

# Asthma Guideline 2024

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## Acute asthma

Please refer to:  
[BTS/SIGN guideline](#): Management of acute asthma for guidance on the management of acute asthma in adults and children

## Pregnancy

Please refer to:  
[BTS/SIGN guideline](#): Asthma in pregnancy

## Multilingual Asthma Videos

Please visit the link to access a range of asthma patient videos in multiple languages

With thanks to Dr Llinos Jones and Mid Yorks NHS Trust for this resource

## What is asthma and how to treat it?

This video helps to explain to people with asthma what asthma is and how treatments work.

With thanks to Greener Practice for this resource

## Moving on Asthma

A resource for young people living with asthma including videos to support self-management

Medicines Optimisation Team SYICB with special thanks to consultant colleagues at Sheffield Children's Hospital, Sheffield Teaching Hospitals and The Rotherham NHS Foundation Trust

Review date: on publication of Joint NICE/ BTS/SIGN Guideline

## Diagnosis

See [BTS/SIGN](#) chapter 3 Diagnosis and [NICE NG80](#) for further information

**Key symptoms** shortness of breath, cough, wheeze (confirmed by HCP), chest tightness

**Variability** duration, intensity, airflow obstruction.

**Timing** often worse at night and early morning

**Triggers** including infections, exercise, allergen exposure, weather or irritants

**Record and code:**

- Triggers
- Atopic history
- Family history
- Occupational exposure
- Smoking history
- Quality assured spirometry including reversibility testing
- Peak flow

Use spirometry to confirm diagnosis or if diagnosis is unsure.

Reversibility of  $\geq 200$ ml after 400mcg salbutamol (or corticosteroid treatment trials) is supportive and  $\geq 400$  ml strongly suggestive of asthma. **Normal spirometry does not exclude asthma**

2-week peak expiratory flow rate (PEFR) diary showing 20% diurnal variation on  $\geq 3$  days in a week is an alternative to identify reversibility

In children 5+ an improvement in FEV<sub>1</sub> of 12% or more is regarded as a positive test.

NICE recommends the use of PEFR in children when diagnosis is unclear/intermediate probability of asthma

FeNO (fractional exhaled nitric oxide) testing. Levels  $\geq 40$ ppb in a non-smoker ( $>35$ ppb in schoolchildren) support the presence of airway inflammation. **A normal FeNO does not exclude asthma.**

**High probability of asthma** a typical history with documented wheeze, atopic history and no features of other diagnoses. Consider trial of treatment

**Intermediate probability of asthma** (diagnosis unsure) pursue investigations as above. Consider; watchful waiting if asymptomatic, commencement of treatment with assessment of response (particularly if airway obstruction present) or referral to secondary care

**Low probability of asthma** asthma unlikely - pursue other diagnoses and/or refer

Where treatment is initiated, start at a level appropriate to initial severity. Review any treatment initiated at 4-8 week

**At diagnosis explain (with [airway images](#)) the nature of airways inflammation in asthma and that the aim of treatment is to reduce inflammation. For the best outcomes initiate ICS at diagnosis (consider montelukast  $< 5$  if unable to take ICS)**

## Review and management

**Review** patients annually

**Provide** a [written personalised asthma action plan \(PAAP\)](#)

See [Personalised Asthma Action Plans](#) for further information.

**Assess symptoms** using [RCP 3 questions](#), [asthma control test \(ACT\)](#) and frequency of reliever use

**Features of poor control include:**

- Daytime symptoms  $\geq 3$  times a week
- Night-time awakening  $\geq 1$  per week
- The use of reliever medication  $\geq 3$  times per week
- Asthma attacks  $\geq 1$  per year

Assess lung function e.g. PEFR

Document frequency and severity of any asthma attacks

Check if patient has ever had hospital admissions due to asthma

Check for courses of oral steroids/antibiotics in the last 12 months

Check how many reliever/rescue (SABA) inhalers have been issued in the previous 12 months (address any discrepancy between this and patient reported use)

Check for triggers and advise trigger avoidance where possible

Discuss features of poor control and check the patient understands their treatment (use [airways images](#) to explain importance of ICS)

Check adherence and inhaler technique and demonstrate good technique.

See videos [How to use your inhaler | Asthma UK](#)

Consider DPI where appropriate See [Visual Aid](#)

Check spacer use and maintenance. Encourage [spacers with pMDIs](#)

Minimise numbers/types of inhaler devices and ensure prescribing is by brand and SYICB formulary choice.

