	33	17	9	13	161
Drugs,medicinal & biological substances	M	6	21	10	14	9	25	28	23	57	60	253
Causing adverse effects in therapeutic use	F	2	6	2	17	19	34	46	42	72	100	340
Suicide and self-inflicted injury	M	0	0	0	35	43	39	10	4	2	1	134
	F			13	85	53	48	25	6	4	1	235
Homicide & injury purposely inflicted	M	1	1	4	57	29	21	5	3	0	0	121
By other person	F	2	1	0	6	6	1	2	0	0	0	18
Injury inflicted by legal intervention	M	0	0	0	0	0	0	0	0	0	0	0
Injury undetermined whether accident or	M	0	0	0	0	0	0	0	0	0	0	0
Purposely inflicted	F	0	0	0	0	0	0	0	0	0	0	0
Other accidents	M	1	1	71	140	86	35	23	4	6	8	375
	F	0	3	25	21	17	19	11	9	8	8	121
	M	**41**	**176**	**441**	**739**	**641**	**489**	**434**	**412**	**515**	**471**	**4359**
Total	**F**	**24**	**117**	**257**	**367**	**388**	**457**	**456**	**324**	**496**	**688**	**3574**

Source: ACT Hospital Morbidity Data Collection , 1996-97

In examining the frequency of hospitalisation for injury, it is interesting to note the differences for males and females. Generally speaking, in most categories, males predominate over females. Males have considerably more interventions for vehicle accidents (4.7% of all accidents compared to 2.8% for females) while females have a

higher incidence of attempted suicide (3.0% of all separations compared to 1.7% for males). The mortality and hospital data show males are more likely to complete a suicide (and therefore not require hospital treatment) whereas females do not complete as often, and are therefore more likely to require hospital treatment. In the area of homicide and injury purposefully inflicted by other persons, male injuries predominate (approximately 7 times more than females). Other categories where males have significantly higher incidence are accidents caused by machinery (72 males, 4 females), accidents caused by fire and flames (11 males, 8 females), accidents caused by overexertion and strenuous movements (58 males, 31 females), accidental striking accidents (twice as many males) and accidents caused by cutting and piercing instruments or objects (males nearly 3 times as many). These accidents could well be associated with work, handy person or hobby activities.

Apart from suicide attempts and self inflicted injuries, the only categories where there is a *marginally* higher incidence for females are accidental falls, drugs, medicinal & biological substances causing adverse effects in therapeutic use.

Table 36: Hospital separations caused by selected injury, ACT, 1992-97

	1992-93	1993-94	1994-95	1995-96	1996-97
Road transport related					
Total population	566	555	586	626	593
Falls					
People 65+	382	394	492	459	626
Children 0-4	86	101	108	125	102
Children 5-9	136	153	162	169	141
near drowning					
Children 0-4	2	5	3	2	2
accidental poisoning					
Boys 0-4	21	28	22	28	18
Girls 0-4	24	13	13	20	15
burns and scalds					
Boys 0-9	14	14	13	14	11
Girls 0-9	11	8	5	6	3
Children 0-4	20	17	23	17	12
pedal cycle accidents					
Boys 5-14	24	27	29	37	37
Girls 5-14	11	12	11	18	15
intracranial injuries					
Males 0-24	89	72	70	67	62
Females 0-24	42	30	19	36	49
fractured neck of femur					
Males 65+	41	31	44	36	60
Females 65+	110	143	117	119	148

Source: *ACT Hospital Morbidity Data Collection, 1992-97*

Table 37 summarises the total number of separations for injury and poisoning over a 4 year period.

Table 37: ACT hospital separations caused by injury & poisoning, 1993-97

	1993-94		1994-95		1995-96		1996-97	
	No.	%	No.	%	No.	%	No.	%
Males	3311	5.1	3825	5.1	3915	5.4	4359	5.8
Females	2407	3.7	2807	3.7	3103	4.3	3574	4.7
Total	5718	8.9	6632	8.8	7018	9.6	7933	10.5

Note: % of total hospital separations (rounded) Source: *ACT Hospital Morbidity Data Collection, 1993-97*

Over the four year period, injury separations have increased from 8.9 per cent to 10.5 per cent of total hospital separations. Although this is not a major increase, and may be influenced by other factors such as a reduction in separations from other causes (refer Section 4.2), the position should be monitored.

The average length of stay in hospital in 1996-97 for separations due to injury and poisoning was 7.88 days (median of 3 days). This is higher than for 1995-96 and should be monitored. There have been changes in analysis and interpretation of definitions, but not to a large extent.

8.3 ACT goals and targets

Concurrently with the national health goals and targets project, the ACT developed Territory health goals and targets for the year 2000. After extensive consultation, the ACT goals and targets final document was released in the week of 30 January 1995.[50] Focus areas are broader than, but include the national areas.

The ACT Health Outcomes Group was established to oversee the implementation of ACT Health Goals and Targets. It is targeting injury as a major area for consideration in its deliberations. An expert taskforce to advise it in the development of a strategic plan for injury services in the Territory has been established.

ACT agreed goals and targets for injury are:

Table 38: Health goals and targets for injury

Goal	Identified targets for individual goals
1. Increase co-ordination & networking among all ACT agencies & servicesinvolved in injury prevention, treatment & rehabilitati	The Dept of Health & Community Care to establish an intersectoral & multidisciplinary infrastructure for injury prevention in the ACT by June 1995
2. Obtain accurate baseline data about the prevalence of all types of injuries	Establish, by December, 1995 a data collection system to provide baseline information on the causes of all injury presentations to emergency depts & primary health care settings (including details of actual or suspected intentional injuries) that can be linked with national data collections
3. Reduce the incidence & severity of injury from all causes	a) Reduce by 20% the rate of deaths due to all causes of injury b) Reduce by 20% the rate of hospital admissions for ACT residents due to all causes of injury c) Reduce by 20% the rate of Emergency Department presentations due to injury d) Reduce by 10% the rate of hospital admissions due to falls in people aged 65 years or more e) Ensure that at least 50% of participants in sport & recreational activities regularly wear appropriate protective equipment f) Increase to at least 75% the proportion of teenage cyclists who regularly wear helmets when cycling g) Reduce by 15% the rate of deaths due to suicide h) Develop by December 1995 hospital & community health protocols for identifying, treating & referring people injured as a result of domestic violence, sexual assault & child abuse
4. Promote skills development & self-esteem as a strategy to reduce violence & suicide	To be developed
5. Increase effort in early intervention & rehabilitation to reduce the impact of injury, chronic disability & re-injury	To be developed

Source: *ACT Health Goals and Targets for the Year 2000.* ACT Dept of Health and Community Care

9. Profile of mental illness

Mental health is of considerable importance to the community. Estimates show that between one in four and one in five individuals, and at least one in ten children and adolescents in Australia will be affected by a mental health problem or mental disorder, at some point in their lives, to a degree which interferes with their lives. [51] Mental illness also lays considerable emotional, financial and social burdens on families associated with sufferers. As a result mental health is one of the major health priority areas both nationally and for the ACT (for detailed analysis of mental health status in the ACT refer White, Gilbert, Johansen, 1997).[52]

Mental health reform in Australia is being driven by the National Mental Health Strategy, which in the ACT, is complemented by ACT Strategic Plans. These strategies target the needs of people with serious mental illness, since they are the group in greatest need, but do not ignore the needs of people with less serious mental illness or a mental dysfunction.

9.1 Mortality

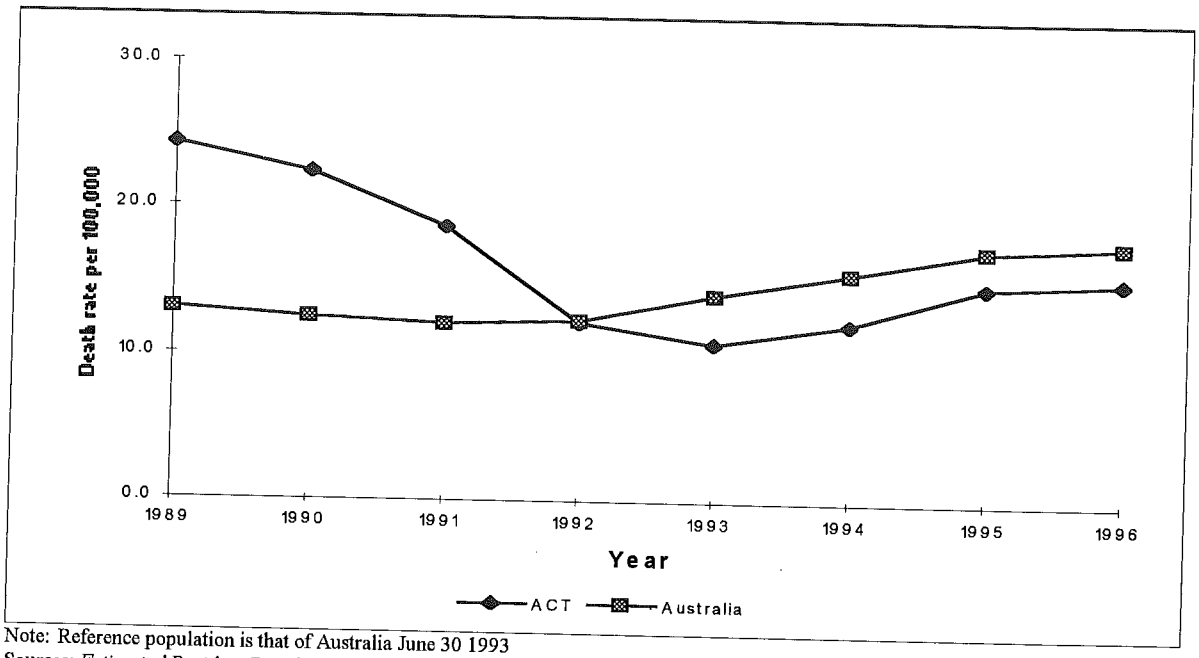
Fortunately, in the majority of cases, mental disorders do not result in premature death. This section looks at those who have died due to mental disorders and also examines mortality as a result of suicide (given that at least 90% of those who attempt suicide have a mental disorder at the time of the attempt or completion of suicide).[53, 54]

Death rates for mental disorders in Australia are slowly increasing. This may reflect the ageing of Australia's population, since many deaths in this category are the result of dementia, including Alzheimer's disease, which tend to occur during old age. In addition, medical practitioners are increasingly inclined to nominate mental disorders as the cause of death, increasing the death rates attributed to these disorders. [55]. Suicide rates in Australia, though relatively stable, are still a cause for concern. Youth suicide is of particular concern, with deaths in this group resulting in the loss of many potentially productive years of life.

In 1996, of 32 deaths due to mental disorders in the ACT, 17 were male and 15 were female. The mean age was 64 years. Fourteen of these deaths were due to uncomplicated senile dementia. A small number of deaths occurred as a result of atherosclerotic and presenile dementias (<5). The mean age at death due to all dementias was 85 years. While males outnumber females in younger age groups, the majority of residents aged 75 years or more are female (63%). It is therefore not surprising that the majority of those who died due to dementias were female (71%). Twelve deaths were recorded as the result of mental disorders related to drug abuse (8 male, 4 female). These people were relatively young, having a mean age of 32 years.

Figure 29 shows that, after adjusting for age, death rates due to mental illness for ACT residents were higher than the national rate in 1989. However, the ACT rate has declined since that time. Since 1992, ACT mortality rates for mental disorders have, in fact, been slightly below the national rate. Death rates for ACT and Australia increased slightly from 1993 to 1996.

Figure 29: Three yr moving averages for age-standardised death rates for mental disorders, persons and Australia 1989-96



Note: Reference population is that of Australia June 30 1993

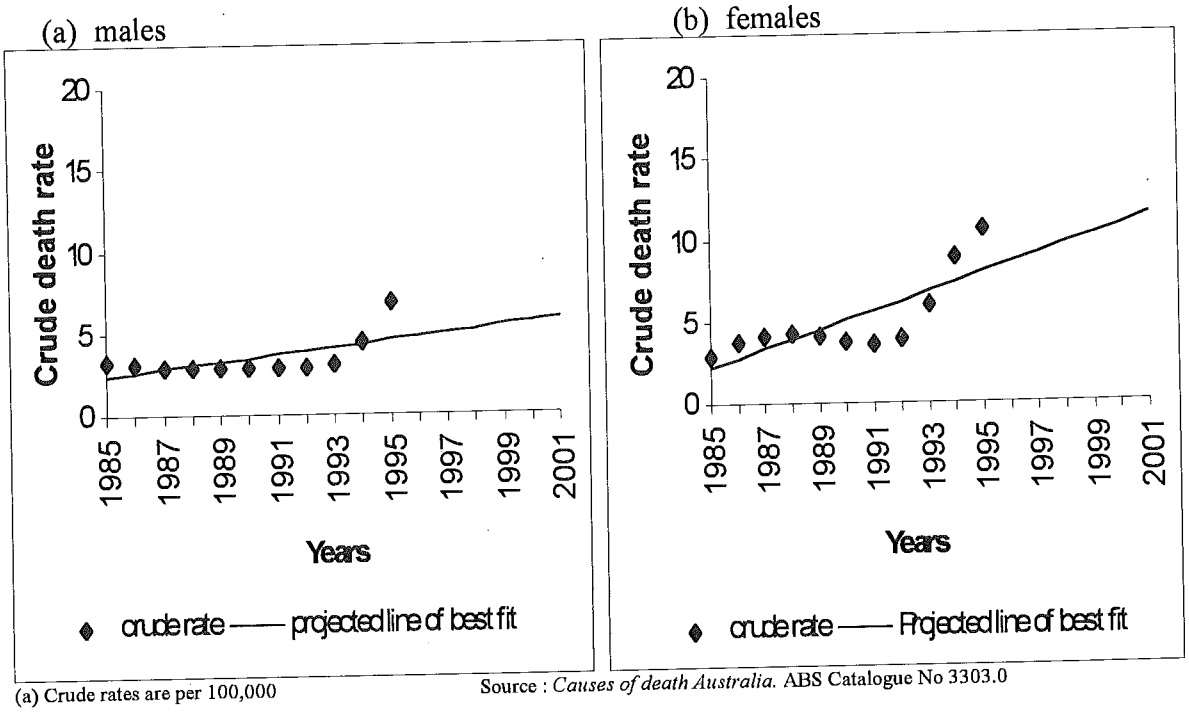
Sources: *Estimated Resident Population By Age and Sex States ad Territories of Australia 1989 to 1996,* ABS Catalogue No. 3201.0
Deaths due to mental disorders in the ACT 1989 to 1992. ABS unpublished data
Causes of Death Australia 1989 to 1996, ABS Catalogue No. 3303.0

9.1.1 Projections of mortality due to mental disorders to the year 2001

Deaths due to mental disorders in the ACT increased from 5 males and 2 females in 1985 to 17 males and 15 females in 1996. The number of deaths due to mental disorders was small when compared with other major health priority areas. However, when one considers that in 1996 the majority of cases were related to dementia and that our population is ageing, one can see the importance of monitoring these figures.

The lines of best fit for mental disorders estimates numbers of deaths in 1985 to be 3 for both males and females, and 10 for males and 18 for females in 2001. Projections of crude deaths rates show an increase for both males and females, with a greater increase for females (Figure 30).

Figure 30: Crude death rate(a) (smoothed) for all mental disorders, projections to the yr 2001, ACT



(a) Crude rates are per 100,000

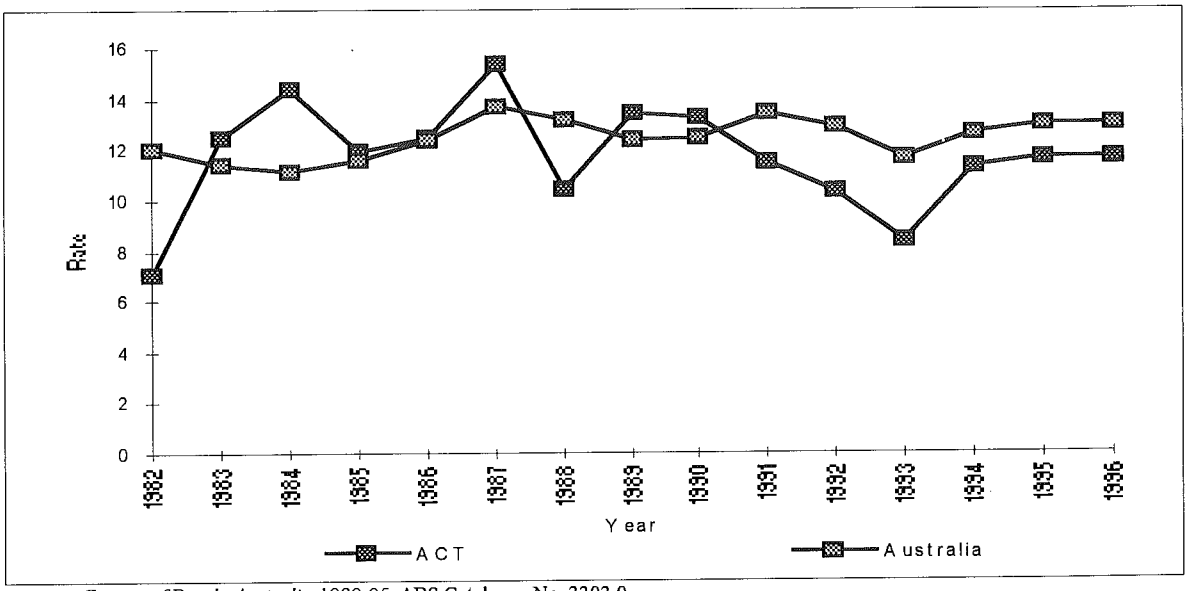
Source : *Causes of death Australia.* ABS Catalogue No 3303.0

Suicide

The majority of suicides are associated with mental disorders, especially severe depression and schizophrenia.[56] It has been estimated that about 90 per cent of adolescent suicides are preceded by signs of mental illness, especially depression.[57] However it is important to note that suicide is not necessarily a result of mental disorders, and may be the action of psychologically healthy persons who find themselves in difficult circumstances which they are unable to cope with at the time.

