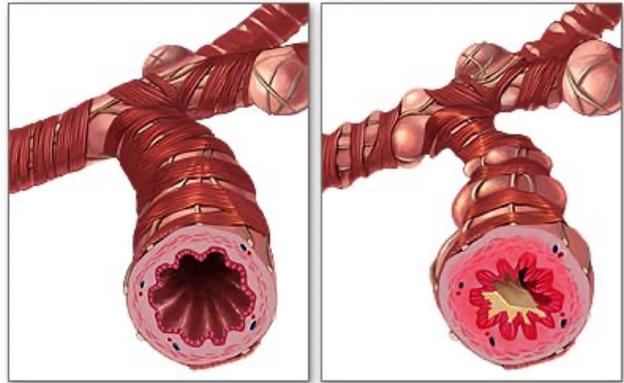


Asthma Principles for Children

What is Asthma?

Asthma is very hard to define. Asthma is not really a single disease, but a description of a set of symptoms and signs that occur in susceptible individuals in response to triggers. It is likely that what we refer to as asthma is actually several different diseases which overlap. Asthma affects the airways – the breathing tubes that carry air in and out of the lungs. When asthma symptoms are present there is usually inflammation and narrowing of the airways. Unfortunately, we know little more about childhood asthma than we did 30 years ago. Despite this there are plenty of strong opinions. There is a lot of confusion in the medical community around asthma in children, particularly in young children – who has it, who doesn't, how do we diagnose it, who needs treatment, who doesn't. Because of this confusion parents will often get different advice from lots of different people – this can be very frustrating.



What different types of asthma are there?

Most people associate asthma with onset in older children who are allergic to inhaled allergens such as dust and pollen, and perhaps have other allergic conditions such as hayfever and eczema. In this group, exercise symptoms can be common. This pattern is common in older children and adults. However, there are also a group of children with asthma who are younger, non-allergic and get symptoms only with colds. These are the main two groups of children with asthma, but there is often significant overlap between these groups, making it hard to put children into one group or the other. Some children who have asthma just have coughing without difficulty breathing, often at night or with exercise. Some children with asthma never have asthma 'attacks'.

How do we decide if its asthma?

Given that asthma is not a single definable condition, there is no diagnostic test for asthma. The diagnosis is based on looking at a combination of three things:

- A typical history of asthma symptoms
- Diagnostic tests in some cases, although these are not always necessary
- A typical response to asthma treatments

Therefore, in many cases it will be necessary to try asthma treatments for a period of time to establish whether symptoms are caused by asthma. This is a perfectly reasonable thing to do.

What age do you have to be to have Asthma?

There is a lot of confusion about this. Children less than two years old will rarely have *allergic reactions* to inhaled allergens, and so in the past a common belief was that you couldn't be diagnosed with asthma if you were less than two years old. We now know however that lots of children less than two have typical asthma symptoms and respond well to asthma therapies even if they are allergic to nothing. From a practical point of view therefore asthma can be diagnosed at any age if there are typical asthma symptoms and a good response to asthma treatments.

Can we predict who will respond to asthma treatments?

Unfortunately, this is difficult. In older children with typical allergic asthma symptoms it would be very unusual for them not to respond to asthma treatments. In the younger non-allergic child though, there are children who don't respond completely, or at all in some circumstances, to asthma treatments. This is why a trial of asthma therapy for a defined period of time is often required to establish what is going on. This is part of the diagnostic workup.



What are the common asthma treatments in children?

There are two main groups of treatments for asthma in children:

- *Quick-Fixer medications* – Salbutamol or Ventolin (blue inhaler) is the commonest quick-fixer. These medications should be used only on an as needed basis for symptoms such as wheeze and excessive cough. The medicine has an effect for a few hours and is then gone from the body. There is no point in using quick-fixers on a scheduled basis as they do not work to prevent symptoms and will work less well when needed. Quick-fixers are like taking paracetamol for a headache – it's a symptomatic treatment and won't make the problem go away.
- *Preventer medications* – these medications are designed to reduce the sensitivity of the airways to triggers that cause irritation. Preventers take weeks to kick in, and only work if they are taken consistently all of the time. This is like brushing your teeth to prevent tooth decay or moisturising skin to avoid flares of eczema. These medicines are no use if given in the short term. They don't make asthma go away or cure it – they just control symptoms while they are being taken. The commonest preventer is the brown inhaler, but inhalers can be orange, purple or white. There is also an oral preventer called montelukast which is taken once a day on a continuous basis and will work for some children.



What is a spacer?

A spacer is a plastic tube, into which inhalers can be inserted to help delivery to the lungs. All children must use a spacer if they are using a 'puffer' inhaler. Without a spacer the medication is mostly delivered into the mouth and throat. Even with the best technique, using a spacer ensure 50% more medication is delivered to the airways where it is needed. Without a spacer we are exposing children to more medication with less chance of benefit.



How do I know if the quick-fixer is working?

Quick-fixers are designed to improve symptoms of excessive coughing or difficulty breathing within 10-20 minutes. If you notice a reduction in symptoms within that timeframe and it occurs every time you use the quick-fixer, then the quick-fixer works. These medications are not designed to completely eliminate the symptoms but to reduce their severity. Don't expect quick-fixers to make the episode go away or prevent it from progressing – they have no ability to change the course of a flare and only treat symptoms transiently. If you are requiring a lot of quick-fixer medication it is a sign that control is not good.

