Monograph No. 3

Emerging patterns of health status in the ACT

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1. Population

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 treble 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.

The *age sex distributions* of the ACT statistical subdivisions vary. Although the proportions of people aged 25 to 65 years were relatively constant between subdivisions in 1996, there was substantial variation in the younger and older age groups. Tuggeranong, Gungahlin-Hall and the ACT Balance had relatively high proportions of residents aged 0 to 14 years, while South Canberra, North Canberra and Woden Valley had higher proportions of residents aged 65 years and over. This will have implications for positioning of appropriate services.

2. Socio-economic status

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.

There were marked differences in status between suburbs, but not subdivisions in the ACT (1996 Census). Details can be found in Health Series No. 14.

3. Births

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. Tuggeranong (particularly the suburbs of Kambah, Gordon and Calwell) had the highest proportion, followed by Belconnen (particularly Florey and Kaleen).

The ACT *fertility rate* of 1.7 children per woman is the lowest of all states and territories (Australia's rate was 1.8). Only the subdivision of Tuggeranong (2.16 per woman) had a fertility rate higher than nationally.

4. General 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 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.

The results from the *1994-1997 Quality of Life Project* conducted in the ACT show:

- Young people (18-24 years old) in the ACT had significantly better physical functioning than older people.
- People aged 45-64 years reported worse general health when compared with the youngest (18-24 years) and the oldest groups (65 years and over).
- Older people (65 years and over) were significantly more likely to have good mental health than their younger counterparts.
- Females tended to report lower (poorer) than males for mental health scales but better for general health.
- People unemployed or not in the labour force had a significantly lower mean score on the physical functioning scale than those who were employed full or part time.
- People who were employed full time had a significantly better score than those unemployed or not in the labour force, especially for the vitality and mental health scales.
- People with higher education levels had a significantly higher score than people with lower education levels in physical functioning and bodily pain.
- Interestingly, people who attained the education level year 12 and/or trade/secretary/business qualifications tended to report better general health than other groups (at most 'some secondary', 'year 10 only' and 'degrees/postgraduates').
- It has been shown that respondents living in Weston significantly scored better than other town centres (Tuggeranong, Central Canberra, Woden Valley and Belconnen) especially on the general health scale.
- Furthermore, people living in Tuggeranong had better physical functioning than those living in Central Canberra, but poorer than those living in other areas.
- Not surprisingly respondents who had moderate or extreme disability had the worst score in all of the SF-36 scales.

4.1 Cancer

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. The most common cancers by age group are outlined below.

Table 1: Most common cancers, by age, by sex, ACT, 1993-97

	0-14 years	15-44 years	45-64 years	65+ years
Males	**n = 30**	**n = 282**	**n = 837**	**n = 1263**
	leukaemias (17%)	melanoma (25%)	prostate (24%)	prostate (37%)
	brain (10%)	testis (14%)	colon (12%)	lung (9%)
	Hodgkins disease (10%)	Colon(6%)	melanoma (11%)	colon (9%)
Females	**n = 22**	**n = 450**	**n = 833**	**n = 834**
	leukaemias (32%)	breast (29%)	breast (43%)	breast (21%)
	brain (14%)	cervix (21%)	melanoma (10%)	colon (11%)
	Hodgkins disease (14%)	melanoma (17%)	colon (7%)	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, and unpublished data for 1997

There were 376 people who died from cancer in 1996. Cancer is the second highest cause of death in the ACT after cardiovascular diseases. 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). Major cancers causing death are lung, colorectal and prostate cancers in males, and breast, colorectal and lung cancers in females.

4.2 Cardiovascular diseases

The National Health Survey 1995 found that, 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 to 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).

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.[i] In 1994, the ACT had the lowest death rate for cardiovascular diseases in males and the fastest rate of decline in myocardial infarction in people. With regard to cerebrovascular disease (stroke), males had a similar death rate to the Australian male average, but ACT females had a relatively high death rate compared to their Australian counterparts in 1996. It is predicted that male and female rates of death from cardiovascular disease will slowly increase over time, with female rates increasing at a faster rate than that of males. 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. This situation will need to be monitored.

4.3 Injury

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. Territory rates compare favourably with Australian rates. 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).

The most common injuries in the ACT (National Health Survey 1995) were dislocations and sprains (36%), fractures (18%), brusing and crushing (15%) and open wounds. The most common factor was falls (29%) and the most common place of occurrence was at work (29%). This profile was similar to that of Australia generally, although Australia had considerably more accidents occur at work (39%).

There were 7,933 separations from ACT hospitals in 1996-97. Males outnumbered females for most causes, particularly for vehicle accidents. Females outnumbered males for attempted suicide.

4.4 Mental health

The National Survey of Mental Health 1997 estimated that the ACT had approximately 46,100 people who had a mental disorder of some type. This equates to 21.1 percent of the ACT population, or one in five people. This estimation is in line with national trends.

Males outnumber females in mental disorder prevalence in the ACT. A large proportion of these males were in the 18-34 year age range (nearly 60% of males with mental disorders). Similarly, prevalence for females also peaks at the 18-34 year age range (53% of females with mental disorders).

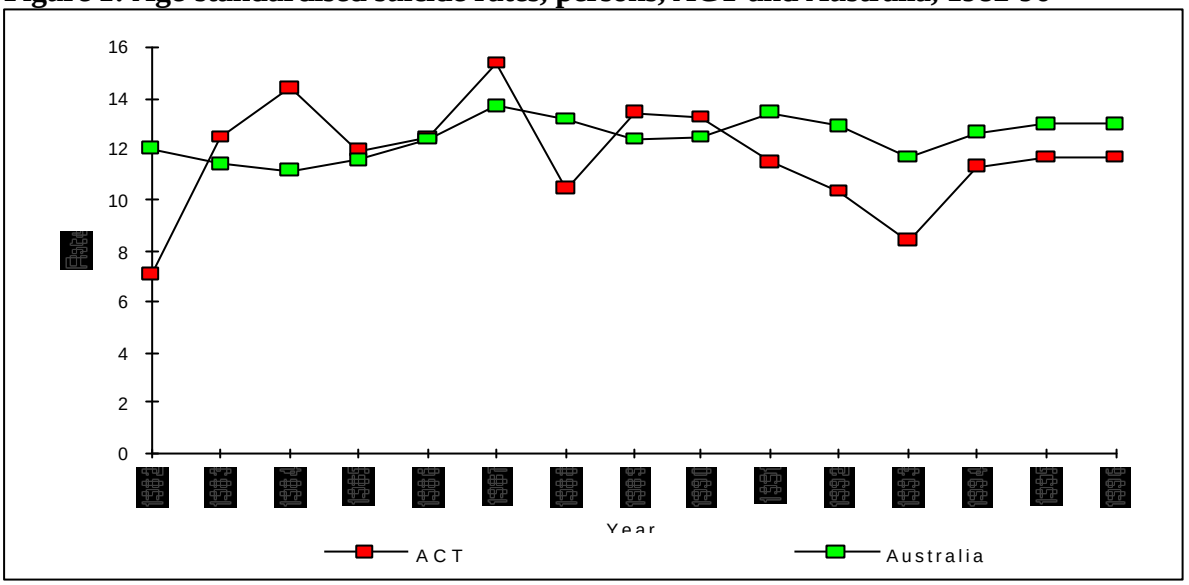
Suicide

The majority of suicides are associated with mental disorders, especially severe depression and schizophrenia.[ii] It has been estimated that about 90 per cent of adolescent suicides are preceded by signs of mental illness, especially depression.[iii] 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 with which they are unable to cope 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 1 illustrates that the ACT standardised suicide rate for persons was slightly lower than the national rate from 1989 to 1996.

Males aged 15 to 24 years are at a particularly high risk of committing suicide.[iv] 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.

Figure 1: 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,

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.

With regard to *morbidity* from suicide attempts, females outnumber males in hospital separations. In 1996-97 there were 134 male and 235 female separations. Major means included tranquilisers (43%), analgesics (23%), unspecified medicines (14%) and cutting/piercing (7%). The mean length of stay was 6.0 days for males and 7.0 days for females.

5. Risk factors

Risk factors are defined as *features or exposures associated with a greater risk of ill-health in an individual* (AIHW 1998)[v].

Some of the major, recognised risk factors to good health include poor natural environment, smoking, excessive alcohol consumption, other drug abuse, poor diet & nutrition, inadequate physical activity, excessive sun exposure, being overweight or obese, having high blood pressure and having raised blood cholesterol level.