Encourage smoking cessation and refer to appropriate [stop smoking service](#) and offer dietary/exercise advice for overweight patients.

Offer annual flu vaccine, pneumonia vaccine, covid vaccine (where appropriate)

Assess and treat co-morbidities including GORD, rhinitis, vit D deficiency

Step treatment up or down where appropriate. (Review at 4-8 weeks)

Consider step down of treatment if patient well controlled for 3-6 months

Ask patient about concerns or questions

**All patients should have anti-inflammatory medication to treat asthma (ICS unless  $<5$  where you may consider montelukast if unable to take ICS)**

## Aiming for Complete Control – Good Respiratory Care is Green Respiratory Care

Complete control is defined as:

- No daytime symptoms
- No night-time awakening due to asthma
- No need for rescue medication
- No asthma attacks
- No limitations on activity including exercise
- Normal lung function (in practical terms FEV<sub>1</sub> and/or PEFR > 80% predicted or best)
- Minimal side effects from medication

**Address SABA over reliance – anyone using  $\geq 3$  SABA inhalers in 12 months is potentially over reliant - THINK [ASTHMA RIGHT CARE!](#)**

**As per [GINA](#) - For the best outcomes ICS-containing controller treatment should be initiated as soon as possible after diagnosis**

**Aim to achieve early control and maintain control by increasing treatment as necessary and decreasing treatment when control is good**

- Use lowest effective doses to achieve control
- Record a “best” PEFR in patient’s record. If this is not possible record a predicted PEFR.
- Check inhaler technique at every opportunity
- See [Inhaler Choice](#) for further information

## Personalised Asthma Action Plans (PAAPs)

**For Adults:** Provide a [written personalised asthma action plan \(PAAP\)](#) preferably using PEFR (peak expiratory flow rate) monitoring appropriate to severity of the symptoms:

- **PEFR >80% best – no change needed continue with current maintenance treatment**
- **PEFR 60-80% best – options include increased therapy by MART regime, or increasing ICS total dose substantially for 7-14 days e.g. by quadrupling total ICS dose – consider providing an additional ICS inhaler to take during exacerbations (if already on ICS/LABA or not recommending increased MART therapy).**
- **PEFR 50-60% best – start oral steroids and seek advice**
- **PEFR < 50% best – seek urgent medical attention**

Best PEFR is the highest value blown during a 2-week period when asthma control is good. Repeat this periodically (e.g. every 5 years) as age will impact PEFR

**For Children:** Symptom-based plans are generally preferable for children ([Children’s personalised asthma action plan](#))

For Children 12-16 use PEFR within the PAAP where appropriate

**Include advice in self-management plans for all adults and children highlighting they must contact a healthcare professional for a review if their asthma control deteriorates**

## When to Refer

### Persistent poor control:

- Despite high dose ICS/LABA (inhaled corticosteroid/long acting  $\beta$  agonist)
- $\geq 3$  SABA (short acting  $\beta$  agonist) inhalers in the last 12 months despite primary care review inc. adherence and technique check
- $\geq 2$  asthma attacks requiring oral steroids in the last 12 months
- Life-threatening asthma attack/ admission for asthma attack

### When referring patients

- Include information about adherence
- Number of courses of oral steroids used in last 12 months
- Consider pre-referral bloods such as IgE, FBC and a chest x-ray

### Any of:

- Asthma diagnosis in doubt (red flags/indicators of other diagnoses)
- Suspected occupational asthma
- Poor response to asthma treatment
- Reached maximum treatment
- Non acceptance of diagnosis or persistent non-adherence
- Unable to tolerate treatment
- Poorly controlled asthma in pregnancy
- Breathing pattern disorder suspected

# Treatment Algorithm 1 – Flexible Regimen (for Adults and Children 12+)

GINA and locally preferred approach

Step up if control not achieved



consider [step down](#) if appropriate



## Additional Information for Flexible Regimens

This flexible regimen is based on recommendations from [2023 GINA Report, Global Strategy for Asthma Management and Prevention](#)

**\* Only Symbicort 200/6 Turbohaler has a licence to be used as a reliever alone without regular maintenance doses**  
The use of other ICS/formoterol inhalers as reliever alone (without maintenance ICS/formoterol too) is off-licence

**START HERE** for mild asthma with infrequent symptoms

### AS NEEDED ANTI-INFLAMMATORY (ICS/FORMOTEROL) RELIEVER\*

Symbicort® 200/6 Turbohaler\* 1 puff PRN (up to 8 puffs daily - rarely 12 puffs) age 12+

