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**The
Epidemiology of
Injury in the
ACT**

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TABLE OF CONTENTS

Summary.....	6
1. Mortality.....	11
2. Morbidity	14
2.1 Hospital inpatient separations	14
2.2 Hospital length of stay.....	18
2.3 National Injury Surveillance and Prevention Project.....	20
2.4 The role of GPs in the treatment of injuries	22
3. Selected causes of unintentional injuries	25
3.1 Falls	25
3.2 Vehicle traffic accidents	27
3.3 Sporting and recreational injuries.....	30
3.3.1 Overexertion and strenuous movements (E927).....	33
3.4 Accidents caused by cutting and piercing instruments or objects.....	33
3.5 Surgical and medical procedures causing abnormal reaction or later complication without mention of misadventure	33
3.6 Drugs, medicinal and biological substances causing adverse effects in therapeutic use ..	34
3.7 Other	35
3.7.1 Workplace injuries.....	35
3.7.2 Accidental poisoning.....	36
3.7.3 Fire and heat related injuries.....	38
3.7.4 Injuries due to natural and environmental factors	39
3.7.5 Injuries caused by submersion, suffocation and foreign bodies.....	40
3.7.6 Drowning	40
4. Selected causes of intentional injuries.....	41
4.1 Injuries associated with interpersonal violence	41
4.1.1 Sexual assault	42
4.1.2 Child abuse	43
4.1.3 Domestic violence.....	43
4.1.4 Elder abuse	44
4.1.5 Other assault	45
4.2 Suicide and self-inflicted injuries.....	45
5. Current initiatives in injury prevention.....	50
5.1 ACT health goals and targets	50
5.2 Data collection	52
5.3 Recommendations	52
6. Bibliographic references	53
7. Glossary.....	54
Appendix 1.....	55
National health goals and targets for injury prevention and control.....	55
Appendix 2: Limitations in developing an injury profile.....	57
Appendix 3: Estimated hospital separations for principal diagnosis of injury or poisoning, ACT, 1993-94	58
Appendix 4: Estimated hospital separations for injury, by age, by sex, by statistical ACT area, 1993-94	60
Appendix 5: Methodologies	66
Years of potential life lost - ABS definition	66
Rates.....	66

TABLES

Table 1: Summary of mortality (1994) and hospital morbidity (1993-94), ACT	7
Table 2: Deaths caused by injury, by sex and age, ACT, 1994.....	11
Table 3: Principal causes of injury death by sex, ACT and Australia, 1994	12
Table 4: Principle causes of death by external cause, by sex, ACT 1991-1994.....	13
Table 5: Death rates for injury: ACT and Australia, 1991-1994.....	13
Table 6: Estimated number of ACT hospital separations from external causes of injury or poisoning by sex by age, 1993-1994	15
Table 7: Estimated number of hospital separations for principal or secondary diagnosis of injury or poisoning by sex by age, ACT, 1993-94	17
Table 8: Estimated number of ACT hospital separations and average length of stay in days for external causes of injury or poisoning, by sex, ACT, 1993-94	19
Table 9: Injuries by major location, ACT and Australia, Aug 1988-Nov 1992.....	21
Table 10: Total number of vehicles involved in accidents where injury or death resulted, ACT 1993 & 1994.....	27
Table 11: Total injuries by outcome & position of the vehicle, ACT, 1993, 1994.....	28
Table 12: Trends in injuries from vehicle accidents, ACT, 1984-94	28
Table 13: Vehicle controller injuries by outcome, sex & age, ACT, 1994	29
Table 14: Total injuries by outcome, sex & age, ACT 1994	29
Table 15: Hospital separations where injury occurred at a place of sport or recreation, ACT, 1993-94	31
Table 16: Hospital separations for sporting injuries, ACT, 1993-94.....	32
Table 17: Hospital separations for injuries caused by cutting & piercing instruments or objects, by sex, by age, ACT, 1993-94.....	33
Table 18: Surgical & medical procedures causing abnormal reaction of patient or later complication, without misadventure, by sex, by age, ACT, 1993-1994	34
Table 19: Drugs, medicinal and biological substances causing adverse effects in therapeutic use, by age, by sex, ACT, 1993-94.....	35
Table 20: Workers compensation intentions by industry grouping, ACT, Aug 1988-Nov 1992 ...	36
Table 21: Hospital separations, by homicide and injury purposely inflicted by other persons, by sex, by age group, ACT, 1993-94	41
Table 22: Total notifications of child abuse and neglect, ACT, 1992-95.....	43
Table 23: Finalised cases of substantiated abuse categories, by type, sex and outcome, ACT, 1994-95.....	43
Table 24: Domestic Violence Crisis Service activity, ACT, 1994.....	44
Table 25: Hospital separations resulting from injury (suicides and self-inflicted injuries) by age group, 1993-94	48
Table 26: Health goals and targets for the year 2000.....	51
Table 27: National health goals and targets	55
Table 28: Estimated number of hospital separations for principal diagnosis of injury by sex, by age, ACT, 1993-94.....	58
Table 29: Estimated number of hospital separations for principal diagnosis of injury by sex by length of stay, ACT, 1993-94	59
Table 30: Estimated number of hospital separations for causes of injury by area of usual residence, by sex, by age, Central Canberra , 1993-1994	60

Table 31: Estimated number of hospital separations for causes of injury by area of usual residence, by sex, by age, Belconnen, 1993-1994.....	61
Table 32: Estimated number of hospital separations for causes of injury by area of usual residence, by sex, by age, Tuggeranong, 1993-1994.....	62
Table 33: Estimated number of hospital separations for causes of injury by area of usual residence, by sex, by age, Woden Valley, 1993-1994.....	63
Table 34: Estimated number of hospital separations for causes of injury by area of usual residence, by sex, by age, Weston Creek, 1993-1994	64
Table 35: Estimated number of hospital separations for causes of injury by area of usual residence, by sex, by age, Outer Canberra, 1993-1994	65

FIGURES

Figure 1: Years of potential life lost through injury, ACT, 1994.....	12
Figure 2: Hospital separation rates by age groups, by sex, ACT 1993-94.....	16
Figure 3: Injuries by location and sex, ACT, August 1988-November 1992	20
Figure 3: Years of potential life lost through injury, ACT, 1994.....	20
Figure 4: Injuries by context, by sex, ACT, Aug 1988-Nov 1992	21
Figure 5: Type of hospital treatment received, ACT, Aug 1988-Nov 1992.....	22
Figure 6: Distribution of injuries by place of treatment & body-part, ACT, 1992.....	23
Figure 7: Distribution of injury by place of treatment & nature of injury, ACT, 1992.....	23
Figure 8: Injury rate by age and sex, ACT 1992	24
Figure 9: Hospital separation rates by sex, by age, for injuries caused by falls, ACT, 1993-94..	25
Figure 10: Injuries by body part, persons over 65 years, ACT, Aug 1988-Nov 1992.....	26
Figure 11: Poisoning in children under 5 years, ACT, Aug 1988-Nov 1992.....	36
Figure 12: Location of poisoning of children under 5 years, ACT, Aug 1988-Nov 1992.....	37
Figure 13: Hospital separations for injuries caused by accidental poisoning, by sex, by age, ACT 1993-94.....	37
Figure 14: Hospital separations for injuries caused by fire and flames, by sex, by age, ACT, 1993-94.....	38
Figure 15: Hospital separations for injuries caused by hot substance or object, caustic or corrosive material, steam, by sex, by age, ACT, 1993-94.....	38
Figure 16: Hospital separations for injuries caused by natural and environmental factors, by sex, by age, ACT, 1993-94.....	39
Figure 17: Hospital separations for injuries caused by submersion, suffocation and foreign bodies, by sex, by age, ACT, 1993-94.....	40
Figure 18: Years of potential life lost through suicide, ACT, 1994.....	45
Figure 19: Standardised suicide rates for the ACT and Australia, 1982 to 1994.....	46
Figure 20: ACT suicide death rates of persons aged 15-24 years, 1975 to 1993	47
Figure 21: Hospital separations, by means of causing suicide or self-harm, by sex, ACT, 1993-94.....	49

Summary

This report gives an overview of injury incidence in the ACT. Through perusal of hospital morbidity data collections, survey results and research into patient patterns of visiting hospital accident and emergency departments and general practice, an attempt has been made to ascertain the extent to which ACT residents suffer injury and utilise services after receiving an injury. A profile of the types of injuries received, where they were received and what treatment followed is outlined. Since information on the utilisation of such health professionals as chiropractors, physiotherapists and general practitioners is either not available or not extensive, the profile is restricted to mainly acute injuries which present to hospitals.

Injuries in Australia, and indeed in most developed countries, are a major public health problem which impact on virtually all people at some time. They account for the fourth leading cause of death both nationally and in the ACT.

There were 97 injury deaths in the ACT in 1994. This represents 3,331 years of potential life lost (25% of total years of potential life lost) which is a serious loss when you consider that the deaths only account for 7.9 per cent of all deaths. Injury also accounted for 6.3 per cent of hospital separations compared to 6.4 per cent for cancer and 6.9 per cent for circulatory diseases, and accounted for 9.1 per cent of bed days, whereas cancer accounted for 8.8 per cent and circulatory diseases 11.8 per cent, in 1993-94.

The National Injury Surveillance Unit estimated in 1991, that for every injury death there are about 40 hospital admissions, 760 doctor consultations and several thousand "recent injuries", mostly of minor severity.² It has been estimated that in the ACT, for each injury related death, there are about 55 hospital admissions, 350 visits to hospital accident and emergency departments and 1,350 medical consultations for injuries.¹

Table 1 summarises mortality and hospital morbidity activity for 1994 (deaths) and 1993-94 (morbidity) in the ACT. It shows that motor vehicle accidents (30.9% of injury deaths), suicide (37.1%) and accidental falls (8.2%) account for a substantial proportion of injury deaths in the ACT. There is also a high hospital usage as a result of these causes, especially for motor vehicle accidents where there is a large number of separations for which there is a high average length of stay in hospital.

Male utilisation of hospitals is higher than for females in almost all categories. The exceptions are falls, suicide attempts and adverse effects to drugs, medicinals and biological substances in therapeutic use, where female rates are higher than for males and account for high hospital usage. Males are more likely to be hospitalised as a result of motor vehicle accidents and females more likely to be hospitalised for attempted suicide. The mortality and hospital data show males are more likely to complete a suicide (and therefore not require hospital treatment) whereas females do not complete as often, and are therefore more likely to require hospital treatment. In the area of homicide and injury intentionally inflicted by other persons, injuries in males predominate. Other categories where males have significantly higher incidence are accidents caused by machinery, accidents where objects strike a person, accidents caused by fire and flames, accidents caused by overexertion and strenuous movements in particular sports related injuries, and accidents caused by cutting and piercing instruments or objects. These accidents could well be associated with work, handy person or hobby activities.

Table 1: Summary of mortality (1994) and hospital morbidity (1993-94), ACT

External cause	Sex	Deaths	Hospital separations	% of hosp. separations	ALOS in hospital
		(a)	(b)	(c)	(b)
Motor vehicle traffic accidents	M	22	417	12.6	12.3
	F	8	199	8.3	12.0
Motor vehicle non traffic accidents	M	0	38	1.1	11.9
	F	0	2	0	7.0
Air & space transport	M	2	6	0	8.0
	F	0	1	0	4.0
Accidental poisoning by drugs, medicinals & biologicals	M	1	51	1.5	3.4
	F	1	58	2.4	2.9
Accidental poisoning by other solid, liquid, gas or vapour	M	0	17	0.5	2.6
	F	0	18	0.7	3.6
Misadventures to patients during surgical & medical care	M	0	20	0.6	7.8
	F	0	25	1.0	6.8
Surgical & medical procedures, abnormal reaction	M	1	818	24.7	12.6
	F	0	735	30.5	11.2
Accidental falls	M	6	569	17.2	7.2
	F	2	593	24.6	12.4
Fire & flames	M	4	11	0.3	7.2
	F	0	3	0	2.3
Natural & environmental factors	M	2	30	0.9	8.7
	F	0	31	1.3	5.2
Submersion, suffocation & foreign bodies	M	2	59	1.8	1.6
	F	2	38	1.6	1.4
Accident by cutting, piercing instruments	M	0	208	6.3	2.3
	F	0	72	3.0	3.0
Overexertion & strenuous movements	M	0	284	8.6	2.6
	F	0	66	2.7	3.0
Other accidents *	M	2	268	23.0	#
	F	0	84	9.2	#
Late effects of accidental injury	M	0	125	3.8	6.0
	F	0	62	2.6	3.5
Drugs, medic., biological substances, adverse effects in therapeutic use	M	1	177	5.3	9.2
	F	0	220	9.1	10.4
Suicide & self-inflicted injury	M	26	102	3.1	5.3
	F	10	167	6.9	9.8
	Unk	0	1	0	4.0
Homicide & injury purposely inflicted by other persons	M	2	107	3.2	4.4
	F	2	29	1.2	4.7
Injury undetermined whether purposely or accidentally inflicted	M	1	4	0.1	2.8
	F	0	3	0	3.0
TOTAL	M	72	3311	100	7.7
	F	25	2406	100	9.6
	Unk	0	1	n/a	4.0
	Total	97	5718	n/a	8.5

(a) for 1994 (b) for 1993-94 : ALOS refers to average length of stay (c) percentage of total male or female hospital separations # Refer Table 5 for breakdown

* *Other accidents* includes being accidentally struck by falling object, accidentally striking against or being struck by objects or persons, caught accidentally between objects, accidents caused by machinery, by hot substances.

Source: ACT Hospital Morbidity Collection, ABS Mortality Tabulations 1994 (unpublished)

Males particularly dominate in fractures, dislocations and sprains, open wounds and blood vessel injury, contusions, late effects of injuries, poisonings and other external causes, crushing injuries and injuries to the spinal cord and nerves. These injuries occur mainly between the ages of 15 and 34 years with the greatest time of occurrence being between the ages of 15 and 24 years.

Areas of concern in females are the large numbers of fractures to upper limbs (5-14 year olds), to lower limbs (65-75+ years), and poisoning by drugs, medicinal and biological substances (15-44 years).

Figure 2 (Page 16) shows that, with the exception of babies aged less than one year, male rates of hospitalisation are higher than for females. Male rates peak at the 15-34 and over 55 years age groups whereas female rates peak at the over 55 age group only.

Numbers of hospital separations alone will not give a true indication of severity of injury or human and financial cost. It is also important to analyse how long patients stay in hospital before discharge, and even then, this does not consider the psychological damage caused by serious injury (especially in injuries caused intentionally) nor the long rehabilitation process necessary for some injury patients. Many victims of injury also suffer long-term disability which affects their quality of life and ability to participate in the community.

The external causes which combine substantial average lengths of stay with large numbers of separations are: procedures causing complications without misadventure; motor vehicle accidents; falls; suicide; and drugs, medications, biological substances causing adverse effects in therapeutic use. Since the first and last of these categories cover a wide variety of causes, data are difficult to interpret in a general sense. The others, which are for specific isolated causes, do reflect substantial prevalence with long periods of stay in hospital, indicating severe injuries.

It can be seen from Table 1 that there are major differences in length of stay between males and females. This is highlighted in Sections 3 and 4 concerning specific causes of injury. Males have higher average length of stay (ALOS) in 15 of the 27 categories, but females have a higher overall ALOS. This is mainly caused by the long stays by females in the categories of falls and suicide where numbers of separations are also high.

In terms of where injuries occurred, an ACT study, undertaken as part of the National Injury Surveillance and Prevention Project (Refer 2.3) found that most injuries presenting to emergency departments occurred in or at home. Sports related injuries accounted for the second most common form of injury with transportation the third most common. Sporting injuries account for 9.6 per cent of all injuries incurred in Australia, but a massive 17.9 per cent of injuries in the ACT.

Within the population of ACT hospital patients (but excluding normal neonates and normal deliveries), some general characteristics of injured patients (ie those who have had an injury of some external cause) may be compared to those of non-injured patients.

The results of such a comparison are most interesting: Injured patients are more likely to be from NSW, more likely to be single and less likely to be married than are non-injured patients. They are more likely to have a stay in hospital of 8 days or more. Overall they are more likely to be male and less likely to be female than non-injured patients.

In terms of age and sex differences, the 15 and 34 years of age group has particular characteristics in that those who are injured are much more likely to be males and much less likely to be females than are non-injured patients in the same age group.

Conversely, in older age groups, in particular for patients aged 75+ years those who are injured are more likely to be females and less likely to be males than are non-injured patients in the same age group.

Clearly, effort needs to be given to enhancing appropriate data collection and analysis of injury occurrence. This will ensure that evaluation of cause of injury and existing programs and services in the context of attaining ACT health goals and targets for injury is undertaken, with the consequent development of appropriate preventative strategies.

Preventative strategies should target identified areas of greatest injury, namely the predominance of injuries occurring in males aged 15-34 and injuries occurring in people over 55 years of age. Attention to major causes such as: accidents occurring in the home, in particular, falls injuries; sports related injuries; and injuries related to motor vehicles should be given.

The ACT Health Goals and Targets implementation process will be a major impetus to progressing improvements in the prevention and treatment of injuries.

THE EPIDEMIOLOGY OF INJURY IN THE ACT

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

An injury is defined as any physical, psychological or social harm to a person, that is caused by an external agent of force.¹ The external cause may be physical, chemical or psychological. The injury may be unintentional or intentional. Unintentional injury covers such issues as motor accidents, falls, burns, sporting and occupational injuries and accidental poisonings, most of which are preventable. Intentional injury (also preventable) may be administered by external forces or be self-inflicted and covers such issues as domestic violence, child abuse, sexual assault, other forms of assault and suicide. Suicide, particularly in young people, is an area of such concern that it is also discussed in a separate section.

Developing a profile on injury is not easy. Comprehensive data are not readily available and there are difficulties with inconsistencies in recording and in coding hospital admissions. Some of the problems are outlined in Appendix 2. Despite these problems, this paper attempts to describe injury in the ACT by first examining mortality profiles and then looking at available morbidity data.

Hospital morbidity data are collected routinely for the four hospitals (Woden Valley, Calvary Public, Calvary Private, John James Memorial Private) and are used extensively throughout the paper. It should be noted that data include interstate patients. It is estimated that on average, approximately 20 per cent of all separations were by people living outside the ACT.

1. Mortality

There were 97 injury deaths in the ACT in 1994.

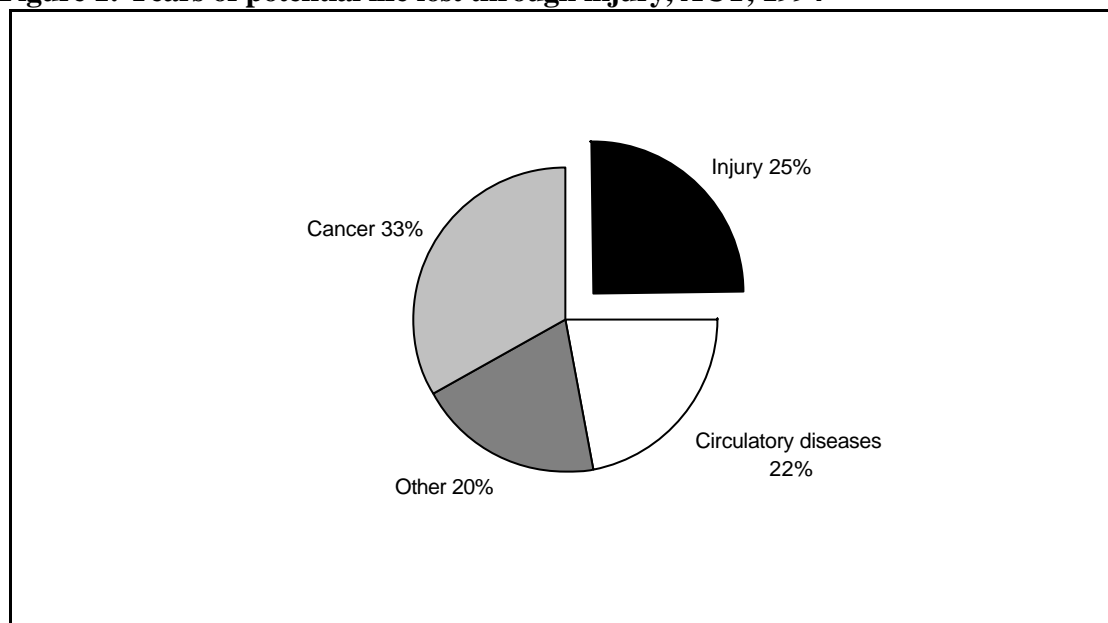
Table 2: Deaths caused by injury, by sex and age, ACT, 1994

Selected external causes	Sex	Age groups									Total
		0-	5-	15-	25-	35-	45-	55-	65-	75+	
Motor vehicle traffic accidents	M	3	1	8	1	6	2	0	0	1	22
	F	0	0	1	2	3	1	0	0	1	8
Air and Space transport accidents	M	0	0	0	0	2	0	0	0	0	2
Accidental poisoning by drugs, medicinal substances and biologicals	M	0	0	0	0	0	1	0	0	0	1
	F	0	0	0	0	0	1	0	0	0	1
Surgical and medical procedures causing abnormal reaction or later complication without misadventure	M	0	0	0	0	0	1	0	0	0	1
Accidental falls	M	0	0	1	0	0	0	0	2	3	6
	F	0	0	0	0	0	0	0	0	2	2
Accidents caused by fire and flames	M	2	1	0	0	1	0	0	0	0	4
Accidents due to natural and environmental factors	M	0	0	1	1	0	0	0	0	0	2
Accidents caused by submersion, suffocation and foreign bodies	M	1	0	0	0	0	0	1	0	0	2
	F	0	1	0	0	0	0	1	0	0	2
Other accidents (firearm missile, electricity)	M	0	0	0	1	1	0	0	0	0	2
Drugs, medicinal, & biological substances causing adverse effects in therapeutic use	M	0	0	0	0	0	0	1	0	0	1
Suicide and self-inflicted injury	M	0	0	4	10	6	5	0	1	0	26
	F	0	0	3	5	1	1	0	0	0	10
Homicide & injury purposely inflicted by other persons	M	0	0	1	0	1	0	0	0	0	2
	F	0	0	0	0	2	0	0	0	0	2
Other - undetermined whether intentional	M	0	0	0	0	0	1	0	0	0	1
Total	M	6	2	15	13	17	10	2	3	4	72
	F	0	1	4	7	6	3	1	0	3	25

It can be seen from Table 2 that a large majority of deaths caused by injury occur in the young ages of 15 to 44 (62.5% of male injury deaths, 68% of female injury deaths).

Death by injury, since it is most prevalent in younger people (especially in the 15 to 24 years age range where a large proportion of deaths are due to sports, motor vehicle accidents and suicide), accounts for a high loss of years of potential life. As Figure 1 shows, injury deaths accounted for 25 per cent of the total years of potential life lost (3,331 years) in the ACT in 1994. This is a serious loss when you consider these deaths account for just 7.9 per cent of all deaths.

Figure 1: Years of potential life lost through injury, ACT, 1994



* Standardised to Australian population as at 30 June 1991

Source: ABS *Cause of Deaths 1994*, Unpublished data, Catalogue No. 3303.0

As Table 3 shows, injuries (intentional and unintentional) are the fourth leading cause of death in both Australia and the ACT, accounting for 7,187 and 97 deaths respectively in 1994.

Table 3: Principal causes of injury death by sex, ACT and Australia, 1994

Cause of death	ACT				Australia			
	Females	Males	Total	%	Females	Males	Total	%
Malignant neoplasms	146	208	354	29.0	14,373	19,285	33,658	26.6
Ischaemic heart disease	119	144	263	21.5	14,058	16,515	30,573	24.1
Cerebro-vascular disease	72	39	111	9.1	7,578	5,260	12,838	10.1
Accidents and suicides	25	72	97	7.9	2,100	5,087	7,187	5.7

Source: ABS. *Causes of Death, Australia 1994*, Catalogue No.3303.0

The accident and suicide deaths for 1994 represent an increase of 29 over 1993 figures for the ACT. This increase needs further investigation since Table 4 shows that deaths in 1993 were atypically low when compared to surrounding years.

Table 4: Principle causes of death by external cause of injury, by sex, ACT 1991-1994

External cause	Sex	1991		1992		1993		1994	
		No.	%	No.	%	No.	%	No.	%
Accidents, poisonings & violence (E800-E999)	M	74	100	71	100	49	100	72	100
	F	30	100	20	100	19	100	25	100
Selected cause:									
Motor vehicle traffic accidents (E810-E819)	M	19	25.7	18	25.4	8	16.3	22	30.6
	F	12	40	8	40.0	3	15.8	8	32.0
Accidental falls (E880-E888)	M	1	1.4	5	7.0	2	4.1	6	8.3
	F	1	3.3	2	10.0	3	15.8	2	8.0
Suicide (E950-E959)	M	26	35.1	26	36.6	23	46.9	26	36.1
	F	8	26.7	5	25.0	4	21.1	10	40.0
Total deaths by external cause	All	104		91		68		97	

Source: ABS. *Causes of Death, Australia 1991-1994, Catalogue No.3303.0*

It can be seen that 1993 figures had reduced numbers of injury deaths compared to other years. If you compare 1994 with 1991 and 1992, the increases are not so marked. It seems that 1993 was the unusual year for injury deaths, particularly in the reduction of motor vehicle traffic accidents.