In 1996, 26 males and 11 females committed suicide. The majority of these people (14 males and 4 females) were aged 25 to 44 years. Figure 31 illustrates that the ACT standardised suicide rate for persons was slightly lower than the national rate from 1989 to 1996.

Figure 31: Age-standardised suicide rates, persons, ACT and Australia, 1982-96



Sources: *Causes of Death, Australia 1989-95.* ABS Catalogue No. 3303.0
Estimated Resident Population by Sex and Age States and Territories of Australia. ABS Catalogue No. 3201.0
Australian Demographic Statistics. ABS Catalogue No. 3101.0
Demography Australia Capital Territory. ABS Catalogue No. 3311.8
Suicides Australia 1982 to 1992. ABS Catalogue No. 3309.0
ACT's Health: A Report on the Health Status of ACT Residents, 1995. ACT Department of Health & Community Care,

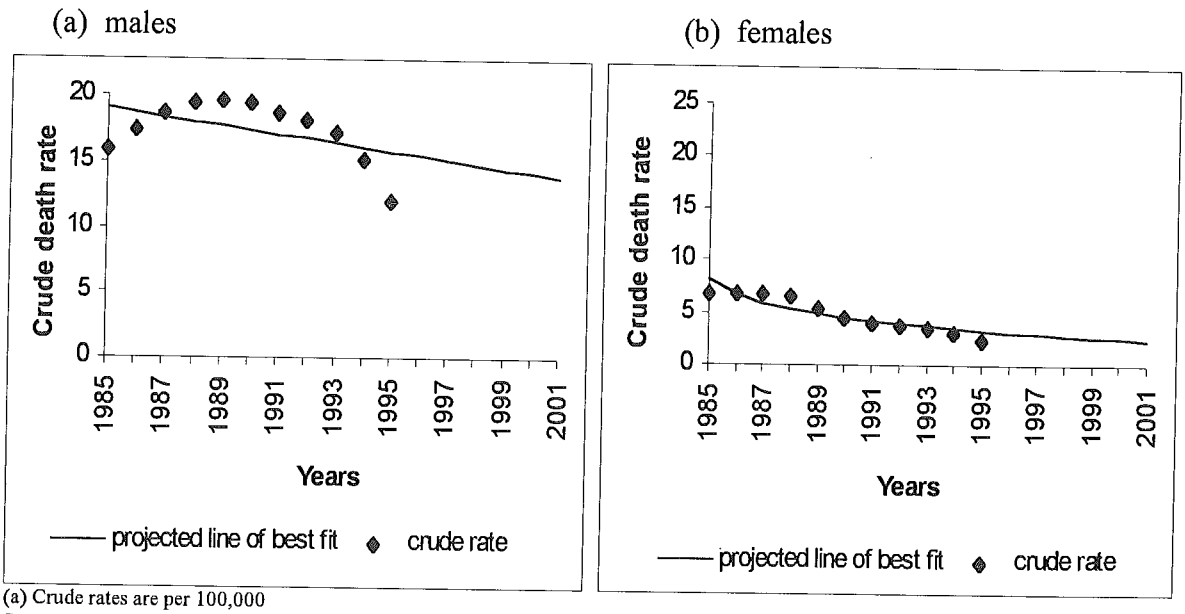
Males aged 15 to 24 years are at a particularly high risk of committing suicide.[58] From 1989 to 1996, 51 ACT residents aged 15 to 24 committed suicide, 42 of whom were male. The death rate due to suicide for males in this age group was lower for the ACT than the national rate from 1989 to 1996. In 1994 and 1995, the male suicide rate in this group was relatively stable, at around 13.7 per 100,000 for both years (17.5 in 1996), compared to the national rate of 27 and 25 per 100,000 (25 in 1996). In 1996 the ACT had 7 deaths, 5 of whom were male and 5 of whom were Australian born, in this age group.

9.1.2 Projections of mortality due to suicides to the year 2001

Unlike mental disorders suicides are predominantly committed by young persons (particularly males). There is much concern about the loss of life at such a young age and a need to closely monitor the number of suicides. For males, there were 20 suicides in 1985 compared with 26 in 1996. For females, there were 8 suicides in 1985 compared with 11 in 1996.

The line of best fit estimates the numbers of suicides for males remaining fairly steady with 24 deaths in 1985, 24 in 1995 and 1996 and 22 in 2001. For females a decrease is estimated from 10 in 1985, to 5 in 1995 and 1996 and 4 in 2001. These estimates take into consideration fluctuations resulting from the small numbers of deaths in the ACT (eg females deaths were 10 in 1994 and 1 in 1995). If the trend in crude rates continues (refer Figure 32) there will be a decline in suicides. Given the small numbers involved, we have not looked at age-specific suicide rates to see if this overall ACT decline is also reflected in the 15-25 age group.

Figure 32: Crude suicide rate(a) (smoothed), projections to the year 2001, ACT



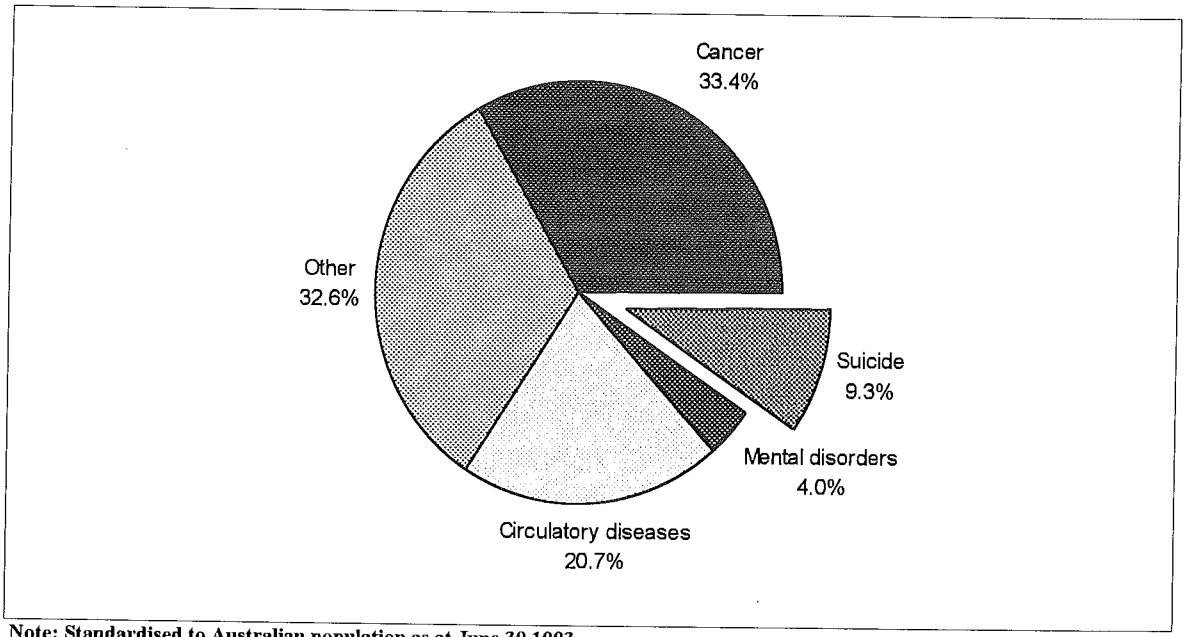
(a) Crude rates are per 100,000
Source : *Causes of death Australia.* ABS Catalogue No 3303.0

Years of potential life lost through suicide

The suicide of a young person places a great emotional toll on surviving relatives and friends. The loss of many potential years of productive life whenever a young person commits suicide is also a great economic cost to society.

Figure 33 shows that mental disorders, which caused 2.5 per cent of all deaths, accounted for 4 per cent of potential years of life lost in the ACT (538 years). However suicide, which caused 2.8 per cent of deaths, accounted for 9.3 per cent of the total years of potential life lost in the ACT (1268 years). This is an indicator of the toll that suicide takes on younger persons.

Figure 33 : Years of potential life lost, selected causes, ACT, 1996



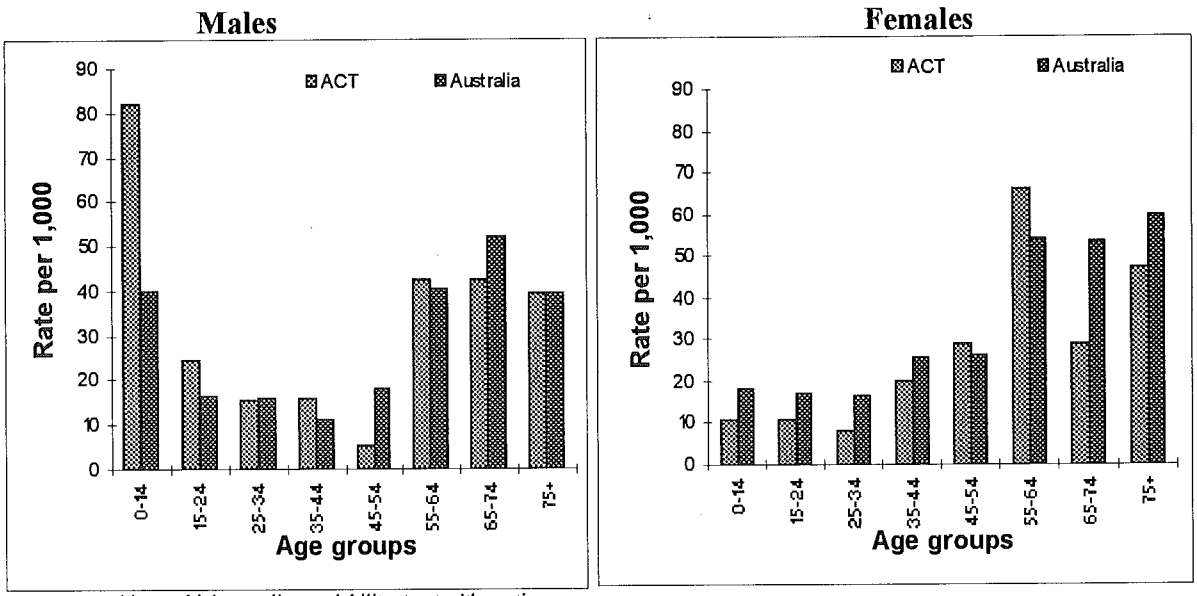
Note: Standardised to Australian population as at June 30 1993
Source: *Causes of Death ACT 1996.* **ABS unpublished data**

9.2 Morbidity and service utilisation

Survey of Disability, Ageing and Carers 1993

This survey (refer Glossary) was the third in a series conducted by the ABS. It provides estimates of the numbers and main characteristics of persons with disabilities and/or handicaps, examines profiles of persons aged 60 years or more, and carers. Mental disorders were defined in two categories in the Survey: senile and other psychosis; and 'other mental disorders' which includes mental retardation, mental degeneration due to brain damage, slow learning and specific delays in development, neurotic disorders, personality disorders and other non-psychotic mental disorders. The breakdown of reported prevalence rates by age group for mentally disabling conditions shows the peaks and profiles for males and females:

Figure 34: Disabling conditions, mental disorders, rate by sex, ACT & Australia, 1993



Note: Rate subject to high sampling variability, treat with caution.
Source: *Disability, Ageing and Carers Survey 1993*. ABS Catalogue No. 4432.0

It is interesting to note the different age profiles for males and females (refer Figure 34 above). Male rates peak at a very young age, drop dramatically at age 15 years, although still higher than females, and return to a peak at age 55 and onwards. Females on the other hand, peak between 55 and 64 years (ACT) and at 75+ years (Australia), with high rates in all older age categories.

One explanation for the high proportion of male incidence at the youngest age range may be that older males may not disclose mental disorders readily, thus skewing the proportions. Females may be more likely to be frank about their disorders.

The standardised rate for mental disorders (standardised to the Australian population in March 1993) in the ACT was 2.3 per 1,000 males, 1.7 per 1,000 females and 1.9 per 1,000 persons. This compares to an Australian rate of 2.0 per 1,000 persons.

National Health Surveys

In the 1989-90 National Health Survey an estimated 4,800 people self-reported as having long-term mental disorders in the ACT. Although adjustment for age and sex showed the ACT to have a slightly higher rate of disorder, this was not significantly different to the Australian average (age-sex standardised ratio was 106.6). However, when looking at the age-standardised percentage rate for specific gender and age groups females in the 0-14 age range (ACT 3.1%, Australia 0.8%) were substantially different to the Australian population. Males in the 15-24 age range (ACT 5.0%, Australia 1.5%) are higher than the Australian population, however the sample was too small to deduce significance.[59] Since these are the crucial years for education and vocational training, mental illness during this period has a huge impact on employment and lifestyle possibilities and consequently the situation needs careful monitoring and, possibly, intervention.

The preliminary results of the 1995-96 National Health Survey have recently been released allowing a more current and accurate assessment of self-reported mental disorders in the ACT and Australia. Full results will be released shortly.
Of those ACT people reporting recent conditions in 1995 an estimated 5,300 people (2.6%) reported suffering from nerves, tension, nervousness or emotional problems. This equates to a rate of 16.4 per 1,000 people for males (Australian male rate is 15.9), 21.2 per 1,000 for females (Australian female rate is 24.8), and 18.8 per 1,000 persons (Australian rate is 20.4). These ACT rates are similar to those of the previous survey.

One set of questions in the Survey related to respondents' perceptions of their health related quality of life. Scores were between 0 and 100 with higher scores denoting a better state of health. As people aged, their mental health scores improved.

ACT Quality of Life Surveys

The Quality of Life Project[60] (refer 4.2) shows that, within the ACT population, there are some interesting findings with regard to the mental health score:

- Older people (65+) are significantly more likely to have good mental health than those in the younger adult population (18-65 yrs).
- Women tend to score lower (poorer health) than men for scales significantly related to mental health. The exception is general health with women scoring better than men. These results follow the pattern for the general Australian population.
- Workers who are full-time have higher significant mean scores than part-time workers for mental health scales. In fact, using multivariate analyses, employment status had the strongest influence on the mental health dimension.
- Those who were married or de facto and who had children were likely to have worse mental health than those who were married or de facto without children or who were single without children.
- Interestingly, all scales except the mental health measure were significantly associated with disability status.

Canberra Interview for the Elderly

The NH&MRC Social Psychiatry Research Unit (now the NHMRC Psychiatric Epidemiology Research Centre) at the Australian National University conducted a prospective longitudinal study of the ACT elderly population to try and estimate the prevalence of both depressive disorders and dementia by international criteria.[61] There were 945 people in the community and 43 in institutions who were interviewed from October 1990 to June 1991 to a point where the diagnostic algorithms could be applied.

The study results showed that the proportion of cases with depressive disorders was consistently higher in persons living in nursing homes or sheltered accommodation for older people, than in the community.[62] While the proportion of cases was only 3.3 per cent in the total sample (0.6 standard error), it was found that many respondents had depressive symptoms. Fewer than a third of the sample had no symptoms. There was a higher level of symptoms in females than males. It was that the elderly in the community probably do not carry higher rates for depressive *disorders* (as defined by diagnostic criteria and at the severity encountered in psychiatric clinics) than other age groups, but they do experience substantial levels of depressive *symptoms*.

Service utilisation

Hospital separations data are collected routinely from the four ACT hospitals (The Canberra Hospital, Calvary Public, Calvary Private, John James Memorial Private). Given that The Canberra Hospital services the South-East Region, there is a considerable cross-border flow between the ACT and other states. In the case of mental disorders, interstate patients account for approximately 10.1 per cent of separations. This is slightly lower than the percentage for the total interstate separations for all causes (20%).

The *ACT Hospital Morbidity Data Collection* on which this section is based, is data on patients admitted to ACT hospitals. It does not include emergency or outpatient clinic data.

ACT hospital inpatient separations for mental disorders

In 1996-1997 there were 1,525 (707 males, 818 females) ACT hospital separations with a principal diagnosis of a mental disorder. These accounted for 2% of all hospital separations. The majority of these services were provided by public hospitals (97%).

