AIR 2013 ASTHMA INSIGHTS RESEARCH REPORT

AirSonea

Contents

Foreword

I know the helplessness you feel when someone you love is having an asthma attack. My daughter and wife both live with asthma. Trying to help them better manage their asthma has not been easy. And often, life gets so busy that it is easy to forget about how best to manage asthma. I'm well aware of the challenges of staying on top of medication and the ways unpredictable asthma attacks and breathlessness can affect people day to day.

My story is increasingly common in the USA, in countries around the globe, and particularly in Australia. Australia has one of the highest rates of asthma in the world, with more than 2 million people suffering from this chronic lung condition. Effective medication has been developed for treating asthma, but it still accounts for 37,830 Australian hospital admissions and around 400 deaths each year.[1]

With good medications now available, we should be able to avoid preventable deaths from asthma. Asthma can significantly affect people's lives, causing sleep disturbances, loss of time from school, family activities and work and the inability to exercise. As such, it needs to be better managed. It's time for an innovation in asthma management.

We commissioned this study of Australians with asthma to learn how people manage and treat their condition. We were also interested to know how asthma affects people's lives more broadly. This report represents current asthma management trends in Australia. It clearly illustrates **that many people are not monitoring their asthma regularly**.

New medical technology exists that can provide innovative ways to approach asthma management. It can make monitoring the asthma of loved ones less stressful and more effective. The AirSonea device is designed to objectively detect and measure wheezing, a cardinal sign of asthma associated with airway obstruction, thus providing important information to people with asthma. Its mobility means that measurements can be easily taken anywhere and at any time. This will help people to better understand how their wheezing responds to different environments and activities. Used regularly, the AirSonea device will inform people whether their wheezing is getting better, getting worse or is stable.

Used with the AsthmaSense smartphone app, this asthma monitoring system can provide people with an early warning about changing asthma risks. The system also collects and trends asthma data and treatment behaviour that can be helpful to physicians.

Better monitoring means better awareness and vigilance about asthma symptoms and risks. More awareness makes people more attentive to their treatment plans. Thus more effective asthma monitoring can help families like mine live better, healthier lives.

Michael J. Thomas
CEO, iSonea

About the survey

The study was conducted among a national sample of 1,000 Australians aged between 18 and 64 years who had symptoms of asthma or had taken treatment for asthma in the past 12 months.

Participants were surveyed online in July 2013. The sample was representative of all Australians across gender, age and location and, upon completion of interviewing, was weighted to reflect the latest Australian Bureau of Statistics population estimates.

The study was conducted by Galaxy Research on behalf of iSonea.

Many of the questions were adapted or taken from the recommended module of survey questions to monitor national asthma indicators, developed by the Australian Centre for Asthma Monitoring.

Objective

We know about 10% of Australians live with asthma, but how does it affect them? The purpose of this survey was to better understand the impact that asthma has on people with the condition in Australia. We sought to gain insights into:

- how asthma affects people's daily lives
- identifying the emotional, social and physical affects of asthma
- how effectively people are monitoring and managing their asthma.

We were also interested in how technologies like Asthma Sense and AirSonea could fit into the lives of people with asthma and help them better manage their condition.

Our hope is that this survey contributes to the data collected by the National Asthma Council Australia over the past 20 years. A better understanding of how asthma affects people's lives will help the medical community, policymakers and innovators, like iSonea, help Australians better manage their asthma so they can live fulfilled lives.

Snapshot of results

Nineteen per cent of asthma sufferers find that routine monitoring leads to better outcomes. However, almost half (48%) of children only have their asthma monitored or treated in the case of an asthma attack. Two-thirds of adults do not monitor their asthma, but use an inhaler or medication to manage it.

The survey looked at the use of current monitoring and found that:

- 38% say peak flow meters are not applicable to them
- 16% have used a peak flow meter in the past year
- 39% of children regularly visit a doctor so their asthma can be monitored
- people with asthma average 1.6 visits to a GP about their asthma a year.

This means many Australians are not monitoring their asthma regularly.

Asthma can affect people physically, emotionally and socially. Half (50%) of Australians surveyed found that asthma was causing them to feel tired. The survey also reported that half (52%) of people with asthma feel restricted in their ability to do exercise such as jogging. Thirty-nine per cent of parents of children with asthma say they experience anxiety when their child has an asthma attack and 35% say that asthma heavily impacts on their children's sleep and mood.

