

EDITORIAL

Emergency treatment of asthma: how are we doing?

Australia led the world with the development of guidelines for the management of acute asthma through the National Asthma Campaign.¹ Despite increases in asthma prevalence, asthma mortality in Australia has been declining since the epidemics of the 1980s.² This is likely due, at least in part, to improvements in the delivery of care and the concentrated efforts of government, associations of health-care professionals and consumer-based organizations to promote the provision of best care for asthma by health professionals. The National Asthma Management Guidelines, produced by the National Asthma Council of Australia (formerly called the National Asthma Campaign) are a key component of these initiatives the most recent edition being published in 2002.¹

Emergency departments (ED) play an important role in Australia as providers of emergency care for asthma and as gatekeepers for hospital admission for asthma. In this issue of the *Internal Medicine Journal*, Kelly *et al.* present an audit of ED management from 38 participating centres in Australia, including 1340 presentations in both adults and children.³ The particular focus of this study is a comparison of the treatment given in the ED with that promulgated in the National Asthma Council of Australia (NACA) guidelines. The degree of adherence of treatment to current guidelines is impressive and reflects widespread adoption of the NACA guidelines in the emergency treatment of asthma in Australia. Fundamental to the treatment guidelines is the grading of asthma severity as 'mild', 'moderate' and 'severe'. Recommended treatment algorithms vary accordingly.²

Severe asthma was diagnosed in 4.5% of children and 9.5% of adults in the report by Kelly *et al.* and several issues emerge consequently. The study documents the increasing adoption of non-invasive ventilation (NIV) for treatment of severe asthma in the absence of recommendations in the NACA guidelines. While the efficacy of NIV in chronic obstructive pulmonary disease is established and widely practised, only one very recent study goes beyond case series in affirming its usefulness in asthma.⁴ Because evidence supporting the use of NIV in acute severe asthma is still scarce, and morbidity from invasive ventilation in asthma relatively low,⁵ we would caution against the use of NIV in severe asthma without intensive care unit backup and preparedness for endotracheal ventilation. The field is ripe for a randomized trial comparing the use of NIV against standard therapy in 'moderate' to 'severe' asthma to gain an understanding of the utility of NIV in altering asthma outcomes and thereby inform appropriate use of this intervention in more severe asthma.

Among patients with severe asthma in the study of Kelly *et al.*, only 81% and 82% of children and adults,

respectively, were prescribed oral corticosteroid therapy at discharge from the ED. Corticosteroids are unequivocally indicated in severe asthma and have proven efficacy in asthma recovery and decreased reattendance rates.^{6,7} In this setting of severe asthma their use should be mandatory.

The use of corticosteroids for asthma exacerbations is not only important once a patient has presented to an ED. How might individuals with more severe asthma be prevented from attending ED? Reddell *et al.* have shown that the pattern of asthma exacerbation in individuals receiving inhaled corticosteroids is quite different from exacerbations in people not receiving preventative asthma therapy.⁸ In those receiving treatment, exacerbations were sudden and not preceded by substantial variation in peak flow readings. In this setting, effective responses are more likely to be a short course of oral corticosteroids rather than modulation of inhaled preventive therapy. Such knowledge provides evidence supporting the prompt institution of short courses of oral corticosteroid therapy to prevent severe exacerbations in primary care and informs the construction of asthma action plans for patient self-management.

Pertinent to all asthma treatment is the controversy regarding the use of metered-dose inhalers and spacers to deliver short-acting β -2 agonists in acute asthma. While there are reliable data reporting equivalent, or even increased, efficacy of spacers to the traditionally used nebulized therapy to deliver short-acting β -agonists in children, the evidence in adults with acute asthma fails to show superior efficacy, although supports the equivalence of these two methods of delivery.⁹ Difficulties regarding the provision of spacers are usually related to sterilization and cost. Practical difficulties aside, the use of metered-dose inhalers and spacers in the ED does raise the confidence of people with asthma and their families to manage exacerbations at home, thereby hopefully preventing emergency presentations in order to receive nebulized therapy.

