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# I Introduction

The Chief Health Officer's Report provides information on health indicators and health service utilisation for people living in the ACT and surrounding region. Legislation under Section 10 of the *Public Health Act 1997* requires the Chief Health Officer to report biennially on the following matters: health risk behaviours; morbidity and mortality; notifiable conditions; potential public health risks; health promotion activities; harm minimisation activities; access and equity indicators relevant to health; social indicators relevant to health; health service performance against minimum standards of care; and intersectoral activities relevant to health. This report covers the two year period up to June 2000.

The data presented are predominantly sourced from mortality and hospital separation statistics. In the past mortality data would have provided the main measure of a population's health. However, in a developed society such as Australia, deaths have increasingly become concentrated into old age, and these deaths are inevitable. Nonetheless, deaths and death rates in a population can tell us much about the underlying state of health and are thus presented in this report when describing the impact of various diseases and injuries in the ACT.

Hospital utilisation data reflect the tertiary end of health care. This complex care is expensive but essential. The data is very accessible and is one of the predominant sources for statistics presented in this report.

Information from community surveys is presented where available. Such surveys are done relatively infrequently and therefore the data are not always as current. The surveys are also more qualitative in nature and examine self-perceptions. They are valid methods of sampling the community's health but cannot always be used for direct comparison between groups or across years.

There are several diseases and illnesses that are entirely cared for in the primary health care sector. At present we have very limited data available on this type of care. However, as General Practitioners (GPs) develop more capacity in their data collection tools, it is likely that we will be better able to profile primary care.

But even with all this information, it is clear that determining the health of a community is a difficult task. For a start, health must be defined. It is much more than just the absence of disease. The ACT has adopted the World Health Organisation definition: a state of physical, mental and social wellbeing. In this view, health refers to many aspects of life that are beyond the merely physiological.

Secondly, there are limits to the data available. Many conditions are not treated by hospitals or even GPs. They are either self-treated, dealt with outside the traditional medical system, or simply endured.

Finally, many of the factors affecting illness lie outside the realm of medical intervention. Some of these factors can be examined when monitoring the health status of a population. Examples are lifestyle choices, such as diet, exercise and smoking, which are discussed in this report. There are therefore many indicators of a population's health that are now being examined, as shown in Table 1.

Other factors, however, are rooted more fundamentally in society and lie beyond the realm of health authorities. Examples are socioeconomic status, and people's feeling of worth and fulfilment. The last Chief Health Officer's Report foreshadowed further work into the Social Determinants of Health in the ACT. Research over the last two decades has shown that health is determined and influenced by prerequisites such as food, shelter, income, access to health care and social services, education, socio-economic status, employment, social isolation, stress and a sense of control over one's circumstances. Factors such as public policy, culture, physical environment, genetic endowment and individual response also contribute to an individual's health. Recognition of these complex and multiple prerequisites is central for effective health care.

**Table I: Selected health indicators, ACT compared to Australia**

Indicator	Years	ACT	Australia	ACT compared with States and NT
<b>Health Status (units)</b>				
Male life expectancy at birth (years)	1999	77.9	76.2	Highest
Female life expectancy at birth (years)	1999	81.8	81.8	4th highest
Crude death rate (per 1,000)	1999	4.3	6.8	Lowest
Standardised death rate (per 1,000)	1999	5.4	5.9	Lowest
Infant mortality rate, 0-1 yr (per 1,000 live births to ACT residents)	1999	5.6	5.7	4th lowest
Perinatal mortality rate (stillbirths and Neonatal deaths combined for mothers residing in the ACT)	1999	11.7	8.5	2nd highest*
<b>Cause of death (standardised rate per 100,000 people)</b>				
Ischaemic heart disease	1999	103	122	Lowest
Cancer	1999	160	166	Lowest
Road accidents	1999	5	9	Lowest
Suicide	1999	14	13	3rd highest
<b>Risk factors</b>				
		%	%	
Male medium/high risk drinkers	1995	12.2	10.6	2nd highest
Female medium/high risk drinkers	1995	7.1	6.1	Highest
Current regular smokers	1998	20.3	20.1	3rd lowest
Male obesity	1995	6.5	5.7	2nd lowest
Female obesity	1995	7.5	8.2	2nd lowest

Source: ABS, Australian Social Trends 2001. Catalogue No. 4102.0

Note: \*A large proportion of these perinatal deaths are for babies less than 1,000 grams in birthweight. For further details see Chapter 9.

The groundbreaking 1998 World Health Organisation document, *The Solid Facts*, edited by Wilkinson and Marmot, is a call to public health professionals to address the social determinants of health. It was a recognition that health care must start at the beginning of life and not the end. The document indicates a need at all levels of government for policies that take proper account of the wider responsibility for creating opportunities for health. Based on decades of research, the editors put forward an argument that the greatest public health gains are to be made if a range of social determinants of health are addressed in public health measures.

The ten different but interrelated aspects of the social determinants of health discussed by Wilkinson and Marmot are:

1. The need for policies to prevent people from falling into long-term disadvantage;
2. How the social and psychological environment affects health;
3. The importance of ensuring a good environment in early childhood;
4. The impact of work on health;

5. The problems of unemployment and job insecurity;
6. The role of friendship and social cohesion;
7. The dangers of social exclusion;
8. The effects of alcohol and other drugs;
9. The need to ensure access to supplies of healthy food for everyone; and
10. The need for healthier transport systems.

There has been international recognition of the importance of this work and wide adoption of the social determinants of health as a framework for health promotion and effective health care. The difficulties in progressing this agenda lie in access to the necessary statistical data regarding each of the ten identified areas outlined above. At present there is no source of comprehensive information across all these areas in the ACT. Sufficient information is gathered in some categories, while in others there is scarce, incomplete or no information.

The collection of existing data and the commissioning of new data relevant to the social determinants of health are identified as an area of importance for public health. This data is vital for the development of a capacity to address more comprehensively the social determinants of health in the ACT and must be recognised as a longer-term goal at this time.

The data presented in this report show that overall the ACT enjoys excellent health in comparison to most other jurisdictions in Australia. This is evident in terms of various health risk factors, diseases and environmental health indicators. For instance, the ACT has a higher proportion of its population participating in sport and physical activity and also has fewer people that are overweight or obese. People in the ACT also enjoy high-quality drinking water and air. In addition, vaccination coverage in the ACT remains the highest in the country and the rate of vaccine-preventable diseases is correspondingly low. When looking at chronic diseases such as cardiovascular, cancer, diabetes and asthma, the ACT tends to have lower standardised mortality rates than the rest of the country.

One of the reasons the ACT enjoys relatively better health than the rest of the country is its greater affluence. In general, the ACT has one of the lowest unemployment rates, has the highest disposable income per head and one of the highest secondary school retention rates in the country. These factors coupled with good urban planning and a responsive health service delivery system lend favourably toward narrower health differentials within the population of the ACT.

However the ACT, like the rest of the country, has population groups that are vulnerable to health problems as a result of their socioeconomic status. For instance, the indigenous population in the ACT, though smaller in proportion than other parts of the country, tend to make up a disproportionately large number of the clients accessing health services in the ACT, especially those services relating to drug and alcohol problems. In addition it is estimated that less than 1% of the ACT's indigenous population is aged over 65 years compared to 7% in the non-indigenous population reflecting the lower life-expectancy for this population.

This report also highlights other areas of concern. For instance, although the ACT rates favourably on many health risk behaviours, the consumption of alcohol in the Territory is slightly higher in young people when compared to the whole of Australia.

The reader will also note that the ACT has a number of innovative health policies, program and promotion initiatives in place to improve the health of people in the ACT. For instance, amendments to the ACT's *Tobacco Act 1927* have resulted in the removal of in-store tobacco advertising and the imposition of strict limits on the display of tobacco products. The ACT has also been a pioneer in legislating smoke-free areas in public places and serves as an example to other States and Territories. The ACT also has a very low rate of unsafe disposal of needles and syringes due to its Needle and Syringe Programs. These are just a few of the many health initiatives detailed in this report.

The production of the Chief Health Officer's Report represents a coalition of effort across all areas of the ACT Department of Health and Community Care. In particular, I would like to thank Roger Beckman, Gary Hill-Steiner, Peter Luke, Cathy Baker, Olivia Phongkham, Maureen Bourne and Sally Rubenach for their consistent contributions to the analysis, coordination and editing of this report. I would also like to thank my predecessor, Dr Shirley Bowen, who was Chief Health Officer for the ACT during the two years covered by the report and was thus actually responsible for delivering many of the programs reported on and for their generally excellent outcomes.

This report, and the statistical collections it is drawn from provides the data for a rational and well considered approach to planning health services for the ACT, and for understanding the well being of our community. As a reader of this report, I wish you well in contributing to the understanding of our health and participating in discussion about how to improve it.



Assoc Prof Paul Dugale BMBS, MA, MPH, PhD, FAFPHM

## 2 ACT Profile

Slightly more than 310,000 people (about 1.6% of the Australian population) lived in the ACT in June 1999. The population is relatively young, and income, employment and education levels are higher than the national averages. Nearly all the Territory's people live in the suburbs of Canberra, with an increasing number of households in medium density housing closer to the five town centres (See Figure 1).

The Canberra district (including all suburbs) covers about 810 sq km. Most of the rest of the Territory is not inhabited and is reserved for nature conservation. The Canberra urban area therefore accounts for nearly all the Territory's population (99.9%).

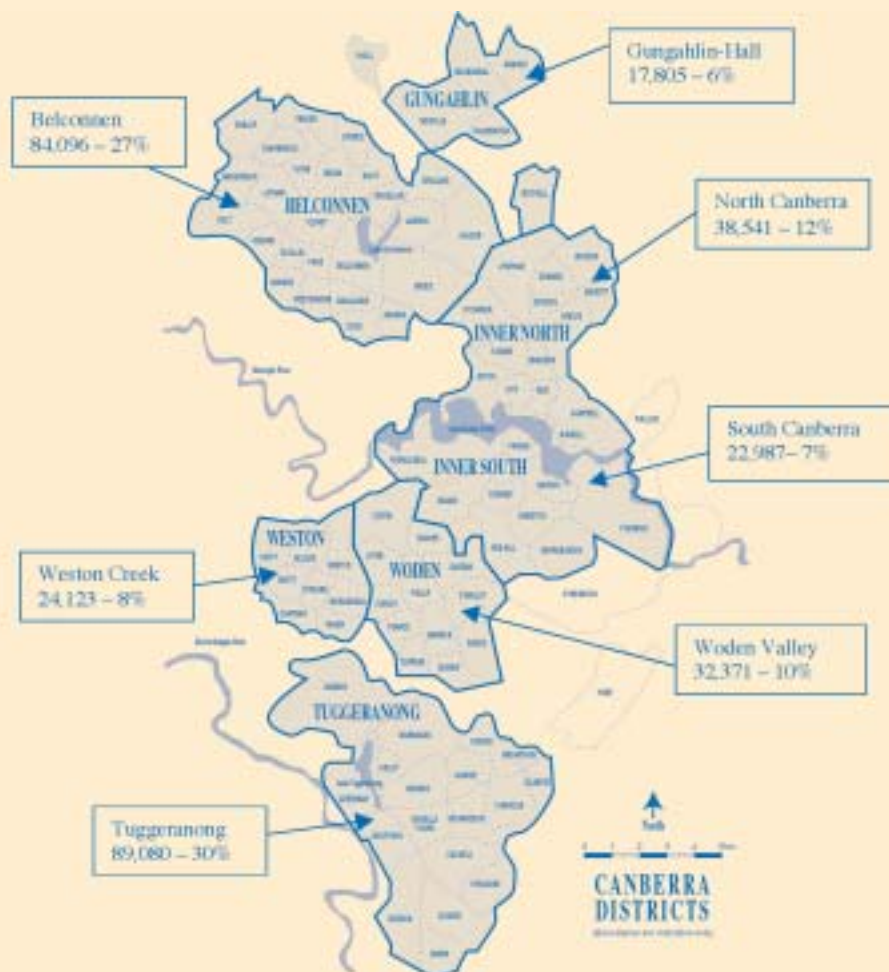
The health of a person or of an entire population can both be affected by age, sex, country of origin, socioeconomic status and racial group. The age and sex breakdown of the ACT population is discussed in Appendix A. The Australian Bureau of Statistics estimates that about 26% of the 1999 ACT population were born overseas.

There are differences in socioeconomic status, median age and other social indicators across the city, but these are not considered to be as great as in the larger, older capitals.

Further detail of the demography of the ACT is provided in Appendix A.

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**Figure 1: Map of Canberra showing distribution of the population, June 1998**



Source: ABS, Regional Statistics ACT 2000. Catalogue No. 1362.8

## 2.1 ABORIGINAL AND TORRES STRAIT ISLANDER POPULATION

There were an estimated 3,058 people identifying themselves as Aboriginal or Torres Strait Islanders in the ACT in the census of 1996. This was a little less than 1% of the Territory's total population. The growth rate of the indigenous population recently has been much higher than that of the ACT as a whole. This is partly because of interstate immigration and higher fertility rates, but also because of a growing willingness of people to identify themselves as indigenous Australians.

The Aboriginal and Torres Strait Islander population of the ACT has a younger age profile than the non-indigenous population, reflecting its higher fertility rates and lower life expectancy. The age profile of the ACT indigenous population is comparable to the Australian indigenous population age profile. For example, in 1996 more than 38% of indigenous people in the ACT were less than 15 years old, compared with only 23% of the total ACT population. Census figures from 1996 indicate that only 0.75% of the indigenous population was aged 65 years or over, compared with 7% of the non-indigenous population.

The health status of indigenous peoples in the ACT and region is lower than that of non-indigenous people, as is the trend across Australia. It is well documented that Aboriginal citizens have not shared in much of the improved health that has occurred for other Australians. The draft *National and Aboriginal and Torres Strait Islander Health Strategy* prepared by the National Aboriginal and Torres Strait Islander Health Council suggests that improving health outcomes for indigenous people requires 'concerted action both within and beyond the health sector to address the underlying causes of health problems'.

The major gaps in health status between indigenous and non-indigenous people in the ACT region occur in the following areas:

- Injury
- Alcohol, tobacco and other drugs
- Diabetes Mellitus
- Cardiovascular and circulatory diseases
- Mental and spiritual health
- Trauma and poisoning

Health status inequities for indigenous peoples also exist in other areas - for example, women's and children's health, violence and risk-taking behaviour causing injury, and preventable diseases, including sexual health, Hepatitis C, HIV, pneumonia, influenza and diseases prevented by childhood immunisation.

The data available on indigenous health status and health service utilisation in the ACT has significant limitations. This is because of under-identification and the relatively small numbers of indigenous people in the ACT for statistical purposes. Further details on indigenous health are given throughout this Report.

## 2.2 ACT SOCIOECONOMIC INDICATORS

In general, the ACT ranks above the national average in most indicators of socioeconomic status. Table 2 presents key socioeconomic factors associated with health status, and compares the ACT with national figures. The ACT accounts for about 1.6% of Australia's population; therefore any figures in the right-hand column different from this indicate particularities of the Territory's situation.

It can be seen that average weekly earnings for both males and females in the August quarter of 1999 were significantly higher than the Australian average. However, average figures may obscure the fact that pockets of disadvantage exist in the Territory.

Levels of education and attendance at educational institutions in the ACT are also higher than the national averages.

## 2 ACT Profile

**Table 2: Selected socioeconomic indicators, ACT compared to Australia**

	Unit	Reference period	ACT	Australia	ACT as % of Australia
<b>Income support:</b>					
Age pensioners	'000	30-Jun-1999	14.3	1716.0	0.8
Disability support pensioners	'000	30-Jun-1999	5.5	578.0	1.0
Parenting payment – single	'000	30-Jun-1999	5.2	385.0	1.4
Family allowance	'000	30-Jun-1999	25.1	1761.0	1.4
<b>Education: School enrolment:</b>					
Government schools	'000	1999	38.8	2248.0	1.7
Non-government schools	'000	1999	21.7	979.0	2.2
Technical and further education	'000	May-1998	18.5	1535.0	1.2
Higher education	'000	1999	20.5	686.3	3.0
Health: Doctors	Per 100,000	1996	259.0	241.0	-
<b>Average weekly earnings</b>					
Males	\$	Aug. Qtr. 1999	808.0	734.0	-
Females	\$	Aug. Qtr. 1999	574.0	482.0	-

Source: ABS, ACT in Focus 2000. Catalogue No. 1307.8



### At a Glance

- The ACT population performs well on most general health indicators, as would be expected given its higher than average socio-economic and education levels, and its younger age structure.
- The ACT has a higher proportion of its population participating in sport and physical activity than the national average.
- The use of alcohol is slightly higher in young people when compared to the rest of Australia.
- General substance use in the ACT is similar to the rest of the country except for heroin, where the rate of use in the ACT is much lower.
- According to 1998 figures, the proportion of regular, current smokers in the ACT is 20.3%, which is about the same as in the rest of Australia.
- The National Health Survey of 1995 indicated that at that time the ACT had the highest proportion of children younger than 3 years who had been breastfed.
- Along with the rest of the country, the proportion of people considered obese in the ACT has increased in recent years.
- There has been a slight decrease in hospital admissions for malignant melanoma (skin cancer).

### 3.1 HOW DO LIFESTYLE BEHAVIOURS AFFECT HEALTH?

In Australia, as in most developed countries, a person's lifestyle – and the choices made about certain behaviours - can be one of the most important factors influencing the likelihood of ill-health and premature death. For example, diet and levels of physical activity can affect the occurrence of cardiovascular disease and of some cancers. Smoking and over-consumption of alcohol are known to be bad for many aspects of health. Having unprotected sex with many partners, or sharing needles and syringes, carries the risk of acquiring an infectious disease. Regularly exposing unprotected skin to the sun's radiation is a risk factor for skin cancer, especially in fair-skinned people.

On the positive side, breast-feeding promotes better health in infants, as does a good diet and regular physical activity in people of any age. Regular screening can help to reduce illness and deaths from cancers. (Data about screening are presented in the section on Cancer.)

This section of the Report not only discusses lifestyle and health, but also presents information on the use of tobacco, alcohol and illicit drugs, and their health consequences. We also discuss some of the services and initiatives that are available to help combat these and other problems.

Most people are affected at some stage in their life by discomfort or major illness related to lifestyle factors. We all can control some aspects of our lifestyle. Unfortunately, other aspects may remain beyond our control, either because of lack of knowledge, lack of money, lack of social support, or through the influence of mental disorders and addiction. Health is not merely the absence of disease; some lifestyle choices and behaviour not only reduce the likelihood of ill-health but actually improve vitality and well-being.



## 3 Lifestyle Behaviours

As infectious diseases are being brought under greater control, the lifestyle-related diseases are becoming increasingly important as major causes of death and sickness in developed communities like Canberra. Health-related behaviours can play a big part in causing such widespread problems as circulatory diseases, some respiratory conditions and some cancers. Some behaviours protect against disease – either delaying its onset or lessening its effects. Examples are good nutrition, physical activities suited to an individual's age and capability, and avoiding too much exposure to the sun. Behaviours that bring about sickness include (among others) smoking, excessive alcohol consumption, and the use of mind-altering, addictive or toxic substances.

### 3.2 DATA AND TRENDS

#### 3.2.1 PHYSICAL ACTIVITY

Regular aerobic exercise helps maintain good health and a sense of wellbeing. It is an important preventative measure that is a lifestyle choice. Results from an Australian Bureau of Statistics survey estimating physical activity in adults are shown below (Table 3). However, this survey only measured participation in organised sport and physical activity, which excludes many other useful forms of exercise. Canberra's nature paths, cycle paths and good weather support such informal physical activity.

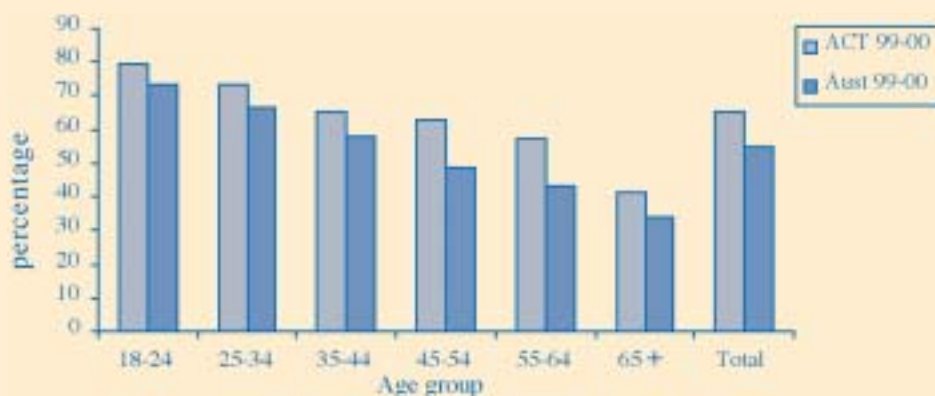
**Table 3: Percentage of people aged 18 years and over who participated in organised sport or physical activities\*, by sex, ACT and Australia**

	1996-97		1997-98		1998-99		1999-00	
	ACT	Aust	ACT	Aust	ACT	Aust	ACT	Aust
Males	37.8	29.7	39.9	31.4	39.2	34.2	37.7	33.3
Females	26.7	23.3	32	25.3	33.7	26.4	29.5	24.6
<b>Total</b>	<b>32.0</b>	<b>26.5</b>	<b>35.8</b>	<b>28.3</b>	<b>36.3</b>	<b>30.3</b>	<b>33.5</b>	<b>28.9</b>

Source: ABS Participation in sport and physical activities 1999-00. Catalogue No. 4177.0

Note: \* Those sport and physical activities which were organised by a club or association.

**Figure 2: Participant rate in sport and physical activities by age, ACT and Australia 1999-00**



Source: ABS Participation in sport and physical activities-States and Territories. Catalogue No. 4177.0

Note: Relates to people 18 years and over who participated in organised and non-organised sport or physical activity over a 12-month period prior to interview. Participants are defined as those physically active in the sport excluding coaches, umpires, instructors and committee members.

## 3 Lifestyle Behaviours

In general, the ACT had a higher proportion of its population participating in sport and physical activity than the national average, although participation declined both nationally and in the Territory from 1998-99 to 1999-00. Figure 2 includes 'non-organised' sport or physical activity, and the proportion of people participating is correspondingly higher. Again, the rate in the ACT is higher than the national average for all age groups.

### 3.2.2 SUBSTANCE USE

Some form of licit and illicit substance use occurs in most societies. However, there can be many health and social problems associated with problematic substance use, harming the community as well as the individual. For example, excessive alcohol consumption carries with it a greater likelihood of domestic violence, assault and motor vehicle accidents.

The phrase 'harm minimisation' has been coined to describe what is now a key element in addressing problems related to drug use in the community. Harm minimisation refers to policies and programs aimed at reducing drug-related harm. The ACT Drug Strategy 1999 states that harm minimisation "aims to improve health, social and economic outcomes for both the community and the individual and encompasses a wide range of approaches, including supply reduction, demand reduction and harm reduction strategies."

Problematic substance use affects individuals from all sections of the community. However, some groups tend to experience specific types of issues associated with problematic substance use at a greater rate than the general community. For example, illicit drug use and its associated difficulties tend to be more frequent among younger people, while people with a mental illness are more likely to be harmed by problematic substance use. In turn, some forms of long-term problematic substance use can be a factor in mental illness.

As well as its high human costs, problematic substance use and its associated issues are a great financial cost for the community – although one that is not easy to quantify.

The total cost of dealing with the problems associated with the use of legal drugs is estimated to be far greater than that associated with illicit drugs. Table 4 gives an indication of the relative community costs associated with drug use across Australia in 1992.

**Table 4: Comparative community cost of addressing problematic drug use, Australia, 1992**

	\$	%
Alcohol	4,494.5	23.8
Tobacco	12,736.2	67.3
Illicit drugs	1,683.6	8.9

Source: The social costs of drug abuse in Australia in 1988 and 1992, p.43

Note: Cost (\$) are in millions of 1992 Australian dollars.

### Alcohol

Ethyl alcohol (ethanol) is probably the most widely used drug in our society. The drug affects the central nervous system, depressing brain function. Small doses produce mild euphoria and reduce tension, but increasing doses cause inebriation, loss of judgement and coordination, and vomiting; still higher doses cause anaesthesia, narcosis, coma and, ultimately, respiratory failure and death. The effects of chronic (i.e., long-term) heavy alcohol consumption include physical dependence, malnutrition, neurological defects, and diseases of the heart, liver, pancreas, kidneys and digestive system. Withdrawal from alcohol dependence can be very hazardous with many secondary complications.

The National Drug Strategy Household Survey 1998 found that 98% of ACT residents older than 14, and 95% of all Australians older than 14 have consumed alcohol at some stage in their lives. As Table 5 indicates, ACT residents tend to consume alcohol more regularly than the Australian population in general.

Heavy alcohol consumption is associated with acute conditions such as stroke, injury and road accidents, as well as chronic conditions such as liver disease, high blood pressure and heart disease.

## 3 Lifestyle Behaviours

In the ACT, as in Australia more generally, acute alcohol-related health problems are more prevalent in younger people while chronic alcohol-related health problems are more prevalent amongst older people. This correlates with the greater prevalence of 'binge drinking' (episodes of very heavy drinking) found in late adolescent and early adult groups. However, problematic alcohol use tends to decrease after adolescence and young adulthood apart from a relatively small core of heavy drinkers. Table 6 shows the way in which rates of hazardous alcohol consumption change across different age groups in both the ACT and Australia.

**Table 5: Alcohol use (a) in the ACT and Australia, 1998**

	ACT	Australia
Never had a full glass of alcohol	4.6	9.4
Past drinker	5.8	10.1
Current occasional drinker(b)	32.6	31.9
Current regular drinker(c)	57.0	48.6
<b>Total</b>	<b>100.0</b>	<b>100.0</b>

Source: National Drug Strategy Household Survey, 1998

Notes: (a) Persons aged 14 years or over.

(b) Occasional = drinks alcohol less often than one day per week.

(c) Regular = drinks alcohol on at least one day per week.

Problem drinking in 14-19 year olds in the ACT is higher than the national average for, but the ACT's rate is considerably lower in the 20-29 year age group.

**Table 6: Percent of the population aged over 14 years reporting hazardous alcohol use by age in the ACT and Australia, 1998**

Age group	14-19		20-29		30-39		> 40	
	ACT	Aust	ACT	Aust	ACT	Aust	ACT	Aust
Conservative	6.0	4.8	3.3	8.4	7.1	4.6	5.9	5.2

Source: National Drug Strategy Household Survey, 1998

Note: This table presents self-reported drinking patterns according to NHMRC criteria. Analysis is based on a two-part survey that interrogates drinking frequency and quantity. Figures are based on a conservative interpretation of survey responses.

### Alcohol related incidents

While alcohol is directly toxic, even in moderate doses, many of the greatest harms associated with its use are indirect, and stem from alcohol-related incidents such as violence or accidents. A driver with the maximum legal blood alcohol concentration of 0.05% is six times more likely to be involved in a motor vehicle incident than a driver with no blood alcohol.

Fortunately, in the ACT, there has been a consistent falling trend in the proportion of people breath-tested and subsequently charged with alcohol-related driving offences. This trend is illustrated in Table 7.

**Table 7: Proportion of persons subject to random breath test subsequently charged with alcohol related driving offence, ACT, 1996-97 to 1999-00**

	%
1996-97	0.72
1997-98	0.66
1998-99	0.61
1999-00	0.34

Source: State of the Territories Report, 2000

### Indigenous issues

A recent study by the National Centre for Epidemiology and Population Health<sup>2</sup> into the extent of drug and alcohol use in the ACT indigenous community has indicated that indigenous people made up a disproportionately large number of clients accessing services in the ACT for drug and alcohol problems.

## 3 Lifestyle Behaviours

While the use of alcohol in the indigenous population is lower than in the general community, the proportion of indigenous people who drink at harmful levels is over five times higher (68% compared with 13% of all alcohol consumers). The proportion of deaths related to alcohol use is three to five times higher in the ACT's indigenous community than in the community as a whole. Such problematic alcohol use is a major concern because, as well as its direct damage to the body, it is also linked to high rates of domestic violence, assault and accidents.

To better understand this problem all Government and non-Government drug and alcohol service providers are now required to record the indigenous status of clients as part of their contracts. This is a requirement of the alcohol and drug National Minimum Data Set.

The ACT Government has recently funded a range of new services aimed at increasing the access of indigenous clients to mainstream drug and alcohol services as well as provision of specific indigenous services.

### Tobacco

Tobacco smoking is a major cause of illness and death worldwide, causing the deaths of an estimated 3.5 million people each year. Ignoring caffeine (in tea and coffee), tobacco would rank as the second most widely consumed drug in Australia. About 78% of ACT residents have tried the substance.

Tobacco smoking is the leading cause of death and disease in Australia; it is estimated to kill about 19,000 Australians each year. A causal relationship has been found between tobacco smoking and more than thirty medical conditions, including cancers, heart disease, strokes, and chronic lung and bronchial disease. Recent findings have also indicated that smoking is associated with an increased risk of eye diseases and depression, and can be bad for sexual health in both males and females.

Tobacco causes more sickness than any other drug in Australia and is the factor responsible for the greatest burden of disease in Australia. Many of the diseases associated with smoking are chronic

and disabling, placing a large burden on the community. Australia-wide, hospitals treat more than 140,000 smoking-related cases each year.

Exposure to tobacco smoke from others' cigarettes – called passive smoking - is known to contribute to health problems, particularly in young children, where it is implicated in asthma, lower respiratory tract infections and otitis media. Damageing effects in adults include an increased risk of lung cancer, heart disease and age-related vision loss. If a pregnant woman smokes, this can harm the development of her unborn baby.

The harmful effects of passive smoking are associated with both short-term and long-term exposure, and health authorities now recommend that a smoke-free environment is the only way to provide effective protection against the risk of passive smoking-related diseases and conditions.

The annual economic costs of tobacco use in Australia (excluding passive smoking) have been estimated at more than \$12.6 billion. On a per head of population basis, this would mean that the annual cost to the ACT of tobacco use comes to about \$20,000,000 a year.

The proportion of regular, current smokers in the ACT (20.3%) is about the same as in the rest of Australia, according to 1998 figures (Table 8). However, the ACT has a larger percentage of ex-smokers than the national figure.

**Table 8: Tobacco use for persons in the ACT and Australia, 1998**

	ACT	Australia
Tobacco use	%	%
Never	29.5	32.4
Ex-Smoker	36.4	34.0
Current Occasional Smoker	3.7	3.9
Current Regular Smoker	20.3	20.1
Don't know/Not Stated	10.1	9.6
<b>Total</b>	<b>100.0</b>	<b>100.0</b>

Source: National Drug Strategy Household Survey, 1998

## 3 Lifestyle Behaviours

The ACT's comprehensive approach to tobacco control includes initiatives aimed at reducing demand, controlling supply and reducing exposure to environmental tobacco smoke. These initiatives take the form of legislation, health education and health promotion, support for smoking cessation and strong participation in tobacco control initiatives at the Commonwealth level. Canberra's leadership in making restaurants smoke free is being followed in a number of other states around Australia.

### Illicit drugs

In the ACT, 51.5% of all people aged 14 and older admit to having used an illicit drug at least once, with cannabis being the most common. This figure also includes the non-medicinal use of pharmaceutical medicines. The percentage is significantly higher than the Australian average of 46.4%. Table 9 illustrates the difference between the ACT and the rest of Australia on this matter.

**Table 9: Proportion of people(a) reporting use of any illicit drug(b) in the ACT and Australia, 1998**

	ACT	Australia
Ever used any illicit drug	51.5	46.4
Never used any illicit drug	48.5	53.6
<b>Total</b>	<b>100.0</b>	<b>100.0</b>

Source: National Drug Strategy Household Survey, 1998

Note: (a) Persons aged 14 years and over

(b) Includes marijuana and non-medicinal use of pharmaceuticals

The rate of illicit drug use in the last 12 months (defined as 'recent use') is substantially lower than the rate for 'at least once in a lifetime' use. Table 10 compares the proportion of 'ever tried' to that of 'recent use' for some commonly available illicit drugs in the ACT and the rest of Australia. In general, for most drugs, a greater proportion of the ACT population has tried the substance than is the case for the national figure. This is probably due to the younger age structure of the ACT's population. However, with the exception of alcohol and cannabis, the percentage of recent users for most drugs is lower in the ACT than in the rest of Australia.

### Drug use trends

The Health Protection Service of the ACT Department of Health and Community Care provides laboratory services to analyse illicit drugs for the Australian Federal Police and other law enforcement organisations. The number of illicit drug samples from the ACT received in the July 1998 to June 2000 period was slightly lower than previously. This was due to a fall in the number of cannabis samples. Despite an increase in the number of heroin samples received, there was a decline in the proportion of samples that contained heroin, from 19.7% to 16.7% of total samples. Amphetamine-type samples increased from 7.8% to 12.9%.

During the July 1998 to June 2000 period, the following trends were observed with illicit drug samples:

- The number of non-cannabis samples continued to increase.
- The number of heroin samples continued to increase, although there was a trough in the second half of 1999.
- There was a marked and ongoing decrease in the purity of heroin since the second half of 1999.
- There was a marked increase in the purity of methamphetamine, starting in the first half of 1998, and in the number of amphetamine-type samples in the January to June 2000 period.
- The number of dosage preparations containing amphetamine-type drugs or LSD has increased.

The Australian Bureau of Criminal Intelligence (ABCI) reported in its *1998-99 Australian Illicit Drug Report*<sup>3</sup> that three years of drought in the golden triangle region had greatly reduced the production of opium. This may be the reason for the reduction in the purity of the heroin seized in the ACT after the second half of 1999.

In its *1999-00 Australian Illicit Drug Report*<sup>4</sup> the ABCI reported that the use of amphetamine-type substances continues to grow and that these are now the second most frequently used illicit drugs (after cannabis) in Australia. There is no reason for the ACT not to follow this trend, and indeed the ACT data does show some evidence of this.