Results

Australians' asthma severity

The survey asked participants to rate the severity of their asthma. Most people with asthma report having mild symptoms. Of those with mild symptoms, 37% say their symptoms occur throughout the year while 35% report their asthma symptoms are seasonal. However, a significant number report they have 'severe' or 'significantly severe' asthma.

Respondents rated their asthma severity:

- 35% as very mild and seasonal
- 37% as mild asthma but it occurs throughout the year
- 19% as significant severity but mostly controlled by inhaler or puffer
- 5% as significant severity but mostly controlled by medication along with inhaler or puffer
- 3% as severely impacted by asthma and quality of life is reduced in some ways
- 1% as don't know or none.

The group who rated their asthma as severely impacting their lives consistently reported impaired quality of life across almost all factors. Throughout this report, these findings have been highlighted and this group is referred to as people who self-describe their asthma as severe.

Living with asthma: how it affects mood, daily activities and sleep

Asthma impacts people's mood, causing anxiety, fatigue, frustration, sadness and fear in a significant number of Australians.

One in four (24%) Australians with asthma say it frequently interferes with their daily activities, including 6% who say it interferes 'all the time'. Only 19% say their asthma rarely or never interferes with their daily activities.

The impact is greater for people with severe asthma. Almost one-third (31%) of severe asthma sufferers say it interferes with their daily activities 'all the time' and another 43% say asthma 'frequently interferes' with their daily activities

One in three (36%) Australians with asthma worry about how asthma will affect their present or future health. This jumps to half (52%) of people with severe asthma. Overall, one in five (20%) or almost half (46%) with severe asthma worry that asthma will shorten their life.

Many people with asthma experience a lack of sleep and frustration. Some people also say that asthma impacts on their mental health, causing sadness and depression. The National Asthma Council Australia has reported that other recent studies show the prevalence of depression is increased among adults with asthma.[2]

Does asthma interfere with daily activities?	All people with asthma	People who self-describe their asthma as severe
Asthma interferes with daily activities all the time	6%	31%
Asthma frequently interferes with daily activities	18%	43%
Occasionally interferes with daily activities	31%	19%
Infrequently interferes with daily activities	26%	6%
Rarely/Never interferes with daily activities	19%	1%

What is the impact on mood, emotions and social life when a person has asthma?	All people with asthma	People who self-describe their asthma as severe
Feel tired or have a general lack of energy	50%	75%
Feel sad or depressed	20%	50%
Feel frustrated that they can't get rid of asthma	43%	60%
Feel anxious or frightened	26%	44%
Unable to relax at night and have a good sleep	31%	49%
Feel asthma prevents them from achieving what they want in life	22%	40%
Have been limited in places they can go because of asthma	20%	44%
Feel asthma significantly interferes with social life	17%	45%
Feel asthma is controlling their life	15%	45%
Worry that asthma will affect their present or future health	36%	52%
Worry asthma is shortening their life	20%	46%

Our survey found that of all people with asthma:

- 50% feel tired and have a general lack of energy
- 43% feel frustrated that they can't get rid of asthma
- 31% are unable to relax at night and have a good sleep
- 26% feel anxious or frightened
- 20% feel sad or depressed.

Asthma can prevent people from living their lives the way they wish. People report that their symptoms put limitations and controls on what they wanted to do.

The main social affects for asthma sufferers are:

- 22% feel that asthma prevents them from achieving what they want in life
- 20% have been limited in places they can go because of their asthma
- 17% feel that asthma significantly interferes with their social life; for Australians who report their asthma symptoms as severe, 45% feel it significantly interferes with their social life.

One in five adults with asthma feel it prevents them from achieving what they want in life.

Coping with asthma raises some general concerns for sufferers around their quality of life and hopes for the future. Some of these are also listed above as social impacts.

Key concerns for people living with asthma:

- 36% worry that asthma will affect their future and present health
- 20% worry about asthma shortening their life
- 15% feel that asthma is controlling their life.

Asthma also impacts sleep. On average, Australians are woken by their asthma or wheezing 2.2 times per week. Those with severe asthma are woken 6.4 times each week. This is consistent across age and gender.

