Asthma inhalers, medicines and treatments

This section contains information on the following:

- General concepts with inhalers
- Reliever inhalers
- Preventer (or Maintenance) inhalers
- Anti-inflammatory reliever (AIR) inhalers
- Maintenance and Reliever Therapy (MART) regime
- Add-on treatments
- Biologic medications

General concepts with inhalers:

- The inhaler prescribed by your child's doctor will only be effective with the correct technique to ensure the medications get to your child's lungs where they are needed.
- If your child is prescribed a metred-dose inhaler (MDI), it should be used with a spacer.
- There are other inhalers that do not require a spacer such as a dry-powder inhaler (DPI), but your child should be assessed to have the ability to use it correctly before being prescribed it.

Note about spacers

- They are large, empty devices that help your child get the right amount of medication to the lungs if they are using a metred-dose inhaler (MDI).

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Preventer (or Maintenance) inhaler

What is it?

- An inhaler that helps prevent your child from getting an asthma attack.
- It should be prescribed by your healthcare professional together with a separate inhaler known as a reliever inhaler

When is it used?

- It needs to be used regularly, even when your child is well, to prevent an asthma attack.

Examples of maintenance or preventer inhalers

There are generally two types:

Corticosteroid inhalers

- Beclometasone (e.g. Clenil)
- Fluticasone (e.g. Flixotide)
- Budesonide (e.g. Pulmicort)

Combination inhalers

- Fluticasone/Salmeterol (e.g. Seretide)
- Beclometasone/Formoterol (e.g. Fostair)
- Budesonide/Formoterol (e.g. Symbicort)

How does it work?

Corticosteroid inhalers

- It contains a *corticosteroid* (a type of steroid) that helps reduce *inflammation* (swelling or irritation) in the small breathing tubes, therefore making your child breathe better.

Combination inhalers

- It contains a *corticosteroid* (a type of steroid) and a medicine to help keep the breathing tubes open for longer (also known as a *long-acting bronchodilator*). This makes them suited for children whose asthma is harder to control with just a corticosteroid inhaler.

What are the main side effects?

Whilst they are an important part of keeping your child well and preventing an asthma attack, it is good to be aware of potential side effects:

- Mouth and throat issues: inhaled steroids can cause irritation of the mouth and throat and sometimes lead to oral thrush (white coating in the mouth). This is easily prevented by getting your child to rinse their mouth and brush their teeth after using the inhaler.
- Effect on growth: long-term use of inhaled steroids may slow their growth. This effect tends to be small and is less likely to happen at lower doses. For this reason, your child's growth is always monitored in clinic to ensure it stays on track.

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Reliever inhaler

What is it?

- An inhaler used to quickly relieve asthma symptoms such as coughing, wheezing or shortness of breath.
- It should be prescribed by your healthcare professional together with a separate inhaler known as a maintenance/preventer inhaler.

When is it used?

- It is used when fast relief is required, such as when your child is having an asthma attack or asthma symptoms.
- Note that it does not treat the underlying inflammation in the breathing tubes. That is why it is used alongside a preventer inhaler which helps reduce inflammation and keep asthma under control longer term.

Examples of reliever inhalers

- Salbutamol (e.g. Ventolin, Salamol, Airomir, Easyhaler)

How does it work?

- It works by quickly relaxing the muscles around the small breathing tubes which causes them to open up and make your child's breathing easier.

What are the main side effects?

Salbutamol is generally safe and highly effective for quickly relieving asthma symptoms, but it is important to be aware of potential side effects:

- Shaking: Your child may feel a little shaky or jittery after using the inhaler.
- Increased heart rate: You or your child may notice their heart beating faster after taking salbutamol.

The above side-effects are temporary and tend to go away shortly after use.

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Anti-inflammatory reliever (AIR) inhaler

What is it?

- An inhaler that helps both prevent your child's asthma symptoms from returning too soon (anti-inflammatory effect) as well as provide quick relief for when your child has asthma symptoms (reliever effect).

When is it used?

- It is used when quick relief is required such as when your child experiences asthma symptoms.
- Unlike regular reliever therapy, it has the added benefit of reducing inflammation and therefore preventing asthma symptoms from returning too soon.

Examples of AIR inhaler:

- Budesonide/Formoterol (e.g. Symbicort)

How does it work?

An AIR inhaler contains a combination of medications in one inhaler, each component having a specific effect or benefit as outlined below:

- Anti-inflammatory effect: It contains a *corticosteroid* (a type of steroid) that reduces *inflammation* (swelling or irritation) inside the small breathing tubes. By reducing any swelling or irritation in the breathing tubes, it reduces the chances of your child experiencing asthma symptoms.
- Reliever effect: It contains a medicine that works almost immediately like a regular reliever inhaler. It helps relax the muscles lining the breathing tubes, thereby opening them up quickly and making it easier for your child to breathe.