## 3 Lifestyle Behaviours

**Table 10: Percentage of people reporting 'ever tried' drug use and recent drug use for specific substances in the ACT and Australia, 1998, by rate of recent use in the ACT**

Pattern of use	ACT		Australia	
	Tried	Recent use	Tried	Recent use
Alcohol (a)	95.4	89.6	90.6	80.6
Tobacco (b)	69.0	26.5	66.2	26.6
Cannabis	46.1	20.3	39.1	17.9
Analgesics (c)	10.0	5.0	11.5	5.2
Amphetamines (c)	8.9	3.1	8.8	3.7
Hallucinogens	11.3	2.8	9.9	3.0
Ecstasy	5.6	2.8	4.8	2.4
Tranquillisers (c)	7.5	2.5	6.2	3.0
Cocaine	5.0	1.2	4.3	1.4
Inhalants/Solvents	4.1	0.9	3.9	0.9
Heroin	1.8	0.4(e)	2.2	0.8
Barbiturates (c)	2.1	0.3(e)	1.6	0.3
Methadone (c)(d)	0.9	0.1(e)	0.5	0.2
Steroids (c)	1.0	-(e)	0.8	0.2

Source: National Drug Strategy Household Survey, 1998

Note: (a) includes both regular and occasional drinkers, (b) includes both regular and occasional smokers, (c) for non-medical purposes (d) for non-maintenance purposes (e) sampling error greater than 50%

It should be noted that the relative number of amphetamine and heroin samples is not a good indicator of relative levels of use. Heroin addiction attracts more police attention due to associated criminal activities to fund the habit.

The National Drug and Alcohol Research Centre in its Technical Report No. 101<sup>5</sup> reported that some States had seen an increase in purity of methamphetamine in the 1999-00 period. The report also found that the use of ecstasy and other party drugs had increased. These trends have been observed in the ACT data.

### Cannabis

Cannabis is a term used to describe substances like the dried flowers and leaves of the *Cannabis sativa* plant. This dried material is also called marijuana. A refined paste made from the plant may also be used; this is hashish. Both these substances contain the psychotropic ingredient tetrahydrocannabinol (THC).

Low levels of intoxication with THC usually produce mild euphoria, heightened sensory awareness, a generally relaxed feeling of well-being, sleepiness, and some alteration of time perception.

At moderate doses, symptoms of intoxication may include short-term memory impairment, inability to accomplish tasks requiring multiple mental steps, depersonalisation, lapses of attention, and decreased social inhibition. Mood alterations - including laughing episodes, depression, and withdrawn behaviour - may also occur. At high levels of intoxication people may experience decreased motor coordination, muscle strength and hand steadiness.

Long term, heavy use of cannabis is associated with a mild withdrawal syndrome which is usually much less severe than that found with other types of drugs. Symptoms of abrupt cessation of chronic heavy use can include agitation, apprehension and aggressiveness, as well as tremulousness and insomnia.



## 3 Lifestyle Behaviours

While cannabis may be eaten or infused, the main method of use is smoking, often in combination with tobacco. Accordingly, chronic heavy use of cannabis may lead to the type of bronchial diseases and malignancies that are associated with other drugs that are smoked. There is also a strong correlation between regular use of cannabis and the diagnosis of some mental health problems such as depression, anxiety and schizophrenia, although the significance of this correlation remains unclear.

The rate of 'ever tried' cannabis use in the ACT (46.1%) is significantly higher than the national average (39.1%). Rates of at least once in a lifetime use are higher in the ACT in both genders and in all age groups. In the ACT the rate of recent use is also higher than the national average (ACT 20.3%, Australia 17.9%) although not by as large a margin. About 1 in 5 ACT residents aged 14 years or more report having used cannabis recently and this is comparable with the Australian population generally.

Recent cannabis use in the ACT is substantially more prevalent in younger people and is more popular among males than females. For example, 36.1% of persons aged between 20-29 years reported recent cannabis use (64.7% ever tried), as compared to only 7.5% (29.5% ever tried) of persons aged over 40 years.

The possession and self-administration of small amounts of cannabis are decriminalised offences in the ACT. Police officers have the discretion to issue an offender with a Simple Cannabis Offence Notice [SCON]. In the ACT in 1998, 185 SCONs were issued. Interestingly, research conducted by the ACT Department of Health and Community Care indicates that health concerns associated with the use of cannabis are a greater factor in determining a person's cannabis use (17%) than is the legal status of cannabis (12%).

### Amphetamines

Amphetamines (also known as 'speed') are a group of drugs that stimulate parts of the nervous system. Acute symptoms include increased heart beat and blood pressure, agitation, paranoia, delusions and hyperactivity. More regular use can cause severe weight loss and obsessive teeth grinding (causing

dental problems), and may also lead eventually to permanent psychiatric illness, malnutrition and possible heart failure. There is substantial dependency associated with all forms of amphetamine.

About 8.9% of people in the ACT admit to having tried the drug, about the same as the national average (8.8%). The rate of recent use (the last 12 months) in the ACT is 3.1%, which is slightly lower than the 3.7% recorded for Australia. As with cannabis, amphetamine users are relatively young.

In recent years amphetamines have become more accessible through higher quantities and lower prices. There has also been an increase in the purity of the street drugs, and a greater proportion of the market devoted to methamphetamine, along with a growing incidence of injecting behaviour among users.

### Heroin and other opioids

Heroin is usually found as a white to brownish powder derived from the sap of the opium poppy *Papaver somniferum*. Heroin is structurally related to all the naturally occurring opioids such as opium, as well as the range of synthetic opioid drugs such as pethidine or methadone.

Heroin is a painkiller that depresses the central nervous system. Opioid intoxication involves symptoms such as a lowered level of consciousness, constricted pupils and cardiorespiratory depression. This last aspect of opioid intoxication presents the dangerous possibility of death during overdose by cardiorespiratory failure.

The rate of lifetime heroin use in the ACT is significantly lower than the national average, and lower than the other major states with comparable urban populations and economies such as NSW and Victoria.

## 3 Lifestyle Behaviours

**Table 11: Mean daily food intake (grams) for persons aged 19 and over: Major food groups, by sex, ACT and Australia**

Major food Groups	ACT Females	Aust. Males	ACT Females	Aust. Males
Cereals and cereal-based products				
Cereals and cereal products	225.8	181.2	290.1	250.2
Cereal-based products and dishes	108.0	100.1	115.1	154.1
Fruit products and dishes	140.1	145.7	134.5	141.3
Vegetables and legumes				
Vegetable products and dishes	222.9	234.9	284.3	283.4
Legume and pulse products and dishes	10.2	7.5	14.0	12.2
Milk products and dishes	255.6	257.7	360.4	321.9
Meat, poultry and game products and dishes	144.5	116.1	224.0	199.9
Fish and seafood products and dishes	25.3	22.6	28.2	28.9
Egg products and dishes	9.3	11.2	9.2	16.3
Snack foods, sugar and confectionery				
Snack foods	4.3	3.2	3.6	3.8
Sugar products and dishes	13.9	15.1	25.8	23.3
Confectionery	12.7	8.5	13.0	9.1
Other foods				
Seed and nut products and dishes	4.4	3.6	5.0	5.1
Fats and oils	9.1	9.7	13.3	14.8
Soups	66.3	57.9	71.4	51.5
Savoury sauces and condiments	25.6	25.5	34.1	33.0
Beverages				
Non-alcoholic beverages(a)	1823.6	1916.7	1919.2	2052.3
Alcoholic beverages (b)	120.1	102.2	359.8	410.1
<b>Total (c)</b>	<b>3224.2</b>	<b>3221.1</b>	<b>3907.0</b>	<b>4013.7</b>
<b>Total persons ('000)</b>	<b>92.1</b>	<b>6703.6</b>	<b>108.9</b>	<b>6501.6</b>

Source: ABS National Nutrition Survey (1995). Catalogue No. 4802.0

Note: (a) Includes plain drinking water.

(b) Includes all alcoholic beverages containing alcohol and does not indicate the amount of pure alcohol consumed.

(c) Total includes infant formulae and food, special dietary foods and miscellaneous foods.

### 3.2.3 NUTRITION

Diet has been linked to a range of health problems. Over the long term, poor diet plays a part in causing coronary heart disease, stroke, adult-onset (or non-insulin dependent) diabetes, some cancers, and problems of the digestive system.

The National Health and Medical Research Council (NHMRC) recommends that diets should include plenty of fruit, vegetables and complex carbohydrates. But surveys have shown that many Australians have a diet that is far from ideal. There are significant differences in diet between males and females (see Table 11), and across socio-economic groups.



## 3 Lifestyle Behaviours

**Table 12: Percentage of children (0-3 years), whether ever breastfed and time breastfed, ACT and Australia, 1995**

	ACT	Australia
Currently being breastfed	14.9	14.0
Previously been breastfed, period of breast feeding		
1 week to less than 1 month	5.5	7.1
1 month to less than 3 months	14.8	13.2
3 months to less than 6 months	13.8	15.3
6 months to less than 9 months	14.2	12.1
9 months to less than 1 year	10.0	8.7
1 year or more	16.8	12.9
Total previously breastfed	78.4	72.2
<b>Total breastfed</b>	<b>93.2</b>	<b>86.2</b>
Never breastfed	6.8	13.8

Source: ABS National Health Survey (1995) Summary Results: Australian States and Territories. Catalogue No. 4368.0

An early form of good nutrition is human breast milk. The NHMRC encourages the promotion of breastfeeding because of its known nutritional and other benefits for infants. The National Health Survey of 1995 indicated that at that time the ACT had the highest proportion of children younger than 3 years who had been breastfed (see Table 12).

Local hospitals, ACT Community Care, the Queen Elizabeth II Family Centre and the Nursing Mothers Association of Australia all provide general information and practical advice on breastfeeding.

### Body mass

Incorrect diet, often combined with inadequate physical activity, can lead to undesirable weight gain. The body mass index (BMI) provides a theoretical indication of whether an individual is overweight. BMI is calculated by dividing a person's weight by the square of their height in metres. Normal weight is considered to be in the range of 20-25 BMI. 'Overweight' is defined as having a body mass index (BMI) in the range of 25-30. Obesity is indicated by a BMI of more than 30<sup>6</sup>.

Obesity and being overweight are both associated with a range of health problems, such as heart disease, high blood pressure, adult-onset diabetes, gallstones, degenerative joint problems and sleep apnoea. Obesity is therefore a cost for the community, which has been estimated for Australia at \$840 million per year - of which 63% were direct costs within the health system.

Just over 7% of ACT females are considered obese, compared to 8% of all Australian females. However slightly more ACT men are considered obese (7%), when compared with men in Australia (6%).

Being underweight is also a health concern. It is defined as having a BMI of less than 20. This is more common in females than in males.

### Eating disorders

Poor dietary habits, certain psychological problems such as low self-esteem, and a lack of understanding of sensible body weight and shape can lead to serious eating disorders. Two major eating disorders are anorexia nervosa and bulimia.

There are currently several treatment services available for these disorders in the ACT. The main service provided by the public health care system is the Throsby Place Eating Disorders Program, funded by the ACT Department of Health and Community Care and provided by the Department of Psychological Medicine at The Canberra Hospital, the Calvary Hospital and ACT Community Care. The program incorporates three services: an outpatient treatment service; a part day program and a bulimia therapy group. The service is free and referrals are made by health professionals, clients and client families.

Hysen Green at the Calvary Private Hospital is a private service providing treatment for anorexia nervosa and bulimia in the ACT. Other private services in Canberra include only individual private therapists. Interstate eating disorder units are also utilised where necessary and include Wesley Eating Disorder Program and the Northside Clinic in Sydney.

There has been limited research conducted in regard to the prevalence or treatment options for eating disorders in Australia and overseas. Service utilisation data for the ACT for 1998-99 included 78 people with eating disorders. Between the periods 1993-94 and 1999-00, there were 90 hospital separations with a primary diagnosis of anorexia nervosa. In this same period there were 10 separations relating to a primary diagnosis of bulimia. For both these conditions, it is mainly females who are admitted to hospital. Eating disorders are difficult to treat and remain a significant problem for the young people affected.

### 3.2.4 MELANOMA AND SUN PROTECTION

Australia has one of the highest rates of skin cancer in the world. The ultra-violet component of the sun's radiation is considered to be the main cause of this, as well as being responsible for certain cataracts and other eye conditions.

While the incidence of many preventable cancers is declining, skin cancer – much of which is also preventable – is increasing in Australia. Melanoma of the skin is far more prevalent in Australia than in

any other country and its incidence is increasing at 4-6% per year. For those living in Australia all their lives, the first 15 years in the country contributes roughly two-thirds of their life-time risk of melanoma. It is therefore particularly important that young people are protected from excess sun exposure.

Owing to its long hours of sunshine, altitude, and relatively clean air, the ACT is exposed to considerable amounts of solar radiation.

Figure 3 below shows the numbers of ACT residents leaving ACT hospitals who received treatment for melanomas (skin cancer). Males generally outnumber females. There was also a general increase in hospitalisations for melanomas, over the time period. This is to be expected given the association between an ageing population and an increase in the incidence of skin cancer.

The success of current interventions which encourage use of hats, sunblocks and adequate clothing will hopefully be seen over the next 20 to 30 years. However it is unlikely that significant reductions in sun related skin disease will be seen in the short-term.

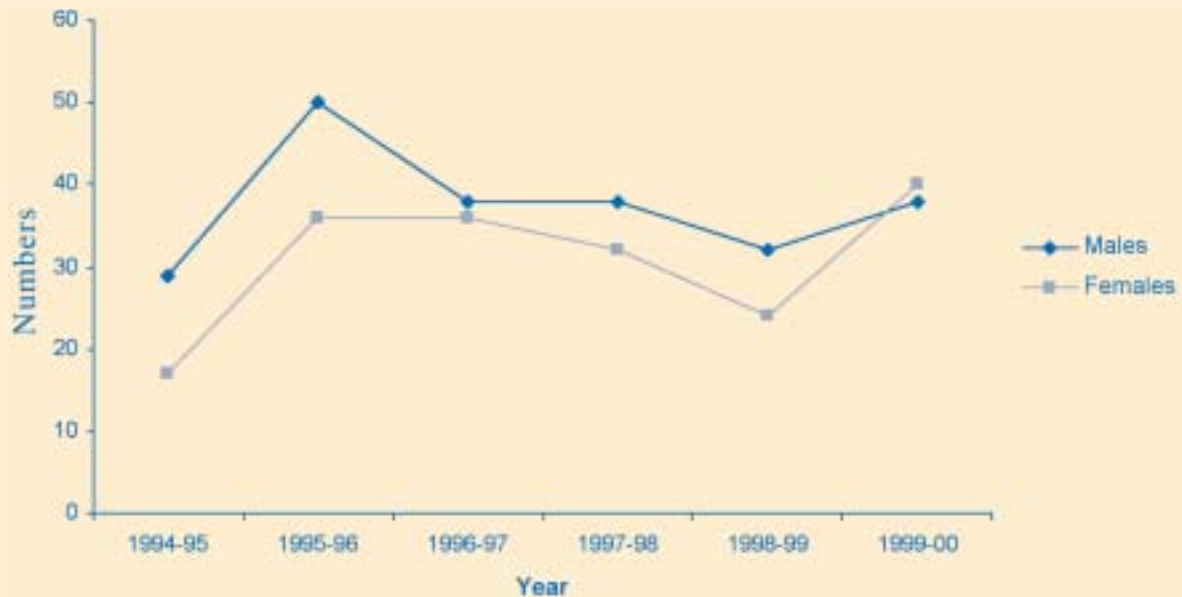
## 3.3 SERVICES AND THEIR USE

### 3.3.1 PHYSICAL ACTIVITY

Under the aegis of Healthy City Canberra, the Physical Activity Taskforce acts as a steering committee to oversee and coordinate physical activity projects in the ACT. The Taskforce has representatives from the Healthy City Canberra, Healthpact, the Department of Urban Services (DUS), Calvary Hospital, the ACT Bureau of Sport and Recreation, the National Heart Foundation ACT, Fitness ACT, and ACT Community Care.

Healthpact, the operating name of the ACT Health Promotion Board, funds grants and sponsorships to community, sporting and arts organisations for health promotion activity. In this and recent years Healthpact has invested approximately \$350,000 in physical activity programs. This includes provision of resources, physical activity programs for high-risk groups, and sponsorship of a range of physical activities.

**Figure 3: Number of ACT resident hospital separations relating to a primary diagnosis of melanoma by sex and year, 1994-95 to 1999-00**



Source: ACT Hospital Morbidity Data Collection, 1994-2000

Note: 1994-95 to 1997-98 data are based on ICD-9-CM code 172, 1998-99 data are based on ICD-10-AM code C43

### 3.3.2 SMOKING INITIATIVES

Healthpact funds a broad range of programs and sponsorships that deliver the SmokeFree message to residents of the ACT. In 1998-99, Healthpact spent \$319,000 in grants and sponsorships to reinforce the SmokeFree message. In 1999-00 the amount was \$260,600.

Most projects involve children and young people - a priority group for anti-smoking messages. The projects funded by Healthpact focus on both preventing the uptake of smoking as well as on decreasing passive smoke.

In 1998-99 Healthpact supported the introduction of a 100% SmokeFree policy at Manuka Oval. This policy includes all the outdoor areas and was introduced rapidly and with minimum disruption.

Recent amendments to the ACT's *Tobacco Act 1927* have resulted in the disappearance of in-store tobacco advertising and the imposition of strict limits on the display of tobacco products.

The introduction of a tobacco licensing system under a Registrar for Tobacco in the Department of Health and Community Care has underlined the importance of ensuring that tobacco products are not sold to persons under the age of 18.

The ACT's experience in developing and implementing a legislative basis for smoke-free enclosed public places (the landmark *Smoke-free Areas (Enclosed Public Places) Act 1994*) has meant that we have served as an important resource for other States and Territories who are developing their own approaches. It is commendable that the ACT has played an active role in the development of the National Public Health Partnership's National Response on Passive Smoking, which provides principles and suggestions for best-practice smoke-free public places legislation.

### 3.3.3 ILLICIT DRUGS

The ACT Government funds government and non-government services to help people with substance use problems. These services range from the general distribution of information through to residential detoxification. Both government and non-government sectors report a continuous and increasing demand for services designed to assist cannabis users with their substance use. For example, at Arcadia House Detoxification Service the proportion of clients seeking help with their cannabis use rose from 25% in 1997-98 to 30% of all clients in 1999-00. Similarly, the proportion of calls to the Alcohol and Drug 24-Hour Helpline that relate to cannabis has risen over the last decade from 10% to about 20%.

A list of the main substance use services follows:

#### **Counselling**

Problematic substance use is strongly correlated with a range of emotional and mental health issues. Frequently, assistance as simple as counselling can help to resolve a person's substance use problem. All ACT Government-funded alcohol and other drugs service agencies provide counselling.

#### **Detoxification**

The very concept of substance dependency focuses on the physiological and psychological adaptations that tend to occur following a sustained period of substance use. Detoxification programs help people to manage and overcome the physical, psychological and emotional stresses (known as withdrawal), which occur when attempting to give up dependent substance use.

The techniques used range from counselling, through mild clinical interventions such as massage, to the use of medications to lower the severity of the most uncomfortable physical and psychological symptoms of withdrawal.

While detoxification is frequently associated in people's minds with the use of very powerful or illicit substances it is now accepted that most psychoactive substances can create dependency and a corresponding withdrawal syndrome.

#### **Rehabilitation**

People recovering from substance dependency often have difficulty in readjusting their lifestyles and behaviours away from a focus on substance use. Rehabilitation programs can help such people to re-establish the social and personal skills necessary to participate fully in the community.

#### **Maintenance**

Maintenance programs help people with substance use problems to manage their dependency and to engage with health care professionals. Maintenance tries to minimise the harms associated with direct substance use as well as the lifestyles that are often associated with dependent use. Something as simple as a patch for managing nicotine dependency can be classified as maintenance therapy.

In accordance with the success of maintenance programs for opioid dependence, the ACT Government has allocated extra funds to expand places available on the public methadone program. In addition, alternative maintenance therapies such as buprenorphine have been tried and are expected to become available in the second half of 2001.

There are currently no plans to trial maintenance therapies for other types of dependency such as amphetamine or cannabis.

#### **NSP**

Needle and syringe programs [NSP] have been operating in the ACT for some years and represent one of the most successful services for helping injecting drug users manage the health issues associated with their dependency. The ACT has a very low rate of unsafe disposal of needles and syringes. Figures collected over the last five years show a drop in the number of needles and syringes being collected from open spaces, such as urban parks and laneways, and a rise in the number of sharps being collected in sharps disposal bins in public toilets.

The Needle and Syringe Program (NSP) in the ACT is managed by Assisting Drug Dependents Incorporated (ADDInc), a non-Government organisation. There are currently 13 NSP outlets in the ACT, together with about 25 pharmacy outlets. Approximately 600,000 needles and syringes are distributed in the ACT each year.

## 3 Lifestyle Behaviours

In addition, ADDInc has recently developed a number of outdoors “DISPOSAL SAFE” bins that have been installed in targeted inner-city locations and are now being extended to community health centres. The “DISPOSAL SAFE” bin has recently won an ACT Occupational Health & Safety Council Prevention Award, which recognises excellence in the prevention of harm. These bins take all the equipment needed for injection including personal-sized disposal bins, and not just the sharps themselves.

The Department of Urban Services provides and maintains needle disposal bins in all public toilets (around 300 sites) and depots located across Canberra for the bulk disposal of injecting equipment. They also fund the “City Rangers” who are responsible for collecting inappropriately discarded sharps on public land.

### 3.3.4 SEXUAL HEALTH

Sexual health is an area considerably influenced by lifestyle and behaviour. The World Health Organization defines sexual health as having three basic elements:

- *a capacity to enjoy and control sexual and reproductive behaviour in accordance with a social and personal ethic;*
- *freedom from fear, shame, guilt, false beliefs and other psychological factors inhibiting sexual response and impairing sexual relationships; and*
- *freedom from organic disorders, diseases and deficiencies that interfere with sexual and reproductive functions*

This is a broad definition, and encompasses social and behavioural aspects of sexual health, as well as sexually transmissible diseases.

New programs aimed at increasing awareness of the risks associated with unsafe sex have been implemented in response to recent increases in genital chlamydia and gonorrhoea. Greater application of safe sex principles will also help protect against HIV spread. More information on sexually transmitted diseases is presented in Section 8, Communicable Diseases.

In recognition of the broad range of elements involved in the concept of sexual health, ACT services address as wide a range of needs as possible. These include health promotion, information and referral, education programs, care and support services and clinical services. The ACT is fortunate to have a high level of collaboration and cooperation between all groups working in the sexual health sector. This enables the sector to respond rapidly when increases in notifications are observed. The ACT Government funds a variety of sexual health related services including the Canberra Sexual Health Centre, The Family Planning Association and the AIDS Action Council.

In order to ensure that services continue to meet the long-term and emerging needs of the ACT community, the Minister has appointed an Advisory Council on Sexual Health, AIDS, Hepatitis C and Related Diseases (SHAHRD) to advise on issues related to the health and well-being of all ACT residents in the areas of sexual and reproductive health. This Council continues the work of the Sexual Health and Blood Borne Diseases Advisory Committee, whose term came to an end in 2000. The SHAHRD Council has appointed a Working Party specifically to monitor the rate of HIV notifications and to recommend relevant strategies to deal with short and long-term HIV notification trends.

#### Emerging Issues

- Levels of high-risk drinking are higher than desirable among young people aged 14-19.
- The use of illicit drugs continues to be a problem. The Department and the ACT Government will maintain their vigilance in developing appropriate programs of prevention and intervention.
- The proportion of adults and children that are overweight or obese is slowly increasing, and this may pose considerable long-term health problems.

### At a Glance

- Canberrans enjoy a high-quality supply of drinking water, and a pleasant physical environment lacking many of the sources of pollution found elsewhere.
- Air quality is generally very good, with the exception of occasional high concentrations of fine particles, mainly from wood fires that can accumulate under certain meteorological conditions.
- Water quality in Canberra's lakes varies with the season, rainfall intensity and run-off. Occasionally, lakes are closed for recreation because of unsafe levels of blue-green algae and/or faecal coliforms.
- Food safety continues to be carefully monitored, and all notified incidences of food poisoning are carefully investigated. By far the most common causes of ill health from food are infections due to campylobacter and salmonella. In 1999-00 there were 256 and 104 confirmed cases respectively of food poisoning caused by these organisms.
- Occupational radiation exposure is regularly monitored and there was a high-level of compliance with safety directives.
- Chemical parameters in public swimming pools and spas are also routinely monitored. In 1999-00, out of 427 tests carried out on 62 pools, there were only 7 poor results and one pool closure.

### 4.1 WHAT WE MEAN BY HEALTH AND THE ENVIRONMENT

The environment around us can have a major influence on our health and well-being. However, the effects of the environment are complex, often indirect and hard to quantify. The interaction of many factors makes it hard to unravel or apportion individual causes precisely, and there may be long time spans involved between exposure to an environmental influence and subsequent health effects.

Examples of environmental factors that have an impact on health are sewage disposal, the provision of clean drinking water, radiation, the presence or absence of toxic substances in air, soil and water, or the safety of food.

### 4.2 WHO IS AFFECTED?

Everyone is potentially affected by factors in the natural and physical environment. However, there are wide differences between individuals in their response to environmental factors. For example, some people are allergic to household dust while others are not. For susceptible individuals, the dust is a health hazard, but for the rest of the population it is not.

Other aspects of the environment - for example radiation from the sun - are more uniformly damaging, although even in this instance the degree of exposure required to cause sunburn or skin cancer will vary between individuals.

### 4.3 WHY THIS IS IMPORTANT

The difficulty with environmental factors is that an individual may often be unaware of a health hazard and unable to control it. For example, exposure to many possible cancer-causing agents can be painless and unnoticeable. Similarly, food contaminated with bacterial toxins may be very dangerous but may not look or taste spoiled to the consumer.



## 4 Health and the Environment

In Canberra, the Health Protection Service within the ACT Department of Health and Community Care is the government entity responsible for the monitoring of environmental health indicators and for the protection of those aspects of public health that are clearly affected by environmental factors. Protection is achieved through a range of measures including law enforcement, regulation, education, licensing, immunisation, environmental testing and community complaint investigations.

### 4.4 STATISTICS AND ISSUES

#### 4.4.1 WATER QUALITY

Provision of safe drinking water in the ACT is the responsibility of the ActewAGL Corporation. 'Raw' water taken from reservoirs is treated by chlorination to kill or inactivate most disease-causing organisms. Additional treatment may also be required to enhance water clarity or remove contaminants, but this depends on the state of the water catchment area. The Cotter catchment, which supplies the bulk of the ACT's water, produces water that needs little treatment other than chlorination. However, water from the Googong Dam, which is in a less pristine environment, needs filtration and flocculation before being supplied.

The ACT's drinking water is regularly tested for bacteriological contamination. In 1996-97, NHMRC standards for faecal coliforms were consistently met. Public health authorities in Australia use the presence of coliform bacteria (a natural component of faeces) as an indicator of faecal contamination of drinking water. Some pathogens (including *Cryptosporidium* and several virus types) may be present even in water that is free of coliforms. Tests for aluminium, copper, manganese and lead in the ACT water supply are also consistently met. Testing for trihalomethanes, pesticides and trace metals may also take place, if considered necessary. See Table 14 for a summary of ActewAGL monitoring results.

Authorities also carry out monitoring of faecal coliforms and blue-green algae (more correctly called cyanobacteria) at a range of sites in Canberra's main water bodies, including Lakes Tuggeranong, Ginninderra and Burley Griffin, and the Murrumbidgee and Molonglo Rivers.

Lakes are occasionally 'closed' for recreation when blue-green algae exceed guideline values – mainly during dry summer periods. This is because the algae can produce toxins that may cause skin irritation and, if ingested, more serious symptoms.

#### 4.4.2 FOOD SAFETY

The quality of the food we eat is central to maintaining health and well being. In order to protect food quality in Canberra the Health Protection Service (HPS) regularly inspects food businesses, as well as testing manufactured and sold food, to ensure compliance with the Australian Food Standards Code. The HPS is also responsible for recalling food that does not meet the requirements of the Food Standards Code or is otherwise defective. As part of the national food recall network, HPS participates in food recalls initiated by health officials in other jurisdictions, as well as ACT-initiated recalls. See Table 13 for number of recalls between 1998 and 2000.

**Table 13: Food recalls, ACT, 1998-99 to 1999-00**

Year	No. of National Recalls	No. with ACT Distribution
1998/99	39	24
1999/00	54	22

Source: Health Protection Service, ACT Department of Health and Community Care

The investigation of food poisoning is another task for which HPS is responsible. The most common cause of food poisoning and food-borne illness is poor food handling practice, including improper temperature control, mixing raw and cooked food together and lack of hand-washing before preparing food.

**Table 14: Summary of ACTEWAGL monitoring results**

Parameter	Target	No. Sample		Min		Mean		Max.	
		98/99	99/00	98/99	99/00	98/99	99/00	98/99	99/00
PH	None	727	738	6.9	6.8	8.1	8.0	10.2	10.2
Alkalinity	None	727	144	2.6	9.9	21.0	24.47	53.1	63.0
Hardness	<200	7	2	12.6	6.4	33.0	9.75	59.7	13.1
Turbidity	<5	647	639	<0.01	0.14	0.85	0.89	4.2	9.3
Colour	<15	647	638	0.5	1.0	5.1	5.0	12.0	9.0
Chlorine	<5	728	770	<0.01	<0.01	0.20	0.30	1.31	1.65
Fluoride	1-1.2	365	585	0.50	0.20	0.89	0.89	1.05	1.15
THM's	<250	213	278	39.0	12.3	90.0	97.3	146.0	182.0
Aluminium	<0.2	68	43	0.02	0.02	0.09	0.059	0.51	0.16
Iron	<0.3	647	638	0.005	<0.01	0.1	0.097	0.5	0.93
Manganese	<0.1	647	638	0.0005	0.001	0.01	0.007	0.27	0.052
Copper	<2	647	639	0.0025	0.005	0.01	0.013	0.64	0.4
Lead	<0.01	21	19	0.0002	0.0002	0.001	0.0015	0.003	0.0085
Total Coliforms	0	728	738	0	0	0	0*	350.0	54.0
Thermo Coliforms	0	728	738	0	0	0	0*	1.0	0.0

Source: ACTEWAGL \* Median values

The most common type of food poisoning notified in the ACT is campylobacteriosis (infection with the bacterium *Campylobacter*), the symptoms of which are diarrhoea, abdominal pain, malaise, fever and vomiting. Campylobacteriosis is usually caused by the consumption of under-cooked chicken or pork, or after cooked food has been contaminated by raw food on which the bacteria are present. The second most common type of food poisoning notified is *Salmonella* infection, also a bacterial disease, the symptoms of which are sudden onset of headache, abdominal pain, diarrhoea, nausea and sometimes vomiting. Consuming food contaminated with infected faeces is the usual cause of salmonellosis. See Section 8 for details on notification rates relating to foodborne diseases.

### 4.4.3 AIR QUALITY

Compared with most Australian cities, air quality in Canberra is generally good. The ACT Government Analytical Laboratory (ACTGAL) is responsible for regularly monitoring air quality. ACTGAL uses test sites to collect data on concentrations of carbon monoxide, nitrogen dioxide, ozone, lead, total suspended particles and particulate matter less than 10 microns in diameter.

Nearly all these pollutants are within the standards (called National Environment Protection Measures or NEPMS) recommended by the National Environment Protection Council (NEPC). The NEPMS have replaced the health guidelines of the NHMRC. Monitoring has revealed that atmospheric lead in Canberra's air (in the form of suspended particles) has declined dramatically over the last decade with the introduction of unleaded petrol.



## 4 Health and the Environment

There are only two minor concerns with Canberra's air quality: particulates and carbon monoxide.

There are occasional breaches of the 9 parts per million standard for carbon monoxide (CO) in Civic – and this is most likely to occur during winter evenings near rush-hour, as a result of CO emitted in vehicle exhaust and from wood-burning fires.

In addition, wood-burning releases fine particles or particulates, which can remain trapped on still winter nights in valley areas. High concentrations of airborne particles with a diameter of less than 10 microns (known as PM10) are not good for respiratory health.

An emerging concern for respiratory health are the very finest particulates with a diameter less than 2.5 µm (known as PM2.5). These are able to reach the furthest reaches of the lungs, and may remain there. There is currently no guideline value or standard for PM2.5 separately (they are lumped within the PM10 monitoring), although the NEPC is considering the issue.

### 4.4.4 INDOOR AIR

The quality of indoor air (including that found inside offices and vehicles) is not routinely monitored – even though Australians are estimated to spend 90% of their time indoors. Small-scale studies have shown that indoor air quality can differ significantly from ambient air quality. The rate at which a building's air is replaced is a major factor affecting pollutant build-up. In more modern buildings, designed for greater energy efficiency, air replacement rates are lower than in the past.

Indoor air can contain a range of potentially toxic chemicals emitted from fittings and building materials, as well as dust mites, allergens in furnishings, and bacteria and fungal spores from air conditioning systems. Tobacco smoke can be a major source of indoor air pollution, but legislation has reduced this threat in most public indoor areas. Offices and other places of employment may also have a range of specific pollutants emitted from machinery or industrial and chemical processes. Some of these may be governed by Occupational Health & Safety guidelines.

The presence of asbestos fibres in air is particularly dangerous. Inhaled asbestos fibres remain in the lung and may cause mesothelioma some decades later. The ACT Government has taken extensive action to remove asbestos insulation from Territory housing and this is no longer considered a health threat in the ACT.

### 4.4.5 FUELS USED FOR HEATING AND COOKING

Incorrectly flued gas heaters and cookers can release nitrogen oxides in sufficient concentration have been considered a health threat. However, initiatives by government and heating installers ensure that this problem rarely occurs in the ACT today.

### 4.4.6 SOIL AND GROUND

Health risks from the ground include naturally occurring radon- a radioactive gas emitted from certain rock types, including granite which is common in parts of the ACT – and the presence of toxins from waste-dumping or infill. Fall-out of toxic substances from the air may also contaminate soil and vegetation; in the past, lead-rich particulates from the exhaust of vehicles using leaded fuel tended to accumulate near busy roadways. Areas near industrial incinerators may also experience some fall-out although this can be minimised by chimney height and careful management. The ACT is fortunate to have very few sources of industrial pollution. The main point source was the Totalcare incinerator in Mitchell, which released very small quantities of dioxins and furans and has now been decommissioned, thus removing this problem.

Present soil contamination from past uses of land has also occasionally been recorded – for example, the soil around former sheep dip sites may contain arsenic.