CASE STUDY

Cathy Freeman

Olympic legend Cathy Freeman first became aware of her asthma symptoms on a humid day in Darwin during her late teens. 'I didn't realise it was asthma,' she says. 'All of a sudden I just found it really hard to breathe. I was wheezing.'

Despite winning a Commonwealth gold at 17, in other ways Cathy was a typical teenager. She ignored her symptoms. 'I think I was just taken aback by what was happening to me,' she says. 'I didn't see it coming. It just kind of hit me out of the blue. I brushed it under the rug and just continued.'

But, looking back, Cathy believes she would have increased her chances of winning more races if she had addressed her asthma properly. Lucky for Cathy – and for Australia – her asthma symptoms were absent during her famous 400m victory at the 2000 Olympic Games. But since that hot day in the Northern Territory, Cathy has taken her asthma more seriously. She was diagnosed as an adult and now actively manages her asthma with regular check ups, monitoring and medication.

'Since I retired from professional athletics, I nearly stopped running altogether because I was just so frustrated with my asthma symptoms,' Cathy says. Asthma doesn't just affect Cathy physically. Like so many people with asthma, she gets upset when she has problems breathing. 'When I can't breathe I have to stop,' she explains. 'I get anxious and unhappy. It's just really frustrating at times.'

Although she has retired from elite athletics, Cathy is still active and her health is important to her. She boxes weekly and ran her first marathon in 2013. Cathy takes her Ventolin, spacer and preventer with her wherever she goes. And recently she added a new addition to her handbag: AirSonea.

Cathy started trialling the portable wheeze monitor before its official launch, and she describes it as 'fantastic'. AirSonea enables Cathy to measure her wheeze anytime, anywhere. She holds the device against her neck for 30 seconds and her iPhone then provides a reading of what percentage of her breathing is wheeze.

'Since I retired from professional athletics, I nearly stopped running altogether because I was just so frustrated with my asthma symptoms.'

'I feel so much more confident knowing that just at my fingertips I can measure the percentage of my wheeze,' she says. 'I'm feeling really confident with the way I'm managing it. I'm excited because I feel in control. It just gives me such great peace of mind knowing that I'm looking after myself. It's actually working a treat in my life.'

Cathy doesn't avoid running because of worries about asthma. She says: 'I can just go out and run knowing that I won't get asthma most likely because I'm aware of the symptoms and of how to best treat it.'

Now that Cathy has her asthma under control, she is ready for any problems that her daughter, Ruby, may face. 'I'm very mindful now of my daughter's health,' Cathy says. 'If Ruby develops asthma, knowing that I can keep a close eye on her wheeze, is really appealing to me as a parent."

Cathy believes that AirSonea offers parents a 'huge peace of mind' because they can easily monitor their child's wheeze. 'Knowing that I can keep a close eye on her asthma is really appealing to me as a parent,' Cathy says. Under Cathy's careful watch, it's unlikely Ruby will find herself as a teenager ignoring the symptoms of asthma.

Breathlessness

The feeling of being breathless impacts the quality of life for many people. A large number of people feel that their asthma restricts them from participating in physical activity. For example, more than half (52%) feel restricted jogging or doing aerobic exercise and 40% feel restricted walking up stairs.

Half of adults with asthma feel restricted jogging or doing aerobic exercise.

How Australians manage their asthma

Clinical guidelines encourage people with asthma to have a written asthma action plan, regular medical review and self-management education. This includes self-monitoring their symptoms. However, our survey found compliance with monitoring is low.

Two-thirds (67%) of Australians with asthma do not monitor their asthma, but manage asthma attacks by using an inhaler or taking medication.

- One in ten (9%) keep a diary of when, where and the circumstances of an asthma attack.
- 16% have used a peak flow meter in the past 12 months or 36% of severe asthma sufferers.
- Only 7% regularly use a peak flow meter to monitor their breathing function. One in ten (9%) use a peak flow meter to measure breathing function only when they get an asthma attack.
- 5% have a mobile app that helps monitor and manage their asthma.
- One in five (21%) see their doctor regularly so they can measure their asthma control.

