Monograph Series Number 6

Asthma in the ACT

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Contents

Asthma in the ACT

1. Introduction

Asthma is a condition marked by recurrent attacks of dyspnoea (shortness of breath), with wheezing due to spasmodic constriction of the bronchi (the larger passages conveying air between the lungs). It can be triggered by dust mites, animals, moulds, environmental tobacco smoke and other allergens - as well as by exercise. Those with asthmatic parents may have a genetic predisposition to develop asthma[1].

Australia has one of the highest rates of asthma in the world[2]. Australia (and New Zealand) experience higher prevalence, morbidity and mortality rates from asthma than any other developed countries. It is a common reason for the admission of children to hospital in Australia[3] and its prevalence is believed to be increasing, particularly in children and adolescents[4]. Asthma can show itself in a wide range of clinical symptoms. This makes the development of a single definition and a single diagnostic tool difficult.

The management of asthma is an important public health issue because of the personal burden it places on its sufferers and the financial burden it places on the health system. In 1997, 715 Australians died from asthma[5]. Figures from 1991 put the estimated cost of asthma to the Australian community at between $585-720 million (around $320 million in medical related costs and around $260-$400 million in indirect costs - such as lost productivity due to worker absenteeism)[6]. Recognition of the importance of asthma has lead to the development of ACT health goals and targets for asthma (refer Appendix 1).

One of the major concerns regarding asthma is our inability to adequately describe the prevalence and incidence of asthma in the population. Furthermore, diagnosis, especially in young children, is not easy. Mortality and hospital morbidity data provide partial indicators for diagnosed asthma prevalence, but the data refer to acute episodes only and do not provide a true reflection of prevalence or incidence. In addition, hospital admissions are governed by such things as admitting protocols (wherever possible, patients are stabilised in the Accident and Emergency Department and not admitted). There are no comprehensive data available on asthma treatment by general practitioners. As most asthma treatment and management takes place in general practice, this is a major deficit in estimating asthma prevalence. The aim of this monograph is to provide current data on morbidity (illness) and mortality (death) due to asthma in the ACT. Where possible, comparisons to Australia have been made. In doing so, it updates a previous Epidemiology Unit publication: *The Epidemiology of Asthma in the ACT*[7].

2 . Prevalence

The prevalence of a particular condition refers to the number of people in a community with that disease at a given time. The prevalence or level of asthma in our communities is difficult to ascertain with great accuracy. Most asthmatics see their local general practitioner for asthma treatment - and comprehensive data on the number of consultations with GP's relating to asthma is not available.

Still, reasonable prevalence rates for Australia and the ACT have been obtained by surveying samples of the Australian population and through our participation in an international study on childhood asthma, allergic rhinoconjuntivtis and atopic eczema.

2.1 International Study of Asthma and Allergies in Childhood (ISAAC)

The International Study of Asthma and Allergy in Childhood (ISAAC) is a collaborative study. With a common methodology, a number of centres from around the world have aimed to obtain information on the prevalence and severity of asthma, rhinitis and eczema in children.
The Australian arm of the study estimated a prevalence rate for asthma of about 24.6% in 6-7 year olds and 29.4% in 13-24 year olds[8]. This average prevalence rate places Australia behind the UK and New Zealand as having the highest prevalence of asthma for that age group in the world[9]. The USA had a prevalence rate of around 20-25% and Sweden between 10-15%. Countries such as Greece, Georgia, Romania, Albania and Indonesia all had prevalence rates under 5%.

2.2 National Health Survey

The National Health Survey (NHS), conducted by the Australian Bureau of Statistics, collects information from about 54,000 people across Australia. The survey, conducted every 5 years, is designed to provide benchmark information on health and health related issues. The last NHS was conducted throughout the 12 month period February 1995 to January 1996.

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

**Table 1: Estimated % of self reported asthmatics, ACT & Aust., 1990 & 1995
National Health Surveys**

	1990 NHS	1995 NHS
ACT	9.7%	11.6%
AUST	8.5%	11.3%

Source: National Health Survey: Asthma and other respiratory conditions ABS Cat. No. 4373.0 (1991 & 1998).

From Table 1 it can be seen that the ACT has had consistently higher levels of self reported asthmatics than in Australia generally. An estimated 11.6% of ACT residents reported to be asthmatic in 1995 which was an increase on the 1990 proportion of 9.7%. The trend for asthma prevalence is for an increase, with the rest of Australia catching up to the ACT rate.