### 4.4.7 INFECTION CONTROL

Infection control refers to the practices and checks that ensure that infectious diseases are not inadvertently passed from person to person during the course of activities that involve skin penetration or exposure to blood. There were no recorded cases of disease transmission caused by poor infection control practices in the ACT between June 1998 and June 2000.

Over that time, 414 skin penetration premises were audited for infection control practices. Skin penetration practitioners include beauticians, tattooists, acupuncturists, body and ear piercers, dentists, doctors and any other practitioner who carries out procedures which puncture the skin.

Some emerging practices may pose an infection control risk. These include:

- branding of the skin for decorative purposes;
- micro-pigmentation, which is similar to tattooing but not life-long;
- closed gun ear piercing on areas other than the lower lobe of the ear;
- colonic irrigation therapy; and
- the reuse of waxing roll-on applicators in beauty therapy.

The ACT Department of Health and Community Care is proposing to introduce a new Infection Control Code of Practice that will ensure these practices are carried out in a manner that will not present a risk of disease transmission.

### 4.4.8 RADIATION SAFETY

Activities involving the use of x-ray apparatus and radioactive materials have been conducted safely with no reported incidents of danger to radiation workers, the general public or the environment. The occupational exposures received by the vast majority of radiation workers in the ACT were less than one-tenth of the limit prescribed in the *Radiation Act 1983*.

Premises and equipment were inspected regularly by officers from the Radiation Safety Section of Health Protection Service to ensure that the standards set by the Radiation Council were maintained. The monitoring program confirmed a high level of compliance (See Table 15).

**Table 15: Inspection numbers and compliance rates of irradiation equipment in the ACT, 1998-99 and 1999-00**

Activity	1998 1999	1999 2000
<b>Inspections of irradiation apparatus and laboratories using radioactive materials:</b>		
Number inspected	293	311
Compliance	87%	86%
<b>Number of applications/ amendments processed under The Radiation Act 1983</b>		
	792	690

Source: Radiation Safety Section, ACT Department of Health and Community Care

### 4.4.9 PHARMACEUTICAL SERVICES

Following the introduction of the *Public Health Act 1997*, community pharmacies installed vaccine-specific refrigerators for the correct storage of vaccines and injections in pharmacies. This joint venture with government, the Pharmacy Guild and community pharmacies has resulted in safer storage of all medicines.

Pharmacies are inspected by the Pharmaceutical Services section of Health Protection Service to ensure the safe sale of pharmacist medicines (schedule 3) and to audit the inherent controls on these transactions and those of schedule 8 substances (drugs of dependence). Pharmaceutical Services also collects out-of-date and unwanted drugs from circulation in the community and destroys them by incineration. This action removes the risk of harm by inadvertent or intentional poisoning.

## 4 Health and the Environment

During the period 1998 to 2000 (inclusive) the pharmaceutical section processed more than 15,000 requests for drugs of dependence. Approvals were in particular given for Dexamphetamine, Ritalin and Methadone in the amounts shown in Table 16.

**Table 16: Number of approvals for Dexamphetamine, Ritalin and Methadone, 1998, 1999 & 2000, ACT**

	Dexamphetamine	Ritalin	Methadone
1998	928	703	1,026
1999	1,122	876	1,124
2000	1,254	891	1,541

Source: Pharmaceutical Services, ACT Department of Health and Community Care

### 4.4.10 SWIMMING AND SPA POOLS

All public swimming and spa pools are a potential source of infection. Public pools are more likely to be exposed to a greater diversity of disease-causing (pathogenic) organisms than domestic swimming pools because they are open to community contamination. Disease-causing organisms may be introduced from many sources but are mainly associated with bathers. These organisms may be brought into a pool on the bathers' skin and in their saliva, urine and faeces. The organisms may also be introduced from dust, birds' droppings and soil carried on bathers' feet. Some of these disease-causing organisms live and may even grow in pool water unless the pool water is properly and continuously disinfected.

Disease-causing organisms must be quickly and effectively killed in the pool water to which they are introduced to prevent disease transmission. The swimming pool or spa pool needs to be designed and operated so as to enhance the action of the disinfectant. All treated water in public swimming pools and public spa pools should be equipped with an effective water circulation system and filter. It is recommended that public swimming /spa pools also be fitted with an automatic disinfectant dosing system and pH correction system using automatic controllers receiving

feedback information from chemical sensing probes. Continuous dosing should include a metering device to feed a chemical at a relatively constant rate.

The Health Protection Service carries out routine water testing of all public swimming and spa pools to ensure that disinfectant levels are being properly maintained (See Table 17 for results of swimming and spa pool testing in the ACT, 1998 to 2000). If it is found that any public pool does not have the required level of disinfectant then a Public Health Officer may order remedial action to be undertaken or close the pool until the disinfectant level is at the required concentration.

Of course, private 'backyard' pools can also constitute a health hazard if not properly maintained. Householders with pools must take responsibility to ensure the pools are properly fenced, the water quality properly maintained and pool users stay safe.

**Table 17: Swimming & spa pool testing, ACT, 1998 - 2000**

Swimming & Spa Pool Testing	1998	1999
	1999	2000
Number of public pools	69 pools in 47 premises	62 pools in 50 premises
Number of tests undertaken	393	427
Number of poor results	8	7
Number of pool closures due to poor results	1	1

Source: Health Protection Service, ACT Department of Health and Community Care

## 5 Mortality and Life Expectancy

### At a Glance

- During 1999 there was a total of 1,331 deaths (males = 682, females = 649) in the ACT.
- Crude death rates for both males and females in the ACT increased between 1995 and 1999, mainly as a result of the ageing of the population.
- However, the age-standardised death rate has fallen in line with national trends.
- The major causes of death are cancer and cardiovascular diseases.
- ACT males have a life expectancy above the national average (77.9 years compared to 76.2 years nationally), while ACT females have a life expectancy of 81.8 years, which is the same as the national average.

### 5.1 WHAT DO WE MEAN BY MORTALITY?

In the study of populations and disease, mortality means the amount or rate of death. This is usually expressed as the number of people who died per 1,000 population in a year. Mortality is a key indicator of the health of a population.

Life expectancy is a figure calculated from current death rates. It tells us how long, on average, an individual of known age can expect to live if the population's death rates remain the same in the future.

### 5.2 WHO IS AFFECTED?

Obviously we are all affected by mortality in the end, but across a population the likelihood of death is not equally distributed. Deaths are commoner in older people, and so populations that are living longer (a good health outcome) will tend to show higher death rates than younger populations.

Within a community, there may be sub-groups that suffer higher or lower death rates than the average of the whole community. Analysis of who is affected by higher mortality can reveal differences in health status that can be addressed by suitable targeting of health services.

### 5.3 WHY THIS IS IMPORTANT

The rate of death in a population can tell us much about the underlying state of health. Therefore, mortality is a major indicator of population health status. Long-term trends or sudden changes in death rates are useful as signals of underlying changes in a population. Causes of death are also extremely important, and these are recorded in detail and carefully analysed to reveal any trends.

### 5.4 STATISTICS AND TRENDS

Information on mortality in the ACT is derived from the Australian Bureau of Statistics causes of death data set which is compiled from records made available by the Registrar of Births, Deaths and Marriages. As data is not yet available for 2000, deaths are reported up until the end of 1999.

During 1999 there was a total of 1,331 deaths (males = 682, females=649) recorded in the ACT. This equates to a crude death rate of 4.3 persons per 1,000 population. The crude death rate (see the glossary entry) is the number of deaths registered per thousand or per hundred thousand population. Crude death rates for both males and females in the ACT increased between 1995 and 1999. The increase is particularly marked for females, as the Figure 4 shows.

The reason for the increased death rates is the increased median age of the Territory's population. Put simply, once past the age of infancy, the older the median age of a population, the higher is its crude death rate. However, the ACT crude death rate is still the lowest of all States and Territories.

## 5 Mortality and Life Expectancy

**Figure 4: Crude death rate per 1,000 population, ACT, 1985 - 1999**



Sources: ABS, Causes of Death Australia. Catalogue No. 3303.0. ABS, Australian Demographic Statistics. Catalogue No. 3101.0

**Figure 5: Standardised death rates per 1,000 population, ACT and Australia, 1993 - 1999**



Source: ABS Deaths Australia 1993-1999. Catalogue No. 3302.0

### 5.4.1 STANDARDISED DEATH RATES

To take account of differences in the median age of different populations, the death rate is standardised or age-adjusted. Since 1987, the ACT's standardised death rate has fallen in line with the national trend. This decrease reflects the population's generally improved health status, with the impact of ageing removed. Figure 5 shows the standardised death rates in the ACT and Australia for 1993-1999. The female standardised death rate is the same as the national average, while the male standardised death rate is lower. The standardised death rates of females in the ACT have risen slightly since 1993. Later in this Section we discuss the major causes of death.

As the graphs show, the standardised death rates for both males and females in the ACT from 1993 to 1999 are consistently slightly lower than for Australia as a whole. This may reflect the generally higher socio-economic status of the population here, with higher than average levels of employment, education and income.

In 1999, the ACT had the lowest standardised death rate in the country (5.4 per 1,000, compared with 5.9 for Australia as a whole).

## 5 Mortality and Life Expectancy

**Table 18: Death Indicators, ACT, 1987 - 1999**

Year	1987	1993	1994	1995	1996	1997	1998	1999
<b>Number of deaths</b>								
Persons	998	1110	1222	1114	1300	1334	1272	1331
Males	534	632	644	593	698	663	646	682
Females	464	478	578	521	602	671	626	649
<b>Aboriginal and Torres Strait Islander deaths</b>								
Persons	-	9	10	9	5	4	n.a.	6
Males	-	3	6	6	2	2	n.a.	5
Females	-	6	4	3	3	2	n.a.	1
<b>Standardised death rate per 1,000</b>								
Persons	7.0	5.9	6.3	5.4	6.1	6.0	5.4	5.4
Males	8.6	7.8	7.5	6.8	7.8	7.1	6.6	6.5
Females	5.8	4.4	5.2	4.4	4.9	5.1	4.6	4.5
<b>Crude death rate per 1,000</b>								
Persons	3.8	3.7	4.1	3.7	4.2	4.3	4.1	4.3
Males	4.0	4.2	4.3	3.9	4.6	4.3	4.2	4.4
Females	3.5	3.2	3.8	3.4	3.9	4.3	4.0	4.2
<b>Median age at death</b>								
Males	65.0	69.8	69.3	70.5	71.4	72.6	72.7	72.3
Females	74.6	77.4	78.3	75.9	77.5	78.8	78.9	79.5
<b>Infant mortality rate per 1,000 live births</b>								
Persons	9.0	4.3	4.7	4.8	5.7	3.8	6.0	5.6
Males	10.0	6.7	6.3	2.6	5.4	2.3	4.5	6.1
Females	7.9	1.8	3.1	7.1	6.0	5.3	7.6	5.2
<b>Premature deaths (&lt; 75 years)</b>								
Persons	n.a.	614	666	617	680	663	621	655
Males	n.a.	397	425	374	421	393	363	397
Females	n.a.	217	241	243	259	270	258	258
<b>Premature mortality rate per 1,000 (&lt; 75 years)</b>								
Persons	n.a.	2.1	2.3	2.1	2.3	2.2	2.1	2.2
Males	n.a.	2.7	2.9	2.5	2.8	2.6	2.4	2.6
Females	n.a.	1.5	1.7	1.7	1.8	1.8	1.7	1.7

Sources: ABS, Demography ACT 1999. Catalogue No. 3311.8

ABS, Deaths Australia. Catalogue No. 3302.0

ABS, Confidentialised Unit Record File and published data.

Note: n.a. means 'not available'



## 5 Mortality and Life Expectancy

Detailed mortality statistics are presented in Table 18. The absolute number of deaths has increased in line with the growing population. However, it is clear from the Table that the death rate in the Territory has declined substantially in the last 12 years, with the greatest falls being for males. At the same time, the median age at death is slowly increasing (females, as expected, outliving males). The median age means that half the people who die in a particular year are older than this value, and half are younger.

Taking into account the population growth, the number of premature deaths (those occurring before age 75) has remained about the same since 1987, although there have been fluctuations. Premature deaths are expressed as a rate in the last line of the table. There has been a slight fall in the male premature death rate, which has been counteracted by a slight rise in the female rate.

Many premature deaths are preventable; hence this statistic can be used as a measure of 'avoidable mortality'. Avoidable deaths are usually defined as those caused by conditions that would be responsive to intervention by the health sector. This therefore includes conditions preventable by lifestyle factors (smoking, physical activity, diet etc.), as well as conditions in which hospitalisation halts the course of the condition (through surgery or antibiotics, for example). The slight decline in the male premature death rate is probably attributable to the fall in tobacco-related cancers, the reduction in coronary heart disease, and improved road safety. As deaths in females from smoking and heart disease were never as high as in males, there has been less of a reduction for female premature deaths in these areas. As more and more gains are made in health, the tendency for most deaths to occur over age 75 increases, and it becomes harder to reduce the premature mortality rate much further.

### 5.4.2 AGE-SPECIFIC DEATH RATES

The age-specific death rate shows how many people die (per thousand population) in a particular age group. Older age groups have more deaths, and male death rates are generally slightly higher in most age groups, which is why males have a lower life expectancy than females. In general, the fact that male death rates are higher than those of females seems to be a consequence of male physiology; in the 15-24 year age group, however, the higher death rate in males is associated with motor vehicle accidents, suicide and risk-taking behaviour.

As Table 19 shows, death rates for most age groups have generally declined or remained constant since 1987. However, there have been some fluctuations; rates for age groups in which there are very few deaths will fluctuate considerably because of the low absolute numbers of deaths.

Since 1993, the proportion of deaths occurring in the 75-years and older age group has increased (Table 20). Now, slightly more than half of all deaths in a year occur in this age group. This is a reflection of the fact that people in that category are accounting for a larger percentage of the population.

### 5.4.3 MAJOR CAUSES OF DEATH

The major causes of death in the ACT are cancer and cardiovascular or circulatory disease (mainly 'heart attacks' and strokes). Together, cancer and cardiovascular disease accounted for just over half the recorded deaths in 1999. These are also the two major causes of death in Australia as a whole, and in most of the developed world.

Since 1994 the percentage of total deaths attributable to cancer, heart disease, strokes, accidents, poisoning, violence and respiratory disease in the ACT has remained stable (see Table 21).

In 1999, all the main underlying causes of death for the ACT were below the corresponding rates for Australia (refer to Figure 6). This is largely because the ACT population is substantially younger than the total Australian population. However, the death rate in the ACT for the category of 'external causes' (accidents, poisoning, and violence) was similar to the whole of Australia.

## 5 Mortality and Life Expectancy

**Table 19: Age-specific death rates, by sex, ACT, 1999**

Age group	1987	1988	1993	1997	1998	1999
<b>Male</b>						
Under 1	10.0	8.7	6.7	2.3	4.5	6.2
1-4	0.2	0.7	0.5	0.3	0.1	0.2
5-14	0.3	0.2	0.1	0.1	0.1	0.2
15-24	1.5	1.3	0.6	0.8	1.0	0.6
25-34	1.0	1.0	1.4	1.2	1.1	1.3
35-44	1.3	1.4	0.9	1.4	1.4	1.4
45-54	4.0	3.1	3.0	2.0	2.0	3.0
55-64	11.1	10.5	9.7	7.0	7.2	6.9
65-74	28.4	30.9	24.9	26.2	19.8	20.9
75-84	78.0	85.7	83.2	66.0	60.8	55.4
85 & over	167.4	166.0	144.0	157.1	166.7	161.3
<b>Females</b>						
Under 1	7.9	7.5	1.8	5.3	7.6	5.3
1-4	0.5	0.2	0.2	-	0.4	0.5
5-14	0.1	0.3	-	-	-	-
15-24	0.6	0.3	0.3	0.3	0.3	0.2
25-34	0.5	0.3	0.5	0.3	0.2	0.4
35-44	0.9	1.1	0.5	0.9	0.8	0.9
45-54	2.4	1.8	1.9	2.5	2.0	1.9
55-64	6.8	4.9	5.0	4.7	4.3	4.5
65-74	15.6	18.5	13.9	15.2	15.2	14.0
75-84	57.4	51.5	42.8	43.0	36.2	38.7
85 & over	148.8	133.0	122.1	175.7	153.4	140.5

Source: ABS, Demography ACT 1999. Catalogue No. 3311.8

Note: Rates are per 1,000 population, the symbol '-' indicates nil or round to zero

**Table 20: Proportions of deaths in the under-75 and over-75 age-group ACT, 1993 - 1999**

Age-group	1993	1994	1995	1996	1997	1998	1999
Aged 75 years and over % total deaths	45%	45%	45%	48%	50%	51%	51%
Aged under 75 years % total deaths	55%	55%	55%	52%	50%	49%	49%

Source: ABS, Deaths Australia. Catalogue No. 3302.0

Table 22 shows that in 1999, major differences between the sexes are noticeable in the death rates from accidents, poisoning and violence (which includes suicide), from which males die at about three times the rate of females.

In contrast, female deaths due to cardiovascular disease are more common than males (partly because females are more susceptible to stroke). Details of trends in mortality for particular diseases are covered in other sections.



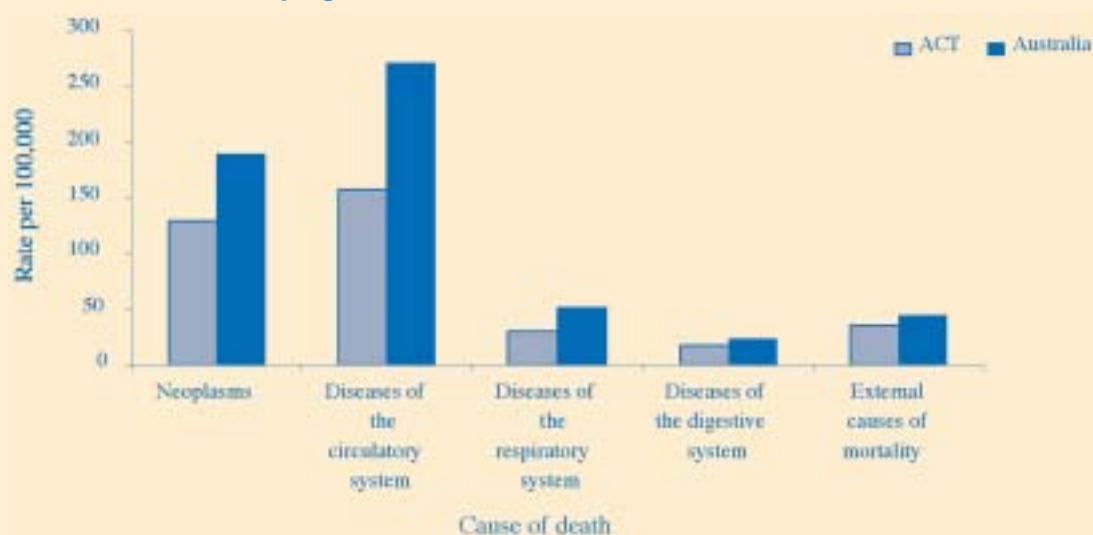
## 5 Mortality and Life Expectancy

**Table 21: Principal causes of death, ACT, 1994 - 1999**

	1994	1995	1996	1997	1998	1999
Malignant neoplasms (cancer)	29.0%	32.8%	28.9%	27.5%	30.1%	29.9%
All heart disease (excludes stroke)	27.9%	25.9%	27.4%	26.2%	21.7%	27.2%
Cerebrovascular disease (stroke)	9.1%	7.9%	10.3%	9.6%	9.0%	9.0%
Accidents, poisoning and violence (includes suicide)	7.9%	7.7%	7.1%	7.4%	8.3%	8.3%
Respiratory disease	6.8%	5.7%	6.2%	9.6%	9.3%	7.1%

Source: ABS, Causes of Death, Catalogue No. 3303.0

**Figure 6: Selected underlying causes, crude death rates, ACT and Australia, 1999**



Sources: ABS, Causes of Death ACT 1999, Confidentialised unit record file, ABS, Causes of Death Australia, 1999. Catalogue No. 3303.0

### 5.4.4 INDIGENOUS PEOPLE IN THE ACT

Indigenous people in Australia experience higher than expected mortality when compared to the non-indigenous population. During the period 1998 to 1999 there was a total of 9 aboriginal deaths recorded in the ACT. The volatility of indigenous population data and, statistically, the very small number of deaths mean that it is not possible to analyse indigenous deaths in the ACT to the same extent as the whole of Australia. More detail about indigenous health is provided in the Lifestyle and Behaviour Section.

### 5.4.5 LIFE EXPECTANCY AT BIRTH

Life expectancy at birth is a measure of population health status; the longer the life expectancy at birth, the better the general health status of the population. While an individual's life expectancy at birth is, of course, an unknown quantity, it is possible to calculate an average across a population of newborns, assuming that the current known death rates for each age group will remain the same for the life of the newborns. This calculation results in a statistical estimation of life expectancy. Current death rates are used to calculate life expectancy and, of course, these may change in ways that cannot be predicted.

## 5 Mortality and Life Expectancy

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**Table 22: Principal causes of death by sex, ACT and Australia, 1999**

		ACT	AUST	ACT	AUST	ACT	AUST
		Males	Males	Females	Females	Persons	Persons
Neoplasms (cancer)	Number	196.0	20,283.0	202.0	15,573.0	398.0	35,856.0
	Rate	126.8	214.9	129.9	163.5	128.3	189.0
Diseases of the circulatory system	Number	221.0	24,824.0	265.0	26,479.0	486.0	51,303.0
	Rate	142.9	263.0	170.4	278.0	156.7	270.5
Diseases of the respiratory system	Number	56.0	5,296.0	38.0	4,317.0	94.0	9,613.0
	Rate	36.2	56.1	24.4	45.3	30.3	50.7
Diseases of the digestive system	Number	30.0	2,111.0	25.0	2,110.0	55.0	4,221.0
	Rate	19.4	22.4	16.1	22.1	17.7	22.3
External causes of mortality	Number	80.0	5,868.0	31.0	2,493.0	111.0	8,361.0
	Rate	51.7	62.2	19.9	26.2	35.8	44.1
All causes	Number	682.0	67,227.0	649.0	60,875.0	1,331.0	128,102.0
	Rate	441.1	712.1	417.2	639.0	429.1	675.4

Source: ABS. Catalogue No. 3303.0 and 3101.0

Note: Crude rate per 100,000 persons. This table does not include all death categories.

Life expectancy at birth has been steadily increasing for Australians since the early 1900s and is now among the highest in the world. In 1999, ACT males recorded a life expectancy of 77.9 years compared to 76.2 years nationally. A slightly increasing trend in life expectancy for ACT males is evident over the last five years of available data (see Table 23).

For ACT females, however, no increases in life expectancy are evident. At 81.8 years in 1999, ACT female life expectancy from birth had declined slightly from the 1993 figure of 82.4 years, but is still the third highest in the country, and the same as the national average of 81.8. The health status of ACT females is discussed in more detail elsewhere in this Report.

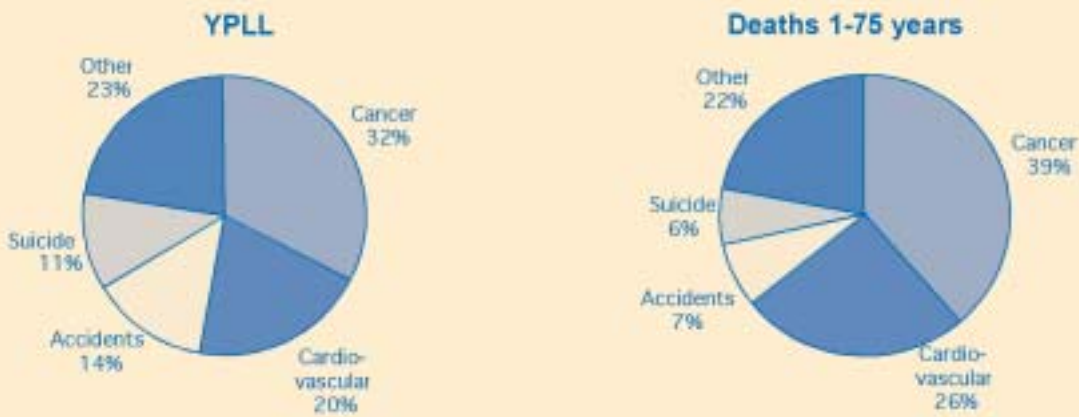
### 5.4.6 YEARS OF POTENTIAL LIFE LOST

One way of measuring the importance of a particular cause of death is to estimate the number of years of potential life lost (YPLL) due to death from that cause. Although most deaths occur at an older age, a significant number of deaths occur in younger people. Estimates of YPLL can be calculated according to the age at which a 'premature' death occurs. Usually, the assumption is made that deaths occurring in people aged 1 to 75 years are premature. The more deaths that occur at younger ages, the higher the YPLL level. For example, one infant death equals 75 YPLL, equivalent to 15 adults dying at age 70.

When we use this measure, the average age at which a disease strikes becomes important in addition to the total number of deaths that it causes. Figure 7 shows the main causes of death

## 5 Mortality and Life Expectancy

**Figure 7: Years of potential life lost (standardised) and proportion of deaths for people aged 1-75, ACT 1999**



Source: ABS, Causes of death dataset, confidential unit record, 1999

**Table 23: Expectation of life from birth, ACT and Australia, 1988 - 1999**

	1988	1993	1994	1995	1996	1997	1998	1999
<b>ACT</b>								
Males	74.5	76.1	76.5	76.2	75.6	77.1	77.5	77.9
Females	80.5	82.4	81.5	81.6	81.6	81.3	81.6	81.8
<b>AUST</b>								
Males	73.1	75.0	75.0	75.0	75.2	75.6	75.9	76.2
Females	79.5	80.9	80.9	80.8	81.1	81.3	81.5	81.8

Source: ABS, Demography, ACT. Catalogue No. 3311.8

ABS, Australian social trend 2000. Catalogue No. 4102.0

and the YPLL for each of them in the ACT in 1999. The main cause of death, cancer, also accounts for the greatest number of YPLL. However, suicide and certain accidents- although they cause a relatively small number of deaths per se - can account for a surprisingly large proportion of YPLL because they tend to affect younger people.

### Emerging Issues

- The ageing of the ACT population will continue, and start to raise the death rate and increase the incidence of age-related disorders. Health service providers and the wider community will need to prepare for this.

## 6 Hospital services and their use

### At a Glance

- In 1999-00 there were 86,615 hospital separations in the ACT, with 65,447 of these being for ACT residents.
- The number of hospital separations has grown considerably in the ACT over the last ten years with an average of 3% growth per year which is higher than the national average.
- Treatment for digestive disorders and for pregnancy, childbirth and the immediate post-natal period were the two largest medical categories for hospital use.
- The average length of stay in 1999-00 was 3.5 days.
- The ACT Health Care Facilities Code of Practice Code has been developed by the Office of the Chief Health Officer providing a minimum set of standards that must be met in order to operate a health care facility in the ACT

### 6.1 WHAT HOSPITALS DOES THE ACT HAVE?

The great majority of hospital services in the ACT are provided by the two major public hospitals: the Canberra Hospital and Calvary Hospital. There are three private hospitals providing services: Calvary Private, John James Memorial, and the National Capital Private hospital. (There are also six recognised day-only private hospitals in the ACT, which are not included in the ACT Hospital Morbidity Data Collection).

### 6.2 ACCESS TO HOSPITALS IN THE ACT

The Australian Health Care Agreement (AHCA), between the ACT and Commonwealth Governments, is the overarching framework that governs the provision of public hospital services to the ACT community. The three principles of AHCA are:

- eligible persons must be given the choice to receive public hospital services free of charge as public patients;
- access to public hospital services by public patients is to be on the basis of clinical need and within a clinically appropriate period; and
- eligible persons should have equitable access to public hospital services, regardless of their geographical location.

Every week in the ACT, more than 1,000 people are treated in the public hospital system. Hospital use is usually gauged by recording data when people leave hospitals - either because of a discharge back home, a transfer elsewhere or as a result of death. The term 'separation' is used to cover all these types of departure from hospitals.

### 6.3 HOSPITAL USE

Hospital usage is usually measured by counting the number of separations. In 1999-00 there were 86,615 hospital separations in the ACT. This figure includes private hospitals, and also includes non-ACT residents. As Canberra is a regional centre for medical treatment, many interstate patients, mainly NSW residents, attend. There were 65,447 separations from ACT hospitals for ACT residents in 1999-00, of which 17,347 were from private hospitals, and the remainder from the public hospitals.

The number of 'bed days' reflects not only the separation rate but also how long patients stay in hospital. The number of bed days for the major hospitals is shown in Table 24.

The number of hospital separations essentially reflects the demand for hospital services and has grown considerably in the ACT over the last ten years. This growth (on average, 3% per year) has been greater than that occurring in the rest of the country and exceeds the population growth rate (which averaged 1.2% per year over the same period). Treatment for digestive disorders and for pregnancy, childbirth and the immediate post-natal period were the two largest medical categories for hospital use (see Table 25).

## 6 Hospital services and their use

**Table 24: Number of bed days\*, by hospital, ACT and non-ACT residents, 1999-00**

Hospital	Bed days	Proportion
The Canberra Hospital	167,232	55.3
Calvary Public	51,185	16.9
John James	45,032	14.9
Calvary Private	21,235	7.0
National Capital Private	17,963	5.9
<b>Total</b>	<b>302,647</b>	<b>100</b>

Source: The ACT Hospital Morbidity data collection, 1999-00.

Note: \*Bed days are calculated by calculating the length of stay for each separation and then subtracting the number of leave days.

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**Table 25: Hospital separations by principal diagnosis, public and private hospitals, ACT residents, 1999-00**

	Public hospitals		Private hospitals		Total	
	No.	Col %	No.	Col %	No.	Col %
Certain infectious and parasitic diseases	872	1.81	118	0.68	990	1.51
Neoplasms	2,879	6.0	1,792	10.3	4,671	7.1
Diseases of blood/blood-forming organs etc	716	1.5	111	0.6	827	1.3
Endocrine, nutritional and metabolic diseases	891	1.9	94	0.5	985	1.5
Mental, behavioural disorders	1,252	2.6	305	1.8	1,557	2.4
Diseases of the nervous system	704	1.5	293	1.7	997	1.5
Diseases of the eye and adnexa	438	0.9	707	4.1	1,145	1.7
Diseases of the ear and mastoid process	360	0.7	229	1.3	589	0.9
Diseases of the circulatory system	3,175	6.6	1,045	6.0	4,220	6.4
Diseases of the respiratory system	2,346	4.9	765	4.4	3,111	4.8
Diseases of the digestive system	4,124	8.6	1,797	10.4	5,921	9.0
Diseases of the skin and subcutaneous tissue	588	1.2	341	2.0	929	1.4
Diseases of the musculoskeletal system and connective tissue	1,457	3.0	2,020	11.6	3,477	5.3
Diseases of the genitourinary system	2,012	4.2	1,733	10.0	3,745	5.7
Pregnancy, childbirth and the puerperium	4,209	8.8	1,201	6.9	5,410	8.3
Certain conditions originating in the perinatal period	1,103	2.3	373	2.2	1,476	2.3
Congenital malformations/deformations etc	392	0.8	177	1.0	569	0.9
Symptoms/signs/abnormal clinical and laboratory findings	1,881	3.9	424	2.4	2,305	3.5
Injury/poisoning/other consequences of external causes	2,935	6.1	656	3.8	3,591	5.5
Factors influencing health status etc	15,766	32.8	3,165	18.2	18,931	28.9
<b>Total</b>	<b>48,100</b>	<b>100.0</b>	<b>17,346</b>	<b>100.0</b>	<b>65,447</b>	<b>100.0</b>

Source: ACT Hospital Morbidity Data Collection, 1999-00

## 6 Hospital services and their use

### 6.3.1 LENGTH OF STAY

The trend for shorter hospital stays is continuing, with a further slight decrease since the last Report. The average length of stay is now 3.5 days.

(Note: as day-only hospitals are not represented in the data, day-only separations are under-estimated.)

This figure is inflated slightly by a few very long stays (90 days or more). If these are excluded, then the average hospital stay is 3.4 days.

The major causes for high length of stay are mental disorders, complications in new-born infants, and diseases of the circulatory system (Table 26).

The number of cases concluded with just one day in hospital (a day-only admission) is increasing.

The proportion of total separations accounted for by day-only admissions is now 60.5%. In addition, the average length of stay in ACT hospitals has fallen considerably since 1992. (See Figure 8).

### 6.3.2 AGE AND SEX BREAKDOWNS

In general, older people tend to use hospitals more than young people. As populations age, therefore, the demand for hospital services tends to rise.

Different age groups require hospital services for different reasons. The youngest groups (1-14 years) tend to be hospitalised mainly for respiratory problems, injury and poisoning, digestive or nervous system problems.

**Table 26: Average length of stay for principal diagnostic groups, public and private hospitals, ACT residents, 1999-00**

Diagnostic group	Average length of stay (days)
Mental, behavioural disorders	11.1
Certain conditions originating in the perinatal period	6.5
Diseases of the circulatory system	5.4
Injury/poisoning/other consequences of external causes	5.0
Neoplasms	4.3
Diseases of the respiratory system	4.2
Certain infectious and parasitic diseases	4.1
Diseases of the skin and subcutaneous tissue	4.1
Diseases of the musculoskeletal system and connective tissue	4.0
Diseases of the nervous system	3.8
Pregnancy, childbirth and the puerperium	3.6
Endocrine, nutritional and metabolic diseases	3.1
Congenital malformations/deformations etc	3.1
Diseases of the genitourinary system	2.7
Diseases of blood/blood-forming organs etc	2.7
Diseases of the digestive system	2.7
Factors influencing health status etc	1.8
Diseases of the ear and mastoid process	1.5
Diseases of the eye and adnexa	1.2
<b>Total</b>	<b>3.4</b>

Source: ACT Hospital Morbidity Data Collection, 1999-00

Note: Excludes stays greater than 90 days.

## 6 Hospital services and their use

There are few differences between the two sexes at this age. As people age, separations are more often related to complications of pregnancy, for females, as well as to digestive system diseases, injury and poisoning (both commoner in males), and genitourinary problems (commoner in females). From approximately 40 years of age, circulatory system problems (commoner in males) and cancer become major reasons for hospitalisation.

