



Innovating for Life | Asthma



“When you fall off a penny-farthing cycle, there’s time for your whole life to flash past twice!”

Michael. Living with Asthma.

Michael’s story: Michael is now able to ride his penny-farthing cycle in a 1000 km fund-raising event for the Australian Asthma Foundation. The penny-farthing is the classic Victorian era forerunner of the bicycle and it’s no mean feat to ride. Riding a machine like this 180 km a day is not a bad achievement for any athlete, let alone someone who has lived with asthma all his life. But that is Michael’s story and it is simply awe-inspiring.

Asthma diagnosis

Michael was just 4 years old when his mother noticed he was getting breathless after exercise. His doctor diagnosed asthma and, at that time, just over 30 years ago, there were no really effective medicines available to help him deal with his condition. Michael’s doctor chose to treat him with an short-acting inhaled bronchodilator. It was hoped that Michael would grow out of asthma like other kids did. But he didn’t, and his condition worsened. At 16 and 17 he was very unwell but he tried to keep up with his sport. He learned to live with his asthma and to recognise the environmental triggers that set it off.

Asthma attack

Every year between February and April, conditions were perfect to bring on an attack. The onset of wattle season was particularly bad. *“But Mum was great at settling me down”*, Michael recalls, *“and I was lucky never to experience the midnight rush to hospital emergency”*. As Michael says, *“I was a strong child, and Mum taught me to control the panic, to regain control of my breathing.”*

This self-control would prove to be life-saving when Michael was just 19. *“We were living in Norah Creek and I woke in the middle of the night experiencing a terrible asthma attack.”* His medicine was in the car and he didn’t have the strength to get out of bed and reach it. He didn’t even have the strength to call out.

A terrifying situation, but Michael kept control. Using all his strength, he crawled out of bed and into the kitchen. The noise of him crashing kitchen pots and pans on the kitchen floor attracted the attention of family members who rushed to the car to get his medicine.

Among the triggers for Michael's asthma was cold water but he never let that get in the way of his love of surfing. The shock of freezing water can be enough to make any asthmatic surfer keel over on the spot, but Michael pushed through it. As Michael says, *"I didn't want my mates to think I was weak."* So he kept on with his footy, surfing and bike riding.

New asthma medicine

Michael's life changed for the better in the late 1990s with the advent of the new, long-lasting beta-agonist and steroid combinations. This medication was so effective that Michael felt like his condition had passed and close friends didn't even know he was asthmatic. Michael entered a new phase of his life thinking he was all but cured.

But the simple act of forgetting his medication on a trip far from doctors and pharmacies, was enough to remind Michael of the difference between managing his asthma and it being cured. He spent an anxious sleepless Friday night reliving his childhood fears, fighting for breath. He made it through the night but suffered a heavy chest and bad headache all the next day. He felt exhausted all the next week and this demonstrated clearly to Michael just how important his asthma medicine was to his continual well-being. As Michael says, *"I'm lucky, I'm strong and I always try to be aware of my situation, from avoiding smoke from fire, to avoiding a particular heavy perfume or wattle."*

Advice to asthmatics

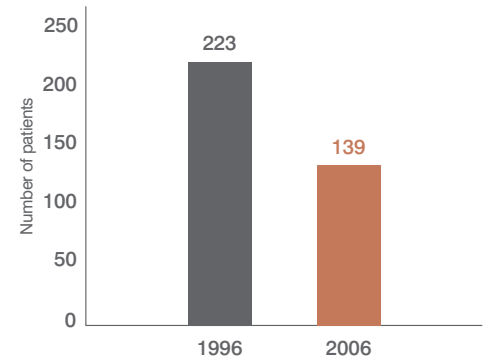
With his medication working for him, Michael decided a few years ago to step up his exercise, *"I was putting on weight and becoming inactive, so I decided to lose weight and really get back into sport."* He now plays soccer regularly, surfs and sails in Australian trailer boat sailing championships. His advice to asthmatics of all ages is to eat well, exercise your lungs, to get out and get some fresh air, and don't forget to take your medicine. Michael acknowledges that medical advice is important in relation to exercise.

Fund-raising for asthma

With the ongoing research and development, Michael hopes that an asthma cure will come one day. This is why Michael engages in his fund-

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Deaths from asthma - 1996 and 2006.