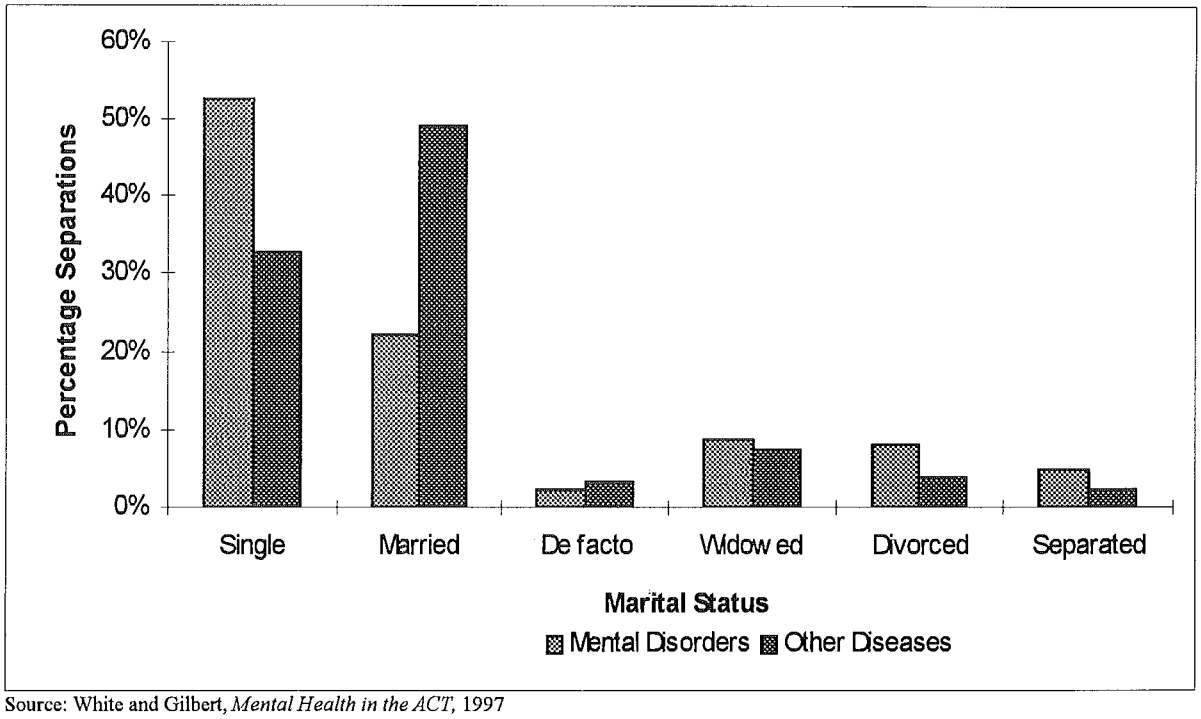
Unlike cardiovascular diseases (mean age 63) and cancers (mean age 59), where service utilisation increases with age, mental illness has a substantial proportion of younger individuals (mean age 38) utilising services. This is reflected in the age and gender breakdown of hospital separations of mental disorders for 1996-97 (refer Figure 35).

Figure 35: ACT hospital separations with a principal diagnosis of mental disorders, by age, by sex, 1996-97

Source: *ACT Hospital Morbidity Data Collection 1996-97*

Of ACT hospital separations in 1994-95, those separated due to mental disorders had a different *marital status* profile to those separated with other diseases[63]. A breakdown of hospital separations by marital status for mental disorders and other diseases is given in Figure 36. Further analysis was used in order to remove the effects of age and sex (refer Appendix 1 for methodology). The results showed that those separated with mental disorders were less likely to be married, (β=-1.0433, $p<0.0001$) de facto (β=-0.3712, $p<0.05$) and widowed (β=-0.4380, $p<0.0001$) however, they were more likely to be divorced (β=0.4143, $p<0.0001$) and separated (β=0.5858, $p<0.0001$) than those separated with other diseases.

Figure 36: ACT hospital separations (%), principal diagnosis of mental disorder and other diseases, by marital status, 1994-95

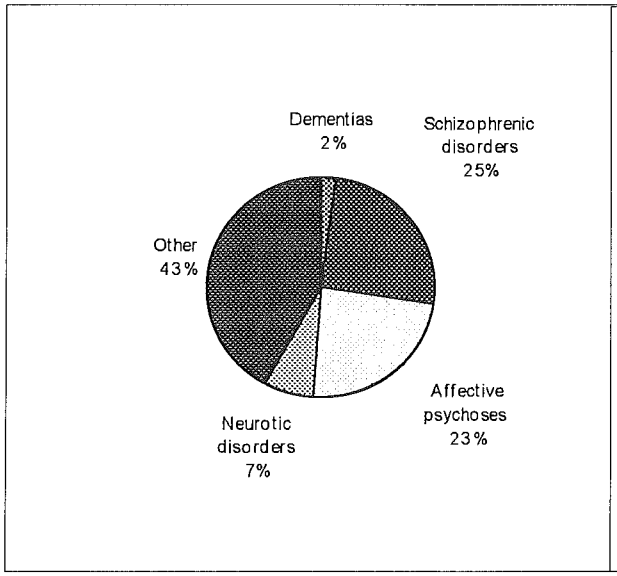


Source: White and Gilbert, *Mental Health in the ACT*, 1997

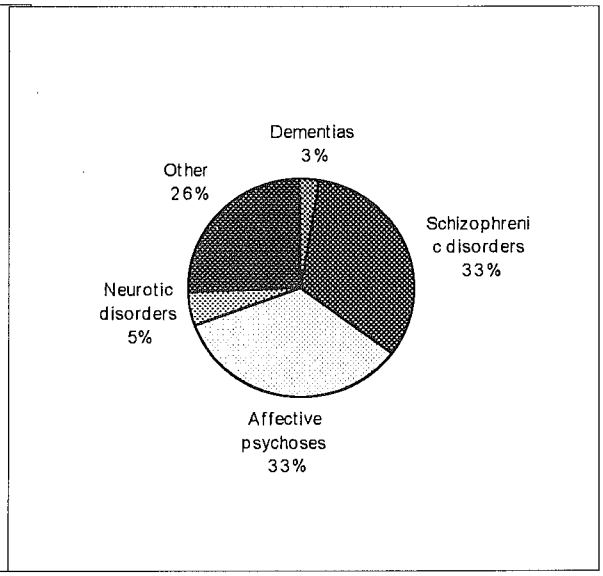
From Figure 37 it can be seen that schizophrenic disorders and affective psychosis account for approximately half of all separations due to mental illness, but more than half of the total length of stay (TLOS) in hospital.

Figure 37: Estimated number of ACT hospital separations & TLOS for selected mental disorders, ACT, 1996-97

(a) separations



(b) TLOS



Source: *ACT Hospital Morbidity Data Collection 1996-97*

Table 39: Hospital separations caused by mental illness, by sex, ACT, 1993-97

	Dementia		Schizophrenic disorders		Affective psychoses		Neuroses		Other		Total	
Year	M	F	M	F	M	F	M	F	M	F	M	F
1993-94	17	20	207	146	141	194	49	55	272	300	681	715
1994-95	18	34	230	149	126	234	55	58	265	323	694	798
1995-96	15	24	248	128	142	226	40	116	227	310	672	804
1996-97	17	15	250	138	122	234	27	83	291	348	707	818
Total	67	93	935	561	531	888	166	312	1055	1281	2754	3135
Percentage	42	58	63	38	37	63	35	65	45	55	47	53

Source: *ACT Hospital morbidity data, 1993-97*

Table 40: Hospital separations due to self-inflicted injury, ACT, 1993-97

	Males		**Females**		**Total**
Year	No.	%	No.	%	No.
1993-94	102	38	167	62	269
1994-95	112	37	189	63	301
1995-96	130	40	191	60	321
1996-97	134	36	235	64	369
Total	478	38	782	62	1260

Source: *ACT Hospital morbidity data 1993-97*

In 1996-97, the mean length of stay for mental disorders was the highest of all diagnostic groups (males 13.1 days, females 13.8 days). The longest mean stays were related to affective psychoses (19.6 days), schizophrenias (17.2 days), and dementias (17.2 days). The mean length of stay for neuroses was 8.9 days. With regard to suicide attempts and self-inflicted injuries, the mean length of stay was 6.6 days (6.0 for males and 7.0 for females).

9.3 ACT goals and targets

In 1994 the ACT Department of Health and Community Care developed health goals and targets for, amongst other priority issues, mental health, after considerable deliberation and consultation with key stakeholders. The goals are:

Table 41: Health goals for mental health, ACT

1. Increase coordination across ACT mental health programs and services.
2. Implement the ACT Mental Health Services Strategic Plan.
3. Improve the mental and emotional well-being of all ACT residents.
4. Reduce the impact of moderate to severe mental illnesses and emotional/behavioural disturbances on affected individuals, families and the community.

Source: *ACT Health Goals and Targets for the Year 2000.* ACT Dept of health, 1994

The Health Outcomes Group has been established by the Department of Health and Community Care to consider strategies for the attainment of goals and targets.

10. Profile of diabetes mellitus

Diabetes mellitus is a condition of considerable public health significance in that it affects at least half a million Australians (some estimates are as high as 700,000).[64] Furthermore, it is associated with significant human and financial cost to the community and its prevalence is likely to increase significantly as the population ages. People from low socioeconomic backgrounds[65] (who are less likely to follow good dietary habits), those from certain racial groups such as Aboriginal people and Torres Strait Islanders, those born in Southern Europe, Pacific Islanders, Asians, and the elderly are more likely to be affected than the general population. Aboriginal people have a prevalence of diabetes mellitus approximately five times that of other Australians.

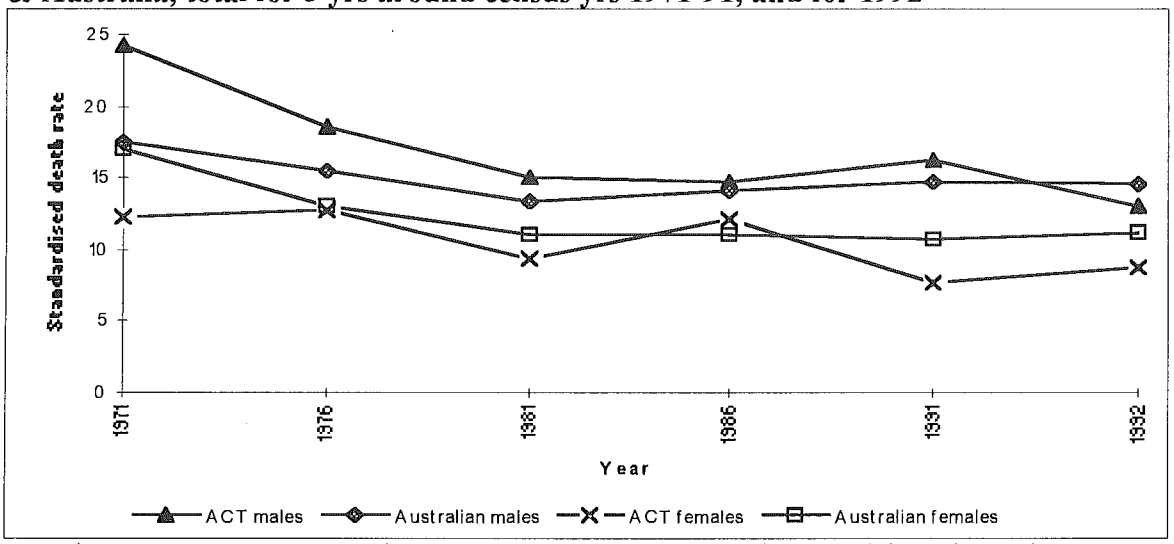
10.1 Mortality

Diabetes mellitus by itself is not a major life threatening condition if it is properly managed. It often has co-morbidities which are life threatening however, such as heart disease.

It should be noted that some deaths identified as deaths from other causes (eg heart attack), actually are attributable to diabetes mellitus. As data collection becomes more precise, these statistics will be recorded more accurately. There were 25 known deaths caused by diabetes mellitus in the ACT in 1996 (12 males, 13 females), which equates to 1.9 per cent of all deaths in the ACT for that year. 1996 standardised rates (using 1991 standard population) show that ACT males have a considerably lower death rate than Australian males (10.9 compared to 15.3 per 100,000). Given the small numbers in the ACT, fluctuations such as this are not uncommon, and do not necessarily indicate a large difference in rates. 1995 had similar differences in rates which indicates a trend may be emerging. The ACT female rate also compares favourably with that of Australia (10.5 compared to 14 per 100,000).

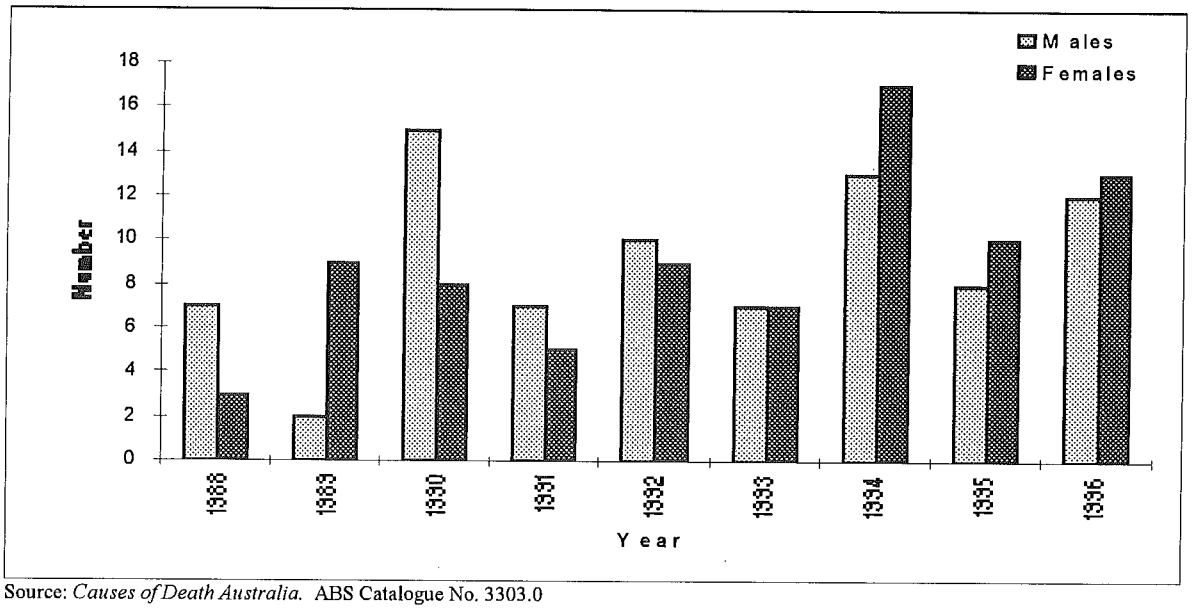
The following figure uses a different methodology to the above standardisation, but is useful in comparing the ACT with itself and Australia over time. ACT males had a higher rate until 1991, but then the rate declines. This is consistent with the findings above.

Figure 38: Age-standardised mortality rates(a) for diabetes mellitus, by sex, ACT & Australia, total for 3 yrs around census yrs 1971-91, and for 1992



(a) Rate is per 100,000 Source: *Trends in Mortality.* National Centre for Epidemiology & Population Health, Catalogue No 3303.0

Figure 39: Mortality caused by diabetes mellitus, ACT, 1988-96



Source: *Causes of Death Australia.* ABS Catalogue No. 3303.0

In terms of age at death caused by diabetes mellitus, it can be seen from Table 42 that diabetes generally causes death in the later half of life. There was only one death in people under 15 years of age caused by diabetes in the period 1991-1996 in the ACT. This is to be expected since most diabetes is diagnosed as non-insulin dependent diabetes which is a mature age onset disease.

Table 42: Deaths caused by diabetes mellitus, by age groups, by sex, ACT, 1991-96

		Age groups									Median
Year	Sex	15-24	25-34	35-44	45-54	55-64	65-74	75-84	85+	Total	age
1991	Male	0	0	0	0	0	4	2	1	7	65-74
	Female	0	0	0	0	1	1	1	2	5	75-84
	Total	0	0	0	0	1	5	3	3	12	74-75
1992	Male	0	0	0	2	1	2	4	1	10	74-75
	Female	0	0	0	0	0	4	4	1	9	75-84
	Total	0	0	0	2	1	6	8	2	19	75-84
1993	Male	1	0	0	1	1	3	1	0	7	65-74
	Female	0	0	0	0	2	1	4	0	7	75-84
	Total	1	0	0	1	3	4	5	0	14	65-74
1994	Male	0	0	0	0	2	4	4	3	13	75-84
	Female	0	1	1	0	0	8	2	5	17	65-74
	Total	0	1	1	0	2	12	6	8	30	65-74
1995	Male	0	0	0	2	1	2	2	1	8	65-74
	Female	0	0	0	0	2	3	3	2	10	74-75
	Total	0	0	0	2	3	5	5	3	18	75-84
1996	Male	0	0	1	1	2	4	4	0	12	65-74
	Female	0	0	0	1	0	3	6	3	13	75-84
	Total	0	0	1	2	2	7	10	3	25	75-84

Source: *Cause of Death ACT 1991-96.* ABS unpublished data

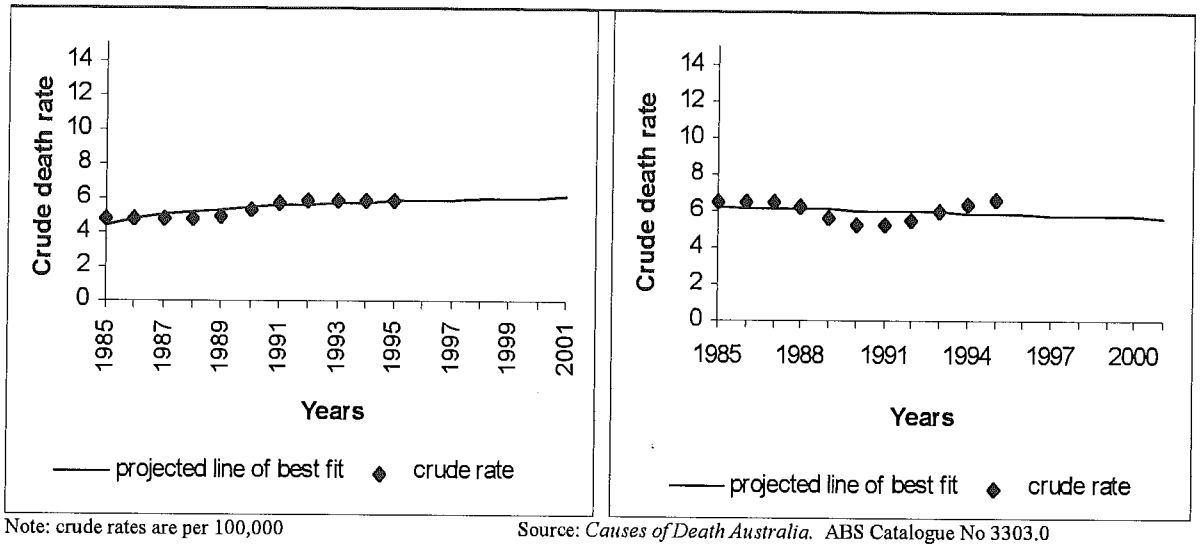
10.1.1 Projections of mortality due to diabetes mellitus to the year 2001

The number of deaths due to diabetes mellitus is quite low. In 1985 the number of deaths were 6 and 7 for males and females respectively and in 1995 the numbers were 8 and 10 respectively. The line of best fit reflects these small numbers predicting the number of deaths for males to be 6, 9 and 10 for the years 1985, 1995 and 2001 respectively. Similarly, the number of deaths predicted by the line of best for females is 4, 7 and 8 in the

years 1985, 1995 and 2001. The crude death rates show a similar trend with a very slight rise.