Table 5 shows that whilst the death rate from injuries is still unacceptable in Australia, it showed some signs of decreasing over recent years. The ACT profile is a little more dramatic than that for Australia, but this may be attributed to the small number of deaths per year. As mentioned earlier, it appears that 1993 in the ACT went against the norm.

Table 5 : Death rates for injury: ACT and Australia, 1991-1994^(a)

	1989	1990	1991	1992	1993	1994
ACT	37	35	36	31	23	32
Australia	49	46	45	43	40	40

(a) Rates per 100,000

Source: ABS, 1993 and 1994 Causes of Death, Australia, Catalogue No. 3303.0

A further comparison of ACT mortality statistics with those of Australia was published recently by the National Injury Surveillance Unit.¹⁰ It should be noted that findings are for 1993, which as already mentioned, was against the norm for the ACT. Findings include:

- the ACT death rate is noticeably lower than the national rate and has been so every year from 1987 until 1993, with the 1993 rate being exceptionally low;
- ACT death rates were low for most major types of injury death (suicide, falls, drownings) and particularly so for transport deaths (7 cases compared to an average of 30 per year in the previous four years) and homicides;
- the ratio of the male injury death rate to the female injury death rate *nationally* was 2.9:1 in 1993.

2. Morbidity

Injuries in Australia account for a higher percentage of hospitalisations (9%) than either cancer (7%) or circulatory diseases (8%) and a greater percentage of occupied bed days (10%) than for cancer (9%) and most other causes (National Injury Surveillance Unit, 1994). In the ACT in 1993-94, injury accounted for 6.3 per cent of hospital separations, cancer for 6.4 per cent and circulatory diseases 6.9 per cent. It also accounted for 9.1 per cent of bed days, whereas cancer accounted for 8.8 per cent and circulatory diseases 11.8 per cent (ACT Hospital Morbidity Data Collection 1993-94).

The National Injury Surveillance Unit estimated in 1991 (unpublished data), that for every injury death there are about 40 hospital admissions, 760 doctor consultations and several thousand "recent injuries", mostly of minor severity.² It has been estimated that in the ACT, for each injury related death, there are about 55 hospital admissions, 350 visits to hospital accident and emergency departments and 1,350 medical consultations for injuries.¹ A study by McClure in 1992 estimated that for every death due to injury in the ACT, there are 28 hospital admissions, 596 emergency department presentations and 592 GP attendances.⁶ Regardless of the differences in estimations, it is quite clear that GPs are seeing considerably more injury cases than was traditionally thought.⁶

Injury was reported as the second most common condition in the ACT in the 1989-90 National Health Survey. The National Health Survey (1989-90) actually showed the ACT as having more self-reported accidents than anywhere else in Australia (19.7% of ACT population compared to 14.1% of Australian average). Although the ACT has a lower death rate from injury, it appears that it has a higher number of injuries which do not cause death and which do not show up in hospital statistics. Possible explanations include the likelihood that ACT residents may simply report more accurately than other Australians, or they may seek the advice of general practitioners more. It will be interesting to compare the 1989-90 Survey results with those of the 1995-96 National Health Survey, where a bigger ACT sample is being used.

It is not easy to gauge the incidence of injury. Mortality data and hospital inpatient separation data give some indication, but most people with injuries do not die and many use other health services rather than visiting a hospital. These include visiting general practitioners, physiotherapists, chiropractors etc. Data on this usage, are not broad, but those which are available follow after details of hospital usage.

2.1 Hospital inpatient separations

There were 5719 separations for external causes of injury and poisonings in 1993-94. Of these, 3312 were males (58%), 2406 were females (42%) and one case was of unknown gender. (This compares to 5736 separations in 1992-93 of which 3,294 were male and 2442 were female). It should be noted that these figures include 1666 separations where injury was *not* the principal diagnosis. Principal diagnoses in those cases included neoplasms, mental disorders, circulatory, respiratory and digestive systems and musculoskeletal system diagnoses.

Table 6: Estimated number of ACT hospital separations from external causes of injury or poisoning by sex by age , 1993-1994

Selected external causes	Sex	Age groups										Total
		0	1-	5-	15-	25-	35-	45-	55-	65-	75+	
Motor vehicle traffic accidents	M	1	9	13	97	67	26	22	11	7	3	256
	F	-	1	5	38	24	15		10	5	5	122
Motor vehicle non-traffic accidents	M	-	1	11	11	8	2	1	2	2	-	38
	F	-	-	-	-	-	1	-	1	-	-	2
Other road vehicle accidents	M	-	1	31	18	16	7	6	4	-	1	84
	F	-	-	22	13	9	5	2	1	-	1	53
Water transport accidents	M	-	-	-	5	3	1	-	1	1	-	11
	F	-	-	-	-	-	-	-	-	-	-	0
Air and Space transport accidents	M	-	-	-	-	3	3	-	-	-	-	6
	F	-	-	-	-	1	-	-	-	-	-	1
Vehicle accidents not elsewhere classifiable	M	-	-	24	18	8	10	4	1	-	1	66
	F	-	1	10	2	3	5	2	-	-	1	24
Accidental poisoning by drugs, medicinal substances and biologicals	M	1	20	-	3	10	9	4	4	-	-	51
	F	-	11	1	25	6	9	4	-	-	2	58
Accidental poisoning by other solid, liquid substances, gases and vapours	M	-	7	1	3	3	-	-	2	1	-	17
	F	-	2	-	10	-	-	1	4	1	-	18
Misadventures to patients during surgical and medical care	M	-	-	1	-	2	6	2	2	6	1	20
	F	-	-	-	2	3	4	9	3	1	3	25
Surgical and medical procedures causing abnormal reaction or later complication without misadventure	M	10	8	25	49	57	76	93	155	221	124	818
	F	5	9	28	45	81	118	114	107	145	83	735
Accidental falls	M	5	51	127	83	71	56	43	37	34	62	569
	F	9	36	96	26	32	18	40	38	83	215	593
Accidents caused by fire and flames	M	-	-	1	4	4	-	1	1	-	-	11
	F	-	-	-	2	-	-	-	-	1	-	3
Accidents due to natural and environmental factors	M	-	5	3	4	4	7	2	2	1	2	30
	F	1	6	1	4	1	10	1	3	2	2	31
Accidents caused by submersion, suffocation and foreign bodies	M	2	17	8	10	3	5	2	4	6	2	59
	F	6	9	6	3	-	1	6	-	3	4	38
Accidentally struck by falling object	M	-	3	3	4	3	5	3	3	1	-	25
	F	-	-	-	-	1	1	-	1	-	-	3
Striking against or struck accidentally by objects or persons	M	1	5	16	12	9	6	2	1	2	-	54
	F	-	3	4	-	1	3	-	-	-	-	11
Caught accidentally in or between objects	M	1	7	3	2	2	1	2	1	1	-	20
	F	-	4	2	2	-	-	2	1	-	-	11
Accidents caused by machinery	M	-	2	3	8	15	6	11	5	6	-	56
	F	-	-	-	-	-	-	-	-	-	-	0
Accidents caused by cutting and piercing instruments or objects	M	1	17	21	65	47	27	17	8	3	2	208
	F	-	5	12	12	19	7	10	3	2	2	72
Accidents caused by hot substance or object, caustic or corrosive material ,steam	M	2	9	2	2	3	-	1	-	1	-	20
	F	3	3	3	2	1	3	1	-	-	1	17
Overexertion and strenuous movements	M	-	-	40	128	66	24	15	9	2	-	284
	F	-	-	11	32	12	6	-	-	4	1	66
Other accidents	M	-	1	4	27	20	13	19	5	2	2	93
	F	1	1	3	6	6	3	7	6	8	1	42
Late effects of accidental injury	M	-	2	11	32	36	25	5	8	4	2	125
	F	-	5	9	12	11	10	7	3	2	3	62
Drugs, medicinal, & biological substances causing adverse effects in therapeutic use	M	6	5	13	12	18	18	20	17	35	33	177
	F	2	3	7	20	25	22	29	29	36	47	220
Suicide and self-inflicted injury	M	-	-	-	30	35	19	10	5	1	1	101
	F	-	-	11	69	31	33	14	5	2	2	168*
	unk	-	-	-	-	-	-	-	1	-	-	1
Homicide & injury purposely inflicted by other persons	M	2	1	1	34	36	22	8	1	2	-	107
	F	7	2	-	9	3	5	2	1	-	-	29
Other	M	-	-	-	1	3	-	-	-	-	-	4
	F	-	-	-	1	-	-	1	1	-	-	3
Total	M	33	171	362	662	552	374	293	289	339	236	3310
	F	34	101	231	335	270	279	271	217	295	373	2407
	unk								1			1

* Includes a mother of unknown age

In examining the frequency of hospitalisation for injury, it is interesting to note the differences for males and females. This is discussed in detail in Sections 3 and 4. Generally speaking, in many categories there is little difference. Where differences occur, males predominate over females. Males have considerably more interventions for motor vehicle accidents (8.1% of all accidents compared to 3.5% for females) and females more incidence of attempted suicide (2.9% of all attempts compared to 1.8% for males). The mortality and hospital data show males are more likely to complete a suicide (and therefore not require hospital treatment) whereas females do not complete as often, and are therefore more likely to require hospital treatment. In the area of homicide and injury purposefully inflicted by other persons, male injuries predominate (over 3 times more than females). Other categories where males have significantly higher incidence are accidents caused by machinery (56 males, no females), accidents where objects strike a person (males 5 times as many as females), accidents caused by fire and flames (males 4 times as many), accidents caused by overexertion and strenuous movements (males 4 times as many), and accidents caused by cutting and piercing instruments or objects (males nearly 3 times as many). These accidents could well be associated with work, handy person or hobby activities.

Apart from suicide, the only categories where there is a *marginally* higher incidence for females are accidental falls (Refer in 3.1), drugs, medicinal & biological substances causing adverse effects in therapeutic use (Refer 3.6); and abnormal reactions to patients during surgical and medical care (Refer 3.5).

It can be seen from Figure 2 that males use inpatient hospital services more heavily than females from ages one onwards. Males and females use inpatient hospital services increasingly in the older age groups, particularly from 75 years of age and over. The data presented refers to all injuries recorded at the hospitals - this *includes* injuries which are secondary to principal diagnoses.

Figure 2: Hospital separation rates per 1,000 persons by age groups, by sex, ACT 1993-94

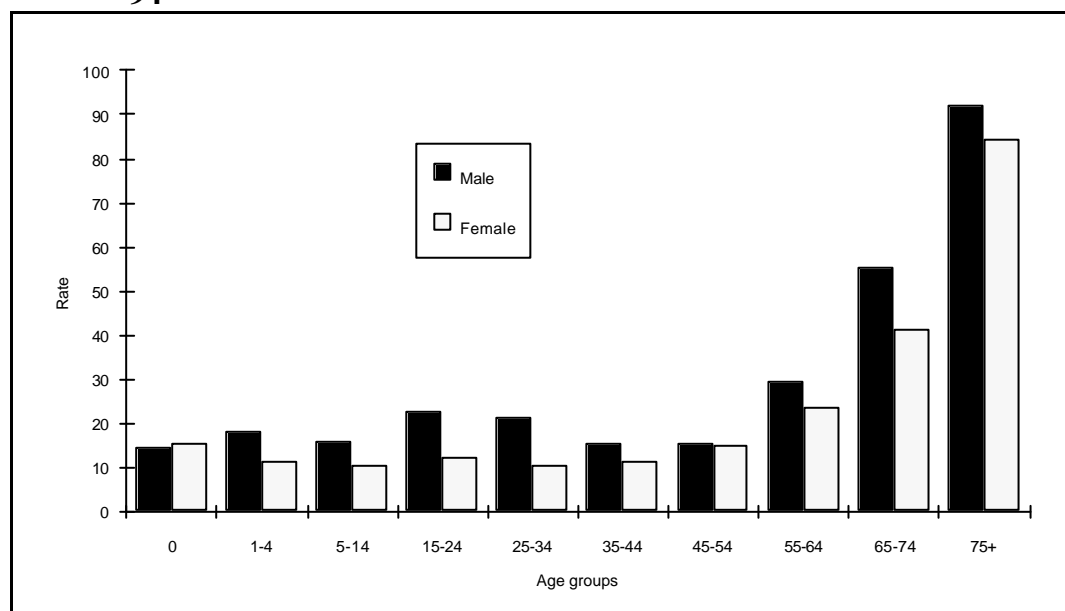


Table 7 outlines the injury diagnosis for all recorded cases where injury was the principal or secondary diagnosis.

Table 7: Estimated number of hospital separations for principal or secondary diagnosis of injury or poisoning by sex by age, ACT, 1993-94

Selected diagnosis of injury & poisoning	Sex	Age Groups										Total
		0	1-	5-	15-	25-	35-	45-	55-	65-	75+	
Fracture of skull	M	3	3	13	95	65	28	11	3	3	3	227
	F	4	-	5	20	12	4	3	1	1	6	56
Fracture of neck and trunk	M	1	-	2	19	14	12	19	9	10	13	99
	F	-	-	1	4	11	6	7	10	10	23	72
Fracture of upper limb	M	-	30	142	94	60	26	23	12	6	4	397
	F	3	23	104	12	11	12	13	7	21	24	230
Fracture of lower limb	M	1	5	45	77	79	48	29	27	22	31	364
	F	-	2	17	20	18	21	29	31	46	136	320
Dislocation	M	-	1	3	21	15	15	3	1	-	-	59
	F	-	-	4	4	3	2	2	-	-	4	19
Sprains & strains of joints & adjacent muscles	M	-	1	2	20	29	17	18	10	5	-	102
	F	-	-	-	4	8	2	4	4	7	3	32
Intracranial injury, excluding those with skull fracture	M	1	14	23	25	13	8	4	4	3	7	102
	F	3	8	6	12	6	4	3	-	1	4	47
Internal injury of chest, abdomen, and pelvis	M	-	1	8	18	5	4	5	1	-	3	45
	F	-	-	4	6	2	2	2	3	4	3	26
Open wound of head, neck and trunk	M	1	26	5	16	9	4	1	1	-	4	67
	F	1	15	6	7	3	4	2	-	2	4	44
Open wound of upper limb	M	1	11	13	63	43	26	14	10	4	1	186
	F	-	4	4	20	14	5	5	4	1	3	60
Open wound of lower limb	M	-	2	13	16	8	7	6	3	2	2	59
	F	-	1	3	4	5	5	4	-	3	7	32
Injury to blood vessels	M	-	-	1	2	2	-	2	-	-	1	8
Late effects of injuries, poisonings, other external causes	M	-	-	5	11	21	15	5	4	1	1	63
	F	-	2	1	8	4	8	3	1	1	2	30
Superficial injury	M	-	2	1	3	1	-	2	4	-	-	13
	F	1	1	2	-	1	1	1	1	1	2	11
Contusion with intact skin surface	M	3	2	18	15	6	4	4	-	3	2	57
	F	1	-	3	7	3	2	4	1	-	5	26
Crushing injury	M	-	1	1	-	-	-	1	-	-	-	3
Effects of foreign body entering through orifice	M	1	15	7	8	2	6	2	4	6	2	53
	F	4	7	6	4	1	2	6	1	4	3	38
Burns	M	2	10	3	7	9	1	2	1	-	-	35
	F	4	3	4	5	2	4	1	1	-	1	25
Injury to nerves & spinal cord	M	-	1	2	14	5	5	3	5	3	-	38
	F	-	-	2	3	5	-	2	-	-	-	12
Certain traumatic complications and unspecified injuries	M	-	3	3	18	14	5	5	2	1	1	52
	F	-	2	3	16	7	9	4	-	6	4	51
Poisoning by drugs, medicinal & biological substances	M	3	19	4	28	40	22	14	10	10	8	158
	F	2	13	14	85	34	42	18	7	9	16	240
	Unk	-	-	-	-	-	-	-	1	-	-	1
Toxic effects of substances chiefly nonmedicinal as to source	M	1	6	2	4	8	6	2	2	1	-	32
	F	-	3	1	12	2	1	1	2	-	-	22
Other & unspecified effects of external causes	M	1	3	-	7	8	9	6	3	10	4	51
	F	4	3	3	7	10	6	8	10	6	5	62
Complications of surgical & medical care n.e.c. *	M	10	7	26	49	53	72	83	139	200	107	746
	F	5	7	25	41	72	104	104	99	122	78	657
Diagnosis not related to injury	M	4	8	21	32	43	34	29	34	49	42	296
	F	2	7	13	34	36	33	45	34	50	40	294
Total	M	33	171	363	662	552	374	293	289	339	236	3312
	F	34	101	231	335	270	279	271	217	295	373	2406
	Unk								1			1

* n.e.c. refers to not elsewhere classified

If a comparison is made between these data and those where injury is the *principal* diagnosis (Refer Appendix 3), it can be seen that the high incidence of secondary diagnosis of injury occur in late effects of injuries, poisonings and other external causes; poisoning by drugs, medicinals & biological substances; other and unspecified effects of external causes; and complications of surgical & medical care not specified elsewhere.

In all categories except poisoning by drugs, medicinal and biological substances, falls and suicide attempts, males account for substantially more occurrences than females. They particularly dominate in fractures, dislocations and sprains, open wounds and blood vessel injury, contusions, late effects of injuries, poisonings and other external causes, crushing injuries and injuries to the spinal cord and nerves. These injuries occur mainly between the ages of 15 and 34 years with the greatest time of risk being between the ages of 15 and 24 years. Any preventative program would need to take into account the fact that these age ranges represent the times of most physical activity, sporting interests, motor vehicle risk taking and home handyperson activities in males.

Areas of concern in females are the large numbers of fractures to upper limbs (5-14 year olds), to lower limbs (65-75+ years: refer Section 3.1 on falls), and poisoning by drugs, medicinal and biological substances (15-44 years: refer Section 4.2 on suicide).

When hospital separations are divided into the place of residence of patients residing in the ACT, no uniform pattern emerges, but the differences in profiles are interesting. They are at Appendix 4.

2.2 Hospital length of stay

Numbers of separations alone will not give a true indication of severity of injury or human and financial cost. It is also important to analyse how long patients stay in hospital before discharge, and even then, this does not consider the psychological damage caused by serious injury nor the long rehabilitation process necessary for some injury patients. (Many victims of injury suffer long-term disability which affects their quality of life and ability to participate in the community. It has been estimated that approximately 25 per cent of all disabilities within the community are directly related to serious injury.¹)

The following Table 8 outlines length of stay for hospital separations for principal and secondary diagnoses of injury.

Overall, females stay longer in hospital after an injury or poisoning (average 9.6 days compared to 7.7 days for males in 1993-94).

The external causes which combine substantial average lengths of stay with large numbers of separations are: procedures causing complications without misadventure; motor vehicle accidents; falls; suicide; and drugs, medications, biological substances causing adverse effects in therapeutic use. Since the first and last of these categories cover a wide variety of causes, it is difficult to interpret the data in a general sense. The others, which are for specific isolated causes, do reflect substantial prevalence with long periods of stay in hospital, indicating severe injuries.

It can be seen from the table that there are major differences in length of stay between males and females. This is highlighted in Sections 3 and 4 concerning specific causes of injury. Males have higher ALOS in 15 of the 27 categories, but females have a higher overall ALOS. This is mainly caused by the long stays by females in the categories of falls and suicide where numbers of separations are also high.

Table 8: Estimated number of hospital separations and average length of stay in days for external causes of injury or poisoning, by sex, ACT, 1993-94

Selected external causes	Sex	Average length of stay (ALOS) in days								ALOS*	MDN*
		0	1	2	3	4-7	8-14	15-34	35+		
Motor vehicle traffic accidents	M	11	40	31	27	49	43	32	23	12.3	5
	F	7	15	11	11	28	26	15	9	12.0	6
Motor vehicle non-traffic accidents	M	1	7	5	7	8	6	1	3	11.9	3
	F	1	-	-	-	-	1	-	-	7.0	7
Other road vehicle accidents	M	4	24	17	14	16	4	3	2	4.8	2
	F	1	17	9	9	11	3	1	2	5.7	2
Water transport accidents	M	1	2	2	1	2	1	2	-	7.2	3
	F	-	-	-	-	-	-	-	-	-	-
Air and space transport accidents	M	-	-	2	-	1	2	1	-	8.0	7.5
	F	-	-	-	-	1	-	-	-	4.0	4
Vehicle accidents not elsewhere classifiable	M	4	22	9	9	15	5	1	1	3.9	2
	F	3	7	3	3	4	3	-	1	5.3	2
Accidental poisoning by drugs, medicinal substances & biologicals	M	4	24	7	3	7	4	2	-	3.4	1
	F	9	21	8	6	9	3	2	-	2.9	1
Accidental poisoning by other solid and liquid, substances, gases and vapours	M	-	13	-	1	2	-	1	-	2.6	1
	F	-	8	3	1	4	1	1	-	3.6	2
Misadventure to patients during surgical and medical care	M	-	4	2	1	4	4	5	-	7.8	6
	F	3	5	2	1	7	5	1	1	6.8	5
Surgical and medical procedures causing abnormal reaction or later complication without misadventure	M	70	58	63	53	166	208	145	55	12.6	7
	F	55	70	75	52	139	170	131	43	11.2	7
Accidental falls	M	93	178	56	33	99	50	35	25	7.2	2
	F	45	129	52	39	106	94	73	55	12.4	5
Accidents caused by fire and flames	M	-	3	-	1	4	2	-	1	7.2	4
	F	1	-	-	2	-	-	-	-	2.3	3
Accidents due to natural and environmental factors	M	1	7	4	4	8	1	3	2	8.7	3
	F	2	5	6	3	9	5	1	-	5.2	3
Accidents caused by submersion, suffocation and foreign bodies	M	20	26	8	-	3	2	-	-	1.6	1
	F	11	22	1	2	2	-	-	-	1.4	1
Accidentally struck by falling object	M	2	5	4	2	5	3	3	1	7.3	3
	F	-	-	-	1	1	-	1	-	7.7	4
Striking against or struck accidentally by objects or persons	M	1	18	7	13	9	4	1	1	4.1	3
	F	2	5	-	-	2	2	-	-	3.5	1
Caught accidentally in or between objects	M	1	10	8	1	-	-	-	-	1.5	1
	F	2	5	1	1	2	-	-	-	2.1	1
Accidents caused by machinery	M	3	21	12	10	7	-	3	-	3.2	2
	F	-	-	-	-	-	-	-	-	-	-
Accidents caused by cutting and piercing instruments or objects	M	32	89	43	14	22	4	3	1	2.3	1
	F	14	25	17	3	10	-	2	1	3.0	1
Accidents caused by hot substance or object, caustic or corrosive material	M	-	2	5	3	2	1	6	1	13.0	4
	F	1	4	3	2	3	3	-	1	6.9	3
Overexertion and strenuous movements	M	31	87	70	37	46	10	3	-	2.6	2
	F	8	16	16	7	16	1	2	-	3.0	2
Other accidents	M	25	21	16	10	12	5	4	-	3.5	2
	F	13	10	7	4	6	-	2	-	2.9	1
Late effects of accidental injury	M	17	17	33	12	22	12	10	2	6.0	2
	F	6	17	12	7	14	5	1	-	3.5	2
Drugs, medicinal, & biological substances causing adverse effects in therapeutic use	M	21	18	25	16	33	34	21	9	9.2	4
	F	23	25	20	24	49	39	22	18	10.4	5
Suicide and self-inflicted injury	M	7	25	21	10	21	11	5	2	5.3	2
	F	14	47	30	20	20	13	14	9	9.8	2
Homicide and injury purposely inflicted by other persons	unk	-	-	-	-	1	-	-	-	4.0	4
	M	12	23	24	13	21	9	3	2	4.4	2
Other	F	3	6	6	3	5	5	1	-	4.7	2
	M	-	2	1	-	1	-	-	-	2.8	1.5
Total	F	2	-	-	-	1	-	-	-	3.0	1
	M	361	746	476	295	585	425	293	131	7.7	3
	F	226	459	282	201	449	379	270	140	9.6	4

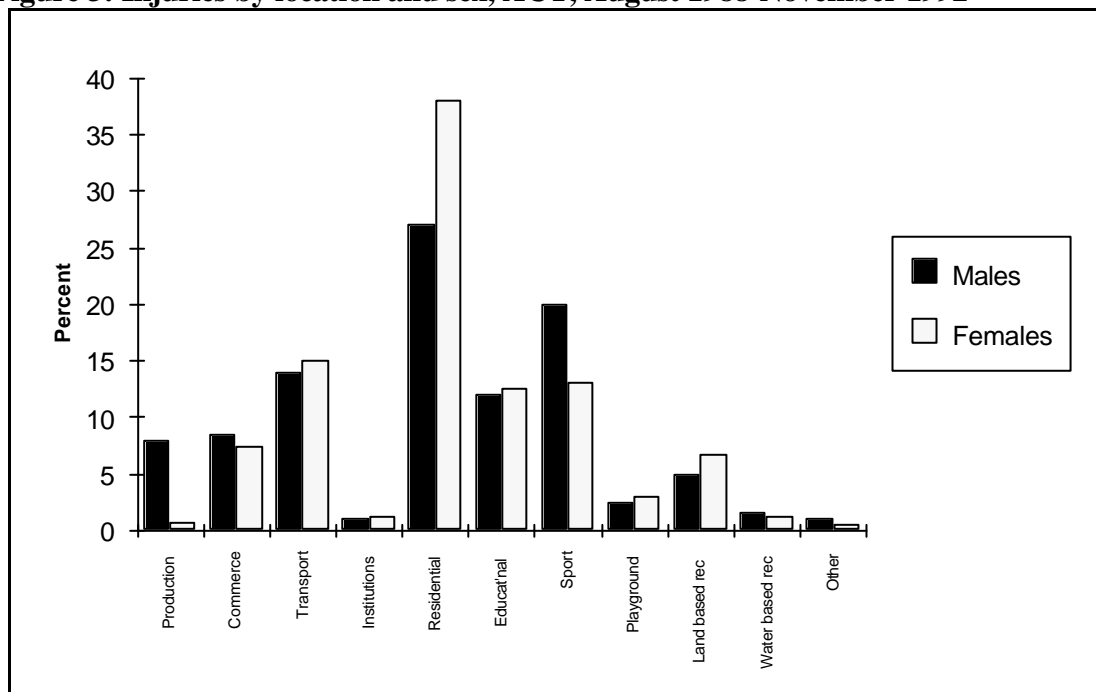
*ALOS = average length of stay, MDN = median length of stay. In ALOS and MDN, same day patients counted as one day

2.3 National Injury Surveillance and Prevention Project

A study, undertaken as part of the National Injury Surveillance and Prevention Project (NISPP), was undertaken in the ACT (ACTISPP) from August 1988 to November 1992. The project involved voluntary collection of injury data from the emergency departments of the former Royal Canberra Hospital (from August 1988), Woden Valley Hospital, (from May 1989), Calvary Hospital (from October 1989) and Queanbeyan Hospital (from October 1989 to April 1991). Patients were requested to fill in survey forms giving information concerning what, where, when, how and why the injury happened. Given the variance in take-up times and the voluntary nature of the project, a study during the first half of 1992 was conducted to test the accuracy of representation. The results were consistent with those obtained during the project. Results of data collection and analysis to November 1992 excluding Queanbeyan Hospital results are recorded in Figure 5.¹³ It accounts for 35,536 cases of which 22,368 are males and 13,168 are females.