### 6.4 HEALTH CARE FACILITIES ACCREDITATION

Health care facilities have a responsibility for providing quality care. The responsibility is owed to patients, clients and their families and the general community. With responsibility comes accountability for the outcome of care and services. Health care organisations need to ensure that all services provided are of an acceptable quality. This is often evidenced by health organisations seeking accreditation with an external body that undertakes inspections or reviews of their health services.

#### 6.4.1 HOSPITAL ACCREDITATION

As part of the Service Agreement with providers of public hospital services, accreditation from a recognised external accreditation agency is a requirement to ensure robustness of systems and peer review. It is seen as a key part in measuring the quality of service.

### 6.5 ACT HEALTH CARE FACILITIES CODE OF PRACTICE

The Office of the Chief Health Officer undertook the establishment of an accountability mechanism to assist health facilities to focus on providing quality care and services.

The ACT Health Care Facilities Code of Practice was developed by the Office of the Chief Health Officer. Extensive stakeholder consultation was undertaken during its development.

**Figure 8: Average length of stay, ACT hospitals, 1992 - 2000.**



Source: ACT Hospital Morbidity Data collection 1992-93 to 1999-00

Note: Includes ACT and non ACT residents. Excludes stays greater than 90 days. Same-day patients are assigned a stay of one day



## 6 Hospital services and their use

The Code's goal is to protect the community from public health risks associated with the operation and management of health care facilities that provide prescribed medical and dental procedures. Its objective is to protect and promote health and prevent illness, injury and disability. The Code provides a minimum set of standards that must be met in order to operate a health care facility in the ACT.

The main focus of the Code is to encourage and, in some cases, mandate the use of external systems for improving the organisation and delivery of health services. These systems are ideally characterised by explicit, valid standards, by reliable assessment processes and by complimentary mechanisms for implementing improvement.

The Code is an enforceable Code of Practice under the *Public Health Act 1997*. The code provides the operators of the facility and the government with an agreed set of minimum standards that may be jointly worked towards. It is not intended that strong enforcement practices be implemented without first consulting with facilities and working together to address problems.

The operator of a health care facility is required to comply with the code and hold a Health Care Facility Public Health Licence in order to conduct the business.

### Emerging Issues

- Appropriate staffing in ACT hospitals has always been a significant challenge.
- The recent national shortage of registered general nurses, midwives and mental health nurses has made appropriate staffing even more difficult.
- International shortages of radiographers and radiologists has increased pressure on ACT Radiological Service provision.

# 7 National Health Priority Areas

## 7.1 CARDIOVASCULAR DISEASE

### At a Glance

- Circulatory (or cardiovascular) disease killed 486 people in the ACT in 1999. It remains the main cause of death in the ACT (36.5% of all deaths). Just over half of these deaths are caused by coronary heart disease, which affects more men than women.
- Age-standardised death rates for ACT males and females show that both are below the Australian average.
- Circulatory disease accounted for 6.4% of all hospital separations in 1999-00. The average length of stay for patients with a primary diagnosis of cardiovascular disease was 5.4 days in 1999-00.

### 7.1.1 WHAT IS CARDIOVASCULAR DISEASE?

Cardiovascular or circulatory disease (CVD) describes all diseases relating to the heart and blood vessels. It includes coronary heart disease, stroke (also known as cerebrovascular disease), heart failure and peripheral vascular disease. The terms 'cardiovascular' and 'circulatory' are often used interchangeably, although circulatory is probably a clearer description of the full range of conditions encompassed.

Circulatory disease as a whole affects more men than women and becomes more likely with increasing age. The sickness, disability, premature death and high health care costs of circulatory diseases make them a major factor in the life of the nation.

Out of this large group of disorders, the two categories that cause most disease and death are coronary heart disease (CHD) and stroke. CHD, or ischaemic heart disease, is a degeneration of the crown of blood vessels supplying the heart muscle. It can give rise to angina and myocardial infarction ('heart attacks'). CHD accounts for slightly more than half of all circulatory disease deaths. It is more common in men and post-menopausal women but rates have been declining gradually over the last few decades.

Cerebrovascular disease, or stroke, concerns the blood vessels in the brain. Blockage of these will cause damage to the part of the brain supplied by the affected vessels. The extent of the damage, and where it occurs, means that strokes can be mild, severe or terminal. Strokes are slightly commoner in women.

### 7.1.2 WHO IS AFFECTED?

Almost anyone can develop cardiovascular disease. There is a genetic component in many cases, but the main risk factors are connected to lifestyle and environment. People most at risk of developing cardiovascular disease are those who smoke, are physically inactive, have poor nutrition, drink alcohol excessively, have high blood pressure, have a high concentration of certain fats in the blood, are overweight or obese, and have diabetes. Most of these factors can be controlled by an individual, so it is therefore feasible to prevent or delay the onset of circulatory disease by a careful lifestyle.

### 7.1.3 WHY THIS IS IMPORTANT

As in the rest of Australia, circulatory disease is the main cause of death in the ACT and accounts for a large part of the work, and the costs, of the health system. As well, circulatory disease and its complications account for considerable loss of productive capacity in the workforce.

### 7.1.4 STATISTICS AND TRENDS

In 1995 the National Health Survey reported that an estimated 18.5% of the ACT population has at least one type of cardiovascular condition. The sex breakdown of this estimate, 41.8% male and 58.2% female, is similar to that seen for the whole of Australia (males 41%, females 59%). Of the different types of cardiovascular conditions, high blood pressure (hypertension) ranks as being the most common condition reported for both males (55%) and females (38%).

### Deaths

In 1999 there were 486 deaths (221 male and 265 female) due to circulatory diseases in the ACT. This represents 36.5% of all deaths. Nationally the death rates from circulatory disease have continued their gradual decline. A similar decline can be seen for ACT males. Age-standardised rates indicate a rise in female deaths due to circulatory disease.

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**Figure 9: Age-standardised mortality rates per 100,000 population for cardiovascular disease, by sex, ACT and Australia, 1995 - 1999**



Source: ABS Causes of Death data set, confidential unit record file, ACT, 1995-1999

However, these rates are still slightly below the national rate. Given the relatively small number of deaths in the ACT, rates may fluctuate from year to year.

When looking at deaths due to particular types of cardiovascular disease there are marked differences between the sexes. Of all male deaths from ischaemic heart disease in 1999, 53% were in those aged younger than 75 years, whereas only 22.5% of female deaths from this condition were in this age group - the remaining female deaths being in those older than 75. Similarly, with cerebrovascular disease (stroke), about 36% of male deaths were in the under-75 age group, while only 18.4% of female deaths were in this group.

Figure 9 shows age standardised mortality rates for cardiovascular disease in both the ACT and Australia over the period 1995 - 1999.

It can be seen that the rate of mortality due to cardiovascular disease has steadily decreased over the five-year period for Australia as a whole. With the exception of 1997 both ACT males and females show consistently lower rates of mortality due to cardiovascular disease compared to Australia as a whole. In 1999 the rate for ACT males was only 261 per 100,000 persons, the lowest in the five-year period. The rate for ACT females in 1999 was 209 per 100,000 persons and though higher than the previous year was still slightly below the Australian rate.

### 7.1.5 SERVICES AND THEIR USE

Acute episodes of cardiovascular disease frequently require some form of hospital treatment. In 1999-00, there were 4,220 hospital separations involving ACT residents attributed to cardiovascular disease (as the principal diagnosis), accounting for about 6.4% of all ACT hospital separations in that year. The average length of stay for patients with a primary diagnosis of cardiovascular disease was 5.4 days in 1999-00, compared with 5.6 days in 1998-99.

#### Emerging Issues

- The ageing of the ACT population is likely to increase the degree of hospital use, sickness and deaths from circulatory diseases.
- Several recent studies have postulated a link between dental health and circulatory disease, indicating that poor dental health care (especially periodontal disease) is a risk factor. More clinical and epidemiological research is needed, but the latest findings should be monitored.
- Smoking remains a significant cause of vascular disease of all types.

## 7.2 CANCER

### At a Glance

- The lifetime risk associated with developing cancer for people in the ACT is 1 in 3 for men and 1 in 4 for women.
- In 1999 there were 398 deaths from cancer in the ACT, which makes this condition the second highest cause of death in the ACT (30%). Although the male death rate from cancer is lower than that of Australia as a whole, the female rate is slightly higher.
- Major causes of death were cancers of the trachea, bronchus and lung, colorectal cancer, prostate cancer in males, and breast cancer in females.
- ACT women tended to have more Pap smear tests, and more mammograms in the target age group of 45-64 years, than Australian women generally.

### 7.2.1 WHAT IS CANCER?

Cancer is a disease of uncontrolled cell growth. The phenomenon of cancer is also called neoplasia (which means new growth) and a cancerous growth is referred to as a malignant neoplasm. A neoplasm can be either benign, in which case it may grow but does not invade blood vessels and cannot spread, or malignant. Malignant neoplasms tend to grow more rapidly, often have a different appearance and structure to benign growths, and have the capacity to spread, setting up new tumours of the same cell type in other regions of the body. Most cancers result in a solid tumour, but some (e.g., leukaemia) do not.

Cancer can develop in virtually any part of the body and is classified according to the type of cell and tissue involved. How harmful a specific cancer is will depend on the cell type, its location, rate of growth and degree of invasiveness. Cancers are also classified on the basis of how far they have spread.

The prognosis of cancer is related both to the type of cancer and to the stage of cancer spread. Treatment often involves drugs, chemotherapy and major lifestyle changes. Prevention consists of identifying and avoiding risks associated with cancer, such as certain types of diet and exposure to carcinogens. In addition participation when appropriate in cancer detection services such as breast, cervical and skin cancer screening are important measures that can be taken to find cancer while it is still curable.

### 7.2.2 WHO GETS CANCER?

Cancer is a fairly common condition, and across a population the incidence of the disease increases with advancing age. There are several factors that affect the likelihood of an individual developing cancer. These are:

- genetic - e.g., certain genes appear to predispose towards cancers;
- environmental - e.g., exposure to cancer-causing chemicals or radiation; and
- biological - e.g., advancing age or infection by some viruses.

For example, the development of lung cancer is associated with tobacco smoking and exposure to asbestos, whereas the development of breast cancer is associated with family history and nulliparity (not having given birth).

The risk of cancer is lowest in late childhood, but increases with age thereafter. In the ACT, nearly 60% of cancers are diagnosed in people aged over 65 years, whereas fewer than 1% of cancers occur before the age of 15 years (and most of these are leukaemias and lymphomas). Melanoma, testis and breast cancers account for the majority of new cancers occurring in people under the age of 45 years. As the ACT population ages, an increase in the incidence of all cancers can be expected, although some specific types of cancer may decrease.

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### 7.2.3 WHY THIS IS IMPORTANT

Given its prevalence, its usually serious nature, and the type and cost of treatments required, cancer has a major impact on the Australian community. Unfortunately, not all cancers are amenable to prevention and control with our current state of knowledge, although many cancers can be cured if detected early enough. Under the National Health Priority Area, six cancer groups - lung, breast, cervix, skin, colorectal and prostate cancers - have been identified as areas where significant health gains can be achieved through organised cancer control effort.

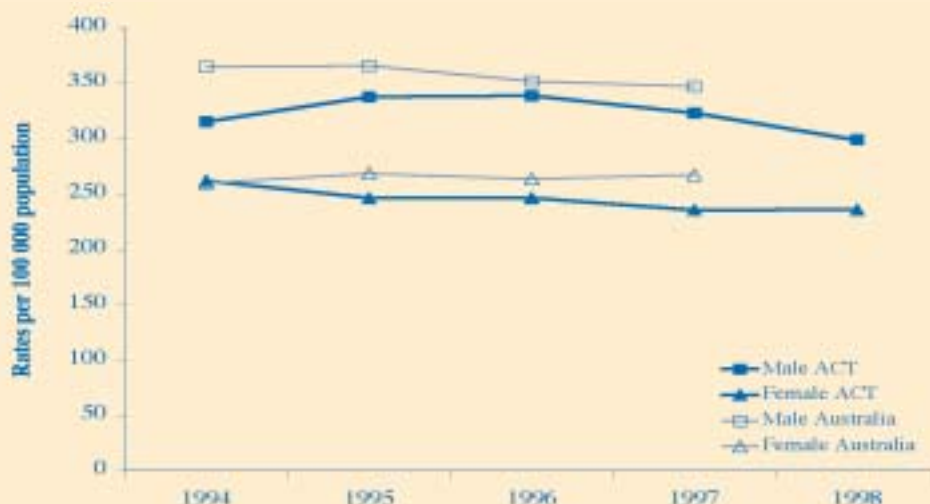
### 7.2.4 STATISTICS AND TRENDS

The lifetime risk associated with developing cancer for people in the ACT is about 1 in 3 for men and 1 in 4 for women. This is similar to the national figure. Since 1994, there have been some fluctuations in the age-standardised incidence of cancer for males. (Figure 10)

This was due in large part to changes in the approach to prostate cancer.

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**Figure 10: ACT and Australian trends in age-standardised incidence rates for all cancers (excluding non-melanocytic skin cancers) by sex, 1994 - 1998\*.**



Source: ACT Cancer Registry and Cancer in Australia Series 1994-1997, AIHW and AACR

Note: \*Rates for Australia not available at time of report preparation.

**Table 27: Most common cancers, by age and sex ACT, totalled for the years 1994 - 1998**

	0-14 years	15-44 years	45-64 years	65+ years
<b>Males</b>	n = 25 Leukaemias (20%)	n = 298 Melanoma (24%) Testis (16%) Colon (6%)	n = 962 Prostate (25%) Melanoma (14%) Colon (11%)	n = 1,417 Prostate (40%) Lung (9%) Colon (8%)
<b>Female</b>	n = 21 Leukaemias (43 %)	n = 404 Breast (36 %) Melanoma (18 %) Cervix (7%)	n = 959 Breast (44%) Melanoma (10%) Colon (7%)	n = 977 Breast (22%) Colon (11%) Lung (9%)

Source: ACT Cancer Registry, 1994 - 1998

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The rise between 1994 and 1996 reflects a significant increase in the notification of prostate cancers. This trend is indicative of an increase in screening by medical services (especially for prostate specific antigen (PSA) testing).

The fall after 1996 is mostly attributable to the stabilisation of the identified prostate cases and a decline in the number of PSA tests conducted (a national trend consistent with the NHMRC recommendations). The male incidence rate trend in the ACT is similar to the Australian average, although the rise and fall for Australia started in the early 1990s with the ACT showing a significant lag. Most of the lag reflects a delayed uptake by medical services of screening tests for prostate cancer since there was some controversy associated with PSA testing. Overall, the incidence of diagnosed prostate cancer in the ACT is higher than the Australian average.

The age-standardised incidence of cancer for females in the ACT shows a slight decline over the five-year period (Figure 10). This decline reflects a reduction in colorectal cancer over this period, tempered by increases in the incidence of lung cancer and melanoma. Although the annual rates for these cancers are somewhat unstable because of the ACT's relatively small population, a similar trend in the incidence of lung cancer and melanoma has been observed in the national rates.

The leading sites accounting for the majority of new cancers over the period 1994 - 1998 are as follows. For males, these are prostate (32%), colon and rectum (13%), melanoma of the skin (11%) and lung (8%). For females, these are breast (33%), colon and rectum (12%), melanoma of the skin (10%) and lung (7%). The four most common sites overall (55% of all new cancers) are prostate (17%), breast (15%), colon and rectum (13%) and melanoma of the skin (10%).

**Table 28: Deaths caused by cancer, by sex, ACT, 1994-1999**

	1994		1995		1996		1997		1998		1999	
	No.	Rate	No.	Rate	No.	Rate	No.	Rate	No.	Rate	No.	Rate
Deaths from all cancers												
Males	208	137.5	186	121.4	212	144.4	176	115.1	201	131.0	196	126.8
Females	146	97.6	179	118.6	164	107.7	191	123.2	188	121.5	202	129.9
Lung cancer												
Males	34	22.5	33	21.5	34	21.9	30	19.6	48	31.3	35	22.6
Females	22	14.7	17	11.3	18	11.8	28	18.1	29	18.8	24	15.4
Colorectal cancer												
Males	35	23.1	28	18.3	32	20.6	26	17.0	26	16.9	24	15.5
Females	16	10.7	27	17.9	17	11.2	29	18.7	22	14.2	27	17.4
Prostate cancer												
Males	27	17.8	25	16.3	30	19.3	15	9.8	24	15.6	21	13.6
Breast cancer												
Males	0	0	0	0	0	0.0	0	0.0	0	0.0	1	0.6
All Females	27	18.0	39	25.8	40	26.3	35	22.6	39	25.2	33	21.2
Females aged 50-69	15	73.0	19	89.5	19	88.7	15	62.5	15	59.5	14	53.2
Malignant melanoma												
Males	6	4.0	5	3.3	4	2.6	4	2.6	5	3.3	8	5.2
Females	2	1.3	6	4.0	5	3.3	4	2.6	4	2.6	2	1.3
Cervical cancer												
Females	3	2.0	7	4.6	5	3.3	5	3.2	4	2.6	2	1.3

Source: ABS Causes of death data set. Confidentialised unit record. Unpublished data 1993-1999.

Note: Crude rate per 100,000 population.



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The most common sites for cancer occurrence varies with age, as Table 27 shows. Leukaemia predominates in the younger years, but breast, prostate, colon and skin cancer (melanoma) are the main types in older adults.

### Deaths

Cancers accounted for 398, or 30%, of all deaths in the ACT in 1999, making this category the second biggest killer after circulatory disease. The number of female cancer deaths (202) marginally outnumbered males (196) (see Table 28).

The standardised cancer death rates (per 100,000 people) for the ACT show a different trend from the incidence rates in the earlier graph. As Figure 11 shows, cancer death rates for men have fallen in the ACT since 1995 (from 208 per 100,000 to 186) but not for women (from 162 to 155). ACT males had a lower cancer death rate than the Australian average, while for ACT females it was slightly higher.

A breakdown of cancers by type shows that female death rates in the ACT from lung cancer have increased slightly since 1995 and death rates of all females from breast cancer have also increased. However, because of the relatively small numbers involved, year-to-year variations can be quite large and may not yet signify meaningful trends.

Cancer of the lung is the type that accounts for the greatest proportion of all cancer deaths (see Figure 12) and yet it only accounts for about 8% of all cancers.

Most lung cancers are lethal, but preventable. It is therefore still necessary to maintain and strengthen health promotion efforts aimed at decreasing smoking.

Colorectal cancer is the second largest cause of cancer death in the ACT. This is followed by breast cancer, prostate cancer, malignant melanoma and cervical cancer.

### 7.2.5 SERVICES AND THEIR USE

Cancer (both malignant and benign) accounted for 7.1% of all hospital separations for ACT residents in 1999-00. Hospital separations due to different cancer types as a proportion of all cancer separations are shown in Table 29 above.

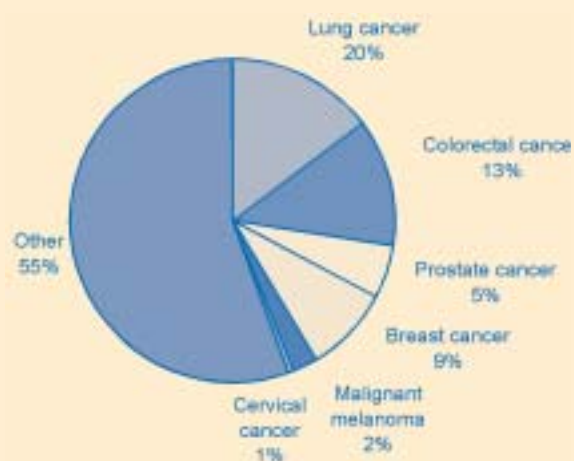
### 7.2.6 SCREENING FOR CANCER

Currently, national policies are in place to promote screening for breast and cervical cancer in Australian women in the age groups for which there is a demonstrated benefit. As there is no evidence for any reduction in mortality associated with early detection of prostate cancer in asymptomatic men, screening for prostate cancer is still considered controversial.

Currently there is not a specific screening program for colorectal disease in the ACT. A national investigation into the value of population faecal occult blood testing for preventing colorectal cancer deaths is being conducted and an ACT program will be considered if this shows a worthwhile benefit.

However people with a strong family history of colorectal cancer are already encouraged to have regular colonoscopies.

**Figure 12: Deaths from selected cancers, by site, as a proportion of all cancer deaths, ACT, 1999**

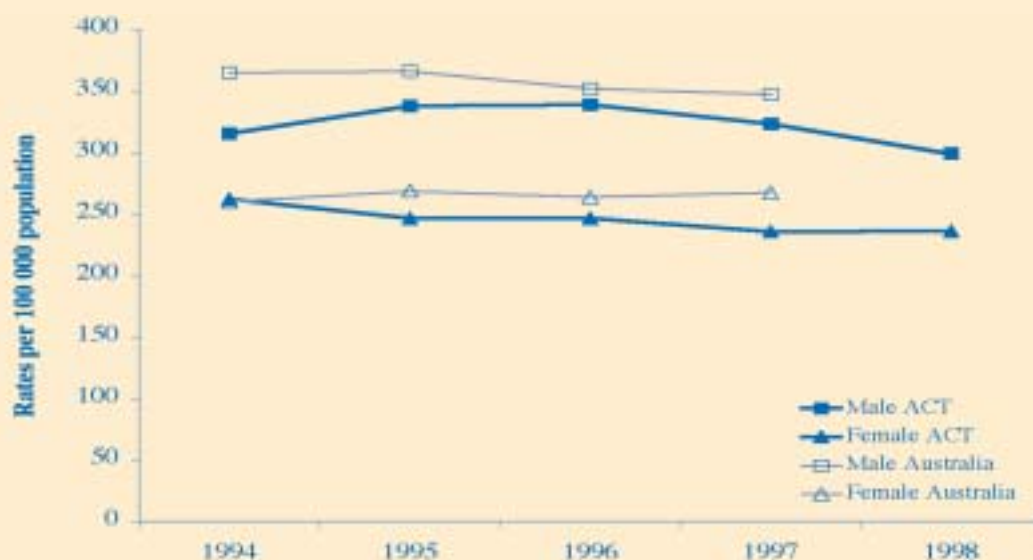


Source: ABS Causes of death data set, confidentialised unit record file, unpublished data. ACT, 1999.



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**Figure 11: Age standardised mortality rates per 100,000 population due to cancer by sex, ACT and Australia, 1995 - 1999**



Source: ABS Causes of death data set, confidentialised unit record file, unpublished data. ACT, 1995-1999.

**Table 29: Hospital separations due to cancer type as a proportion of all cancers by sex, ACT residents, 1999-00**

Cancer type	Male	Female	Total
Bone, connective tissue, skin & breast	22.3	25.5	24.0
Benign tumors	13.1	28.1	21.0
Lymphatic & Haematopoietic	14.6	10.6	12.5
Genitourinary organs	14.5	5.6	9.8
Unspecified	6.8	6.4	6.6
Digestive organs and peritoneum	11.3	7.0	9.0
Carcinoma in situ	2.7	6.5	4.7
Respiratory	3.9	2.9	3.4
Eye, brain & other parts of central nervous system	1.0	1.5	1.3
Thyroid and other endocrine glands	0.5	0.4	0.5
Other neoplasms	8.0	5.2	6.5
Lip, oral cavity & pharynx	1.2	0.5	0.8

Source: ACT Hospital Morbidity Data Collection, 1999

### Cervical screening

It is estimated that cancer of the cervix can be prevented in 90% of cases through regular Pap smears. Pap smears detect precancerous cells on the cervix, which can then be easily treated.

All women should have Pap smears every two or three years. The ACT has some of the highest cervical screening participation rates in Australia. For example, the participation rate for women in the 50-54 age group in 1999 was 84%.

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The ACT Pap Smear Register plays a vital role in reducing the number of cervical cancer deaths in the ACT. The Register is a central storage point for Pap smear results. These records allow the Register to remind women if they are overdue for a routine Pap smear, or to follow them up if there is an abnormality in the results that has not yet been addressed. The Register will be putting particular emphasis in 2001-02 on encouraging Aboriginal and Torres Strait Islander women, along with older and younger age groups, to have more regular Pap Smears. Aboriginal and Torres Strait Islander women are nine times more likely to die from cervical cancer than are other women in Australia. The ACT Pap Smear Register will be working with local communities to increase the number of Aboriginal and Torres Strait Islander women having regular Pap Smears as this is the best way to reduce the risk of death from cancer of the cervix.

Older women are another population group that is much less likely to have regular Pap smears. Unfortunately, the risk of dying from cervical cancer rises significantly with age - with women in their 60s almost five times more likely to die from cervical cancer than women in their 30s. About 66% of women aged 60-69 participated in the register in 1999. With many older women having Pap smears less regularly, cervical cancer is often more advanced at the time of diagnosis and this reduces the chances of a full cure.

Young women are another group that the ACT Register will be encouraging to have more regular Pap Smears. Younger women often think that because they are young they have a low risk of cervical cancer. Recent studies, however, indicate rising trends in the incidence and mortality of cervical cancer in young women. In 1999, 58% of women between the ages of 20-30 participated in cervical screening.

Overall, 63.6% of women in the target age group (20-69 years) participated in cervical screening in the period July 1998 to June 2000. This is slightly lower than in the previous two-year period, when 65.7% participated. Rates were particularly down in the 25-29 year age group and the 45-49 year olds. However, rates have increased in the 65-69 and

55-59 year age groups. As Table 30 shows, 84% of women aged 50-54 participated in cervical screening.

### **Breast screening**

It is estimated that one in eleven women will develop breast cancer at some stage of their life, and more than 2,600 Australian women die from breast cancer each year. There is currently no known way to prevent breast cancer, so early detection through screening programs is the best way to reduce the impact of this disease. The risk of developing breast cancer increases with age.

BreastScreen ACT is part of the Commonwealth BreastScreen Australia program that aims to reduce death and suffering from breast cancer through early detection. BreastScreen provides free mammography screening every two years and is aimed at women between the ages of 50-69. Women 40-49 and over 70 can also attend. The BreastScreen Australia program has been running for the past eight years, however it is too soon to identify trends or draw firm conclusions regarding the success of the program.

The number of women in the ACT being regularly screened has remained high across all sectors of the community. According to the 1999/00 BreastScreen Report, the participation rate of women aged 50-69 has increased since the previous Report and is now 74% in the ACT, one of the best results nationally (See Table 31).

ACT women have higher participation rates in both breast and cervical screening than Australian women generally. However, participation among some groups (for example, Aboriginal and Torres Strait Islander women aged 50-69) still remains at rates less than ideal for the full public health benefit of these initiatives to be realised.

Apart from having high rates of participation, cancer screening programs must detect a high proportion of early cancers or pre-cancerous lesions to be effective in reducing mortality. Performance standards for cancer detection have been developed by BreastScreen, and for pre-cancerous lesions by the Cervical Screening Program.

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**Table 30: Participation rates, Cervical Screening Program, women aged 20-69 years July 1998 - June 2000**

Age Group	Target population*	Women screened	% of target
20-24	13,426	6,254	46.6%
25-29	13,185	8,013	60.8%
30-34	12,183	7,798	64.0%
35-39	11,873	7,709	64.9%
40-44	10,577	7,118	67.3%
45-49	9,644	6,550	67.9%
50-54	6,619	5,567	84.1%
55-59	4,347	3,317	76.3%
60-64	3,168	2,107	66.5%
65-69	2,716	1,368	50.4%
<b>Total</b>	<b>87,738</b>	<b>55,801</b>	<b>63.6%</b>

Source: ACT Community Care's Women's Health Program

Note: \*Target population is calculated from the average estimated resident population for 1997 and 1998 of the number of women in the ACT aged 20 – 69 years, adjusted for the estimated proportion of women in each age group who are thought to have had a hysterectomy using data from the ABS 1995

The ACT women's cancer screening programs are performing well by international standards: Table 32 shows the numbers of cancers detected by ACT BreastScreen, and the cancer detection rate (per 10,000 women screened) among ACT women in each of the twelve month periods from 1993-94 to 1997-98.

### Prostate Screening

Prostate cancer is a male-only disease (women do not have a prostate) that affects mainly older men. There is no reliable evidence to show that screening for prostate cancer reduces the death rate from the disease. Prostate cancer is however a very treatable disease, so it is important for men to seek prompt medical advice for any symptoms of prostate disease.

The Commonwealth government, through its 'continence awareness' initiatives, has funded ACT Community Care to develop a package of information (including seminars, written and video material) on prostate and continence issues. The package targets men older than 50 years, and is delivered in conjunction with the Lions Clubs of the ACT. (Pre- and post-surgical education and advice for

men undergoing prostatectomy, in regard to continence issues, is also provided.) The ACT Department of Health and Community Services has provided further funding to take this package of information to a wider audience. ACT Community Care has publicised the availability of these seminars widely in the community, involving urologists, general practitioners, and the large ex-service community. Men are often enormously relieved to realise that other men share similar urinary and prostate health problems. Cancer risks and screening tools are discussed with participants in general terms through a health promotion approach.

### 7.2.7 ACT CANCER SERVICES COUNCIL

Formed in April 2000, the ACT Cancer Services Council is an advisory body that formally links service providers (in hospital and community settings) with consumers and with the ACT Department of Health and Community Care. The latter is responsible for overseeing the Cancer Program. It provides policy advice on cancer services, emphasising integrated systems of care for all phases of cancer care in the ACT and its surrounding region.

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**Table 31: ACT Breast Screen participation rates, ACT women screened July 1998 – June 1999**

Age group	40-49	50-69	70-79
All women in the ACT	23%	74%	16%
NESB women	26%	73%	12%
Indigenous women	23%	56%	17%

Source: ACT Community Care's Women's Health Program

**Table 32: Cancers detected per 10,000 women breast-screened (ACT women only), ACT July 1998 – June 1999**

Number of cancers detected in ACT Female Residents 01/7/1998-30/6/1999	67
Overall cancer detection rate	56.6 per 10,000 women screened

Source: ACT Community Care's Women's Health Program

### Emerging Issues

- Prostate cancer remains a concern in older men. Information should continue to be provided to men with symptoms and to general practitioners.
- Currently, there is no national screening program for colorectal cancer. The Australian Health Technology Advisory Committee has recommended pilot programs based on faecal testing for all Australians aged 50 years and above.
- As the ACT moves towards an older population it can be expected that there will be an increase in the incidence of cancer in the Territory.

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## 7.3 MENTAL HEALTH

### At a Glance

- In 1999, 79 deaths in the ACT were attributed to mental illness, with 45 of these deaths resulting from suicide.
- In 1999-00 there were 1,557 separations (676 males, 881 females) for ACT residents with a principal diagnosis of a mental illness, accounting for 2.4% of all hospital separations for ACT residents. A further 340 hospitalisations were recorded as being due to a suicide attempt. The majority of these services (80.4%) were provided by public hospitals.
- Schizophrenic disorders and affective psychosis account for 61.3% of separations due to mental illness not including those related to suicide.
- Males account for a higher proportion of separations due to dementia, however females outnumber males for other categories of mental illness.

### 7.3.1 WHAT IS MENTAL HEALTH?

Mental health can be defined in various fashions, but it generally refers to “an individual's ability to negotiate the daily challenges and social interactions of life without experiencing undue emotional or behavioural incapacity”. (National Health Priority Areas Report. *Mental Health: A report focussing upon depression*, 1998<sup>7</sup>).

Mental health disorders can range from mild where treatment is not sought and the individual continues with a relatively unhampered existence, to severe which may be disabling and possibly dangerous.

The majority of suicides are thought to be associated with mental illness, with severe depression and schizophrenia being particularly high risk factors.

### 7.3.2 WHO IS AFFECTED?

Mental illness can affect anyone, although there may be differences in individual susceptibility to some psychiatric disorders. The number of people affected for particular categories of mental illness may vary with age, gender, occupation and socioeconomic circumstances.

The 1997 National Survey of Mental Health and Well-being, states that the ACT had approximately 46 100 people with a mental illness of some type in 1997. This equates to 21% of the ACT adult population or about one in five people.

In 'Australia's Health 2000', the Australian Institute of Health and Welfare estimates that about one million Australians suffer from a mental problem or disorder and that 50% or more of these people experience long-term effects. According to the 1995 National Health Survey only 40% of these people will seek help or have their problem diagnosed.

### 7.3.3 WHY THIS IS IMPORTANT

The prevalence of mental illness in our community demonstrates that it is a major population health issue, which has implications for people's well-being, quality of life and general health. Serious mental health problems can have a major effect on the family, friends, colleagues and carers of the afflicted. Thus, this aspect of health is an important determinant of the well-being of the entire community.

As a result of its importance to society and the widespread nature of its effects, mental health has been identified as a National Health Priority Area (NHPA). The main mental health disorders considered to be public health problems are schizophrenia, depression, anxiety disorders, dementia and substance use disorders. According to the World Health Organisation, depression is likely to be the second largest contributor to the world's disease burden by 2020. Depression is the most common mental illness reported in Australia and so has been identified as the first priority for action.

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It has been estimated that about 90% of adolescent suicides are preceded by signs of mental illness, especially depression. Any suicide places an exceptional emotional toll on surviving relatives and friends; in addition, whenever a young person commits suicide, there is the loss of many potential years of productive life. In the ACT during 1999, suicide accounted for 3.4% of total deaths, but 11.2% of the total number of years of potential life lost (YPLL).

### 7.3.4 STATISTICS AND TRENDS

The 1995-96 National Health Survey showed that, of those ACT people reporting recent conditions, an estimated 5,300 people (2.6%) reported suffering from 'nerves', tension, nervousness or emotional problems. This is equivalent to a rate of 16.4 per 1,000 people for males (compared to the rate for Australian males of 15.9), 21.2 per 1,000 for females (Australian females 24.8), and 18.8 per 1,000 persons (Australian rate is 20.4). It is important to note however that the National Health Survey did not cover people living in nursing homes or other establishments.

#### Deaths

During 1999 there were 34 people who died directly as a result of mental illness (not including suicide) in the ACT (see Table 33). Most people were aged over 85. Senile or pre-senile organic psychotic conditions (e.g. dementias) were the underlying cause of many of these deaths.

#### Suicides

In 1999 there were 45 known deaths due to suicide in the ACT. The great majority (35) of these deaths were for males - a situation that is reflected nationally as well.