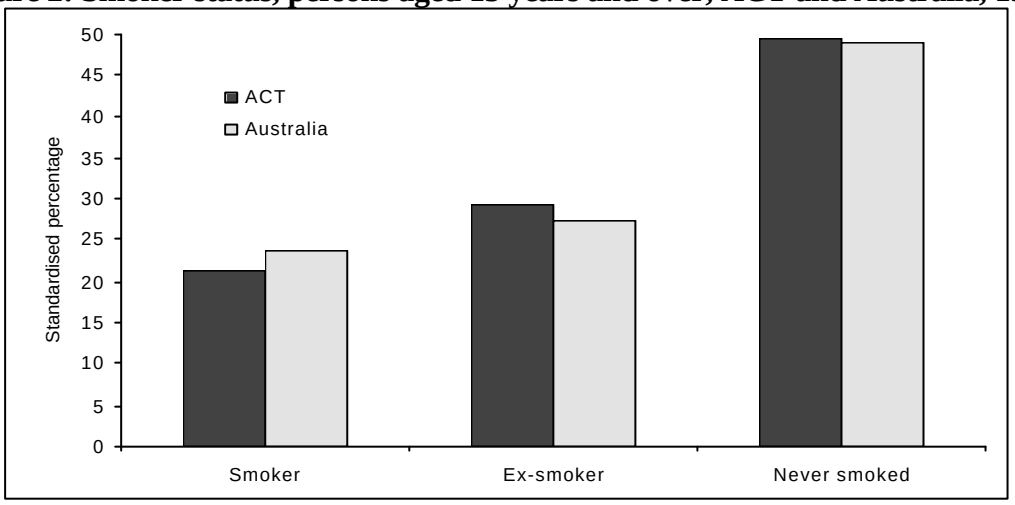
5.1 Environment

The ACT is fortunate in that its natural *environment* is conducive to good health. The area around Canberra is mainly mountainous and the ACT has good air and water quality. There are no heavy industries in the ACT.

5.2 Smoking, alcohol and other drugs

The National Health Survey 1995 reported that in the ACT, 21 percent of adults were smokers, 29 percent were ex-smokers and 49 percent had never smoked. These results compare favourably with those for the rest of Australia, which were 24 percent, 27 percent and 49 percent respectively (refer Figure 2).

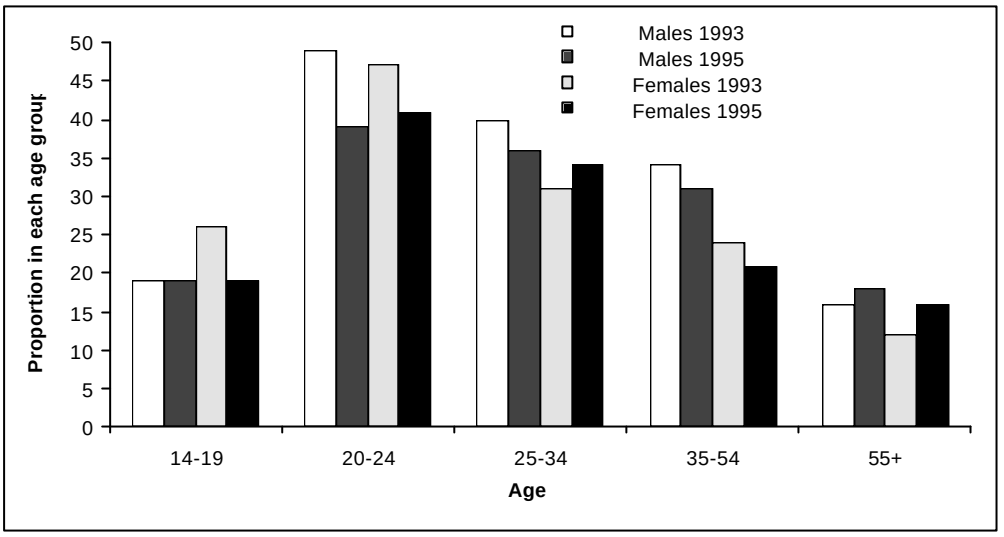
Figure 2: Smoker status, persons aged 15 years and over, ACT and Australia, 1995



Source: ABS *National Health Survey*, Confidentialised Unit Record File, , , Confidentialised Unit Record File, Cat.No.4364.0

The pattern of cigarette smoking, however, is not uniform across all age groups. The overall pattern of current female smokers in 1993 and 1995 was similar to that of male smokers. The exceptions were a decline in the proportion of current female smokers in the 14-19 years age group and an increase in the 25-34 years age group during the period from 1993 to 1995 (Figure 3). Recent research illustrates that women smokers may be at greater risk of early death from smoking than males (Prescott, Osler, Hein et al 1998)[vi]. As women start to smoke younger their pattern of lifetime smoking is beginning to conform to that of men. As a result women smokers' survival prospects are becoming even less favourable than men's. (Young women's use corresponds largely to young men's use, suggesting that young women are taking up smoking more than their older counterparts).

Figure 3: Proportion of current smokers, by age, by sex, Australia 1993 and 1995



Source: National Drug Strategy Household Survey, 1995

Heavy *alcohol* consumption is associated with increased cardiovascular disease, high blood pressure, coronary heart disease and stroke. The table below shows that the vast majority of ACT males and females were drinking within safe limits in the week prior to the National Health Survey 1995.

Table 2: drinking levels by sex, by age, ACT 1995

	age group	low risk	hazardous	harmful
males	0-14	100.0	0	0
females	0-14	100.0	0	0
males	15-24	94.9	3.0	2.0
females	15-24	96.5	0.9	2.6
males	25-64	93.9	3.1	3.1
females	25-64	97.2	0.6	2.2
males	65 and over	97.1	2.2	0.7
females	65 and over	95.3	1.2	3.5

Source: *National Health Survey1995***,** Confidentialised Unit Record File Australian Bureau of Statistics 1997, Cat. No. 4364.0

At hazardous drinking levels, far fewer females than males are represented in all age groups. However, at harmful drinking levels, females are on a par with or exceeding males.

An emerging trend in Australia is that young people have higher levels of *illicit drug* use compared with older Australians. Polysubstance use in particular has emerged as a characteristic of adolescent drug use (Phung 1998)[vii]. Adolescent males have a higher rate of using alcohol and illicit drugs than females. Use of illicit drugs in the family or peer group is another significant factor associated with illicit drug use. Only a small minority of drug users ultimately experiment with amphetamines, barbiturates or cocaine (Lindsay 1997)[viii]. A survey of secondary students across Australia revealed that 90 percent of the year twelve students drank alcohol, while only 2 percent of all students surveyed had ever injected drugs (Lindsay 1997)[ix].

Females were more likely than males to be hospitalised because of poisoning by prescription drugs. The average age of both males and females hospitalised was 35 years. Despite this

large number of hospitalisations however, there were only six deaths between 1993 and 1995 due to suicide by tranquillisers and other psychotropic substances.

The second highest volume of hospitalisations from self inflicted injury was due to use of analgesics, antipyretics and antirheumatics. This group of drugs includes, but is not exclusive to, opiates, aspirin and paracetamol. Because the particular drug is not specified in the data available, it is not possible to determine whether the drug used was a prohibited substance or not. For example, the drug used could have been aspirin or heroin. There were 204 males and 96 females admitted to hospital for the above cause. The average age of those admitted was 27 years of age - in this instance the age of females was slightly younger.

The most commonly used illicit drug is marijuana, although its use is less common than both alcohol and tobacco. The National Drug Strategy Household Survey 1995 shows that 42 percent of ACT people have at some time tried marijuana and 16 percent of those had used the drug in the last 12 months. The ACT has the second highest rate in Australia (equal to WA). It must be noted however that these rates are not age standardised. Because people who use marijuana are generally of a younger age group, those states and territories with younger populations, such as the ACT, will tend to show higher usage rates.

The ACT Secondary Schools Survey 1995 showed an increase in the marijuana use of years seven to twelve students between 1991 and 1996. For example, 19 percent of year 10 females reported using marijuana within the last week in 1991 while in 1996, this proportion increased to 26 percent. For year 10 males the reported use of marijuana rose from 24 percent in 1991 to 30 percent in 1996 (Phung 1998)[x].

5.3 Exercise

The Population Survey Monitor, a household survey conducted quarterly by the ABS, gathered information on participation in organised sport and physical activity in the two weeks prior to the survey in 1995-96 and 1996-97. In 1996-97, 34.2 percent of ACT residents surveyed reported being involved in physical activity across all age groups.

There is a trend towards decreasing participation in activity as age increases. Although ACT proportions were higher than that of Australia for all age groups, the percentage of ACT residents involved in sport and physical activity dropped between 1995-96 and 1996-97. This decreasing participation trend mirrored that of Australia as a whole.

The survey also examined the type of organised sports and activities in which people were engaged. The most popular organised activity that ACT residents reported participating in was aerobics. Comparing the 1995-96 and 1996-97 surveys, the percentage of participants for the selected organised sports has declined for all sports except swimming.

There has been a marginal increase in reported participation in organised activities for 12-14 year olds between 1995-96 and 1996-97 and a slight decrease for 5-8 year olds and 9-11 year olds.

5.4 Sun protection

It is widely recognised that *sun exposure* can cause minor to serious skin conditions and cancers in humans. Briscoe (1996) [xi] reported that for the period 1988-92, the relatively high incidence of melanoma is not reflected in the death rate (crude incidence of 27 per 100,000 compared to 4 deaths per 100,000 population. Actual number of deaths in the ACT was 4 males and 5 females in 1996). Males tended to die at a higher rate than females (possibly due to men's reluctance to seek medical attention until the cancer is life-threatening), and that the ACT age-standardised incidence rates for melanoma were consistent with those of Australia generally (and NSW in particular).