The effectiveness of the peak flow meter

Fifteen per cent of Australians say that a peak flow meter is ineffective. Twenty-seven per cent of people with asthma rate the peak flow meter as 'effective' and 20% as 'moderately effective'. However (as previously stated), only 16% have used the peak flow meter in the past year. Many people (38%) say the peak flow meter is not applicable to them. This is consistent with the finding that most people are not using the peak flow meter to monitor their wheeze.

Those that find the peak flow meter effective are more likely to have children with asthma (31%) or to be a severe asthma sufferer (31%).

How Australians treat their asthma

According to the Mayo Clinic, the airways become swollen and inflamed during an asthma attack. The muscles around the airways contract, causing the bronchial tubes to narrow. This may cause a person to cough, wheeze and have difficulty breathing.[3]

In the past 12 months, 31% of Australians with asthma reported experiencing an asthma attack. This figure is higher among people aged 50–64 years, at 39%. When Australians have an asthma event, such as asthma symptoms or an asthma attack, their behaviour is very similar across states.

The National Asthma Council Australia says an asthma attack can become life threatening if not treated properly, even in someone whose asthma is mild or well controlled.[4]

The majority of asthma sufferers (86%) use a puffer or inhaler when their symptoms arise. During the course of a year, 67% of asthma sufferers had visited a doctor regarding their asthma symptoms.

For 9% of Australians, an asthma attack results in a trip to the emergency department, hospital or medical centre. Of this number, 17% are smokers and 23% self-assessed as having severe asthma.

Activities that people feel are restricted by their asthma	All people with asthma	People who self-describe their asthma as severe
Walking along a level street or doing light housework	22%	59%
Walking up hills or doing heavy housework	47%	75%
Walking up steps or stairs	40%	76%
Jogging or aerobic exercise	52%	70%
Getting a peaceful sleep	39%	77%
Having a normal conversation or talking on the phone	16%	39%
None / Don't know	11%	1%

Types of treatment

In the past 12 months, asthma sufferers reported using four main types of prescribed medication to treat their asthma: reliever, preventer, controller and oral steroids.

According to the National Asthma Council Australia's ***Asthma Care Resources Guide***, the aim of treatment is to control symptoms, and achieve and maintain best lung function, using the lowest doses of medication.[7] They state that the pattern, level of asthma control and severity dictate which medication is most effective.

The percentage who were prescribed medication are as follows:

- 74% reliever medication (three in four)
- 48% preventer medication (almost half)
- 31% controller medication to treat inflammation, such as inhaled steroid or cromyin (more than one in four)
- 12% oral steroids (one in ten)
- 12% take oral tablets, liquids or injections.

Consulting medical experts

In the event of their asthma feeling worse or 'out of control,' asthma sufferers reported consulting a medical centre or local doctor on average 1.6 times in the last 12 months.

Two-thirds of adults with asthma do not monitor their condition.

The number of times asthma sufferers had consulted a GP over a year were:

- 23% once
- 22% twice
- 11% three times
- 6% four times
- 2% five times
- 2% six times or more
- 33% No times or don't know.

CASE STUDY

Katie's story

Katie feels guilty now about what she put her parents through as a teenager. She has had asthma since she was a baby and says as a teen she got 'a bit rebellious with it.' Sometimes she waited until night to tell her parents her puffer had run out. She remembers her frantic dad driving around the suburbs, searching for late-night chemists. As a kid who needed a nebuliser in the house and regularly woke at 4am struggling to breathe, being without a puffer was not an option. 'My poor parents,' she says. 'Although I had close calls, I never thought of asthma as terminal, no matter how they tried to drum it into me and scare me.'

They had good reason to be worried. Katie remembers a trip to her grandparents' place on the coast at nine years old when she had a severe asthma attack and her puffer had no effect. 'It was very traumatic,' she says of the long drive to hospital. 'I hope I never have to go back to those days of nebulisers and hospitals.'

Katie is impressed by how technology is making managing asthma easier. 'I would have loved all that smartphone stuff when I was young,' she says. As a teenager she hated being asked by doctors to keep a diary and check her lung capacity regularly. 'You try to,' she says, 'but you're a teenager. You're just not going to do that.'