Although age-standardised male suicide rates in Australia have risen slightly from 1993 to 1999 (Figure 13), the rates for ACT males and females have fluctuated during that time without a significant underlying trend. In general, ACT male suicide rates are lower than rates for all Australian males, and although the ACT females suicide rate was higher than for Australian females in 1999 the ACT female rates fell below the national rate in 1998.

The extremely small number of suicide deaths in the ACT (especially for females) can lead to large annual fluctuations in rate.

It is likely that the known incidence of suicide is an under-estimate of the real numbers because suicides may not always be recognised as such. Other categories of death, for example, some motor vehicle accidents or deaths through misadventure, may in fact be unrecognised suicides.

Given that most suicide deaths occur at younger ages, the effect of the ageing population is not expected to increase suicide crude rates into the future.

**Table 33: Deaths as a direct result of mental illness, by sex and median age, ACT, 1995 - 1999**

Year	Sex	Total	Median age
1995	Males	13	79.0
	Females	16	86.5
<b>Total Persons</b>		<b>29</b>	<b>85.0</b>
1996	Males	17	40.0
	Females	15	85.0
<b>Total Persons</b>		<b>32</b>	<b>75.5</b>
1997	Males	7	27.0
	Females	12	87.0
<b>Total Persons</b>		<b>19</b>	<b>85.0</b>
1998	Males	11	70.0
	Females	19	88.0
<b>Total Persons</b>		<b>30</b>	<b>83.0</b>
1999	Males	14	75.3
	Females	20	72.3
<b>Total Persons</b>		<b>34</b>	<b>79.5</b>

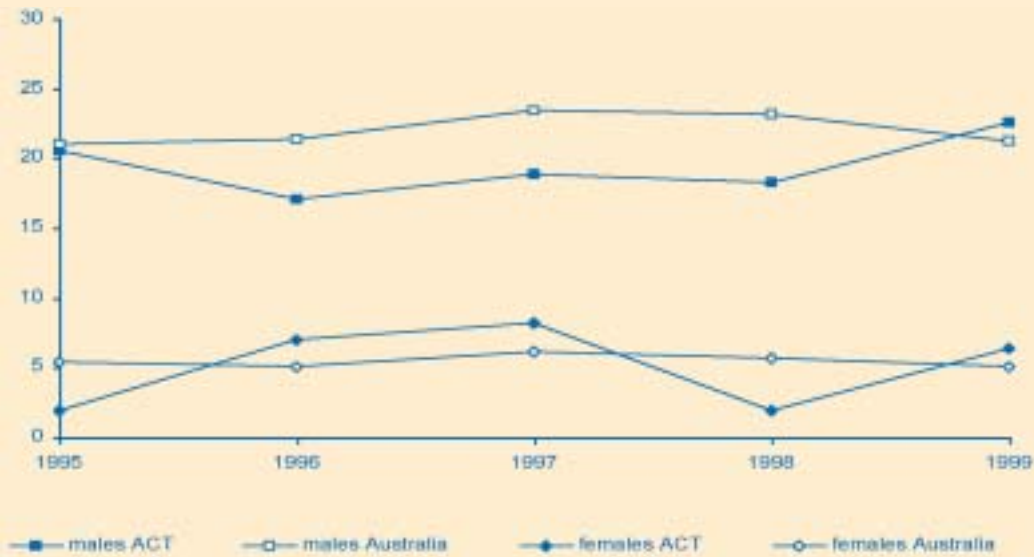
Note: These figures exclude suicide.

Sources: ABS, Causes of Death Australia, 1995-1999.

Catalogue No. 3303.0

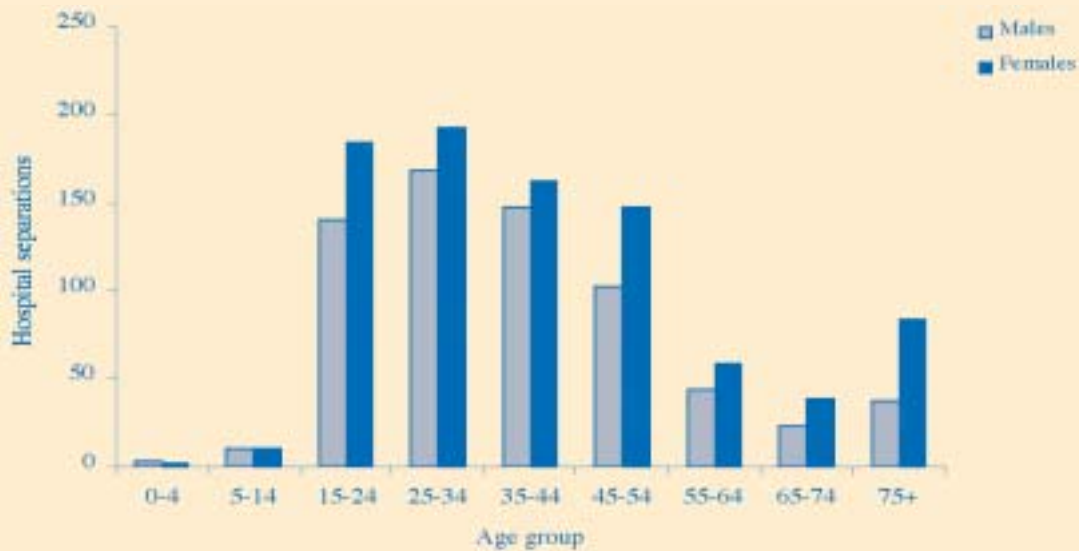
ABS: Causes of Death ACT Unit Record Files 1995-1999

**Figure 13: Age -standardised suicide rates per 100,000 population, by sex, ACT and Australia 1995 - 1999**



Source: ABS Causes of death dataset, confidentialised unit record file, 1995 - 1999

**Figure 14: ACT hospital separations with a principal diagnosis of mental illness, by age, by sex, 1999 - 2000.**



Source: ACT Hospital Morbidity Data Collection, 1999  
 Note: Data includes ACT residents only.

### Mental Health Hospitalisations

In 1999-00 there were 1,557 hospital separations for ACT residents (males=676, females=881) with a principal diagnosis of a mental illness that was not directly related to a suicide.

This is about 2.4% of all hospital separations. Public hospitals provided most (80.4%) of these services. In adulthood, females outnumbered males in all age groups (see Figure 14).



## 7 National Health Priority Areas

Affective (mood) disorders were the type of mental illness accounting for most hospital separations (39.8%). These disorders, along with schizophrenic and delusional disorders, accounted for disproportionately greater lengths of stay than hospitalisations due to other causes (see Table 34). Males account for 57% of separations due to schizophrenia, however females outnumber males for other categories of mental disorder.

**Table 34: Average length of stay (ALOS) for types of mental illness by sex, ACT hospitals, ACT and non-ACT residents, 1999-00**

Types of mental disorders	ALOS (days)		
	Male	Female	Person
Dementia	14.8	14.6	14.7
Schizophrenia, schizotypal and delusional disorders	15.1	16.1	15.5
Affective disorder	13.7	13.7	13.7
Neurotic, stress-related and somatoform disorders	9.9	11.1	10.6

Source: ACT Hospital Morbidity Data Collection, 1999-00

### Suicide and Attempted Suicide Hospitalisations

During 1999-00 there were 340 hospital separations for ACT residents that were due to self-inflicted injury (67.6% female, 32.4% male), the majority of these were related to poisoning by drugs. Approximately 30% of these injuries were in the 25-34 year age group.

Males are more likely to complete a suicide than females, with the result that females are hospitalised because of suicide attempts in greater numbers than males. While poisoning by drugs was the most common means of self-inflicted injury for both males and females, males tended to use violent means slightly more often than females. There appears to have been a slight increase in the number of separations for self-inflicted injuries for females from 1995-96 to 1999-00 (Figure 15).

### 7.3.5 SERVICES AND THEIR USE

In the ACT, the issue of depression has been addressed through a series of government initiatives and ongoing programs. The ACT Government is contributing financial support to the "Beyondblue" National Depression Initiative, and this support will continue for the next four years. The "Vyne" project is an ACT Government initiative initially developed as part of the "ACT Youth Suicide Prevention Strategy 1998 - 2001". Vyne is based at Calvary Hospital and has broadened its focus from youth suicide and depression prevention to a whole of life focus. Vyne provides suicide intervention training for agencies in the human services sector.

The ACT mental health services provide a broad range of specialist services to consumers affected by depression, with a focus on moderate to severe illness. These services include inpatient, outpatient and community services, and are provided across all age groups.

The ACT Government is also active in fostering mental health research particularly in the area of depression. The ANU Centre for Mental Health Research has received funding for research into depression in the ACT and the Southern Health Area of New South Wales. The Centre for Mental Health Research has also developed web based programs that target depression with ACT Government assistance. "Moodgym" is a self-help web program designed for young people with mental health depression issues. "Blue pages" is a consumer information web site that will inform people about what works and what does not work for traditional and alternative treatments for depression.

The broader mental health literacy of the general public is currently being addressed through the Mental Health First Aid course which includes education on depression and suicide. This course was also developed by the Centre for Mental Health Research with ACT Government funding.

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**Figure 15: Hospital separations crude rate per 100,000 population for self-inflicted injuries, ACT residents, by sex and year, 1995-96 to 1999-00**



Source: ACT Hospital Morbidity Data Collection, 1995 - 2000

The National Drug Strategic Framework<sup>8</sup> 1998-99 to 2002-03 and the Second National Mental Health Plan<sup>9</sup> (1998 - 2003) both highlight the need for identifying and managing dual diagnosis. This term refers to people who experience a mental illness as well as problems with substance abuse.

Cupitt, Morgan and Chalkley also outline the difficulties of determining accurate data on the prevalence of dual diagnosis in the ACT due to the lack of a standardised data collection tool and reporting mechanism. Their study, conducted on behalf of the ACT Department of Health and Community Care<sup>10</sup> also recommended the development of a model to facilitate improved clinical management, treatment and rehabilitation of people with dual diagnosis through improvements in the way services are structured and delivered. A project team has been established to implement this model.

### Emerging Issues

- The World Health Organisation has predicted that by the year 2020, depression will be the second largest burden of disease in the world. The ACT Department of Health and Community Care (DHCC) is developing strategies to address this issue.
- Many people with a mental illness also have problems with substance abuse. The DHCC is examining ways to improve services for this group of people.

# 7 National Health Priority Areas

## 7.4 INJURY

### At a Glance

- In 1999 there were 111 deaths from external injury in the ACT (80 males and 31 females), accounting for 8.3% of all deaths in that year.
- Male death rates from injury are between two and three times higher than those for females.
- Most deaths from injury in the ACT occur in people aged 15 - 44 years (mostly males), and these are largely the result of suicide and transport accidents.
- ACT death rates in this category are generally below the national rates in both males and females.
- In 1999-00 there were 3,591 separations from ACT hospitals for external causes of injury and poisonings.

### 7.4.1 WHAT IS INJURY?

Everyone knows what injury means, but it is hard to define. For the purpose of medical statistics, it usually refers to physical or psychological harm to a person, caused by an external agent or force. Despite the term 'external', the definition of injury covers self-harm and suicide. It also includes poisoning and adverse events while under medical care. It excludes birth trauma (although includes other trauma).

Australia-wide, suicide and transport-related accidents are the major causes of death within the injury category, while falls are the major causes of hospitalisation. Over the last few decades, there has been a gradual reduction in overall death from injury in Australia. Particularly significant are the reductions in road injury deaths — the result of highly organised and effective road safety programs, vehicle design modifications and improved trauma medicine. However, it is still feasible to accomplish further reductions both in road injuries and other categories of injury.

### 7.4.2 WHO GETS INJURED?

People most prone to injury are those aged 15-44 years. For this age group, injury accounted nationally for 69% of all deaths. Obviously, however, injury can affect anyone, although the pattern of injury varies according to age, sex and population group. For example, falls are common in children and the elderly, while self-harm and road crashes are primary causes of injury in adolescents and young adults. Statistically, males, rural residents and indigenous people are all at greater risk of injury than the rest of the population.

### 7.4.3 WHY THIS IS IMPORTANT

Injury is a national health priority area because it causes about a quarter of all deaths and is the leading cause of death in young people. As such, it results in far more years of potential life lost than cancer or cardiovascular disease. Even in non-fatal injuries a disability may remain for the rest of a victim's life, possibly resulting in reduced quality of life, reduced working capacity and continuing treatment expenses. Hence, these conditions cause more problems than the numbers presented here might suggest.

As with most areas of medicine, prevention is certainly the best strategy for dealing with injury. By placing injury in a separate category it is easier to study the types of injuries so as to work out methods of minimising them in the future.

### 7.4.4 STATISTICS AND TRENDS

#### Deaths

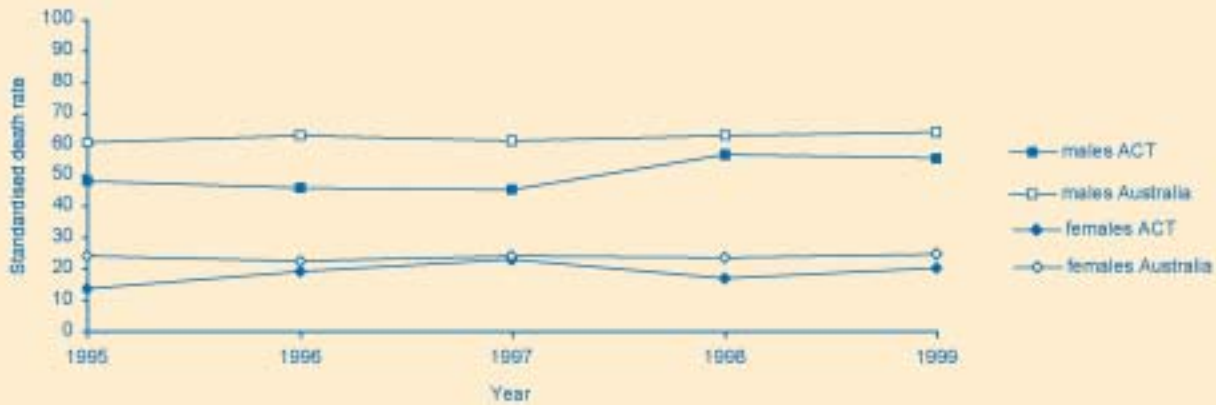
In 1999 there were 111 deaths by injury (80 males and 31 females) in the ACT, most of these were in the 15 - 44 year age group. These figures show no change in the number of male deaths from the previous year but a slight increase in female deaths.

Suicide was the major cause of injury-related deaths in the ACT, accounting for 41%. (More detail on suicide can be found under Mental Health.) Transport accidents accounted for about 18% of injury deaths.

Age-standardised injury mortality rates for ACT males and females compare favourably with Australian rates over the last five years of available data (Figure 16).

## 7 National Health Priority Areas

**Figure 16: Age-standardised mortality rates for injury and poisoning, by sex, ACT and Australia, 1995 - 1999**



Sources: ABS, Causes of Death Australia. Catalogue No. 3303.0  
ABS confidentialised unit record file 1995-1999

Note: Indirect standardised rates per 100,000 calculated using 1996 Australian cause-specific death rates (persons) as the standard.

Despite no real change in the last year, the ACT male injury death rate is still lower than the national rate.

Combined data from the last five years show that male deaths in this category were led by suicide (175), followed by motor vehicle accidents (96) and accidental poisoning by drugs (39). Female deaths over the same period were also led by suicide (50) and motor vehicle accidents (45), with the third position being taken by accidental falls (23), which mainly applies to the elderly.

### Years of potential life lost

As death by external causes of injury is most prevalent in younger people, it accounts for many years of potential life lost (see Figure 17). Suicide accounted for 11.2% of all YPLL (1,512 years) and motor vehicle traffic accidents for 13.6% (1,834 years). The latter represents an increase of nearly 150% since 1997, suggesting a younger average age of motor vehicle accident victims in 1999.

### 7.4.5 HEALTH SERVICES AND THEIR USE

There were 3 591 separations involving ACT residents from ACT hospitals for injury in 1999-00, which is 5.5% of all hospital separations. This figure includes abnormal reactions to medical or surgical procedures.

Hospital admissions data tend to underestimate injury rates, since many minor injuries are treated by the individual, by a general practitioner, or in the Emergency Department without a hospital admission.

Table 35 shows the numbers of hospital separations for some common injuries and, where relevant, an age breakdown of the affected individuals.

Table 35 shows that while the ratio of males to females aged 0 - 4 accidentally poisoned is similar, more males than females aged 0 - 9 years were hospitalised for burns and scalds, with a similar pattern for males and females aged 5 - 14 for pedal cycle accidents.

Hip fractures are an important cause of mortality and morbidity in older people following a serious fall. Between 1994 and 1999 717 ACT residents were hospitalised with hip fractures. The incidence of hip fracture in persons aged 60 years and older was 403.4 per 100,000 and for those aged 59 years or less, 4.6 per 100,000. The absolute number and rates of hip fractures increased during the 5-year period and is expected to near double in older people by 2011 due to the expected increase in the number of older people in the ACT.

## 7 National Health Priority Areas

**Table 35: Hospital separations by selected causes, ACT, 1995 - 1999**

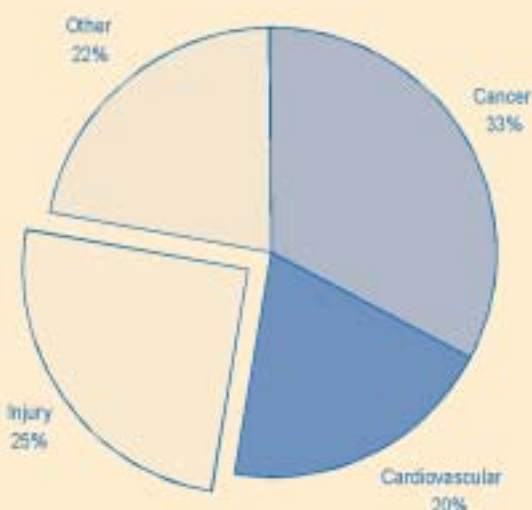
Year	1995-96	1996-97	1997-98	1998-99	1999-00
<b>Transport related</b>					
All	626	593	547	643	668
<b>Pedal cycle transport accidents</b>					
Males 5-14 years	62	42	40	27	41
Females 5-14 Years	20	19	13	16	22
<b>Falls</b>					
All 65+ years	459	626	482	633	634
All 0-4 years	125	102	91	109	95
All 5-9 years	169	141	143	193	180
<b>Accidental poisoning</b>					
Males 0-4 years	28	18	14	7	13
Females 0-4 years	20	15	15	8	14
<b>Burns and Scalds*</b>					
Males 0-9 years	15	11	17	28	16
Females 0-9 years	8	5	2	6	3

Source: ACT Hospital Morbidity data collection, 1995-99

Note: \*Due to implementation of the ICD-10-AM coding in 1998-99 hospital data the category 'burns and scalds' for this year also includes injuries resulting from smoke and flames. Data also includes ACT and non-ACT residents. Based on ICD 10-AM codes S00-T98.

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**Figure 17: Years of potential life lost through injury, ACT, 1999**



Source: ABS deaths data, confidentialised unit record, 1999

### Emerging Issues

- Significant reductions in road injury rates since 1970 can be attributed to highly organised and effective road safety programs, from which lessons could be learned for other forms of injury prevention.
- The last five years have seen an increase in deaths from poisoning by drugs in young males. This trend needs to be monitored.
- Falls in the elderly and in children are being targeted as priority areas for action under the *National Injury Prevention Strategy*.
- Meaningful epidemiological and statistical analysis of some causes of injury is difficult or impossible in many of Australia's smaller jurisdictions because of the low numbers involved or because detailed information on the circumstances of the injury are not routinely or accurately recorded at the time of treatment (for example in a hospital's Emergency Department). However, such data could yield useful clues for future prevention efforts.
- Important developments in the area of data collection and retrieval include the establishment of a national computerised data base of coronial information (National Coroners' Information System) and preliminary investigations into the feasibility of collecting more uniform and detailed data from Emergency Department surveillance systems.

## 7.5 DIABETES MELLITUS

### At a Glance

- Diabetes mellitus is the seventh leading cause of death in Australia, and contributes significantly to morbidity, disability, poor quality of life and potential years of life lost.
- In the 1995 National Health Survey, an estimated 4 600 ACT residents reported having been diagnosed with diabetes at some time in their lives: this is probably an underestimate.
- With the ageing of the ACT population and the continuance of lifestyle patterns, the incidence of diabetes (particularly Type 2) is expected to rise.
- In 1999, there were 24 deaths in the ACT where diabetes was considered an underlying cause.
- In 1999-2000 there were 196 hospitalisations with an average length of stay of 5.2 days, in which diabetes was a principal diagnosis.

### 7.5.1 WHAT IS DIABETES MELLITUS?

Diabetes mellitus is a chronic condition in which the concentration of glucose in the blood is not properly regulated. It is caused by insufficient production of the hormone insulin by the pancreas and/or resistance to insulin's action in the body's tissues. Insulin has many roles, one of which is to enable the body's cells to take up glucose.

There are three major types of diabetes: Type 1 (also called juvenile or insulin-dependent diabetes mellitus). This is characterised by little or no insulin production. It accounts for about 10-15 % of all cases in Australia. Most cases of Type 1 diabetes are diagnosed before the age of 30, and often in childhood. Treatment always involves insulin injections and careful dietary control.

Type 2 (adult onset or non-insulin dependent diabetes mellitus). In this form, the body does not respond to insulin correctly. There is a resistance to its action; there may also be insufficient production. This is the most common form of diabetes both in Australia and worldwide. Dietary control is the mainstay of treatment, together with oral medication and occasionally insulin injections. Early detection of Type 2 diabetes is important, as a significant proportion of people with diabetes already have complications at the time of first diagnosis. Research evidence shows that early treatment to control blood glucose levels can delay the onset and progression of diabetic complications.

*Gestational diabetes mellitus* (GDM) is diabetes where the first onset or recognition occurs during pregnancy. About 4-6 % of pregnancies are affected, but the majority of these women return to normal following delivery. However, women who have had GDM are at increased risk of developing Type 2 diabetes later in life. This form of diabetes is also of concern because, if not recognised and treated during the pregnancy, it can affect the baby.

A related condition to diabetes mellitus is Impaired Glucose Tolerance (IGT). This condition occurs when the level of glucose in the blood is higher than normal. People with this condition are at a greater risk of developing diabetes Type 2.



## 7 National Health Priority Areas

### 7.5.2 WHO GETS DIABETES MELLITUS?

Genetic factors contribute to the occurrence of both types of diabetes. Type 1 diabetes occurs in a pattern suggestive of viral involvement. For type 2 diabetes and gestational diabetes lifestyle-related factors seem to play an important part in the development and progression of the disease.

Type 2 diabetes may occur in children and adolescents but usually begins after 30 years of age. People at increased risk of developing Type 2 diabetes include those who are overweight; those who are physically inactive and those who are of Aboriginal, Torres Strait Islander or Pacific Island descent. With the growing number of overweight and physically inactive children and adolescents it is anticipated that the incidence of diabetes mellitus in these age groups will increase.

### 7.5.3 WHY THIS IS IMPORTANT

People with diabetes may develop a variety of complications - including heart disease, stroke, blindness, and kidney disease - as well as nerve damage and disease of blood vessels (especially in the lower limbs, sometimes leading to gangrene and amputation). Diabetes in pregnant women can also bring about complications for mother and baby.

Diabetes is a very treatable disease: good treatment markedly slows the development of complications and prolongs life.

Diabetes mellitus is quite widespread in Australia. As well as being a direct cause of death, it also contributes significantly to disability, sickness, poor quality of life and potential years of life lost. In recognition of its public health significance, in 1996 Australian Health Ministers agreed to make diabetes the fifth National Health Priority Area.

**Figure 18: Crude death rate per 1,000 population for diabetes mellitus, ACT and Australia, 1994 -1999**



Sources: ABS Causes of death data set, confidentialised unit record file, ACT, 1994 - 1999  
ABS Causes of death Australia, Catalogue. No. 3303.0, 1994 - 1999



## 7 National Health Priority Areas

### 7.5.4 STATISTICS AND TRENDS

In the 1995 National Health Survey, 430,700 Australians and 4,600 ACT residents were estimated as having been diagnosed with diabetes at some time in their lives. The actual prevalence of the condition is probably much higher, as it is estimated that about half the people with diabetes are not aware that they have the condition.

Significant variations occur in the prevalence of diabetes in sub-groups of the population. Indigenous Australians, people from the Pacific Islands, Asian Indians, Chinese, some Arab populations and southern Europeans, tend to experience higher rates of the disease than other Australians.

The number of diabetes sufferers, and especially those with Type 2 diabetes, is expected to rise with the ageing of the population and the pattern of lifestyle. Unless effective prevention strategies are implemented the impact of diabetes on the community's well-being and health care costs will continue to increase.

### Death Rates

With modern treatment diabetes is not normally a major life-threatening condition, but it is a significant cause of sickness and disability, and is associated with considerable use of health and social services. It is also costly for affected individuals.

Chronic diabetes causes many other conditions which may result in further sickness and premature death. It is therefore hard to estimate accurately the full extent of the contribution of diabetes to mortality and disease. Cardiovascular and renal disease tend to be the leading causes of mortality and sickness among people with diabetes.

In 1999, there were 24 deaths (13 males and 11 females) with diabetes recorded as the underlying cause. There were a further 65 deaths with diabetes recorded as a contributing cause. In most of these cases cardiovascular disease was recorded as the underlying cause. Over the period 1994 - 1999 the crude death rate for diabetes mellitus has remained stable and below the Australian average (see Figure 18).

**Table 36: Proportion of episodes involving a secondary diagnosis of diabetes mellitus by primary diagnostic group and sex for ACT residents, ACT, 1999-00**

	Male	Female	Total
Diseases of the circulatory system	12.9	12.1	12.5
Symptoms/signs/abnormal clinical findings	7.6	5.5	6.5
Diseases of the eye and adnexa	6.7	6.1	6.4
Diseases of blood/blood-forming organs etc	7.1	4.2	5.6
Diseases of the skin and subcutaneous tissue	6.9	3.8	5.4
Diseases of the nervous system	5.3	4.8	5.0
Diseases of the respiratory system	5.0	4.9	5.0
Diseases of the musculoskeletal system	4.6	4.0	4.3
Neoplasms	5.2	2.8	4.0
Other	2.0	1.4	1.7
<b>Total</b>	<b>3.9</b>	<b>2.7</b>	<b>3.3</b>

Source: ACT Hospital Morbidity Data Collection, ACT 1999-00

## 7 National Health Priority Areas

### 7.5.5 DATA ISSUES

Up until recently there has been little reliable information either nationally or in the ACT on the incidence and prevalence of diabetes and its complications, nor on service use associated with diabetes, this hindering the development of strategies for clinical services and dealing with the disease at the population level.

In order to address this problem a recent initiative set in place is the ACT Diabetes Database Project. This initiative supports national efforts in relation to the National Health Priority Areas, the National Diabetes Strategy and the National Diabetes Data Working Group and constitutes Phase 1 of a multi-phase process leading to the development of a central diabetes repository to be managed by the Department of Health and Community Care, but with access to be offered to service providers and consumers. The database development envisaged for Phase 1 will seek to replace paper-based systems currently managed by ACT Community Care in conjunction with endocrinologists and others based at The Canberra Hospital.

An additional source of data is The Australian and New Zealand Dialysis and Transplantation Registry. This registry provides information on the incidence of end-stage renal disease and the proportional contribution of diabetes to kidney failure.

### 7.5.6 SERVICES AND THEIR USE

In 1999-00, there were 196 separations from ACT hospitals for ACT residents admitted with a primary diagnosis of diabetes. The average length of stay for such patients was 5.2 days. There were an additional 2 139 separations involving a secondary diagnosis of diabetes in 1999-00.

Diabetes Mellitus is mostly managed in the community and therefore hospital data is only a very partial picture of the disease and its associated burden of illness. It is a common disease that occurs as both a co-morbidity and cause of other illnesses. In particular all types of diabetes cause both macro- and microvascular disease, increasing the likelihood of coronary disease and general

circulatory problems. Table 36 demonstrates that diabetes was present in over 12% of all admissions for circulatory problems in the ACT.

Diabetes is a chronic condition resulting in complications after many years of poor blood sugar control. Such complications include peripheral disease such as neuropathies, peripheral vascular disease and infections (see Table 37). Ketoacidosis occurs in Type 1 Diabetes and indicates high blood sugars and the formation of ketones in the blood. It is a life threatening condition and it was the cause of 19.4% of admissions for Diabetes in 1999-00.

### 7.5.7 ACT INTEGRATED MODEL OF DIABETES CARE

In developing an integrated service model for diabetes, the specific goals of the Department are to reduce the likelihood of an individual developing diabetes; achieve earlier diagnosis of diabetes once individuals have it; reduce the incidence of complications from diabetes; and reduce the overall adverse impact of diabetes in the ACT. In order to achieve these goals, in 1998 the Department developed an integrated service model which has now been implemented. The purpose of the service model is to respond to the needs of people affected by diabetes with services that are consistent, accessible, integrated, targeted according to need, and culturally appropriate.

Four key program areas are supported in this model, and they are:

- Diabetes Health Promotion and Community Awareness programs.
- Primary Care service, which means services to monitor people at risk and assist people diagnosed with diabetes to manage their condition.
- Tertiary Care service, which comprises specialist services for comprehensive complications screening, prevention and management, acute care, pregnant women, adolescents and children; and
- Population Health Outcomes and Effectiveness Monitoring.

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**Table 37: Number of separations involving a primary diagnosis of diabetes mellitus by associated complication for ACT residents by sex, ACT, 1999-00**

	Male	Female	Total
With coma	-	3	3
Ketoacidosis	23	25	48
Renal complications	6	2	8
Peripheral complications	18	10	28
Ophthalmic complications	5	6	11
Neurological complications	3	1	4
Other specified complications	4	3	7
Multiple complications	12	5	17
Unspecified complications	-	1	1
Without complications	59	62	121
<b>Total</b>	<b>130</b>	<b>117</b>	<b>247</b>

Source: ACT Hospital Morbidity Data Collection, ACT 1999-00

### Emerging Issues

- If current lifestyle patterns remain the same, the incidence of diabetes is expected to increase. In particular an increase in the number of children and adolescents with diabetes is expected.
- During 1999-00, with Commonwealth funding, Diabetes Australia developed A Community Awareness of Diabetes Strategy. This activity, as well as the development and dissemination of national guidelines on testing and follow-up, has the potential to reduce the burden of Type 2 diabetes in the ACT. The strategy has been implemented and evaluated.
- A peak advisory body, the ACT Diabetes Council, has been established to advise the Department of Health and Community Care on current and emerging issues relating to diabetes.

# 7 National Health Priority Areas

## 7.6 ASTHMA

### At a Glance

- Australia experiences one of the highest known rates for asthma in the world. The incidence of the disease has increased since the 1980s, although the number of deaths attributed to it has declined since 1990.
- There were 409 separations involving a principal diagnosis of asthma from ACT hospitals for the period 1999-00.

### 7.6.1 WHAT IS ASTHMA?

Asthma can range from being a mild, scarcely noticeable condition that hardly interferes with normal life, to being a severe and disabling disease that can cause death. It often begins in childhood. The disease is caused when the immune system over-reacts to certain allergens, causing the airways to narrow and mucous to accumulate in them, both of which make it hard to breathe. These effects can be worsened by other environmental factors such as air pollution.

Compared to many other countries, Australia has a high incidence of asthma, and this has been increasing since the 1980s. The reasons are not entirely clear. Better diagnosis and awareness of asthma may be one factor contributing to this increase. Some of the other proposed causes are housing that allows house dust mites or certain moulds to proliferate, the use of gas heating and cooking, and dietary changes. Recent research has also suggested that insufficient exposure in early childhood to a range of pathogens may increase the likelihood of developing hypersensitivity later on in life.

### 7.6.2 WHO GETS ASTHMA?

Asthma often begins in the second year of life. It may continue, but often severity lessens as the airways get bigger. However, asthma can commence at any age, and often becomes apparent when lung function deteriorates from some other cause.

One of the major concerns about asthma is our inability to know exactly who suffers from it and why. It is also difficult to find out the true extent of disease in the population, and whether some places or peoples are more prone to the condition than others. Death rates and hospital data provide partial indicators for the prevalence of diagnosed asthma, but the data refer to acute episodes only and do not provide a true reflection of the long-term disease burden. Comprehensive data on asthma treatment by general practitioners are not available and, as most asthma treatment and management takes place in general practice, this is a major deficiency in gaining a picture of the prevalence of the disease.

### 7.6.3 WHY THIS IS IMPORTANT

Asthma sufferers may often have a reduced quality of life, and the cost of poorer job performance and lost working days through the disease is thought to be significant. Asthma can also cause premature death in otherwise healthy individuals.

### 7.6.4 STATISTICS AND TRENDS

The 1995 *National Health Survey* findings estimated that 60.5 per 1,000 ACT residents had a recent condition of asthma, with slightly more females than males affected by the condition. These are lower than the rates for the whole of Australia, where the incidence is 65 per 1,000, with the female incidence clearly greater than the male (68.2 versus 61.9).

However, in the same year, the rate of long-term asthma in ACT residents was 117.1 per 1,000 (11.7%) for males and 112.1 per 1,000 (11.2%) for females. Interestingly, these rates for ACT females are lower than those for females in the whole of Australia, while the male and total person rates in the ACT are higher.

The ACT collects excellent data on asthma in children as part of the ACT Childhood Respiratory Symptom Surveillance Project. This project's results show that at age 5, 22.4% of children have suffered from asthma at some time in the past, with 14.4% of 5 year olds suffering current asthma.

## 7 National Health Priority Areas

### Death rates

Although Australia's asthma death rates are among the highest in the world, there has been a consistent decline in deaths since 1990. In the ACT, crude death rates for asthma over the period 1987 - 1999 have been generally lower than Australian rates (Figure 19). Data over several years shows that the majority of asthma deaths occur in females.

### Services and their Use

For the period 1999-00, there were 409 separations involving ACT residents with a principal diagnosis of asthma in ACT hospitals. Of these, 204 were male and 205 were female. Interestingly 62.3% of male separations were in the under 10 year age group compared to 27.3% in this same age group for females. It is important to bear in mind that these totals exclude people being treated in Emergency Departments who, when stabilised, are not admitted.