The findings from the 1996 ACT Secondary School Students' Survey showed that

- Sunscreen was applied more often by females than males, with 37% and 38% of female students reporting that they 'always' or 'usually' wore SPF15+ between 11am and 3pm on a sunny summer day respectively. However nearly 20% of females reported that they 'usually' wear less/briefer clothes in the sun.

- Only one-in-five females and less than one-in-ten males wore sunglasses if they were out in the sun between 11am and 3pm.

- Hat wearing was more prevalent among males than females. Around 10% of both males and females reported that they 'never' wear a hat.

- Females reported more concern about skin cancer than males.

These findings will assist in the development of appropriate and well-targeted prevention strategies.

5.5 Other selected risk factors

The National Health Survey 1995 showed that the ACT had lower scores for obesity and osteoporosis but higher scores for other selected risk factors to good health. Hypertension was the most widely reported diet-related condition, at a rate of 107.6 per 1000 population. This was slightly higher than the rate for Australia.

Table 3: National Health Survey: Selected types of reported recent and/or long term conditions, ACT & Australia, 1995

Type of Condition	ACT	Aust.
Obesity	*2.4	2.8
High cholesterol	55.4	51.3
Hypertension	107.6	106.8
Atherosclerosis	*1.8	1.4
Constipation	64.3	50.6
Osteoporosis	14.9	16.8

Note: Rate per 1,000 population. Age & sex standardised to the Australian population
* Relative std error 25-50% ** Relative std error over 50%
Source: ABS National Health Survey (1995) Summary Results: Australian States & Territories Catalogue No. 4368.0

The National Health Survey 1995 also found that the ACT had the highest proportion of children under 3 years who had been *breastfed*. The percentage of those who had been breastfed for 6 months or longer was 52 percent. This compares with 47 percent for Australia.

The known risk factors for *breast cancer* are not easily modifiable, so the main scope for reducing mortality is through early detection. This is accomplished through breast examination and screening. With regard to a comparison between the ACT and Australia generally, ACT women tended to have 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.

The ACT Department of Health and Community Care administers a Women's Health Program which offers free mammography to women. Women between 50-69 years are particularly encouraged to use the service regularly (every 2 years). Table 4 shows activity over a four year period.

Table 4: Breast cancer screening, ACT Women's Health Program, 1993-97

	1993-94	1994-95	1995-96	1996-97
NSW	1,059	2,050	5,011	6,116
Total	9,057	10,937	15,084	16,293

Source: ACT Breast Screening Program

Both incidence and deaths caused by *cervical cancer* are decreasing over time. The decrease is mainly, if not completely due to the introduction of wide-spread Papanicolaou (Pap) smear screening tests and subsequent diagnosis and treatment of precancerous abnormalities.

With regard to a comparison between the ACT and Australia generally, ACT women tended to have more Pap smear tests than other Australian women.

5.6 Vaccine preventable diseases

- There was a marked increase in the notifications of pertussis and measles in the ACT from 1996 to 1997.

- In 1996 there were 33 cases of *pertussis* notified at an annual notification rate of 10.73 per 100,000 and 117 cases in 1997 at an annual notification rate of 37.13.

- There were 10 cases of *measles* reported in 1996 at the annual notification rate of 3.25 per 100,000 population. In 1997 there were 79 cases of measles notified with the annual notification rate of 25.50 per 100,000 population

- There were 7 cases of *mumps* in each year 1996 and 1997.

- There were 85 cases of *rubella* notified (at an annual notification rate of 27.64 per 100,000 population) in 1996 and in 1997, there were 32 cases of rubella notified (at a annual notification rate of 10.33 per 100,000 population).

- For the period of 1993-1997, the coverage rate for children who were fully vaccinated to the NHMRC schedule was 82% at 2 months, 78% at 4 months, 67% at 6 months and 74% at 12 months (MMR only).

- The proportion of children vaccinated 'on time' (within 30 days of scheduled due date) was 73% at 2 months, 62% at 4 months, 50% at 6 months and 50% at 12 months for the 1993-1997 birth cohort. It appears there is a decreased proportion of 'on time' vaccinations as children get older. The 1997 birth cohort results were 84% at 2 months, 70% at 4 months, 60% at 6 months and 43% at 12 months.

- Encouragingly there is a trend of increased vaccination rate over time for all schedules in the ACT over the period of 1993-1997, with a steady increase in the proportion of children vaccinated on time since 1995.

- The coverage rate for Measles-Mumps-Rubella (MMR) vaccine was stable around 70% over the period of 1993-1996.

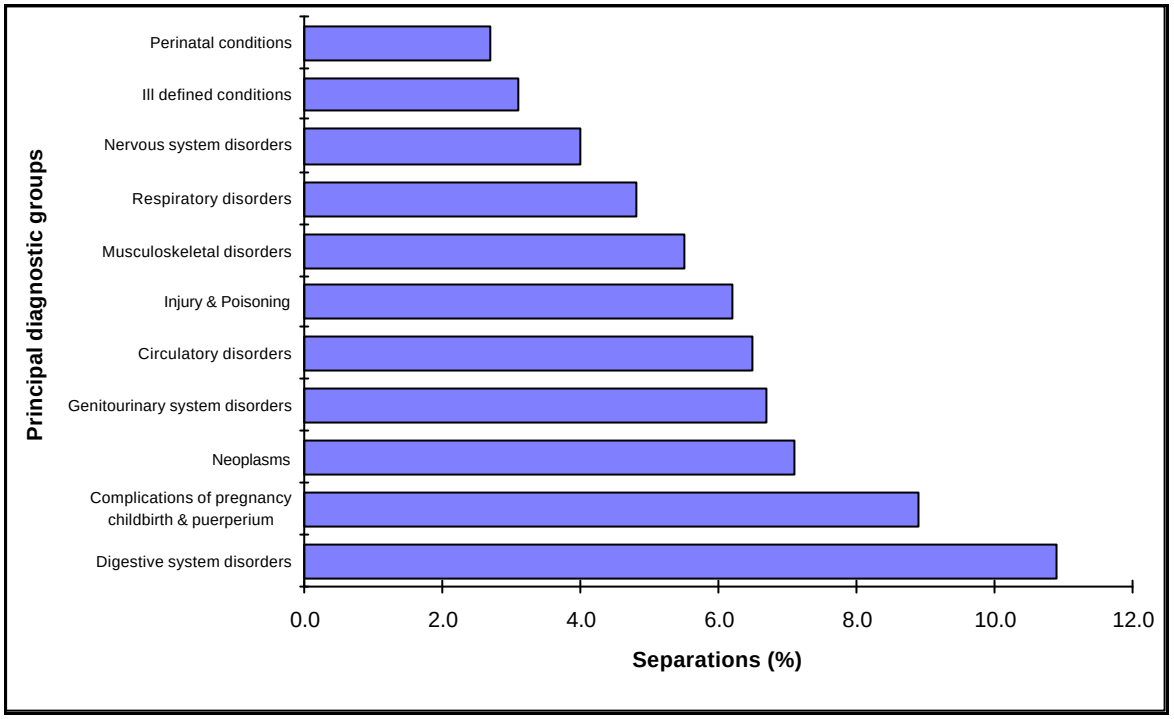
- There were significant differences in immunisation coverage rates across all of the statistical subdivisions between 1993-1997. Overall, it appears that even though South Canberra had a better catch up rate (between 3rd and 4th dose of 'on time' immunised), the coverage rate in this area was relatively low compared to other areas. Gungahlin, Belconnen and Tuggeranong seem to have better coverage rates than other areas, especially for the 2 months and MMR 'on time' immunisation.

6. Hospital morbidity

In the 1996-97 year, there were 75,633 inpatient separations from all hospitals in the ACT, both public and private, (approximately 20 per cent of which were for people living outside the ACT).

The most common presenting problems were digestive system disorders, neoplasms, circulatory diseases and musculoskeletal disorders. In the *older subdivisions*, the highest proportions of separations were due to digestive disorders. In Tuggeranong and Gungahlin, however, complications of pregnancy were the most common cause of separations, followed by digestive disorders. Overall, the older subdivisions of South and North Canberra, Woden Valley and Weston Creek had the highest rates of separations for all causes and age-related causes with Woden Valley having the highest total separation rate of all subdivisions.

Figure 4: ACT hospital separations by most common principal diagnostic group, 1996-97



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

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). South Canberra and North Canberra had the *highest average length of stay* for all separations for any cause. This may be a reflection of the older populations of these subdivisions, since one would expect older people to recover more slowly from illnesses and medical procedures.

The proportion of *private patients* in public hospital beds continues to decline. In 1992-93, 30.5 percent of occupied bed days were used by private patients compared to 14.3 percent in 1996-97. In 1996-97, South Canberra rsidents had the highest rate for public hospital separations. Woden had the highest rate for private hospital separations.

There is a difference in *peak usage between males and females*. 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%).

The greatest proportion of people *discharged* to nursing homes came from South Canberra, confirming the reasoning about age-related lengths of stay. Tuggeranong had the highest percentage of people discharged home, North Canberra had the lowest.