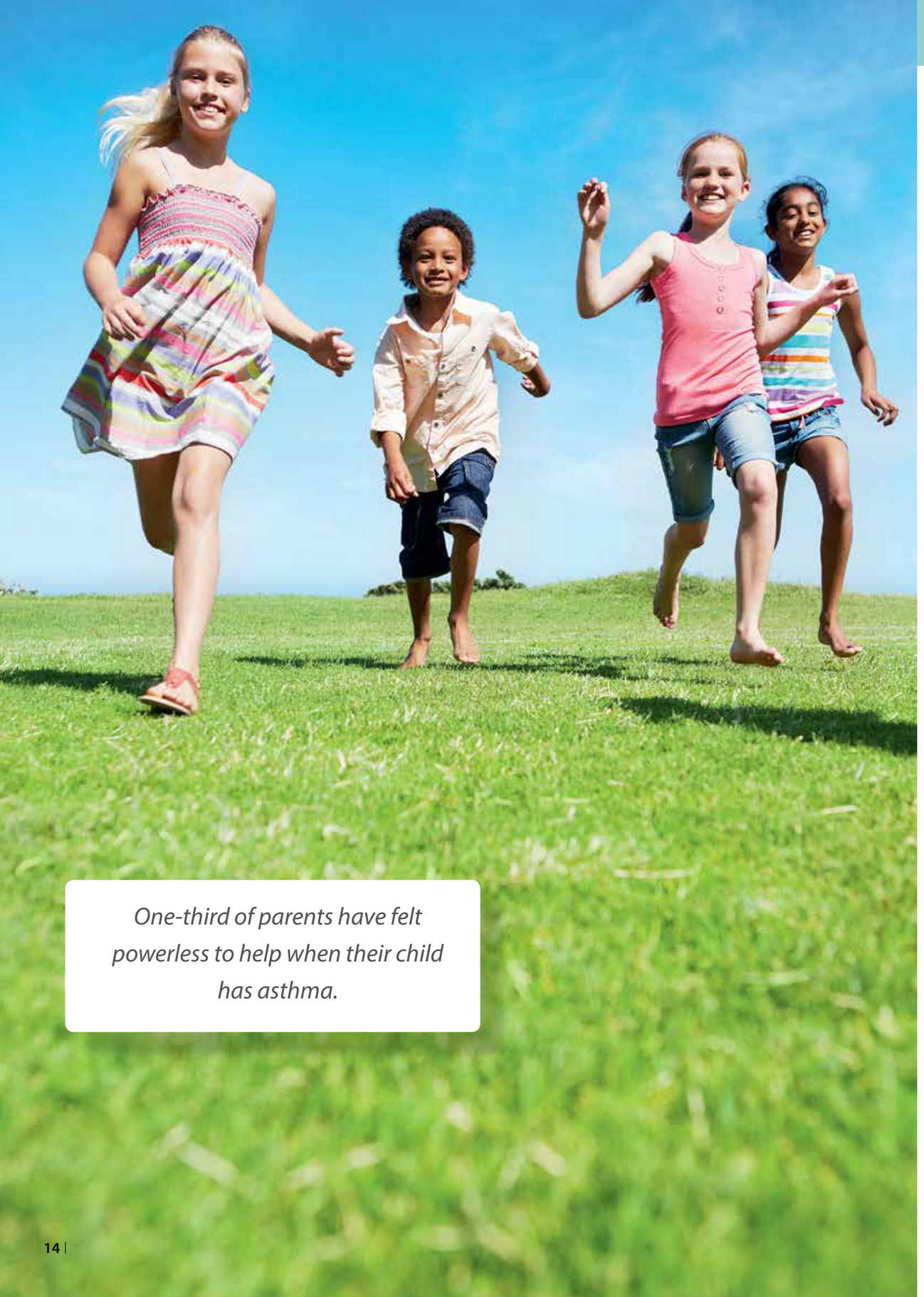
Katie's attacks were unpredictable and frightening. It would have helped her and her parents to know what her triggers were and when her asthma risk was high. Looking back on that day at her grandparents', Katie thinks the dusty environment caused her attack: it's something she now knows is a trigger. As a school kid she was also unaware that she needed to have her puffer before exercise. Sport always meant stopping halfway to have her Ventolin. This frustrated her so much she was eventually put off playing.