What are the main side effects?

AIR inhalers are generally safe to give, but carry the potential side effects similar to that seen in some of the other inhalers already mentioned:

- Shaking: Your child may feel a little shaky or jittery after using the inhaler.
- Increased heart rate: You or your child may notice their heart beating faster after taking the inhaler.
- Mouth and throat issues: inhaled steroids can cause irritation of the mouth and throat and sometimes lead to oral thrush (white coating in the mouth). This is easily prevented by getting your child to rinse their mouth and brush their teeth after using the inhaler.

Maintenance and reliever therapy (MART) regime

What is it?

- It is a treatment regime that involves one inhaler combining two medications that helps both prevent your child's asthma symptoms from returning too soon (anti-inflammatory effect) as well as provide quick relief for when your child has asthma symptoms (reliever effect).

When is it used?

- As it is used as maintenance therapy, it needs to be used regularly (at a dose specified by the prescribing healthcare professional) even when your child is well, to prevent an asthma attack.
- As it also works as a reliever, additional doses (as specified by the prescribing healthcare professional) can be used when quick relief is required such as when your child experiences asthma symptoms.

Examples of inhalers used as part of a MART regime

- Budesonide/Formoterol (e.g. Symbicort, Spiromax)
- Beclometasone/Formoterol (e.g. Fostair)

How does it work?

A MART inhaler contains a combination of medications in one inhaler, each component having a specific effect or benefit as outlined below:

- Anti-inflammatory effect: It contains a *corticosteroid* (a type of steroid) that reduces *inflammation* (swelling or irritation) inside the small breathing tubes. By reducing any swelling or irritation in the breathing tubes, it reduces the chances of your child experiencing asthma symptoms and helps prevent asthma attacks.
- Reliever effect: It contains a medicine that works almost immediately like a regular reliever inhaler. It helps relax the muscles lining the breathing tubes, thereby opening them up quickly and making it easier for your child to breathe.

What are the main side effects?

Inhalers used as part of the MART regime carry potential side effects similar to that seen in some of the other inhalers already mentioned:

- Shaking: Your child may feel a little shaky or jittery after using the inhaler.
- Increased heart rate: You or your child may notice their heart beating faster after taking the inhaler.
- Mouth and throat issues: inhaled steroids can cause irritation of the mouth and throat and sometimes lead to oral thrush (white coating in the mouth). This is easily prevented by getting your child to rinse their mouth and brush their teeth after using the inhaler.
- Effect on growth: long-term use of inhaled steroids may slow their growth. This effect tends to be small and is less likely to happen at lower doses. For this reason, your child's growth is always monitored in clinic to ensure it stays on track.

‘Add-on’ treatments

Your child may be prescribed additional treatments such as those outlined in this section.

Leukotriene-receptor antagonist (LTRA)

What is it?

- It is an oral medication that helps control asthma.

When is it used?

- It is taken regularly, even when your child feels well, to help control asthma symptoms. It does not provide quick relief.
- It is usually used in combination with other inhalers (preventers and relievers)

Example

- Montelukast (e.g. Singulair)

How does it work?

- It works by blocking certain chemicals in the body that cause narrowing of the small breathing tubes. This helps keep the airways open and prevents your child from getting asthma symptoms.

What are the main side effects?

Whilst some children get benefit from this medication, uncommonly, side effects can be problematic, and it is important to be aware of these. Please seek medical attention when your child experiences any of these symptoms whilst on an LTRA:

- Sleep disturbance: Your child may experience nightmares or some form of sleep disturbance.
- Behavioural changes: You may notice a deterioration in your child’s behaviour such as increased irritability, anxiety and low mood

Long-acting muscarinic antagonist (LAMA)

What is it?

- It is an inhaler that helps open up the airways in the lungs making it easier for your child to breathe.

When is it used?

- It is used as an 'add-on' treatment when your child's asthma is not well-controlled on standard treatments (preventer and reliever inhalers)
- It is taken regularly, even when your child is well, to help keep their breathing easier.

Example

- Tiotropium (e.g. Spiriva Respimat)

How does it work?

It works by blocking certain chemicals in the body that causes narrowing in the small breathing tubes. It helps open the airways up for longer and making it easier for your child to breathe.

What are the main side effects?

Tiotropium is generally safe, but may have some side effects:

- Mouth or throat irritation: It can sometimes cause a dry mouth but drinking water or rinsing the mouth after using the inhaler can help.
- Increased heart rate: This is uncommon but may happen. If you notice your child's heart rate seems unusually fast, it is important you tell your doctor.