*This step is intended for infrequent symptoms – regular use indicates step up is required*  
*Patients using 4 or more puffs/day persistently require review – step up or add on treatment may be required*

**Seek urgent medical advice if patient is unwell or needing 8 or more puffs a day**

**START HERE** if symptoms most days or waking with asthma once a week

### Low dose ICS/FORMOTEROL ([MART](#))

Symbicort® 200/6 Turbohaler\* 1 puff BD and PRN (up to 8 puffs daily - rarely 12 puffs) age 12+  
Fobumix® Easyhaler 160/4.5 1 puff BD and PRN (up to 8 puffs daily - rarely 12 puffs) age 18+  
Fostair® 100/6 NEXThaler or pMDI 1 puff BD and PRN (up to 8 puffs daily) age 18+

*Seek medical advice if using additional rescue doses (above usual maintenance dose) persistently*  
**Seek urgent medical advice if patient is unwell or needing 8 or more puffs a day**

### SABA and Flexible Regimens

In some occasional instances, patients using flexible dosing regimes may have an in-date SABA pMDI (plus spacer) reserved for **emergency use only**, however for MOST patients flexible dosing regimens should be SABA free

**For emergency treatment of acute asthma, a patient may take up to 6 puffs of ICS/formoterol at any one time (1-minute intervals) – if 6 puffs do not relieve symptoms seek urgent medical advice**

### Maintenance and Reliever Therapy (MART)

Stop SABA inhaler and remove from repeats

**Important - See [MART Regimes – further information](#)**

*Seek medical advice if using additional rescue doses (above usual maintenance dose) persistently*

### Medium Dose ICS/FORMOTEROL ([MART](#))

Symbicort® 200/6 Turbohaler\* 2 puffs BD and PRN (up to 8 puffs daily - rarely 12 puffs) age 12+  
Fobumix® Easyhaler 160/4.5 2 puffs BD and PRN (up to 8 puffs daily - rarely 12 puffs) age 18+  
Fostair® 100/6 NEXThaler or pMDI 2 puffs BD and PRN (up to 8 puffs daily) age 18+

*Seek medical advice if using additional rescue doses (above usual maintenance dose) persistently*  
**Seek urgent medical advice if patient is unwell or needing 8 or more puffs a day**

### [High Dose ICS/LABA](#) (**Not MART**) or add on

Consider trial of high dose ICS/LABA + SABA PRN (**not MART regime**)  
Consider additional add on therapy if not previously tried

**Refer for specialist care**

*High doses should only be used after referring the patient to secondary care*  
*All patients on high dose ICS should receive a [Steroid Emergency Card](#)*

### Consider Montelukast<sup>#</sup> Age 15+ 10mg OD Age 12-14 chewable tab 5mg OD

*Do not give montelukast 10mg tabs to children < 15 years of age*

*Consider patient factors: patient preference, compliance with inhaled ICS and oral therapy, prescription charges.*

*Review treatment at 4-8 weeks – stop if no response. Step up inhaled therapy if required*

*If response seen but control remains inadequate, continue montelukast and step-up inhaled therapy*

### Consider trials of add on therapy Montelukast<sup>#</sup> – see above LAMA for age 18+

**If MART used - add Spiriva® Respimat®.**

**For high dose regimes add Spiriva® Respimat® or change to closed triple ICS/LABA/LAMA with asthma licence (Trimbow® pMDI/Enerzair®)†**

**If LAMA considered for age <18, please refer patient to SCH**

† Trelegy Ellipta does NOT have asthma licence <sup>#</sup>Caution Montelukast – [Reminder of the risk of neuropsychiatric reactions](#)

## Treatment Algorithm 2 - Traditional Regimen (for Adults and Children 12+)

Step up if control not achieved → consider step down if appropriate →

### Additional Information

Treatment Algorithm 2 is a traditional pathway where patients use a maintenance inhaler (ICS or ICS/LABA) either once or twice daily PLUS SABA PRN as rescue/reliever inhaler

The treatment algorithms are interchangeable, and it is always appropriate to consider if a patient is currently using the right regimen for them

Treatment [Algorithm 1 – Flexible Regimen](#) is the GINA and locally preferred approach where appropriate

### SABA

SABA should NOT be used alone for treatment of asthma. All patients should have anti-inflammatory treatment in the form of ICS or ICS/LABA

If a patient is requiring > 2 SABA in 12 months their asthma is likely to be uncontrolled and they require a review