There were an estimated 350 *general practitioners* working in the ACT in 1996. They were not evenly spread throughout the Territory. Subdivisions with high concentrations of elderly residents had the highest numbers of GP's.

7. Mortality

There were 1,300 *deaths* in the ACT in 1996. Subdivisions where high proportions of deaths occurred were those with high proportions of elderly residents such as North and South Canberra.

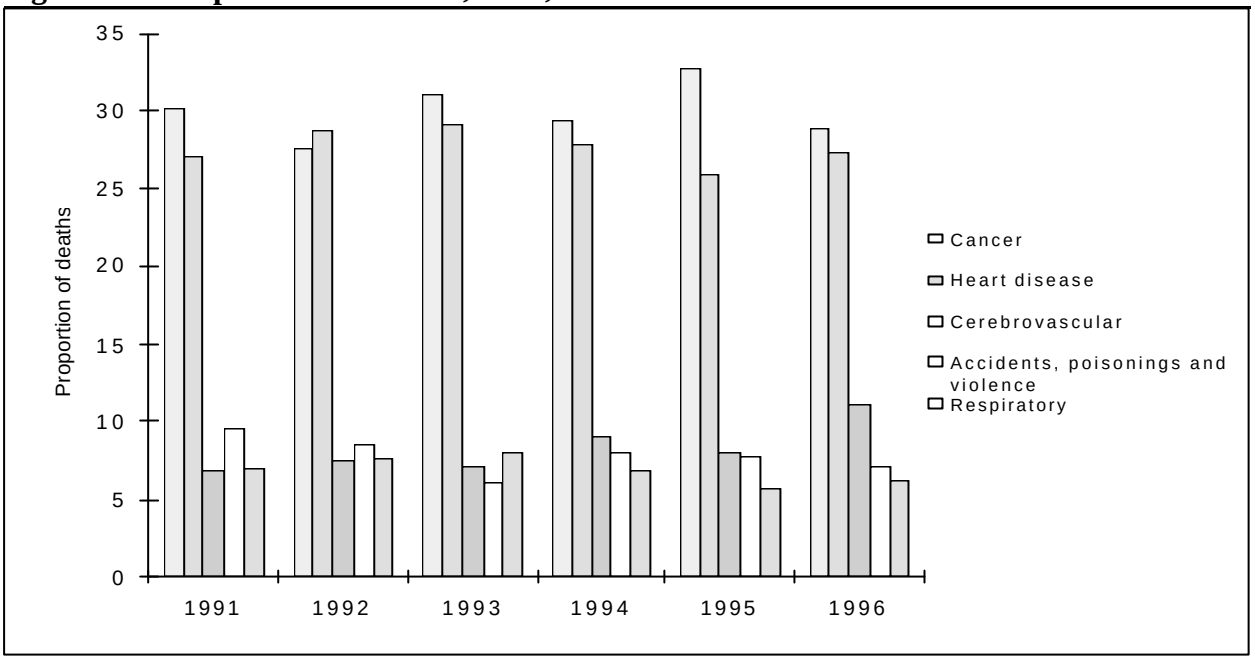
ACT *standardised death rates*, are consistently below those for Australia. In 1996 it was 6.1 per 1,000 which was the lowest of all states and territories.

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 *principal 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. The following figure shows principal causes of death in the ACT over a six year period.

Figure 5: Principal causes of death, ACT, 1991-96



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

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.
Unfortunately, in 1996, ACT cerebrovascular disease rates increased for both sexes.

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 (75.2 years nationally).

8. The health status of the ACT in the future

Since the ACT will roughly treble in its proportion of people 65 years and over between now and 2051, the health needs of its population will change dramatically over that period. There will be fewer young people and hopefully, less diseases and conditions which typically affect young people, such as maternity related problems, perinatal problems, injuries, suicides, early onset diabetes mellitus, some communicable diseases, childhood asthma, and youth drug abuse problems.

Unfortunately, it can be expected that diseases and conditions usually associated with ageing and old age will increase considerably. These include falls type injuries, musculo-skeletal problems, mental illness (such as dementias), cancers, heart diseases, adult onset diabetes mellitus, and physical disabilities. The older a person gets, the longer the recovery time after an event and the worse the prognosis.

Furthermore over the next few years, as many older people die or move from their suburban homes to townhouses, retirement villages or hostel/nursing home accommodation, the age profile of suburbs will change. Suburbs such as those in North and South Canberra will possibly house younger people than they have previously. 'Younger' suburbs such as those in Tuggeranong, will gradually 'age'.

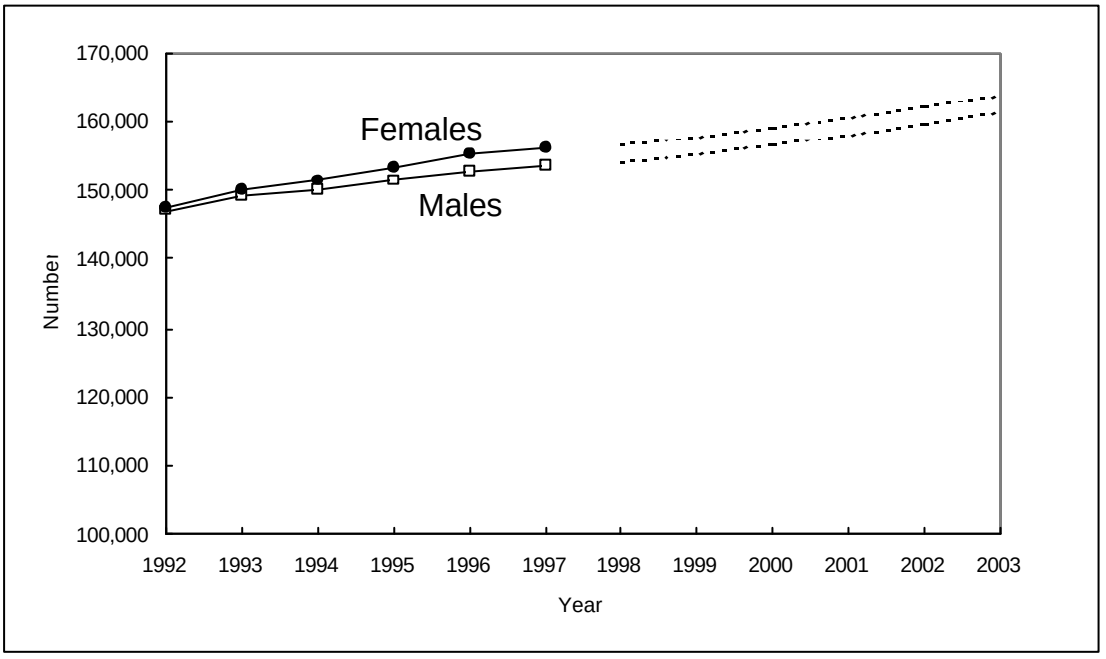
These emerging issues will have major impacts on, and implications for, health service delivery and where they are positioned in the Territory.

8.1 Projections for the ACT

Population forecasts

The most recent population forecasts from Demographics ACT[xii] indicate that the ACT population will increase at a rate of between 0.5% and 1% per year between 1998 and 2003. This rate of increase is lower than that experienced in the 1980s .

Figure 6: ACT population estimates 1992-1997, with projections to 2003



Sources: Population by Sex and Age, Australian States and Territories. ABS 1997 Cat. No. 3201.0
ACT Population forecasts 1998-2013, ACT Dept of Urban Services, 1998

The ACT has a relatively young age structure when compared to Australia as a whole. However, over the next 5 years, the ACT population will continue to age steadily. Over the period 1998 to 2003 the total number of persons in younger age groups (under 45 years) is expected to decline, while the number of persons in older age groups (45 years and over) is expected to increase. In absolute numbers, the forecast increase in the 45-64 age group over this period is an extra 2400 persons each year. The 65 years and over age group is expected to increase by approximately 800 persons each year.

The following table illustrates the changing age composition of the ACT population over the period 1998 to 2003. The proportion of the ACT population in younger age groups is expected to decline while the proportion of the ACT population in older age groups is forecast to increase. In particular, the 45-64 year age group is forecast to increase from 21.4% in 1998 to 24.3% of the ACT population in 2003. The proportion of people aged 65 yrs and over is also projected to increase from 7.8% in 1998 to 8.7% of the ACT population in 2003.