Figure 40: Crude death rate (smoothed) for all diabetes mellitus, projections to the yr 2001, ACT

(a) males (b) females



Note: crude rates are per 100,000

Source: *Causes of Death Australia.* ABS Catalogue No 3303.0

Years of potential life lost

Since death from diabetes usually occurs in older people, years of potential life lost (YPLL) is small. Estimated YPLL from diabetes deaths is 188 years or 1.38 per cent of total YPLL in the ACT in 1996.[66] This is a rise on 1993 when diabetes deaths resulted in 167 YPLL or 1 per cent of total ACT YPLL. (standardised according to the Australian population as at 30 June 1991).

10.2 Morbidity

The National Health Survey 1995-96 surveyed, amongst other things, health risk factors (refer Section 4.1) and long-term conditions. In terms of diabetes, an estimated 4,600 people reported having this disease, very few of whom were under 25 years of age. This equates to a rate of 14.5 per 1,000 males (Australian males 22.8), 15.7 per 1,000 females (Australian females 21.6) and 15.1 per 1,000 people (Australian rate of 22.2). Since no allowance has been made for age differences in the ACT and Australian populations, the lower ACT rates are probably due to the Territory's younger age profile.

It is not easy to gauge the incidence of diabetes, since most people are diagnosed and treated by their general practitioner and data concerning these visits is not extensive. Hospital separation data will give an indication of acute occurrences of the disease however.

There were 2,549 separations from ACT hospitals for diabetes mellitus related episodes (principal and secondary diagnoses), for the financial year 1996-97 (refer Table 43).

Table 43: Hospital separations caused by diabetes mellitus, ACT, 1991-97

	1991-92		1992-93		1993-94		1994-95		1995-96		96-97	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
- principal	231	18.6	265	19.9	299	17.7	258	13.1	264	12.2	219	8.6
- secondary	1009	81.4	1066	80.1	1391	82.3	1710	86.9	1895	87.8	2330	91.4
Total	1240	100.0	1331	100.0	1690	100.0	1968	100.0	2159	100.0	2549	100.0

Note: New coding practices in 1996-97 account for the apparent rise in secondary diagnoses
Source: *ACT Hospital Morbidity Data Collection 1991-96*

The average length of stay in hospital for diabetes mellitus, was 8.9 days for males and 7.8 days for females in 1996-97.

10.3 ACT goals and targets

The ACT Department of Health and Community Care developed health goals and targets for diabetes mellitus in 1994 after considerable deliberation and consultation with key stakeholders. An implementation process for the Territory has been established and is being overseen by the Health Outcomes Group.
The goals and targets are:

Table 44: Goals and targets for diabetes mellitus, ACT

Focus Area	Identified Targets for Individual Goals
1. Increase coordination between ACT diabetes services and programs.	
2. Reduce the prevalence of non-insulin dependent diabetes.	
3.Achieve early diagnosis of diabetes and reduce the prevalence of uncontrolled or poorly controlled diabetes.	a) Develop & pilot a systematic prevention & management shared-care program to reduce the level of diabetes-related complications by December 1995
and	b) Reduce the annual rate of hospital readmissions due to diabetes (principle diagnosis) by 15%
4. Reduce the prevalence and severity of diabetes-related complications.	c) Reduce the median length of stay in hospital for diabetes (principle diagnosis) by 15% d) Reduce the level of public hospital admissions for diabetic foot ulcers & foot amputations by 25%
5. Obtain baseline data about the prevalence and health outcomes associated with diabetes.	Establish a data collection system by June 1996 that will provide accurate baseline information on the : - prevalence of diabetes in the ACT - extent & severity of diabetes related complications and - true extent of hospital separations & deaths due to diabetes

Source: *ACT Health Goals and Targets for the Year 2000.* ACT Dept of Health, 1994

11. Profile of obstetrics and infant health

11.1 Mortality

There were 25 infant deaths (under 1 year of age) in 1996 compared to 21 in 1995, in the ACT. The mortality rate for infants dropped from 8.0 per 1,000 live births in 1885 to 5.7 in 1996. In 1996, the infant mortality rates for males and females were similar (5.4 per 1,000 for males, 6.0 per 1,000 for females). Because of the small numbers, interpretation of these rates should be treated with caution.

Table 45: Births & mortality caused by obstetric reasons, ACT, 1993-96

a)

	1993		1994		1995		96	
Indicator	No.	Rate	No.	Rate	No.	Rate	No.	Rate
Total live & stillbirths (rate per 100,000 population)	4435	1483.8	4473	1486.7	4436	1458.6	4416	1436.0
Live births (rate per 100,000 population)	4414	1476.7	4461	1482.7	4415	1451.7	4396	1429.5
Births to mothers under 20 yrs (rate per 1,000 live & stillbirths)	182	41.0	168	37.6	171	38.5	169	38.3
Maternal deaths (rate per 1,000 births)	0	0	0	0	0	0	0	0

Sources: *Births Australia 1993.* ABS Catalogue No. 3301.0
Causes of Death Australia, 1994-96. ABS Catalogue No. 3303.0
Causes of Death ACT 1993-96. ABS unpublished data.

b)

	1994		1995		1996	
Caesarian sections (% of total births)	No.	%	No.	%	No.	%
Elective	507	10.6	508	10.5	569	12.1
Emergency	513	10.7	482	10.0	404	8.6

Note: Until the end of 1995, 'elective' was defined as any caesarian section, regardless of whether labour had started or not. The definition changed to those where no labour had commenced before caesarian section.
Source: *Demography ACT 1993-95.* ABS Calogue No. 3311.8
ACT Hospital Morbidity Data Collection 1994-96

Table 46: Indicators of perinatal & infant health(a), ACT, 1993-96

	1993		1994		1995		1996	
Indicator	No.	Rate	No.	Rate	No.	Rate	No.	Rate
Babies weighing > 2,500 g at birth*	N/A	-	4513	-	4554	-	4381	-
Babies weighing < 1,500g at birth*	N/A	-	271	-	279	-	311	-
Perinatal mortality (deaths under 4 weeks of age)	32	7.2	27	6.0	36	8.1	35	7.9
All deaths under one year of age								
Infant mortality rate	19	4.3	21	4.7	21	4.8	25	5.7
Deaths from SIDS								
Males	3	1.3	2	0.9	1	0.4	1	0.4
Females	2	0.9	0	0.0	2	0.9	2	0.9

* Births by weight for ACT and interstate residents, therefore rates not calculated
(a) Rates per 1,000 live births recorded in each year
Source: *ACT Hospital Morbidity Data Collection*
Causes of Death ACT. ABS unpublished data
Causes of Death Australia. ABS Catalogue no. 3303.0
ACT Midwives data collection 1994-96

12. Profile of communicable diseases

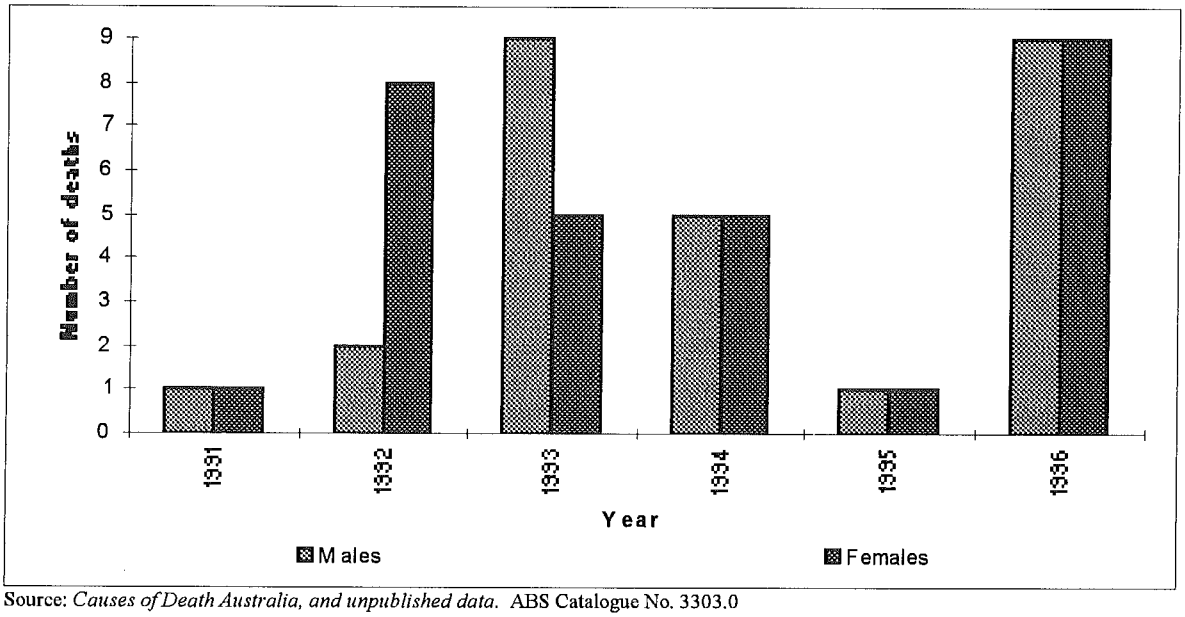
Communicable diseases are those diseases which are spread by direct contact with infectious agents such as droplets in the air (eg measles, rubella), body fluids (eg hepatitis B and C, HIV/AIDS), spores (eg tetanus), food and water (eg cholera, salmonella) and insects (eg malaria).

Results of the National Health Survey 1989-90 indicated that 3.3 per cent of the ACT population reported recent infectious or parasitic disease.

12.1 Mortality

The number of deaths caused through infectious and parasitic diseases is fluctuating and very small in the ACT. Figure 41 gives details and highlights the inadvisability of coming to any conclusions from data where the sample is so small. All that can be concluded is that death from these causes is not substantial in number in the ACT.

Figure 41: Deaths attributable to communicable diseases, by number, by sex, ACT 1991-96

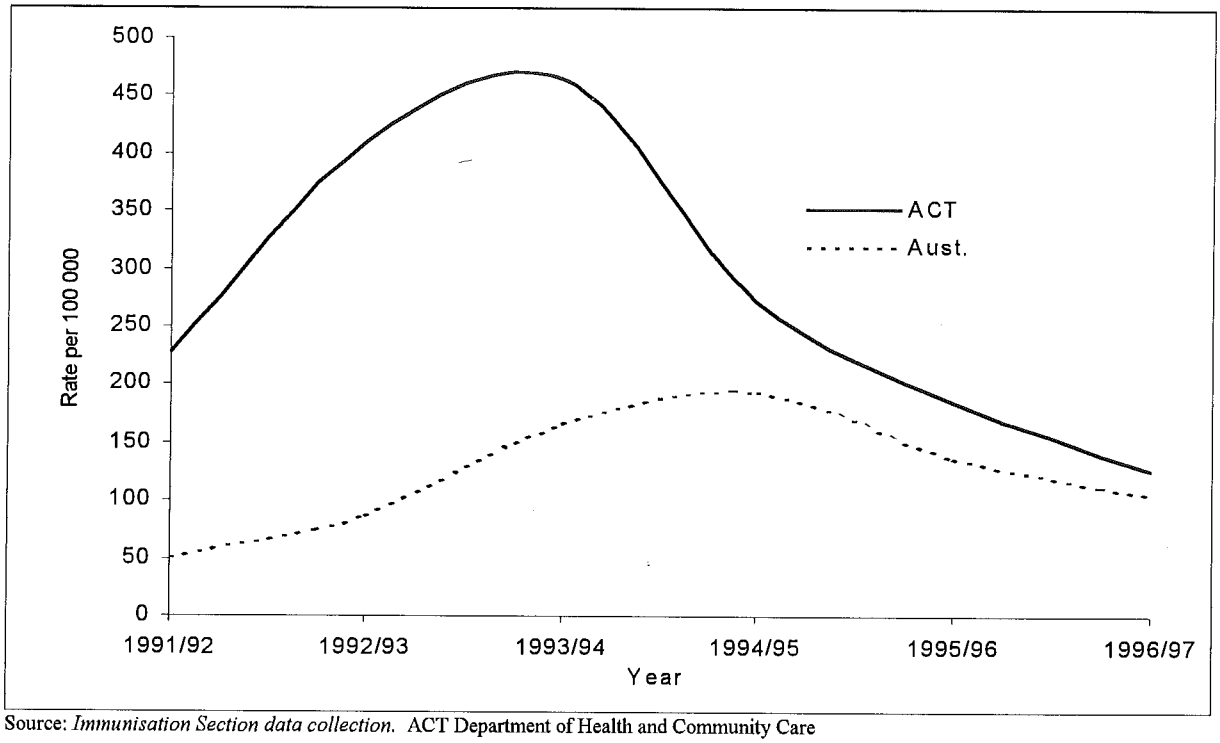


Source: *Causes of Death Australia, and unpublished data.* ABS Catalogue No. 3303.0

12.2 Morbidity

There has been a dramatic reduction in the notification of vaccine preventable diseases over the past few years (as illustrated in Figure 42). This is mainly due to the relatively high levels of vaccination in the ACT (refer Section 12.3).

Figure 42: Notifications of vaccine preventable diseases, persons under 16 yrs, ACT & Australia, 1991-97



Source: *Immunisation Section data collection.* ACT Department of Health and Community Care

Table 47 gives detail of communicable diseases which have been notified in the ACT, over a 3 year period. Given the small numbers, changes in incidence should be treated with caution.

Table 47: Communicable diseases notified, ACT, 1994-96

Communicable diseases	1994	1995	1996
Vaccine preventable			
Haemophilus influenzae type b	1	1	2
Measles	114	48	10
Mumps	5	16	7
Rubella	51	159	85
Pertussis	19	34	33
Foodborne diseases			
Campylobacter	299	294	258
Cryptosporidium (a)	0	54	0
Giardia (a)	19	10	7
Salmonella	45	82	62
Shigella	8	7	3
Typhoid	2	2	2
Food Poisoning			
Yersiniosis	0	1	0
Sexually transmitted			
Chlamydia	93	80	119
Genital Herpes (a)	49	34	40
Gonorrhoea	8	10	18
Syphilis	14	11	14
HIV/AIDS			
Groups 1, 2 & 3	10	24	12
Group 4 (AIDS)	19	14	14
Hepatitis			
Hepatitis A	17	15	61
Hepatitis B (unspecified)	121	90	98
Hepatitis B (incident)	0	12	4
Hepatitis C (unspecified)	313	330	270
Hepatitis C (incident)	6	6	10
Other Diseases			
Leptospirosis	1	0	0
Listeriosis	1	5	3
Hydatid disease	2	0	4
Legionnaires disease	0	1	2
Malaria	24	22	27
Meningococcal inf.	7	11	8
Ross River virus	1	2	1
Tuberculosis	9	9	17
TOTAL (all communicable diseases)	1268	1405	1234

(a) These diseases are not notifiable in the ACT. These are voluntary notifications and are likely to be an underestimate of incidence.
Source: Data from Communicable Diseases Control Section of the ACT Department of Health and Community Care

People suffering from an infectious or parasitic disease are not usually admitted to hospital. Serious cases however, can be admitted and give a partial indication of the prevalence of serious communicable disease in the community. Infectious and parasitic diseases only accounted for 1.5 per cent of hospital separations (1065 separations) in 1995-96 . Table 48 gives an indication of how many separations due to a communicable disease occurred from 1991-92 to 1995-96.

Table 48: Hospital separations, no. caused by communicable diseases, ACT, 1991-96

	1991-92	1992-93	1993-94	1994-95	1995-96
Pertussis					
Males - < 1 year	0	1	0	4	0
1 year	2	0	1	0	0
2-7 years	0	0	1	0	0
8-11 years	0	0	0	1	0
Females - < 1 year	0	1	0	4	0
1-8 years	0	0	0	1	0
Total	2	2	2	10	0
Measles					
Males - < 1 year	0	0	2	2	0
1 year	2	0	0	0	0
2-6 years	1	0	0	0	0
7-8 years	0	0	1	0	0
Females - < 1 year	0	0	0	0	1
1 year	0	0	1	1	0
2-5 years	0	0	0	1	0
6-8 years	1	0	0	0	0
9-10 years	0	0	0	1	0
11-12 years	1	0	0	0	0
13 years	0	1	0	0	0
Total	5	1	4	5	1
Mumps					
Males	0	0	0	0	1
Females	0	0	0	0	0
Rubella					
Males - < 1 year	0	1	0	3	0
Females	0	0	0	0	0
Congenital rubella		0	0	0	0
Males 1 year	0	0	0	1	0
2 years	0	0	0	0	2
Females - < 1 year	0	0	0	0	1
Total	0	1	0	4	3
Hib					
Males - < 1 year	6	6	1	5	1
1 year	1	2	0	0	2
2 years	1	1	0	1	0
3 years	0	1	0	0	0
4 years	1	0	0	1	1
5-6 years	1	1	0	0	0
7-14 years	0	0	0	0	1
Females - < 1 year	5	5	1	6	2
1 year	3	4	1	0	0
2 years	3	1	0	0	0
3 years	1	0	0	1	0
4-11 years	1	0	0	0	0
Total	23	21	3	14	7
Total, all diseases	30	25	9	33	12

Source: *ACT Hospital Morbidity Data Collection*

The average length of stay for infectious and parasitic diseases was 4.1 days in 1996-97.