Over the period 1995-96 to 1999-00 there has been a trend for admissions with asthma as the principal diagnoses to decline (See Table 38). No clear trend emerges for monthly admissions (Figure 20). This would be in keeping with better asthma management in the community, thereby reducing the number of acute admissions to hospital.

Several improvements in asthma medications have occurred over the last few years with more patients taking inhaled steroids as preventative medications. Also, the Commonwealth Medicare Benefits Schedule now supports GPs to take a planned approach to asthma care, which should produce benefits in the medium term.

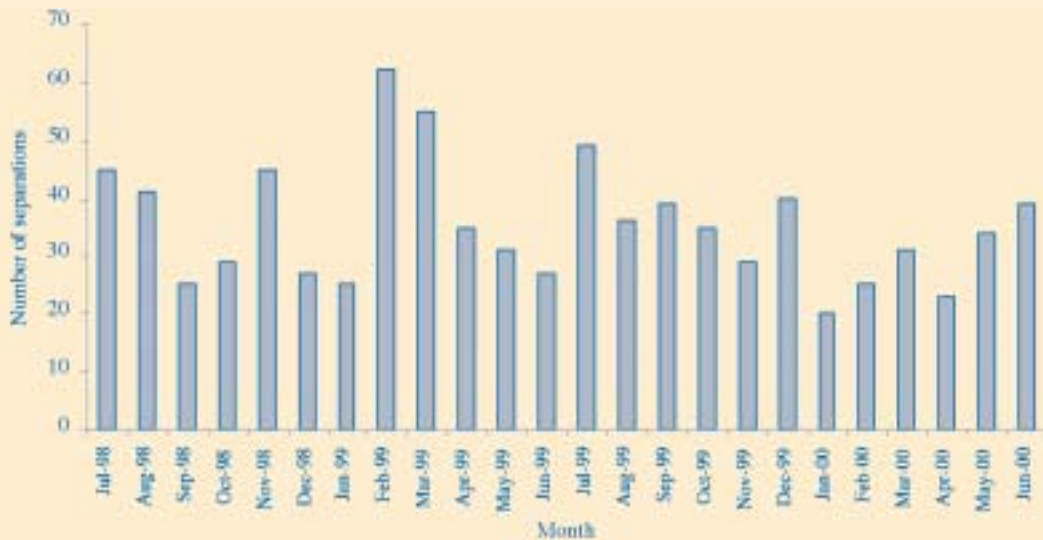
Locally, the Academic Unit of General Practice has led a project to harmonise asthma care for children across the continuum of health, welfare and education services in the ACT

**Figure 19: Crude mortality rates for asthma, ACT and Australia, 1987-1999**



Source: ABS Causes of death dataset, confidentialised unit record file, 1987 - 1999

**Figure 20: Hospital separations for principal diagnosis of asthma, ACT, 1998 - 2000**



Source: ACT Hospital Morbidity Data Collection, 1998 - 2000

**Table 38: Hospital separations involving a principal diagnosis of asthma, ACT residents, 1995-96 to 1999-00**

	1995-96	1996-97	1997-98	1998-99	1999-00
<b>Separations</b>	<b>583</b>	<b>484</b>	<b>441</b>	<b>448</b>	<b>409</b>

Source: ACT Hospital Morbidity Data Collection 1995-96 to 1999-00

### Emerging issues

- More detailed diagnosis of the severity, pattern and triggers for asthma in children will lead to more accurately tailored management.
- New asthma medications and drug delivery devices are changing the medical management of asthma.
- Patient self management according to patient held asthma action plans, and a planned approach to medical management and review is gradually replacing episodic management of acute asthma attacks.
- Asthma is an important comorbidity for many older people with other chronic illnesses.

## 8 Communicable Diseases

### At a Glance

- Vaccination coverage in the ACT remains among the highest in the country, and with the exception of pertussis, where numbers were higher than expected, the rate of vaccine-preventable diseases is correspondingly low.
- Rates of cryptosporidiosis have returned to their usual low levels, after the outbreak in 1998 was swiftly controlled.
- Rates of genital chlamydia infection have risen steadily for several years.
- Rates of HIV infection continue to remain low in the overall ACT population, with the peak incidence occurring in males aged 35-39.
- Campylobacter infection remains the most commonly notified disease in the ACT with a rate at about 100 per 100,000 population.
- The next most commonly reported disease during the period is Hepatitis C.

### 8.1 WHAT ARE COMMUNICABLE DISEASES?

Many communicable diseases are transmitted from one person to another, important exceptions include malaria and the dengue virus, which may be transmitted by mosquitoes. The diseases are caused by pathogens, which are micro organisms such as bacteria, viruses and protozoa which infect people. Uncontrolled outbreaks of communicable diseases pose a threat because of their ability to spread. Doctors, hospitals, laboratories, schools and child care centres in the ACT are required by law to notify certain communicable diseases to the Chief Health Officer. Such information is vital in disease control, being necessary for early detection of outbreaks, for monitoring the effectiveness of immunisation programs and for help in allocating health resources.

Many communicable diseases can be prevented by vaccination. Examples are polio, tetanus, measles, mumps or hepatitis B. Other diseases may be treated by antibiotic therapy, if they are caused by bacteria and if the medicine is administered promptly. Examples are chlamydial disease and gonorrhoea. A third group of diseases remain beyond our ability to cure or to vaccinate against. Examples are most of the common (and relatively mild) viral infections of the upper respiratory tract. A far more serious example is HIV/AIDS. Such diseases can only be prevented by minimising the chances of infection by means of appropriate preventative behaviours.

### 8.2 WHO CAN GET A COMMUNICABLE DISEASE

Everybody suffers from many communicable diseases during their lifetime. From a few months after birth, when protection from maternal antibodies starts to decline, we are all potentially susceptible to infection. Susceptibility is reduced as we acquire specific immunity to particular pathogens, either because of infection or through vaccination. Even so, we all suffer regularly from such infections as colds that, although not serious, cause considerable ill health.

### 8.3 WHY THIS IS IMPORTANT

Despite the range of prevention or treatment options for many of them, communicable diseases continue to cause suffering and premature death in the community. Rates of infection and death have fallen dramatically in the past century, largely due to an organised universal infant vaccination program, better treatment options, particularly antibiotics and higher standards of hygiene and nutrition.

In the absence of a near-universal vaccination program, many common diseases are contracted by children who then usually retain a lifelong immunity. The danger lies in the fact that a small proportion of children who contract these diseases may suffer permanent disability or death; hence protection by vaccination is the best option.



## 8 Communicable Diseases

The National Health and Medical Research Council (NHMRC) recommends that all children are vaccinated against diseases listed on the Australian Standard Vaccination Schedule (ASVS). These are diphtheria, tetanus, pertussis (whooping cough), Haemophilus influenzae type b (Hib), poliomyelitis, measles, mumps and rubella. Hepatitis B vaccination was added to the standard infant schedule from May 2000; it remains available for adolescent school children.

In addition, the NHMRC makes recommendations for adult vaccination including influenza, hepatitis B and pneumococcal vaccination for certain groups. Vaccines are available against other diseases including hepatitis A, chicken pox, meningococcal disease (some serogroups only) and others. A copy of the ASVS and the Australian Immunisation Handbook, which contains information on vaccines available in Australia and procedures for vaccination, can be obtained from the web at <http://immunise.health.gov.au/publications.htm>

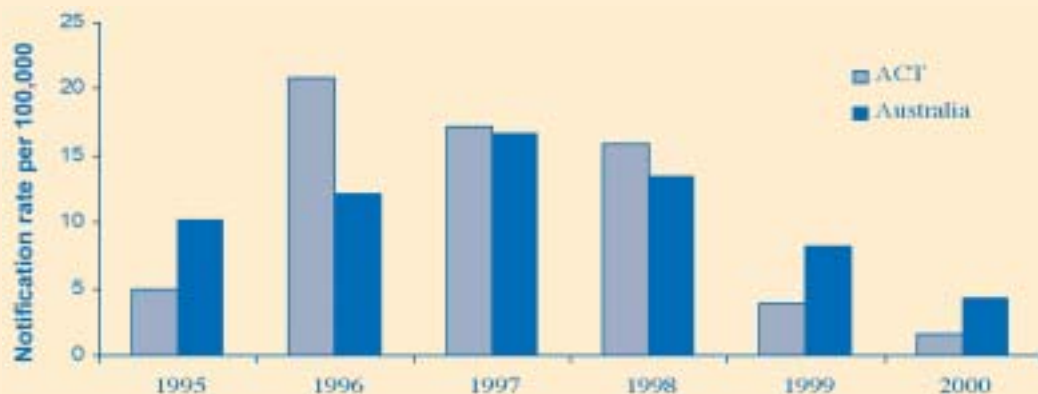
When a near-universal vaccination program is in place, most children and adults are protected from infection. As well as providing protection to individuals, the general immunisation process ensures that, with much of the population immunised, a disease which is introduced into the community does not spread widely; this is known as "herd immunity".

The ACT leads Australia in the proportion of children who are immunised against diseases on the ASVS. Thus, with the exception of pertussis, rates of vaccine-preventable diseases (VPD) are generally low.

Diseases in this section are classified into various groups, for example 'sexually transmissible infections (STI)' or 'vaccine-preventable diseases (VPD)'. Occasionally a disease may fit into several categories, but is placed into the one most commonly used. For example, hepatitis A can be classified as a VPD, as a foodborne disease, a STI or as a viral hepatitis; it has been placed in the last group.

Since 1994, notification rates have fallen for vaccine-preventable diseases as a whole (although the pertussis notification rate is relatively high, particularly in 1999 and 2000), but have risen for sexually transmitted infections. This rise is due almost entirely to chlamydia trachomatis genital infection. Notification rates for foodborne and waterborne illness can fluctuate markedly, depending on 'outbreaks'. For example, in 1998 there were higher than usual levels of infection with campylobacter and cryptosporidium. Reports of cryptosporidiosis have since declined to very low levels while reports of campylobacteriosis continue to be received at a fairly high rate.

**Figure 21: Notification rate per 100,000 population of hepatitis A, ACT and Australia, 1995 - 2000**



Source: ACT Notifiable disease data, Department of Health and Community Care  
Communicable Diseases Network Australia - National Notifiable Diseases Surveillance System, personal communication

## 8 Communicable Diseases

### 8.4 STATISTICS AND TRENDS

In general, for each notifiable disease, numbers of notifications and rates per 100,000 persons are provided here for the ACT for the years 1998, 1999 and 2000. For some diseases, Australian rates are provided for comparison showing trends over the last six or seven years. Note that these are crude rates - they are not adjusted for differences in population structure between the ACT and the whole of Australia. Latest reported data for communicable diseases for the ACT and Australia can be found at:  
<http://www.health.gov.au/pubhlth/cdi/nndss/nndss2.htm>

### 8.5 VIRAL HEPATITIS AND HUMAN IMMUNODEFICIENCY VIRUS (HIV)

Hepatitis means inflammation of the liver. One cause of this inflammation is infection, usually by a virus. The three main viral types are referred to as A, B and C. All of these are notifiable. There are important differences between the viruses, their modes of transmission and the diseases that they cause.

Symptoms of hepatitis typically include anorexia, malaise, dark urine and jaundice (characterised by yellowing of the skin and the whites of the eyes). The severity may vary, and in many cases the illness can be completely without symptoms.

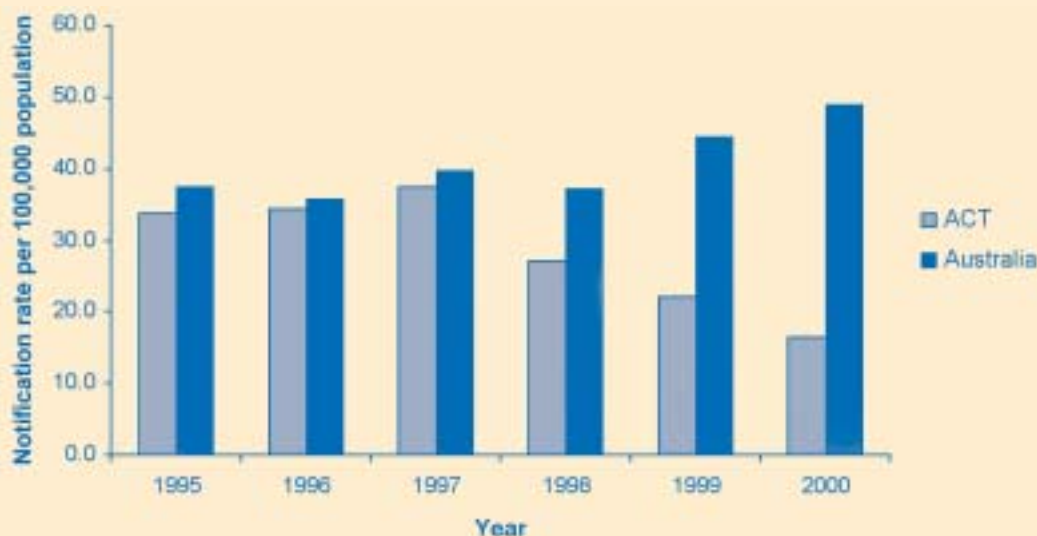
#### 8.5.1 HEPATITIS A

Hepatitis A virus (HAV) is present in the faeces of infected people, and can be spread from person to person, often through unsafe sexual practices, or through food. Outbreaks of hepatitis A have also been associated with injecting drug users.

In the years 1998 through 2000, there were respectively 49, 12 and 5 notifications of hepatitis A in the ACT, which represents rates of 15.9, 3.9 and 1.6 per 100,000 population. The latter two years are lower than the Australian rates for those years, which were 8.2 and 4.3 per 100,000 respectively (see Figure 21).

A hepatitis A vaccine is available and is recommended for people travelling to countries where the disease is endemic, as well as to certain groups at risk because of occupation or lifestyle.

**Figure 22: Notification rate per 100,000 population of hepatitis B (incident and unspecified), ACT and Australia, 1995 - 2000**



Source: ACT Notifiable disease data, Department of Health and Community Care

Communicable Diseases Network Australia - National Notifiable Diseases Surveillance System, personal communication

## 8 Communicable Diseases

### 8.5.2 HEPATITIS B

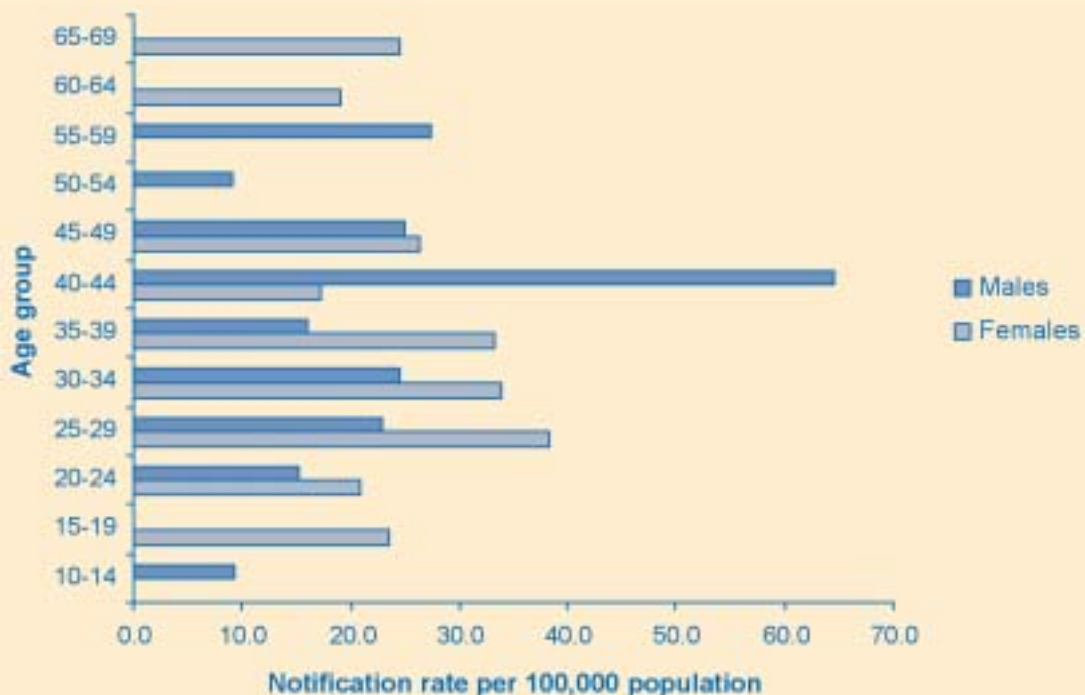
Hepatitis B virus is transmitted mainly through the skin or mucous membranes by contact with an infected person's blood, saliva, semen or vaginal fluids; this can occur through sexual contact or by penetrating the skin with an infected needle. Infected mothers can also transmit the disease to their babies. Infection with hepatitis B may occur without symptoms and can lead either to immunity or to a chronic carrier state. Young children and infants who are infected are much more likely to become chronic carriers than are adults who are infected. The fact that infection can occur without symptoms means that many notifications are for people who were infected in the past and continue to harbour the virus. These are classified as 'Hepatitis B, unspecified'. When the notification is known to be a result of a recent infection it is classified as 'Hepatitis B, incident'.

### 8.5.3 HEPATITIS C

The hepatitis C virus (HCV) was characterised only in 1989, but infection with this virus has become an important public health issue in Australia. Hepatitis C is now the most common of the viral forms of hepatitis. It is spread by contact with an infected person's blood, which most often occurs through the use of contaminated needles, syringes and injecting equipment. Other forms of skin piercing can also spread the disease if they are not carried out safely.

In the years 1998 through 2000 there were respectively 83, 68 and 51 notifications of hepatitis B in the ACT. The 51 notifications in 2000 translate to a rate of 16.4 per 100,000 people. This is the lowest rate in the last five years, and represents an appreciable decline since 1995 (see Figure 22). Notification rates are generally highest in the 20-44 year age groups.

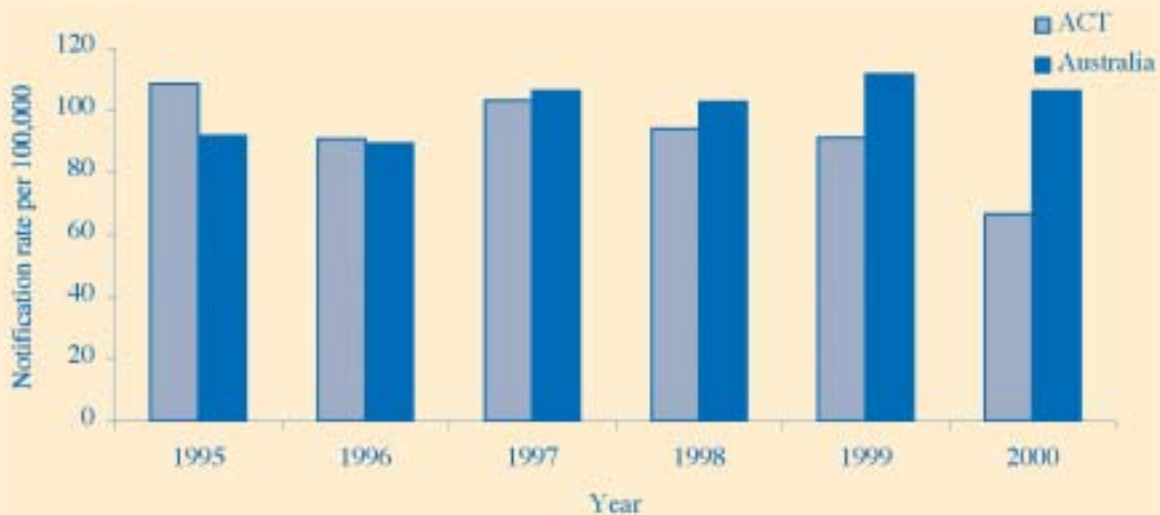
**Figure 23: Age specific notification rate of hepatitis B (incident and unspecified) by age and sex, ACT, 2000**



Source: ACT Notifiable disease data, Department of Health and Community Care  
Communicable Diseases Network Australia - National Notifiable Diseases Surveillance System, personal communication

## 8 Communicable Diseases

**Figure 24: Notification rate per 100,000 population of hepatitis C (unspecified), ACT and Australia, 1995 - 2000**



Source: ACT Notifiable disease data, Department of Health and Community Care  
*Communicable Diseases Network Australia - National Notifiable Diseases Surveillance System, personal communication*

Most cases are unspecified, with usually less than 10 cases per year being classified as incident. The Australian rate for hepatitis B in 2000 was 48.9 per 100,000. In the ACT during 2000, males aged 40-45 years had the highest notification rate for hepatitis B (see Figure 23) at 64.5 per 100,000.

An effective and safe vaccine is available to prevent hepatitis B infection. It is provided free to primary school children in Year 6 and has been part of the standard infant schedule since May 2000.

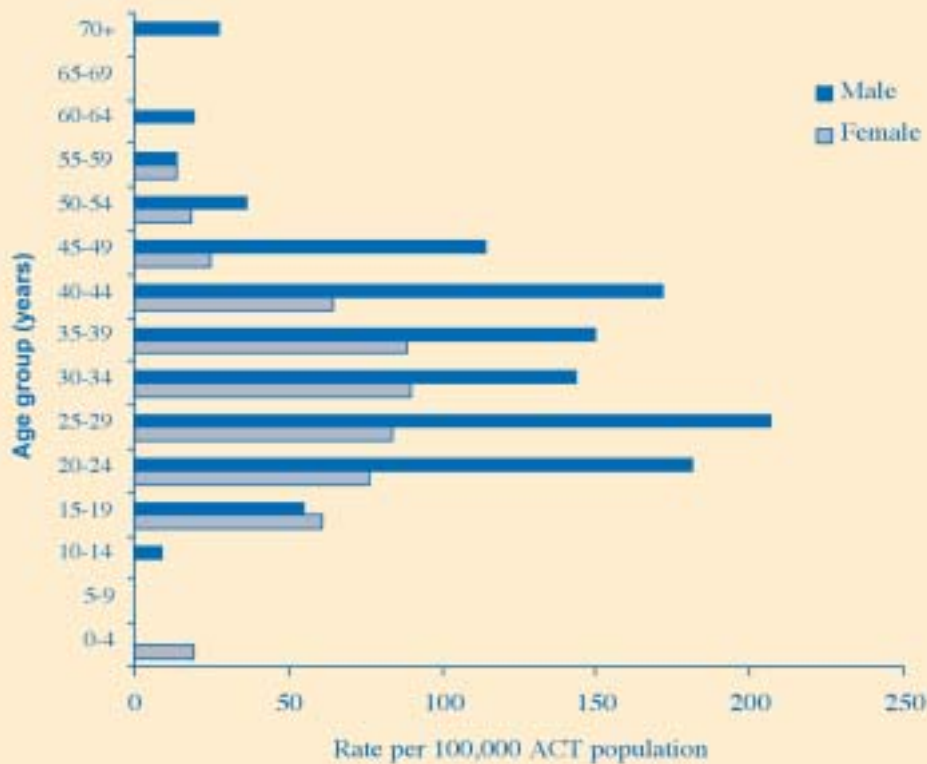
Most people usually have no symptoms when first infected, which makes it easier for the disease to be unknowingly spread. However, about 80% of those infected will have long-term illness - in particular, long-lasting inflammation of the liver, which can in turn lead on to cirrhosis and liver cancer.

As with many diseases, it is known that the number of reports of incident hepatitis C underestimates the prevalence of the diseases because not all cases are identified.

In the ACT in 1998 to 2000, there were respectively 298, 303 and 232 notifications of hepatitis C infection (of these, 8, 20 and 22 were classified as incident cases). These represent overall rates of 97.7, 96.7 and 74.6 per 100,000 persons (see Figure 24). The disease is commonest in the age range of 25-49 years (see Figure 25) and the male:female ratio for the three-year period was 1.6:1. The Australian rate for unspecified hepatitis C, for 1998 to 2000 was 102.7, 111.6 and 106.3 per 100,000.

There is no vaccine for hepatitis C, and prevention of the disease rests mainly on reducing transmission through the use of contaminated needles and syringes, and by ensuring safe infection control practices whenever skin is pierced. The strategy includes education of injecting drug users and, through the Needle Exchange Program, help in the disposal of used needles and the provision of sterile new needles and clean injecting equipment.

**Figure 25: Age specific notification rate of unspecified Hepatitis C by age and sex, ACT, 2000**



Source: ACT Notifiable disease data, Department of Health and Community Care

### 8.5.4 HUMAN IMMUNODEFICIENCY VIRUS (HIV) INFECTION

The human immunodeficiency virus (HIV) can be transmitted from person to person through sexual contact, the sharing of HIV-contaminated needles and syringes, transfusion of infected blood or its components, and the transplantation of HIV-infected tissues or organs. Transmission of HIV in Australia continues to occur primarily through sexual contact between men. Infection with the virus progresses in most cases to the Acquired Immune Deficiency Syndrome (AIDS), which is a manifestation of the loss of effective immune system function.

In Australia the incidence of HIV infection is low, with 729 diagnoses of HIV nationally in 1999. For the years 1998 to 2000, there were, respectively, 7, 8 and 9 notifications of new cases of HIV infection in the ACT.

### 8.6 SEXUALLY TRANSMISSIBLE INFECTIONS

In the ACT, notifiable diseases in this category include chlamydia trachomatis genital infection, gonorrhoea, syphilis, donovanosis, chancroid and lymphogranuloma venereum. The latter two infections are not usually found in Australia. Although both HIV and hepatitis B are also sexually transmitted, they are not included in this category but are instead considered above. Other sexually transmitted diseases - such as genital herpes, human papilloma virus (causing genital warts) and parasitic infections - are not subject to national or local surveillance.

## 8 Communicable Diseases

### 8.6.1 CHLAMYDIA TRACHOMATIS GENITAL INFECTION

Chlamydiae are small bacteria that live within cells. Genital infection with chlamydiae does not always result in obvious symptoms. Untreated infection can cause infertility, particularly in women. The ACT (and national) rate for genital chlamydial infection is increasing. This is a cause for concern, although the figures at least partly reflect improved procedures for identifying chlamydiae. In recent years polymerase chain reaction (PCR) testing has become readily available, and testing is much simpler and less invasive. Whereas cervical or urethral swabs previously needed to be taken for testing, now the test can be done on urine.

In the years 1998 to 2000 there were 190, 184 and 243 notifications of chlamydial infection. The corresponding rates are 61.7, 59.3, and 78.2 per 100,000 population. In 1995, in contrast, the ACT rate was only 26.0 per 100,000. The crude rates in Australia have been consistently higher than the ACT rates for the period 1995 - 2000, as Figure 26 shows.

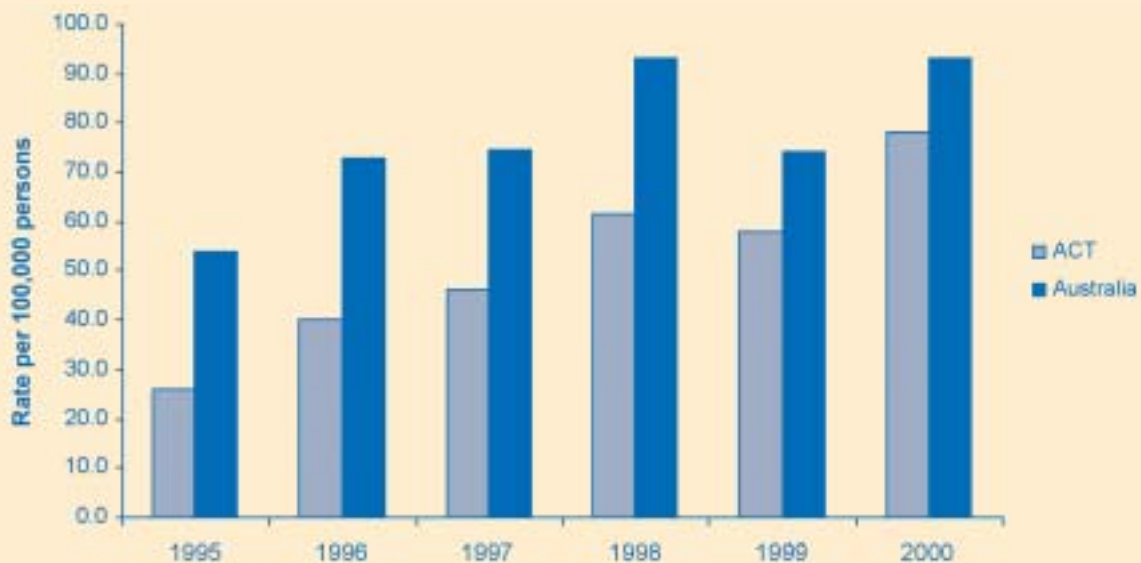
The disease is markedly more common in females in the younger age groups; over 35 years of age, male notifications predominate (see Figure 27). The overall male:female ratio was 1:1.6 for the period 1998 to 2000. In 2000, the peak incidence for females occurred in the 15-19 year age group with 460.3 per 100,000 population. For males, the peak incidence age group was 20-24 years with 215.6 per 100,000 population.

### 8.6.2 GONOCOCCAL INFECTION (GONORRHOEA)

Infection with the bacterium *Neisseria gonorrhoeae* (commonly called gonococcus) can occur in many areas of the body, generally the genital tract, urinary tract, anus and/or eyes. Gonococcal infection is mainly a result of sexual activity.

Notifications of gonococcal infection are relatively low in the ACT with 29, 19 and 15 cases being reported in the years 1998 to 2000. These represent rates of 9.4, 6.1 and 4.8 per 100,000 ACT population.

**Figure 26: Notification rate per 100,000 population for chlamydial infections, ACT and Australia\*, 1995 - 2000**



Source: ACT Notifiable disease data, Department of Health and Community Care

\*Australian rates and population base do not include NSW

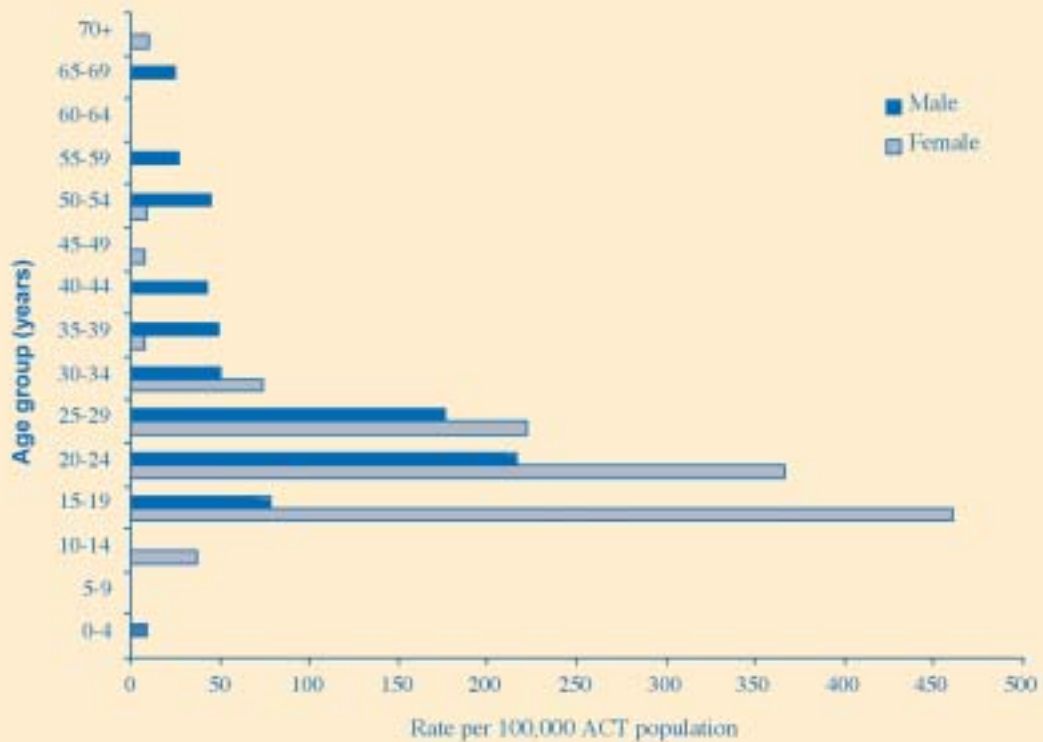
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## 8 Communicable Diseases

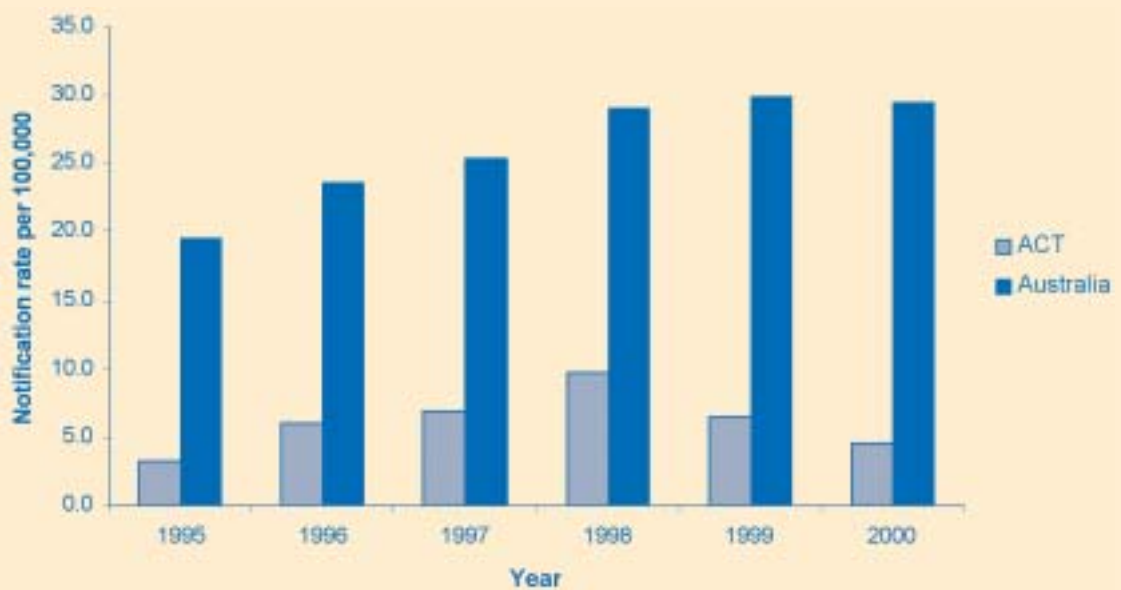
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**Figure 27: Age specific notification rate of chlamydial infections by age and sex, ACT, 2000**



Source: ACT Notifiable disease data, Department of Health and Community Care, 2000

**Figure 28: Notification rate per 100,000 population of gonococcal disease, ACT, 1995-2000**



Source: ACT Notifiable disease data, Department of Health and Community Care, 2000

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## 8 Communicable Diseases

Numbers have risen somewhat since the early 1990s, although they are considerably lower than the Australian rates for the years 1998 to 2000 at 29.0, 29.8 and 29.4 per 100,000 (see Figure 28).