Changes in the weather and pollen count are also big factors. Katie, who is now an international English language teacher, was worried when she first began travelling for work. She says, 'I always pack a stack of Ventolin, I'm always really prepped. I don't want to get caught out without a puffer in a foreign place.' She expected pollution in the world's big cities to trigger her. However, she has lived in Japan and London for long periods of time without having an asthma attack. She has discovered it's Australia that really 'sets her off.'

As a teenager, Katie hated being asked by doctors to keep a diary and check her lung capacity regularly. 'You try to,' she says, 'but you're a teenager. You're just not going to do that.'

Carrying a puffer all the time annoys her. 'I'd love to go out without a handbag,' she says. But now it's her, not her parents who get anxious if she doesn't have her puffer handy. Katie has learnt that the better she manages her asthma, the more she can enjoy her life.

'If I can manage asthma myself I'm happy,' she says.



One-third of parents have felt powerless to help when their child has asthma.

Children with asthma

Asthma is the most common chronic disease among Australian children and a frequent reason for their visits to doctors and hospital, according to the Australian Institute of Health and Welfare.[5]

Our survey found 31% of children with asthma have had an asthma attack in the past 12 months. Seven per cent of these children had to go to hospital, emergency or a medical centre as a result. In the past 12 months half (49%) of children have been woken by their asthma or wheezing.

About 37% of asthma sufferers' children also have asthma and 31% have children (aged 0 to 24) who have been treated for asthma in the past 12 months. According to Asthma Australia, the causes of asthma are linked to both genetics and the environment. Pet and food allergies, eczema and hay fever, which can often be triggers for asthma, can also be hereditary, according to the American Academy of Asthma Allergy and Immunology.[6]

The children rated with the worst asthma are aged between 5 and 12 years old.

Age groups of children with worst asthma:

- 18% aged 0-4 years
- 44% aged 5-12 years
- 18% aged 13-17 years
- 20% aged 18-24 years.

Parents categorise the severity of their child's symptoms as follows:

- 33% with mild and seasonal asthma symptoms
- 27% with mild asthma throughout the year
- 28% with significant asthma
- 9% with severe asthma with symptoms mostly controlled by tablets or injections in conjunction with a puffer or inhaler
- 1% with severe asthma, which reduces the quality of their lives in some way.

Smoking and children's asthma

The study found that among adults with asthma who smoked, 54% of their children also have asthma. This is significantly higher than the 37% finding for all parents.

The 2007 findings from the National Asthma Council Australia reported that 40% of children with current asthma live with smokers.[7] The same study found that exposure to environmental tobacco smoke increased the onset of wheezing in young children.

Our study found that 52% of asthma sufferers who smoke have children who have been treated for asthma in the past 12 months.

Treating children's asthma

Four main types of treatment are prescribed to children with asthma: relievers, preventers, controllers and oral tablets.

A reliever is the most commonly prescribed form of treatment, and in the past 12 months had been prescribed to 69% of children in our survey. At 59%, more than half of children with asthma were prescribed preventer medication. Controller medicine for treating inflammation was prescribed in 31% of cases, and 12% were prescribed oral steroids. The kind of treatment children's parents use for their own asthma was similar, although children's preventer use is slightly higher.

Children who have been treated for asthma in the past 12 months were treated in the following ways:

- 49% have been to a doctor about their asthma
- 72% with an inhaler, puffer or nebulizer
- 22% took oral tablets, liquids or had injections
- 11% used a peak flow meter
- 7% went to hospital, emergency department or a medical centre because of an asthma attack. This figure rises to 13% for children with a parent who smokes.

Monitoring children's asthma

Thirty-nine per cent of children with asthma regularly visit a doctor so their asthma can be monitored.

Almost half (47%) of children's asthma is not monitored except in the case of an asthma attack. Seventeen per cent use peak flow meters, but it's worth noting that it's not feasible to use a peak flow meter with children aged under six or seven.

Seventeen per cent of children with asthma use a peak flow meter regularly to monitor their asthma levels. Fourteen per cent keep an asthma diary and 10% use a mobile app to track and monitor their asthma.

How asthma affects the lives of parents and children

Managing a child's asthma can be stressful for parents. However, 37% of parents find that by 'keeping on top' of their child's asthma management, they can lead relatively normal lives. But 39% of parents say they feel anxious during an asthma attack, because they worry for their child's immediate safety and health.