Theophylline

What is it?

It is an oral medication that helps open up the airways in the lungs making it easier for your child to breathe.

When is it used?

- It is used as an 'add-on' treatment when your child's asthma is not well-controlled on standard treatments (preventer and reliever inhalers)
- It is taken regularly, even when your child is well, to help keep their breathing easier.

Example

- Uniphyllin

How does it work?

Theophylline helps to stop the small breathing tubes from narrowing by relaxing the muscles around them. It also helps reduce inflammation in the lungs, making it easier to breathe over time.

What are the main side effects?

Theophylline is a medication that can have side effects just like any other. Importantly, levels in the blood may need to be monitored from time to time by your doctor to ensure levels do not get too high. The main side effects are outline below and may be a sign of high levels in the blood:

- Upset stomach, vomiting
- Headaches, dizziness, restlessness
- Trouble sleeping
- Increased heart rate

If you notice any of these symptoms, please seek medical attention as adjustments may need to be made to your child's treatment.

Oral corticosteroids

What is it?

It is a type of steroid taken as oral medication that helps reduce inflammation in asthma. They are a stronger form of medicine compared to inhaled corticosteroids.

When is it used?

It can be prescribed as a short or longer course depending on the severity of your child's symptoms. Typically, during an asthma attack, your child is prescribed a 3–5-day course. Longer courses are only reserved for severe cases of asthma in which symptoms are not controlled despite being on other asthma treatments.

Examples

- Prednisolone
- Dexamethasone

How does it work

When your child has an asthma attack, their small breathing tubes can become inflamed (swollen and irritated) making it harder to breathe. Steroids calm the inflammation down relatively quickly, allowing your child to breathe better.

What are the main side effects?

Most of the side effects are problematic only when steroids are taken frequently and over a long period of time. Steroids are associated with many side effects and in general, longer-term use is avoided if possible:

- Increased appetite and weight gain
- Mood changes: You may notice your child having changes in behaviour or becoming increasingly irritable.
- Sleep disturbance: Your child may be more alert when taking steroids, resulting in sleep disturbance.
- Stomach irritation: Your child may experience symptoms of heartburn. Steroids can be taken with food to help reduce this.
- Weak immune system: Your child will likely be prone to more severe infections when taking steroids over a longer period of time.
- Thinning of the skin: You may notice your child's skin thinning and bruising easier. This is a risk with longer-term rather than short-term use.
- Increased blood sugar: Steroids commonly cause increased blood sugar and may be an issue for someone with diabetes.
- Slow growth: When used longer term, steroids can slow your child's growth.

Important note on steroids:

- If your child has been taking oral corticosteroids for a long time, please do not stop the medicine suddenly without consulting a doctor, as your child may become unwell.
- Your doctor may advise carrying a steroid treatment and warning card if your child has been taking steroids for a long while.

Biologic Medicines

What are they?
These medicines are only given in a specialist asthma clinic and are given as a regular injection.

When are they used?
They can be really helpful for children with severe allergic asthma, especially if they can only otherwise control their symptoms by taking regular steroids. They can help your child control their asthma without the side effects of regular steroids. They are also known as 'steroid sparing agents' for this reason

Example
Omalizumab (Brand name Xolair)
Mepolizumab (brand name Nucala)

How do they work?
These work completely differently to other asthma medicines:

Omalizumab works by blocking the activity of some of the immune system (IgE) that triggers swelling in the airways. This means that when your child meets an allergic trigger, their airways will not be as sensitive as they were before and so you child is less likely to become unwell.

Mepolizumab is used when airway swelling in asthma is caused by high levels of white blood cells called eosinophils. Mepolizumab stops a substance called IL-5 from helping eosinophils be produced and so reduces airway swelling.

Both treatments are injections given under the skin every 2 or 4 weeks, A skin or blood test is performed to see if they have allergies before starting treatment.

These injections 'add-on' to their usual inhalers and medicines and do not replace other treatment they are taking. However, they might help manage your child's asthma

What are the main side effects?
Possible side effects may include:

- Short lasting discomfort at the injection site
- Pain in arms and legs, dizziness, feeling tired, skin rash, bone fractures
- Common cold symptoms, headache, sore throat, pain or discomfort of your ear, abdominal pain, nausea, vomiting and nose bleeds.
- Fever, muscle aches and rash. Some people get these symptoms after 1 to 5 days after receiving their injections. Inform your healthcare provider should your child experiences such symptoms.
- There is a potential risk of severe allergic reaction (anaphylaxis) to these treatments. This can occur after the first dose, or after many doses. Your child's doctor or nurse will monitor closely for symptoms of allergic reaction while they are receiving Omalizumab for a period of time.