12.3 Immunisation

The ACT Immunisation Program was incorporated into the ACT Department of Health's Communicable Diseases Program in 1993. Substantial data is available from that time.

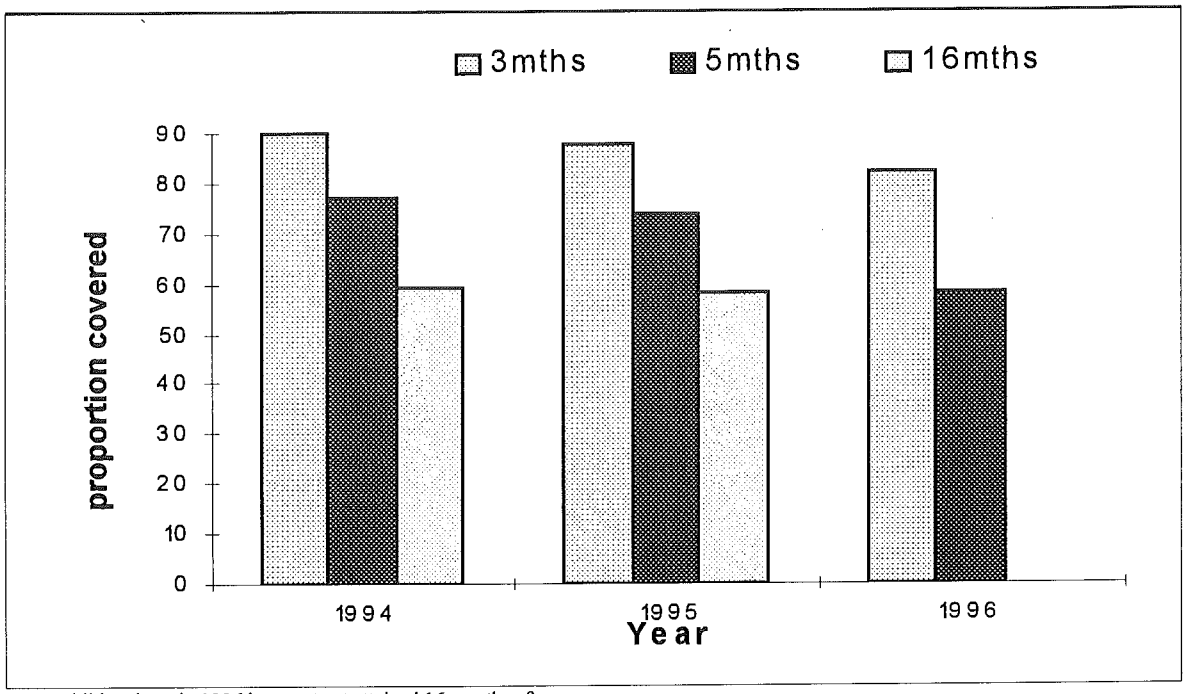
The ACT is in the enviable position of having the highest immunisation coverage rates in Australia (ABS 1995). The two major contributors to this successful outcome are the Maternal and Child Health Nurses (M&CHN) who administer 55 per cent of childhood immunisations (for children under 6 years) and the General practitioners who administer 44

per cent. The remaining one per cent is administered by hospital and Aboriginal Health Service staff.

The School Immunisation Program, implemented by the M&CHN, offers Year 6 children measles/mumps/rubella immunisation, and Year 9 children adult diptheria and tetanus (ADT) immunisations and oral polio vaccine (OPV). Approximately 82 per cent of all children in these two school years take advantage of this program (some 7,380 children).[67]

Although ACT coverage is better than for Australia generally, the most recent figures give cause for concern. Figure 43 illustrates that coverage for babies appears to be declining, although some allowances should be made for late data entries. The situation should be monitored.

Figure 43: Proportion of children fully immunised, by yr of birth, ACT, 1994-96



Note: Children born in 1996 have not yet attained 16 months of age
Source: Communicable Diseases Control Section of the ACT Department of Health and Community Care

12.4 ACT goals and targets

The ACT Department of Health and Community Care developed health goals and targets for communicable diseases after much deliberation and consultation with key stakeholders. The Department has established the Health Outcomes Group to oversee their implementation. The goals and targets are:

Table 49: Goals and targets for communicable diseases, ACT

Focus Area	Identified Targets for Individual Goals
1. Reduce the level of vaccine preventable diseases by increasing access to vaccines.	a) Increase to more than 90% the proportion of 2 year old children who are covered for all diseases specified in the recommended immunisation schedule b) Increase to near universal coverage the proportion of children of school age who are immunised against diptheria, tetanus, pertussis, polio, Hib, measles, mumps & rubella c)Increase to near universal coverage the proportion of girls & boys under years of age who are immunised against measles, mumps & rubella d) Increase to 90% the proportion of pregnant women who are tested for Hepatitis B e) Increase to 80% the proportion of adults who have received their latest year booster for diptheria & tetanus
2. Reduce the incidence of diseases transmitted sexually and by injecting drugs.	a) Obtain baseline information on unsafe sex & unsafe injecting drug use among the ACT community by June 1996 b) Reduce by 10% the reported incidence of all sexually transmitted diseases c) Reduce by 50% the reported incidence of HIV
3. Reduce the incidence of other communicable diseases.	

Source: *ACT Health Goals and targets for the Year 2000,* 1994

13. Profile of asthma

Australia and New Zealand experience higher prevalence, morbidity and mortality rates from asthma than any other developed countries. An Australian report published by the National Asthma Campaign in 1992[6] estimated that asthma affects one in five children, one in seven teenagers and one in ten adults. It costs the Australian community between $585 million and $720 million each year. It is known that poorly controlled asthma will cost more than well managed asthma, and that people who do not manage their asthma properly risk an asthma attack which could result in hospitalisation or even death. There is substantial morbidity from asthma which could be reduced by greater or more appropriate use of preventative medications, avoidance of trigger factors, peak flow monitoring and actions plans.[68] This has major implications for the development of education and preventative strategies.

One of the major concerns regarding asthma is our inability to adequately describe the prevalence and incidence of asthma in the population. Furthermore, diagnosis, especially in young children, is not easy. Mortality and hospital morbidity data (from the Australian Bureau of Statistics collections and ACT Department of Health and Community Care Hospital Morbidity Data Collection) provide partial indicators for diagnosed asthma prevalence, but the data refer to acute episodes only and do not provide a true reflection of prevalence or incidence. In addition, hospital admissions are governed by such things as admitting protocols (wherever possible, patients are stabilised in the Accident and

Emergency Department and not admitted). There are no comprehensive data available on asthma treatment by general practitioners. As most asthma treatment and management takes place in general practice, this is a major deficit in estimating asthma prevalence.[69] What data are available are outlined in *The Epidemiology of Asthma in the ACT*[70] and are summarised below. It should be noted that the numbers used in hospital morbidity data include all patients from the South East Region of NSW treated in ACT hospitals. On average, NSW admissions account for 19.4 per cent of all admissions to ACT hospitals, but only 9.3 per cent of asthma separations.

13.1 Mortality

There was a slow, unexplained, increase in deaths of young people aged 5 to 34 years with asthma during the 1980's, but this trend ceased in 1991 and there has been a consistent decline in deaths since.[71]

There were 5 asthma deaths, all female, in the ACT in 1996 (of residents usually residing in the ACT). This was less than one per cent of all ACT deaths (0.4%). The age and sex breakdown of deaths is outlined in Table 50.

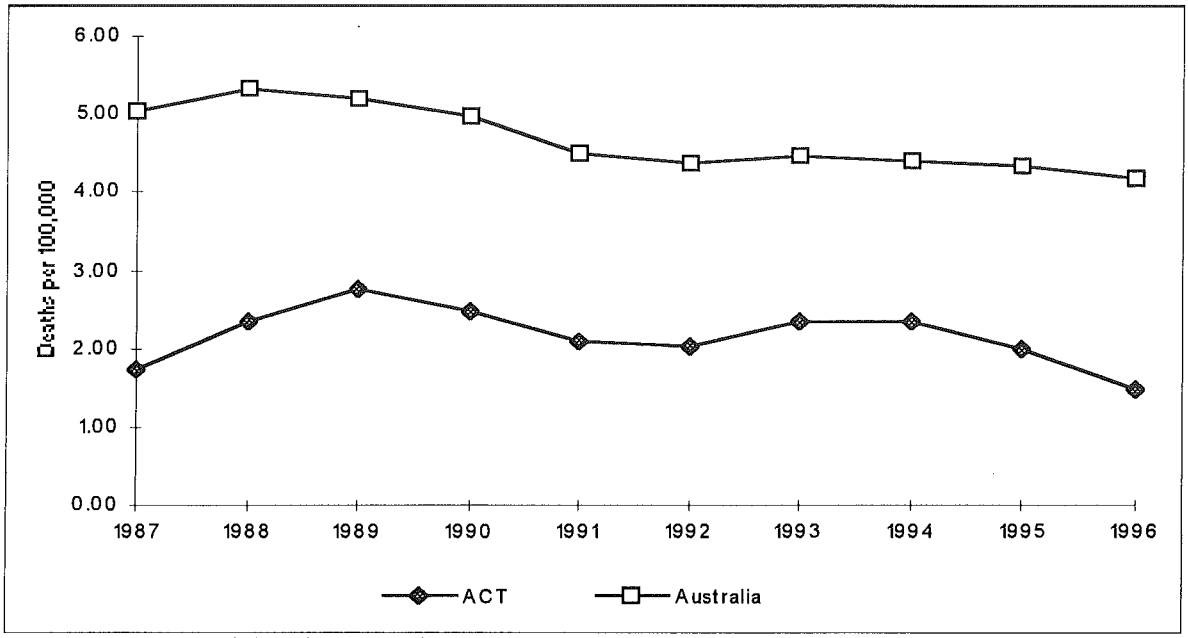
Table 50: Death caused by asthma, by sex, by age, ACT, 1994-96

	Age groups									
	15-19	20-24	25-34	55-59	60-64	65-69	75-79	80-84	85+	Total
1994										
Males	0	0	0	1	0	1	1	0	0	3
Females	1	1	0	0	1	1	0	1	0	5
1995										
Males	0	0	1	0	0	0	0	0	0	1
Females	0	0	0	0	0	0	0	0	3	3
1996										
Males	0	0	0	0	0	0	0	0	0	0
Females	0	0	0	1	0	2	0	0	2	5

Source: *Mortality Tabulations 1994-96.* 96 ABS unpublished data

The small numbers of deaths cause annual rates to fluctuate. Accordingly, rather than looking at isolated years, it is more meaningful to look at trends over time. Figure 44 shows that, over the last few years, the ACT rates have been consistently lower than national rates.

Figure 44: Crude death rates, due to asthma, 3 yr moving ave, ACT & Australia, 1987-96



Sources: *Causes of Death Australia*, ABS Catalogue No. 3303.0
Causes of Death ACT. ABS unpublished data
Estimated Resident Population by Sex and Age, States and Territories of Australia. ABS Catalogue No. 3201.0

Table 51: Deaths caused by asthma, no. & rate, ACT, 1993-96

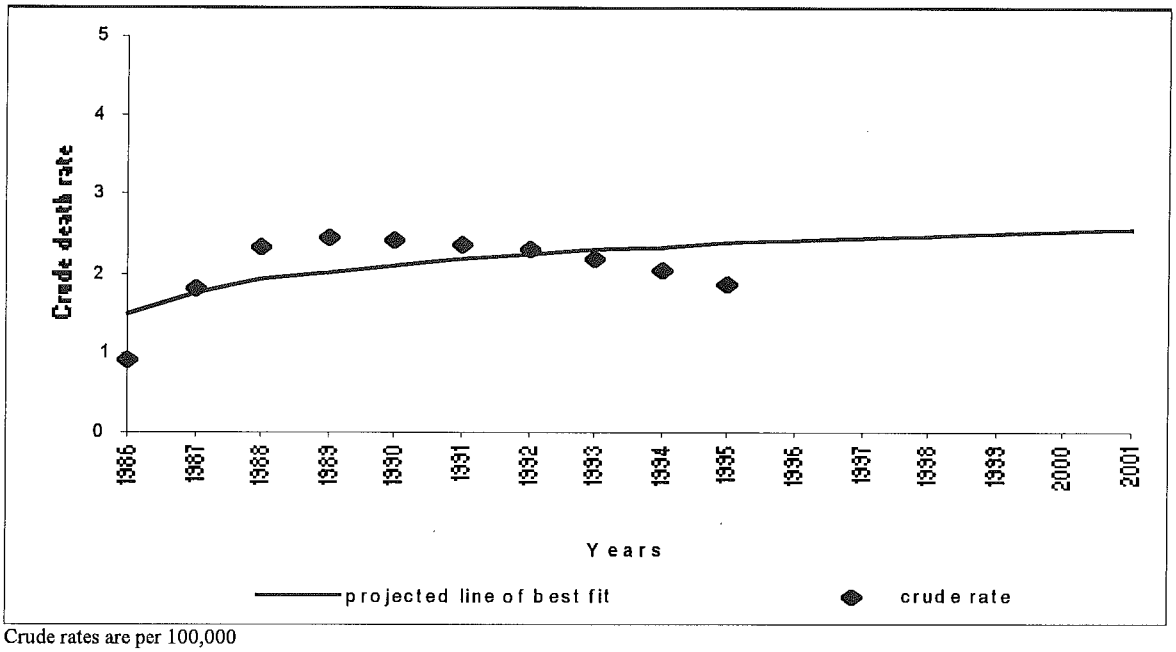
Deaths	1993		1994		1995		19 96	
	No.	Rate(a)	No.	Rate	No.	Rate	No.	Rate
All ages								
Males	4	2.7	3	2.0	1	0.7	0	0
Females	5	3.4	5	3.3	3	2.0	5	3.3
< 45								
Males 0-44	1	0.9	0	0.0	1	0.9	0	0
Females 0-44	1	0.9	2	1.8	0	0.0	0	0

(a) Rate per 100,000
Sources: *Causes of Death ACT,* , ABS unpublished data
Estimated Resident Population by Sex and Age, States and Territories of Australia. ABS Catalogue No. 3201.0

13.1.1 Projections of mortality due to asthma to the year 2001

Figure 45 shows an expectation that the asthma death rate will increase slowly over time.

Figure 45: Crude death rate (smoothed) for all asthma, projections to the yr 2001, ACT



Crude rates are per 100,000
Source: *Causes of death Australia.* ABS Catalogue No 3303.0

13.2 Morbidity

The National Health Survey 1995 findings estimated that ACT residents reported a recent condition of asthma at the rate of 60.0 per 1,000 males, 61.1 per 1,000 females and 60.5 per 1,000 persons. This compares to 61.9, 68.2 and 65.0 respectively in Australia. (ACT rates are lower than those for Australia). With regard the reporting of a long-term condition of asthma, ACT residents reported 117.1 for males, 112.1 for females and 114.6 for persons. This compares to 107.2, 114.2, 110.7 respectively in Australia. (ACT rates for males and persons are higher, but ACT female rates are lower than those of Australia).

There were 1901 separations in ACT hospitals for the period 1996-97. This total includes cases where asthma was a principal or secondary diagnosis. It does not include people being treated in the Emergency Department who, when stabilised, are not admitted. It is interesting to note that the numbers of principal diagnoses are declining, but secondary diagnoses are increasing.

Table 52: Hospital separations, principal & secondary diagnosis of asthma, ACT, 1991-97

	1991-92	1992-93	1993-94	1994-95	1995-96	1996-97
Principal diagnosis	706	977	708	638	629	551
Secondary diagnosis	326	301	286	661	882	1350
Princ. or secondary diagnosis	1032	1278	994	1299	1511	1901

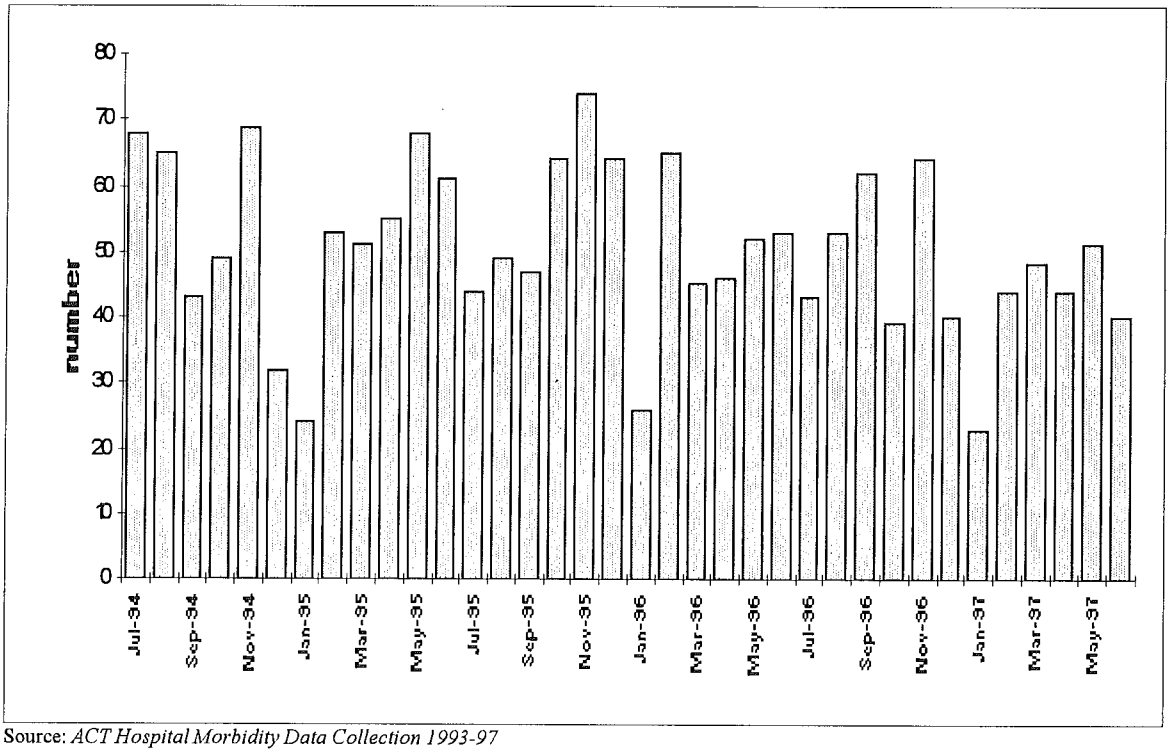
Note: Includes re-admissions
Source: *ACT Hospital Morbidity Data Collection 1991-1997*

The average length of stay in hospital for asthma was 2.4 days (males) and 3.8 days (females), in 1996-97.