Most notifications (75%) are in the 20-39 year age groups and the male:female ratio is 6:1. This reflects a number of gonorrhoea clusters amongst gay men in Canberra and Sydney.

### 8.6.3 SYPHILIS

Syphilis, an acute or chronic sexually transmitted infection with the bacterium *Treponema pallidum*, continues to be a fairly rare disease with 17 cases notified in 1998, 12 in 1999 and 15 in 2000, representing rates of 5.5, 3.9 and 4.8 per 100,000 population. These are lower than the Australian rates, which were 9.0, 10.6 and 10.1 per 100,000 population for the same years. Most of the cases in the ACT are latent syphilis and therefore are unlikely to result in new cases. Syphilis is easily curable with penicillin. However the blood tests for syphilis remain positive for life, regardless of treatment.

## 8.7 GASTROINTESTINAL, FOOD-RELATED AND WATER-RELATED DISEASES

Gastrointestinal (or enteric) diseases continue to account for a large proportion of all disease notifications in the ACT. Most notifications for this group of diseases come from laboratories.

Infection with strains of the bacterium *Escherichia coli* which produce Shiga-like toxins has recently become nationally notifiable. So too has haemolytic uraemic syndrome (HUS), which is a potential complication of infection with a type of toxin-producing *E. coli*, acquired through food. It is a serious condition, with renal failure and death as possible outcomes. No notifications have been received for HUS in the ACT.

The incidence of enteric diseases can be reduced by maintaining vigilance in the area of food hygiene - in the home as much as in the food industry.

### 8.7.1 CRYPTOSPORIDIOSIS

Cryptosporidiosis is a parasitic infection of the human gut caused by the protozoan *Cryptosporidium parvum*. To cause infection, the parasite has to be taken in with contaminated food or water. The main symptoms resulting from infection are diarrhoea and abdominal cramps. Most people are free of symptoms within 30 days. However, the disease may either be prolonged or more aggressive in people who are immunodeficient, including AIDS patients.

Cryptosporidiosis tends to occur in the warmer months. In Canberra, outbreaks occurred in the late summer/early autumn in both 1995 and 1998 (Figure 29). In the period January to April 1998 the disease affected about 400 people, and infection was associated with Canberra swimming pools. Most cases occurred in the younger age groups (44% of cases were aged 0-4 years and 22% aged 5-9) and males and females were equally affected.

Following the control of the outbreak, only 3 cases were recorded in the second half of 1998 (giving a total of 404 for the year), 13 cases in 1999 and 4 cases in 2000. The overall rate in 1998 was 131 per 100,000; the disease was not nationally reported in 1998 so there are no Australian figures with which to compare.

### 8.7.2 CAMPYLOBACTERIOSIS

Campylobacteriosis is caused by infection with one of the *Campylobacter* species of bacteria, commonly *C. jejuni*. Infection produces an illness of variable severity with diarrhoea, fever and vomiting as common symptoms. Campylobacteriosis accounts for more than half of all notifications of gastrointestinal disease in Australia. Infection occurs through ingestion of contaminated food or water, or as a result of contact with infected animals. Poor kitchen hygiene practices when handling raw chicken meat at home is one important source of infection. There is a seasonal pattern, with more notifications being made in the warmer months. Notifications of campylobacteriosis are usually a result of sporadic infection; outbreaks are relatively uncommon.

## 8 Communicable Diseases

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In 1998, there were 390 notifications of campylobacteriosis in the ACT, in 1999 there were 297 and in 2000 there were 334 notifications, giving rates of 126.6, 95.8 and 107.5 per 100,000 persons. These are similar to the rates reported for Australia in 1998 to 2000, which were 108.9, 100.7 and 105.9 per 100,000 respectively (see Figure 30). The rising incidence of Campylobacter is an international trend. The cause of this increase is as yet undetermined.

In 1999 the Health Protection Service has focused on Campylobacter infection and seeks to follow-up cases occurring in clusters.

### 8.7.3 SALMONELLOSIS

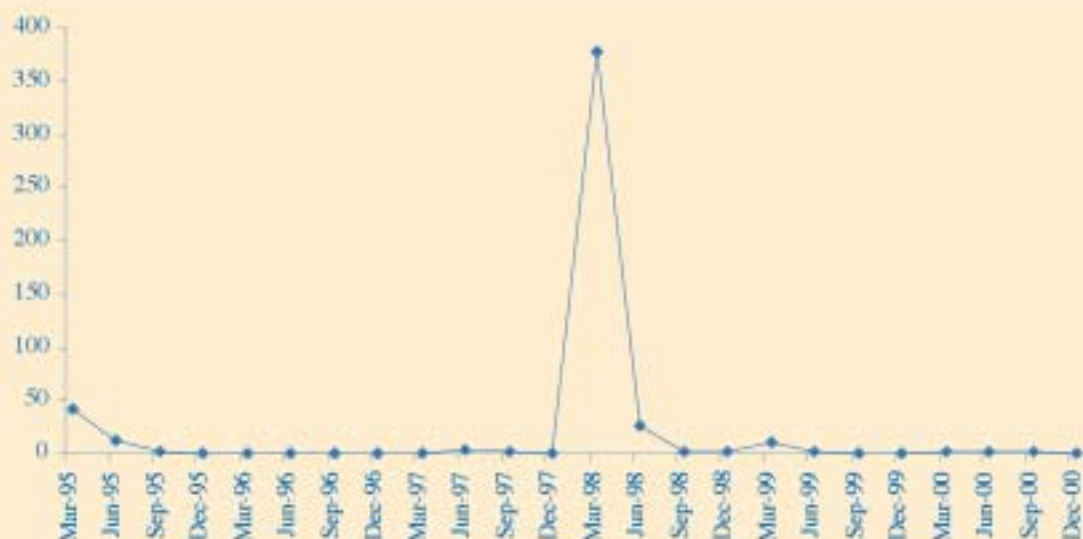
Salmonellosis is a bacterial disease which is commonly manifested by acute inflammation of the intestine with sudden onset of headache, fever, abdominal pain, diarrhoea and occasionally vomiting. The disease results from infection with one of the *Salmonella* species of bacteria, which can be further classified into different serotypes. Although grouped under the general heading of salmonellosis, the various serotypes have different epidemiology and produce different clinical manifestations.

A wide range of domestic and wild animals are hosts to *Salmonella* bacteria. Infection usually follows ingestion of food derived from infected animals or contaminated by faeces from an infected animal or person. In Australia, incidence of the disease tends to be seasonal, with peaks usually occurring in the summer months, as well as in well-defined outbreaks.

There were 75 notifications of salmonellosis in the ACT in 1998, 65 in 1999 and 104 in 2000. These represent rates of 24.3, 21.0 and 33.5 per 100,000. The Australian rates for the same periods are 41.1, 38.6 and 31.4 per 100,000 (see Figure 31).

An outbreak involving 29 people in January 2000 contributed to the higher numbers in that year in the ACT. The outbreak was traced to a small shop that was selling sandwiches contaminated with *S. typhimurium* phage type 9. Prompt intervention by officers of the Department stopped the outbreak. Other serotypes commonly notified during 1998 to 2000 include *S. typhimurium* phage type 135 (24 cases) and *S. enteritidis* phage type 4 (12 cases).

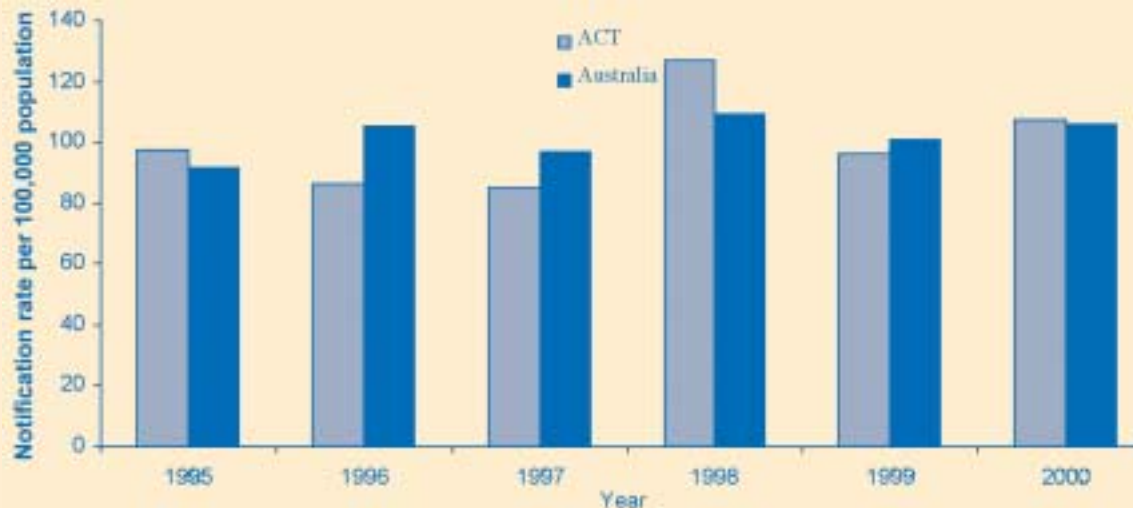
**Figure 29: Number of notifications of cryptosporidiosis by quarter, ACT, 1995-2000**



Source: ACT Notifiable disease data, Department of Health and Community Care, 1995-2000

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**Figure 30: Notification rate per 100,000 population for Campylobacter, ACT and Australia\*, 1995 - 2000**



Source: ACT Notifiable disease data, Department of Health and Community Care

\*Australian rates and population base do not include NSW

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### 8.8 VACCINE-PREVENTABLE DISEASES

Vaccines are currently available to protect us from many diseases. Those recommended on the Australian Standard Vaccination Schedule (ASVS) are listed in the introduction to this section of the report.

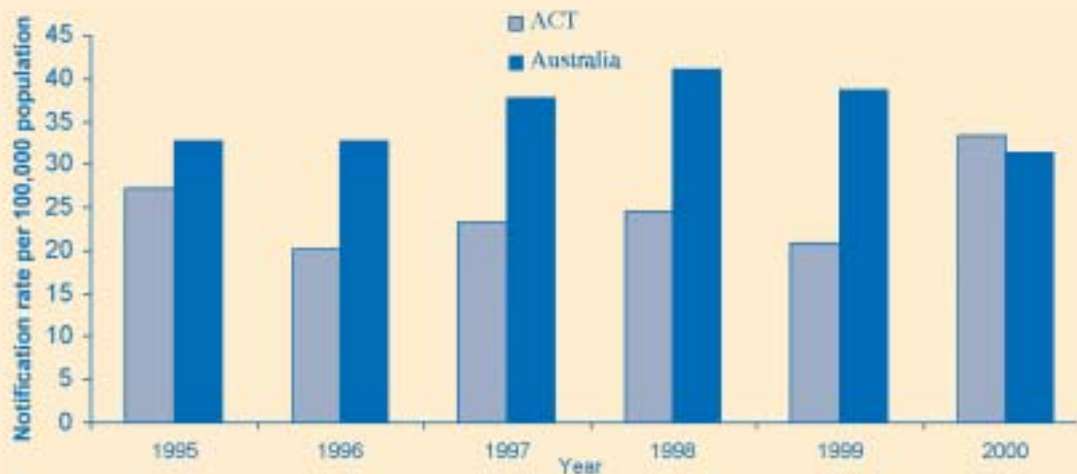
In 1993, the ACT Immunisation Program was incorporated into the then ACT Department of Health's Communicable Diseases Program. Since then, the proportion of children immunised has steadily increased. In October 1997, the ACT Immunisation Program complemented the Commonwealth's National Childhood Immunisation Strategy by launching an initiative called "Simply Protecting Our Tots" (SPOT). This program includes:

- mobile immunisation clinics;
- free vaccine delivery service to group surgeries and to immunisation clinics;
- access initiatives; and
- phone information /inquiry line.

Over 1999-00 the Immunisation Program focused on improving indigenous persons' vaccination, in particular concentrating on children and the elderly. A series of promotional materials were produced featuring local indigenous personalities and effort was made to improve access to immunisation services for indigenous people. The SPOT bus also appeared at special occasions and gatherings at Boomanulla Oval.

The proportion of children in the ACT who are fully vaccinated according to the ASVS is among the highest in Australia. The Australian Childhood Immunisation Register (ACIR) reports on the proportion of children who are fully vaccinated at one year of age and at two years of age. The figures reported by ACIR are shown in the Immunisation section of this report.

**Figure 31: Salmonellosis notification rates per 100,000 population, ACT and Australia, 1995 - 2000**



Source: ACT Notifiable disease data, Department of Health and Community Care  
Communicable Diseases Network Australia - National Notifiable Diseases Surveillance System, personal communication

### 8.8.1 PERTUSSIS (WHOOPING COUGH)

Whooping cough is a bacterial disease caused by *Bordetella pertussis*. The disease is particularly serious in babies, and can cause death. Whooping cough spreads easily between people in close contact who are not immune. Severe epidemics occurred in the days before vaccination, with many deaths resulting from infection. We still see outbreaks of pertussis because the immunity induced by the vaccine as well as the immunity induced by being infected are not lifelong. Eventually the immunity becomes weaker and the person becomes susceptible to infection again. Before 2001, the pertussis vaccine was available only for children up to 8 years of age; a vaccine for older children and adults became available in 2001, but the latter is not available free of charge.

During 1998 a large number of notifications of pertussis infection were recorded, particularly in NSW. The ACT numbers started rising in October 1998 with 19 in that month, then 26 notifications were received in December 1998 and the number of notifications remained above baseline (between 5 and 17 notifications in each month) until mid-2000.

From July 2000 numbers of notifications climbed rapidly, with a peak of 53 notifications being received in August/September 2000 (see Figure 32). Notifications then fell back sharply to a baseline of 5 notifications in December 2000. Media campaigns in 1998 and 2000 reminded the community of the severity of this illness and encouraged vaccination.

In the years 1998 to 2000, the number of pertussis notifications in the ACT were 87, 90 and 206, representing annual rates of 28.2, 29.0 and 66.3 per 100,000 (Figure 33). Notifications are relatively homogeneous across age groups in 1998 and 1999 with small peaks in the 5-9, 10-14 and 15-19 age groups. In 2000, however, there is a marked peak in the 10-14 year age group with a smaller peak in the 5-9 age group. Of the 206 notifications in 2000 only 3 were for infants, whereas 66 were in the 10-14 age group. The rates for Australia for the years 1998 to 2000 were 34.3, 22.9 and 30.2 per 100,000 respectively.

The activity seen in late 2000 is an important reminder that parents must remain vigilant in keeping their children vaccinated. The acellular pertussis vaccine has an improved side effect profile and should increase the uptake of the vaccine markedly.

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### 8.8.2 DIPHTHERIA

Diphtheria is a serious bacterial disease resulting from the effects of a toxin released from *Corynebacterium diphtheriae*. It was a cause of much illness and death in the pre-vaccination era but is now rare in vaccinated communities. There were no cases of diphtheria reported in the ACT from 1991 to 2000.

### 8.8.3 TETANUS

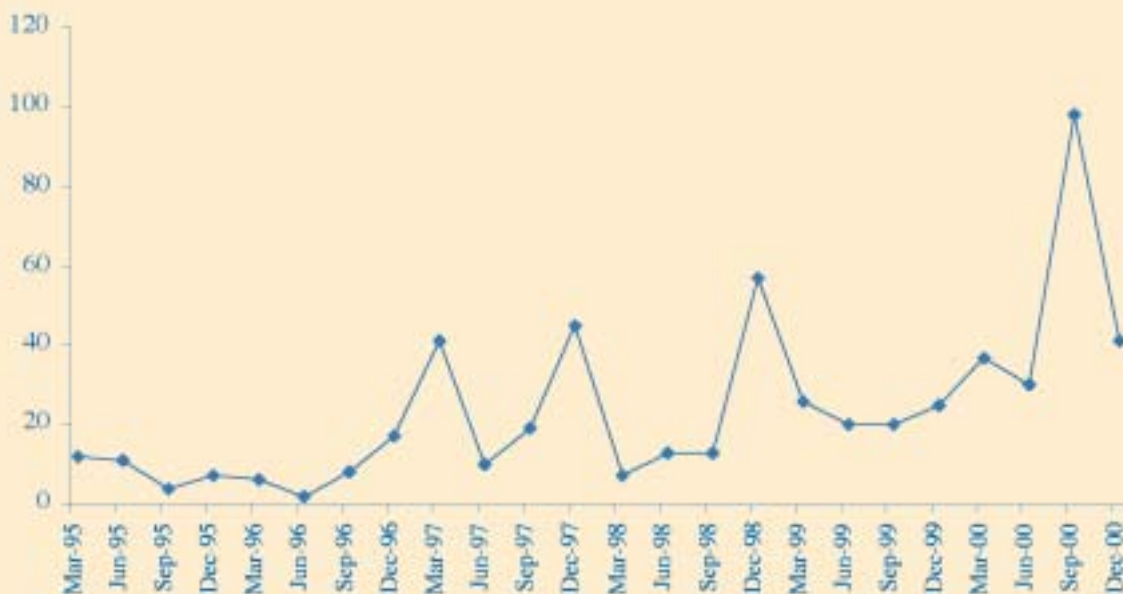
Tetanus is a life-threatening condition caused by a toxin released after infection with *Clostridium tetani*, which is a common bacterium found in animal faeces and soil. Despite the prevalence of the bacterium, tetanus has been an uncommon disease for many years because an effective vaccine has been available since the first half of the 20th century. However, several cases of tetanus are reported throughout Australia each year, often in elderly women who have not been vaccinated. There were no notifications of tetanus in the ACT from 1991 to 2000

### 8.8.4 MEASLES

Measles is a highly contagious viral disease with a cough, fever and characteristic rash. Measles infection is usually self-limiting but can result in occasional serious side effects and, rarely, death. Before universal vaccination, virtually all children in the community became infected with measles. Thus most people older than 30 are immune because of childhood infection. Nowadays, most children in the ACT are immune because they have been vaccinated. The group most at risk of infection now are young adults between 18 and 30 years of age.

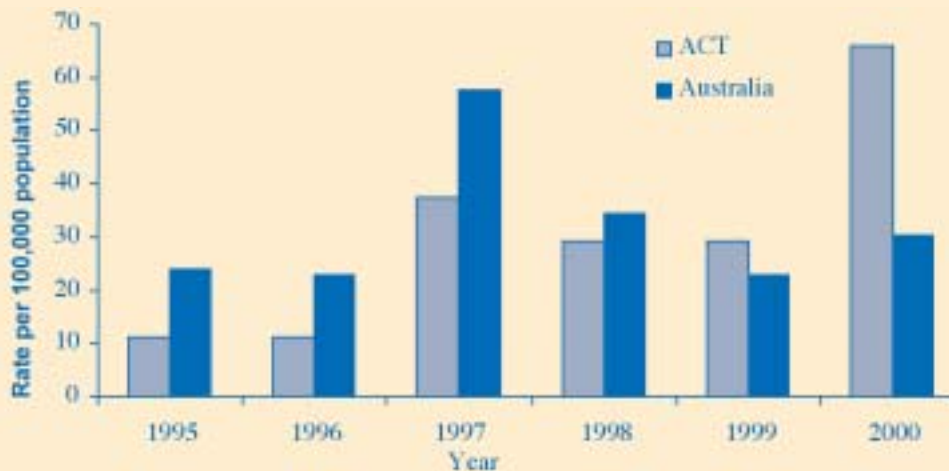
In 1998 the ACT took part in a universal schools vaccination campaign designed to give a second dose of measles vaccine (using the MMR vaccine) to all primary school children in Australia. This was to allow a change in the Australian Standard Vaccination Schedule to make the second MMR vaccine due at 4 years of age (it had previously been given to adolescent school children). The mass campaign vaccinated those children who would otherwise have missed out on a second vaccination because of the change of schedule.

**Figure 32: Number of notification of pertussis by quarter, ACT, 1995 - 2000**



Source: ACT Notifiable disease data, Department of Health and Community Care, 1995 - 2000.

**Figure 33: Notification rates of pertussis, ACT and Australia, 1995 - 2000**



Source: ACT Notifiable disease data, Department of Health and Community Care  
 Communicable Diseases Network Australia - National Notifiable Diseases Surveillance System, personal communication

In the years 1998 to 2000 there were respectively 10, 4, and 4 cases of measles in the ACT. Notifications of measles in the ACT were higher in 1995 (see Figure 34). There are two reasons for the declining numbers of measles cases. Firstly, the disease is becoming rare as the majority of people in the population are immune and secondly, more stringent criteria are being applied before a case notified as "measles" is accepted as measles. Currently, a blood test is being used to confirm virtually all notifications that appear clinically compatible with measles. Less than 5% of these notifications are confirmed as measles by serology (IgM positive). Other viral infections of childhood can look clinically similar to measles and may be mistaken for it.

During 2000, the department made a conscientious effort to reduce the gap in measles immunity in the older age groups. The measles campaign was aimed at the 18-30 year age group and made vaccination available free of charge. Subsequently the Commonwealth has added this group to its target with the intention of eradicating measles from Australia.

### 8.8.5 MUMPS

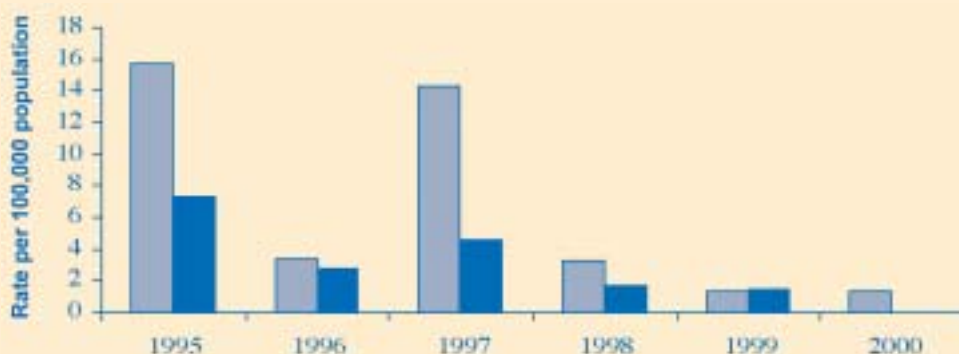
Mumps is an acute viral illness which causes fever and swelling of some salivary glands, typically the parotid gland. Serious complications, such as encephalitis, are rare. Inflammation of the testicles can be a complication in adolescent or adult males and inflammation of the breast in adolescent or adult females.

In the years 1998 to 2000, there were respectively 4, 8, and 17 notifications of mumps. These represent rates of 1.3, 2.6 and 5.5 per 100,000. The Australian rates for the same years are 1.0, 1.0 and 1.1 per 100,000. The accuracy (specificity) of diagnosis of mumps is improved by laboratory confirmation of the presence of the virus or of antibodies to the virus but only about half of the cases notified in this period are laboratory-confirmed. It is not clear why there was an increase in notifications in the year 2000; there is no apparent clustering in date of onset or postcode of residence. Numbers were again low in the first half of 2001 (2 notifications in the first 6 months). It is hoped that the current MMR campaign will reduce this activity.



## 8 Communicable Diseases

**Figure 34: Measles notification rates per 100,000 population, ACT and Australia, 1995-2000**



Source: ACT Notifiable disease data, Department of Health and Community Care

Communicable Diseases Network Australia - National Notifiable Diseases Surveillance System, personal communication

### 8.8.6 RUBELLA

Rubella, or “German measles”, has no connection with Germany or with measles (except for a rash that rarely looks similar to that of measles). Rubella is usually a mild viral disease, characterised by fever, rash and sometimes swelling of certain lymph glands in the head and neck. However, if women contract the disease during the first trimester of pregnancy, it may cause serious developmental defects in the foetus; this is Congenital Rubella Syndrome. To remove that risk, it is therefore important for women of childbearing age to ensure that they are immune to the disease. Immunity can be achieved by vaccination and immune status can be checked with a simple blood test.

Notification rates for rubella in the ACT include laboratory confirmed cases as well as notifications based on clinical criteria. In the ACT in the years 1998 to 2000 there were 22, 17 and 4 notifications of rubella; none related to congenital rubella syndrome. The rates for those years were 7.1, 5.5 and 1.3 per 100,000. Some of these suspected cases may not have been rubella, which can be very difficult to diagnose on clinical grounds alone because the symptoms closely match those of other common viral illnesses.

If only those cases confirmed by laboratory tests are included, then the ACT rubella notification numbers for the years 1998 to 2000 are 15, 7 and 2 giving rates of 4.9, 2.3 and 0.6 per 100,000 respectively. The Australian rates for rubella for 1998 to 2000 were 4.1, 2.0 and 1.6 per 100,000.

### 8.8.7 POLIOMYELITIS

Widespread immunisation has eliminated the disease from Australia, and no cases of polio have been recorded here for many years. The western Pacific, including Australia, has just been declared officially polio-free by the World Health Organization (WHO). The vaccine remains on the ASVS because children remain at risk of imported disease until polio is eradicated from the world. The WHO is aiming to certify that global eradication of polio has occurred by the year 2005.

### 8.8.8 HAEMOPHILUS INFLUENZAE TYPE B (HIB) INFECTION

*Haemophilus influenzae* type b (Hib) are bacteria that can cause serious disease mainly in young children. The bacteria can infect the meninges (the membranes surrounding the brain and spinal cord), causing meningitis. They can also cause inflamed throats, pneumonia, and septic arthritis. Before a vaccine was available, Hib was one of the commonest causes of bacterial meningitis in children under five years of age in Australia.



## 8 Communicable Diseases

The introduction of Hib vaccine has brought about a dramatic reduction in the rate of invasive Hib infection throughout Australia. The national notification rate for this disease in children under five years has dropped from 33.6 per 100,000 population in 1992 to 0.2 per 100,000 in 1998. Four cases of Hib infection were notified between 1994 and 1997 in the ACT; there was one notification in 1999 and none in 1998 or 2000.

### 8.9 OTHER DISEASES

#### 8.9.1 LEGIONELLOSIS

Legionellosis is an acute bacterial disease resulting from infection with one of the *Legionella* species of bacteria. The commonest notified variant is known as Legionnaire's Disease. Those most at risk include the elderly, especially smokers, those with a chronic illness and the immuno-compromised. Males are infected more often than females. Symptoms typically include fever, headache, malaise and may include pneumonia. The illness can be serious or even fatal.

Infection results either from exposure to *Legionella pneumophila* that have grown in air conditioning systems, hot water systems or spas and are released into the air, or from *L. longbeachae*, which is often found in potting mixes. The ACT Department of Health and Community Care actively monitors air conditioning cooling towers for contamination, thereby assisting the prevention of infection from this source.

The ACT notified 2 cases of legionellosis in 1998, 2 in 1999 and 5 in 2000 (three were *L. longbeachae*, and two *L. pneumophila*). All were single sporadic cases.

The Health Protection Service is responsible for administration and enforcement of the *ACT Cooling Tower and Warm Water Storage Systems Code of Practice 2000*. Since September 2000 all non-Commonwealth cooling towers operating in the ACT are required to be registered under the *Public Health Act 1997*.

The Code prescribes the minimum testing and maintenance requirements for the operation and management of cooling towers and warm water systems. In addition to these requirements, the Code requires quarterly reporting of sampling and maintenance data. Any test result outside the prescribed range must be reported to the Health Protection Service. Test results for 1998 – 2000 are detailed in Table 39.

**Table 39 : Legionella testing and inspection in the ACT, 1998-99 to 1999-00**

	1998 1999	1999 2000
Number of reported test results outside required range	13	14
Number of cooling tower inspections carried out	293	331

Source: Health Protection Service. ACT Department of Health and Community Care

#### 8.9.2 MALARIA

Malaria is caused by a parasite transmitted by the bite of certain species of mosquito that live in warm tropical or sub-tropical regions. Australia has been certified malaria-free since 1981. In the years 1998 to 2000, the ACT had respectively 24, 22 and 17 cases notified. However, no cases were contracted in Australia. The respective rates are 7.8, 7.1 and 5.5 per 100,000 which are higher than the Australian rates of 3.8, 3.9 and 5.0 per 100,000 respectively. The relatively high ACT rate reflects the large number of diplomatic and student visitors to the Territory.

## 8 Communicable Diseases

### 8.9.3 MENINGOCOCCAL INFECTION

Now that Hib infection is rare (following widespread use of the Hib vaccine) meningococcal disease is one of the commonest causes of meningitis (inflammation of the membranes surrounding the brain and spinal cord). Meningococcal disease results from infection with the bacterium *Neisseria meningitidis* (commonly known as meningococcus). These bacteria are found fairly commonly in the nose and throat of many well people. Most of these people will not suffer any ill effects; only a small minority progress to invasive disease. In addition to meningitis, invasive meningococcal disease can result in severe, life-threatening septicaemia (blood poisoning) as well as other invasive conditions. This sort of meningococcal disease can kill very rapidly so that prompt medical attention, including treatment with antibiotics, is necessary.

Several serogroups of meningococcus can cause invasive disease; the commonest are Groups A, B, C, W135 and Y. A polysaccharide vaccine is available in Australia to give protection against Groups A, C, W135 and Y; no vaccine is yet available to protect against Group B. A new conjugated vaccine has recently become available (although overseas not yet in Australia) for Group C, and is now being used in a universal campaign for infant and adolescent vaccination in the United Kingdom.

Following notification of a case of meningococcal disease, rapid public health action is required to identify close contacts of the case and offer them prophylactic antibiotics. Therefore medical practitioners are requested to advise the Communicable Disease Control Section immediately upon suspicion of invasive meningococcal disease.

Meningococcal disease demonstrates marked seasonality, with peaks occurring in winter months around July and then into early spring.

In the years 1998 to 2000 there were 3, 5 and 5 notifications of invasive meningococcal infection in the ACT (see Figure 35). These represent rates of 1.0, 1.6 and 1.6 per 100,000 persons.

The rates for Australia for the same period are 2.4, 3.0 and 3.1 per 100,000. Of the 13 notifications in the ACT during 1998 to 2000, seven were Group B, three were Group C, and the Group could not be determined for the other three.

During 2000, the Department conducted a "Don't Share Spit" campaign aimed at reducing infectious risk in teenagers. Meningococcal disease and several viral illnesses are spread through close contact eg. sharing drink bottles. The campaign highlighted these risks and attempted to raise awareness about safe behaviours.

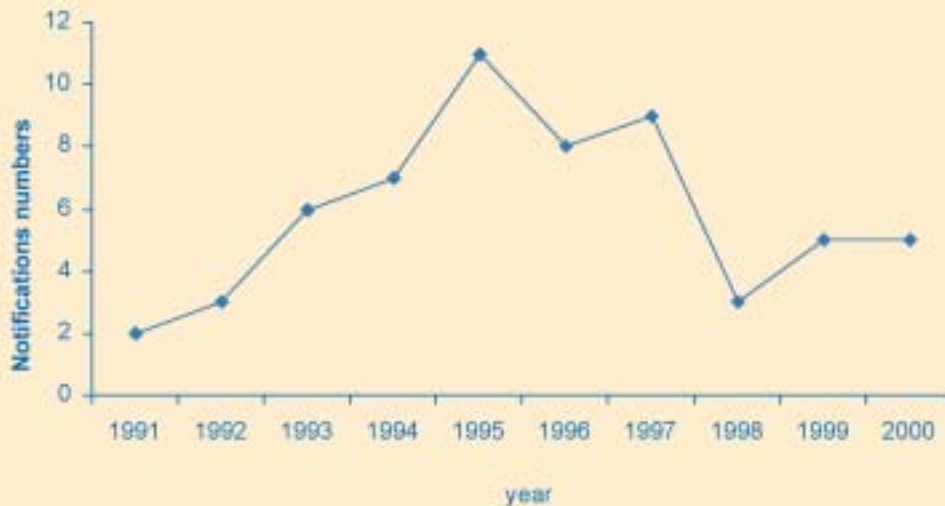
### 8.9.4 TUBERCULOSIS

Tuberculosis, commonly known as TB, is a chronic bacterial infection caused by *Mycobacterium tuberculosis*. It generally affects the lungs (pulmonary TB) but can occur throughout the body. It is usually transmitted from person to person by airborne droplets expelled when people with pulmonary TB cough or sneeze. Australia has one of the lowest rates of the disease in the world, and transmission rates in the ACT community remain very low. Nationally, overseas-born people constitute 75% of all cases of tuberculosis and this trend holds true in the ACT as well. People infected with HIV are particularly at risk of TB.

In the years 1998 to 2000 there were 17, 13 and 11 notifications of TB in the ACT; the rates are 5.5, 4.2 and 3.5 per 100,000. Most were probably acquired in Australia, although outside the ACT. Of the 41 notifications of TB in the years 1998 to 2000, the country of birth was obtained for 27; of these, 81% were in overseas-born people.

A partially protective vaccine is available and is recommended for certain at-risk groups.

**Figure 35: Number of notifications of meningococcal disease, ACT, 1991 - 2000**



Source: ACT Department of Health and Community Care, communicable diseases data, 1991 - 2000

### 8.9.5 PEDICULOSIS

Pediculosis means infestation with head lice. There is much misinformation and confusion about head lice that contributes to a poor community attitude towards those people unfortunate enough to have this problem. Anyone can get head lice, as the creatures have no preference for cleanliness, hair colour, hair type or age. Head lice are a nuisance, but are not considered to cause disease or illness in this part of the world. Recently, head lice resistant to chemical treatment agents have been identified in the ACT. The Health Protection Service will continue to monitor the effectiveness of commercial pediculosis treatments and make recommendations to the community on the best way to deal with this pest.