Attendance with acute asthma to ED is frequently considered a failure of primary care to appropriately address and manage the condition, especially in those who present with mild asthma. In the study by Kelly *et al.*, 50% of children and 46% of adults presented with 'mild' asthma.³ The possibility of preventing such presentations has been highlighted by the designation of asthma as an 'ambulatory care sensitive condition' by the Victorian Government,¹⁰ endorsing the commonly held views that many emergency presentations are preventable by the availability of appropriate primary care, or by the patient accessing that care. Yet studies of ED attendees show quite the opposite. A study from Victorian ED showed that 61/62 emergency attendees

with asthma had a local doctor whom they saw for asthma, 40 within the previous month of attending the ED.¹¹ The study by Goeman *et al.* suggests that patients more usually presented to ED after a failure of treatments instituted by their local doctor to control their exacerbation. Other studies have established that patients attending ED with asthma avoid attending an ED if at all possible.¹² Together, these findings suggest that patients view ED attendance as a last resort for their asthma care. In support of this, advising emergency attendees of the availability of local medical care did not encourage enrolment or attendance with a local doctor.¹³ The reasons why some patients use ED for asthma care and others don't are a worthy subject of future study.

Currently available treatments for asthma should be effective in preventing many exacerbations. In this regard the use of inhaled preventer therapy consisting of inhaled corticosteroids has been shown to very significantly reduce exacerbations of asthma.¹⁴ The introduction of long-acting β -2 agonists offers further opportunities to prevent exacerbations of asthma.¹⁵ The education of general practitioners in the use of maximally effective therapy, including the appropriate use of the newer combined long-acting β agonist and inhaled corticosteroid medication, should minimize the number of asthma exacerbations and consequently the requirements for emergency care in most people with asthma. The Australia-wide introduction of the 3+ Asthma Visit Plan is an incentive to enable general practitioners to provide optimal asthma management for chronic asthma consistent with established guidelines. Whether the 3+ Plan will prevent emergency presentation with acute exacerbations has not been demonstrated, although similar programmes offering patient education, a written asthma management plan and regular medical review have been shown in well-conducted trials to improve asthma outcomes, including emergency presentations.¹⁶

Effective treatment includes not only medication, but also patient adherence to prescribed treatment regimens. This is a particular challenge in asthma, where patients are required to take long-term preventative treatments that ideally will abolish symptoms. The barriers to adhering to such treatments include fears of side-effects and disbelief in efficacy as well as the costs of medication.¹¹ Although doctors can deal with some of these barriers in the context of an ongoing therapeutic partnership, other barriers – such as medication costs or the cost of a consultation – require the modification of broader social policies. In this context, the costs of chronic illnesses such as asthma to an individual and the community need to be weighed against the cost of effective therapies, providing an incentive to remove some of the financial barriers to receiving effective therapy.

Kelly *et al.*³ tell us that >60% of both children and adults are discharged home from the ED. People with asthma who are discharged from the ED ought to be a major focus of attention because these individuals are at significant risk for future presentation. Studies from Australia show rates of reattendance for emergency asthma care as high as 62% of children and 40% of

adults.¹⁷ Such information is missing from the current report, but might comprise a significant indicator of the quality of care provided in the ED. The challenge for ED is to manage discharged individuals in such a way as to prevent reattendance and even death from asthma. There is substantial evidence that the receipt of 'information only' education is an effective intervention in the emergency setting.¹⁵ In the study of Kelly *et al.*, many individuals were discharged from the ED without corticosteroids. How many are discharged without other equally important features of optimal asthma therapy such as an appropriate management plan, including a written asthma plan, inhaled preventative asthma therapy and a follow-up appointment? In the current environment of high demand for acute medical services compared to capacity, care focuses on discharging individuals from the ED. However patient safety and prevention of asthma reattendance are critical end-points in determining quality of care and preventing repeat presentations. The challenge for ED is not just to treat the asthma according to established guidelines, which they clearly are largely doing, but to ensure that those with asthma are discharged with therapy and information which will prevent future exacerbations and consequent emergency reattendance, diminishing the burden of this illness to the community and individuals.

J. A. DOUGLASS
R. E. O'HEHIR

*Department of Allergy,
Immunology and Respiratory Medicine
and
Co-operative Research Centre for Asthma
Alfred Hospital and Monash University
Melbourne, Vic.
Australia*

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