Figure 46 shows the number of separations by month of earliest admission over a three year period. This may assist in determining whether climatic or other conditions have an effect on acute attacks of asthma. It can be seen, for instance, that the month of January has consistently low separations, perhaps due to residents taking annual holidays (reduced stress) or moving outside the ACT (climatic change). This usage was low for all age ranges. High usage was experienced in the months of February (perhaps due to climatic changes or the stress of going back to school or work after a holiday), and November (perhaps indicating climatic changes or stress due to end of year commitments). December has been a month of fluctuations. For 5 out of the last 7 years, separations have been low for this month. A study of school vacation closures and holiday patterns may assist in determining the reason for this inconsistency.

Further analysis shows that the fluctuation occurred for children aged 0 to 14 years rather than in the older age ranges. Over the three years, children tended to have peak hospital usage in February, June, August and November. Adults had peaks in March/April, July/August, and October/November.
Further investigations will be necessary to test the hypotheses.

Figure 46: Hospital separations for principal diagnosis of asthma, month of earliest admission, ACT, July 1994-June 1997



Source: *ACT Hospital Morbidity Data Collection 1993-97*

13.3 ACT Goals and Targets

The ACT Department of Health and Community Care developed health goals and targets for asthma after much deliberation and consultation with key stakeholders. The Department is committed to implementing them and intends establishing an Asthma Working Group to implement the process soon. This expert group will advise the Health Outcomes Group as

to priorities and mechanisms to progress the goals and targets in the ACT. The goals and targets are:

Table 53: ACT goals and targets for asthma

Focus Area	Identified Targets for Individual Goals
1. Increase co-ordination between ACT asthma programs & services	
2. Improve the health and quality of life for people with asthma	
3. Increase community awareness about asthma prevention & management	Reduce to less than 5 days the average no. of school days lost due to asthma, per year, per asthmatic
4. Reduce the prevalence of uncontrolled or poorly controlled asthma	a)Increase the proportion of asthmatics who have their asthma reviewed at least annually by their GP (and more often in cases of moderate or poorly controlled asthma) to at least 75% b) Increase the use of preventative maintenance therapy to 85% of all people with a persistent asthma (ie those who have symptoms more than twice a week) c) Reduce public hospital admissions due to asthma for ACT residents by 7.5% d) Increase to at least 50% the proportion of people with asthma who follow a recognised asthma management plan e) Increase to 50% the proportion of people with asthma (and who require regular preventative therapy) who use a peak flow meter to monitor their asthma f) Reduce the rate of hospital readmissions due to asthma to less than 10% per annum
5. Obtain baseline data about the prevalence and management of asthma	Conduct regular surveys to establish: - the prevalence & severity of asthma in the ACT - the proportion of GPs who follow a recognised asthma management plan, and - the annual level of school & work absenteeism due to asthma

Source: *ACT Health Goals and Targets for the Year 2000.* ACT Dept of Health, 1994

14. Profile of disability

People with disabilities have varying problems with daily living, depending on the nature and severity of their disability, and the availability of appropriate services to assist them. Their disability may limit their participation in the mainstream education system or workforce, and/or recreation and sporting activities, and may impact on lifestyle opportunities and

financial security. Many people with disabilities however, do not experience any, or only minor limitations to daily living activities.

The ACT Quality of Life Project 1994-95[72] findings for disability status (refer 8.2) highlighted the relatively poor health-related quality of life of those reporting disabilities. There were no significant differences between different levels of disability in the degree of psychological distress being experienced, although other parts of emotional life were poorer for people with disabilities. Furthermore, people with disabilities were found to have worse general health which suggests that they could be likely to live for a shorter period than those with no disabilities. However, since the sample surveyed was small, results should be treated with caution.

Carers of people with disabilities

Principal carers of people with disabilities may experience minor or major disruptions to their daily lives, depending on the magnitude of the caring role. Disruptions include disruptions to education and training, the inability to participate in the workforce on a full-time or even part-time basis with the resultant financial burdens, their inability to go out or take holidays, their inability to perform usual tasks such as housework and gardening. Such restrictions can impact on the social, emotional and financial well-being of carers. The Survey of Disability, Ageing and Carers 1993 examined the burdens of principal carer roles. Results are summarised below.

In 1993, there were 1.5 million people caring for another person in the same household in Australia (or one in every 5 households). Just over 6 per cent of these cared for more than one person. There were 1.4 million people who received care. It is interesting to note that 54 per cent of carers co-residing with recipients of care were male, generally caring for their partner.

In the ACT, there were an estimated 10,800 principal carers aged 15 years or more, which represents 4.7 per cent of the ACT population in that age group. Of these carers, 7,100 lived in the same household as the recipient(s). It should be noted that this estimate of the number of carers is likely to be conservative since many people who are in a caring role do not identify with that role.[73]

It can be seen from Table 54 that females predominate in the caring role, since they represent 69.4 per cent of all principal carers, 91.9 per cent of carers of recipients who do not live in the carer's households, and 57.7 per cent of carers of recipients in their usual households (considerably higher than the Australian proportion of 46%). Caution should be taken in analyses however, due to the high sampling variablility of data.
There were an estimated 1,100 carers (approximately 10% of all carers) aged more than 65 years. Of these, 63.6 per cent were female. There were 5,200 carers who were between the ages of 15 and 44 years (approximately 48% of all carers). Of these, 69.2 per cent were female.

The ACT percentages are generally similar to those of Australia.

Table 54: Principal carers, aged 15 yrs or more, by age, by sex, ACT, 1993

Carer	15-24	25-34	35-44	45-54	55-64	65-74	75+	Total
carer of a usual resident of their household								
Males	*100	*300	*900	*700	*600	**200	**200	2900
Females	**200	1300	*900	*600	*600	*400	**100	4100
Persons	**200	1700	1800	1200	1200	700	300	7100
carer of a non-usual resident of their household								
Males	**	**100	**200	**100	**	**	**	*300
Females	**200	*400	*700	1500	*500	**100	**	3400
Persons	**200	*500	*800	1600	*500	**100	**	3700
All carers								
Males	**100	*400	1100	*700	*600	**200	**200	3300
Females	*400	1700	1500	2100	1100	*600	**100	7500
Persons	*500	2100	2600	2800	1700	*800	*300	10800

** Data subject to high relative standard error. * Subject to sampling variability between 25% and 50%

Note: All figures are rounded.

Source: Jacobs D, *Disability, Ageing & Carers, 1993, Summary of Findings, ACT.* ABS, unpublished

Voluntary work

A large proportion of welfare work in Australia is carried out by volunteers who are either members of recipients' families or social networks, or not-for-profit welfare organisations. It has been estimated that not-for-profit organisations account for over half of all welfare services provided. Since they are generally not paid for their services, it is difficult to estimate the real costs of services. There are no 'market prices' calculated for this type of work. The Australian Bureau of Statistics has carried out a survey of the community services industry in 1996 and, when available, results from it will give more comprehensive information as to the contribution of profit and not-for-profit welfare organisations in Australia.

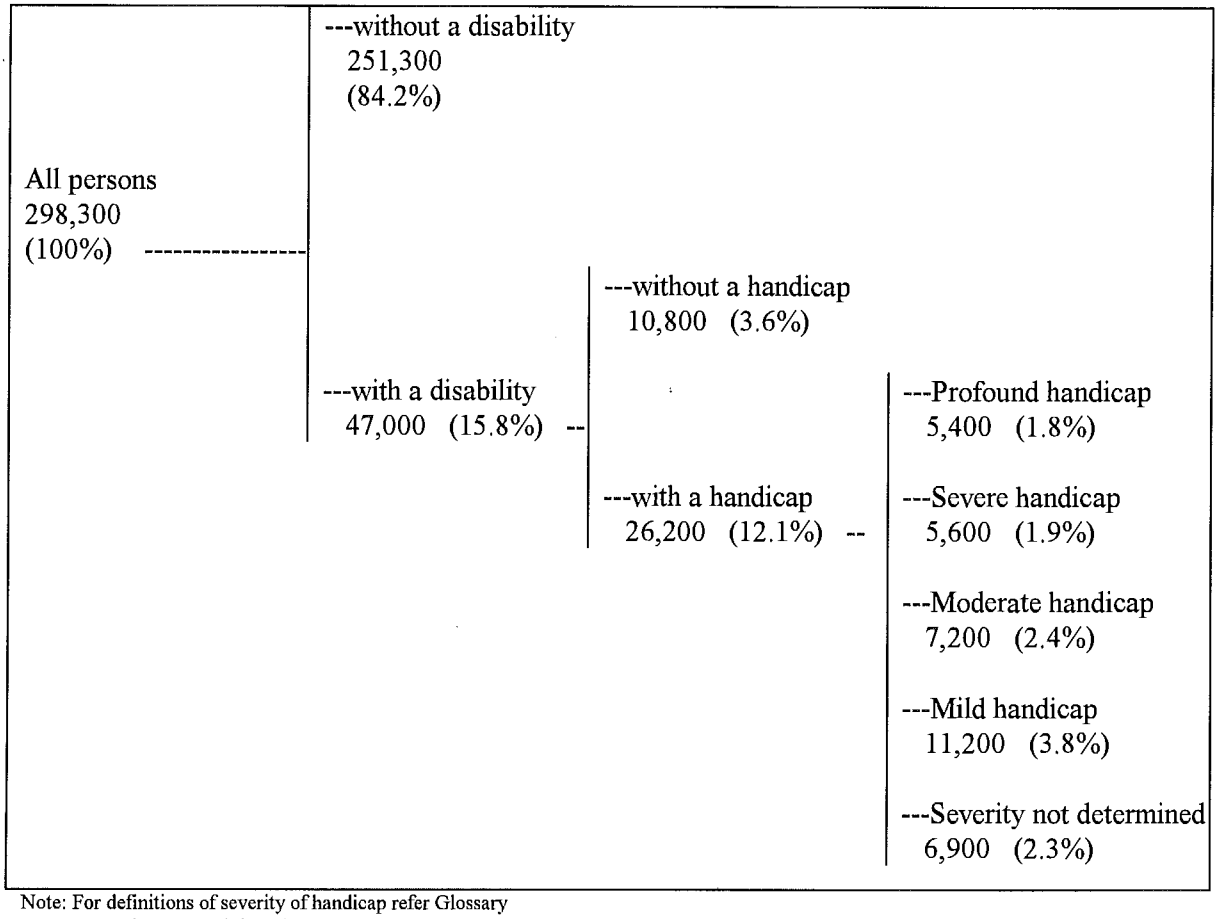
It has been estimated that in 1994-95, 26.1 per cent of the ACT population over the age of 15 years (some 59,500 people in all) provided some form of voluntary work through an organisation or group. This was the highest percentage of all states and territories and considerably higher than the national average of 19 per cent. However, volunteers worked an average of 137.8 hours each during the twelve months to June 1995 compared to the national average of 164.4 hours. The ACT volunteer proportion for females was 28.4 per cent compared to 23.7 per cent for males. [74]

There were 8.2 million hours of voluntary work done in the ACT during 1995. If you use the most conservative method of equating these hours to dollar values, volunteers have saved the community at least $114 million per year in foregone wages.[75]
Since older persons are *more likely* to become incapacitated or disabled than younger persons, an emphasis on older people over 60 years of age is given. Research indicates that disability is independently associated with increasing age, not being married, less years of schooling, lower income and not being employed[76]. It is important to note however, that older age or lower socio-economic status *does not* inherently mean a life living with disability. Most elderly persons are not disabled or handicapped and lead healthy and active lives with little or no assistance.

The prevalence of reported disability has increased over time in line with the national trend. The Survey of Disability, Ageing and Carers, 1993, estimated that there were 47,000 people

in the ACT (15.8% of the ACT population) who had a disability. Of those, 36,200 people (or 12.1% of the ACT population) had a handicap. Nationally however, there were 18.0 per cent with a disability and 14.2 per cent with a handicap.

Figure 47: No. & proportion of persons with a disability, with a handicap, ACT, 1993



Note: For definitions of severity of handicap refer Glossary
Source: Jacobs D, *Disability, Ageing & Carers, 1993, Summary of Findings, ACT.* ABS, unpublished

Because of the strong relationship between age and disability, age-standardised rates standardised to the national population at March 1993, were calculated. This removed any difference due to age structures between each state and territory. Results are outlined below:

Table 55: Handicap & disability rates(a), ACT & Australia, 1993

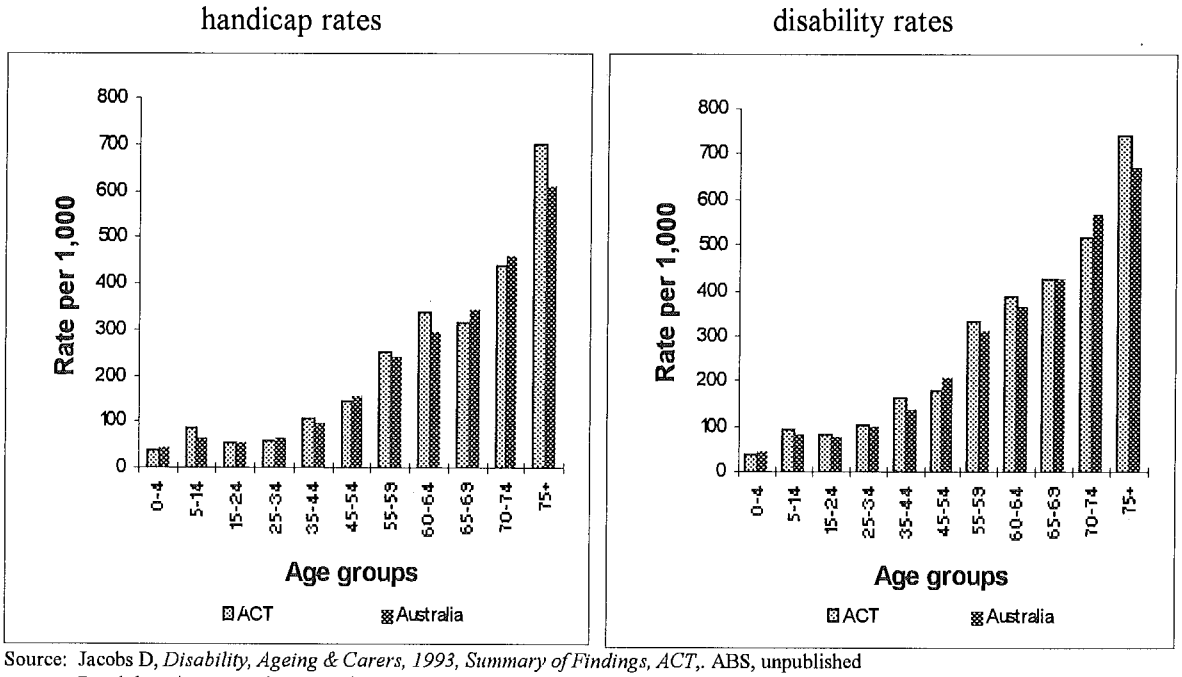
	Handicap rate		Disability rate	
	Actual	Standardised	Actual	Standardised
ACT	121.3	148.8	157.6	187.8
Australia	141.8	141.8	180.2	180.2

(a) Rate per 1,000 population
Source: Jacobs D, *Disability, Ageing & Carers, 1993, Summary of Findings, ACT.* ABS, unpublished

After standardisation, the ACT had a slightly higher, but statistically not significantly higher, rate for both disability and handicap.