Source: Australian Institute of Health and Welfare, Asthma in Australia 2008

raising activities. *“They are engines,”* he says, *“to attract attention to the Asthma Foundation and the work they do in supporting people with asthma, searching for a cure and more advanced treatments.”*

For recreation, Michael rides a unicycle. He must have fallen off a thousand times when he was first learning to ride, but suddenly as he says, *“Your brain gets the hang of it”* and his first ride was an unbroken 21 kilometres. *“I just don’t give up.”*

“Many of my friends have tried it and most just gave up in frustration, but I kept persisting.” That’s Michael. He loves a challenge. As he says, *“You have to control your asthma and not let your asthma control you.”*

What is asthma?

Asthma is a chronic disease. People living with it experience bouts of wheezing, coughing, chest tightness and shortness of breath. Asthma is often distressing and can be life-threatening, requiring an emergency hospital visit in the case of a severe attack. The underlying problem is usually inflammation of the air passages. The inflamed airways react to irritation by swelling, constricting and filling with mucus. A wide range of triggers can cause the airways in the lungs to narrow. The symptoms of asthma vary and are usually reversible, occasionally spontaneously or with appropriate treatment.

Asthma in Australia

In Australia today around 12% of adults and up to 16% of children are living with asthma. During the 1980s and the early 1990s there was a small increase in adult asthma. While the prevalence of adult asthma in Australia is high by international standards, the evidence now suggests the increase in incidence may have peaked and may even be declining in children.

The allergy connection

Why do some people suffer from asthma? It can certainly run in families. If your parents lived with it, you may also be predisposed to it. Asthma is usually associated with allergies.

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Causes of asthma

There is a wide range of factors that can trigger airway narrowing and symptoms in people with asthma. These include exercise, viral infections, and irritants such as smoking, pollen, pet dander, dust mites, mould spores and certain food preservatives. An attack can begin within minutes of exposure to the trigger and can last from a few minutes to hours or even days.

Can asthma be cured?

There is currently no cure for asthma however it can be controlled. One strategy is to reduce exposure to allergic factors which could trigger an asthma attack. Avoiding cigarette smoke, reducing household dust and mites, eliminating carpets in the home and minimising exposure to pet hair and dander are all helpful, but can only go so far in preventing an attack.

It is almost impossible to avoid asthma triggers all the time, so people with asthma require medication. Asthma medication is designed to provide either quick relief or longer-term control of asthma symptoms. The quick-relief medications are usually inhalers which decrease the constriction of the airways by relaxing small muscles around the airways in the lungs. They should be used with long-term asthma control medications which deliver sustained asthma control by reducing inflammation. These include corticosteroids (in inhaler or tablet form) to reduce inflammation.

How is asthma diagnosed?

A doctor will look at symptoms, the patient's history and conduct tests that measure lung function. People with asthma often have reduced airflow when exposed to triggering symptoms.

National Asthma Management Plan

In the early 1990s, in response to rising Australian rates of asthma hospitalisation and deaths, the National Asthma Management Campaign was established. This was set up as a collaboration of consumer groups and health professional bodies. The aim of the Campaign was to improve community awareness and promote improved asthma management.

Asthma treatment timeline

Current drug therapy for asthma is highly effective and has evolved from the pharmaceutical development of substances found in nature.

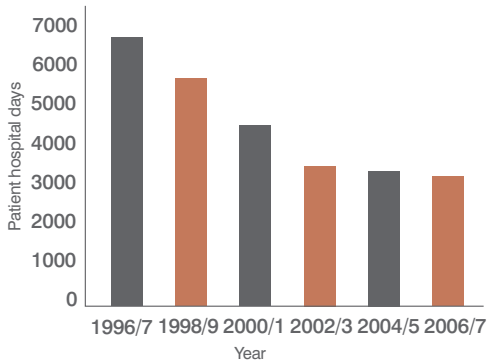
In the 1950s, corticosteroids were found helpful in treating asthma, and in 1972 the first inhaler of a corticosteroid came into regular use. Corticosteroids are by far the most effective controllers of the underlying inflammatory process in the airways.

The current 'gold standard' of asthma therapy is a combination inhaler containing a long-acting β_2 -agonist with a corticosteroid. The next major advance in the therapy of asthma occurred in 1998, when a new class of agents – leukotriene modifiers – became available.