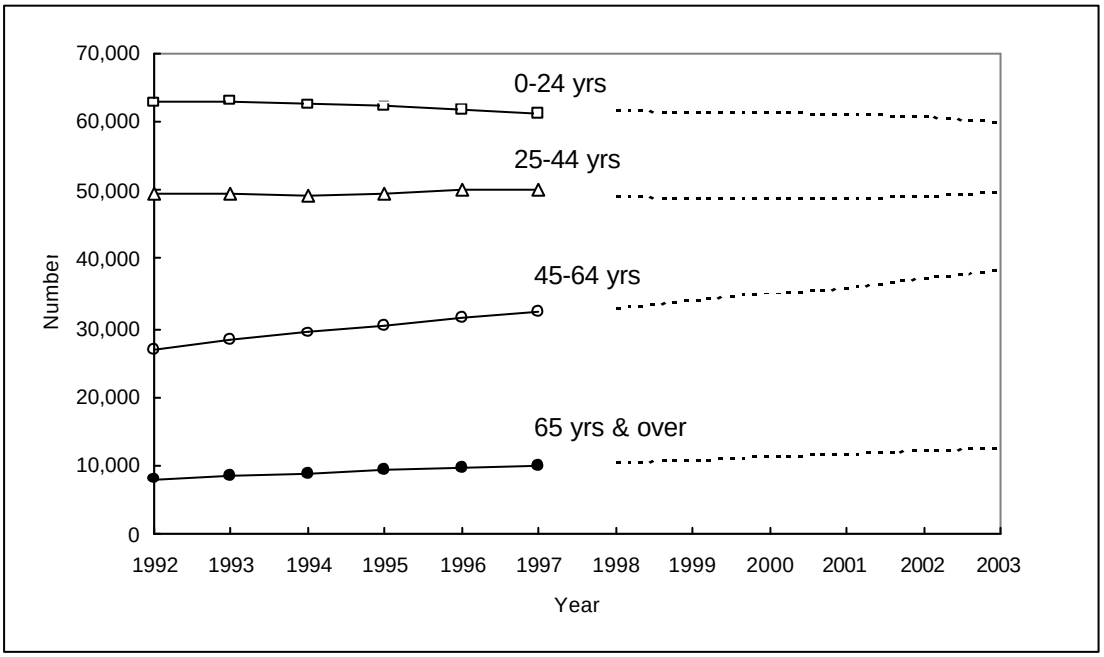
Proportion of the ACT population in selected age groups

Year	0-24 years	25-44 years	45-64 years	65 + years	Total
1998	38.6%	32.3%	21.4%	7.8%	100%
2003	36.0%	31.0%	24.3%	8.7%	100%

Source: ACT Population forecasts 1998-2013, ACT Dept of Urban Services, 1998

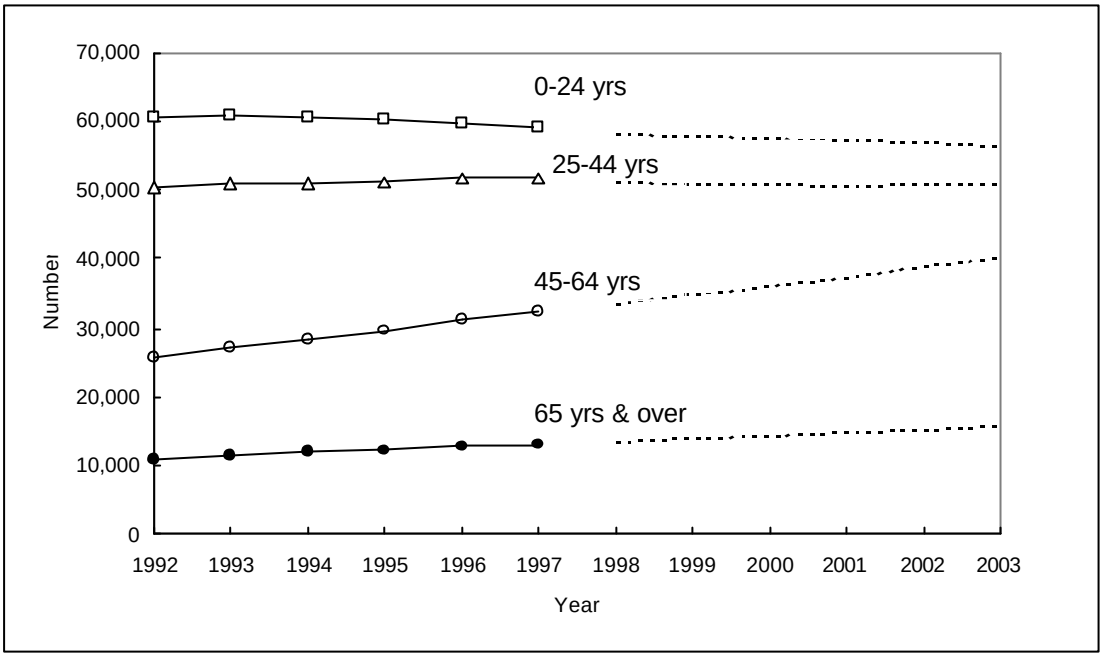
The following graphs show the forecast population changes for selected age groups and for each sex. For both males and females, the rate of increase is clearly highest in the 45-64 yr age group.

Figure 7: ACT males by age group for 1992-1997, with projections to 2003



Sources: Population by Sex and Age, Australian States and Territories. ABS 1997 Cat. No. 3201.0
ACT Population forecasts 1998-2013, ACT Dept of Urban Services, 1998

Figure 8: ACT females by age group for 1992-1997, with projections to 2003



Sources: Population by Sex and Age, Australian States and Territories. ABS 1997 Cat. No. 3201.0
ACT Population forecasts 1998-2013, ACT Dept of Urban Services, 1998

Mortality projections

Crude death rates for specific causes are calculated by dividing the number of deaths due to specific causes by the mid-year population , and expressing the result as a rate per 100,000 people in that population. Crude rates will be greatly influenced by any changes in the age structure of the population in question, because different diseases or conditions affect different age groups.

Age-standardised rates, on the other hand, take differences in age-structure into account, and can be used to compare mortality rates between different populations that have different age-structures, or to compare mortality rates in the same population over time.

In the following pages, crude death rates for some specific causes are shown, rather than age-standardised rates, because crude rates are useful for health service planning purposes. They indicate the actual rate of deaths for different causes and they reflect the changes in age-structure and risk of mortality that are occurring in the ACT.

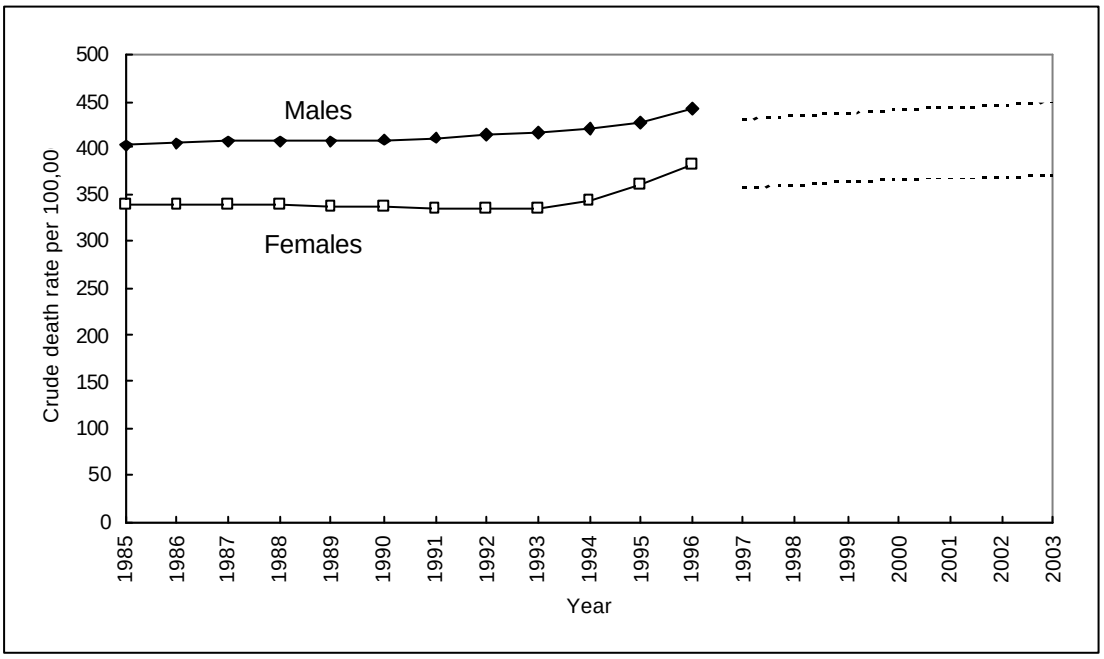
In the ACT, the changing age-structure noted above is likely to increase the crude mortality rates for diseases or conditions that occur mainly in older age groups (eg cancer, diseases of the circulatory system).On the other hand, crude mortality rates for diseases or conditions which mainly affect younger age groups (eg injury) might be expected to decline.

Because the ACT has a relatively small population, there are large fluctuations in the numbers of deaths from year to year when looking at particular causes. These fluctuations can have a large influence on any projections that are made, and this should be born in mind when assessing the accuracy of particular projections.

For the purposes of presentation, a smoothing function (using SPSS software) has been applied to the actual death rates to remove large fluctuations. Linear trendlines or "lines of best fit" (using EXCEL software) have then been applied to the "smoothed" data points in order to project trends to the year 2003. In some circumstances, where a linear trend line produced a result judged to be unacceptable, a logarithmic trend line was used instead.

All causes.

Figure 9: ACT crude death rate (smoothed) for all causes, with projected trend to 2003



Source: Causes of death, Australia, ABS Cat No 3303.0
Note: Linear trendlines fitted.

The ACT crude mortality rate for all causes between 1985 and 1996 for males is higher than the rate for females, and there is a trend for the rates for both sexes to be increasing slightly. These rates, though increasing, are still much lower than the corresponding rates for Australia as a whole.