### 8.10 SERVICES AND THEIR USE

The Immunisation section of the Department's Health Protection Service implemented changes to the immunisation protocol for Measles, Mumps and Rubella (MMR) combined vaccine in July 1998 (as noted under the measles sub-section above). These changes have brought forward the administration of the second dose of the MMR vaccine from 10-15 years of age to 4 years of age. An enhanced measles vaccination program was conducted to ensure that children in primary school did not miss out on their second dose of the vaccine. Between August 1998 and November 1998, 24,125 ACT primary school children were immunised with the second dose of the MMR vaccine; this represents 88.3% of the target population receiving the vaccine.

A young adult MMR campaign was launched in March 2000 with the aim of providing people aged between 18 and 30 years with a single dose of combined MMR vaccine. This vaccine was made available free of charge through University and Territory Health Clinics, the Simply Protecting Our Tots (SPOT) mobile immunisation van and GPs.

## 8 Communicable Diseases

Influenza vaccine is provided annually for all people over 65 years of age as well as for indigenous ACT residents aged 50 years and over. Influenza vaccine is also provided to indigenous ACT residents aged 15-50 years who are at an increased risk due to chronic illness.

### Emerging Issues

- The continuing increase in the incidence of genital chlamydia infection in the ACT is a cause for concern. The Minister has appointed an Advisory Council on sexual health, AIDS, hepatitis C and related diseases (SHAHRD) to advise on issues in the areas of sexual and reproductive health.
- The increase in the number of bacterial strains that are resistant to several different antibiotics continues to be a public health problem in Australia. It is related to the widespread use of antibiotics both in human medicines and in farm animals. Of particular concern are the vancomycin-resistant enterococci (VRE) and infections with multiple-resistant *Staphylococcus aureus*.
- The availability of new vaccines and changing disease patterns will lead to revisions in vaccination policy. These vaccines include Meningococcal Group C conjugated vaccine, pneumococcal conjugated vaccine and varicella vaccine.
- Concerns are developing nationally about variant Creutzfeldt-Jakob Disease (CJD), in response to the presence of the disease in Europe. The situation in Australia and the ACT is being monitored.

### At a Glance

- There were 4,645 women who gave birth to 4,737 babies in the ACT during 1998.
- Crude birth rates for ACT live births to ACT residents have declined from 14.1 in 1994 to 13.2 in 1998.
- Women in the ACT are delaying child-bearing, with an increase in the fertility rate in the 40-44 year age bracket.
- The average age of women in the ACT having their first child was 28 years.
- In 1998, 3.7% of births in the ACT were to teenage mothers, which is lower than in 1997 (4.1%), and significantly below the 1998 Australian percentage of 5.1%.
- The percentage of obstetric complications has fallen from 23.8% in 1997 to 22.3% in 1998.
- There has been an increase of 4.3% in normal births and a decrease of 2.2% in caesarean sections since 1994. The caesarean section rate in the ACT for 1998 was the lowest in Australia.
- There was an increase in perinatal mortality in 1998, due to small increases in the numbers of both fetal and neonatal deaths. A large proportion of the neonatal deaths (13; 54.2%) were for babies less than 1,000 grams in birthweight.

### 9.1 WHAT WE MEAN BY MATERNAL AND INFANT HEALTH

This area covers the health of pregnant women and the developing fetus within them, the safe and satisfactory birth of the babies, and the subsequent health of the mothers up to 28 days after the birth, and of the babies to the age of two years.

The adage that good health is not merely the absence of disease is particularly true in this field, in which broad care of mother and infant are extremely important and form part of the services provided. The care of mothers and babies is part of every civilised society; in addition, maternal and infant health is used as an important indicator of the overall health and wellbeing of our community. The quality of maternity services offered to women that give birth in the ACT, and the care of both mother and infant, are therefore major health care issues. This Section contains a description of the services and facilities provided for pregnancy and childbirth, and an outline of the statistics involving mothers and babies in the ACT.

### 9.2 STATISTICS AND TRENDS

#### 9.2.1 GENERAL

There were 4,645 women who gave birth to 4,737 babies in the ACT during 1998. Of these, 99% were live births. Table 40 presents the trend from 1994 to 1998 with the crude birth rates for ACT live births to ACT residents declining from 14.1 in 1994 to 13.2 in 1998.

The ACT accounts for about 1.8% of women giving birth in Australia. The total fertility rate for the ACT resident population in 1998 was 1,593 per 1,000 women, with an average of 1.6 children for each woman. There has been a continued fall in the fertility rates for the 25-29 year age group and an increase in the 40-44 year age group. These changes indicate that women in the ACT are delaying child-bearing.

## 9 Maternal and Infant Health

**Table 40: Women giving birth and babies born, ACT, 1994 - 1998**

	1994	1995	1996	1997	1998
Women giving birth	4,731	4,830	4,701	4,708	4,645
Babies born (live births & stillbirths)	4,784	4,899	4,788	4,785	4,737
All ACT live births	4,748	4,853	4,750	4,743	4,691
Crude birth rates per 1,000	15.8	16.0	15.4	15.4	15.2
ACT live births to ACT residents	4,246	4,346	4,231	4,123	4,078
Crude birth rates per 1,000	14.1	14.3	13.8	13.4	13.2

Sources: ACT Maternal and Perinatal Data Collection, ABS: Population by age and sex, ACT, Catalogue no. 3201.0

Note: The Australian Bureau of Statistics (ABS) 1998 crude birth rate for ACT is 13.3. The ABS reports on the number of live births to ACT residents irrespective of where the birth occurs, which accounts for the slight difference in rates. The ABS estimated population figure, used to calculate the crude birth rate for the ACT, as at 30 June 1998, was 308,411 persons.

In 1998, 3.7% of births in the ACT were to teenage mothers, which is lower than in 1997 (4.1%), and significantly below the 1998 Australian percentage of 5.1%. There has been a fall in the percentage of women younger than 25 giving birth. In 1998, 17.6% of births were to women under 25, compared with 21.3% in 1994. At the same time, there has been a rise in the percentage of women older than 35 who are giving birth in the ACT (this category accounted for 18.1% in 1998 compared with 14.0% in 1994). The average age of women in the ACT having their first child was 28 years.

Sixty-three indigenous women gave birth in the ACT in 1998, accounting for 1.4% of all the Territory's births. This figure is consistent with the 1997 ABS projections for the ACT of approximately 60 women.

The percentage of non-ACT residents giving birth in the ACT has risen from 10.7% in 1996 to 12.7% in 1998.

### 9.2.2 PREGNANCY, LABOUR AND BIRTH

Women in the ACT can access various forms of antenatal care. Statistics for 1998 show a slight fall in the use of GPs (general practitioners) and obstetricians and an increase in the use of antenatal clinics and the Birth Centre/Canberra Midwifery Program.

The ACT had the highest percentage of multiple births for 1998 of any jurisdiction (1.9% compared to 1.4% for Australia). The ACT's high figure is probably due to the fact that The Canberra Hospital is the referral centre for multiple births for the surrounding New South Wales area. Of the 592 NSW residents who gave birth in the ACT in 1998, 4.6% had a multiple birth.

The percentage of obstetric complications has fallen from 23.8% in 1997 to 22.3% in 1998. The most common obstetric complications were premature (preterm) rupture of membranes, mild or unspecified pre-eclampsia and infections of the genitourinary tract in pregnancy. These three diagnoses accounted for 16.8% of the total percentage of obstetric complications.

In 1998, 66.5% of women giving birth in the ACT had a spontaneous onset of labour (17.6% of these women were subsequently augmented to help labour progress). Of the remaining women giving birth, 22.0% were induced and 11.4% had no labour (that is, they had elective caesarean sections).

## 9 Maternal and Infant Health

Of the women who gave birth in the ACT in 1998, 68% of the births were normal, 18.8% involved caesarean sections (compared to the national rate of 21.1%), and the remainder were classified as vaginal breech or instrumental births (see Figure 36). This is an increase of 4.3% in normal births and a decrease of 2.2% in caesarean sections since 1994. The caesarean section rate in the ACT for 1998 was the lowest in Australia.

### 9.2.3 BABIES' CHARACTERISTICS IN THE ACT

The ACT mirrored the national figures with male births (50.9%) exceeding female births (49.1%). Sixty-five per cent of babies born in the ACT during 1998 weighed between three and four kilograms, the average birth weight being 3,354 grams. The majority (88.6%) of babies born in the ACT during 1998 were between 37 and 41 weeks gestation, with an average gestational age of 39 weeks.

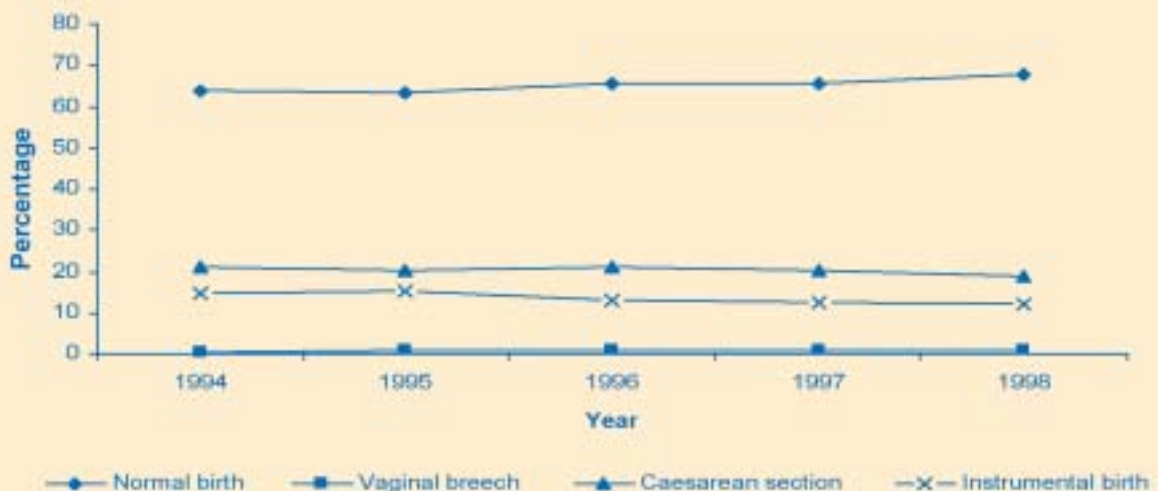
### 9.2.4 LOW BIRTHWEIGHT BABIES IN THE ACT

Babies born weighing less than 2.5 kg have a greater risk of illness or premature death than babies whose weights fall in the normal range. Low birthweight may also be associated with poor health of the mother. In 1998, babies weighing less than 2,500 grams (2.5 kg) accounted for 7.9% of all births, but 17.1% of these births were to mothers from interstate. The percentage for ACT resident mothers was 6.5%, which is consistent with the national average of 6.6% (see Table 41).

### 9.2.5 PERINATAL AND INFANT MORTALITY

Fetal, neonatal and infant deaths are important indicators of our community's health. There were 46 stillbirths (1.0% of all births), 24 (0.5%) neonatal deaths, and 7 (0.1%) postneonatal deaths reported for all ACT births in 1998. A large proportion of neonatal deaths (13; 54.2%) were of babies less than 1,000 grams in birthweight.

Figure 36: Method of birth, ACT, 1994 - 1998



Source: ACT Maternal and Perinatal Data Collection



## 9 Maternal and Infant Health

**Table 41: Birthweight for babies born to ACT residents, ACT, 1994 - 1998**

Birthweight	1994		1995		1996		1997		1998	
	No.	%	No.	%	No.	%	No.	%	No.	%
Less than 1,500 grams	50	1.2	45	1.0	53	1.2	52	1.3	62	1.5
1,500 to 2,499 grams	162	3.8	177	4.0	204	4.8	193	4.6	204	5.0
Greater than 2,500 grams	4,035	94.3	4,133	94.3	3,985	93.5	3,906	94.0	3,849	93.5
Not stated	30	0.7	28	0.6	19	0.4	3	0.1	0	0.0
ACT residents Births	4,277	100.0	4,383	100.0	4,261	100.0	4,154	100.0	4,115	100.0

Source: ACT Maternal and Perinatal Data Collection

Note: Data includes reported births to ACT resident women in the ACT.

**Table 42: Mortality for births to ACT residents, ACT, 1994 - 1998**

Mortality	1994*		1995		1996		1997		1998	
	No.	Rate	No.	Rate	No.	Rate	No.	Rate	No.	Rate
Perinatal mortality	43	10.1	52	11.9	42	9.9	44	10.6	57	13.9
Foetal deaths	31	7.2	37	8.4	30	7.0	31	7.5	37	9.0
Neonatal mortality	12	2.8	15	3.5	12	2.8	13	3.2	20	4.9
Post Neonatal mortality			5	1.2	4	0.9	6	1.5	6	1.5
Infant mortality (0 – 1 year)			20	4.6	16	3.8	19	4.6	26	6.4

Source: ACT Maternal and Perinatal Data Collection

Note: 1994 to 1998 Birth Cohort Data includes reported mortality for births to ACT resident women.

\*Post Neonatal mortality was not identified in 1994. Rate per 1,000 ACT resident livebirths for Neonatal Deaths,

Post Neonatal Deaths and infant mortality. Rate per 1,000 ACT resident births for foetal deaths and perinatal deaths.

Data corrections account for slight differences from previously reported mortality. Annual rates fluctuate due to small numbers.

The infant deaths, perinatal deaths and fetal death rates reported in Table 42 are based on the birth cohort of births to ACT resident women for a calendar year, not on the year of death or year of death registration. These figures will vary from those published by the Australian Bureau of Statistics which uses slightly different counting rules.

The mortality rates for births to ACT resident women in Table 42 show an increase in perinatal mortality in 1998. The proportion of all births weighing less than 1,000 grams at birth has risen slightly from 7.6 per 1,000 in 1995 to 12.2 per 1,000 and the mortality rate for this group is high due to the physiology of these extremely preterm babies. During the last 4 years (1995 - 1998) the

perinatal deaths have declined for babies weighing less than 1,000 grams from 730 per 1,000 in 1995 to 603 per 1,000 in 1998 due to intensive neonatal care.

### 9.2.6 BIRTH DEFECTS

Birth defects (congenital anomalies) were reported for 4.7% of babies born in the ACT in 1998.

Of these reported birth defects, the majority were for musculo-skeletal deformities and defects of the genito-urinary system (see Table 43).

## 9 Maternal and Infant Health

**Table 43: Birth defects, ACT, 1995 - 1998**

	1998 only		1995 to 1998	
	No.	Rate per 10,000	No.	Rate per 10,000
Anencephalus and similar anomalies (740)	1	2.1	4	2.1
Spina bifida (741)	0	0.0	5	2.6
Other birth defects of nervous system (742)	7	14.8	26	13.5
Birth defects of eye (743)	1	2.1	17	8.9
Birth defects of ear, face, and neck (744)	10	21.1	33	17.2
Bulbus cordis anomalies and anomalies of cardiac septal closure (745)	25	52.8	83	43.2
Other birth defects of heart (746)	11	23.2	44	22.9
Other birth defects of circulatory system (747)	5	10.6	23	12.0
Birth defects of respiratory system (748)	6	12.7	28	14.6
Cleft palate and cleft lip (749)	11	23.2	38	19.8
Other birth defects of upper alimentary tract (750)	5	10.6	32	16.7
Other birth defects of digestive system (751)	8	16.9	20	10.4
Birth defects of genital organs (752)	36	76.0	149	77.6
Birth defects of urinary system (753)	26	54.9	94	48.9
Certain congenital musculo-skeletal deformities (754)	52	109.8	211	109.8
Other birth defects of limbs (755)	26	54.9	89	46.3
Other congenital musculo-skeletal anomalies (756)	12	25.3	46	23.9
Birth defects of the integument (skin) (757)	23	48.6	141	73.4
Chromosomal anomalies (758)	15	31.7	40	20.8
Other and unspecified Birth defects (759)	0	0	3	1.6
<b>Total Birth defects as reported in Hospital Morbidity Data (* Rate per 100)</b>	<b>280</b>	<b>*5.9</b>	<b>1126</b>	<b>*5.9</b>

Source: ACT Hospital Morbidity Data Collection, 1995 - 1998

Note: Figures in brackets refer to codes. Annual rates fluctuate due to the small numbers. Figures are based on patients not separations; if a baby has more than one admission for the same defect only one defect is counted. One baby may have more than one defect. Data includes stillbirths but excludes pre-twenty week fetuses. Definitions and standards as per the ICD-9-CM manuals. ICD-9-CM descriptions with the words "Congenital anomalies" have been replaced with "Birth defects" in this publication. For chromosomal birth defects (code 758), ten were for Down's Syndrome. Nine of these cases of Down's Syndrome were to women over 30 years old.

### 9.3 SERVICES AND THEIR USE

There are two private and two public hospitals as well as homebirth options available in the ACT. The maternity services provided include: antenatal clinics; parenting classes including refresher days; antenatal and postnatal physiotherapy classes; antenatal and postnatal beds both in private or public hospitals; intensive and special care nursery with access to Newborn and Parent Support Services (NAPSS); and Midcall.

In 1998, 99% of women gave birth in hospital (more than a quarter chose to give birth in a private hospital) and 1% gave birth at home (see Table 44). Of the women birthing in a hospital, 8.4% chose the Birth Centre at The Canberra Hospital (TCH). The percentage of women who gave birth in the Birth Centre has risen from 5.7% in 1995 to 8.4% in 1998.

## 9 Maternal and Infant Health

TCH offers facilities for obstetric and midwifery care for low-risk to high-risk pregnancies, and births in a traditional hospital setting or birth centre. The Canberra Midwifery program offers midwifery services throughout the antenatal and postnatal period in the community, and a choice of birth settings. TCH also has speciality units that include the Fetal Medicine Unit and the Centre for Newborn Care with tertiary level neonatal intensive care nursery.

The Calvary Hospitals provide traditional public and private maternity services for low to moderate risk pregnancies and births. Refurbishment of Special Care Nursery and three Birth Suites at Calvary Public Hospital are planned for 2001-02. John James Memorial Hospital provides traditional private maternity services for low to moderate risk pregnancies and births.

Two accredited independently practising midwives attend home births in the ACT. It is the usual practice for General Practitioners not to attend homebirths in the ACT. Women who choose to give birth at home in the ACT are usually booked into TCH. If there are complications during the labour or after the birth, these women are transferred to TCH. The accredited midwives can also arrange to attend a birth in hospital for 'high risk' pregnancies.

The services of the Queen Elizabeth II Family Centre (QEII) are provided from the postnatal, early childhood and family residential facility in Curtin operated by the Canberra Mothercraft Society. As Table 45 shows, the number of admissions at QEII have increased from 1,387 in 1998 to 1,561 in 2000.

**Table 44: Place of birth, ACT, 1995 - 1998**

Women giving birth at:	1995		1996		1997		1998	
	No.	%	No.	%	No.	%	No.	%
Public Hospitals	3,528	73.1	3,401	72.3	3,409	72.4	3,390	73.0
Private Hospitals	1,260	26.1	1,275	27.1	1,250	26.5	1,211	26.1
Homebirth	35	0.7	24	0.5	46	1.0	41	0.9
Born before arrival	7	0.1	1	0.0	3	0.1	3	0.1
<b>Total</b>	<b>4,830</b>	<b>100.0</b>	<b>4,701</b>	<b>100.0</b>	<b>4,708</b>	<b>100.0</b>	<b>4,645</b>	<b>100.0</b>

Source: ACT Maternal and Perinatal Data Collection, 1995-1998

**Table 45: Queen Elizabeth II Family Centre activity data, 1998 - 2000**

	Mother/Primary carer			Infant			Total		
	1998	1999	2000	1998	1999	2000	1998	1999	2000
Admissions	678	753	750	709	794	811	1387	1547	1561
Interstate clients	203	288	342	213	296	371	413	584	713
							(30%)	(38%)	(46%)
Length of stay in days	4.3	3.79	3.76	4.3	3.8	3.76	4.3	3.85	3.76
Occupancy rate	79.6%	80%	89%	83.5%	84%	93%	81.5%	82%	91%

Source: Queen Elizabeth II Family Centre

The residential program offered by the Society is for families of young children experiencing complex health and behavioural difficulties in the postnatal and early childhood period. This is part of the comprehensive early childhood and family health services provided by ACT Community Care's Child Youth & Women's Health Program.

The tertiary service at the Centre is provided in such a way as to provide an integrated approach to client care through cooperative and collaborative procedures, and by communicating with the secondary and primary level services of ACT Community Care and other agencies within the ACT and surrounding region of NSW.

The Postnatal Parenting Information and Referral Service (PPIRS) is administered by ACT Community Care. It offers a single point of reference for information and access to a wide range of antenatal, postnatal and early childhood services. The majority of clients are parents (mainly mothers) and the highest proportion of referrals comes from the subdivisions where younger families live.

All the ABS<sup>11</sup>, National<sup>12</sup> and ACT<sup>13</sup> figures contained in this section are referenced at the end of the section.

### **Emerging Issues**

- The Maternity Services Planning Group has adopted a Territory-wide approach to the provision of maternity and family care. This group consists of consumers and health care providers from across the ACT.
- The continuing trend for mothers to be older than in the past, and the increased fertility rate in the 40-44 year age bracket, may have implications for health care planning in this area.

## 10.1 POPULATION

The ACT population remained static from 1996 to 1998, following a period of rapid growth in the first half of the 1990s. This growth was mainly due to migration to meet employment opportunities. The estimated annual growth rate for 1998-99 was 0.7%, compared to the national rate of 1.3%, which gives the ACT the third lowest growth rate of all the States and Territories. However the 1998-99 growth rate is higher than that recorded in 1997-98, which was only 0.01%.

The Territory's net population growth of 1,238 persons in 1998-99 was due to natural increase (the difference between 3,982 births and 1,272 deaths), lessened by a net loss through emigration from the ACT. In 1998, the ACT had the lowest fertility rate (1.6) of any jurisdiction, but its crude birth rate (12.9) was higher than Tasmania (12.7) and South Australia (12.3). This seeming anomaly between fertility and birth rate comes about because of the young age structure of the population. Put simply, the fertility rate is a measure of the number of children a woman would be expected to bear during her reproductive life. The birth rate is a measure of the number of live births in a calendar year. Because the ACT population has a relatively large proportion of females in their child-bearing years, and relatively few old people, the population's birth rate is larger than would be expected from its fertility rate.

Over time, the population is showing a shift in fertility patterns, with older women (over 30 years) making a larger contribution to births.

The age profile of the ACT population is shown in the population pyramid below. The population is younger than the rest of Australia, with an estimated median age in 1999 of 32.4 years (compared to 34.9 years for Australia). While this age profile currently brings benefits in generally better health status and higher economic activity, the low overall rate of population increase means that in the future the ACT will have a disproportionately large population of elderly people.

## 10.2 INDIGENOUS POPULATION

There were an estimated 3,058 people identifying themselves as Aboriginal or Torres Strait Islanders in the ACT in the census of 1996. This was a little less than 1% of the Territory's total population. The Aboriginal and Torres Strait Islander population of the ACT has a younger age profile than the non-indigenous population, reflecting its higher fertility rates and lower life expectancy. The age profile of the ACT indigenous population is comparable to the Australian indigenous population age profile. For example, in 1996 more than 38% of indigenous people in the ACT were less than 15 years old, compared with only 23% of the total ACT population. Census figures from 1996 indicate that only 0.75% of the indigenous population was aged 65 years or over, compared with 7% of the non-indigenous population.

## 10.3 AGE PROFILE

The ACT population is already ageing significantly with the median age having risen by four years since 1989. People 65 years old or more accounted for 8% of the Territory's estimated population in June 1999. There are large differences between Canberra's sub-divisions in the proportion of older people in the population. For instance, South Canberra has the greatest proportion of over 65 year olds (16%), while Gungahlin-Hall (in the North) has only 2% of its population in this age group and Tuggeranong (in the extreme South) has 3%. These age disparities are the legacy of the phased development of Canberra suburbs over a period of 40 years.

It is estimated that by 2010, the predominance of older people living in North Canberra will quickly dissipate as South Belconnen and Woden Valley start to show the effects of ageing. Together these three districts will then contain nearly half of all people older than 65 living in Canberra and the more recently settled districts of Gungahlin and South Tuggeranong will continue to have much lower numbers of older persons.

**Figure 37: ACT population by age and sex June 1999**



Source: ABS, Population by age and sex ACT June 1999. Catalogue no 3201.0

Figure 38 shows that in 2000, South Canberra and North Canberra had the highest proportion of their total district population comprised of older persons and by 2010 these districts will continue to have the highest proportions of older persons. The graph also shows the much lower proportion of older persons living in the more recently settled districts.

## 10.4 VITAL STATISTICS

### 10.4.1 BIRTHS

In 1999 there were 4,253 births to women in the ACT. Tuggeranong, in the far south, has the highest birth rate, accounting for 35% of births, followed by Belconnen on the north side with 24%. The ACT crude birth rate in 1999 was 13.7 per 1,000 population compared to 13.1 for Australia.

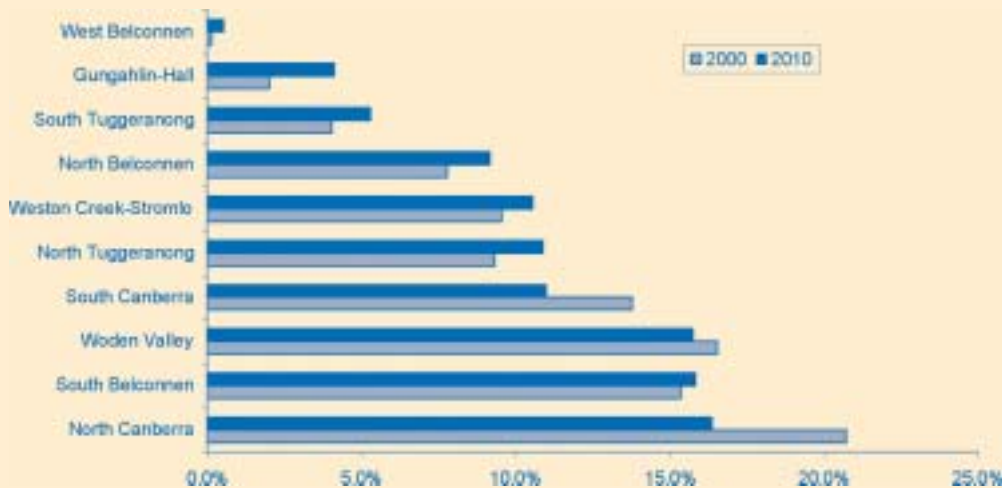
### 10.4.2 DEATHS

In 1999, 1,331 deaths of ACT residents were registered in the ACT (682 males and 649 females). The ACT standardised death rate is 5.4 per 1,000, which compares with the national figure of 5.9 per 1,000. The death rate in the ACT has been slowly rising for the past 10 years and is expected to increase further as the population ages. The major causes of death are discussed in Section 4.

### 10.4.3 FAMILY STRUCTURE

In 1999 there were an estimated 75,400 families in the ACT. About 85% of these were classed as couple families with over half having dependants

**Figure 38: Proportion of people aged 65 years and over people in each district 2000 and 2010**



Source: Population Forecasts for Canberra Suburbs and Districts 2000 – 2010, Chief Minister's Department

## 10.4.4 HOUSEHOLD CHARACTERISTICS

The number of households in the ACT is increasing while the average household size is decreasing. According to ABS, estimates there were approximately 117,300 households in the ACT in June 1999, an increase of 5% since 1996. There has been a decline in the size of households over the three years from 1996 and a growth of one and two person households.

## 10.5 SOCIAL DETERMINANTS OF HEALTH

### 10.5.1 EMPLOYMENT

Chronic unemployment is often correlated with poorer health and a reduced quality of life. As of January 2001, the ACT unemployment rate was 4.5%, one of the lowest in the country.

### 10.5.2 INCOME

The ACT gross household disposable income per head was \$29,291 in 1998-99. This is the highest of any jurisdiction by a considerable margin. New South Wales had the second highest at \$22,016. In broad terms, higher income groups usually enjoy better health status.

### 10.5.3 WELFARE

The proportion of ACT residents receiving various forms of welfare is generally below the national average. In 1999, of people aged 15 years and over, 24% in the ACT were in receipt of payments from the Department of Family and Community Services compared to 34.6% of the Australian population.

### 10.5.4 HOUSING

The ACT spends more than double the national average on public housing tenants. The Territory government owns about 12% of all ACT housing. As of June 1999, nearly 4% of the ACT population received rent assistance compared with the national average of 6%.

### 10.5.5 EDUCATION

In 1999, 59% of the 49,500 persons aged 15-24 years were attending an educational institution. This compares to 55% nationally. Of the ACT population aged 15-64 years, 53% held a recognised post-school qualification. This compares to 44% nationally.



## 10.6 DEMOGRAPHIC SUMMARIES

The following tables provide demographic details of the different regions of Canberra.

**Table 46: Demographic summary for statistical subdivisions, ACT, 1999**

Statistical Subdivision	Estimated mid-year population			Persons	Median age*
	Male	Female			
North Canberra	19 382	19 115	38 497	12.5%	32.5
Belconnen	41 988	42 413	84 401	27.4%	31.8
Woden	16 200	16 254	32 454	10.5%	37.5
Weston Creek	11 956	12 201	24 157	7.8%	37.2
Tuggeranong	44 462	44 833	89 295	29.0%	29.4
South Canberra	11 277	11 506	22 783	7.4%	37.6
Gungahlin-Hall	7 955	8 190	16 145	5.2%	28.3
Outer Canberra	182	143	325	0.1%	32.0
<b>Total ACT</b>	<b>153 402</b>	<b>154 655</b>	<b>308 057</b>	<b>100%</b>	<b>32.1</b>

Source: ABS, Regional Statistics, ACT 2000 Catalogue no. 1362.8

Note: \* @ 30/6/1998;

**Table 47: Origin of birth, language, income by statistical subdivision, ACT, 1996**

SSD	Indigenous origin	Australian born	UK, Ireland, NZ born	Other o'seas born	Other language at home	Median personal weekly income \$
Nth Canberra	408	27 869	3 115	6 372	5 264	336
Belconnen	647	61 243	5 875	12 660	11 341	404
Woden Valley	283	21 884	2 979	5 689	4 690	460
Weston Ck -Stromlo	213	17 571	2 053	3 092	2 410	448
Tuggeranong	937	67 962	5 921	10 673	9 510	460
South Canberra	342	16 450	1 964	3 444	2 708	481
Gungahlin-Hall	65	9 174	669	2 185	2 302	503
Balance	3	324	22	31	41	294
<b>Total</b>	<b>2 898</b>	<b>222 477</b>	<b>22 598</b>	<b>44 146</b>	<b>38 266</b>	<b>430</b>

Source: ABS, Census of population and housing basic community profiles for all ACT subdivisions, 1996

**Table 48: Age profile of ACT residents, by statistical subdivisions, June 1999**

	Age group					
	0-4	5-14	15-19	20-54	55-6465 or more	
Nth Canberra	1873	3483	3101	21 772	3063	5205
Belconnen	5385	11 789	7640	47 546	6561	5480
Woden Valley	1761	3794	2126	16 967	3834	3972
Weston Ck -Stromlo	1237	3105	1908	13 059	2614	2234
Tuggeranong	8222	17 146	7183	49 517	4195	3032
South Canberra	1064	2625	1631	11 905	1940	3618
Gungahlin-Hall	1739	2283	903	10 186	633	401
Balance	20	49	21	182	27	26
<b>Total</b>	<b>21 301</b>	<b>44 274</b>	<b>24 513</b>	<b>171 134</b>	<b>22 867</b>	<b>23 968</b>

Source: ABS, Regional Statistics, ACT 2000 Catalogue no. 1362.8

**ABS** - Australian Bureau of Statistics

**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-specific rates** – the number within an age-group per 1,000 or 100,000 persons in that same age group.

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

**AIHW** - Australian Institute of Health and Welfare

**Body mass index** - Based on height and weight as reported by the respondent. Persons were categorised into four groups according to their body mass index, derived by dividing weight (kg) by the square of height (m<sup>2</sup>).

Underweight	Less than 20
Acceptable weight	20 – 25
Overweight	25 – 30
Obese	Greater than 30

**Cardiovascular diseases** (CVD) can be described as diseases relating to the heart and blood vessels. They are also called circulatory diseases. The main categories are heart attack, heart failure and stroke.

**Cerebrovascular disease**, also known as stroke, means damage to the brain or associated tissues because of blockage, bursting or malfunction of blood vessels in the head. This condition is usually included under cardiovascular or circulatory diseases.

**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).

**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-CM** refers to the International Classification of Diseases, ninth revision as developed by the World Health Organisation.

**ICD-10-AM** refers to the International Classification of Diseases, tenth revision as developed by the World Health Organisation.

**IDU** refers to an injecting drug user. Drugs commonly used in this way include amphetamines, heroin, other opioids and steroids.

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

**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.

**MMT** or Methadone Maintenance Treatment refers to programs designed to help opioid dependent people manage their dependency through a regime of controlled methadone administration.

**Morbidity** is a diseased state or the ratio of sick to well in the community.

**Mortality** is a fatal outcome or the relative number of deaths (death rate) in a given population at a given time.

## II Glossary

**NSP** (Needle and syringe program) refers to any program designed to distribute information on and equipment for safer injecting practices and safer equipment disposal to the population of injecting drug users

**Neonatal death** is the death of a live born infant within 28 days of birth.

**Neonatal morbidity** refers to any condition or disease of the infant diagnosed within 28 days of birth.

**Neoplasia** is the process of abnormal cell growth to form a neoplasm.

**Neoplasm** is a new or abnormal growth or tumour. A neoplasm may be malignant or benign. A malignant neoplasm is a cancer.

**Perinatal death** refers to a stillbirth or a neonatal death.

**Perinatal** refers to the period from 20 weeks gestation to within 28 days after birth.

**Postneonatal death** refers to the death of an infant aged between 28 and 365 days.

**Preterm birth** refers to a birth before 37 completed weeks of gestation. Extremely preterm refers to births between 20 and 27 weeks gestation; moderately preterm refers to births between 28 and 31 weeks gestation; and mildly preterm refers to births between 32 and 36 weeks gestation.

**Pertussis** (whooping cough) is a childhood communicable disease.

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

**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).

**Years of Potential Life Lost** (YPLL) is a measure of the relative impact of various diseases and lethal forces on society. (Refer 7.1). YPLL highlights the loss to society as a result of youthful or early deaths. The figure for YPLL 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.

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