Supporting Children and Young People's Health: Improving Asthma Care Together

Tier 1 additional resource pack to support online training

Version 25.04

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Foreword

Congratulations on completing the Supporting Children and Young People's Health: Improving Asthma Care Together short course. We have created this workbook as a refresher workbook to enable you to access the key learnings quickly and easily. We hope you find this useful.

Education for Health Team

About this workbook

This workbook has been designed to reinforce the key learnings from Tier 1: Improving Asthma Care Together, for people supporting children and young people with asthma, parts 1-3.

Key learnings will include:

- What is asthma: a definition.
- Different types of reliever inhalers: introducing anti-inflammatory reliever inhalers (AIR) and maintenance and reliever therapy inhalers (MART).
- The importance of good inhaler technique with a Dry Powder Inhaler (DPI) and Metered Dose Inhaler (MDI) with and without a spacer.
- The impact of exposure to trigger factors that may exacerbate asthma: allergic and other environmental triggers.
- How to spot signs of poor asthma control.
- How to support multi-dosing of reliever inhalers during poor asthma control or an asthma attack.
- The value of a Personal Asthma Action Plan (PAAP).
- Recommendations for communicating with parents/carers if a child or young person has an asthma attack.
- Legislation re: the use of emergency inhalers in schools.
- Knowledge check, reinforcing learning with reflection.

What is asthma?

Asthma is a common lung condition that causes occasional breathing difficulties for the person, due to changes in their airways. You can develop asthma at any age, although it often starts in childhood. The underlying cause is inflammation; this makes the airways very “twitchy” when exposed to triggers that provoke asthma symptoms. The triggers can be allergic, such as mould, animals, pollens etc. or non-allergic, such as cigarette exposure and aerosol sprays like cleaning sprays or perfume. Though there is no cure, there is very effective treatment (NHS, 2025).

The main symptoms of asthma are

- wheezing (noisy breath sounds);
- breathlessness;
- cough, sometimes triggered by exercise or exposure to dust in a room;
- chest tightness.

(NHS, 2025)

Asthma is diagnosed after a careful clinical history. Once the healthcare professional suspects that a person has asthma, this needs to be confirmed by tests. There is a sequential approach to using appropriate tests for the person.

The underlying condition of asthma is one of inflammation of the lungs. The sequential approach to confirming asthma therefore starts with trying to identify the inflammation using a test called a FeNO test, which involves breathing into a machine. If this does not confirm the level of inflammation required for diagnostic purposes, then other tests are performed such as spirometry and peak flow recording. These are lung function tests, which are used to identify if the person is showing any signs of lung function changes, which in turn will help the clinician to confirm the diagnosis of asthma.

Once the diagnosis is confirmed, treatment is with an inhaled medicine known as an inhaled corticosteroid (ICS), which dampens down the inflammation in the airways, making them less twitchy. Any symptoms such as wheeze, cough, breathlessness, or chest tightness are treated with a reliever inhaler to relieve the symptoms. For children under 12, these

medicines will often be delivered with two separate inhalers, one containing the ICS and a separate inhaler containing the reliever.

For young people 12 years and over, the recommendation now is generally for one inhaler that combines both the ICS and reliever in one inhaler device. This is administered using either the AIR or MART approach to managing asthma (NHS Inform, 2024). Therefore, when at school, the young person now using a combination inhaler (AIR or MART regime) will not use the traditional blue inhaler when they are experiencing asthma symptoms, but their combined inhaler. One of the advantages of this is that young people (and adults) only need to use one inhaler device, which treats not only their asthma but also their symptoms when their asthma is not optimally controlled.

There will be a transitional period; younger children under 12 years old and some teenagers and young people may have been advised by their healthcare professional to continue to use their blue inhaler through a spacer to relieve their asthma symptoms.

What is AIR therapy?

Anti-inflammatory reliever (AIR) therapy uses a combination inhaler, which has both an anti-inflammatory and a long-acting reliever medicine combined in one inhaler:

1. The inhaled corticosteroid (ICS) is the anti-inflammatory part of the inhaler, which dampens down the inflammation in the person's lungs.

2. The long-acting reliever, called Formoterol, works very quickly to relieve the symptoms the person has by relaxing the muscle around the airway, opening them up. Unlike the blue inhaler traditionally used, the benefit lasts for a lot longer.

Lots of evidence and research has shown that using a combined inhaler—one that has a dose of inhaled corticosteroid (ICS) and a much longer lasting reliever—reduces the risk of an asthma attack or hospitalisation (Asthma + Lung UK, 2025a).

The person will carry this inhaler, not a blue inhaler, for their emergency use. The details will be recorded in their Personal Asthma Action Plan (PAAP) with instructions of how to use it in an emergency. We will cover the PAAP later.

What is MART therapy?