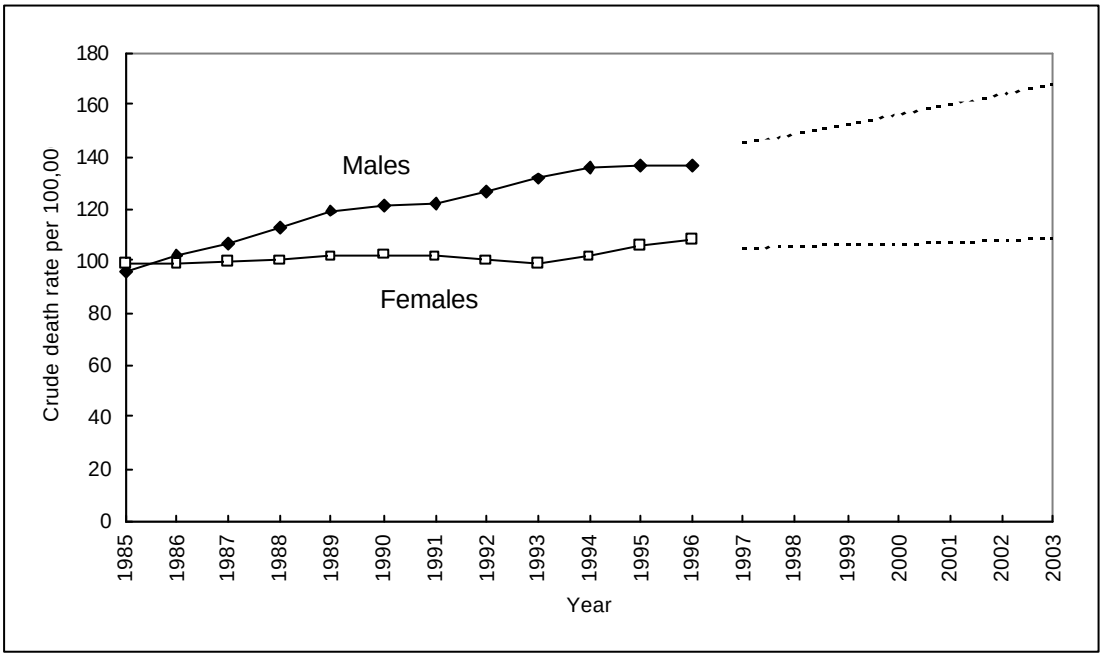
Any change in mortality rates can be largely attributed to a combination of changed mortality and changed age structure. For both the ACT and Australia, the ageing character of the populations would be expected to increase crude mortality rates. Conversely, recent improvements in mortality for various separate causes (eg declining mortality rate for motor vehicle accidents throughout the 1980's) would decrease the crude mortality rate for all

causes. The combination of these two forces produces the final crude mortality rate for the population .

In 1996 there were 698 male deaths and 602 female deaths from all causes for ACT residents. Projecting the recent trend into the future gives the following figures: 724 male deaths, and 609 female deaths from all causes in the year 2003.

All cancers (ICD-9 codes 140-239)

Figure 10: ACT crude death rate (smoothed) for all cancers, with projected trend to 2003



Source: Causes of death, Australia, ABS Cat No 3303.0
Note: Linear trendlines fitted.

The crude mortality rate for all cancers shows a marked difference in the trend for males and females. The crude rate for males is increasing , while the crude rate for females is staying relatively level.

In 1996 there were 214 male deaths and 168 female deaths from all cancers for usual residents of the ACT. Projecting the recent trend into the future gives the following figures: 271 male deaths, and 178 female deaths from cancer in the year 2003.

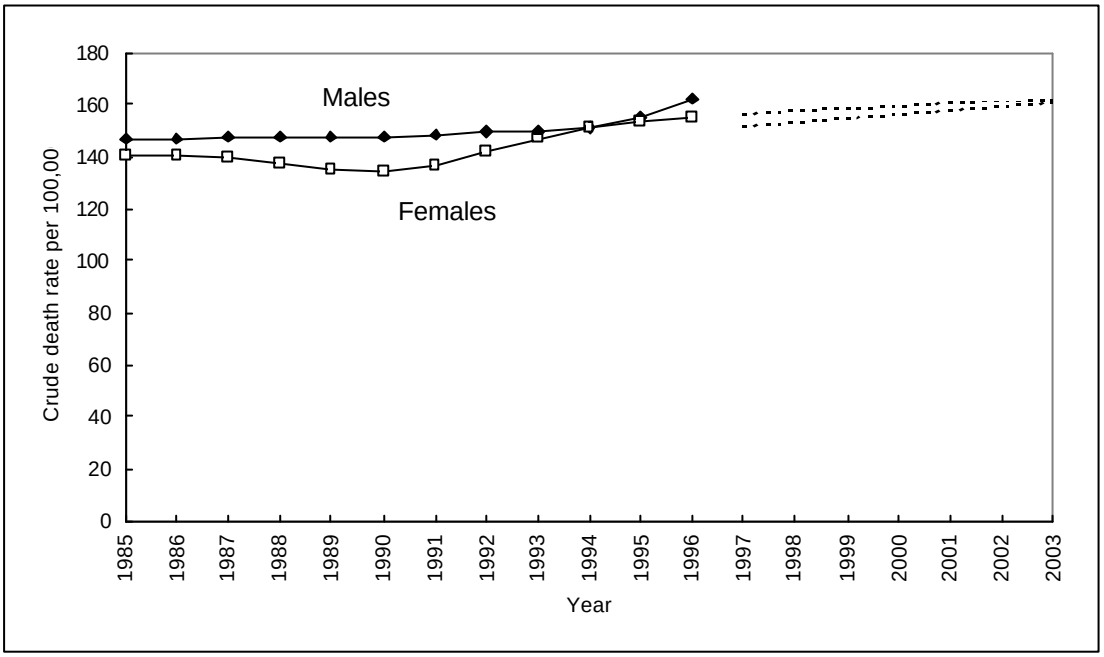
Information from the ACT Cancer Registry[xiii] indicates that age-standardised mortality rates for cancer in the ACT for both sexes are remaining constant or actually declining.

A major reason for the increase in cancer deaths in males is the changing age structure of the population. Cancer is very much an age-related event, and therefore as the population ages more persons are moving into the age groups most likely to be effected by cancer.

However it is interesting to see the difference in the overall trend in deaths for all cancers between the sexes, and in particular to note that the crude rate for females does not appear to be increasing.

Diseases of the circulatory system (ICD-9 codes 390-459)

Figure 11: ACT crude death rate (smoothed) for all diseases of the circulatory system, with projected trend to 2003



Source: Causes of death, Australia, ABS Cat No 3303.0
Note: Linear trendlines fitted.

Crude death rates for both sexes for all diseases of the circulatory system have increased slightly over the period 1985 to 1996. The overall trend for both sexes is for a slight increase in crude death rates. In absolute numbers, the trend predicts 263 male deaths and 264 female deaths from diseases of the circulatory system for usual residents of the ACT in the year 2003.

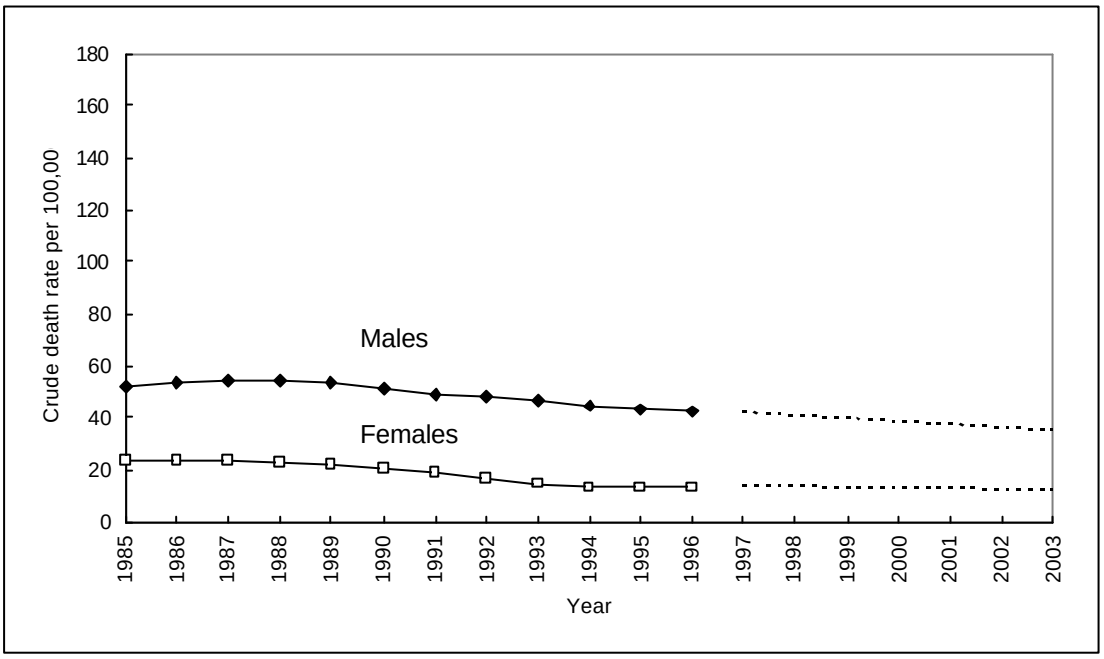
Cardiovascular disease is the major cause of death for all Australians. However in recent years there have been large reductions in the crude mortality rate for cardiovascular disease for Australians. Over the period 1985 to 1996, the rate for Australian males has decreased from 369 to 292 deaths per 100,000 while the Australian female rate has decreased from 361 to 298 deaths per 100,000 over that period

In comparison, the ACT crude death rates for each sex for this group of diseases are much lower than the corresponding Australian crude rates (we have a younger and healthier population) and the increasing trend for the ACT may be explained by the ageing character of the ACT population.