The National Health Survey asked participants a number of questions on health related actions (such as visiting the doctor) in the two weeks prior to interview. Table 2 shows some of the results of those questions from persons in the ACT who self reported asthma. Asthma may not have been the reason the action was taken however.

**Table 2: Health related actions taken in the 2 weeks prior to interview, persons with
self reported asthma, ACT, 1995**

TYPE OF ACTION	ACT
Used medication	78.5%
Visited the doctor	28.2%
Took days off work/school	14.6%
Went to hospital	2.3%

Source: National Health Survey 1995: confidentailised unit record file

3. Morbidity

There is evidence that asthma prevalence and incidence in Australia are increasing. The increase in asthma deaths in Australia in the 1980s is of concern because it may be due a real increase in the prevalence of asthma.

Together with mortality data, morbidity patterns provide an insight to the asthma profile of ACT residents. This report uses hospital service utilisation data to look at acute asthma morbidity. Care must be taken in extrapolating hospital data to the community - as hospitalisation patterns may not reflect community-wide patterns[10].

3.1 Hospital Separations

Data from the ACT hospitals - The Canberra Hospital (formerly Woden Valley Hospital), Calvary Public Hospital, Calvary Private Hospital and John James Private Hospital - is routinely provided to the ACT Department of Health of Health and Community Care. The data provided by the hospitals includes demographic details as well as coded clinical diagnosis for each hospital admission. Diseases are currently coded to the *International Classification of Diseases -*

Clinical Modifications, *Version 9*. A principal diagnosis is always identified and coded for each stay. Secondary diagnosis may be coded.

Hospital data is often expressed as separations - that is, the number of people separated (leaving) the hospital with a particular condition in a given time frame.

There were 1,901 separations in ACT hospitals for the period 1996-97 (2,459 in 1997-98). These totals include cases where asthma was a principal or secondary diagnosis. It does not include people being treated in the Emergency Department who, when stabilised, are not admitted. There is a trend for the numbers of principal diagnoses to decline, but secondary diagnoses to increase. This trend may be assisted by an increased awareness of asthma and early intervention on onset of symptoms, due to the work of the National Asthma Campaign. The post 1996-97 increase may be due to the increased number of secondary diagnoses that are coded into the hospital data. Before the 1996-97 financial year, only 4 secondary diagnoses were coded. Since then, up to 14 secondary diagnoses have been coded. A secondary diagnosis does not necessarily mean that the asthma is an important contributing factor in the person's current hospitalisation.

**Table 3: Hospital separations, by principal and secondary diagnosis, ACT, 1991- 1998**

	1991-92	1992-93	1993-94	1994-95	1995-96	1996-97*	1997-98*
Principle diagnosis	706	977	708	638	629	551	505
Secondary diagnosis	326	301	286	661	882	1,350	1,954
Princ. or secondary diagnosis	1,032	1,278	994	1,299	1,511	1,901	2,459

Includes readmissions *
Source: ACT Hospital Morbidity Data, 1991-1997.

Figure 1 shows a decrease in asthma separations over the period 1992-93 to 1996-97. Also, less persons with a primary diagnosis of asthma are being separated from ACT hospitals as a percentage of all hospital separations.

Figure 1: % of total hospital separations with principal diagnosis of asthma, ACT, 1992-97.
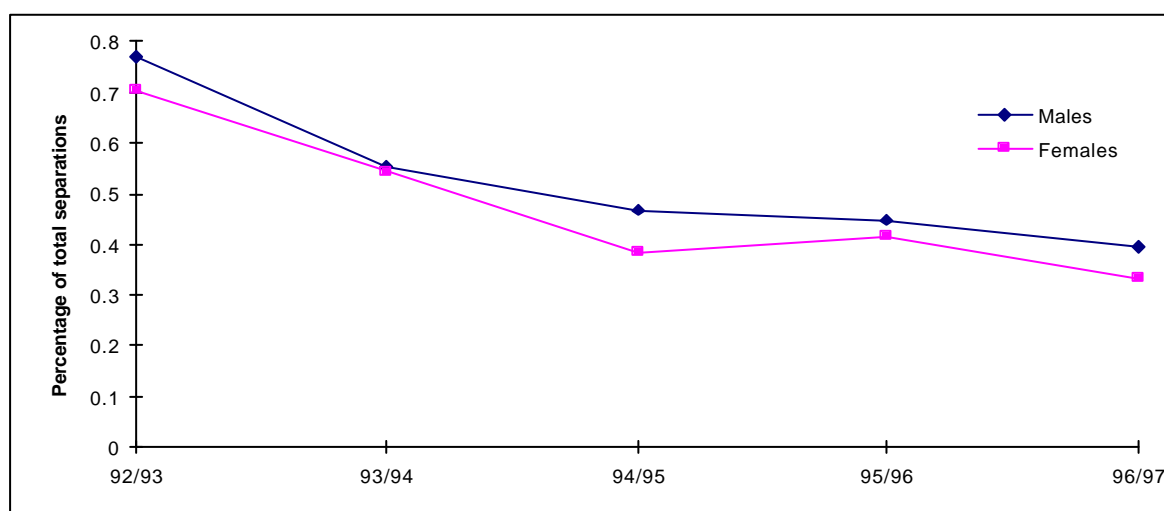
Source: ACT Hospital Morbidity Data, 1991-1997.