When a child has asthma, the effects on parents' lives are:

- 35% lose sleep
- 33% sometimes feel powerless to help
- 25% feel added stress and pressure on the whole family
- 19% feel impacts on the whole family's quality of life
- 15% say dealing with asthma makes the family stronger and closer
- 14% say it puts strain on the relationship with their partner.

For children, having asthma can be disruptive, frustrating and at times frightening. The biggest impact on their mood is because of difficulty sleeping at night. US researchers recently presented similar findings to the American Thoracic Society about the negative effects of lack of sleep. It found that this can impact on the academic performance of children with asthma.[8]

One-quarter of children have felt frightened when they have asthma.

The impacts for a child who has asthma, according to their parents, include:

- 43% say it is harder to sleep
- 36% feel tired and have a general lack of energy
- 24% with mild asthma and 42% with severe asthma report feeling sad and depressed
- 31% feel frustrated that they can't get rid of their asthma
- 30% feel anxious, stressed or under tension
- 25% have felt frightened
- 14% do not have their mood affected or do not know
- 1% reported 'other' effects.

One-third of parents lose sleep when their child has asthma.

CASE STUDY

Juno's story

From hospital beds to star charts, Kate has been parenting two kids with asthma for more than 20 years and has it down to an art.

Asthma seems to run in the family when it comes to Kate and her kids. Kate has had asthma all her life and uses puffers twice a day. Magda (23) and Juno (12) were both aged three when they were hospitalised with their first asthma episodes.

Parenting kids with asthma is constant work for Kate, who is also a clinical nurse educator. 'I've tried everything,' she says. 'Gluten-free, dairy–free. It's impossible to have a completely dust-free house. I've tried. None of that helped.'

Kate spent much of Magda's early years sitting by hospital beds as she was moved around and subjected to different kinds of care. Magda's symptoms are atypical: she doesn't wheeze. 'With Magda, it's all about the coughing,' says Kate. She was too young to use a spirometer as she was not a 'competent blower.' Doctors eventually diagnosed her with chronic brittle asthma on her response to Ventolin.

Kate soon learnt that once an episode began, Magda's asthma couldn't be treated at home. But due to her unusual symptoms, she was often refused vital early treatment. 'She would go very, very grey, very quickly before your eyes,' Kate says. Sometimes the emergency department would have to witness this before they would help. 'Now they know, the earlier the better,' says Kate, but for Magda and her mum the years in a medical system that didn't respond fast enough were terrifying.

When Juno was hospitalised with asthma it must have felt like history was repeating. Kate wasn't sure if she could go through it all again. Thankfully with Juno, she says, 'It's simply asthma.' Juno has an audible wheeze and responds to treatment. When he has an episode, Kate marvels that he only misses four days of school.

What's difficult about managing Juno's asthma is his complacency about medication. Juno has daily puffers, nose spray and a preventer as needed, but when Kate asks if he's had his medication the answer is always 'yes,' whether he has or not. With Magda, Kate used star charts, but pre-teen boys are far from interested in stickers.

Kate says kids of Juno's age can't interpret their own symptoms. 'And they can't tell you how they feel because they don't have the verbal capacity,' she says.

In her work Kate has studied the adolescent brain and finds it unsurprising it's hard to monitor the asthma of kids Juno's age. 'They're not even interpreting their own symptoms,' says Kate. 'And they can't tell you how they feel because they don't have the verbal capacity.' Juno is much more interested in using an app to remind him about his medication.

Kate has been parenting kids with asthma for more than 20 years. She is happy to say she has seen huge improvements in the way asthma is treated in hospitals. 'There is now an asthma protocol,' she says. 'It's much higher up the list.' That's good news for the many families like Kate's for whom asthma monitoring, treatment and medical care are a big part of everyday life.