The main subgroups in the classification of "diseases of the circulatory system" (ICD-9 codes 390-459, also called "cardiovascular disease") are "ischaemic heart disease"(ICD-9 codes 410-414, also called coronary heart disease) and "cerebrovascular disease" (ICD-9 codes 430-438).

External causes of injury (ICD-9 codes E800-E999)

Figure 12: ACT crude death rate (smoothed) for external causes of injury, with projected trend to 2003



Source: Causes of death, Australia, ABS Cat No 3303.0
Note: Linear trendline for males, logarithmic trendline fitted for females.

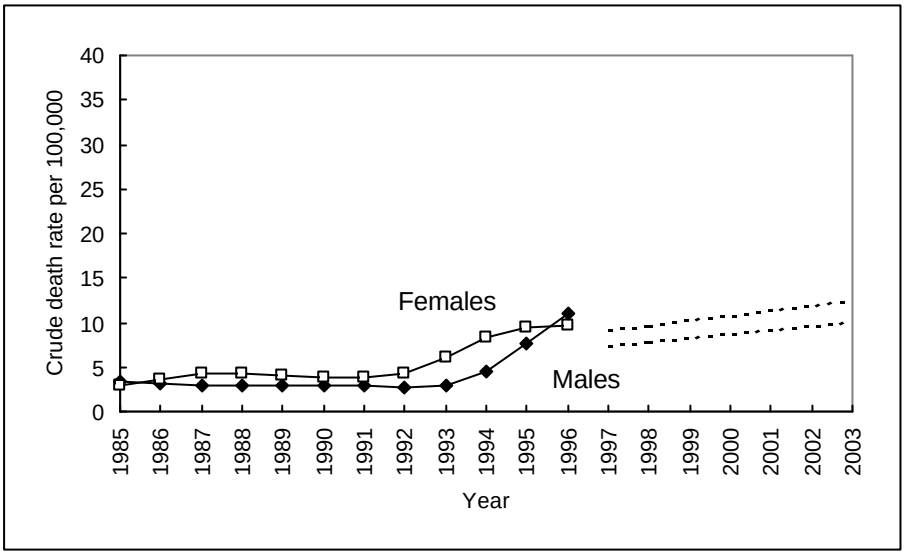
Mortality due to external causes of injury includes deaths due to motor vehicle traffic accidents, suicides and other injuries. For all these categories, death rates for males are substantially higher than those for females, and in particular rates for young adult males are the highest.

Australian injury mortality rates have been steadily declining over recent years. In particular motor vehicle deaths rates have declined markedly since the 1970s due to a combination of factors - random breath testing, speed surveillance, seatbelts, safer vehicles, and education programs[xiv].

Injury death rates for the ACT reflect the overall Australian declining trend. In absolute numbers, the trendline predicts 57 male deaths and 20 female deaths from external causes of injury in the ACT in the year 2003.

Mental disorders (ICD-9 codes 290-319)

Figure 13: ACT crude death rate (smoothed) for mental disorders, with projected trend to 2003

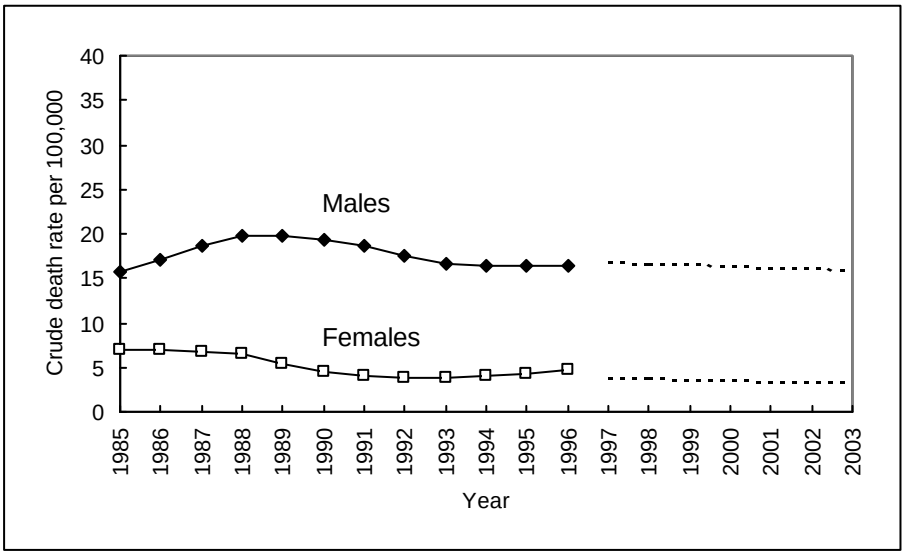


Source: Causes of death, Australia, ABS Cat No 3303.0
Note: Linear trendlines fitted.

Crude death rates for mental disorders in the ACT are low relative to Australia as a whole, but have increased substantially since the early 1990s, as have the Australian rates. This may reflect a change in reporting practice. Rates for females are slightly higher than those for males. Trendlines predict 16 male and 21 female deaths from mental disorders in 2003

Suicide (ICD-9 codes E950-E959)

Figure 14: ACT crude death rate (smoothed) for suicide, with projected trend to 2003

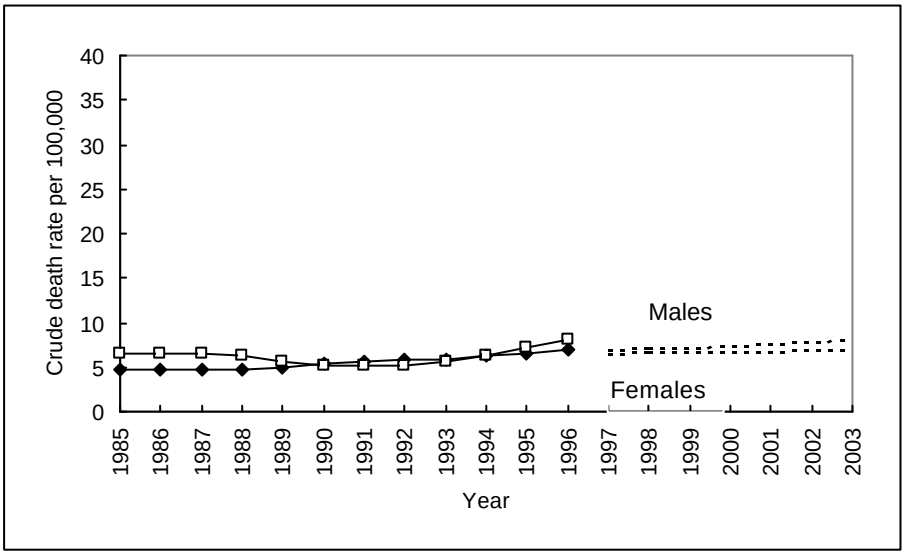


Source: Causes of death, Australia, ABS Cat No 3303.0
Note: Linear trendline for males, logarithmic trendline fitted for females

Suicide death rates in the ACT have remained relatively steady over recent years with the rate for males being substantially higher than the female rate. ACT rates for suicide are similar to Australian rates. The projected trend predicts 26 male and 5 female deaths from suicide in 2003.

