

The asthma enigma – How are we doing 25 years on?

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As the deputy medical editor of *Australian Family Physician (AFP)* from 1989 to 1996, I wrote an editorial in 1991 that discussed some of the challenges faced in general practice when managing asthma.¹ I was delighted when, as part of *AFP*'s retrospective of clinical conditions over the past 25 years, I was invited to revisit the topic and review what impact a quarter of a century has had on this ubiquitous condition.

Asthma is not a trivial condition and its exact aetiology continues to elude us, as does a cure. It is estimated to affect over 300 million people² globally and its prevalence is increasing in low- to middle-income countries.³ In Australia, one in 10 people have asthma – a very high prevalence rate from an international perspective – with its attendant costs of poorer quality of life for individuals and lost productivity for the country.^{4,5}

Asthma continues to be one of the 10 chronic conditions most frequently managed in general practice even though, over the past decade, it is no longer among the 10 most common reasons for patients seeking a consultation.^{6,7} Does this represent a change in disease behaviour? Probably not, as prevalence figures have been relatively static over the past decade. It is more likely to reflect:

- a change in patients' consulting patterns. Given that patients expect their general practitioners (GPs) to deal with more problems per consultation,⁷ the risk is that chronic conditions such as asthma become a 'while I am here ...' addition

to a consultation rather than an instigator of it

- a change in a patient's expectations, in that chronic conditions, especially if they produce intermittent symptoms, can embed themselves in a person's life, changing the goal posts of their life expectations and making them less reliable witnesses to disease deterioration⁸
- the impact of increased public awareness and health literacy programs, which are empowering patients to manage their asthma.⁹

Looking back over the past 25 years, perspectives about asthma and its management in community care feel very different from what they were in 1991. In the decade prior to that, acute asthmatic presentations seemed very common and the gentle hum of the nebuliser in the treatment room was not an infrequent part of the consulting day. Ampoules of intravenous aminophylline were still a standard component of our doctor's bag. Although the availability of aerosol salbutamol had revolutionised the management of asthma symptoms, death could still descend swiftly and unexpectedly at times, even in patients considered to have mild or intermittent asthma, making it a condition that demanded respect.

Asthma is still a condition demanding respect. It has remained one of the National Health Priority areas since 1999 and is still 'a killer disease',¹ especially if you are a female asthma sufferer aged

over 75 years, or an asthmatic living in a remote part of Australia or in an area of lower socioeconomic status, or if you are an Aboriginal and Torres Strait Islander suffering with asthma. In spite of this, however, hospitalisation rates in adults (>15 years of age) over the past two decades have decreased by 56% and, for non-Indigenous Australians, death rates from asthma have decreased by almost 60% (964 deaths in 1989, compared with 389 in 2013).¹⁰ Does this mean 'we [are] winning the battle?'¹¹ While it would seem reasonable to assume that the impact of community-based care is contributing to the improved mortality figures, our persistently high rate of disease, from an international perspective, begs us to do better. So how and where might we do this? Unlocking the secrets of aetiology could help us target prevalence figures more effectively. Perhaps the age of genomics will help us do that but in the meantime there are a number of key challenges.

Childhood asthma

Asthma is still one of the most common chronic conditions affecting children aged 0–14 years¹² and although hospitalisation rates for children have fallen over the past few decades, a child is 2.8 times more likely to be admitted to hospital for asthma than an adult. From a community care perspective, an asthma diagnosis in children under the age of five is still symptom-driven, and effective use of medication can be challenging. Ensuring

compliance and sufficient surveillance to achieve 'best lung function' still presents challenges in those aged <14 years; perhaps this is reflected in the morbidity data where asthma ranks as the number one non-fatal burden of disease in Australasian children aged 5–14 years.¹²

Aboriginal and Torres Strait Islander peoples

In spite of the claim in 2001 that 'Indigenous Australian children have a low prevalence of asthma',¹³ being an Aboriginal or Torres Strait Islander presents an increased risk of developing asthma irrespective of age. This risk becomes greater with age (in contrast to non-Indigenous Australians where prevalence decreases with age). Figures from 2008 presented a much more disturbing picture, suggesting that Aboriginal and Torres Strait Islander people were hospitalised twice as often as non-Indigenous and were three times more likely to die of the disease.¹⁴ At that time the high rates of smoking among Aboriginal and Torres Strait Islander people, plus the poor surveillance programs (due to remote localities), were suggested as possible contributors to the findings;¹⁵ from a prevalence perspective, little has changed in the intervening years. In 2013 an estimated one in seven Aboriginal or Torres Strait Islander children (0–14 years) and one in five Aboriginal or Torres Strait Islander adults (45 years or older) had asthma.¹⁶ These figures are alarming, especially given the public health *Closing the gap* campaign over recent years.