Clearly, most injuries presenting to emergency departments occurred in or at home (females 38% of all injuries, males 27%). This includes injuries outside a home in the garden or on the paths and is not restricted to when a person is in their *own* home or residence. Sports related injuries accounted for the second most common form of injury, with males suffering injury during sport more than females (males 20% of injuries, female 14%). Injuries related to transportation accounted for the third highest location for injuries. Production injuries, which include injuries in factories, mines, construction sites, farms and other industrial areas accounted for 8 per cent of male injuries, but only less than one per cent of female injuries. The injuries by location distribution appear to reflect the traditional occupational divisions of labour. (The order of prevalence of injuries relating to place of occurrence is similar to the order recorded in 1993-94 hospital separations).

Figure 3: Injuries by location and sex, ACT, August 1988-November 1992



Source: ACTISPP full dataset as at November 1992

Interestingly, injury by location percentages for the ACT are quite different from those of the rest of Australia. Table 9 shows the comparatively high proportion of sporting, educational and commerce injuries in the ACT. The high proportion of sporting and educational injuries may be a result of the high participation rate in sport and education in the Territory (Refer National Health Survey, 1989-90) and the fact that the ACT has a young population.

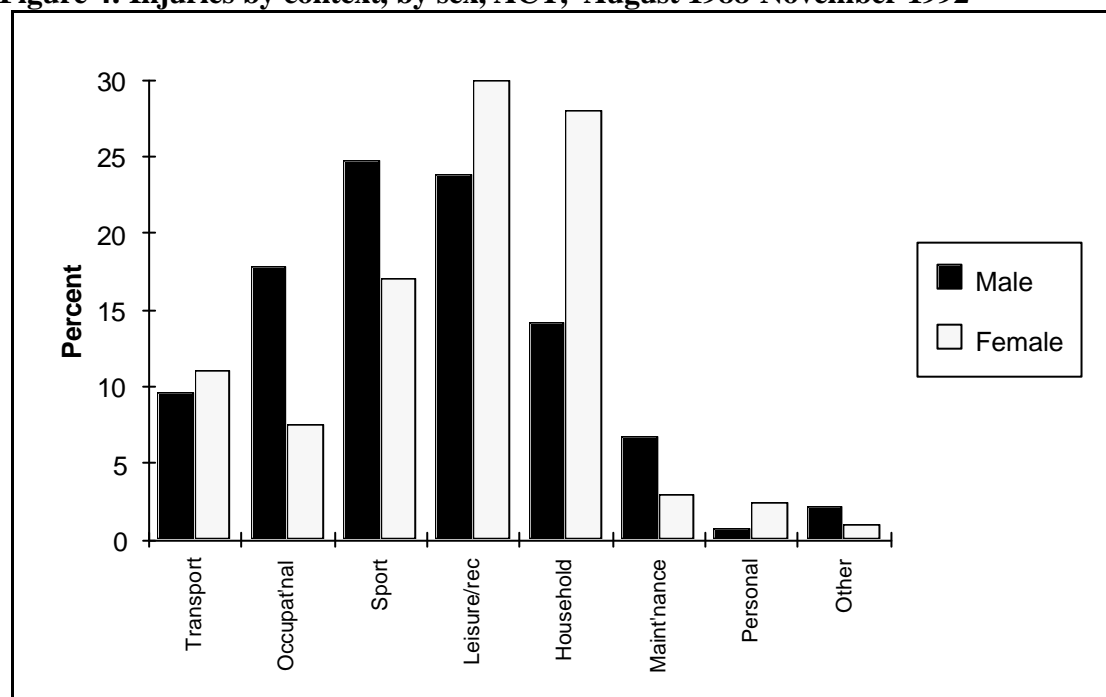
Table 9: Injuries by major location, ACT and Australia, Aug 1988-Nov 1992

Location	ACT %	Australia %
Residential	31.1	41.8
Transport	14.3	14.0
Organised sport	17.9	9.6
Education	12.2	8.5
Production	5.3	6.8
Commerce/trade	8.1	4.8

Source: National ISPP data set as at November 1992

Figure 4 outlines the distribution of injuries by the activity being undertaken at the time of injury:

Figure 4: Injuries by context, by sex, ACT, August 1988-November 1992

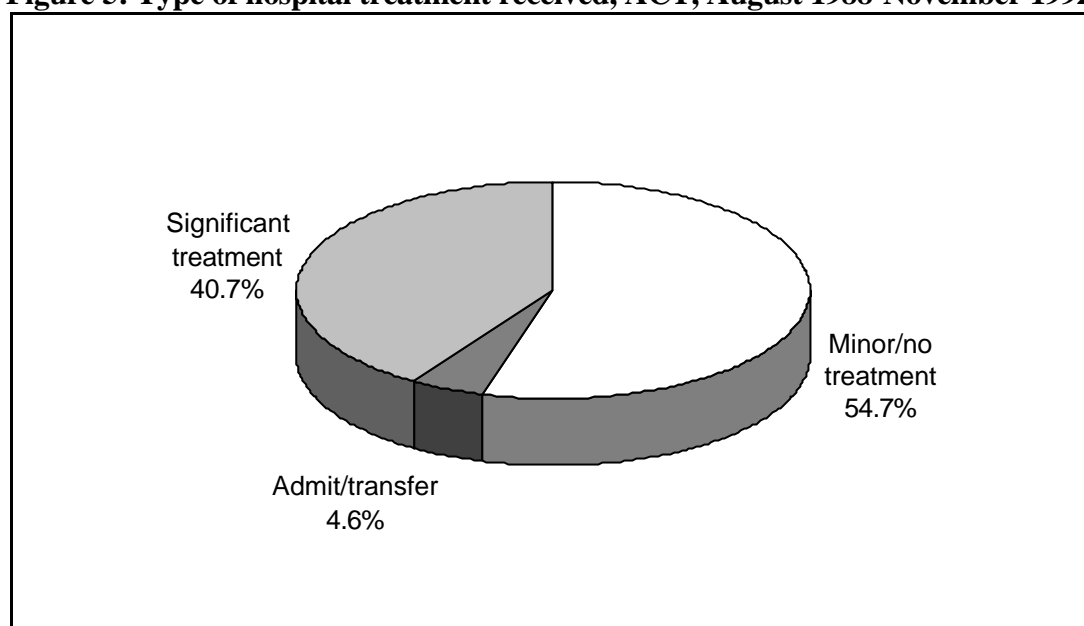


Source: ACTISPP full dataset as at November 1992

The largest percentage of female injuries occurred during leisure/recreational activities (30%) , followed by household activities (27.5%) and sport (17%). The largest percentage of injuries for males occurred during sporting activities (25%) followed by leisure/recreation activities (24%) and occupational activities (18%). These percentages partly reflect the amount of time each sex spends on various activities. The largest percentage of injuries overall occurred in the 10-24 year age group.

The following figure shows the outcome of injury related visits to the emergency department of the hospitals:

Figure 5: Type of hospital treatment received, ACT, August 1988-November 1992



Source: ACTISPP full dataset as at November 1992

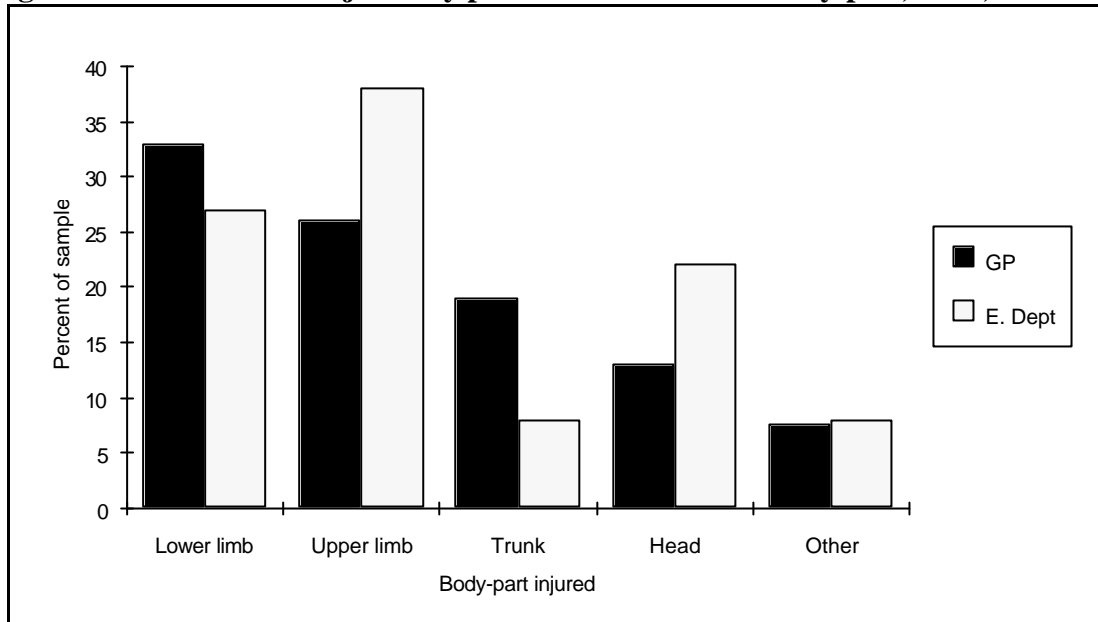
It is interesting to note the large percentage of minor or no treatment events presenting to the hospital emergency departments. This is one area where the introduction of extended hours, bulk-billing local medical surgeries and education of residents as to appropriate facilities to seek treatment would assist.

2.4 The role of GPs in the treatment of injuries

Until recently, it was generally thought that general practitioners rarely treated injuries and that a sound profile of the epidemiology of injury could be drawn from a study of mortality and hospital separation data only.⁵ A secondary analysis of the 1989-90 National Health Survey and a population-based multi-stage and sample survey of the Australian population found that GPs are treating many more injured patients than had previously been recognised and that GPs in fact, have an important part to play in the initial (as well as continued) management of injuries in the Australian community.⁵ It found that 60 per cent of all medically treated injuries receive primary care in general practice. In terms of reduced activity days the injuries treated were of similar severity as those treated in emergency departments of hospitals, but there were marked differences in the types of people treated. Differences were in age, employment status and place of most recent accident, but there were no differences in sex or country of birth. Injured patients presenting to general practice tended to be older and in employment. Injured patients presenting to emergency departments of hospitals tended to have their accidents occur in places of sport or recreation more often than other injured people.

A further study on the epidemiology of injury presenting to general practice which was undertaken in the ACT in 1992, confirmed the findings of the above study.⁶ In summary it concluded that 23,665 injuries received primary care from GPs in the ACT during 1992. This compared to 23,836 people who presented at emergency departments in hospitals. Differences in the distribution of injuries by body part injured, nature of injury and place of treatment are outlined in Figures 6 and 7:

Figure 6: Distribution of injuries by place of treatment and body-part, ACT, 1992

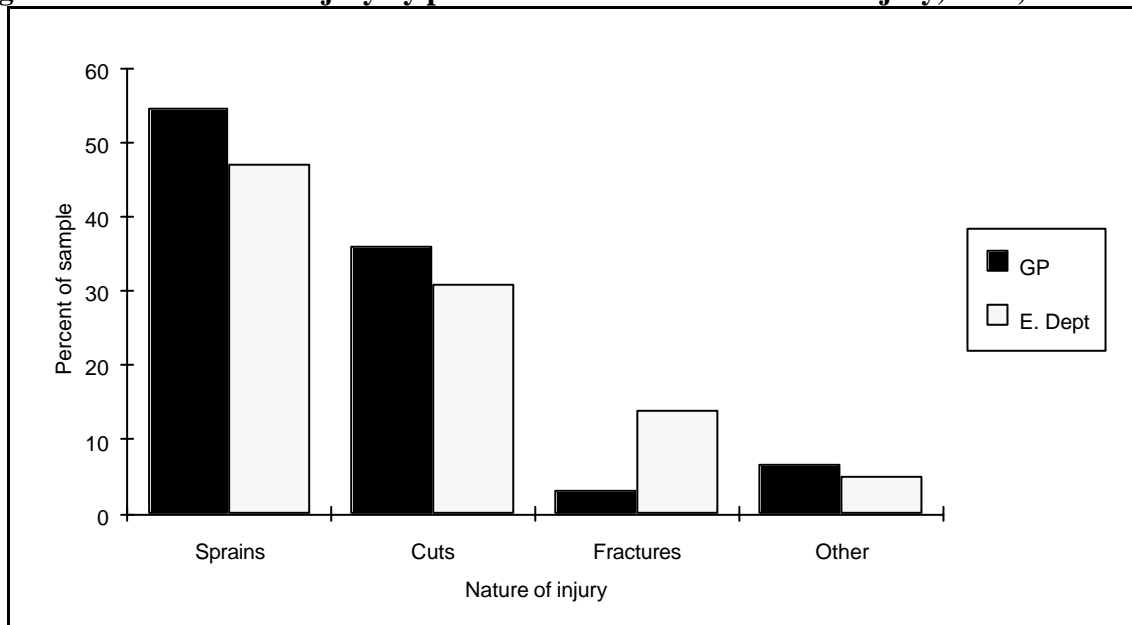


E Dept refers to the emergency departments of hospitals
 Source: *The Public Health Impact of Minor Injury, McClure R*⁷

General practice patients tended to be older, were less often admitted to hospital and differed in which body parts were injured compared to those patients presenting to hospitals. Injuries pertaining to upper limbs and the head were treated at hospitals considerably more than by general practice.

Figure 7 shows that fractures were most often treated in hospitals while sprains, cuts and other injuries were treated by general practice in slightly larger numbers than in hospitals.

Figure 7: Distribution of injury by place of treatment and nature of injury, ACT, 1992

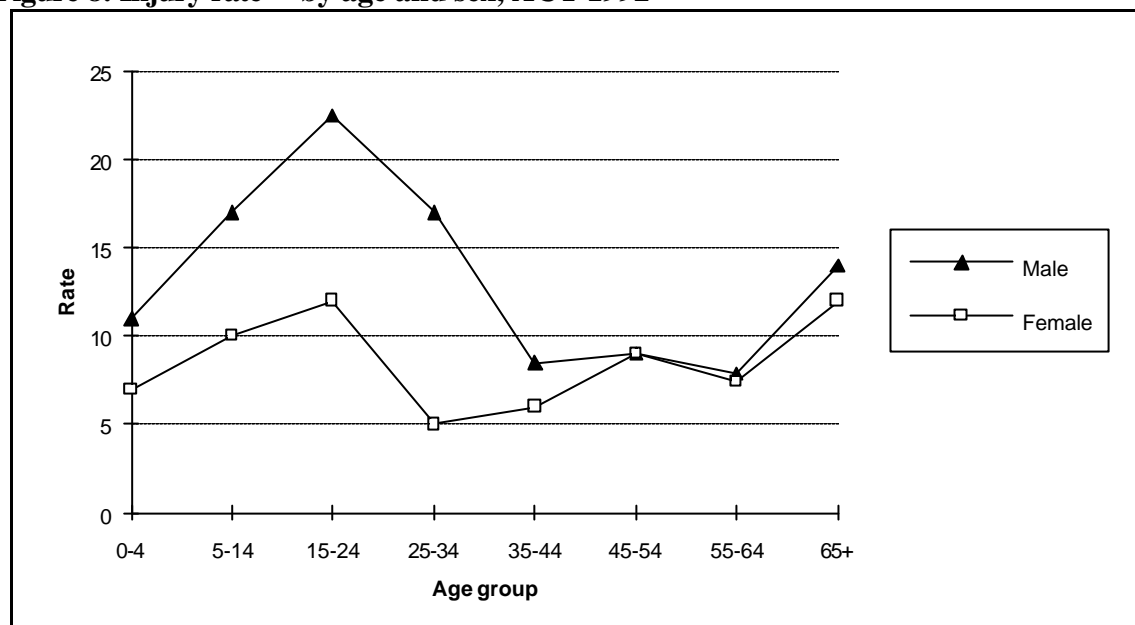


E. Dept refers to the emergency departments of hospitals
 Source: *The Public Health Impact of Minor Injury, McClure R*⁷

The study also indicated that only 2.5 per cent of all injuries that received medical treatment in the ACT required immediate hospitalisation. This compares well with the National Injury Surveillance Prevention Project findings discussed previously, where 4.6 per cent of those presenting were admitted or transferred to hospital.

By combining the emergency departments and GP data, Figure 8 shows the overall injury distribution pattern for 1992.

Figure 8: Injury rate^(a) by age and sex, ACT 1992



(a) Injury rate per 100 persons

Source: *The Public Health Impact of Minor Injury, McClure R* ⁷

It can be seen that injury rates were higher between the ages of 15 and 24 years and over the age of 65 years. Males were particularly vulnerable to injury in their teenage to mid twenties age group and women more prone to injury in the 65 and over age range. This is consistent with the injury profile for other years. There were some differences in the profiles of people presenting to the emergency departments and those visiting a GP: More males tended to visit the emergency departments than females. The ratio of males to females attending the emergency departments was 1.8:1 whilst the ratio for those attending GPs was 1.5:1 (p=0.07).

Clearly from these studies, examination of hospital information should not be the only data extrapolated to produce community estimates of injury incidence. Since patients attending GP consultations have differing profiles to those attending hospitals and the incidence of GP visits in relation to injury is extensive, it is important to include GP visitation data in any study on the incidence of injury.

3. Selected causes of unintentional injuries

The following categories of unintentional injuries have been chosen for the high number of separations and/or deaths they caused in the ACT.

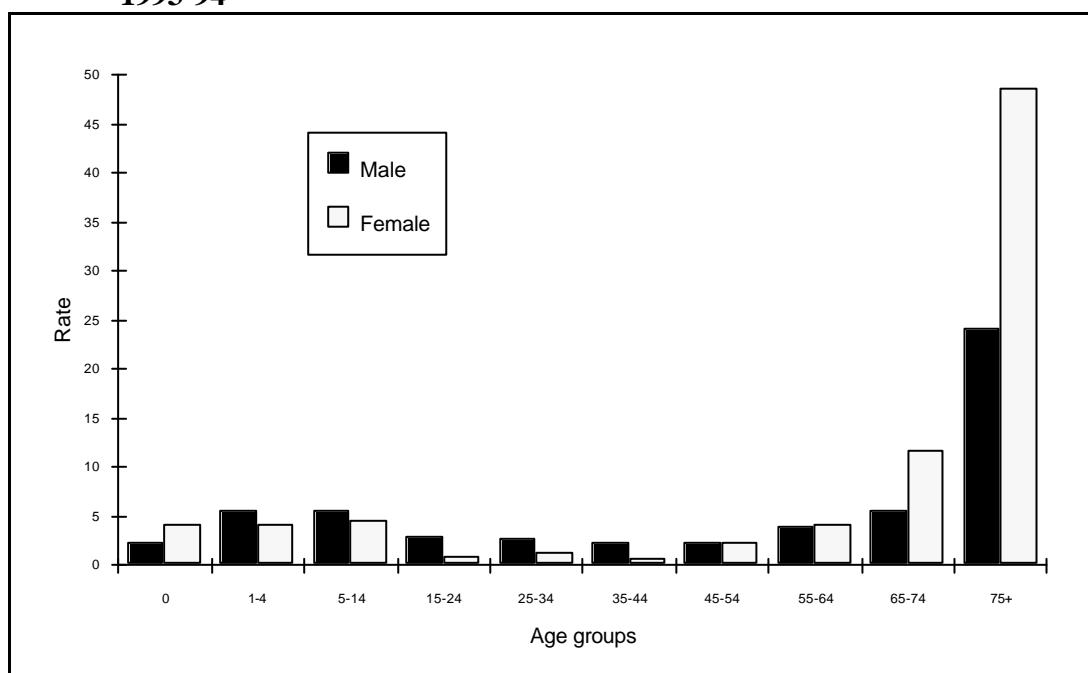
3.1 Falls

There were 8 deaths from accidental falls in 1994, 6 males and 2 females. Of the males, one was under 24 years of age and the rest were over 65 years. Both females were over 85 years of age.¹²

Injuries caused by falls are often treated by general practitioners, although people with suspected fractures tend to present to hospital accident and emergency departments, where X-ray and other facilities are readily available.⁷

In the ACT generally, falls accounted for 1,162 hospital separations (569 male, 593 female) in 1993-94, representing 20.3 per cent of all ACT separations (24.6% of female separations and 17.2% of male separations). The average length of stay was 7.2 days for males and 12.4 days for females. The female rate is higher as it mainly involves elderly female patients with severe fractures. The male rate mainly reflects sporting and work related falls in young, relatively healthy males. Such injuries however, may result in considerable poor quality of life and even early death. Table 6 gives the age breakdown of fall injuries which involved admission to hospital (ie those injuries requiring intensive intervention). The rates from this data can be summarised in the following figure:

Figure 9: Hospital separation rates* by sex, by age, for injuries caused by falls, ACT, 1993-94



* Rate per 1,000 population

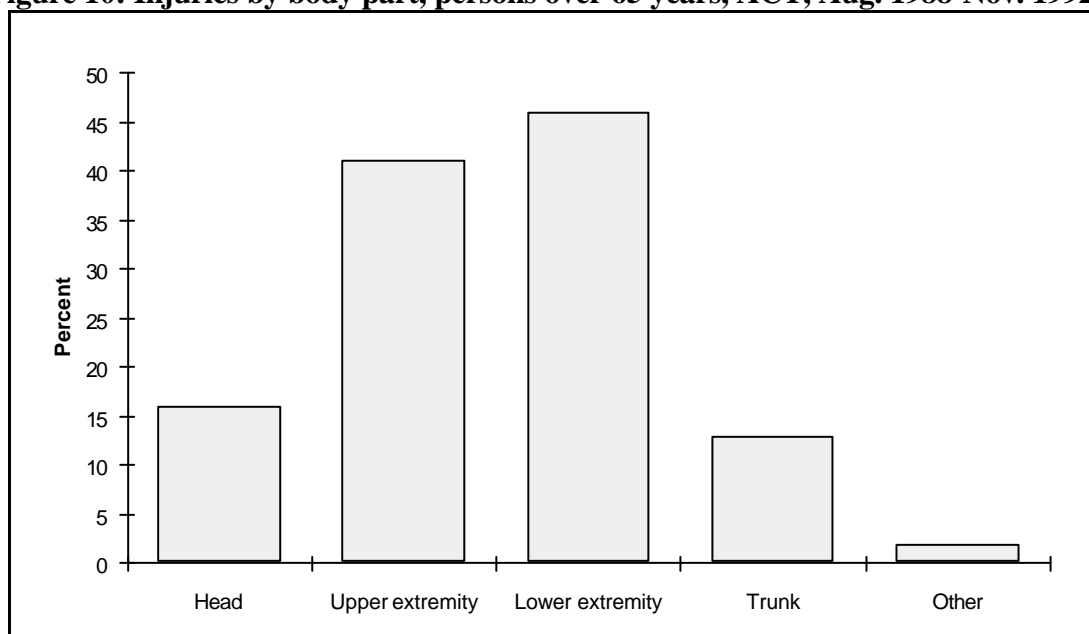
It can be seen that there is a vast difference in the falls profile between males and females. Both females and males have a peak during the ages of 1 and 14 (a time of great physical and sporting activity), but females also have a huge peak in the elderly years of over 75 years. Half of all female injuries are in the over 65 age range, whereas for males, half of their injuries due to falls occur when they are between the ages of 5 and 34. Even acknowledging the fact that males do not generally live as long as females, the male rate of falls requiring hospitalisation in the over 75 age range is also high.