A revolution in wheeze monitoring

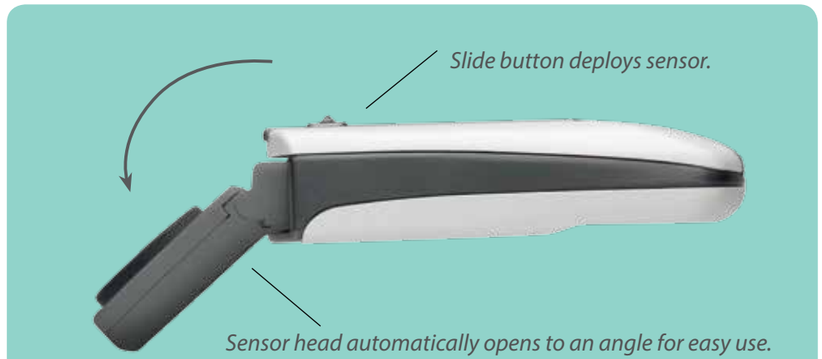
The world's first digital device for monitoring wheeze

AirSonea is a hand-held device that turns a patient's smartphone into a portable wheeze monitor. With AirSonea, people with asthma can monitor their wheeze anywhere, anytime. It also provides real-time data to help doctors with patient reviews.

Regular use of the AirSonea device during daily activities will help inform patients about whether their wheeze is increasing, decreasing or remaining stable. Measuring wheeze before and after inhaler use can also provide objective information about response to treatment. It also means that they can identify which settings or activities trigger their wheezing.

AirSonea is not a replacement for a doctor or a substitute for spirometry when diagnosing asthma, but it is a useful monitoring device for patients to use at home. And it's so easy to use, making it suitable for monitoring everyone with asthma symptoms, including young children and the elderly.

Regular use in a patient's usual setting takes the guesswork out of whether the wheezing is improving, worsening or stable.



Confident asthma management with our free app

Even without AirSonea, patients can use the free AsthmaSense app to help manage their asthma outside the doctor's surgery. Easy to use with an iPhone or Android™ mobile device, AsthmaSense Cloud tracks peak flow measurements, medication use, asthma triggers and adherence to an asthma action plan. The app sends automated alerts to the patient to remind them when to take their medication or check their breathing.

Used with AirSonea, a patient's smartphone is transformed into a portable asthma monitor, digitising the entire self-management process to enable better control of their asthma.

AirSonea has been approved by the TGA and is available for purchase online for under $200 at www.asthmasense.com.

AirSonea turns a smartphone into a portable wheeze monitor

References

1. Australian Institute of Health and Welfare, *Asthma*, Canberra, Australian Capital Territory, viewed 12 September 2013 <http://www.aihw.gov.au/asthma/>

2. National Asthma Council Australia, *Asthma and Mental Illness*, Melbourne, Victoria, viewed 12 September 2013 <http://www.nationalasthma.org.au/handbook/other-comorbidities/asthma-and-mental-illness>

3. Mayo Clinic, *Asthma Attack*, Rochester, Minnesota, viewed 12 September 2013 <http://www.mayoclinic.com/health/asthma-attack/DS01068>

4. National Asthma Council Australia, *During an Attack*, Melbourne, Victoria, viewed 12 September 2013 <http://www.nationalasthma.org.au/understanding-asthma/during-an-attack>

5. Australian Institute of Health and Welfare, *Selected Chronic Diseases among Australia's children*, Canberra, Australian Capital Territory, viewed 12 September 2013 <http://www.aihw.gov.au/WorkArea/DownloadAsset.aspx?id=6442453396>

6. American Academy of Asthma Allergy and Immunology, *Prevention of Allergies and Asthma in Children*, Milwaukee, Wisconsin, viewed 12 September 2013 <http://www.aaaai.org/conditions-and-treatments/library/at-a-glance/prevention-of-allergies-and-asthma-in-children.aspx>

7. National Asthma Council Australia 2007, *Asthma Care Resources Guide*, Melbourne, Victoria, viewed 12 September 2013 <http://www.nationalasthma.org.au/uploads/publication/asthma-care-resources-guide.pdf>

8. Sifferlin, A 2013, 'Asthma Symptoms Hinder Children's' Sleep and School Performance', *Time*, 22 May, viewed 12 September 2013 <http://healthland.time.com/2013/05/22/asthma-symptoms-hinder-childrens-sleep-and-school-performance/>

About iSonea

iSonea is an Australian publicly-listed company that makes non-invasive devices for managing asthma.

www.asthmasense.com

AirSonea

JOIN OUR COMMUNITY


AirSonea