The age distribution for persons with a primary diagnosis of asthma is different to that of hospital separations for all causes. From Figure 2 it can be seen that the majority of persons who were separated from ACT hospitals with a primary diagnosis of asthma were in the youngest age group. This in contrast to that of all hospital separations. The average age for all causes was 42.5 years. The average age for those with asthma was 25 years.

Figure 2: Percentage of separations in each age group, asthma & all separations, ACT, 1997-98
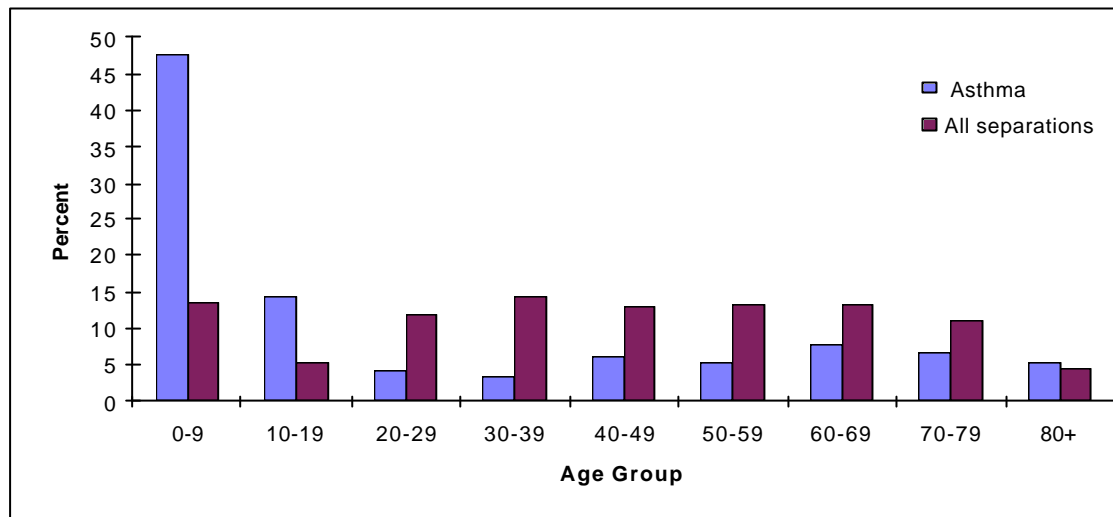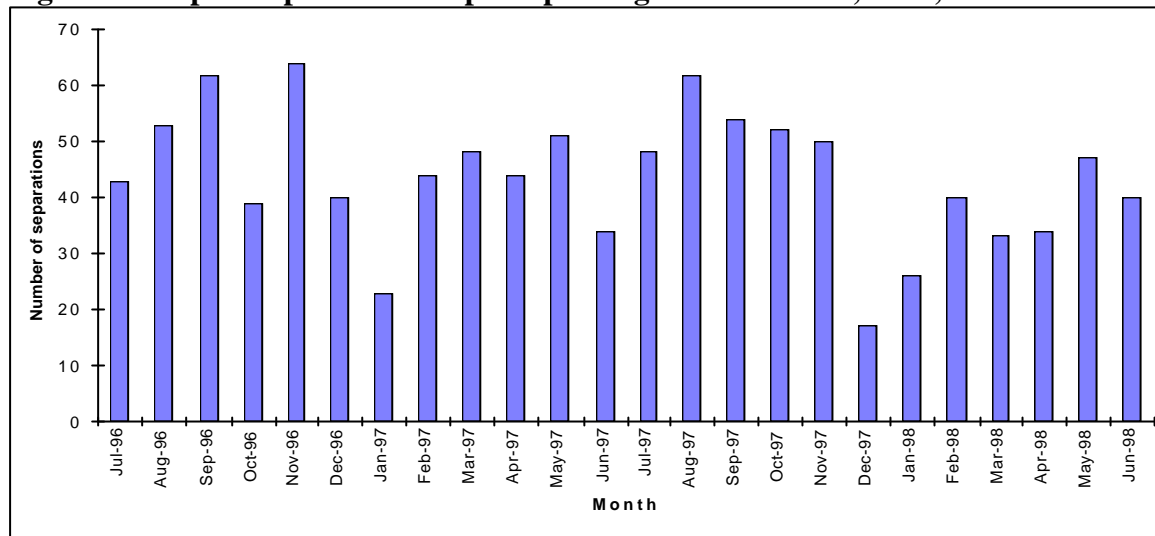