Given these data, and taking into consideration an ageing population in the ACT, the incidence of falls can be expected to increase. A report by the National Health and Medical Research Council (November 1993)⁴ notes that:

- at least one third of people over 65 years of age fall one or more times a year;
- the cause of falls are usually multifactorial involving combinations of age-related physiological decline, chronic disease, medication and environmental factors;
- the risk factors for men are decreased physical activity, stroke, arthritis of the knees, gait abnormality and increased static sway;
- the risk factors for women are muscle weakness, standing systolic blood pressure of less than 110, psychotropic drugs and medication liable to cause postural hypotension;
- psychological sequelae, such as fear, occur frequently and may lead to increased dependence;
- injuries cause physical, psychosocial and financial costs to the injured person and their carers and financial costs to the community.

The *National Injury Surveillance Prevention Project*¹³ (discussed in 2.3) found that data collected from August 1988 until November 1992 from emergency departments of ACT hospitals showed that, although males accounted for 63 percent of all injuries, females accounted for 73 percent of injuries in the category of falls among the elderly (ie over 65 years of age). Because most elderly people spend most of their time at home, most of their injuries occurred there (70%). The body-part where injury was sustained is outlined in the Figure 10:

Figure 10: Injuries by body part, persons over 65 years, ACT, Aug. 1988-Nov. 1992



Source: ACTISPP full dataset as at November 1992

Note: Total exceeds 100% as up to 3 body parts may be reported for each injured person.

Of those injured, 45 per cent received a fracture and 19.9 per cent were admitted to hospital. This is a much larger percentage of admissions than is usual in the all age, all injuries collection where the proportion of admissions was 4.6 per cent.

Since falls are a common problem for older people (especially women) and since the causes are multifactorial, preventative measures also need to be multidisciplinary in approach. Medications and environmental dangers are potentially remediable, and impaired balance may respond to rehabilitation. Education programs such as the one currently being undertaken by the ACT Division of GPs³, will be important in any preventative strategy.

3.2 Vehicle traffic accidents

"An accident is the final event following a chain of events leading to a failure in the system¹¹." Contributing factors in traffic accidents include the road user, the vehicle, the road surface and condition, and the social environment at the time. An important factor is the road user, whose behaviour and skill finally determines whether an accident happens and often, to what severity. Human behaviour is a contributing factor in approximately 90 per cent of all road accidents. The age and gender of drivers, the influence of alcohol and the physical health of drivers (particularly in relation to eye sight, reflexes, attention spans etc) are all important elements. Studies have shown however, that improvements in road and vehicle conditions have marked positive effects on the number of accidents and the number and extent of resulting injuries.¹¹

There were 30 deaths caused by motor vehicle traffic accidents in 1994, where ACT was the usual place of residence.^{12a} These comprised 22 males and 8 females.

The Traffic Monitoring Unit of the Department of Urban Services collects comprehensive data on all reported traffic accidents in the ACT. Data pertaining to injury incidence follows.¹⁴ It is consistent with the data on vehicle accidents presented in Table 6 from the ACT Hospital Morbidity Data collection 1993-94, although it is for a calendar year as opposed to a financial year.

Table 10: Total number of vehicles involved in accidents where injury or death resulted, ACT 1993 & 1994

Vehicle type	Injury accidents *		Fatal accidents		Total accidents	
	1993	1994	1993	1994	1993	1994
Car or station wagon	695	595	13	16	13,366	11,364
Bicycle	86	69	0	0	186	182
Motor cycle, scooter	73	83	2	2	223	222
Panel van	51	39	0	1	814	716
Utility	43	43	2	3	776	702
Truck (excludes semi)	34	21	0	0	480	469
Unknown	19	14	0	0	605	2496
Bus	7	9	1	1	160	126
Semi	2	0	0	0	6	8
Emergency vehicle	1	0	0	0	2	3
Taxi, hire car	0	0	0	0	1	9
Tractor, plant equipment	0	0	0	0	5	3
TOTAL	1011	873	18	23	16,624	16,300

* Includes injuries receiving medical treatment or admission to hospital.

Source: *Traffic Accidents in the ACT* ¹⁴

From Table 10 and a calculation of rates, it can be seen that the number of vehicles involved in accidents and the number of vehicles whose accident resulted in injury decreased, but the number of fatalities increased from 1993 to 1994. The rate of injury accidents decreased from 6.08 (per 100 accidents) in 1993 to 5.36 in 1994. It seems that 1994 had an unusually high number of fatalities. There is no obvious explanation for this. In a small area such as the ACT where numbers of events are very small, one major accident can skew the figures easily. In looking at a ten year trend (Refer Table 12) and the indications for 1995, the trend is a decrease in all categories, which allays any fears as to any long-term increases. It would appear that the 1994 increase was an isolated one.

As a result of the above accidents, there were 739 injuries in 1993 and 649 injuries in 1994. Nearly half of the injuries in both years were suffered by the drivers involved in the accidents:

Table 11: Total injuries by outcome & position of the vehicle, ACT, 1993 & 1994

Injury position	Medical treatment		Admitted to hospital		Fatal		Total injuries	
	1993	1994	1993	1994	1993	1994	1993	1994
Driver	281	208	66	74	5	11	352	293
Front lft passenger	86	71	24	21	1	3	111	95
Front centre pass.	3	0	0	1	0	0	3	1
Rear right pass.	8	9	0	7	0	0	8	16
Rear centre pass.	19	17	3	2	0	0	22	19
Rear left pass.	8	5	0	2	0	0	8	7
Motorcycle	41	46	28	33	1	2	70	81
Motorcycle pillion	6	4	3	4	1	0	10	8
Pedal cyclist	70	52	17	16	0	0	87	68
Pedal cycle pillion	1	0	1	0	0	0	2	0
Pedestrian	31	25	12	23	4	2	47	50
Rider of animal	0	0	0	0	0	0	0	0
Other	16	8	3	3	0	0	19	11
TOTAL	570	445	157	186	12	18	739	649

Source: *Traffic Accidents in the ACT* ¹⁴

The total number of injuries in 1994 is the lowest since 1988. A study of trends over time will give a more accurate understanding of the implications of 1994 data:

Table 12: Trends in injuries from vehicle accidents, ACT, 1984-94

Year	Received medical treatment	Admitted to hospital	Deaths	Total injuries
1984	383	162	21	566
1985	358	204	34	596
1986	311	234	32	577
1987	272	192	36	500
1988	380	192	31	603
1989	545	217	32	794
1990	529	214	28	771
1991	520	211	19	750
1992	491	175	21	687
1993	570	157	12	739
1994	445	186	18	649

Source: *Traffic Accidents in the ACT* ¹⁴

Since the driver of a vehicle is one of the key factors in whether an accident occurs or not, it is interesting to note the profile of drivers who are involved in accidents which result in injury.

The following data refers to drivers, motor cyclists and pedal cyclists:

Table 13: Vehicle controller injuries by outcome, by sex, by age, ACT, 1994

Injury type	Sex	0-	15-	20-	25-	30-	35-	40-	45-	50-	55-	60-	65-	70+	Unk	Total
Fatal	M	0	2	3	0	0	1	0	1	2	0	0	0	2	0	11
	F	0	0	0	0	0	0	0	2	0	0	0	0	0	0	2
Admitted to hospital	M	3	12	17	16	11	6	4	5	3	3	0	2	2	1	85
	F	0	2	9	10	2	5	0	3	1	1	1	1	2	1	38
Medical treatment*	M	9	36	39	25	18	20	11	8	10	2	3	3	6	1	191
	F	3	12	23	13	16	9	14	11	5	3	4	1	1	0	115
Total		15	64	91	64	47	41	29	30	21	9	8	7	13	3	442

* Medical treatment refers to those injured who are not admitted to hospital

Source: *Traffic Accidents in the ACT*¹⁴

There were 287 male and 155 female vehicle controller injuries in 1994. It can be seen from the above table that males from 20 to 24 years of age predominate in the incidence of major injury types, with males 15 to 19 also sustaining a large proportion of injuries. Women aged 20 to 24 receive a significant proportion of medical treatment as a result of an accident. These trends are similar to those of 1993.

Although males predominate in the driver injury category (64%), their proportion is slightly reduced in the overall total injuries (60%). The following table shows the total injuries. It can be seen that males in the 15 to 24 years age range dominate (as they did in 1993).

Table 14: Total injuries by outcome, by sex, by age, ACT, 1994

Injury type	Sex	0-	15-	20-	25-	30-	35-	40-	45-	50-	55-	60-	65-	70+	Unk	Total
Fatal	M	1	3	3	0	0	1	0	2	2	0	0	0	2	0	14
	F	0	0	0	0	0	0	1	2	0	0	0	0	1	0	4
Admitted to hospital	M	12	13	25	17	14	9	8	5	4	4	0	2	2	4	119
	F	1	8	12	12	4	6	1	4	3	1	1	1	5	2	61
	Unk	1	0	0	0	0	0	0	0	0	0	0	0	0	5	6
Medical treatment*	M	24	47	53	31	21	22	17	8	11	2	3	6	8	3	256
	F	14	27	31	19	17	10	20	13	11	5	10	4	4	2	187
	Unk	1	0	0	0	0	0	0	0	0	0	0	0	0	1	2
Total		54	98	124	79	56	48	47	34	31	12	14	13	22	17	649

* Medical treatment refers to those injured who are not admitted to hospital

Source: *Traffic Accidents in the ACT*¹⁴

Males also account for the largest proportion of pedestrian injuries (58%), although the only two fatalities were females (aged 40-44 and over 70). There were 15 males and 11 females receiving medical treatment, and 14 males (8 females) admitted to hospital as a result of pedestrian injuries. Nearly half of the injuries pertained to people under the age of 24.

As discussed in Section 2.2, the average length of stay in hospital for an injury is a good indicator as to the acuity of that injury. Motor accidents account for a substantial average length of stay in hospital, indicating injury through motor accidents result in many serious injuries. The average length of stay for males in 1993-94 was 12.3 days, and for females, 12.0 days.

3.3 Sporting and recreational injuries

An extensive study was undertaken between March and June 1990 for the National Better Health Program, on the causes, costs and prevention of sports injuries in Australia.¹⁵ It found that:

- a sports injury is incurred by 1 in 17 Australians each year;
- sports injuries cost Australia between \$333-400 million in direct costs;
- sports causing the most injuries (75%) and costs (72%) are Australian rules, rugby (league & union), soccer, basketball, netball, hockey and cricket in that order;
- knee injuries are the most costly (account for 12% of sports injuries and 25% of sports injury costs);
- ankle injuries are the most common of sports injuries (16%);
- physical contact or human error are the greatest causes of sports injury;
- in general, males suffer sports injuries more than females;
- injury rates in children under 12 years are low, but these double after the age of 12 and increase 6-7 fold after 16 years;
- between 30-50% of sports injuries are preventable;
- players in lower socio-economic groups are at higher risk of injury due to inadequate grounds, facilities and equipment, and poorer coach and trainer education;
- the two main prevention strategies are education and environmental modifications;
- the best opportunities for prevention appear to be in coach and trainer education and consequent improvements in player preparation.

Specific information regarding sports injuries in the ACT is not extensive. In the National Health Survey 1989-90, it was found that ACT residents reported that 36.7 per cent of them undertook moderate or high exercise levels compared to 32.0 per cent of Australians generally, and that 63.3 per cent of them reported no or low levels, of exercise compared to 68.0 per cent of Australians.

The National Injury Surveillance and Prevention Project estimates that organised sports injuries account for 9.6 per cent of all injuries incurred in Australia and a massive 17.9 per cent of injuries incurred in the ACT (over the period August 1988 to November 1992). This may partly be due to the fact that the ACT has a good participation rate in sports, a large number of residents use bicycles and it is the feeder area for serious winter sports injuries (skiing etc) from the Snowy Mountains. The ACT also has a young population compared to Australia as a whole (Median age for ACT is 30.4 years compared to Australia with 33.4 years).²² The Project also found that sporting injuries were the largest injury recorded for males (25%), followed by recreational activities (24%) and occupational activities (18%). For females, the recreational activities had the highest number of injuries (30%) followed by household activities (27.5%) and sporting activities (17%).

Table 15 outlines the hospital separations by types of accidents recorded as occurring at sport or recreational activities in the ACT in 1993-94.

Table 15: Hospital separations where injury occurred at a place of sport or recreation, ACT, 1993-94

Selected external causes	Male	Female	Total
Overexertion and strenuous movement (E927)	207	37	244
Accidental falls	46	27	73
Motor vehicle traffic accidents	2	1	3
Motor vehicle non-traffic accidents	7	-	7
Other road vehicle accidents	12	5	17
Water transport accidents	6	-	6
Air and space transport accidents	-	1	1
Vehicle accidents not elsewhere classifiable	36	13	49
Accidents due to natural and environmental factors	2	-	2
Accidents caused by submersion, suffocation and foreign bodies	4	2	6
Accidentally struck by falling object	2	1	3
Striking against or struck accidentally by object or persons	3	-	3
Caught accidentally in or between objects	1	-	1
Accidents caused by cutting and piercing instruments or objects	1	2	3
Late effects of accidental injury	4	2	6
Drugs, medicinal, & biological substances causing adverse effects in therapeutic use	1	-	1
Suicide and self-inflicted injury	-	3	3
Homicide and injury purposely inflicted by other persons	1	-	1
Other accidents	-	1	1
Total	335	95	430

The above table is a conservative estimate in that approximately two thirds of data from John James Memorial Hospital has unspecified place of location at this time. It could be assumed that some of those injury events were inflicted at sporting or recreational locations.

In terms of activity and age of those receiving the injuries, the following table outlines 1993-94 hospital data:

Table 16: Hospital separations for sporting injuries, ACT, 1993-94

Sport	Sex	Age groups									Total
		1-	5-	15-	25-	35-	45-	55-	65-	75+	
Cycling	M	1	27	11	9	5	4	2	0	1	60
	F	0	12	7	1	0	0	1	0	1	22
Horse riding	M	0	4	7	7	2	2	1	0	0	23
	F	0	9	6	8	5	2	0	0	0	30
Skateboard, scooter	M	0	5	3	1	0	0	0	0	0	9
	F	0	0	0	1	0	0	0	0	0	1
Roller skating	M	0	12	3	1	0	0	0	0	0	16
	F	0	7	0	0	0	0	0	0	0	7
Snow skiing	M	0	0	6	4	10	2	1	0	0	23
	F	0	1	2	0	4	1	0	0	0	8
Ice skate, sled, etc	M	0	5	4	2	0	1	0	0	0	12
	F	0	2	0	1	1	1	0	0	0	5
Surf/sail board/ski	M	0	0	1	0	0	0	0	0	0	1
	F	0	0	0	0	0	0	0	0	0	0
Diving	M	0	0	5	0	0	0	0	0	0	5
Trampoline	M	4	12	0	0	0	0	0	0	0	16
	F	5	9	0	0	0	0	0	0	0	14
E927*											
Combat sports	M	0	0	4	1	0	0	0	0	0	5
	F	0	0	2	0	0	0	0	0	0	2
Rugby league, union	M	0	15	68	27	6	0	0	0	0	116
	F	0	4	0	0	0	0	0	0	0	4
Other football	M	0	11	19	18	3	3	0	0	0	54
	F	0	2	3	0	1	0	0	1	0	7
Hockey, ice hockey	M	0	1	5	3	0	0	0	0	0	9
	F	0	0	1	0	0	0	0	0	0	1
Squash, racket ball	M	0	0	1	1	3	1	0	0	0	6
	F	0	0	0	2	0	0	0	0	0	2
Basketball & similar	M	0	5	6	3	1	1	0	0	0	16
	F	0	3	4	3	1	0	0	0	0	11
Cricket & similar	M	0	3	8	5	2	0	0	0	0	18
	F	0	1	3	0	0	0	0	0	0	4
Gym, wgt training	M	0	1	3	0	0	1	0	0	0	5
	F	0	3	0	1	0	0	0	0	0	4
Other sports	M	0	3	2	4	2	2	1	0	0	14
	F	0	2	5	2	1	0	0	3	1	14
Other overexertion, stren. movt., jogging, aerobics	M	0	1	12	4	7	7	8	2	0	41
	F	0	0	10	4	3	0	0	0	0	17
Total E927*		(0)	(55)	(156)	(78)	(30)	(15)	(9)	(6)	(1)	(350)
Full Total	M	5	105	168	90	41	24	13	2	1	449
	F	5	51	47	23	16	4	1	4	2	153
	All	10	156	215	113	57	28	14	6	3	602

* 927 refers to the ICD code for all overexertion & strenuous movements from combat sports down to jogging & aerobics

Clearly, males account for the majority of hospital separations for sporting injuries (74.6%), with the heaviest injury occurrence being for football followed by cycling and other overexertion and strenuous movement. The majority of female injuries are due to horse riding, cycling, other overexertion and strenuous exercise, and trampolining.

3.3.1 Overexertion and strenuous movements (E927)

This category refers to injury caused by excessive physical exercise, overexertion from lifting, pulling and pushing and strenuous movements in recreational and other activities. The average length of stay in hospital was 2.6 days for males and 3.0 days for females. Of the 350 cases (284 males, 66 females) recorded as hospital separations in 1993-94, 244 (207 males, 37 females) were sport or recreation related (included above), representing 70 per cent of cases. Of the remaining 30 per cent, 25 per cent were of unspecified place of occurrence. It should be noted that all sports or recreation injuries are not caused by overexertion or strenuous movements.

3.4 Accidents caused by cutting and piercing instruments or objects

There were 280 hospital separations in this category, of which 74.3 per cent (208 cases) were male. The age groups where males mainly experience these injuries are between 15 and 34 years. Although the numbers are very small, females also tend to experience the injuries during those years.

Table 17: Hospital separations for injuries caused by cutting & piercing instruments or objects, (E920), by sex, by age, ACT, 1993-94

Selected external cause of injury & poisoning	sex	Age groups										Total
		0	1-	5-	15-	25-	35-	45-	55-	65-	75+	
Powered lawn mower	M	-	-	2	1	-	1	1	-	1	-	6
	F	-	-	-	-	-	-	-	1	-	-	1
Other powered hand tools	M	-	-	-	2	7	2	1	-	-	-	12
	F	-	-	-	-	-	-	-	-	-	-	-
Powered household appliances and implements	M	-	1	1	-	-	-	-	-	1	-	3
	F	-	-	-	1	-	-	-	-	-	-	1
Knives, swords, & daggers	M	-	1	3	14	8	4	2	2	-	-	34
	F	-	-	-	3	7	1	1	-	-	-	12
Other hand tools & implements	M	-	3	2	2	7	6	5	-	-	-	25
	F	-	-	2	1	-	2	-	-	-	-	5
Other specified cutting & piercing implements and objects	M	1	11	13	43	19	11	6	6	1	2	113
	F	-	5	8	4	10	4	7	2	1	2	43
Unspecified cutting & piercing implements and objects	M	-	1	-	3	6	3	2	-	-	-	15
	F	-	-	2	3	2	-	2	-	1	-	10
Total	M	1	17	21	65	47	27	17	8	3	2	208
	F	0	5	10	12	19	7	10	3	2	2	72
Total		1	22	33	77	66	34	27	11	5	4	280

3.5 Surgical and medical procedures causing abnormal reaction or later complication without mention of misadventure

These complications do not include those inflicted by misadventure, but rather injuries or conditions caused as a result of an abnormal reaction (of a patient) or a later complication after surgical or medical procedures. Incidence totals should be interpreted with caution since they encompass several causes under the one category and many of the injuries caused are unavoidable. They are often expected as part of the normal post-procedural practice. The category includes such conditions and procedures as displacement or malfunction of a prosthetic device, post-operative intestinal obstruction, kidney dialysis, X-ray procedures, aspiration of fluids and blood sampling and transfusion.

As mentioned in Section 2.2, the average length of stay in hospital for these complications is high (12.6 days for males and 11.2 days for females), but because the category covers so many types of complications, the data is difficult to interpret in a general sense. It will be important for clinicians involved in the hospital treatment of the complications to examine where improvements if any, can be implemented. The following table outlines the procedures in age groups:

Table 18: Surgical & medical procedures causing abnormal reaction of patient or later complication, without misadventure, by sex, by age, ACT, 1993-1994

Selected external causes of injury & poisoning	Sex	Age groups										Total
		0	1-	5-	15-	25-	35-	45-	55-	65-	75+	
Surgical operation with transplant of whole organ	M	-	-	-	2	3	-	1	2	-	-	8
	F	-	-	-	4	1	-	1	-	-	-	6
Surgical operation with implant of artificial internal device	M	1	-	6	11	22	19	17	24	61	50	211
	F	-	-	4	4	6	25	16	26	64	42	187
Surgical operation with anastomosis, bypass or graft, with natural or artificial tissues used as implant	M	-	1	2	6	5	9	19	30	38	10	120
	F	-	-	1	8	7	12	15	19	15	5	82
Surgical operation with formation of external stoma	M	-	-	1	1	1	1	1	6	5	3	19
	F	-	-	-	-	1	1	2	7	4	1	16
Other restorative surgery	M	2	1	2	6	4	6	4	8	10	1	44
	F	3	2	1	3	6	4	13	6	8	2	48
Amputation of limb(s)	M	-	-	1	3	-	-	1	3	6	4	18
	F	-	-	1	-	-	-	-	-	-	4	5
Removal of other organ (partial/total)	M	-	-	6	9	2	8	18	20	35	18	116
	F	1	2	17	12	11	35	25	14	17	5	139
Other specified surgical operations and procedures	M	6	3	3	9	17	20	14	30	36	17	155
	F	-	4	2	8	33	28	27	15	22	11	150
Unspecified surgical operations and procedures	M	-	-	-	1	-	-	-	-	-	-	1
	F	-	-	-	-	2	-	1	1	-	-	4
Cardiac catheterisation	M	-	-	-	-	-	1	3	7	4	2	17
	F	-	-	-	-	-	-	1	4	1	1	7
Kidney dialysis	M	-	-	-	-	-	1	1	3	4	-	9
	F	-	-	-	-	1	-	2	5	-	-	8
Radiological procedure and radiotherapy (excluding radio-opaque dyes)	M	-	-	-	-	-	2	4	6	7	8	27
	F	-	-	-	-	1	2	2	4	7	5	21
Aspiration of fluid	M	-	-	-	-	1	1	1	1	2	1	7
	F	-	-	-	-	1	1	-	-	2	-	4
Insertion of gastric or duodenal sound	M	-	-	-	-	-	-	-	-	-	1	1
	F	-	-	-	-	-	-	-	-	-	-	-
Urinary catheterisation	M	-	1	2	-	-	-	-	3	-	3	9
	F	-	-	1	-	2	1	1	1	-	-	6
Other specified procedures (blood transfusion)	M	1	2	2	1	2	8	9	12	13	6	56
	F	1	1	1	6	9	9	8	5	5	7	52
Total	M	10	8	25	49	57	76	93	155	221	124	818
	F	5	9	28	45	81	118	114	107	145	83	735
Total		15	17	53	94	138	194	207	262	366	207	1553

Unlike for other injuries, these procedures are generally used for older patients, in particular, males 55 years and older, and females between 25 and 64 years.

3.6 Drugs, medicinal and biological substances causing adverse effects in therapeutic use

This category accounts for the third highest number of hospital separations. Average length of stay was quite high at 9.2 days for males and 10.4 days for females.

Incidence totals should be interpreted with caution since they encompass several causes under the one category and many of the injuries caused are unavoidable. The following table outlines the numerous agents which caused the adverse effects. It can be seen that of the 397 cases, 55.4 per cent (220)

were women. As for the surgical and medical procedure category, most occurrences were for older people, 45 years and over.

Table 19: Drugs, medicinal and biological substances causing adverse effects in therapeutic use (E930-E949), by age, by sex, ACT, 1993-94

	Sex	Age groups										Total
		0	1-	5-	15-	25-	35-	45-	55-	65-	75+	
Antibiotics	M	5	-	1	-	2	1	1	3	4	2	19
	F	1	-	-	2	2	3	7	-	1	4	20
Other anti-infectives	M	-	1	-	-	-	2	1	-	-	-	4
	F	-	-	-	-	2	-	1	-	1	-	4
Hormones & synthetic substitutes	M	-	-	1	-	1	1	-	1	2	3	9
	F	-	-	-	3	1	5	3	2	4	5	23
Primarily systemic agents	M	-	4	6	1	2	4	2	2	-	-	21
	F	1	-	-	3	4	-	4	11	1	1	25
Agents primarily affecting blood constituents	M	-	-	-	-	-	-	-	2	5	7	14
	F	-	-	-	-	1	3	1	3	3	8	19
Analgesics, antipyretics, antirheumatics	M	1	-	-	1	3	4	4	3	10	4	30
	F	-	-	2	2	1	1	2	2	5	8	23
Anticonvulsants and anti-Parkinsonism drugs	M	-	-	-	1	1	1	2	1	-	2	8
	F	-	-	-	3	1	2	4	1	-	1	12
Sedatives and hypnotics	M	-	-	-	-	-	-	-	-	2	-	2
	F	-	-	-	1	-	-	-	-	-	-	1
Other central nervous system depressants and anaesthetics	M	-	-	4	1	2	-	1	1	1	1	11
	F	-	-	3	1	5	1	-	1	4	-	15
Psychotropic agents	M	-	-	-	2	2	1	1	-	1	4	11
	F	-	2	-	3	5	2	4	4	4	4	28
Drugs primarily affecting the autonomic nervous system	M	-	-	-	-	2	-	1	-	-	-	3
	F	-	-	-	-	-	1	-	-	2	-	3
Agents primarily affecting the cardiovascular system	M	-	-	-	-	-	-	1	3	9	6	19
	F	-	-	1	-	-	2	-	3	6	12	24
Agents primarily affecting the gastro-intestinal system	M	-	-	-	-	-	2	-	-	-	-	2
	F	-	-	-	-	-	-	-	-	1	-	1
Water, mineral and uric acid metabolism drugs	M	-	-	1	-	-	-	1	-	1	2	5
	F	-	-	-	-	-	-	-	1	-	-	1
Agents primarily acting on the smooth and skeletal muscles & respiratory system.	M	-	-	-	4	1	1	1	-	-	-	7
	F	-	1	-	1	1	1	-	-	-	-	4
Agents primarily affecting skin & mucous membrane, ophthalmological, dental & otorhinolaryngological, drugs	M	-	-	-	1	-	-	2	1	-	2	6
	F	-	-	-	-	1	1	1	-	4	4	11
Other & unspecified drugs & medicinal substances	M	-	-	-	1	2	1	2	-	-	-	6
	F	-	-	1	1	1	-	2	1	-	-	6
Total	M	6	5	13	12	18	18	20	17	35	33	177
	F	2	3	7	20	25	22	29	29	36	47	220
Total		8	8	20	32	43	40	49	46	71	80	397

3.7 Other

3.7.1 Workplace injuries

The Chief Minister's Department Annual Report 1993-94 records that there were 2449 incidents recorded for 1993-94 which involved an absence of one day or more from the workplace. The most frequent reasons for absence were sprains and strains (60% of claims), mental disorders (largely stress related) (8%) and open wounds (7%).