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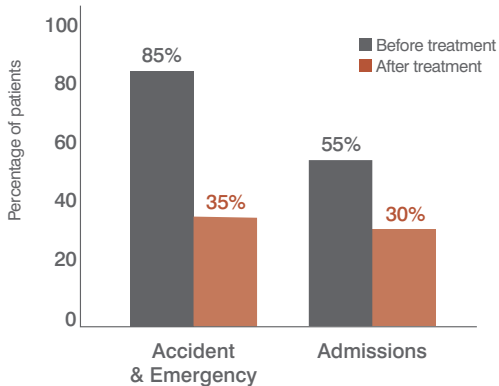
Reduced visits to hospital

Hospital patient days for asthma
1996-97 to 2006-07.



Source: Australian Institute of Health and Welfare, Asthma in Australia 2008

Reduced visits to hospital emergency departments and hospital admissions under a national asthma management program for children.



Source: Munzenburger PJ and Vinuya RZ
Pharmacotherapy, 2002

Asthma treatment with corticosteroids

Inhaled corticosteroids (ICS) are effective treatments for gaining and maintaining control of asthma. These are commonly called 'puffers' and they help to treat the symptoms of asthma by treating the inflammation. The use of inhaled corticosteroids is associated with lower asthma deaths and a reduction in the numbers requiring hospitalisation. These medicines are also responsible for an improved quality of life for children and adults with asthma.

Treatment success

According to figures released by the Australian Institute of Health and Welfare in 2008, the number of days that asthma patients spent in hospital was reduced by nearly fifty percent over the decade from 1995 to 2005. This is convincing evidence that the combination of the National Asthma Management Plan and new asthma medications have been working.

The key goal of asthma management when using inhaled corticosteroids is to achieve the best possible asthma control with the lowest effective dose. Importantly, the dose can often be reduced but still maintain symptom control. Regular medication review is important to enable proper assessment and maintenance of asthma control.

New asthma treatments

In 1998, a new class of asthma treatments called leukotriene blockers was launched. These oral medicines prevent and treat chronic asthma by blocking leukotrienes. These are chemicals in the body that are associated with the inflammatory processes in asthma.

The future of asthma treatment

With a high incidence of asthma in Australia and the rising level of investment in the search for a cure, what does the future hold for asthma treatment?

Today, there are treatments which contain bronchodilators and corticosteroids within one puffer. These treatments give people living with asthma a new lease on life. They control the condition that causes the inflammation and at the same time, protect against asthma symptoms.

We still need to understand how asthma begins both in children and in the late-onset form of the condition. Further research can then be applied to the cells of the airways of asthmatic patients and may reveal novel mechanisms against which new types of medicines can be directed. One day it may be possible to vaccinate against some triggers such as dust mites.

A full life through symptom control

At the moment there is no cure for asthma. The current treatments reduce the symptoms and allow people with asthma to lead as full a life as possible. This particularly applies to children. Fortunately, many children also grow out of it by age seven.

Currently, there is no known way of preventing asthma. Avoiding the substances that bring on attacks is an obviously worthwhile measure. Unfortunately, this is not always possible. Asthma does run in families but there is still not a deep understanding of how this happens. Until a cure is found, pharmaceutical research will continue to find ways to maximise asthma management.

*This excerpt is from the book *Innovating for Life*. For a copy, visit www.medicinesaustralia.com.au*

References:

1. Australian Institute of Health and Welfare, Asthma in Australia 2008, <http://www.aihw.gov.au> 2. National Asthma Council Australia, <http://www.nationalasthma.org.au> 3. Barnes JP, British Journal of Pharmacology (2008), p.147, S 297-S 303.

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Australians generally enjoy good health. We rank among the top five countries in the world for life expectancy at birth. Our life expectancy is rising more rapidly than in comparable countries such as the United States and United Kingdom.

Ready access to new medicines in Australia has played a significant part in achieving good health outcomes. But it is a sobering reality that for every 10,000 new chemical compounds created in the laboratory, only five will ever survive to be clinically evaluated. On average, only one of these compounds will then reach the point where it will be approved as a medicine.

Fortunately, in recent years, there have been major advancements in medicines for the treatment of asthma. Considering that around 12% of Australian adults and up to 16% of our children are living with asthma, advances in this area remain a priority. With the advent of new asthma compounds, including the long-lasting beta-agonist and steroid combinations, as well as the leukotriene modifiers, deaths from asthma have dropped substantially since 1996 and hospital admissions have more than halved.

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That's the real value of medicines.



Will Delaat, Chairman

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