Source: ACT Hospital Morbidity Data, 1997-98

In 1997-98, approximately 49 percent of those separated from ACT hospitals with a primary diagnosis of asthma were male. This is slightly lower than for 1996-97, in which 54 percent of the separations were for males.

The average length of stay in hospital for persons with a primary diagnosis of asthma was 3.0 days, in 1996-97 and 3.7 days in 1997-98. It is estimated that approximately 10 percent of all separations for asthma were for non-ACT residents.

The figure below shows the number of separations by month of admission. No clear trend emerges for admissions in individual months. The seasons of Spring and Autumn seem to result in a higher number of separations however.

Figure 3: Hospital separations for principal diagnosis of asthma, ACT, 1996-98.


Years stated are financial years.
Source: ACT Hospital Morbidity Data, 1996-1998.

The geographical distribution of ACT residents separated from ACT hospitals with a primary diagnosis of asthma is shown in Figure 4 The distribution is influenced by the size of the population and the age structure of the different areas. For example, Tuggeranong has a high proportion of young families and is comparatively densely populated. Consequently, it would be expected that it would account for a large percentage of the separations. This information is useful to those planning asthma services in the ACT. Figure 4 however makes allowance for age and size differences through indirect standardisation of rates, thus permitting valid comparisons between subdivisions.

Figure 4: Rate of principal diagnosis of asthma in ACT subdivisions and total ACT, 1997-98
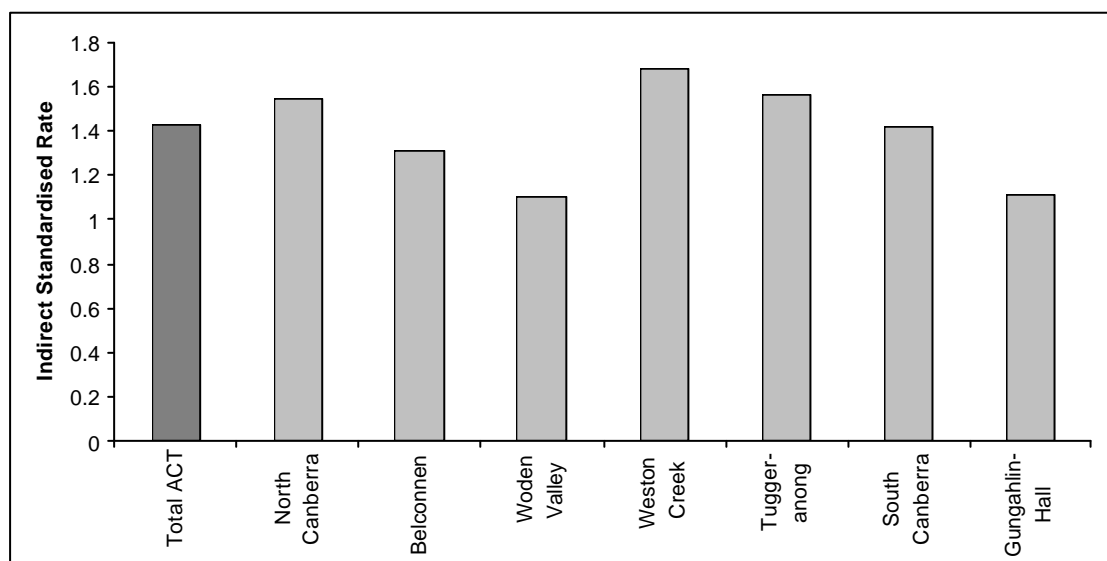
Note: Indirect standardised rate per 1,000 population, Excludes John James Memorial Hospital (data unavailable)
Source: ABS, *Population by age and sex, ACT*, Cat no 3235.8
   *ACT Hospital Morbidity Data Collection*, 1997-98