Maintenance and Reliever Therapy (MART) is also a combination inhaler which has both an anti-inflammatory (ICS) and a long-acting reliever medicine combined in one inhaler.

The patient will use their combination inhaler each morning and evening as maintenance therapy, but instead of using a separate blue inhaler to relieve their symptoms, such as cough or wheeze, during the day or night, the person uses the same inhaler they use for maintenance therapy, i.e. one inhaler for both.

The difference between AIR and MART is that with AIR, the person does not need to take their combination inhaler each morning and night, but only as needed. With MART, the combination inhaler is used each morning and night and as needed.

The following links provide more information on the AIR and MART regimes:

- AIR (anti-inflammatory reliever) (Asthma + Lung UK, 2025a)
- Maintenance and reliever therapy (MART) (Asthma + Lung UK, 2025b)

The importance of good inhaler technique with a Dry Powder Inhaler (DPI) and Metered Dose Inhaler (MDI) with and without a spacer

The basic principle of the DPI or MDI is that it is a device which carries either an ICS or a reliever or both in combination. The device is not the medication. In other words, a DPI or MDI can come in a variety of shapes and colours and contain different medicines. Often the colour of the DPI or MDI will give a clue as to the type of medication in it, whether it is an ICS, a reliever, or a combination.

There are many different types of ICS medications, manufactured by different pharmaceutical companies. There are also different types of relievers; the blue inhaler is short-acting, whereas the reliever in the combination inhalers is long-acting, providing relief for a much longer period.

Whatever the medication, the technique of using the DPI or MDI device is very important. If the device is not used correctly, the medication inside will not get to the areas in the lungs where it works. With poor inhaler technique, the medication in the device can be left in the mouth, swallowed, or exhaled too quickly before it reaches the lungs.

Good inhaler technique is therefore crucial.

How to use a Dry Powder Inhaler (DPI): general principles

The introduction of the DPI facilitates a lower-carbon inhaler footprint. The technique is very different to using a MDI and spacer.

For DPI devices, there is no need for a spacer, and each DPI has its own features. It is therefore important to read the patient information leaflet (PIL) for each of the different types of DPI to ensure the correct technique is used.

The main difference between using a DPI inhaler or an MDI inhaler is the speed the person inhales the medication from the device, known as the inspiratory flow. The technique requires the person to empty their lungs away from the inhaler, to avoid the contents becoming damp, then to breathe in **quickly and deeply**, until the lungs feel full, then to hold their breath for up to 10 seconds, to allow the medication to reach the lungs.

The following links show images and videos of the different types of inhaler devices available, and the correct inhaler technique for the type of inhaler:

- How to use your inhaler (Asthma + Lung UK, n.d.)
- Using your inhalers (Asthma + Lung UK, 2021)

How to use a metered dose inhaler (MDI) with a spacer: general principles

This section will concentrate on the use of a reliever MDI with a spacer.

Key facts:

- The inspiratory flow with an **MDI is to breathe in slowly and steadily**, unlike a DPI which requires the person to breathe in quickly and deeply.
- For the medication to have maximum benefits, **an MDI should always be used with a spacer.**
- Using a spacer can increase the amount of the medication that reaches the lungs by reducing the amount that is wasted in the mouth, reducing the risk of thrush (a fungal infection that can occur in the mouth) and soreness (NHS, 2025).
- There is a range of different spacers for all age groups; some with a mask and others with a mouthpiece. The use of a mask may vary, depending on the age of the child. Healthcare professionals will consult with the patient (and their representatives) to choose the most appropriate spacer device. Once the child can drink through a straw or they are older than 5 years, most should be able to use a spacer without a facemask (Asthma + Lung UK, 2022).

Children and young people may have been shown how to use their spacer using either tidal breathing, breathing in and out, or breathe and hold technique. Some children will use a mask attached to their spacer; some children will use a mouthpiece.

Please follow this link to remind yourself of the different types of spacers:

- Spacers (Asthma + Lung UK, 2024a)

The following videos show how to use a spacer with and without a mask:

- How to use a spacer with a mask for a baby or child (Asthma + Lung UK, 2023c)
- How to use a spacer without a mask for a child (Asthma + Lung UK, 2023e)

Please see the following videos for more information about the different breathing techniques used with a spacer:

- How to use a MDI inhaler with a spacer – single breath and hold (Asthma + Lung UK, 2023b)

- How to use a MDI inhaler with a spacer – tidal breathing (Asthma + Lung UK, 2023d)

Some young people will have been shown how to use their MDI without a spacer. Please see the following video for more information:

- How to use a pMDI inhaler (Asthma + Lung UK, 2023a)

The child or young person will have been advised how to look after their spacer, with information such as replacing and disposing of spacers, how and when to clean the spacer, and how to store the spacer. For more information on how to look after the spacer, please see the following information:

- Spacers (Asthma + Lung UK, 2024a)

The e-learning modules introduced the Dry Powder Inhaler (DPI) and Metered Dose Inhaler (MDI), two of the three different forms of inhaler devices used by children and young people. The third type of device referred to as a soft mist inhaler (SMI), is not generally used for this age group.