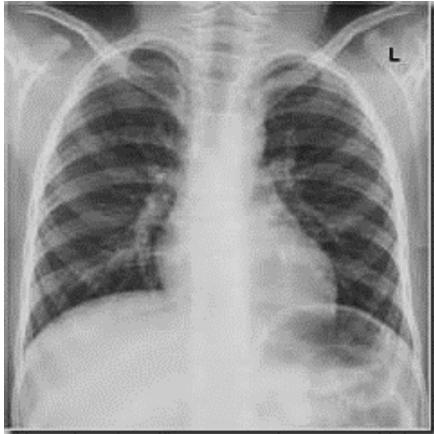
How do I know if the preventer is working?

Preventers are designed to reduce the likelihood of symptoms occurring when a trigger comes along. They do this by reducing the sensitivity of the airways to triggers. They will not prevent colds or infections or get rid of allergies. Often a period of observation is required to see if a preventer is working – this will depend on how often the symptoms were occurring in the first place. If a child is having daily symptoms we should see within a month if the preventer is working. If the child is having colds every 1-2 months leading to asthma symptoms, we might need 3-6 months to see, on average, whether symptoms with colds are better on the preventer than they were without it.

What is the best treatment for the episodes of asthma 'flares' or 'attacks'?

Asthma is a condition where children can be well for prolonged periods of time but then be acutely unwell when exposed to a trigger. During these episodes, it will be necessary to use more quick-fixer medication but this will only treat symptoms and not help to treat the flare. The commonest treatment that can help the flare is oral steroids – these reduce inflammation and can speed up recovery from the flare. Oral steroids, if used frequently, can have significant side effects, but infrequent short bursts are unlikely to be harmful. Montelukast, a tablet that can be used as an asthma preventer, can be of use also as a treatment for flares, but will be less beneficial than oral steroids. Some children with asthma symptoms brought on by colds will not respond to oral steroids. If steroids are trialled on a few occasions and do not provide benefit, they should not be used, and the diagnosis should be reviewed.

What about chest infections or pneumonia?



Unlike in adults, it is extremely rare that children's asthma symptoms are associated with bacterial infection requiring antibiotic use. Most of what people call 'chest infections' in this context is a combination of viral infections and irritation of the airways associated with asthma causing coughing and mucus production. A virus infection in children with asthma would be expected to cause significant head cold symptoms with productive coughing and wheeze that can go on for several days to weeks. These symptoms are often mistaken for symptoms of respiratory bacterial infection, however antibiotics are rarely of benefit, even when there are abnormalities detected on a chest x-ray.

Will my child 'grow out' of asthma?

There are certainly plenty of children who have asthma symptoms when they are young and whose symptoms subsequently settle as they get older. This is commoner in children who's asthma comes on in the first few years of life and is only associated with colds. Several factors make it less likely that a child will 'grow out of' their asthma:

- Symptoms outside of colds
- Other allergic disorders like eczema, food allergy or hayfever
- A family history (in a parent or sibling) of allergic disease
- A demonstrated allergy to inhaled allergens such as dust

These criteria are very general and there are lots of exceptions to this. It is not possible to predict in any particular individual whether they will or won't 'grow out of' their asthma when they are older.

My child is not responding to the preventers

In the same way that it is very important to listen careful to the history from parents and institute a trial of treatment to see if it helps, if it is obvious to the parent that, despite taking preventer medications correctly, there is no improvement in symptoms, then these should be stopped. This is vitally important because we do not want children to end up taking lots of different medicines that are not helping them just because they work for other children. We have to remember that preventers are started as a *trial*, and not responding to them is not necessarily a problem. In medicine, when doctors assess a patient and suggest a trial of treatment based on the assessment, it is very important for them to know if it did not work – this information is very useful and can help to figure out what is causing the symptoms.

My child seems to be fine – should I stop the preventer?

Once asthma preventer medications have been started we should continue to assess the child's control of asthma symptoms every 6 months to a year. Children who are having a lot of symptoms may need to increase their preventer medications, but some children, if their symptoms have been very well controlled or absent may be able to try gradually reducing or coming off their preventer medication. The symptoms, if any, that occur after the preventer has been stopped will determine if the preventer is still required. It should be noted that asthma treatments don't make asthma go away, rather just control it while they are being used. Short term changes in medications over the course of weeks or a few months are unlikely to be helpful. The basic principle of asthma management in children is that we want to have a normal quality of life *using as little medication as necessary*. Doctors will always try to reduce medication if possible, although this should be done in a controlled way.

Should I stop the preventer in the summer?

Some children have little or no asthma symptoms in the summer. These children usually get symptoms only with colds and cold weather in the winter. For this group it is a good idea to try coming off inhaled preventers in the summer. Many children with isolated symptoms with colds will experience an improvement or resolution of symptoms as they get older, and so each year we should try to take them off preventers in the summer and re-assess in the autumn and winter whether they are still required. Some children with allergies can be worse in the summer – in these children this certainly would not be a good idea.



Things still don't make sense?

Things in medicine are not always clear cut. If your child's symptoms don't fit neatly into the patterns described above or you are concerned about lack of response to therapy, the severity of symptoms or other respiratory symptoms your child should be seen by a paediatrician or respiratory specialist.