Of the 2449 incidents, 229 of them involved absence from work of 7 days or more.

Major industry groupings involved were construction (43 cases), property and business services (26 cases), community services (22 cases), retail trade (21 cases), manufacturing food, drink, tobacco (15 cases), manufacturing wood and furniture (14 cases), and health (11 cases).

The *National Injury Surveillance and Prevention Project*¹³ (discussed in 2.3) found that data collected from August 1988 until November 1992 from emergency departments of ACT hospitals showed that there were 5322 cases of workers compensation intentions. Table 20 shows the industry composition of those injuries:

Table 20: Workers compensation intentions by industry grouping, ACT, August 1988- November 1992

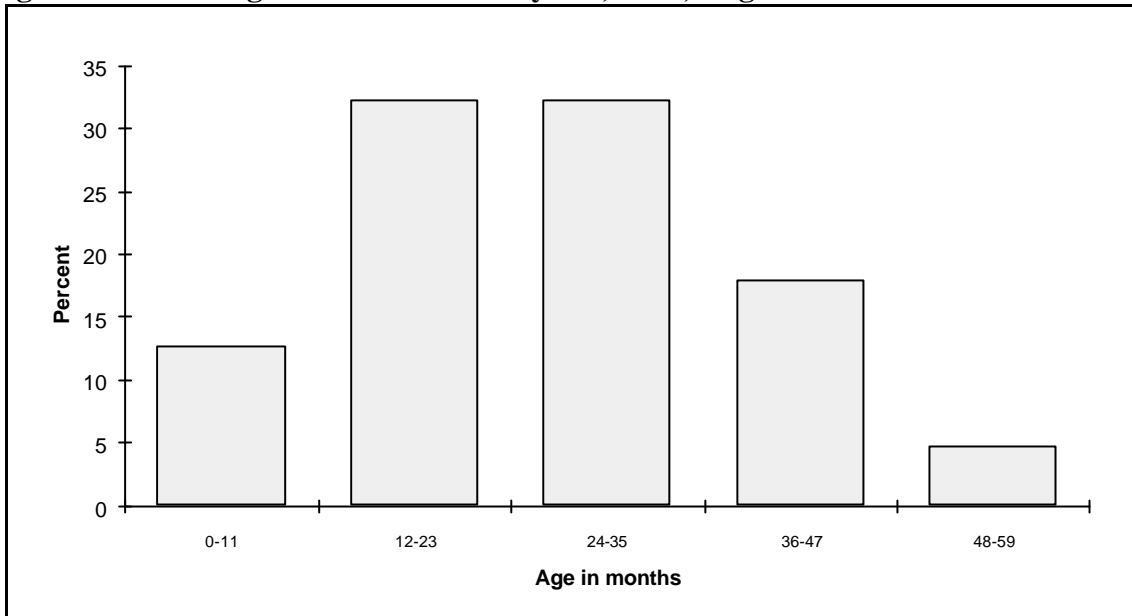
Industrial groupings	no. of cases	cases treated	cases admitted
Construction	1402	1266	33
Public administration & defence	721	626	16
Community services	675	592	10
Transportation & storage	566	505	12
Wholesale & retail	528	484	14
Leisure, personal service industries	486	433	17
Manufacturing	350	311	14
Service utilities	177	158	5
Agriculture, fishing, forestry, hunting	140	106	17
Communications	77	68	0
Financial, property, business services	48	43	0
Mining & minerals	28	23	0
Other	124	113	0
Total	5322	4728	138

Source: ACTISPP full dataset as at November 1992

3.7.2 Accidental poisoning

Children under the age of 5 years are particularly at risk from accidental poisoning in the home. The *National Injury Surveillance Prevention Project*¹³ (discussed in 2.3) found that data collected from August 1988 until November 1992 from emergency departments of ACT hospitals showed that there were 174 cases of accidental ingestions in that age range. As can be seen from Figure 11, children between the ages of one and three years were particularly at risk. The data showed that male and female children between one and three years of age are equally represented in the figure, which may be because they are equally inquisitive and therefore liable to injury.

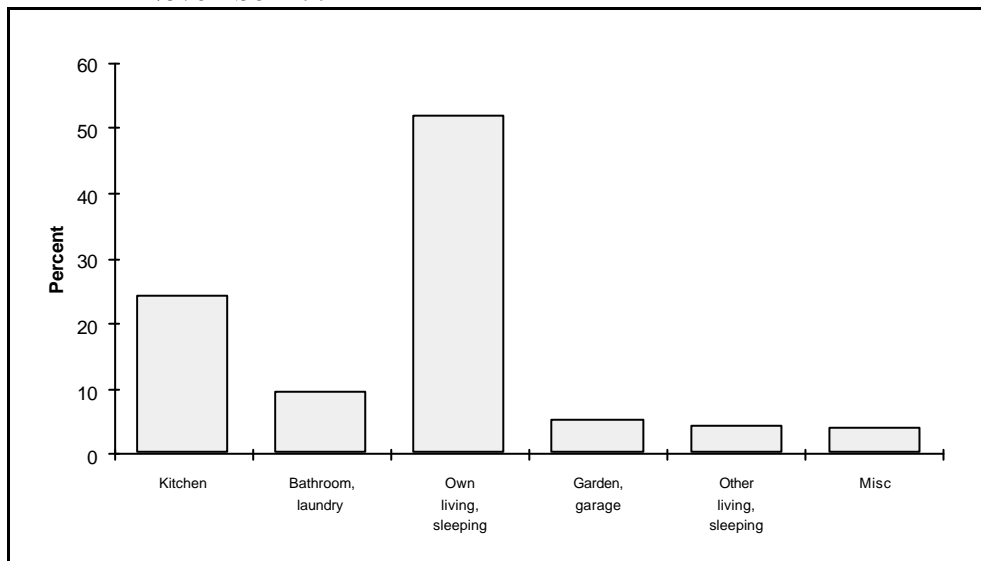
Figure 11: Poisoning in children under 5 years, ACT, August 1988-November 1992



Source: ACTISPP full dataset as at November 1992

Of the 174 children in the data collection, 52.3 per cent consumed some type of medication and 15.5 per cent consumed cleaning agents. In 96 per cent of all cases, ingestion of the poison occurred in the home or garden while the children were playing.

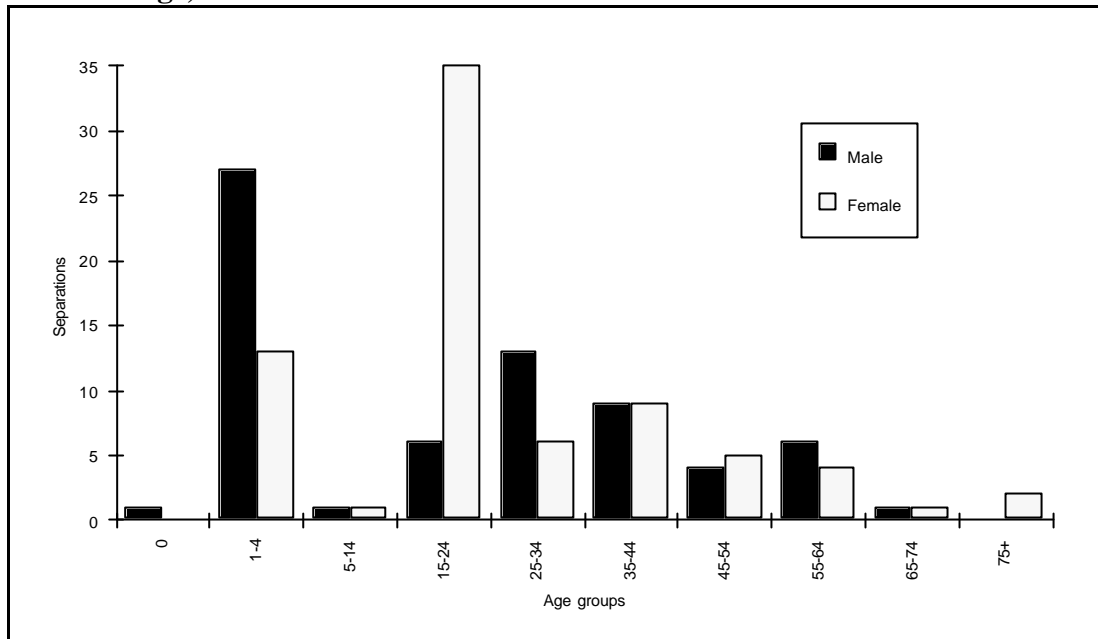
Figure 12: Location of poisoning of children under 5 years, ACT, August 1988-November 1992



Source: ACTISPP full dataset as at November 1992

Table 6 outlines the number of hospital separations in the ACT in 1993-94. In terms of accidental poisoning by drugs, medicinal substances, biologicals, other solid or liquid substances, gases and vapours, this has been summarised in the following Figure 13:

Figure 13: Hospital separations for injuries caused by accidental poisoning, by sex, by age, ACT 1993-94



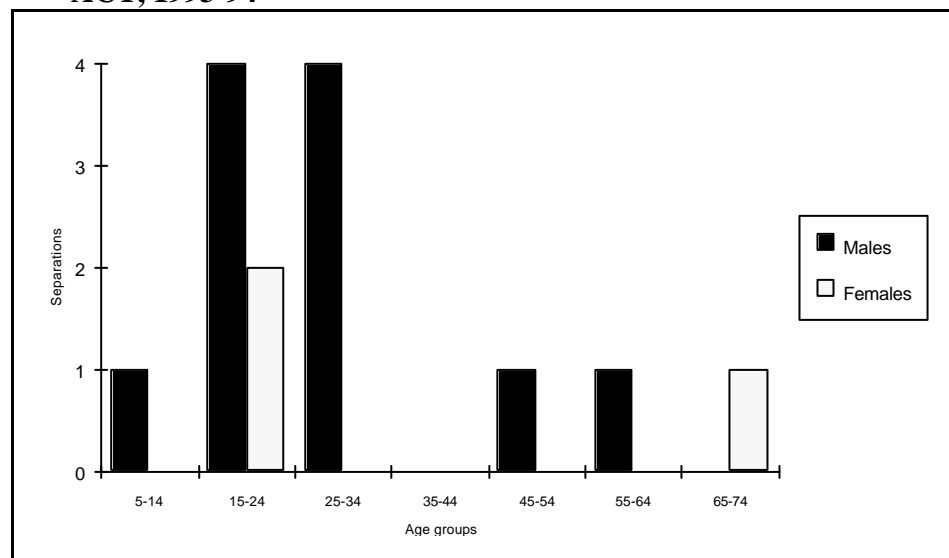
Males are most at risk of accidental poisoning in the 1-4 and 25-34 age ranges, whereas females are most at risk in the 1-4 and in particular, the 15-24 age ranges.

In terms of the average length of stay in hospital, this category does not represent heavy use of hospital services. The average length of stay for accidental poisoning by drugs, medicinal substances and biologicals is 3.4 days for males and 2.9 days for females and the average length of stay for accidental poisoning by other solid and liquid substances, gases and vapours is 2.6 days for males and 3.6 days for females (Refer Section 2.2).

3.7.3 Fire and heat related injuries

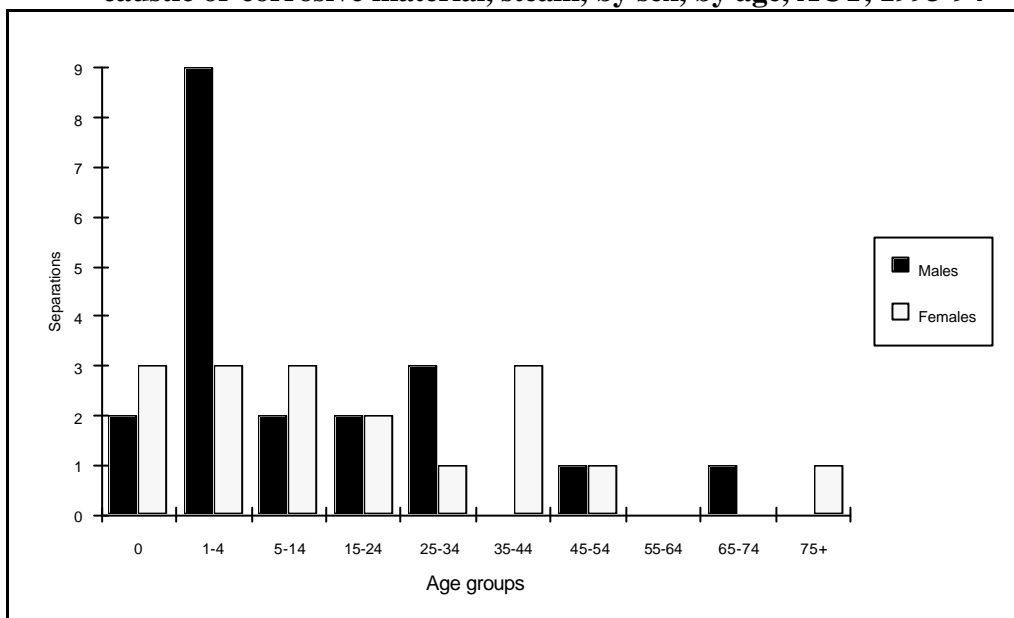
There are two categories for fire and heat related injuries in the Hospital Morbidity Data Collection; *accidents caused by fire and flames* and *accidents caused by hot substance or object, caustic or corrosive material, steam*. A summary of 1993-94 data follows in Figures 14 and 15:

Figure 14: Hospital separations for injuries caused by fire and flames, by sex, by age, ACT, 1993-94



Of the 14 cases involving injury from fire and flames, 11 were males and 3 females. The major incidence occurred between 15 and 34 years for males and between 15 and 24 years for females. Injury was caused by ignition of highly inflammable material (6 males), burning by fire in a private dwelling (2 females) and isolated instances of smoke and fumes inhalation in a private dwelling, burns from controlled burning, and ignition of clothing. The average length of stay in hospital for males was 7.2 days (indicating a severity of injury) and for females was 2.3 days (less severe).

Figure 15: Hospital separations for injuries caused by hot substance or object, caustic or corrosive material, steam, by sex, by age, ACT, 1993-94



There were 37 instances of injury caused by hot substance or object, caustic or corrosive material, or steam as outlined in Figure 15. Of these, 16 males and 10 females had injuries caused by hot liquids and vapours including steam, 2 females had injuries caused by caustic or corrosive substances and the remainder were burnt by heat from electrical appliances or other hot objects.

The severity of these injuries was very high, especially for males. This can be ascertained by analysing the average length of stay in hospital. Males had an average length of stay of 13.0 days (the highest average length of stay for any separation) and females, 6.9 days. (Refer Section 2.2).

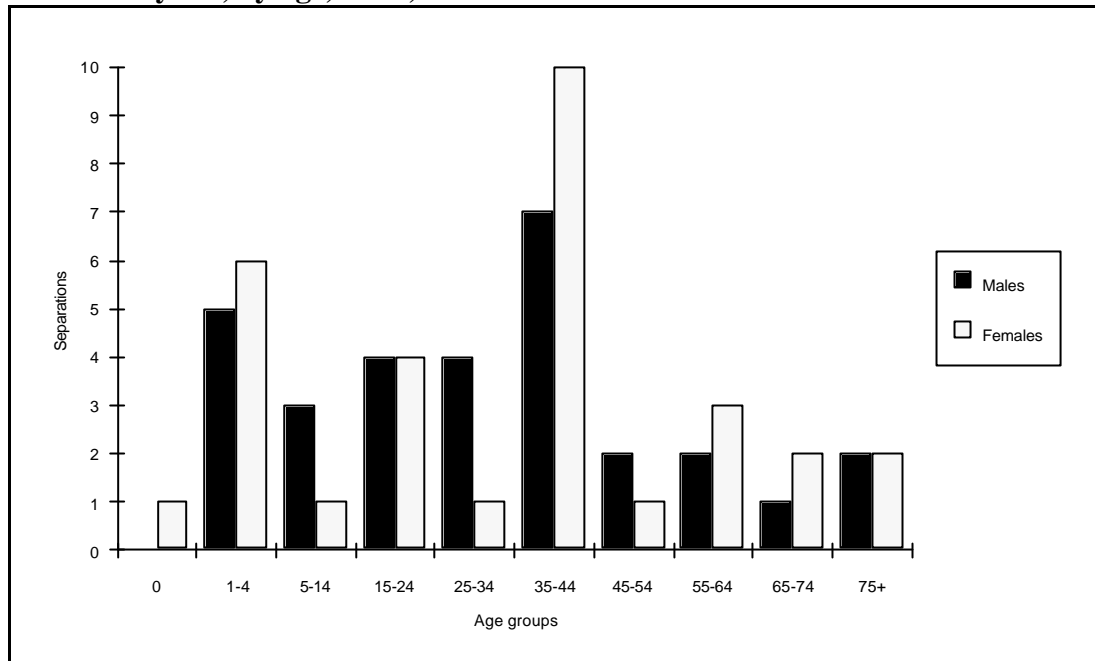
3.7.4 Injuries due to natural and environmental factors

This is one of the very few categories where female hospitalisations (31) are greater than for males (30):

It includes such causes as exposure to the weather and excessive cold (2 males), venomous snakes, lizards, spiders, wasps, bees and other arthropods (7 males, 2 females), dog bites (8 males, 12 females), and other animal caused injuries such as horse accidents (6 males, 10 females).

Figure 16 shows that females and males are most vulnerable to injuries caused by natural and environmental factors from ages 35 to 44. Females had 6 injuries related to "other specified injury caused by animal" which probably relates to horse accidents, 3 dog bite injuries and one injury caused by lightning in this category. Males however, had 5 isolated bite injuries, one injury due to excessive cold of unspecified origin, no dog bite injuries and only one "other specified injury caused by animal" which probably relates to a horse accident.

Figure 16: Hospital separations for injuries caused by natural and environmental factors, by sex, by age, ACT, 1993-94

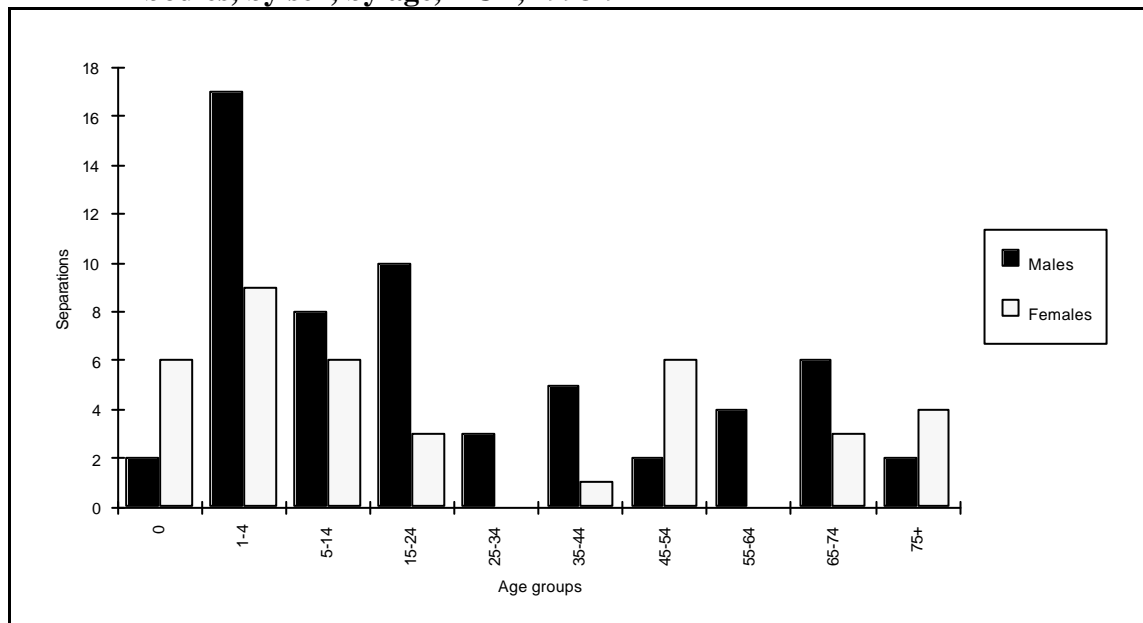


In terms of average length of stay in hospital, males stayed 8.7 days and females 5.2 days. This indicates severe injury, especially for males.

3.7.5 Injuries caused by submersion, suffocation and foreign bodies

There were 97 hospital separations of injury caused by submersion, suffocation and foreign bodies in 1993-94 of which 59 were males and 38 were females:

Figure 17: Hospital separations for injuries caused by submersion, suffocation and foreign bodies, by sex, by age, ACT, 1993-94



With the exceptions of the age groups 0, 5-14, 45-54 and over 75, male separations are at least double those of female separations. Female babies under one are three times more likely to experience injury which requires hospitalisation, than male babies. Females in the menopausal years (45-54) and in old age (75+) are twice as likely as males to experience injury requiring hospitalisation. The major causes

for hospitalisation are foreign bodies accidentally entering orifices (41 males, 26 females), inhalation of food (6 males, 4 females) or other objects (7 males, 4 females) causing obstruction of respiratory tract or suffocation and accidental drowning (5 males, 4 females).

The severity of injuries in the category was not large. This can be ascertained by examining the average length of stay in hospital: 1.6 days for males and 1.4 days for females.

3.7.6 Drowning

As mentioned above, there were 5 male and 4 female injuries resulting from drowning incidents which required hospitalisation in 1993-94, in the ACT.

Drowning is the major cause of death in the 0-3 year age range in Australia, but fortunately not in the ACT. There was one (male child) death due to drowning in the 1994 calendar year.^{12a}

4. Selected causes of intentional injuries

4.1 Injuries associated with interpersonal violence

This category encompasses injuries which are caused by such criminal events as homicide, child abuse (to age 16 years), domestic violence, elder abuse, sexual assault and other forms of assault. They take the form of physical, psychological, social, economic or sexual abuse. Key factors which contribute to (but are not the cause of) violence or which exacerbate the severity of injury, include quality of personal relationships (level of respect etc), alcohol and drug use, availability of means to injure (firearms, knives, medication etc), design of the physical environment, socio-economic strains and the personal skills of people to cope constructively with stress. Perpetrators are more likely to have experienced violence in their childhood and be highly dependent on their victims. Male perpetrators often have firm ideas that husbands own their wives and have the right to control them.^{16, 23} More than for any other injury, any intervention strategy will involve a multidisciplinary approach in an intersectoral model.

Many of the crimes are never disclosed and approximately 25 per cent of all violent offences occur in private dwellings. Most acts of domestic violence and child abuse occur in the victim's or a family member's home. Almost half of homicides are committed against family members.²⁴ The majority of violent acts are carried out by males.

Hospital separation data for 1993-94 identified 136 specific cases of homicide and injury purposely inflicted by other persons. The data should be used as a guide only, since many injuries would not have been identified or coded as interpersonal violence, but rather as an accident. There were 89 cases of fighting or brawling (80 male), 22 striking/biting/fire etc (14 male), 10 child battering (3 male), 7 assault by cutting or piercing instruments (5 males), 4 late effects of intentional injury, 3 homicidal poisonings (1 male), and one of female rape. The following table gives an age breakdown for separations in the major areas of unarmed fighting and brawling, striking/biting etc and child battering:

Table 21: Hospital separations, by homicide and injury purposely inflicted by other persons, by sex, by age group, ACT, 1993-94

Selected cause		Age recoded									Total
		0	1-	5-	15-	25-	35-	45-	55-	65-74	
Unarmed fight/brawl	M			1	26	29	16	5	1	2	80
	F				2	3	4				9
Child battering etc by parent	M	1	1								2
	F	2	2								4
Child battering etc by other persons	M	1									1
	F	3									3
Striking, biting, fire etc	M				5	3	3	3			14
	F				4		1	2	1		8
Total, homicide & injury purposely inflicted		9	3	1	43	39	27	10	2	2	136

4.1.1 Sexual assault

The results of sexual violence are often not physical injuries, but emotional distress and consequences, which can manifest themselves in unrelated symptoms. Consequences of sexual assault can range from fear, guilt, shame, shock, stress and flashbacks to physical reactions such as exhaustion, sleep disturbances, joint stiffness, bruising, disrupted menstrual cycles, gastro-intestinal problems, urinary-genital and pelvic pain and other chronic pain conditions.²³ A recent ACT study²⁷ correlates with other studies which suggest that there is a link between sexual assault and the likelihood of the victim attempting suicide, exhibiting risky behaviour such as unsafe sex or reckless driving, or self-mutilating.²⁸ Like other assaults, sexual assaults are often hidden and covered up, so that it is difficult to ascertain real incidence or physical and emotional costs.