4. Mortality

4.1 National Trends

Death rates for males and females in Australia were similar over the period 1987-96. The rates decreased over time (the peak year of 1989 had a death rate 64% higher than in 1996). There were 977 deaths caused by asthma in 1989 compared to 730 in 1996[11].

The accuracy of the certification of asthma as a cause of death has been difficult due to other masking causes. Accurate certification is greatest in the 5-34 years age group where there is a reduction in the likelihood of misclassification of other childhood respiratory conditions as a cause of death. This group also excludes the misclassification of chronic airflow limitation disease evident in older adults. However, it should be noted that most deaths coded as due to asthma, are in older subjects in whom accuracy of diagnosis and coding is less precise[12].

In line with a decrease in rates for total population, the number of deaths due to asthma is decreasing for those in the 5 to 34 years age group and is now at its lowest since the 1960s[13].

Figure 5: Asthma death rates, 5-34-year-olds, Australia 1920-1996.
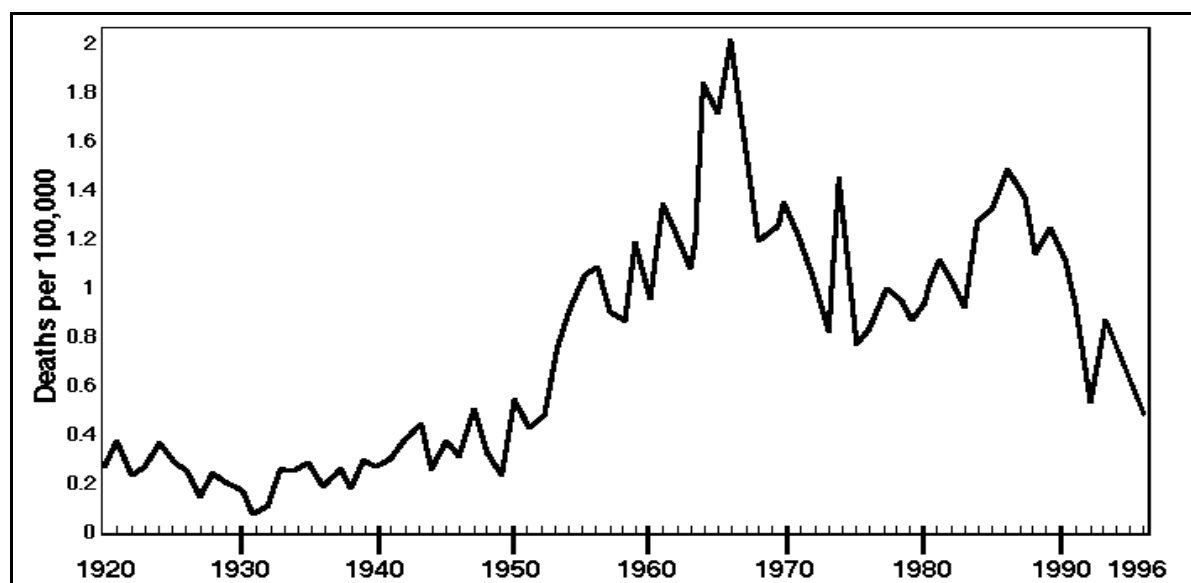
Source: National Asthma Campaign[14]

Figure 5 shows a peak of asthma deaths per 100,000 persons for the 5-34 years age group, in the mid 1960s and the late 1980s.

Following the peak in the late 1980s, the rapid decrease in the asthma mortality rates into the 1990s has been attributed to a number of public education measures and a focus on asthma management (refer Section 5).

The 1974 peak is thought to be the result of misclassification of year of death due to delays in notification and possibly coding[15].

