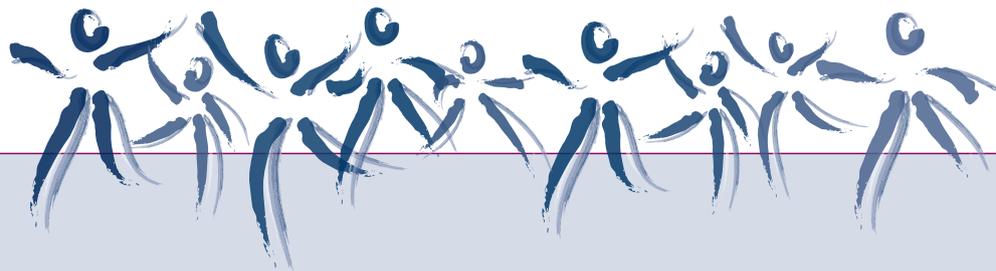


## 5. Use of health services



Key points .....	66
Introduction .....	67
5.1 General practice encounters for asthma.....	68
5.1.1 Time trends.....	68
5.1.2 Population subgroups.....	70
5.1.3 Practice Incentives Program Asthma Cycle of Care (formerly the Asthma 3+ Visit Plan) .....	73
5.1.4 Claims for completed Asthma Cycles of Care in population subgroups.....	74
5.1.5 Management of asthma in general practice .....	78
Summary.....	82
5.2 Hospitalisations and emergency department visits .....	83
5.2.1 Emergency department visits .....	83
5.2.2 Hospitalisations.....	84
5.2.3 Time trends in hospital use for asthma.....	85
5.2.4 Seasonal variation .....	87
5.2.5 Population subgroups.....	88
5.2.6 Comorbidities in patients admitted to hospital with asthma.....	97
5.2.7 Asthma as an additional diagnosis in people admitted to hospital with other conditions .....	99
Summary.....	99
5.3 Invasive mechanical ventilation .....	100
5.3.1 Time trends.....	101
5.3.2 Population subgroups.....	102
5.3.3 Mortality and morbidity .....	104
Summary.....	104
5.4 Health-care expenditure due to asthma.....	105
5.4.1 Expenditure by health sector .....	105
5.4.2 Changes in expenditure between 2000–01 and 2004–05 .....	106
5.4.3 Other economic impacts of asthma.....	107
Summary.....	108

## Key points

### General practice encounters for asthma

- There has been a decrease in the rate of general practice encounters for asthma among adults (–24%) and children (–37%) between 1998 and 2008.
- Inhaled corticosteroids are prescribed at more than half of asthma-related general practice encounters.
- Lung function testing and provision of asthma action plans occur in less than 10% of general practice encounters for asthma.
- Claims for completed Practice Incentives Program Asthma Cycle of Care are highest among boys aged 0–14 years and women aged 65 years and over and tend to peak in the winter months.
- Adults aged 15–34 years, people living in remote areas and people living in areas of a relatively higher socioeconomic status are less likely to access the Asthma Cycle of Care.

### Hospitalisations and emergency department visits for asthma

- Children have higher rates of hospitalisation for asthma than adults.
- There has been a reduction in the rate of hospital admissions for asthma between 1993–94 and 2006–07, which has occurred among both adults (–45%) and children (–42%).
- Hospital admissions for asthma are higher in boys compared with girls, adult women compared with adult men, people from English-speaking backgrounds compared with those from a non-English-speaking background, adults living in remote areas compared with adults residing in major cities and people living in socioeconomically disadvantaged areas compared with those living in the least disadvantaged areas.
- Peaks in hospital admissions for asthma vary by age, with rates highest in February and May among children and highest in the winter months among adults.
- Respiratory infections are commonly listed as an associated diagnosis among people of all ages admitted to hospital for asthma.