**For emergency treatment of acute asthma a patient may take up to 10 puffs of SABA at any one time (1-minute intervals) – if 10 puffs do not relieve symptoms seek urgent medical advice as per PAAP**

### LOW DOSE ICS

Plus SABA PRN as RESCUE/RELIEVER inhaler

*Consider as needed anti-inflammatory reliever if compliance to regular ICS dosing may be poor or for mild infrequent symptoms – see [Algorithm 1 Flexible Regimen](#)*

### LOW DOSE ICS/LABA

Plus SABA PRN as RESCUE/RELIEVER inhaler

*Consider once daily preparation where appropriate  
Consider MART regime - see [Algorithm 1 Flexible Regimen](#)*

### MEDIUM DOSE ICS/LABA

Plus SABA PRN as RESCUE/RELIEVER inhaler

*Consider once daily preparation where appropriate  
Consider MART regime – see [Algorithm 1 Flexible Regimen](#)*

### HIGH DOSE ICS/LABA

Consider trial of high dose ICS/LABA + SABA PRN  
Consider additional add on therapy if not previously tried  
**Refer for specialist care**

*High doses should only be used after referring the patient to secondary care  
All patients on high dose ICS should receive a [Steroid Emergency Card](#)*

### Consider Montelukast<sup>#</sup>

**Age 15+ 10mg OD**

**Age 12-14 chewable tab 5mg OD**

*Do not give montelukast 10mg tabs to children < 15 years of age*

*Consider patient factors: patient preference, compliance with inhaled ICS and oral therapy, prescription charges.*

*Review treatment at 4-8 weeks – stop if no response. Step up inhaled therapy if required*

*If response seen but control remains inadequate, continue montelukast and step-up inhaled therapy*

### Consider trials of add on therapy

**Montelukast<sup>#</sup> – see above**

**LAMA for age 18+**

Add Spiriva<sup>®</sup> Respimat<sup>®</sup> or change to closed triple ICS/LABA/LAMA with asthma licence (Trimbow<sup>®</sup> pMDI/Enerzair<sup>®</sup>)\*

***If LAMA considered for age <18, please refer patient to SCH***

\* Trelegy Ellipta does NOT have asthma licence    <sup>#</sup> **Caution Montelukast** – [Reminder of the risk of neuropsychiatric reactions](#)

## Inhaler Choice Guide for Asthma, Adults and Children 12+ – Low carbon footprint DPIs and SMIs

See table on page 7 for additional [pMDI options](#); See [Table of active ingredients](#) for drug contents of each inhaler