Evidence suggests that the majority of perpetrators of sexual assault are male.²⁰ A Review of ACT Sexual Assault Services²⁰ which was conducted in 1995 cited studies which estimated that one in four women and one in eleven men are victims of sexual assault. This equates to approximately 28,713 ACT women over 16 years and 10,440 ACT men who have been sexually assaulted at some time in their lives (based on 1994 population). A Victorian study²¹ of 3,026 women over the age of 18 years attending general practitioner consultations in 1993-94, indicates that the numbers for women may be considerably higher than these estimates - the Victorian Key Centre for Women's Health found that approximately 40 per cent of women were sexually assaulted *before* the age of 16 and that 30 per cent of all women had been victims of sexual violence *since* the age of 16. Over a quarter of those in a relationship had experienced either physical or emotional partner abuse or both in the previous year with one in ten being victims of severe physical violence. The abuse had been disclosed to women's doctors in only 27 per cent of cases where women had experienced partner or childhood physical abuse and in only 9 per cent of cases where sexual abuse had been experienced. The issue of disclosure to ensure a healthy healing process needs to be addressed.

The ACT Review describes groups whose incidence of being victims of sexual violence is higher than the rest of society as alcohol and drug dependent people (between 30 and 80%), psychiatric patients (up to 70%), sex industry workers (55-90%), homeless youth (up to 28% of young men and 47% of young women), Aboriginal people, people with disabilities, and prisoners.

There is a disturbing concern regarding sexual (and other) violence targeted against gay men and lesbians.²⁰ Another issue of increasing concern is the incidence of ritual abuse both nationally and in the ACT. The Review states that 27 per cent of respondents to an ACT sexual abuse phone-in identified themselves as survivors of ritual abuse. Counsellors participating in the research confirmed this figure as being realistic.²⁶

The review made several recommendations which will be considered shortly. They concern the development of an integrated model of care involving responsiveness at all levels of health and community care and the expansion of specialist services for women and men affected by sexual violence. Programs to target special needs groups together with improved co-ordination, quality assurance and a renewed commitment to prevention and community development are recommended.

4.1.2 Child abuse

Child abuse, like many other forms of abuse is often hidden and it is not easy to determine its prevalence or extent. Severe physical injury may be identifiable through the hospital separation data (Refer Table 21), although it is often treated through private medical practitioners. The Family Services area of the Children's, Youth and Family Services Bureau does collect information on the cases which are reported to them:

Table 22: Total notifications of child abuse and neglect, ACT, 1992-95

1992-93	1993-94	1994-95
1,751	1,791	1,818

Source: Department of Urban Services Annual Report 1994-95

Of the cases notified in 1994-95, 927 were not substantiated and 494 have not been finalised. The following table outlines the nature of finalised, substantiated cases:

Table 23: Finalised cases of substantiated abuse categories, by type, sex and outcome, ACT, 1994-95

Age	Physical		Emotional		Sexual		Neglect		Total	
	M	F	M	F	M	F	M	F	M	F
<1	3	5	1	3	0	0	8	5	12	13
1	8	5	4	3	0	0	7	6	19	14
2	5	4	3	4	0	2	7	7	15	17
3	5	4	5	3	0	3	6	4	16	14
4	5	6	0	3	2	3	5	4	12	16
5	4	4	4	4	0	0	3	3	11	11
6	1	5	8	3	0	1	3	3	12	12
7	2	3	5	4	2	2	3	2	12	11
8	7	2	2	2	0	0	4	3	13	7
9	6	3	5	1	0	0	2	5	13	9
10	3	6	4	0	0	2	1	3	8	11
11	7	7	4	2	0	1	3	0	14	10
12	4	4	3	1	0	2	2	4	9	11
13	3	3	1	2	0	2	2	0	6	7
14	6	8	2	0	0	4	1	0	9	12
15	2	5	0	0	0	0	1	1	3	6
16	3	2	0	0	0	0	0	1	3	3
17	0	0	0	0	0	0	0	0	0	0
Unk	5	11	2	3	0	0	4	1	11	15
	79	87	53	38	4	22	62	52	198	199
Total	166		91		26		114		397	

Source: Department of Urban Services Annual Report 1994-95

Mandatory reporting of child abuse will be proclaimed on 1 June 1997, and it can be expected that an increase in notifications will occur from that time. In the meantime, trainers are being employed by the Family Service's area of the Children's, Youth and Family Services Bureau to train appropriate service deliverers in mandatory reporting requirements. The first training will commence in March 1996 in the Belconnen/Gungahlin health catchment area. Other catchment areas will receive training before June 1997.

4.1.3 Domestic violence

Like other forms of violence, it is very difficult to gauge the extent of domestic violence (DV) in the community. A survey conducted by the Office of the Status of Women in 1987 and studies of ACT Magistrates Court DV protection order applications in 1991 and later, showed that up to 90 per cent of domestic violence occurs against women by men with whom they live.¹⁹

Examination of 1994 activity statistics for the ACT Domestic Violence Crisis Service shows that at least 2,588 women contacted the service by telephone at least once, but sometimes more often to report physical violence by their male partners or another household member and to seek help. To date, it has not been possible to ascertain how many of the women receiving crisis visits are first contacts. If you consider only telephone contacts however, the 2,588 number represents one in every 58 females in the ACT having a first contact with the Service during the year. Since approximately 94 percent of clients were over the age of 18, this represents one in every 45 ACT women over 18 years of age who have a first contact with the Service in the year. Since 55 per cent of clients are in the 18 to 35 year age range, it can be estimated that one in 34 ACT women between the ages of 18 and 35 years, call the Service at least once in the year. It should be noted that these statistics do not include the women who contact the Service for a first contact via a crisis visit, so it can be assumed that the results are underestimated. Table 24 outlines activity for 1994.

Table 24: Domestic Violence Crisis Service activity, ACT, 1994

Activity	Ave per day	Ave per month	1994 total
Crisis visits	2.13	64.75	777
Court support	1.63	49.67	596
Follow up visits	0.48	14.50	174
Total crisis intervention	4.24	129.00	1547
Telephone new contacts	7.09	215.67	2588
Telephone, follow up	7.45	226.58	2719
Total telephone intervention	14.54	442.25	5307

Source: ACT Domestic Violence Crisis Service

In addition, 637 applications for *interim* protection orders and 821 applications for protection orders were received by the ACT Magistrates Court in 1994.

While it is impossible to gauge the full extent of domestic violence in the ACT from the above figures, it can be said that it is certainly a serious problem which results in human anguish (mainly to females), some physical and psychological injury and a large financial cost to the community through police, legal, health worker, counsellor and conflict resolution worker intervention and medical expenses.

4.1.4 Elder abuse

Elder abuse includes physical (inflicting pain or injury), psychological (inflicting mental anguish such as intimidation), financial (improper use of an older person's money or property), sexual abuse and neglect (the withdrawal of food, care and shelter). Like child abuse, it is often hidden and difficult to determine the extent or prevalence.

There have been very few studies to determine the extent of elder abuse. One, carried out in 1990-91, involved studying the medical records of 1,200 patients at the Hornsby Ku-ring-gai Hospital's Geriatric and Rehabilitation Service in North Sydney.¹⁷ The researchers found that up to 5 per cent of Australians over 65 years may be victims of abuse, in most cases when they are too sick or frail to look after themselves, and mostly by family members. Of the 54 victims recorded in the study (4.6% of the 1200 patient records studied), 36 were female and 18 male. They experienced psychological abuse (29 cases), physical abuse (25 cases), neglect (16 cases) and material or financial abuse (13 cases). Twenty-one victims suffered more than one type of abuse. It was found that nearly half of the abusers were suffering from dementia, psychiatric disorders or drug and alcohol abuse. Abusers came from all socio-economic groups.

A study into coping mechanisms of carers of the elderly at home was conducted by Rahman in the ACT in 1993.¹⁸ She found that all of the 151 carers studied suffered some conflict in their relationship with the elderly person for whom they cared. Forty-nine per cent of the carers used adaptive coping measures such as singing, reading, gardening and talking to others about the situation and the remaining 51 per cent used maladaptive coping strategies such as yelling (57.1%), arguing (45.4%), shaking or pushing (45%), and threatening nursing home placement (39.1%). Rahman was able to conclude that the more burdened the carers were, the greater the conflict they experienced and the greater the risk of maladaptive and abusive coping behaviour. The detailed results will have an influence on developing strategies for change.

4.1.5 Other assault

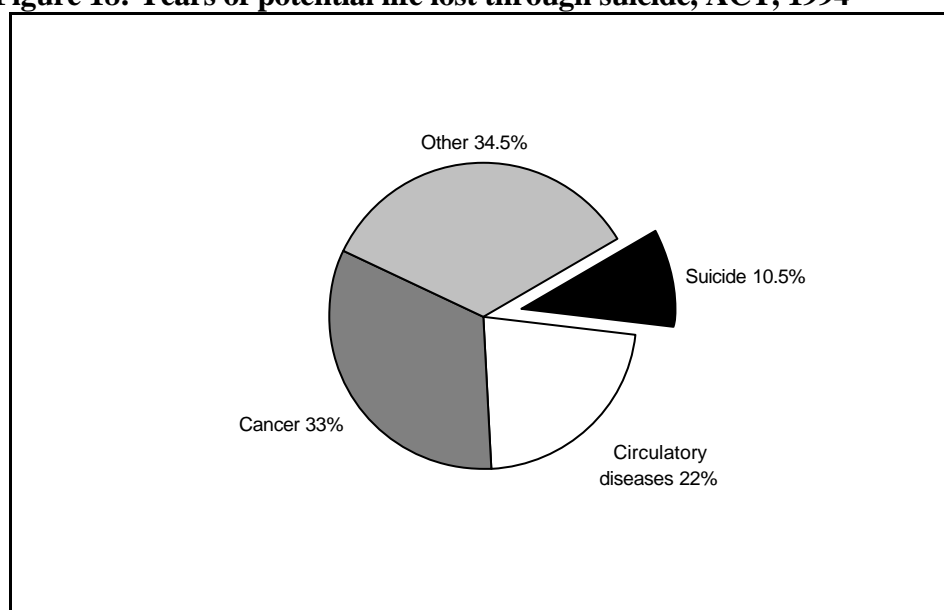
These assaults cover areas such as school bullying, gang violence and physical fighting. The main perpetrators are males, usually against other males, and injury often results. Emerging issues of societal concern include youth on youth violence, youth violence towards parents (in particular sons against mothers), and the apparent increase in female fighting, particularly in the teenage years.

4.2 Suicide and self-inflicted injuries

There is considerable concern nationally about the rising rate of suicide, especially in the 15 to 24 year age group. In 1993 and 1994, suicide was the ninth leading cause of death in Australia and seventh in the ACT.^{12, 12a} Suicide accounted for 36 per cent of all male injury deaths and 40 per cent of all female injury deaths in the ACT in 1994.

Apart from the anguish this tragedy causes, it also represents a huge waste in potential years of life lost. Figure 18 shows that suicide accounts for 10.5 per cent of the total years of potential life lost in the ACT (1397 years).

Figure 18: Years of potential life lost through suicide, ACT, 1994



* Standardised to Australian population as at 30 June 1991

Source: ABS, *Causes of Death 1994*, Unpublished data, Catalogue No. 3303.0

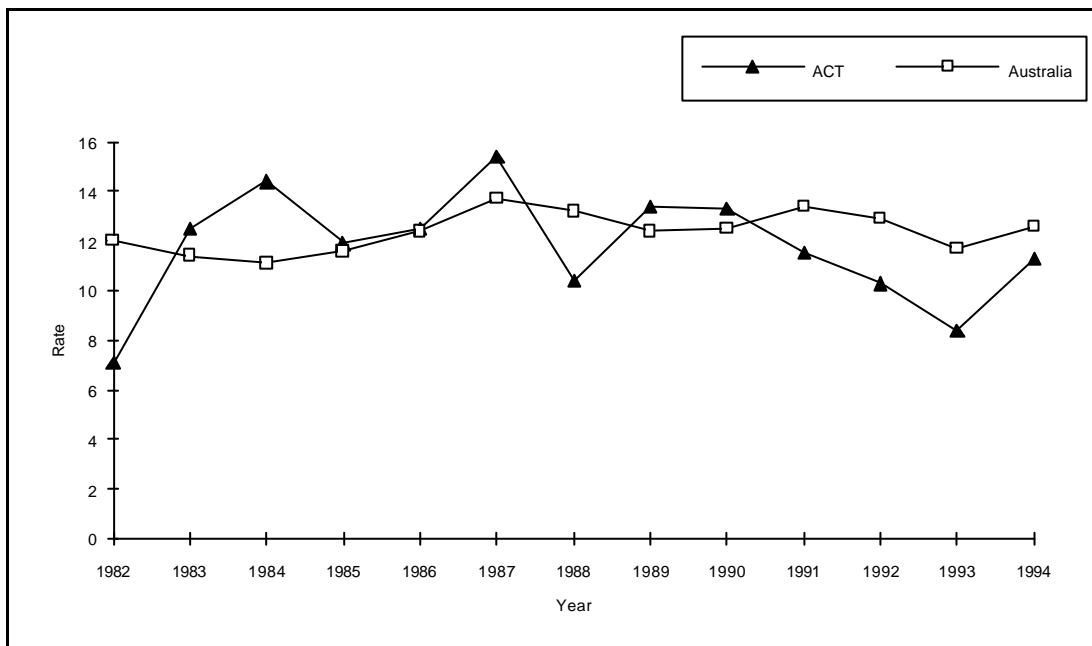
It is difficult to track the incidence of suicide attempts (completed and uncompleted), since the reliability and completeness of data are in question:

- most suicidal behaviour, especially by females, does not result in death - consequently, a profile based on mortality data is incomplete;
- some occurrences reported as from another cause, may in fact be suicide attempts or completions (eg motor vehicle accidents, accidental drug overdoses).

In the ACT in 1994 the suicide standardised death rate was 11.3 per 100,000 population (compared with 12.6 for Australia). This represents 26 male and 10 female confirmed deaths from suicide, seven of which were for young people between 15 and 24 years of age. These 7 people comprised 4 male and 3 females. They died as a result of hanging, strangulation or suffocation, poisoning by solid, liquid or gases and vapours. In the other age ranges, there were also cases of firearms and explosives, cutting and piercing instruments, and jumping from a high place.^{12b}

It is difficult to identify real increases and decreases in number of deaths, given the small numbers. Annual rates can fluctuate substantially as shown in Figure 19. It is probably more informative to look for trends over a reasonable period of time.

Figure 19: Standardised suicide rates for the ACT and Australia, 1982 to 1994(a)

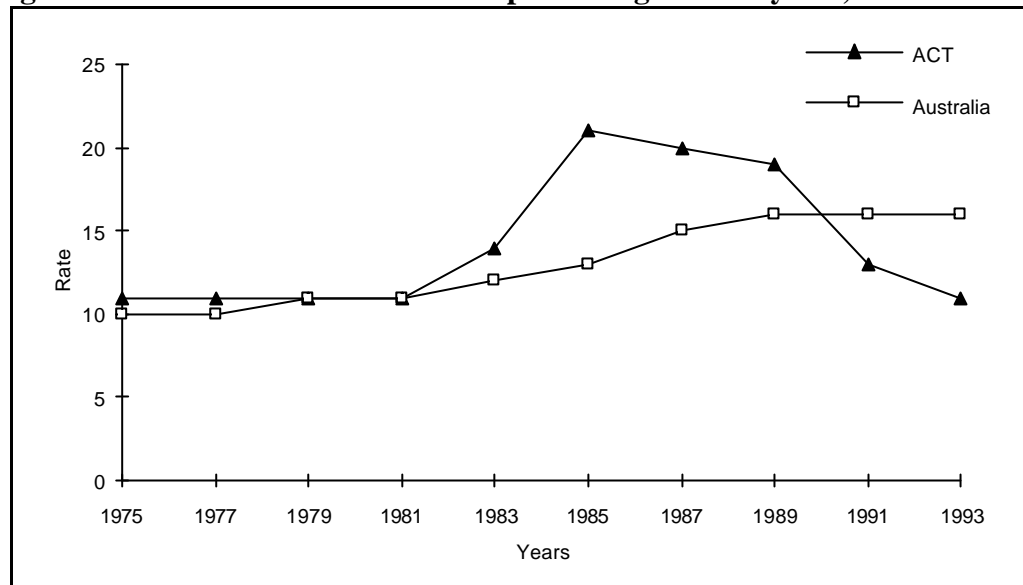


(a) Standardised per 100,000 mid-year 1986 population
 Source: ABS, Suicides Australia 1982-1992, Catalogue No. 3309.0 and Demography ACT 1993,94, Cat No.3311.8

Youth suicide

In the 15 to 24 years age group in the ACT, suicide was the second leading cause of death for males (4 deaths) and the leading cause of death for females (3 deaths) in 1994. This compares with six deaths in this age group in 1993, all male.

Figure 20: ACT suicide death rates of persons aged 15-24 years, 1975 to 1993^(a)



(a) rate per 100,000 (Based on 5 year moving averages)
Source: ABS, Unpublished data, Causes of Death

As Figure 20 shows, during the 1970s the suicide rates of *young* people were similar in the ACT and Australia generally. In the 1980s however, the rate for both males and females was noticeably higher in the ACT than for Australia. This may have been due in part to changing reporting practices. In 1968 the World Health Organisation introduced in the Eighth Revision of the International Classification of Diseases, a new category "injury undetermined whether accidentally or purposely inflicted (ICD codes E980-E989)". The use of this new category has fluctuated over time, and in particular during the early 1980s.⁸ Given the small numbers in the ACT, this fluctuation in coding practices could have influenced ACT rates more than in the rest of Australia. Since the 1980s, the suicide rates for young males and females in the ACT appear to be trending down. The reverse is happening for Australia as a whole.

The rate of completed suicide for males is considerably higher than that for females both nationally and in the ACT. In the ACT, over the period 1883 to 1993, 68 males and 18 females aged 15 to 24 committed suicide. This represents males as being nearly four times more likely to complete suicide than females. 1994 data contradict this statement in that 4 males and 3 females completed suicide in the ACT in that year. The rate of suicide in the age group was 10.6 in 1993 (6 male deaths) and 12.3 in 1994 (4 male and 3 female deaths).

However, hospital separation data indicate that the percentage of hospital separations for self inflicted injury is higher for females than for males. This suggests that young males and females attempt suicide at much the same rate - males are simply more successful in completing it. Males tend to use more irretrievable methods such as firearms, hanging or strangulation and jumping from high places, whereas women tend to use less predictable methods such as poisoning and overdosing on pharmaceutical tablets. The average length of stay in hospital for suicide attempts is quite high with females staying an average 9.8 days and males for 5.3 days.

Causes for attempting suicide are not easy to define. It is likely that societal pressures and stress, often associated with social isolation and family dysfunction are important triggers. There is also evidence that the majority of suicides are associated with mental illness, with severe depression and schizophrenia being particularly high risk factors. Although difficult to confirm, it is estimated that about 90 per cent of adolescent suicides are preceded by symptoms of mental illness, especially depression.²

A recent study⁹ conducted in the ACT, where coroners' files on youth suicide (persons under 25 years of age) for the six years from 1985 to 1990 were studied, showed some interesting results which have

implications for planning preventative measures. There were 53 suicides in the age range during the period (75.4% male). It was found that:

- All but one death due to motor vehicle accidents were given accidental verdicts rather than an open or suicide classification;
- There were no suicides of young people under the age of 16;
- Of those young people who overdosed, 88.8 per cent did this on prescribed medication;
- Overall, carbon monoxide poisoning was the most common method, followed by hanging, gunshot and overdose;
- 79.2 per cent had stated their intent to commit suicide before doing it (either in words or by earlier attempts at suicide);
- Previous attempts to commit suicide were undertaken by 54.7 per cent of completions;
- 54.7 per cent were from intact families, 24.5 per cent from separated or single parent families, 13.4 per cent from step families and 1.8 per cent (1 person) from an intact adoptive family, 5.6 per cent of cases had unknown family status;
- In cases where there was evidence, only 11.3 per cent of cases had good family relationships and approximately a quarter had good peer relationships (sample of a quarter of all cases);
- In the period before their death, 69.8 per cent of the group were considered by others to be depressed (39.6% had actually been diagnosed by medical practitioners as suffering from emotional or psychiatric problems);
- Significant precipitating factors included break-up of boy-girl relationships (33.9% of the group had experienced this), family conflict, separation from or of parents, death of a family member or friend, unexpected information about parents, drug and alcohol problems (32% were said to be heavy users of alcohol), impairment of physical (18.8%) and mental health, court convictions and charges pending (20% of the males), loss of employment.

A study²⁷ in the ACT of 155 homeless or potentially homeless young people aged between 12 and 17 years in 1993 showed a possible correlation between physical and sexual abuse and a propensity to attempt suicide. 54 per cent of the sample who had experienced abuse had attempted suicide. 72 per cent of young women in the sample who had experienced abuse had attempted suicide.

More recent data are available, but only for hospital activity. ACT Hospital Morbidity Data Collection 1993-94 indicates that there were 270 events of suicide, attempted suicide and self-inflicted injuries, with very few completed suicides. Females were responsible for 167 of the events. This is consistent with the trend for females to attempt suicide as often as males, but be less likely to complete it. They are, therefore, more likely to require hospitalisation. Table 25 shows the age breakdown for suicide and self-inflicted injuries recorded in public hospitals.

Table 25: Hospital separations resulting from injury (suicides and self-inflicted injuries) by age group, 1993-94.

	Age group							Total
	5-	15-	25-	35-	45-	55-	65+	
Males	0	30	35	19	10	5	2	101
Females	11	69	31	33	14	5	4	168*
Unknown	0	0	0	0	0	1	0	1
TOTAL	11	99	66	52	24	11	6	270*

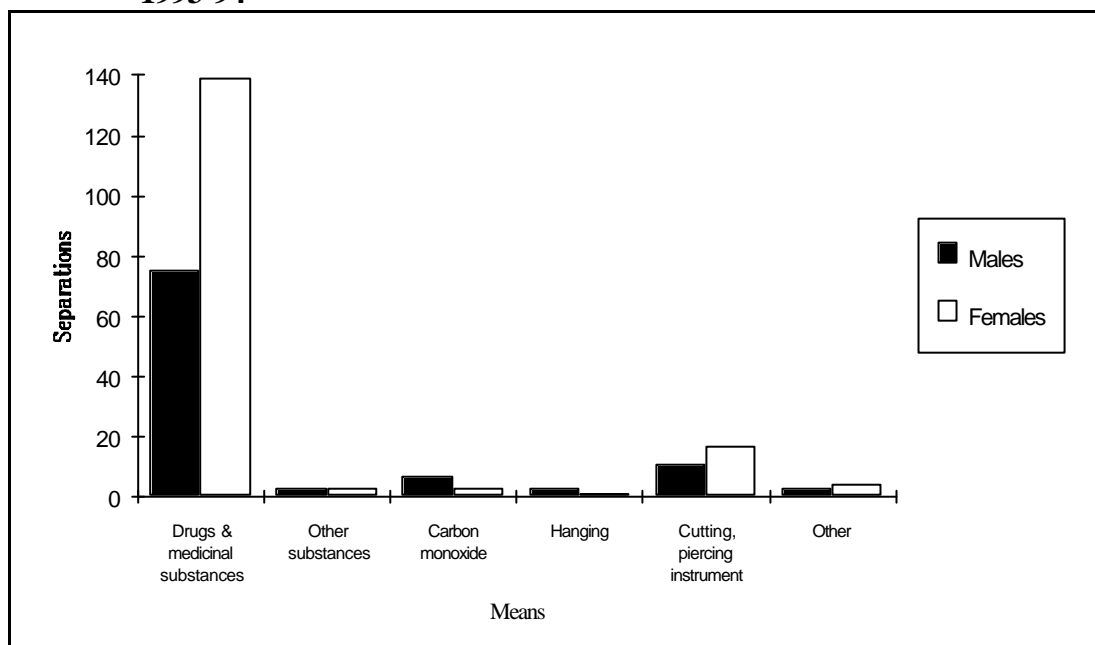
* Total includes one mother of unknown age

In order to protect privacy, full information of means of self-harm attempts cannot be detailed. Some trends emerged however, which are summarised below:

- nearly all of the 11 children aged 5-14 years used drugs or medicinal substances to cause self-harm;
- 55 females aged 15-24 chose drugs and medicinals and 8 chose cutting or piercing instruments;
- 23 males aged 15-24 chose drugs and medicinals and 3 chose cutting or piercing instruments;
- 24 females aged 25-34 chose drugs and medicinals and 6 chose cutting or piercing instruments;
- 25 males aged 25-34 chose drugs and medicinals and 2 chose cutting or piercing instruments;
- 29 females aged 35-44 chose drugs and medicinals and 2 chose cutting or piercing instruments;
- 14 males aged 35-44 chose drugs and medicinals and 3 chose cutting or piercing instruments;
- 13 females aged 45-54 chose drugs and medicinals;
- 7 males aged 45-54 chose drugs and medicinals;
- tranquillisers and other psychotropic agents were mainly chosen by people aged 55-64;
- people aged 65 and over all chose tranquillisers and other psychotropic agents and other drugs or medicinals.