### Invasive mechanical ventilation

- In 2006–07, 11.7 out of every 1,000 hospitalisations for asthma included a period of mechanical ventilation.
- People who require mechanical ventilation during their hospital stay for asthma have a longer average length of stay and a higher rate of in-hospital mortality than those who do not require the procedure.
- The highest proportion of hospitalisations for asthma which required mechanical ventilation was among adults aged 35–64 years. In this age group, people from non-English-speaking backgrounds were more likely to require mechanical ventilation during a hospitalisation than people from English-speaking backgrounds.

### Health-care expenditure

- Health expenditure on asthma was \$606 million in 2004–05.
- Asthma expenditure accounted for 1.2% of total allocated health-care expenditure in 2004–05.
- More than half of all asthma expenditure during 2004–05 was attributed to prescription pharmaceuticals.

## Introduction

People with asthma seek health care for non-urgent reasons, such as routine review and prescription of usual asthma therapy, or for urgent management of disease exacerbations or 'attacks'. This chapter presents analyses of data on the use of health-care services by people with asthma. In particular, there is a focus on the application of these data to investigate the nature of exacerbations of asthma at a population level.

Clinicians monitor markers of asthma control to guide management and changes in medication. Well-controlled asthma indicates that the disease is mild or well managed and poor asthma control may indicate poor management. Hence, knowledge of the overall level of asthma control in the population provides some information on the effectiveness of the management of asthma in the community and the need for further efforts in improving asthma management. Most markers of disease control require clinical measures that are not readily available at a population level. However, exacerbations are one marker of poor asthma control that can be measured using urgent health-care utilisation data as a proxy for the occurrence of exacerbations. Therefore, these data can be used to monitor levels of asthma control in the population.

There is empirical support for the interpretation of health-care utilisation as a population-based indicator of the level of control of asthma (Cowie et al. 2001; de Marco et al. 2003; Herjavec et al. 2003; Vollmer et al. 2002). Factors predisposing to poorly controlled asthma, such as poor knowledge about asthma (Goeman et al. 2004; Radeos et al. 2001), absence of an asthma management plan (Adams et al. 2000; Fernandes et al. 2003; Radeos et al. 2001), poor self-management skills (Kennedy et al. 2003; Soriano et al. 2003) and limited access to primary care (Christakis et al. 2001), are also associated with greater health-care utilisation. Furthermore, interventions that are aimed at improving asthma control through self-management plans and education have been shown to reduce urgent health-care utilisation (Castro et al. 2003; Cote et al. 2001). However, the occurrence of exacerbations does not always indicate the presence of severe or poorly controlled asthma. Viral respiratory tract infections cause disease exacerbations, even in people with otherwise well-controlled asthma (Reddel et al. 1999). Hence, the incidence of exacerbations of asthma is an imperfect marker of the potential for improved control of asthma at a population level.

The nature of the health care is related to the severity of the exacerbation. People with asthma who experience exacerbations of their disease may self-manage the episode or seek urgent medical care from their general practitioner. In more severe cases, they may seek care from a hospital emergency department. There is a relationship between severity of the exacerbation and type of health care used. General practitioners provide the largest volume of care, however this includes maintenance and review care for asthma as well as management of asthma exacerbations. Hospitals are generally only used for the management of exacerbations of asthma, although some people do attend emergency departments for care that could best be described as 'maintenance'. Generally, people with more severe exacerbations require admission to hospital for a period of one or more days. At the most severe end of the spectrum of exacerbations are those associated with acute ventilatory failure, for which mechanical ventilation is required. Hence, there is a spectrum of intensity of health-care interventions, which approximately corresponds to the severity of the exacerbation.

Health-care use attributable to exacerbations of asthma is an indicator, albeit imperfect, of the level of control of asthma in the community. The nature and intensity of health service use gives a further indication of disease control by reflecting the severity of the exacerbations of asthma. In this chapter, we investigate general practice encounters, hospitalisations and emergency department (ED) visits for asthma as well as hospital admissions which required invasive mechanical ventilation. Furthermore, we examine health-care expenditure associated with asthma.