The impact of surveillance programs and self-managed care

Over the past 15 years, the introduction of extended primary care item numbers has increased the financial incentive to offer more structured chronic care in partnership with patients. This approach has the potential to identify, and hopefully address, some of the individual burdens of disease borne by patients with a chronic illness. How are we faring in this regard?

Australian studies seem limited, but in global quality-of-life surveys, asthma still appears to be linked to a lower quality of life, especially if the disease is severe.^{12,17}

However, the evolution of the Asthma Cycle of Care for people with moderate-to-severe asthma has been an important development from a general practice perspective. It is linked to an incentive payment and has replaced the 3+ Visit Plan,¹⁸ which had succeeded the cumbersome Six Step Asthma Management Plan.¹⁹ The underlying premise of this approach appears to be multifaceted: it acknowledges the need for practitioner-protected time to review disease behaviour and current management approaches while also encouraging patients to up-skill their knowledge and ownership of the condition. It also absolves the need for the doctor to request multiple patient visits for something patients do not always perceive as a problem. This seems to offer greater alignment with the realities of general practice. Cautious optimism suggests that this approach has acceptability and utility in primary care,²⁰ but it is uncertain whether this will reduce the impact of the disease on patients' lives. This is highlighted by looking more closely at two elements of the annual cycle of care: the use of Asthma Action Plans to help improve health outcomes, and the use of general practice spirometry to diagnose disease severity and assess the level of disease control.

The importance of an individualised asthma management plan has been recognised since 1989. Given that they have been demonstrated to reduce the risk of dying and improve health outcomes,²¹ it would not be unreasonable to expect that over the intervening 25 years they would have made a significant impact on routine care. However, current data suggest that the uptake has been slow. While the number of children with asthma aged 0–14 years with a written action plan has more than doubled since 2001 (in 2011–12, 41 % of children with asthma were noted to have one), the

uptake for adults has been much slower, with only 20 % of people over the age of 15 years noted to have a plan. Similarly, the impact and reach of spirometry use in general practice has been variable. In spite of the costs of purchasing a spirometer, many general practices have one, but a study done in 2006 showed that 'the frequency of use is low'.²² The study also emphasised the need for more 'reliable, stable spirometers' and 'regular and more comprehensive training'. However, more recent studies suggest that regular spirometry may have little impact on health outcomes.²³

Clearly, although management strategies would appear to be reducing hospital presentations and mortality, finding the most effective ways of reducing the morbidity of this disease is an ongoing challenge in primary care.

Effective medication use

Undoubtedly, as I alluded to in my editorial in 1991, the most significant change in our asthma management approach grew from a greater insight into the pathophysiology of the condition that occurred around this time. While we were aware of the importance of relieving inflammation, as well as bronchoconstriction, in managing asthma symptoms, the chronicity of that inflammation had been poorly understood. With greater appreciation that inflammation of the airways is an ongoing problem, even in episodic asthma, the focus of management shifted with the cornerstone of management becoming nested in symptom prevention or minimisation.

Over the past 25 years short-acting β -agonists (SABA) and inhaled corticosteroids have remained the mainstay of symptom relief, but there has been a plethora of delivery devices and techniques all designed to more effectively deliver medication to the small airways. The understanding of the pathophysiology has also increased the need to maintain long-term airway stability. Long-acting β -agonists joined the arsenal of symptom relievers in the early 1990s and medication

protocols have been driven by the need to minimise side effects while maximising benefit.²¹ Even though the key players have not changed greatly over the past 25 years, there have been extensive modifications to medication combinations and protocols as we have gained greater understanding of the impact of medications on disease behaviour.²⁴ There have been few really new additions to our therapeutic arsenal over this time but the first biological agent (an anti-immunoglobulin IgE therapy) was listed on the PBS in 2011 for a very select group of severe asthmatics. The future will tell us whether this offers improved health outcomes for this group of patients.

In spite of the availability of these powerful therapeutic medications for controlling and preventing asthma, prescribing data suggest that there may be inappropriate use of some medications.²⁴ The vagaries of general practice mean that variations of general practice behaviour need to be interpreted with caution. However, given the substantial contribution Australasia is making to the morbidity and mortality of this condition internationally, the issue of either underuse or overuse of medications, designed to assist optimal lung function, warrants more careful scrutiny.

Summary

Looking back over the last quarter of a century, the changes in community-based healthcare have been profound. In particular, the decade from 1991 to 2001 showed great promise, with significant improvements in asthma mortality and hospitalisation rates. Since then, however, prevalence figures show little inclination to decline further and, in spite of public health campaigns, improved surveillance methods, improved medication protocols and improved delivery methods, asthma continues to make a substantial contribution to the burden of disease in this country, especially in specific population groups. The battle would appear to rage on.

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