Means of self-inflicting the injury are outlined in Figure 21

Figure 21: Hospital separations, by means of causing suicide or self-harm, by sex, ACT, 1993-94



People, especially females, admitted to hospital with self-harm injuries needed considerable intervention services. The average length of stay in hospital for males was 5.3 days and for females 9.8 days in 1993-94.

Strategies for addressing the problem of suicide

Since the indicators of suicide are mainly preventable (eg depression caused by life events with an inability to handle problems and with no appropriate support systems), there has been an increasing realisation that preventative measures are lacking and are desperately warranted. Recent national initiatives include the development of National Goals, Targets and Strategies for Mental Health in which one of the major goals is to reduce the rate of suicide among people with mental disorders, and the development of a draft National Health and Medical Research Council Strategy for the Prevention of Suicide.

In the ACT, ACT Health Goals and Targets for the Year 2000 have been developed which specifically focus on the reduction of suicide rates as a major target in the injury section.¹ Some of the strategies to be considered include:

- increasing psychological resilience to suicide and suicide risk factors;
- developing appropriate programs to address the needs of people at risk;
- developing a school education program for students and teachers;
- increasing the support intervention skills of primary health care practitioners;

and

- developing hospital emergency and inpatient protocols for the management of attempted suicide including prompt referral for follow-up counselling.

Given that suicide risk is exacerbated or caused by societal conditions, the problem must be addressed by not just the Department of Health and Community Care, but other agencies of government responsible for living and working conditions also. The community sector must also play its part in reducing the risks associated with suicide. The Goals and Targets exercise will involve these interests in the development and implementation of strategies.

5. Current initiatives in injury prevention

5.1 ACT health goals and targets

Concurrently with the national health goals and targets project, the ACT developed Territory health goals and targets for the year 2000. After extensive consultation, the ACT goals and targets final document was released in the week of 30 January 1995.¹ Focus areas are broader than, but include the national areas. ACT agreed goals and targets for injury are:

Table 26: Health goals and targets for the year 2000

Goal	Identified targets for individual goals
1. Increase co-ordination & networking amongst all ACT agencies & services involved in injury prevention, treatment & rehabilitation	The Dept of Health & Community Care to establish an intersectoral & multidisciplinary infrastructure for injury prevention in the ACT by June 1995
2. Obtain accurate baseline data about the prevalence of all types of injuries	Establish by December 1995 a data collection system to provide baseline information on the causes of all injury presentations to emergency depts & primary health care settings (including details of actual or suspected intentional injuries) that can be linked with national data collections
3. Reduce the incidence & severity of injury from all causes	<ul style="list-style-type: none"> a) Reduce by 20% the rate of deaths due to all causes of injury b) Reduce by 20% the rate of hospital admissions for ACT residents due to all causes of injury c) Reduce by 20% the rate of Emergency Department presentations due to injury d) Reduce by 10% the rate of hospital admissions due to falls in people aged 65 years or more e) Ensure that at least 50% of participants in sport & recreational activities regularly wear appropriate protective equipment f) Increase to at least 75% the proportion of teenage cyclists who regularly wear helmets when cycling g) Reduce by 15% the rate of deaths due to suicide h) Develop by December 1995 hospital & community health protocols for identifying, treating & referring people injured as a result of domestic violence, sexual assault & child abuse
4. Promote skills development & self-esteem as a strategy to reduce violence & suicide	To be developed
5. Increase effort in early intervention & rehabilitation to reduce the impact of injury, chronic disability & re-injury	To be developed

Source: ACT Health Goals and Targets for the Year 2000

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

5.2 Data collection

The implementation of health goals and targets and the maintenance and improvements to service delivery will depend on the availability of base-line data on which to base evaluations of programs and interventions. Refinement and expansion of data collections have commenced in the ACT with the establishment of a new data bank in the emergency departments of Woden Valley and Calvary Hospitals. The data collection system is currently being installed and will be compatible with the new NSW data system, thus allowing cross border comparisons. The system development is funded by the Commonwealth through the Ambulatory Care Reform Program and will utilise the National Injury Surveillance data definitions and national emergency definitions currently being developed.

The National Health Survey is another excellent source of information. This will be particularly so for the 1995-96 survey, since the ACT had negotiated an extended ACT sample to ensure greater accuracy.

Another excellent method for collecting data is the *ACT Care Continuum and Health Outcomes of Hospital Inpatients Project*. This is a two year innovative pilot project, funded by the Commonwealth Department of Human Services and Health, which commenced in early 1995 and is being undertaken by the Epidemiology Unit of the ACT Department of Health and Community Care in collaboration with The Australian National University. The project involves investigating approximately 7,000 inpatients and their experiences prior to admission, during their hospital stay and up to six months after discharge. Questions regarding formal and informal service utilisation, costs across the care continuum and how to make better use of resources, and health outcomes including quality of life are being addressed. Data are collected through an interview questionnaire, a diary maintained by the patient and self-completion questionnaires complemented by existing data bases. The information collected will allow for the development of a profile of patient care and outcomes on which to base future planning for the enhancement of quality of care and relevance of health interventions.²⁵

5.3 Recommendations

It is clear that data availability in the area of injury needs to be improved so that preventative and service delivery programs can be evaluated and designed to meet the needs of residents. Whilst this is occurring, progress should be monitored.

In order to attain the ACT health goals and targets for injury, a working group is being established by the ACT Health Outcomes Reference Group to oversee the process and encourage timely progress. Since injury is not just the responsibility of health departments, other departments and the community should be involved. It is recommended that the working group be established as soon as possible, and that resources to support its work be allocated.

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7. Glossary

Age-sex standardisation - demographic technique for adjusting for the effects of age and sex between populations which allows comparisons between populations.⁴

Age-sex standardised ratio - The expected number of events is given by calculating the number of events which would have occurred if the rates for each age/sex group in a given population (the standard) were applied to the population of interest.⁵

Crude death rate is the number of deaths per 1,000 population (unless otherwise stipulated) in a given year.⁴

Incidence refers to the number of instances of illness commencing, or of persons falling ill, during a given period in a specified population.¹

Intentional injury refers to any injury purposely inflicted either by oneself or by a second party. It includes self-mutilation and suicide and such criminal events as homicide, child abuse (to age 16 years), domestic violence, elder abuse, sexual assault and other forms of assault.

Median is a measure of central tendency. It refers to the point between the upper and lower halves of the set of measurements.¹

Mortality is the relative number of deaths, or death rate, as in a district or community.²

Morbidity is the proportion of sickness in a locality.²

Potential Years of Life Lost (PYLL) is a measure of the relative impact of various diseases and lethal forces on society. PYLL highlights the loss to society as a result of youthful or early deaths. The figure for PYLL due to a particular cause is the sum, over all persons dying from that cause, of the years that these persons would have lived had they experienced normal life expectation.¹

Prevalence refers to the number of instances of a given disease or other condition in a given population at a designated time.¹

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.⁴

Sex differentials are the differences in rates between males and females.¹

Standardised death rate is the overall death rate that would have prevailed in a standard population, in this case the 1991 Australian population, if it had experienced at each stage the death rates of the population being studied.⁴

Statistically significant infers that it can be concluded on the basis of statistical analysis that it is highly probable.

Unintentional injury is any injury not purposely caused and includes such issues as motor accidents, falls, burns, sporting and occupational injuries and accidental poisonings.

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Appendix 1

National health goals and targets for injury prevention and control

Initial national health goals and targets in the areas of injury prevention and control, (and cardiovascular disease, cancer and mental health) were developed and endorsed by State, Territory and Commonwealth Health Ministers in 1994.² National agreed goals and targets for injury are summarised in Table 27:

Table 27: National health goals and targets

Goal	Identified targets for individual goals
1. Primary goal: Reduce the incidence, and impact on health, of injury in the Australian population	a) Reduce all-cause mortality from injury and poisoning by 20% b) Reduce all-cause hospital admissions for injury and poisoning by 20%
2. Reduce injury-related health inequalities between priority populations and the whole community	a) Reduce the mortality from injury and poisoning among Aboriginal and Torres Strait Islander peoples towards that of the non-Aboriginal population by 25% b) Reduce hospital admissions for injury and poisoning among Aboriginal and Torres Strait Islander peoples towards that of the non-Aboriginal population by 25% c) Reduce the mortality from injury and poisoning of all males towards that of females by 20% d) Reduce the mortality from injury and poisoning among males aged 25-54 years from low socio-economic groups towards that of high socio-economic status males by 10%
3. In co-operation with road safety agencies, reduce transport-related mortality and morbidity	a) Keep the road crash fatality number below the 1992 number b) Reduce the road crash fatality rate in males aged 15-24 by 25% c) Reduce the road crash hospital admission rate by 25% d) Reduce the road crash hospital admission rate in males aged 15-24 years by 25%
4. In co-operation with National Occupational Health and Safety Commission, facilitate the reduction in the incidence of work-related injury through the optimum delivery of services, products and data from the health sector	To be developed
5. Reduce the incidence of work-related injury in the health care sector	To be developed
6. Reduce the number of work days lost due to home injury, through the transfer of injury prevention skills from workplaces to domestic residences	To be developed
7. Reduce the incidence of injury in paid and unpaid home-based care-givers	To be developed

Goal	Identified targets for individual goals
8. Reduce the mortality and morbidity associated with falls among older people	a) Reduce mortality from falls in people aged 65 years and over by 10% b) Reduce morbidity from falls in men and women 65 years and over by 10% and 20% respectively c) Reduce the rate of men and women 75 years and over admitted to hospital as a result of a fractured lower limb by 10% and 20% respectively
9. Reduce the mortality and morbidity associated with falls by children in the domestic environment and in playgrounds	a) Reduce the hospital admission rate of children aged 0-4 and 5-9 due to falls by 10% b) Reduce the hospital admission rate of children aged 5-9 due to fractures resulting from falls from playground equipment by 10%
10. Decrease the frequency and severity of injury associated with sport and recreational activities, while promoting healthy participation	Decrease hospital admissions resulting from sport and recreation-related injuries by 15%
11. Reduce mortality and morbidity due to interpersonal violence	a) Hold the current rate of homicide in men and women aged 20-39 b) Reduce death resulting from child abuse in children aged 0-9, by 25% c) Reduce deaths from partner-related homicide in women aged 18 and over
12. In co-operation with consumer affairs authorities, reduce the incidence and impact on health of injury caused by unsafe and defective products in the marketplace	To be developed
13. Reduce mortality and morbidity associated with burns and scalds	a) Reduce mortality from burns in persons aged 55 or more by 50% b) Reduce hospital admissions for burns/scalds in children aged 0-4 by 20% c) Increase the proportion of houses equipped with smoke detectors and earth leakage breakers
14. Reduce the morbidity in children due to poisoning	Reduce hospital admissions due to poisoning in children aged 0-4 by 20%
15. Reduce the rate of drowning	Reduce the deaths from drowning in children aged 0-4 by 50%
16. Reduce the rate of near drowning and the associated morbidity	Reduce the rate of near drowning in children aged 0-4 by 30%
17. Increase the access of injured patients to optimal trauma care	To be developed
18. Increase the access of people with trauma injuries to comprehensive rehabilitation programs and appropriate long-term care and community support	To be developed

Source: Better Health Outcomes for Australians ²

Appendix 2: Limitations in developing an injury profile

Developing a profile on injury is not easy. Some of the problems are:

- Comprehensive data are not readily available;
- What data are available, generally records small numbers of occurrences of particular events. The smaller the numbers, the more likely there is to have inexplicable fluctuations in results. One extra, major road accident for instance, can alter mortality and morbidity statistics dramatically in a small jurisdiction such as the ACT. Where changes in pattern from year to year are noted, time series are utilised to ensure a more reliable analysis;
- There are inconsistencies in recording of cause of death (eg. a person may be recorded as dying from pneumonia rather than from the severe fall which resulted in the person contracting pneumonia);
- There are also inconsistencies in coding hospital admissions (eg. a person may be coded as having a broken hip as the principal diagnosis, but that injury could have been caused by an epileptic seizure - a different coder may have coded principal diagnosis as "epilepsy" with the injury as the secondary diagnosis);
- There are inconsistencies and gaps in coding place of occurrence of an injury. This can be easily adjusted, but recorders will need to attend to this section of the forms, rather than writing "unknown".
- In many cases people treat themselves or seek treatment from outside the hospital system (eg medical practitioner, physiotherapist). There are no mechanisms for recording these occurrences.
- Another problem is with intentional injuries. People, women in particular, may not disclose (eg) domestic violence as the cause of injury. The injury may be recorded as (eg) a fall.

Appendix 3: Estimated hospital separations for principal diagnosis of injury or poisoning, ACT, 1993-94

Table 28: Estimated number of hospital separations for principal diagnosis of injury by sex, by age, ACT, 1993-94

Selected principal diagnosis of injury and poisoning	Sex	Age groups										Total
		0	1-4	5-14	15-24	25-34	35-44	45-54	55-64	65-74	75+	
Fracture of skull	M	3	2	14	94	65	28	12	2	3	3	226
	F	4	-	5	20	12	4	3	1	1	2	52
Fracture of neck and trunk	M	1	-	2	19	14	12	18	8	8	9	91
	F	-	-	1	3	11	6	6	9	9	18	63
Fracture of upper limb	M	-	30	143	91	60	25	23	10	6	1	389
	F	3	23	103	11	11	12	11	7	21	20	222
Fracture of lower limb	M	1	5	43	77	78	46	28	27	19	28	352
	F	-	2	16	19	18	19	28	30	45	132	309
Dislocation	M	-	1	3	21	13	15	2	1	-	-	56
	F	-	-	4	4	3	2	2	-	-	3	18
Sprains and strains of joints and adjacent muscles	M	-	1	2	19	29	17	18	10	4	-	100
	F	-	-	-	4	8	2	4	4	7	3	32
Intracranial injury, excluding those with skull fracture	M	1	13	23	24	11	8	4	4	3	6	97
	F	2	8	6	12	5	4	1	-	1	2	41
Internal injury of chest, abdomen, and pelvis	M	-	1	8	18	5	4	5	1	-	3	45
	F	-	-	4	6	1	2	2	2	2	3	22
Open wound of head, neck and trunk	M	-	26	5	16	8	2	1	1	-	1	60
	F	1	14	6	7	3	4	1	-	1	3	40
Open wound of upper limb	M	1	11	13	60	41	24	13	8	4	1	176
	F	-	4	4	18	11	5	5	4	1	3	55
Open wound of lower limb	M	-	2	12	15	8	6	6	3	1	-	53
	F	-	1	3	4	4	5	4	-	1	6	28
Injury to blood vessels	M	-	-	1	2	2	-	2	-	-	1	8
	F	-	-	-	-	-	-	-	-	-	-	0
Late effects of injuries, poisonings, other external causes	M	-	-	2	6	4	4	1	-	-	-	17
	F	-	-	1	4	1	2	-	-	-	-	8
Superficial injury	M	-	1	-	3	-	-	1	3	-	-	8
	F	1	1	2	-	-	-	-	1	1	1	7
Contusion with intact skin surface	M	1	1	13	14	5	3	2	-	1	-	40
	F	1	-	3	4	2	2	2	1	-	3	18
Crushing injury	M	-	1	1	-	-	-	1	-	-	-	3
	F	-	-	-	-	-	-	-	-	-	-	0
Effects of foreign body entering through orifice	M	1	14	7	8	2	6	2	4	4	2	50
	F	3	6	6	4	1	1	5	1	1	3	31
Burns	M	2	10	3	7	9	1	2	1	-	-	35
	F	4	3	4	5	1	3	1	1	-	1	23
Injury to nerves and spinal cord	M	-	1	2	14	5	5	3	4	3	-	37
	F	-	-	2	3	5	-	2	-	-	-	12
Certain traumatic complications and unspecified Injuries	M	-	3	2	18	11	4	4	2	1	1	46
	F	-	2	3	15	5	7	3	-	5	2	42
Poisoning by drugs, medicinal and biological substances	M	2	17	1	26	36	18	10	8	2	2	122
	F	2	13	12	76	30	35	15	5	5	7	200
	unk	-	-	-	-	-	-	-	1	-	-	1
Toxic effects of substances chiefly nonmedicinal as to source	M	1	6	2	2	8	5	2	2	1	-	29
	F	-	3	1	7	2	1	1	1	-	-	16
Other and unspecified effects of external causes	M	1	3	-	5	6	7	2	-	5	-	29
	F	3	3	2	2	7	3	3	4	4	2	33
Complications of surgical & medical care n.e.c.	M	6	3	15	36	32	44	38	60	80	58	372
	F	1	3	20	31	35	57	50	47	55	40	339
Total	M	21	152	317	595	452	284	200	159	145	116	2441
	F	25	86	208	259	176	176	149	118	160	254	1611

In all categories except poisoning by drugs, medicinal and biological substances, males account for substantially more occurrences than females. They particularly dominate in fractures, dislocations and sprains, open wounds and blood vessel injury, contusions, crushing injuries and injuries to the spinal cord and nerves. These injuries occur mainly between the ages of 15 and 34 years with the greatest time of risk being between the ages of 15 and 24 years. Any preventative program would need to take into account the fact that these age ranges represent the times of most physical activity, sporting interests, motor vehicle risk taking and home handyperson activities in males.

Areas of concern in females are the large numbers of fractures to upper limbs (5-14 year olds), to lower limbs (55-75+ year olds - refer section on falls), and poisoning by drugs, medicinal and biological substances (15-34 year olds - refer section on suicide).

Table 29: Estimated number of hospital separations for principal diagnosis of injury by sex, by length of stay (days), ACT, 1993-94

Selected principal diagnosis of injury and poisoning	Sex	Days								ALOS	MDN
		0	1	2	3	4-7	8-14	15-34	35+		
Fracture of skull	M	67	44	35	18	37	13	5	7	5.3	2
	F	18	2	13	4	6	4	3	2	7	2
Fracture of neck and trunk	M	1	11	8	9	28	18	13	3	10	6
	F	2	4	3	8	12	16	17	1	11.9	8
Fracture of upper limb	M	45	188	67	43	24	14	6	2	2.5	1
	F	25	105	34	10	30	7	7	4	3.9	1
Fracture of lower limb	M	12	44	46	37	96	55	35	27	10.1	5
	F	4	19	20	27	86	72	45	36	14.4	7
Dislocation	M	17	14	9	6	7	2	1	-	2.7	1
	F	5	2	3	2	4	1	-	1	5.1	2
Sprains and strains of joints and adjacent muscles	M	13	25	23	18	20	1	-	-	2.5	2
	F	3	9	5	4	6	2	3	-	4.1	2
Intracranial injury, excluding those with skull fracture	M	7	39	13	8	8	6	9	7	11.3	2
	F	4	17	6	2	3	4	3	2	7.5	1
Internal injury of chest, abdomen, and pelvis	M	2	3	5	5	10	12	5	3	10.2	5
	F	-	5	2	2	5	3	3	2	9.6	5.5
Open wound of head, neck and trunk	M	11	24	6	7	10	-	1	1	2.9	1
	F	8	15	7	2	7	1	-	-	2.4	1
Open wound of upper limb	M	19	91	36	9	16	3	2	-	2	1
	F	8	20	13	5	5	3	1	-	2.9	1
Open wound of lower limb	M	5	10	10	7	13	4	3	1	5.8	3
	F	1	3	5	3	5	7	2	2	11.8	4.5
Injury to blood vessels	M	1	2	3	-	-	1	1	-	5.6	2
	F	-	-	-	-	-	-	-	-	-	-
Late effects of injuries, poisonings, other external causes	M	3	1	5	4	2	1	1	-	3.5	2
	F	1	2	1	1	3	-	-	-	3.1	2.5
Superficial injury	M	3	4	-	1	-	-	-	-	1.3	1
	F	1	2	-	1	2	-	1	-	6.4	3
Contusion with intact skin surface	M	2	13	7	5	11	-	2	-	3.4	2
	F	1	4	2	1	7	1	1	1	6.6	4
Crushing injury	M	1	2	-	-	-	-	-	-	1	1
	F	-	-	-	-	-	-	-	-	-	-
Effects of foreign body entering through orifice	M	19	22	7	-	1	1	-	-	1.4	1
	F	12	16	2	1	-	-	-	-	1.1	1
Burns	M	-	6	6	4	8	3	6	2	8.7	4
	F	2	6	3	3	5	3	-	1	5.7	3
Injury to nerves and spinal cord	M	8	12	9	5	2	1	-	-	2	1
	F	1	5	3	2	1	-	-	-	2	1.5
Certain traumatic complications and unspecified Injuries	M	4	12	15	4	6	4	1	-	3.3	2
	F	6	12	6	5	6	6	1	-	4	2
Poisoning by drugs, medicinal and biological substances	M	7	38	27	14	21	10	4	1	4.1	2
	F	21	63	35	27	27	14	8	5	5.5	2
Toxic effects of substances chiefly nonmedicinal as to source	unk	-	-	-	-	1	-	-	-	4	4
	M	2	19	-	2	4	2	-	-	2.2	1
Other and unspecified effects of external causes	F	1	7	4	1	2	-	-	1	9.8	1.5
	M	3	8	5	4	3	5	-	1	5.9	2
Complications of surgical & med. care, not elsewhere classifiable	F	2	9	5	6	6	4	1	-	3.7	3
	M	45	36	35	31	87	81	40	17	8.6	5
Total	F	39	47	53	38	55	61	38	8	7.3	3
	M	297	668	377	241	414	237	135	72	5.8	2
	F	165	374	225	155	283	209	134	66	7.6	3

* ALOS = average length of stay, MDN = median length of stay
In the calculation of ALOS and MDN, same day patients were counted as one day

It can be seen that average length of stay (ALOS) for fractures, in particular those involving neck, trunk and lower limbs, is high. Since there is a high incidence of these fractures, it can be deduced that fractures account for a high percentage of bed days utilised and that the fractures being treated are of an acute nature.

Appendix 4: Estimated hospital separations for injury, by age, by sex, by statistical ACT area, 1993-94

When hospital separations for injury are divided into the place of residence of patients, no uniform pattern emerges. This is partly because population age patterns between areas differ. The following tables outline area profiles for injury separations in 1993-94.

Table 30: Estimated number of hospital separations for causes of injury by area of usual residence, by sex, by age, Central Canberra, 1993-1994

Selected external causes	Sex	Age										Total
		0	1-4	5-14	15-24	25-34	35-44	45-54	55-64	65-74	75+	
Motor vehicle traffic accidents	M	1	2	1	10	15	5	4	2	6	2	48
	F	-	-	-	6	9	2	3	3	1	2	26
Motor vehicle non-traffic accidents	M	-	-	-	-	2	-	-	-	-	-	2
	F	-	-	-	-	-	-	-	1	-	-	1
Other road vehicle accidents	M	-	-	5	1	6	-	1	-	-	-	13
	F	-	-	3	5	-	2	-	-	-	1	11
Water transport accidents	M	-	-	-	1	1	-	-	-	1	-	3
Vehicle accidents not elsewhere classifiable	M	-	-	-	2	1	1	-	-	-	-	4
	F	-	-	1	-	-	-	-	-	-	-	1
Accidental poisoning by drugs, medicinal substances & biologicals	M	-	1	-	1	3	2	-	4	-	-	11
	F	-	2	-	5	2	5	1	-	-	1	16
Accidental poisoning by other solid and liquid substances, gases and vapours	M	-	1	1	3	2	-	-	1	-	-	8
	F	-	1	-	3	-	-	-	1	-	-	5
Misadventure to patients during surgical and medical care	M	-	-	-	-	1	1	-	1	1	-	4
	F	-	-	-	-	2	-	2	1	-	1	6
Surgical & med procedures causing abnormal reaction or later complication w/out misadventure	M	1	2	2	5	10	7	14	39	53	27	160
	F	1	2	3	7	16	21	10	17	32	25	134
Accidental falls	M	-	6	20	9	10	9	5	8	15	13	95
	F	2	4	12	7	8	-	8	5	32	72	150
Accidents caused by fire and flames	M	-	-	-	-	-	-	1	-	-	-	1
Accidents due to natural and environmental factors	M	-	-	-	-	-	2	-	1	-	1	4
	F	-	-	1	-	-	1	-	1	-	-	3
Accidents caused by submersion, suffocation and foreign bodies	M	1	2	2	-	-	-	-	-	3	-	8
	F	-	1	1	-	-	-	1	-	-	-	3
Accidentally struck by falling object	M	-	2	1	-	1	1	-	1	-	-	6
Striking against or struck accidentally by objects or persons	M	-	2	4	1	3	-	-	-	2	-	12
	F	-	1	-	-	-	1	-	-	-	-	2
Caught accidentally in or between objects	M	-	2	1	-	1	-	-	-	1	-	5
	F	-	-	1	-	-	-	1	1	-	-	3
Accidents caused by machinery	M	-	1	1	3	2	1	-	1	1	-	10
Accidents caused by cutting and piercing instruments or objects	M	-	3	3	12	2	5	3	3	-	2	33
	F	-	-	-	2	2	2	1	-	-	-	7
Accidents caused by hot substance or object, caustic or corrosive material, & steam	M	-	1	-	1	-	-	-	-	1	-	3
	F	-	-	-	-	-	1	-	-	-	-	1
Overexertion and strenuous movements	M	-	-	2	28	6	2	-	1	1	-	40
	F	-	-	2	11	-	1	-	-	-	1	15
Other accidents	M	-	-	-	3	5	-	1	-	2	-	11
	F	-	-	-	1	3	-	-	-	2	1	7
Late effects of accidental injury	M	-	-	1	2	2	2	1	-	-	1	9
	F	-	1	-	4	1	2	1	-	-	-	9
Drugs, medicinal, & biological substances causing adverse effects in therapeutic use	M	-	-	-	3	3	2	3	7	6	11	35
	F	-	-	-	3	-	3	6	5	15	14	46
Suicide and self-inflicted injury	M	-	-	-	7	13	10	2	1	-	-	33
	F	-	-	6	17	8	7	2	1	-	-	41
Homicide and injury purposely inflicted by other persons	unk	-	-	-	-	-	-	-	1	-	-	1
	M	-	-	-	9	8	7	1	-	1	-	26
Other	F	-	1	-	5	1	1	1	-	-	-	9
	M	-	-	-	-	1	-	-	-	-	-	1
Total	M	3	25	44	101	98	57	36	70	94	57	585
	F	3	13	30	76	52	49	37	36	82	118	496

Despite the fact that Central Canberra has the third highest population (59,480), hospital separations are the highest in the ACT with a rate of 18.2 per 1,000 people. The ACT rate is 13.4. The main categories were accidental falls, mainly in the elderly, and surgical and medical procedures also in older

people. It is interesting to note that people in the 15-34 age groups also had a high number of separations (30.2% of total separations compared to 32.4% for people over 65 years). The numbers reflect the mix of ages within the area, and the high concentration of older people.