A recent Australian study[16] using 15-34 year old participants, attributes the large increase in asthma mortality in the 1980s in Australia to "cohort" effects. Even though the overall risk of dying from asthma is very small (compared to other causes of death), successive cohorts of people born from the 1950's onwards seem to have an increasing risk of dying from asthma when compared to those born in previous years, controlling for age and period effects. The researchers note that cohort effects are consistent with environmental causes which operate early in life and produce effects later in life. Changes in the indoor environment which may have allowed house dust mites to proliferate, as well as gas heating and cooking, and dietary changes, are some of the proposed causes which may underlie the cohort effects. The researchers also note that the cohort effect is consistent with evidence of recent increases in prevalence and incidence of asthma in Australia.

From Table 4, the majority of deaths due to asthma were recorded in the 75 and over age group (47.8%) in 1997. Asthma deaths accounted for 0.6% of all deaths recorded in Australia in that year. Asthma also accounted for 0.6% of all deaths in 1995 and 1996.

Table 4: Deaths due to asthma & all causes, by age groups, Australia, 1997.

|	<15	15-24	25-34	35-44	45-54	55-64	65-74	75+	Total
Asthma Deaths	1	19	21	36	41	85	157	342	715
All Deaths	2 067	1 934	2 693	3 698	6 663	17 909	27 180	72 236	129 350*

* includes 11 persons of unknown age.
Source: Asthma and other respiratory conditions, Australia ABS Catalogue No. 4373.0

4.2 ACT trends

The ACT has a relatively small number of deaths due to asthma. This causes annual rates to fluctuate. It is more meaningful to look at trends over a number of years.

Figure 6: Death rates due to asthma, ACT & Australia, 1993-97
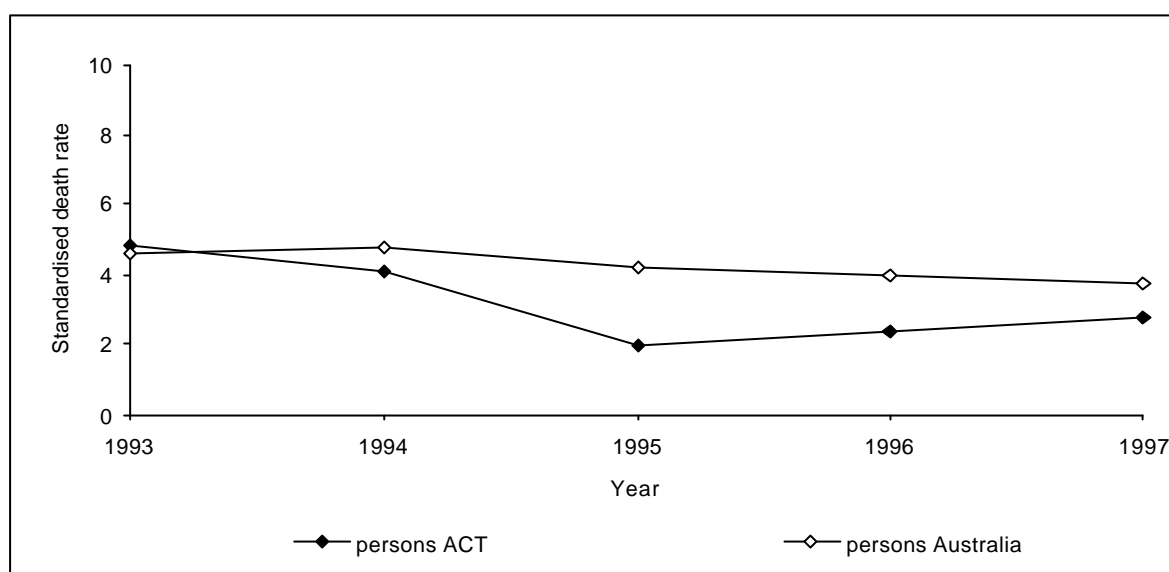
* Indirectly standardised for age using 1996 Australian death rates (persons) as the standard. Rates are per 100,000 population.
Source: Causes of Death, Australia ABS Catalogue No. 3303.0

Figure 6 shows that Australia's death rate from asthma has remained fairly stable at around 4 per 100,000 population per year since 1993. There may be a slight downward trend. The ACT death rates are slightly more erratic. The ACT rate has dropped from being close to the Australian rate in 1993 - to being close to half the Australian rate in 1995. Since 1995, an upward trend emerged, with the ACT death rate approaching that of Australia as a whole. Very little can be deduced from these results, since the numbers of deaths are too low to allow valid analysis.