Diabetes (ICD-9 codes E950-E959)

Figure 15: ACT crude death rate (smoothed) for diabetes, with projected trend to 2003

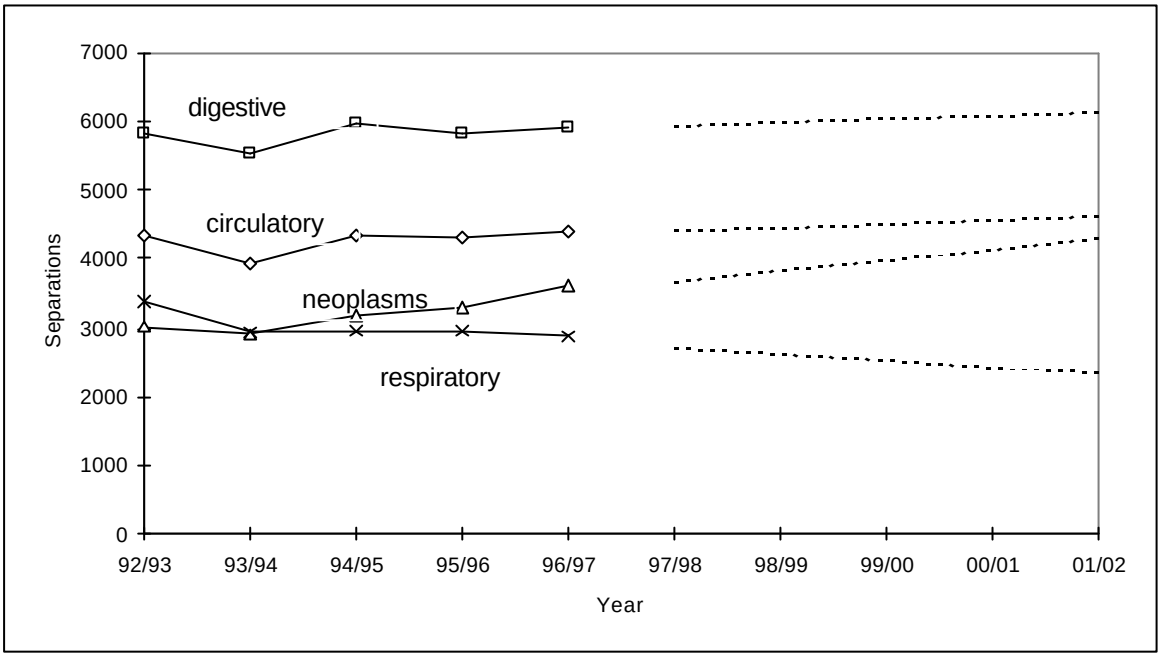


Source: Causes of death, Australia, ABS Cat No 3303.0
Note: Linear trendlines fitted.

Diabetes death rates in the ACT have remained relatively steady over recent years with the rate for males being similar to the the female rate. Most deaths from diabetes occur in older age groups. Many deaths from diabetes are attributed to complications from diabetes rather than diabetes itself, so diabetes deaths are thought to be under-reported[xiv]. As expected from our younger population, ACT death rates for diabetes are lower than Australian rates. The projected trend predicts 13 male and 11 female deaths from diabetes in the ACT in 2003.

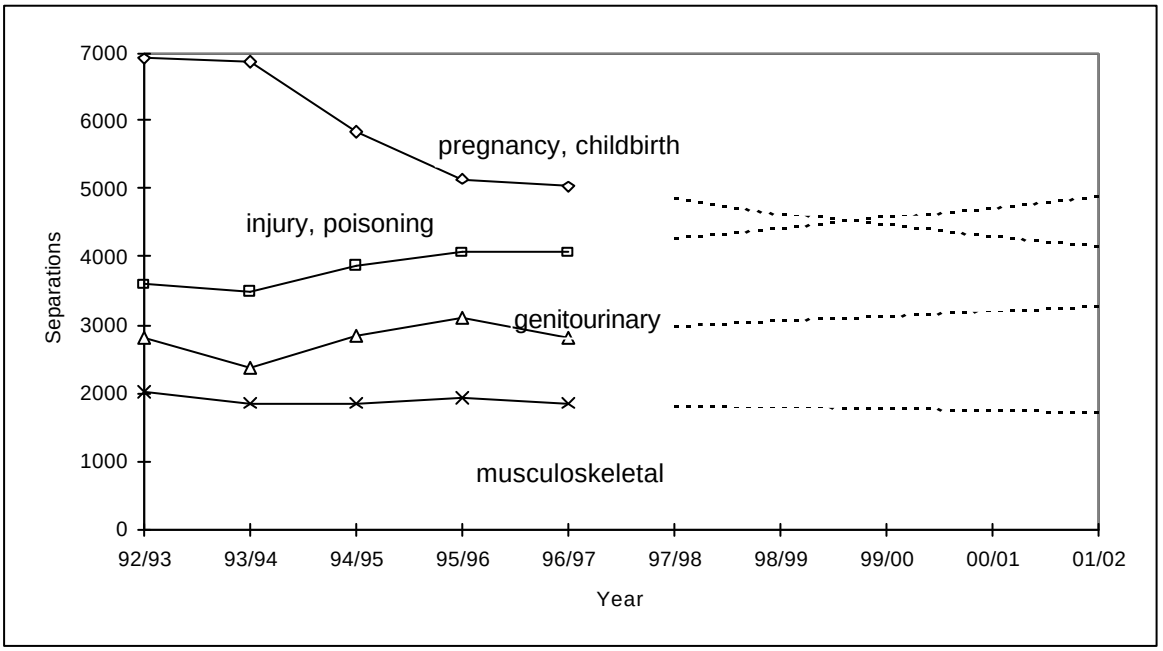
Public Hospital separations

Figure 16: ACT public hospital separations for selected principle diagnoses (grouped by ICD-9 chapter headings), by financial year 1992/93 to 1996/97, with projections to 2002



Source: ACT hospital Morbidity Data collection
Note: Linear trendlines fitted.

Figure 17: ACT public hospital separations for selected principle diagnoses (grouped by ICD-9 chapter headings), by financial year 1992/93 to 1996/97, with projections to 2002



Source: ACT hospital Morbidity Data collection
Note: Linear trendlines fitted except for "complications of pregnancy, childbirth and the puerperium", where logarithmic trendline was fitted.

ACT hospital separations data for public hospitals in the ACT show a number of recent trends. While there is a dramatic decline in separations in public hospitals for complications of pregnancy, childbirth and the puerperium, there is a corresponding increase for this category of separations in the private hospital system in the ACT (data not shown).

The number of public hospital separations where the principle diagnosis was cancer appear to be increasing at a substantial rate, along with separations for injury and poisoning. Separations for diseases of the circulatory system appear to be remaining relatively steady while the number of separations due to diseases of the respiratory and musculoskeletal systems appear to be declining slightly.

Details of information contained in this summary report can be found in Health Series publications listed on the next page.

References

[i] ABS, *Causes of Death Australia 1994,* Catalogue No. 3303.0

[ii] Gilbert C and Gordon C, *The Epidemiology of Injury in the ACT,* Epidemiology Unit, ACT Department of Health and Community Care, Canberra, February 1996

[iii] Commonwealth Department of Human Services and Health, *Better Health Outcomes for Australians: National Goals, Targets and Strategies for Better Health Outcomes into the next Century,* Canberra, 1994

[iv] Davis A G and George J E G, *States of Health: Health and Illness in Australia, 2nd edition*, Harper Educational Publishers, Sydney, 1993

[v] Australian Institute of Health & Welfare, 1998, *Australia's health 1998: sixth biennial health report of AIHW,* Canberra

[vi] Prescott, Osler, Hein et al *Life expectancy in Danish women and men related to smoking habits: smoking may affect women more* in Journal of Epidemiology and Community Health 1998, 52:132

[vii] Phung, Hai Results from the 1996 ACT Secondary Students' Survey ACT Health and Community Care 1998:15

[viii] Lindsay, Jo; Smith, Anthony and Rosenthal, Doreen *Secondary Students, HIV/AIDS and Sexual Health*, Centre for the Study of STDs 1997:9

[ix] Lindsay, Jo; Smith, Anthony and Rosenthal, Doreen *Secondary Students, HIV/AIDS and Sexual Health*, Centre for the Study of STDs 1997:9

[x] Phung, Hai *Results from the 1996 ACT Secondary Students' Survey* ACT Health and Community Care 1998: 41

[xi] Briscoe N (1996) Cancer in the ACT 1983-92. Epidemiology Unit, ACT Dept of Health & Community Care: Health Series No. 3, pp53, ACT Govt Printer, ACT

[xii] *ACT Population forecasts, 1998-2013*. Demographics ACT, ACT Department of Urban Services 1998.

[xiii] N.Briscoe, *Cancer in the Australian Capital Territory 1983-1992*, ACT Cancer Registry, ACT Department of Health and Community Care.

[xiv] *Australia's Health 1998: the sixth biennial health report of the Australian Institute of health and Welfare.* Canberra: AIHW.

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

Number 10: *Disability and Ageing in the ACT: An Epidemiological Review*
Carol Gilbert, April 1997

Number 11: *Mental Health in the ACT*
Ursula White, Carol Gilbert, May 1997

Number 12: *Aboriginal and Torres Strait Islander Health in the ACT*
Norma Briscoe, Josie McConnell, Michelle Petersen, July 1997

Number 13: *Health Indicators in the ACT: Measures of health status and health services in the ACT*
Carol Kee (Gilbert), George Johansen, Ursula White, Josie McConnell, January 1998

Number 14: *Health status of the ACT by statistical sub-divisions*
April 1998

Number 15 *Results from the 1996 ACT Secondary School Students' Survey*
Hai Phung, George Bodilsen, Allison Webb, Norma Briscoe, June 1998

Number 16 *Childhood Immunisation & Preventable Diseases in the ACT 1993-97*
Hai Phung, Michelle Petersen, June 1998

Number 17 *Health Related Quality of Life in the ACT 1994-97*
Hai Phung, Ursula White, Brian Egloff, June 1998

Number 18 *Maternal and Perinatal Status in the ACT*
Maureen Bourne, Carol Kee, September 1998

Number 19 *Health risk factors in the ACT*
Carol Kee, Michelle Petersen, Kate Rockpool, October 1998