Disability rates follow a similar pattern to that for handicap, since most persons in the ACT with a disability (77%) also have a handicap. If one compares the ACT disability and handicap rates with those of Australia, some interesting comparisons can be made:

Figure 48: Handicap & disability age-specific rates, ACT & Australia, 1993



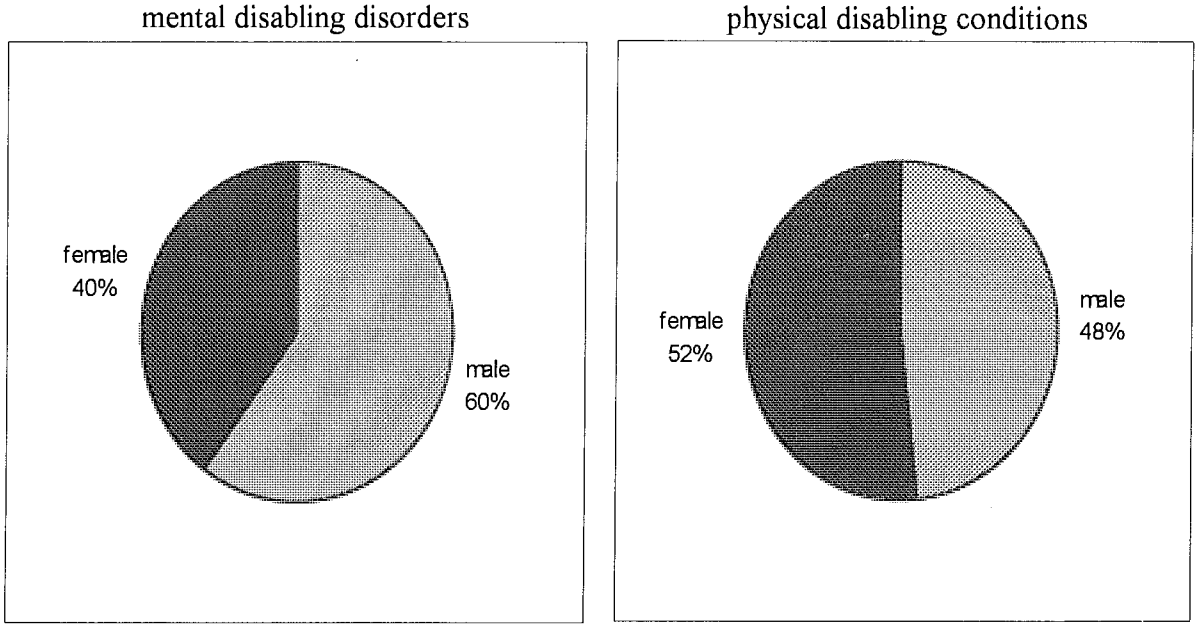
Source: Jacobs D, *Disability, Ageing & Carers, 1993, Summary of Findings, ACT*,. ABS, unpublished
Disability, Ageing and Carers, Australia, 1993. ABS Catalogue No. 4430.0

The overall trends as age increases are similar for both the ACT and Australia for rates of both handicap and disability. Particular differences occur at the 5-14 age group and the over 75 years age group where the ACT rates are higher than Australian rates, and the 45-54 and 65-74 year age groups where Australian rates are higher than for the ACT. ACT rates for people over 45 years are subject to considerable relative standard error and sampling variance, so comparisons are difficult and should be treated with caution. The rates at the 5-14 years age group are not subject to high standard error or variance however. The ACT rate should be monitored carefully in the future.

The Disability, Ageing and Carers Survey 1993 found the following results with regard to the two categories of disabling conditions in the ACT (physical and mental):

Males represented over half of all cases of mental disabling disorders, but under half the cases of physical disabling conditions.

Figure 49: Disabling conditions, ACT, 1993

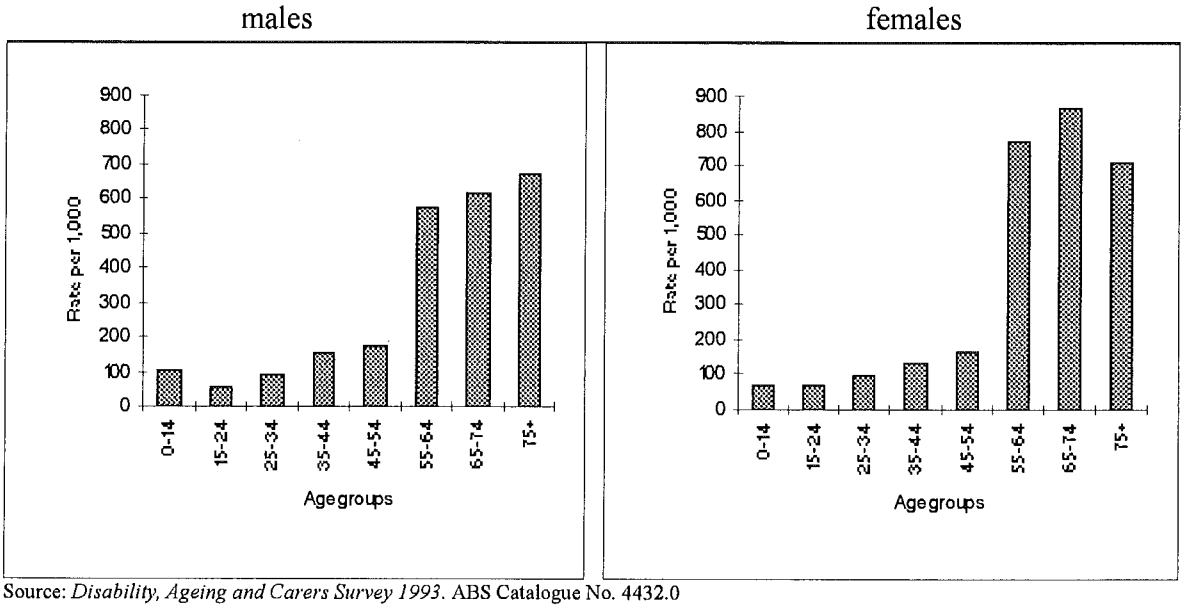


Source: *Disability, Ageing and Carers Survey 1993*. ABS Catalogue No. 4432.0

Physical disabling conditions

Male and female rates for physical disabling conditions are smoother and more homogeneous than for mental disabling conditions:

Figure 50: Disabling conditions, physical, rates by age groups, by sex, ACT, 1993



Source: *Disability, Ageing and Carers Survey 1993*. ABS Catalogue No. 4432.0

Both males and females have high rates at age 55 years and older, as would be expected. The female rates for older people is considerably higher than for males. Males do have a higher rate at the young age group of 0 to 14 years however. This may be due to risk taking behaviour and high involvement in physical contact sports.

The standardised rate for physical disabling conditions (standardised to the Australian population in March 1993) in the ACT was 15.9 per 1,000 males, 17.6 per 1,000 females

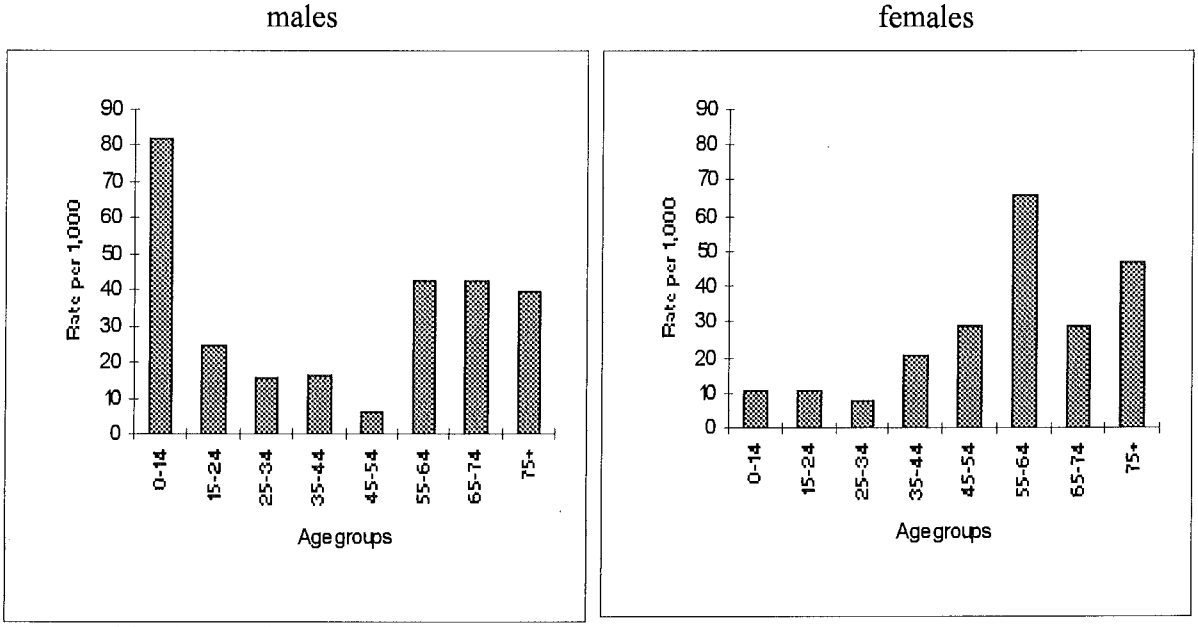
and 16.8 per 1,000 persons. (This compares to an Australian rate of 16.0 per 1,000 persons).

Mental disabling conditions

Research suggests that psychopathology is consistently associated with increased disability. Disability is most prominent among people with major depression, panic disorder, generalised anxiety and neurasthenia.[77]

Mental disorders are defined in two categories in the 1993 Survey: senile and other psychosis; and 'other mental disorders' which includes mental retardation, mental degeneration due to brain damage, slow learning and specific delays in development, neurotic disorders, personality disorders and other non-psychotic mental disorders.

Figure 51: Disabling conditions due to mental disorders, rate by age groups, by sex, ACT, 1993



Source: *Disability, Ageing and Carers Survey 1993*. ABS Catalogue No. 4432.0

It is interesting to note the different age profiles for males and females (refer Figure 51). Male rates peaks at a very young age, drop dramatically at age 15 years and return to a peak at age 55 and onwards. Females on the other hand, peak between 55 and 64 years, with high rates in all older age categories. Nevertheless, rates are quite small and are subject to high sampling variability, so they should be treated with caution.

ACT males in the 0-14 years age group make up 46 per cent of all male mental disorders (unexpected). By contrast for Australia, the proportion is 27 per cent of all male mental disorders (also quite high). In fact, boys in the age group 0-14 years have a mental retardation and developmental delay rate (included in the 'other mental disorders category') of more than twice that of girls in the same age group. For females, 43 per cent of ACT cases occurred between 35 and 54 years.

One explanation for the high proportion of male incidence at the youngest age range may be that older males may not disclose mental disorders readily, thus skewing the rates. Females

may be more likely to be frank about their disorders. In any event, the Australian Bureau of Statistics is testing modifications to the questionnaire for the next survey, to try and remove any impediments to disclosure (eg. questions posed in different ways, more related questions which could uncover any disorders or conditions without threatening the respondents). It will be important to monitor results of future surveys.

The standardised rate for mental disorders (standardised to the Australian population in March 1993) in the ACT was 2.3 per 1,000 males, 1.7 per 1,000 females and 1.9 per 1,000 persons. (This compares to an Australian rate of 2.0 per 1,000 persons).

14.1 ACT goals

The ACT Department of Health and Community Care developed health goals for disability after much deliberation and consultation with key stakeholders. The Department has established the Health Outcomes Group to oversee their implementation. The goals are:

Table 56: Goals for disability, ACT

1. Reduce the occurrence of new and preventable disability
2. Improve the health and quality of life of people with a disability or chronic condition (including people with chronic pain
3. Enhance the capacity of people with a disability or chronic condition to lead independent lives.
4. Improve the quality of life of carers of persons with a disability of chronic illness.

Source: *ACT Health Goals and Targets for the Year 2000.* ACT Dept of Health, 1994

15. Profile of alcohol and drug consumption

15.1 National Health Survey 1995

The National Health Survey 1995 found the following results regarding alcohol consumption in the Territory:

Table 57: Rate(a) of alcohol consumption, by sex, persons over 18 yrs, ACT & Australia, 1995

Alcohol risk level consumption	ACT			Australia		
	Males	Females	Persons	Males	Females	Persons
No alcohol	250.4	461.5	355.6	339.9	543.7	443.4
Low	618.1	463.3	540.9	555.3	395.3	474.1
Medium	57.6	52.5	55.1	54.6	48.3	51.4
High	66.4	16.1	41.3	50.3	12.7	31.2
Total who consumed alcohol	742.1	531.9	637.4	660.1	456.3	556.6

(a) Rate per 1,000 population Source: *National Health Survey First Results, 1995.* ABS Catalogue No. 4392.0

There is a higher rate of ACT people over 18 years of age who drink greater than the Australian average. The ACT has more people drinking less (no or low consumption), but it also has more people drinking at high levels. Nevertheless, the rate of low, medium and high consumption drinkers in the ACT has declined since the 1989 National Health Survey (from 577.9, 76.2, 51.7 per 1,000 persons respectively).

15.2 The ACT School Students' Alcohol and Drugs Survey 1996

The National Cancer Council ran a national survey to gauge the levels and extent of alcohol and drug usage in young people throughout Australia in 1996. The ACT School Students' Alcohol and Drugs Survey 1996[78] was the ACT component of that survey. 2,500 students in 14 public and private schools were surveyed. Survey results were weighted to reflect the ACT population for the various age groups.

The survey found that analgesics (74%), alcohol (51%), tobacco (28%) and marijuana (18%) were the drugs most commonly used by secondary school and college students in the ACT. Usage increased with age. Over 95 per cent of respondents had not used hard drugs (eg steroids, ecstasy, cocaine, heroine, speed and LSD), around 96 per cent had not used tranquillisers and 92 per cent had not sniffed any drugs. Table 59 shows that more males than females had used marijuana, LSD, speed, cocaine, heroin, ecstasy and steroids in the previous 4 weeks as well as in the last 12 months. There were more female tobacco smokers than male. It is interesting to note that there were no female respondents who used steroids in either time frame.

Table 58: Drug consumption in last 4 weeks and over last 12 months, by sex, ACT, 1996

Sex	Drug	Last 4 weeks	Sample no.	Last 12 months	Sample no.
		%		%	
Males	Painkillers	66.1	797	94.1	802
	Alcohol	50.6	823	78.4	824
	Tobacco	23.9	826	38.8	826
	Marijuana	21.8	809	37.6	811
	Sniffed	8.6	818	15.0	818
	LSD	5.3	814	8.4	814
	Tranqilisers	4.7	810	12.4	812
	Speed	4.4	819	6.3	819
	Cocaine	3.4	821	4.9	819
	Heroin	3.4	818	4.4	816
	Ecstasy	3.0	819	4.8	819
	Steroids	2.4	817	3.0	817
Females	Painkillers	80.1	906	96.6	901
	Alcohol	51.5	823	78.2	910
	Tobacco	31.1	826	46.4	912
	Marijuana	15.4	902	33.4	908
	Sniffed	7.0	905	16.5	908
	LSD	1.7	908	5.9	908
	Tranqilisers	4.1	907	12.7	908
	Speed	0.8	909	4.1	909
	Cocaine	0.3	909	1.1	909
	Heroin	0.5	908	1.5	908
	Ecstasy	0.3	908	2.5	908
	Steroids	0	910	0.0	910

Source: *ACT School Students' Alcohol and Drug Survey.* ACT Dept of Health and Community Care, 1996

15.3 Service utilisation

The Alcohol and Drug Service

The Alcohol and Drug Service (part of ACT Community Care) provides direct services to individuals, families and groups with the aim of minimising the harm related to alcohol and drug use. The ADP applies a number of intervention strategies tailored to meet the particular needs and goals of its clients. The service offers interventions to assist those who continue to use alcohol and other drugs to minimise health and safety risks associated with that use. Other interventions are designed to assist those clients who choose to abstain from alcohol and drugs to do so.

15.4 ACT goals and targets

The ACT Department of Health and Community Care developed health goals and targets for alcohol and drug consumption after much deliberation and consultation with key stakeholders. The Department has established the Health Outcomes Group to oversee their implementation. The goals and targets are:

Table 59: Goals and targets for alcohol and drug consumption, ACT

Focus Area	Identified Targets for Individual Goals
1. Increase coordination and consultation within the alcohol and drug sector.	
2. Reduce the uptake of all drugs.	a) Reduce the proportion of secondary school students who have ever drank alcohol to 60% b) Reduce the proportion of the population that has ever smoked to 60% of males & 35% of females c) Reduce the proportion of secondary students who have ever used cannabis d) reduce the proportion of secondary school students who have ever used illicit drugs to 20%
3. Minimise the harms associated with drug use.	a) Reduce the proportion of adults who drink at hazardous or harmful levels to 15% of males and 12% of females b) Reduce the proportion of secondary school students younger than 18 years who drink alcohol at least weekly to 20% c) Reduce the proportion of adults who are current smokers to 20% d) Reduce the proportion of secondary students who currently smoke to 15% e) Increase the proportion of smoke-free workplaces & enclosed public places to 100% f) Decrease the percentage of households where children are exposed to passive smoking in the home to less than 5% g) Reduce the harm arising from illicit drug use h) Reduce the no. of school students who use inhalants & reduce the harms arising from inhalants i) Reduce the proportion of benzodiazepine users who use benzodiazepines daily for more than two months

Source: *ACT Health Goals and Targets for the year 2000.* ACT Dept of Health, 1994

16. Glossary

16.1 Survey of Disability, Ageing and Carers 1993

This survey was the third in a series conducted by the ABS (Refer 7.4..3). It provides estimates of the numbers and main characteristics of persons with disabilities and/or handicaps, persons aged 60 years or more and carers. It was conducted in private and special dwellings, and establishments such as hospitals, hostels, retirement villages and nursing homes. The ACT sample of respondents numbered 3,777 which is a large enough sample on which to base valid analyses.

A person was identified as having a disability if they had one or more of a group of selected limitations, restrictions or impairments which had lasted, or would be likely to last, for six months or more. A person was identified as having a handicap if they had limitations in performing one or more selected tasks of daily living. Children aged less than 5 years with a disability were deemed to all have a handicap, but the area and severity of that handicap was not determined.