Personal Asthma Action Plan (PAAP)

A PAAP provides information for the child and young person about their personal asthma care. The written or digital PAAP contains information on:

- Which medicines to take as needed (including AIR)
- Which medicines to take every day, such as inhaled corticosteroids (ICS), especially for children under 12 years old
- Which medicines to take every day and as needed (MART)
- What to do if a person's asthma symptoms get worse
- What to do if they have an asthma attack

The PAAP will often have a traffic light visual description to support the person with their asthma management, providing information about recognising worsening symptoms and what action to take:

- **RED: In an asthma attack.** The red section provides information on recognising and managing an asthma attack.
- **AMBER: When the person feels worse.** The amber section is an alert to show that the asthma is not optimally controlled, with advice about what to do to reduce the risk of further deterioration and to bring the asthma control back to its best.
- **GREEN: Everyday asthma care.** The green section demonstrates best control, with the absence of symptoms.

The PAAP is negotiated and discussed with the child and their parents or carers, and with the young person to enable them to look after their asthma every day.

The PAAP may be a written or digital document, whichever is preferred by the patient. Many children will provide a copy of their PAAP to the schools to enable a shared care approach.

The following links provide more information on the different types of PAAP:

- Your asthma action plan (Asthma + Lung UK, 2024b)

- AIR (anti-inflammatory reliever) (Asthma + Lung UK, 2025a)
- Maintenance and reliever therapy (MART) (Asthma + Lung UK, 2025b)

How to spot signs of poor control

Asthma symptoms should not interfere with the child or young person's daily activities. If they are experiencing asthma symptoms, they will know to refer to their PAAP and how and when to seek help.

Uncontrolled asthma could mean that a person has difficulty breathing and they are at risk of life-threatening flare-ups or asthma attacks (NHS, 2023).

Signs of having uncontrolled asthma are:

- Needing to use a reliever inhaler 3 or more days a week (British Thoracic Society [BTS] et al., 2024)
- Night-time waking 1 or more times a week (BTS et al., 2024)
- Feeling breathless
- Coughing
- Tight chest
- Wheezing (noisy breath sounds)
- Finding it harder to do everyday things
- Using a reliever-type inhaler more than usual
- PEAK flow dropping to below 80% of the patient's usual score (Asthma and Lung UK, 2024d)

It is important that the child or young person refers to their PAAP. Remember, someone who is having an attack can feel distressed and anxious. It is important to reassure them and help them stay as calm as possible.

Call 999 straight away if they do not have a reliever-type inhaler with them (Asthma and Lung UK, 2024b).

RED: In an asthma attack for a blue reliever inhaler

1. **Sit up - try to keep calm.**
2. **Take one puff of your blue reliever inhaler every 30-60 seconds up to 10 puffs.**
3. **If you feel worse at any point OR you don't feel better after 10 puffs, call 999 for an ambulance.**
4. **If the ambulance has not arrived after 10 minutes and your symptoms are not improving, repeat step 2.**
5. **If your symptoms are no better after repeating step 2, and the ambulance has still not arrived, contact 999 again immediately.**

If you do not have your blue reliever inhaler, call 999 straight away.

(Asthma and Lung UK, 2024b)

RED: In an asthma attack (AIR therapy)

1. **Sit up straight - try to keep calm.**
2. **Take one puff of your AIR inhaler every 1 to 3 minutes up to six puffs.**
3. **If you feel worse at any point OR you do not feel better after six puffs call 999 for an ambulance.**
4. **If the ambulance has not arrived after 10 minutes and your symptoms are not improving, repeat step 2.**
5. **If your symptoms are not better after repeating step 2, and the ambulance has still not arrived, contact 999 again immediately.**

If they do not have their AIR inhaler with them, call 999, tell the call-handler that they use an anti-inflammatory reliever inhaler.

(Asthma and Lung UK, 2024a)

RED: In an asthma attack (MART therapy)

1. **Sit up straight - try to keep calm.**
2. **Take one puff of your MART inhaler every 1 to 3 minutes up to six puffs.**
3. **If you feel worse at any point OR you do not feel better after six puffs call 999 for an ambulance.**
4. **If the ambulance has not arrived after 10 minutes and your symptoms are not improving, repeat step 2.**
5. **If your symptoms are not better after repeating step 2, and the ambulance has still not arrived, contact 999 again immediately.**

If you do not have your MART inhaler with you and need to use a blue reliever inhaler, take one dose every 30-60 seconds up to a maximum of 10 puffs and call 999 for an ambulance.