Table 31: Estimated number of hospital separations for causes of injury by area of usual residence, by sex, by age, Belconnen, 1993-1994

Selected external causes	Sex	Age										Total
		0	1-4	5-14	15-24	25-34	35-44	45-54	55-64	65-74	75+	
Motor vehicle traffic accidents	M	-	-	4	26	8	4	3	1	-	-	46
	F	-	1	-	10	5	1	4	-	-	1	22
Motor vehicle non-traffic accidents	M	-	-	2	1	-	-	-	1	-	-	4
	F	-	-	-	-	-	-	-	-	-	-	0
Other road vehicle accidents	M	-	-	9	4	4	3	1	1	-	-	22
	F	-	-	2	2	2	-	1	-	-	-	7
Water transport accidents	M	-	-	-	2	1	-	-	-	-	-	3
Air and space transport accidents	M	-	-	-	-	-	1	-	-	-	-	1
Vehicle accidents not elsewhere classifiable	M	-	-	5	2	-	1	-	-	-	-	8
	F	-	-	2	1	1	2	-	-	-	-	6
Accidental poisoning by drugs, medicinal substances & biologicals	M	-	3	-	1	4	1	1	-	-	-	10
	F	-	1	-	14	1	2	1	-	-	-	19
Accidental poisoning by other solid and liquid substances, gases and vapours	M	-	4	-	-	1	-	-	-	-	-	5
	F	-	1	-	7	-	-	-	3	-	-	11
Misadventure to patients during surgical and medical care	M	-	-	-	-	-	-	1	-	2	1	4
	F	-	-	-	1	-	1	4	-	-	-	6
Surgical & med procedures causing abnormal reaction or later complication w/out misadventure	M	4	1	4	9	10	13	18	23	24	17	123
	F	1	1	8	9	11	33	22	19	21	9	134
Accidental falls	M	2	13	29	18	9	14	10	4	4	9	112
	F	3	14	20	4	8	3	10	3	8	23	96
Accidents caused by fire and flames	M	-	-	-	-	2	-	-	-	-	-	2
	F	-	-	-	-	-	-	-	-	-	-	0
Accidents due to natural and environmental factors	M	-	1	-	1	1	-	-	-	1	-	4
	F	-	1	-	-	-	1	-	1	-	-	3
Accidents caused by submersion, suffocation and foreign bodies	M	-	3	1	6	-	-	-	1	-	1	12
	F	-	1	1	1	-	-	-	-	-	-	3
Accidentally struck by falling object	M	-	-	-	1	-	1	2	1	-	-	5
	F	-	-	-	-	-	-	-	-	-	-	0
Striking against or struck accidentally by object or persons	M	-	-	3	1	-	-	-	-	-	-	4
	F	-	-	1	-	1	-	-	-	-	-	2
Caught accidentally in or between objects	M	1	1	1	1	-	-	-	-	-	-	4
	F	-	3	-	-	-	-	-	-	-	-	3
Accidents caused by machinery	M	-	-	-	2	-	1	2	-	1	-	6
Accidents caused by cutting and piercing instruments or objects	M	-	5	5	11	10	7	3	1	-	-	42
	F	-	3	2	3	2	1	2	-	-	-	13
Accidents caused by hot substances, caustic or corrosive material & steam	M	-	1	1	1	-	-	-	-	-	-	3
	F	1	-	1	-	-	1	-	-	-	-	3
Overexertion and strenuous movements	M	-	-	9	23	9	8	-	2	-	-	51
	F	-	-	2	6	3	-	-	-	-	-	11
Other accidents	M	-	1	1	7	2	2	3	-	-	-	16
	F	-	-	1	1	-	2	3	1	1	-	9
Late effects of accidental injury	M	-	-	-	5	7	5	-	3	-	-	20
	F	-	3	4	1	2	2	1	-	-	-	13
Drugs, medicinal, & biological substances causing adverse effects in therapeutic use	M	-	2	5	3	3	8	6	2	5	8	42
	F	1	-	2	6	8	2	11	6	6	7	49
Suicide and self-inflicted injury	M	-	-	-	13	7	5	5	1	-	1	32
	F	-	-	1	24	6	8	6	1	-	-	46
Homicide and injury purposely inflicted by other persons	M	1	-	-	7	7	4	2	-	-	-	21
	F	1	1	-	-	-	2	-	-	-	-	4
Total	M	8	35	79	145	85	78	57	41	37	37	602
	F	7	30	47	90	50	61	65	34	36	40	460

Belconnen has the largest population of the areas with 87,556 people, but only the second highest number of hospital separations. This represents a separation rate of 12.1 (4th highest rate). Nearly 60 per cent of separations occurred for people aged 5 to 44, with very few elderly people represented.

Table 32: Estimated number of hospital separations for causes of injury by area of usual residence, by sex, by age, Tuggeranong, 1993-1994

Selected external causes	Sex	Age										Total
		0	1-4	5-14	15-24	25-34	35-44	45-54	55-64	65-74	75+	
Motor vehicle traffic accidents	M	-	1	5	12	13	7	1	1	-	-	40
	F	-	-	2	6	3	1	1	1	-	-	14
Motor vehicle non-traffic accidents	M	-	-	3	4	2	1	-	-	-	-	10
	F	-	-	-	-	-	-	-	-	-	-	0
Other road vehicle accidents	M	-	-	5	1	-	1	1	1	-	-	9
	F	-	-	7	4	1	-	-	1	-	-	13
Water transport accidents	M	-	-	-	-	1	1	-	1	-	-	3
Air and space transport accidents	M	-	-	-	-	-	1	-	-	-	-	1
Vehicle accidents not elsewhere classifiable	M	-	-	10	2	-	-	-	-	-	-	12
	F	-	-	3	-	1	-	-	-	-	-	4
Accidental poisoning by drugs, medicinal substances & biologicals	M	-	6	-	-	1	-	2	-	-	-	9
	F	-	2	-	3	-	2	1	-	-	-	8
Accidental poisoning by other solid and liquid substances, gases and vapours	M	-	1	-	-	-	-	-	-	-	-	1
	F	-	-	-	-	-	-	1	-	-	-	1
Misadventure to patients during surgical and medical care	M	-	-	-	-	-	1	-	-	-	-	1
	F	-	-	-	1	1	1	-	1	-	-	4
Surgical & medical procedures causing abnormal reaction or later complication without misadventure	M	2	4	4	11	16	18	12	16	17	6	106
	F	1	4	6	6	23	20	19	8	12	4	103
Accidental falls	M	3	15	30	13	16	9	8	1	1	5	101
	F	2	11	32	4	5	4	6	3	3	9	79
Accidents caused by fire and flames	M	-	-	-	2	1	-	-	-	-	-	3
	F	-	-	-	2	-	-	-	-	-	-	2
Accidents due to natural and environmental factors	M	-	2	-	1	2	2	-	-	-	-	7
	F	-	-	-	1	-	1	-	-	1	1	4
Accidents caused by submersion, suffocation and foreign bodies	M	-	7	3	2	-	1	1	-	1	-	15
	F	5	5	2	1	-	1	2	-	-	-	16
Accidentally struck by falling object	M	-	1	1	1	-	-	-	-	-	-	3
	F	-	-	-	-	-	1	-	-	-	-	1
Striking against or struck accidentally by object or person	M	1	2	5	4	3	4	1	-	-	-	20
	F	-	1	-	-	-	1	-	-	-	-	2
Caught accidentally in or between objects	M	-	2	-	-	1	-	-	1	-	-	4
	F	-	1	-	-	-	-	-	-	-	-	1
Accidents caused by machinery	M	-	-	-	2	5	1	2	-	-	-	10
Accidents caused by cutting and piercing instruments or objects	M	-	5	2	15	13	5	5	-	1	-	46
	F	-	1	2	3	5	4	1	-	1	-	17
Accidents caused by hot substance or object, caustic or corrosive material, & steam	M	-	2	-	-	1	-	1	-	-	-	4
	F	2	2	-	2	-	1	-	-	-	-	7
Overexertion and strenuous movements	M	-	-	11	16	17	7	6	1	1	-	59
	F	-	-	2	3	2	2	-	-	-	-	9
Other accidents	M	-	-	2	5	5	2	1	-	-	1	16
	F	-	1	1	1	3	-	1	-	1	-	8
Late effects of accidental injury	M	-	1	4	5	9	3	1	-	-	1	24
	F	-	-	2	2	4	2	1	-	-	1	12
Drugs, medicinal, & biological substances causing adverse effects in therapeutic use	M	3	-	5	2	3	2	2	1	4	4	26
	F	1	-	-	3	5	6	2	5	4	2	28
Suicide and self-inflicted injury	M	-	-	-	4	8	-	1	-	1	-	14
	F	-	-	1	12	12	11	3	1	-	1	41
Homicide and injury purposely inflicted by other persons	M	1	-	1	4	7	2	-	-	-	-	15
	F	3	-	-	1	-	1	-	-	-	-	5
Other	M	-	-	-	-	1	-	-	-	-	-	1
	F	-	-	-	-	-	-	-	1	-	-	1
Total	M	10	49	92	106	125	68	45	23	26	17	561
	F	14	28	60	55	65	59	38	21	22	18	380

Tuggeranong has both the third highest population (86,942) and the third highest number of hospital separations in 1993-94. Tuggeranong separation rate is 10.8 (5th highest rate). Over half (53.5%) of the separations occur in the 5 to 34 age ranges, reflecting the younger population living in the area.

Table 33: Estimated number of hospital separations for causes of injury by area of usual residence, by sex, by age, Woden Valley, 1993-1994

Selected external causes	Sex	Age										Total
		0	1-4	5-14	15-24	25-34	35-44	45-54	55-64	65-74	75+	
Motor vehicle traffic accidents	M	-	-	1	9	3	-	1	1	-	-	15
	F	-	-	-	3	1	1	1	2	-	2	10
Motor vehicle non-traffic accidents	M	-	-	-	-	-	-	-	-	1	-	1
Other road vehicle accidents	M	-	1	4	2	1	1	1	-	-	-	10
	F	-	-	2	-	2	-	-	-	-	-	4
Vehicle accidents not elsewhere classifiable	M	-	-	2	1	1	-	-	-	-	-	4
	F	-	-	1	-	-	-	1	-	-	1	3
Accidental poisoning by drugs, medicinal substances & biologicals	M	-	1	-	-	-	1	-	-	-	-	2
	F	-	3	-	-	1	-	1	-	-	1	6
Accidental poisoning by other solid and liquid substances, gases and vapours	M	-	-	-	-	-	-	-	1	-	-	1
	F	-	-	-	-	-	-	-	-	-	-	0
Misadventure to patients during surgical and medical care	M	-	-	-	-	-	1	1	-	-	-	2
	F	-	-	-	-	-	-	-	-	-	1	1
Surgical & medical procedures causing abnormal reaction or later complication without misadventure	M	-	1	-	4	2	4	6	17	22	17	73
	F	-	-	1	2	6	5	16	5	13	14	62
Accidental falls	M	-	4	13	13	8	4	1	5	4	13	65
	F	-	4	8	3	1	1	5	4	5	32	63
Accidents due to natural and environmental factors	M	-	-	-	-	-	-	-	-	-	-	0
	F	-	2	-	1	-	2	-	-	-	-	5
Accidents caused by submersion, suffocation and foreign bodies	M	-	2	-	-	-	2	1	-	-	-	5
	F	-	-	-	-	-	-	2	-	-	1	3
Striking against or struck accidentally by object or persons	M	-	-	2	-	1	1	-	-	-	-	4
	F	-	1	1	-	-	-	-	-	-	-	2
Caught accidentally in or between objects	M	-	-	-	-	-	-	1	-	-	-	1
	F	-	-	-	-	-	-	-	-	-	-	0
Accidents caused by machinery	M	-	-	1	-	2	-	-	1	-	-	4
Accidents caused by cutting and piercing instruments or objects	M	1	-	2	6	5	2	-	-	1	-	17
	F	-	-	2	-	1	-	1	2	-	1	7
Accidents caused by hot substance , caustic or corrosive material ,& steam	M	-	2	-	-	-	-	-	-	-	-	2
	F	-	-	-	-	-	-	-	-	-	1	1
Overexertion and strenuous movements	M	-	-	4	13	5	1	4	2	-	-	29
	F	-	-	-	1	2	1	-	-	-	-	4
Other accidents	M	-	-	1	-	-	3	3	2	-	-	9
	F	1	-	-	-	-	1	1	2	-	-	5
Late effects of accidental injury	M	-	-	-	2	2	1	-	1	1	-	7
	F	-	-	1	1	1	-	1	1	-	1	6
Drugs, medicinal,& biological substances causing adverse effects in therapeutic use	M	1	2	-	1	2	-	-	2	6	2	16
	F	-	1	1	-	4	4	2	2	3	5	22
Suicide and self-inflicted injury	M	-	-	-	2	2	3	-	-	-	-	7
	F	-	-	-	8	1	1	3	-	-	-	13
Homicide and injury purposely inflicted by other persons	M	-	-	-	1	-	1	1	-	-	-	3
	F	-	-	-	1	-	1	-	-	-	-	2
Other	M	-	-	-	-	-	-	-	-	-	-	0
	F	-	-	-	-	-	-	1	-	-	-	1
Total	M	2	13	30	54	34	25	20	32	35	32	277
	F	1	11	17	20	20	17	35	18	21	60	220

Woden has both the fourth highest population of the areas (33,350) and the fourth highest number of hospital separations. However the separation rate is the second highest at 14.9. Males in the 15 to 24 age range and females 75 years and over had the most number of separations. There were very few separations in children under 4 years of age.

Table 34: Estimated number of hospital separations for causes of injury by area of usual residence, by sex, by age, Weston Creek, 1993-1994

Selected external causes	Sex	Age										Total
		0	1-4	5-14	15-24	25-34	35-44	45-54	55-64	65-74	75+	
Motor vehicle traffic accidents	M	-	2	-	9	5	-	1	-	-	-	17
	F	-	-	-	1	-	-	3	1	-	-	5
Motor vehicle non-traffic accidents	M	-	-	-	1	-	-	-	-	-	-	1
Other road vehicle accidents	M	-	-	2	1	1	-	1	-	-	1	6
	F	-	-	1	-	2	-	-	-	-	-	3
Water transport accidents	M	-	-	-	-	-	-	-	-	-	-	0
Air and space transport accidents	M	-	-	-	-	1	-	-	-	-	-	1
Vehicle accidents not elsewhere classifiable	M	-	-	-	3	1	-	1	-	-	1	6
	F	-	-	-	-	-	-	-	-	-	-	0
Accidental poisoning by drugs, medicinal substances and biologicals	M	-	2	-	-	-	2	-	-	-	-	4
	F	-	-	1	1	-	-	-	-	-	-	2
Accidental poisoning by other solid and liquid substances, gases and vapours	M	-	-	-	-	-	-	-	-	-	-	0
	F	-	-	-	-	-	-	-	1	-	-	1
Misadventure to patients during surgical and medical care	M	-	-	-	-	-	1	-	1	-	-	2
	F	-	-	-	-	-	-	-	-	-	-	0
Surgical & medical procedures causing abnormal reaction or later complication without misadventure	M	-	-	5	9	3	9	7	3	4	6	46
	F	-	1	-	10	4	12	12	6	9	5	59
Accidental falls	M	-	2	5	3	1	4	3	5	1	2	26
	F	-	-	5	2	1	3	5	6	5	15	42
Accidents caused by fire and flames	M	-	-	1	1	-	-	-	-	-	-	2
Accidents due to natural and environmental factors	M	-	-	3	-	-	-	-	1	-	-	4
	F	-	1	-	1	-	1	1	-	1	-	5
Accidents caused by submersion, suffocation and foreign bodies	M	1	2	1	1	-	-	-	1	-	-	6
	F	1	-	-	1	-	-	-	-	-	2	4
Accidentally struck by falling object	M	-	-	-	-	-	-	1	-	-	-	1
	F	-	-	-	-	-	-	-	-	-	-	0
Striking against or struck accidentally by object or persons	M	-	1	1	1	1	-	-	-	-	-	4
	F	-	-	-	-	-	-	-	-	-	-	0
Caught accidentally in or between objects	M	-	1	-	-	-	-	-	-	-	-	1
	F	-	-	-	1	-	-	-	-	-	-	1
Accidents caused by machinery	M	-	-	1	-	-	1	2	-	1	-	5
Accidents caused by cutting and piercing instruments or objects	M	-	1	1	7	4	-	1	1	-	-	15
	F	-	-	2	-	1	-	-	-	-	-	3
Accidents caused by hot substance or object, caustic or corrosive material or steam	M	1	2	1	-	-	-	-	-	-	-	4
	F	-	-	1	-	-	-	-	-	-	-	1
Overexertion and strenuous movements	M	-	-	7	11	6	2	3	1	-	-	30
	F	-	-	-	2	2	-	-	-	-	-	4
Other accidents	M	-	-	-	-	-	1	3	1	-	1	6
	F	-	-	-	-	-	-	1	2	-	-	3
Late effects of accidental injury	M	-	-	-	2	1	2	1	3	-	-	9
	F	-	-	-	1	-	-	-	1	-	-	2
Drugs, medicinal, & biolog. substances causing adverse effects in therapeutic use	M	-	-	1	-	1	2	-	1	4	3	12
	F	-	1	-	2	1	2	2	1	1	5	15
Suicide and self-inflicted injury	M	-	-	-	-	-	-	-	2	-	-	2
	F	-	-	3	4	1	5	-	1	2	-	16
Homicide and injury purposely inflicted by other persons	M	-	-	-	2	-	1	1	-	-	-	4
	F	-	-	-	-	-	-	-	-	-	-	0
Other	M	-	-	-	-	-	-	-	-	-	-	0
	F	-	-	-	-	-	-	-	-	-	-	0
Total	M	2	13	29	51	25	25	25	20	10	14	214
	F	1	3	13	26	12	23	24	18	19	27	166

Weston Creek had both the fifth largest population of the areas (25,839) and the fifth highest number of hospital separations. The separation rate was 14.7 which is the third highest rate for the ACT. Males aged 5 to 24 and females aged 15 to 24 had the highest number of separations.

The female to male ratio of suicide attempts (8:1) is markedly higher than for other areas (from 2:1 to 4:3) and needs to be monitored. In 1992-93 it was 7:2 (total 18 attempts) and in 1991-92 it was 9:5 (total of 14 attempts) for the area.

Table 35: Estimated number of hospital separations for causes of injury by area of usual residence, by sex, by age, Outer Canberra 1993-1994

Selected external causes	Sex	Age										Total
		0	1-4	5-14	15-24	25-34	35-44	45-54	55-64	65-74	75+	
Motor vehicle traffic accidents	M	-	1	-	3	2	1	-	-	-	-	7
	F	-	-	-	2	1	-	-	-	-	-	3
Motor vehicle non-traffic accidents	M	-	-	-	1	-	-	-	-	-	-	1
	F	-	-	-	-	-	-	-	-	-	-	0
Other road vehicle accidents	M	-	-	1	1	1	-	-	-	-	-	3
	F	-	-	-	1	-	2	-	-	-	-	3
Water transport accidents	M	-	-	-	-	-	-	-	-	-	-	0
Air and space transport accidents	M	-	-	-	-	-	-	-	-	-	-	0
Vehicle accidents not elsewhere classifiable	M	-	-	-	-	1	-	-	-	-	-	1
	F	-	-	-	-	-	-	-	-	-	-	0
Accidental poisoning by drugs, medicinal substances & biologicals	M	-	-	-	-	-	-	-	-	-	-	0
	F	-	-	-	1	-	-	-	-	-	-	1
Accidental poison by other solid and liquid substances, gases and vapours	M	-	-	-	-	-	-	-	-	-	-	0
	F	-	-	-	-	-	-	-	-	-	-	0
Misadventure to patients during surgical and medical care	M	-	-	-	-	-	-	-	-	-	-	0
	F	-	-	-	-	-	-	-	-	-	-	0
Surgical and medical procedures causing abnormal reaction or later complication without misadventure	M	-	-	-	2	-	1	1	1	-	-	5
	F	1	-	1	1	1	-	3	1	1	-	9
Accidental falls	M	-	-	2	2	2	-	-	-	1	-	7
	F	1	-	-	1	-	-	-	-	-	-	2
Accidents caused by fire and flames	M	-	-	-	-	-	-	-	-	-	-	0
	F	-	-	-	-	-	-	-	-	-	-	0
Accidents due to natural and environmental factors	M	-	-	-	-	-	-	-	-	-	-	0
	F	-	-	-	-	-	1	-	-	-	-	1
Accidents caused by submersion, suffocation and foreign bodies	M	-	-	-	-	2	-	-	-	-	-	2
	F	-	-	-	-	-	-	-	-	-	-	0
Accidentally struck by falling object	M	-	-	-	-	-	1	-	-	-	-	1
	F	-	-	-	-	-	-	-	-	-	-	0
Striking against or struck accidentally by objects or persons	M	-	-	-	-	-	-	-	-	-	-	0
	F	-	-	-	-	-	-	-	-	-	-	0
Caught accidentally in or between objects	M	-	-	-	-	-	-	-	-	-	-	0
	F	-	-	-	-	-	-	-	-	-	-	0
Accidents caused by machinery	M	-	-	-	-	-	-	-	-	-	-	0
Accidents caused by cutting and piercing instruments or objects	M	-	-	-	1	-	-	-	-	-	-	1
	F	-	1	-	-	-	-	-	-	-	-	1
Accidents caused by hot substance or object, caustic or corrosive material, and steam	M	-	1	-	-	-	-	-	-	-	-	1
	F	-	-	-	-	-	-	-	-	-	-	0
Overexertion and strenuous movements	M	-	-	-	2	2	-	-	-	-	-	4
	F	-	-	-	-	-	-	-	-	-	-	0
Other accidents	M	-	-	-	-	-	-	-	-	-	-	0
	F	-	-	-	1	-	-	-	-	-	-	1
Late effects of accidental injury	M	-	-	-	1	1	1	-	-	-	-	3
	F	-	-	-	-	-	-	-	-	-	-	0
Drugs, medicinal, & biological substances causing adverse effects in therapeutic use	M	-	-	-	-	1	-	-	-	-	-	1
	F	-	-	1	-	1	-	-	-	-	-	2
Suicide and self-inflicted injury	M	-	-	-	-	1	1	-	-	-	-	2
	F	-	-	-	-	-	-	-	-	-	-	0
Homicide and injury purposely inflicted by other persons	M	-	-	-	1	-	2	-	-	-	-	3
	F	1	-	-	-	-	-	-	-	-	-	1
Other	M	-	-	-	-	1	-	-	-	-	-	1
	F	-	-	-	-	-	-	-	-	-	-	0
Total	M	-	2	3	14	14	7	1	1	1	-	43
	F	3	1	2	7	3	3	3	1	1	-	24

There were only 7,309 people in this area, most of whom lived in the new area of Gungahlin. The separation rate was the lowest for the ACT at 9.2 per 1,000 people. Since the numbers are so small, little can be gained by trying to analyse the separation data, other than to note that only eight separations occurred in the over 45 age groups, reflecting the younger age of the residents. The profile for this area can be expected to change as Gungahlin becomes more established.

Appendix 5: Methodologies

Years of potential life lost - ABS definition

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

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

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

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

YPLL was standardised for age using the following formula:

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

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

$$C_x = \frac{N_{xS}}{N_s} \cdot \frac{1}{N_x} \cdot N$$

N = Number of persons aged 1-75 years in the 1993 population

N_x = Number of persons aged x years in the 1993 population

N_{xS} = Number of persons aged x years in the standard population

N_s = Number of persons aged 1-75 years in the standard population

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

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

Rates

Rates per 100,000 are calculated as follows:

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

Reference: Australian Bureau of Statistics. *1993 Causes of Death Australia. Catalogue No. 3303.0.*