Table 5: Deaths due to asthma , by age group, ACT, 1994-97

Year	Age Groups											
	15-19	20-24	25-34	40-44	45-49	55-59	60-64	65-69	75-79	80-84	85+	Total
1994	1	1	0	0	0	1	1	2	1	1	0	8
1995	0	0	1	0	0	0	0	0	0	0	3	4
1996	0	0	0	0	0	1	0	2	0	0	2	5
1997	2	0	0	1	1	1	0	0	0	1	0	6

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

The 6 asthma deaths in 1997 accounted for less than one percent (0.4%) of all ACT deaths for that year. The 1997 deaths show a different pattern from the previous year. In 1996, all deaths due to asthma were in persons 55 and over. In 1997 only 33.3 percent of deaths from asthma were in persons of this age group. The age-profile of asthma deaths in the ACT will need to be monitored over time to determine if there is a trend towards death from asthma in the younger age groups.

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5. National and ACT Asthma Organisations

5.1 National Asthma Campaign.

The National Asthma Campaign (NAC) is an Australian non-profit body which serves the community by creating awareness and providing information about asthma. It was launched in 1990 as a combined initiative of The Thoracic Society of Australia and New Zealand, The Royal Australian College of General Practitioners, the Pharmaceutical Society of Australia and the seven state Asthma Foundations.

The mission of the NAC is to bring together all forms of endeavour in the field of asthma in order to:
- Improve the quality of life and health outcomes of people with asthma and their carers
- Reduce the social and economic impact of asthma on the community
- Reduce the prevalence of asthma in the Australian community.

The NAC promotes a six step asthma management plan which has been endorsed by the asthma associations and practitioners. The 6 step plan is as follows:

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6 STEP ASTHMA MANAGEMENT PLAN

1. Know How Severe You Asthma Is
2. Achieve Best Lung Function
3. Avoid Asthma Triggers
4. Stay At Your Best
5. Have An Action Plan
6. Check Your Asthma Regularly

More information about the NAC can be found on its official web site
[online: http:www.ffh.vic.gov.au/asthma/] or on its hotline number 1800 032 495 or by writing to
   National Asthma Campaign
        Level 1 Palmerston Crescent
        South Melbourne Victoria 3205.

5.2 Community Asthma Support Service

The Community Asthma Support Service is part of the ACT Government's Child, Family and Youth Health Program.

The service is staffed by two trained nurses who are accredited asthma educators. They work closely with GPs, paediatricians, specialists, pharmacists, teachers, hospital staff and the ACT

Asthma Association to provide children, youth, families and community groups with up to date asthma education and support on:

- Symptoms
- Trigger factors
- devices used to deliver medications
- combining sport with asthma
- peak flow monitoring
- emergency management
- Asthma Action Plans

Any individual or group seeking information about asthma is welcome to contact the service on (02) 6205 2000.

5.3 ACT Asthma Association

The ACT Asthma Association is a non-profit operated by volunteers. It was established in 1971 and is a branch of the Asthma Foundation of NSW. It aims to provide support to people with asthma, their carers and the community regarding the nature and treatment of asthma. It does this by:

- Producing a regular newsletter
- Promoting asthma awareness in the community
- Lobbying government
- Conducting regular seminars
- Raising funds for research
- Giving advice on the correct use of equipment
- Offering telephone counselling
- Talking about asthma in schools
- Running annual camps for children with asthma

The ACT Asthma Association can be contacted on (02) 6290 1984 or by writing to:
The Honourable Secretary
ACT Asthma Association
GPO Box 687
Woden ACT 2606

Appendix 1: ACT health goals and targets for asthma

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

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

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Health Status Monitoring: Monograph Series

The Health Status Monitoring Section of the Epidemiology Unit is producing a new series of short monographs to inform health policy makers and health service deliverers of the up-to-date health status of ACT residents. They are intended for internal ACT Government use and will be updated as new data is analysed. They are developed in response to departmental requests and where a wider distribution would be useful. Titles available for distribution to date include:

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Carol Kee
Number 2: *The health status of females in the ACT*
Carol Kee
Number 3: *Emerging health patterns in the ACT*
Carol Kee, Chris Gordon
Number 4: *Aboriginal & Torres Strait Islander people in the ACT*
Josie McConnell
Number 5: *Analysis of the National Mental Health Survey - ACT results*
Carol Kee
Number 6: *Asthma in the ACT*
Michelle Petersen