For data limitations refer Appendix 2

16.2 Levels of severity of handicap

In the Survey of Disability, Ageing and Carers 1993, the ABS defined the levels of severity of handicap as:

- *Profound*: always needing help from another person to perform one or more designated tasks
- *Severe*: sometimes needing help to perform the designated tasks
- *Moderate*: needing no help, but having difficulty performing one or more of the designated tasks
- *Mild*: needing no help with, and having no difficulty with any of the tasks, but uses an aid to perform one or more of the designated tasks, or has difficulty walking 200 metres, or walking up and down stairs, or in using public transport, or picking up an object from the floor
- *Not determined*: having a schooling or employment limitation only, or who are aged less than five years, or whose only limitation was 'did not use the toilet'.

16.3 National Health Surveys

The Australian Bureau of Statistics (ABS) conducts a five yearly National Health Survey which collects data from approximately 54,000 people living throughout Australia. It is designed to obtain national benchmark information on a range of health-related issues and to enable the monitoring of trends in health, over time. The sample is designed so that the states and territories can be separately analysed. However:

- Until the 1995-96 survey, the sample size of respondents was very small in the ACT. This resulted in fluctuations in results and reduced reliability of findings.

- When responses were broken down into sub-groups (eg people aged under 18), the sample became even smaller resulting in more inaccuracies.

- It should be noted that the Survey utilises a self-reporting format. Results represent respondents' perceptions, not necessarily health professionals' findings. It also depends in part, on the literacy of the respondents and their ability to understand English.

The most recent Survey was conducted in the twelve months from January 1995 to January 1996. Preliminary results were released in late December 1996.

Some 2,156 dwellings (or one in fifty dwellings) in the ACT were surveyed. This is an increase on the previous Survey (1989-90) and will allow for more relevant analysis. It should be noted however,

that some sections of the survey were only administered to half of the sample. This includes sections on women's health, alcohol consumption and general health and well-being.

16.4 Short Form 36 (SF-36)

The SF-36 was developed in 1988 by the RAND Corporation as part of its Medical Outcomes Study carried out in the USA. The SF-36 was 'constructed to yield a profile of scores that would be useful in understanding population differences in physical and mental health statuses, the burden of chronic disease, other medical conditions and the effect of treatments on general health status'.[79] Additionally, the SF-36 was designed '... to achieve minimum standards of precision necessary for group comparisons across eight conceptual areas'. The subscales most sensitive to measuring physical health are;

- Physical function (PF)
- The impact of physical health on role performance (RP)
- Bodily pain (BP)
- General health perceptions (GH)

The subscales most sensitive to measuring mental health are;

- General mental health (MH)
- The impact of emotional health on role performance (RE)
- Social functioning (SF)
- Vitality (VT)

The subscales of PF, RP, BP, SF, and RE range from 0-100 with a score of 100 indicating better health status or absence of limitation or disabilities. The subscales of GH, VT, and MH are bipolar in nature with a range of 0 to 100. A score of 100 indicates when '... respondents report positive states and evaluate their health favorably'. For more detailed information, refer Health Series No. 9, *Health Related Quality of Life in the ACT: 1994-95.*

16.5 Definitions

Age-sex standardisation - demographic technique for adjusting for the effects of age and sex between populations which allows comparisons between populations (ABS definition).

Age-sex standardised death rate - the overall death rate that would have prevailed in a standard population (eg the 1991 Australian population) if it had experienced at each stage the death rates of the population being studied (ABS definition).

Age-sex standardised ratio - The expected number of events is given by calculating the number of events which would have occurred if the rates for each age/sex group in a given population (the standard) were applied to the population of interest. [80]

Age-specific birth rates - the number of births per thousand women of a specific age group in the population (ABS definition).

Cardiovascular diseases (CVD) can be described as diseases relating to the heart and blood vessels. They are diseases of the circulatory system.

Crude birth rate is the number of live births per 1,000 population in a given year (ABS definition).

Crude death rate is the number of deaths per 1,000 population (unless otherwise stipulated) in a given year (ABS definition).

Dementia is a syndrome caused by brain disease in which the person experiences confused thought and behaviour, most prevalent in people of old age. [81]

Fertility rate refers to the number of children one woman would expect to bear if the age-specific rates of the year shown continued during her child-bearing lifetime (ABS definition).

ICD-9 refers to the International Classification of Diseases, ninth revision as developed by the World Health Organisation. Details of disease classifications are at Appendix C.

Incidence refers to the number of instances of illness commencing, or of persons falling ill, during a given period in a specified population. [82]

Ischaemic heart disease is coronary heart disease.

Labour force in employment refers to those persons employed and those unemployed seeking employment.

Median is a measure of central tendency. It refers to the point between the upper and lower halves of the set of measurements.

Mortality is the relative number of deaths, or death rate, as in a district or community.

Morbidity is the proportion of sickness in a locality.

Neoplasm is a diverse group of diseases characterised by the proliferation and spread of abnormal cells. They may be malignant or benign. Malignant neoplasms are called cancers.

Pertussis (whooping cough) is a childhood communicable disease.

Potential Years of Life Lost (PYLL) is a measure of the relative impact of various diseases and lethal forces on society. PYLL highlights the loss to society as a result of youthful or early deaths. The figure for PYLL due to a particular cause is the sum, over all persons dying from that cause, of the years that these persons would have lived had they experienced normal life expectation.

Prevalence refers to the number of instances of a given disease or other condition in a given population at a designated time.

Relative survival ratio for (eg cancer) patients is the ratio between the proportion of (cancer) patients surviving five years and the proportion of an age and sex matched population surviving five years.

Schizophrenia is a psychotic disorder characterised by distortions of thinking, speech and perception, which is usually accompanied by inappropriate or "blunted" emotions. [83]

Separation (from hospital) refers to when a patient is discharged from hospital, transferred to another hospital or other health care accommodation, or dies in hospital following formal admission (ABS definition).

Sex differentials are the differences in rates between males and females.

Socioeconomic disadvantage score summarises information available from a number of variables related to education, occupation, family structure, ethnicity, housing conditions and costs, and economic resources (ABS definition). If interpreted carefully, it can assist in interpreting trends and predicting health risks in a population.

Standardised death rate is the overall death rate that would have prevailed in a standard population, in this case the 1991 Australian population, if it had experienced at each stage the death rates of the population being studied (ABS definition).

Appendix 1: Methodology

Rates

Rates per 100,000 are calculated as follows:

Rate = N/P . 100,000 (where N = number of events and P= population at risk of experiencing the event).

Three year moving averages

The three year moving averages were calculated by taking the rate over three years.

$$\text{Rate } Y2 = \frac{(N1+N2+N3)}{(P1+P2+P3)}$$

where Ni = number of events year i
where Yi = year i
and Pi = population at risk year i

For end years the average of 2, rather than 3, years was taken.

Years of potential life lost - ABS definition

Estimates of years of potential life lost (YPLL) were calculated for deaths of persons aged 1 to 75 years based on the assumption that deaths occurring between ages 0 and 76 years are considered untimely.

$$YPLL = \Sigma_x \ (D_x \ (76 - A_x))$$

A_x = Adjusted age at death. As age at death is only available in completed years the midpoint of the reported age was chosen (eg. age at death 34 years was adjusted to 34.5)

D_x = Registered number of deaths at age x due to a particular cause of death

YPLL was standardised for age using the following formula:

$$YPLL_s = \Sigma_x \ (D_x \ (76 - C_x))$$

where the correction factor C_x is defined for age x as:

$$C_x = \frac{N_{xs}}{N_s} \bullet \frac{1}{N_x} \bullet N$$

N = Number of persons aged 1-75 years in the study population
N_x = Number of persons aged x years in the study population

N_{xs} = Number of persons aged x years in the standard population
N_s = Number of persons aged 1-75 years in the standard population

The Australian population at 30 June 1991 was chosen as the standard population.

Estimates of YPLL by cause of death, as presented in Table 17 indicate the number of years lost due to specific causes on the assumption that up to exact age 76 years the decedent would not have died from any other cause. YPLL therefore should not be used as a measure of gains in years of life expectancy should a cause of death be eliminated or reduced.

Projections

The statistical package SPSS for Windows was used to smooth crude incidence/mortality rates using the T4252H smoothing technique.[84] Given the ACT's small numbers, the data were smoothed in order to remove any undue effects from outliers. Once the data was smoothed a line of best fit was calculated in order to best describe the data.

It is important to note that there are always underlying assumptions when projecting data. Two points to remember when interpreting the mortality and incidence projections are as follows:

i. it is assumed there will be no change in population trends, (ie births, death and migration);
ii. outside influences like treatment, lifestyle or other factors are not considered.

Appendix 2: Data Limitations

Overall data

- Generally, data sets contain small numbers of occurrences of particular events. The smaller the numbers, the more likely there is to be inexplicable fluctuations in results. One extra death may alter mortality and morbidity statistics dramatically in a small area like the ACT. Where changes in pattern from year to year are noted, time series and moving averages are utilised to ensure a more reliable analysis;

- There is no supplementary morbidity collection for diseases that can be treated outside the hospital system (eg by a GP, specialist, outpatient clinic or Emergency Department). Therefore there is a heavy reliance on survey data;

- Relying on available survey data means that some information is updated only after a number of years. Disease profiles may not be static with an everchanging ACT population and important information may be lost during the period where data is not collected.

Mortality data

- There are inconsistencies in recording of cause of death (eg. a person may be recorded as dying from suicide rather than from the severe mental illness which caused the suicide);

- When looking at disease-specific rates over time it was not possible to age and sex standardise for some prior years. Therefore, crude rates were used and extrapolated to 1994 findings.

Hospital separations data

- There are inconsistencies in coding hospital admissions (eg. a person may be coded as attempting suicide as the principal diagnosis, but that condition could have been caused by mental illness - a different coder may have coded principal diagnosis as "mental illness" with the suicide attempt as the secondary diagnosis);

- Hospital separations data only focus on acute or chronic conditions which require patients to be admitted to hospital;

- As there is quite a high proportion of non-ACT residents ($\approx$ 20%) separated from ACT hospitals and vice-versa it is difficult to look at hospital separations rates, as we cannot use the ACT population to calculate rates.

- Inpatients and re-admissions can only be identified within a hospital, not between hospitals.

- ACT hospital data includes newborns in its separations data.

Refer Glossary for explanation.

Survey of Disability, Ageing and Carers 1993

The ABS conducts regular surveys which give a reasonably sound basis for analysis, although the size of the ACT sub-sample has been smaller than would be desired. In 1991 the ABS conducted a Survey of Handicapped Persons, followed by a Survey of Disabled and Aged Persons in 1988 which had comparable questions to the 1981 survey. The most recent survey, titled the Survey of Disability, Ageing and Carers was conducted in 1993. It contained a larger sample of ACT respondents from previous samples, on which to base analysis (3,777 people). The surveys are based on self-reported answers to questionaires. It should therefore be noted that the results represent respondents' perceptions, not necessarily health professionals' findings. They also depend in part, on the literacy of the respondents and their ability to understand English. This may be particularly relevant to people with intellectual disabilities.

Tables used in this publication use 'rounded' numbers, so totals may not be accurate. There are also many asterisks highlighting the fact that numbers are so small as to result in high sampling variation or high relative standard error. Survey results should therefore be treated with caution.

Appendix 3: ICD-9 Codes

ICD-9 refers to the International Classification of Diseases, ninth revision, as developed by the World Health Organisation. It is a nationally and internationally accepted form of classification and is used in this publication. A summary of major codes of interest follows.

CARDIOVASCULAR DISEASES	**ICD 9 code 390-459**
Coronary heart disease (ischaemic heart disease)	ICD 9 code 410-414
Cerebrovascular disease (stroke)	ICD 9 code 430-438
Rheumatic heart disease	ICD 9 code 390-398
Hypertensive disease	ICD 9 code 401-405
Peripheral vascular disease	ICD 9 code 441-444
DIABETES MELLITUS	**ICD 9 code 250**
DISEASES OF THE RESPIRATORY SYSTEM	**ICD 9 code 460-519**
Asthma	ICD 9 code 493
INFECTIOUS & PARASITIC DISEASES (Communicable)	**ICD 9 code 001-139**
INJURY (Accidents, poisoning & violence).	**ICD 9 code E800-E999**
Motor vehicle traffic accidents	ICD 9 code E810-E819
Accidental falls	ICD 9 code E880-E888
Suicide	ICD 9 code E950-E959
MALIGNANT NEOPLASMS (Cancer)	**ICD 9 code 140-208**
Respiratory & intrathoracic organs	ICD 9 code 160-165
Breast	ICD 9 code 174-175
Genitourinary organs	ICD 9 code 179-189
MENTAL DISORDERS	**ICD 9 code 290-319**
Psychoses	ICD 9 code 290-299
Organic psychotic conditions	ICD 9 code 290-294
Senile and Pre-senile organic psychotic conditions (dementia)	ICD 9 code 290
Other psychoses	ICD 9 code 295-299
Schizophrenia	ICD 9 code 295
Affective psychoses (includes manic, major depressive & bipolar disorders)	ICD 9 code 296
Neurotic disorders, personality disorders & other nonpsychotic mental disorders	ICD 9 code 300-316
Neurotic disorders (includes anxiety states)	ICD 9 code 300
Mental retardation	ICD 9 code 317-319

Appendix 4: Demographic summary

Table 60: Demographic summary for statistical subdivisions, ACT, 1996

Statistical subdivision	Estimated mid-year population	Births	Total fertility rate	Deaths	Death rate*
North Canberra	38,831 (12.6%)	403	1,232	253	6.2
Belconnen	85,580 (27.8%)	1,100	1,583	306	5.6
Woden	33,028 (10.7%)	394	1,543	174	4.9
Weston	24,864 (8.1%)	264	1,539	115	5.6
Tuggeronong	89,954 (29.2%)	1,680	2,163	169	4.7
South Canberra	22,726 (7.4%)	232	1,422	261	7.7
Gungahlin-Hall	12,709 (4.1%)	310	1,435	16	3.5
Outer Canberra	333 (0.1%)	5	1,815	1	2.9
Total ACT	308,025 (100%)	4,388	1,690	1,295	5.8

* Indirect standardised over 3 yrs per 1,000 persons, 1994-96 death rate
Source: *Demography ACT 1996.* ABS Catalogue No. 3311.8

Table 61: Social characteristics, ACT statistical subdivisions (SSD), 1996

SSD	Male	Female	Persons	Med'n age (yrs)	Indigen-ous origin	Aust. born	UK,Irelan d,NZ born	Other o'seas born	Other language at home	Median personal weekly income
Nth Canberra	20,056	19,470	39,526	31	408	27,869	3,115	6,372	5,264	336
Belconnen	40,247	41,706	81,953	30	647	61,243	5,875	12,660	11,341	404
Woden Valley	15,604	16,080	31,684	36	283	21,884	2,979	5,689	4,690	460
Western Ck - Stromlo	11,472	12,064	23,536	35	213	17,571	2,053	3,092	2,410	448
Tuggeranong	42,629	44,037	86,666	28	937	67,962	5,921	10,673	9,510	460
South Canberra	11,540	11,600	23,140	35	342	16,450	1,964	3,444	2,708	481
Gungahlin-Hall	6,030	6,312	12,342	27	65	9,174	669	2,185	2,302	503
Balance	253	143	396	25	3	324	22	31	41	294
Total	147,831	151,412	299,243	30	2,898	222,477	22,598	44,146	38,266	430

Source: *ABS Census of Population and Housing Basic Community Profiles for all Australian Capital Territory sudivisions, 1996*

Table 62: Age profile of ACT residents, by statistical subdivisions, 1996

Subdivision	0-14		15-65		65+		Total	
	No.	%	No.	%	No.	%	No.	%
North Canberra	6028	15.5	28156	72.5	4644	12.0	38828	100.0
Belconnen	17901	21.9	59001	72.3	4699	5.8	81601	100.0
Woden Valley	5729	18.2	22176	70.5	3558	11.3	31463	100.0
Weston Creek-Stromlo	4534	19.4	16938	72.3	1952	8.3	23424	100.0
Tuggeranong	25923	30.0	57988	67.1	2528	2.9	86439	100.0
South Canberra	4233	18.6	15112	66.5	3388	14.9	22733	100.0
Gungahlin-Hall	2975	24.2	9050	73.7	261	2.1	12286	100.0
Balance	138	36.6	230	61.0	9	2.4	377	100.0

Source: *ABS Census of Population and Housing Basic Community Profiles for all Australian Capital Territory sudivisions, 1996*

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Health Series Publications

The Epidemiology Unit of the Department of Health and Community Care has developed an on-going health series of publications to inform health professionals, policy developers and the community on health status in the Territory. Information contained therein will assist in the development of appropriate policy and service delivery models, the evaluation of programs, and an understanding of how the ACT compares with Australia as a whole with regard health status.

Number 1: *ACT's Health: A report on the health status of ACT residents*
Carol Gilbert, Ursula White, October 1995

Number 2: *The Epidemiology of Injury in the ACT*
Carol Gilbert, Chris Gordon, February 1996

Number 3: *Cancer in the Australian Capital Territory 1983-1992*
Norma Briscoe, April 1996

Number 4: *The Epidemiology of Asthma in the ACT*
Carol Gilbert, April 1996

Number 5: *The Epidemiology of Diabetes Mellitus in the ACT*
Carol Gilbert, Chris Gordon, July 1996

Number 6: *Developing a Strategic Plan for Cancer Services in the ACT*
Kate Burns, June 1996

Number 7: *The First Year of The Care Continuum and Health Outcomes Project*
Bruce Shadbolt, June 1996

Number 8: *The Epidemiology of Cardiovascular Disease in the ACT*
Carol Gilbert, Ursula White, January 1997

Number 9: *Health Related Quality of Life in the ACT: 1994-95*
Darren Gannon, Chris Gordon, Brian Egloff, Bruce Shadbolt, February 1997

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