(Asthma and Lung UK, 2023f)

The child's parents or carers should be contacted after the ambulance has been called.

A member of staff should always accompany a child taken to hospital by ambulance and stay with them until a parent or carer arrives (Department of Health, 2015).

Guidance on the use of emergency salbutamol inhalers in schools (gov.uk, 2015)

From 1st October 2014, the Human Medicines (Amendment) (No. 2) Regulations 2014 allowed schools to buy salbutamol inhalers, without a prescription, for use in emergencies.

Schools are not required to hold an inhaler – this is a discretionary power enabling schools to do this if they wish. Schools that choose to keep an emergency inhaler should establish a policy or protocol for the use of the inhaler based on this guidance. Keeping an inhaler for emergency use will have many benefits. It could prevent an unnecessary and traumatic trip to hospital for a child and potentially save their life.

The emergency salbutamol inhaler should only be used by children who have either been diagnosed with asthma and prescribed an inhaler, or who have been prescribed an inhaler as reliever medication, for whom written parental consent has been given.

This information should be recorded in a child's individual healthcare plan. Use of the emergency inhaler should be recorded. This should include where and when the attack took place (e.g. PE lesson, playground, classroom), how much medication was given, and by whom. Supporting pupils effectively requires written records to be kept of any medicines administered. The child's parents must be informed in writing so that this information can also be passed on to the child's healthcare provider.

An example of an emergency asthma kit from the gov.uk (2015) Guidance

NB: this pre-dates the AIR regime

An emergency asthma inhaler kit should include:
a salbutamol metered dose inhaler
at least two plastic spacers compatible with the inhaler
instructions on using the inhaler and spacer
instructions on cleaning and storing the inhaler
manufacturer's information
a checklist of inhalers, identified by their batch number and expiry date, with monthly checks recorded
a note of the arrangements for replacing the inhaler and spacers
a list of children permitted to use the emergency inhaler as detailed in their individual healthcare plans
a record of administration (i.e. when the inhaler has been used)

(Department of Health, 2015)

A child may be prescribed an inhaler for their asthma which contains an alternative reliever medication to salbutamol (such as terbutaline). The salbutamol inhaler should still be used by these children if their own inhaler is not accessible – it will still help to relieve their asthma and could save their life.

The emergency salbutamol inhaler can also be used for a child who uses a combination inhaler for AIR or MART as a reliever if their own inhaler is not available.

Knowledge check

1. What are the main symptoms of asthma?

2. What do each of the 3 sections of a Personal Asthma Action Plan (PAAP) (red, amber, green) refer to?

3. Which of the following statements are signs of poor asthma control?

    a. Waking up at night because of asthma symptoms.

    b. Getting asthma symptoms 3 or more times a week.

    c. Using their reliever type inhaler 3 or more times a week.

    d. Having frequent asthma attacks or chest infections.

4. True or false? In children, an MDI should always be used with a spacer.

5. True or false? Young people using a combination inhaler as part of the AIR or MART regime will be advised to use the combination inhaler instead of a blue inhaler for their breakthrough asthma symptoms.

6. True or false? Schools are not required to hold an inhaler – this legislation provides a discretionary power enabling schools to do so if they wish.

Answers:

1. What are the main symptoms of asthma?
   Answer: cough, wheeze, breathlessness, chest tightness.0

2. What do each of the 3 sections of a Personal Asthma Action Plan (PAAP) (red, amber, green) refer to?
   Answer: red = in an asthma attack. Amber = when the person feels worse. Green = Everyday asthma care.

3. Which of the following statements are signs of poor asthma control?
   Answer = all.

4. True or false? In children, and MDI should always be used with a spacer.
   Answer: true.

5. True or false? Young people using a combination inhaler as part of the AIR or MART regime will be advised to use the combination inhaler instead of a blue inhaler for their breakthrough asthma symptoms.
   Answer: true.

6. True or false? Schools are not required to hold an inhaler – this legislation provides a discretionary power enabling schools to do so if they wish.
   Answer: true.

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Specimen letter to inform parents of emergency salbutamol inhaler use

Annex B from Guidance on the use of emergency salbutamol inhalers in schools (Department of Health, 2015)

Child's name:

Class:

Date:

Dear ……..,

[Delete as appropriate]

This letter is to formally notify you that……..has had problems with his / her breathing today. This happened when……

A member of staff helped them to use their asthma inhaler.

They did not have their own asthma inhaler with them, so a member of staff helped them to use the emergency asthma inhaler containing salbutamol. They were given …… puffs.

Their own asthma inhaler was not working, so a member of staff helped them to use the emergency asthma inhaler containing salbutamol. They were given …… puffs.

[Delete as appropriate]

Although they soon felt better, we would strongly advise that you have your…… seen by your own doctor as soon as possible.

Yours sincerely,

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