| SABA                                                                                                                                                                                                                              | Low dose ICS<br>(Usual starting dose)                                                                                                            | Low dose ICS/LABA                                                                                                                                                                                                                                                         | Medium dose ICS/LABA                                                                                                                                       | High dose ICS/LABA                                                                                                                                                                                   | LAMA<br>(single or triple)                                                                                                                                                                                                                                                 |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Easyhaler Salbutamol 100mcg</b><br>1-2 puffs PRN<br>Age 4+<br><br><br>SABA monotherapy is NOT recommended. Use SABA as rescue medication only | <b>Pulmicort Turbohaler 100 mcg</b><br>2 puffs BD<br>Age 5+<br> | <b>Symbicort Turbohaler 200/6 mcg*</b><br>1 puffs BD<br>Age 12+<br>                                                                                                                     | <b>Symbicort Turbohaler 200/6 mcg*</b><br>2 puffs BD<br>Age 12+<br>     | <b>Symbicort Turbohaler 400/12 mcg</b><br>2 puffs BD<br>Age 18+ (see comments below)<br>                          | <b>Spiriva Respimat 2.5mcg</b><br>2 puffs OD<br>Single LAMA<br>Age 6+<br>                                                                                                               |
|                                                                                                                                                                                                                                   | <b>Easyhaler Budesonide 100mcg</b><br>2 puffs BD<br>Age 6+<br>  | <b>Fobumix Easyhaler 160/4.5 mcg*</b><br>1 puff BD<br>Age 18+<br>                                                                                                                       | <b>Fobumix Easyhaler 160/4.5 mcg*</b><br>2 puffs BD<br>Age 18+<br>      | <b>Fobumix Easyhaler 320/9 mcg</b><br>2 puffs BD<br>Age 18+<br>                                                   |                                                                                                                                                                                                                                                                            |
|                                                                                                                                                                                                                                   |                                                                                                                                                  | <b>Fostair Nexthaler 100/6 mcg*</b><br>1 puff BD<br>Age 18+<br>                                                                                                                         | <b>Fostair Nexthaler 100/6 mcg*</b><br>2 puffs BD<br>Age 18+<br>        | <b>Fostair Nexthaler 200/6 mcg</b><br>2 puffs BD<br>Age 18+<br>                                                   |                                                                                                                                                                                                                                                                            |
|                                                                                                                                                                                                                                   |                                                                                                                                                  | <b>Relvar Ellipta 92/22 mcg</b><br>1 puff OD<br>Age 12+<br>                                                                                                                             | <b>Relvar Ellipta 92/22 mcg</b><br>1 puff OD<br>Age 12+<br>             | <b>Relvar Ellipta 184/22 mcg</b><br>1 puff OD<br>Age 12+<br>                                                      |                                                                                                                                                                                                                                                                            |
|                                                                                                                                                                                                                                   |                                                                                                                                                  | <b>Ateectura Breezhaler 125/62.5 mcg</b><br>1 puff OD<br>Age 12+<br>                                                                                                                  | <b>Ateectura Breezhaler 125/127.5 mcg</b><br>1 puff OD<br>Age 12+<br> | <b>Ateectura Breezhaler 125/260 mcg</b><br>1 puff OD<br>Age 12+<br>                                             | <b>Enerzair Breezhaler 114/46/136mcg</b><br>1 puff OD<br>Triple<br>Age 18+<br>                                                                                                        |
| <b>Additional Comments</b><br><b>Caution</b> – Easyhaler salbutamol is available as 100mcg and 200mcg per puff; only the 100mcg strength is advised to avoid inadvertent doubling of SABA dose.                                   | <b>Additional Comments</b>                                                                                                                       | <b>Additional Comments</b><br>Fostair - extra fine particle is at least 2 x as potent than standard beclometasone<br><br>Relvar Ellipta 92/22 is considered low/medium ICS<br><br><b>* Can be used for MART</b><br><br><b>ONLY SYMBICORT HAS MART LICENCE FOR AGE 12+</b> |                                                                                                                                                            | <b>Additional Comments</b><br>Fostair - extra fine particle is at least 2 x as potent than standard beclometasone<br><br>Max licensed dose of Symbicort Turbohaler 400/12 for age 12-17 is 1 puff BD | <b>Additional Comments</b><br>Trimbaw NEXThaler does not have a licence for asthma<br>Caution - Enerzair Breezhaler is a high dose ICS containing inhaler<br>Although Spiriva Respimat is licensed from age 6, if LAMA considered for age <18, please refer to specialist. |

## Inhaler Choice Guide for Asthma, Adults and Children 12+ – High carbon footprint pMDIs

See table on page 6 for additional [DPI options](#)

See [Table of active ingredients](#) for drug contents of each

| SABA                                                                                                                                                                                                                | Low dose ICS<br>(Usual starting dose)                                                                                                                                      | Low dose<br>ICS/LABA                                                                                                                                                                                                                              | Medium dose<br>ICS/LABA                                                                                                                        | High dose<br>ICS/LABA                                                                                                                                                                                               | LAMA<br>(Single and triple)                                                                                                                                                                                                                                 |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Salamol pMDI 100mcg</b><br>1-2 puffs PRN<br><br><br><br>SABA monotherapy is NOT recommended. Use SABA as rescue medication only | <b>Kelhale 100mcg</b><br>1 puff BD<br>Age 18+<br>                                         | <b>Fostair pMDI 100/6 mcg*</b><br>1 puff BD<br>Age 18+<br>                                                                                                      | <b>Fostair pMDI 100/6 mcg*</b><br>2 puffs BD<br>Age 18+<br> | <b>Fostair pMDI 200/6 mcg</b><br>2 puffs BD<br>Age 18+<br>                                                                       | <b>Trimbow pMDI 87/5/9 mcg</b><br>2 puffs BD<br>Triple<br>Age 18+<br>(Medium dose)<br>                                                                                   |
|                                                                                                                                                                                                                     | <b>Flixotide Evohaler 50mcg</b><br>2 puffs BD<br>Age 4+<br>                               | <b>Combisal pMDI 25/50mcg</b><br>2 puffs BD<br>Age 4+<br>                                                                                                       | <b>Combisal pMDI 25/125mcg</b><br>2 puffs BD<br>Age 12+<br> | <b>Combisal pMDI 25/250mcg</b><br>2 puffs BD<br>Age 12+<br>                                                                      | <b>Trimbow pMDI 172/5/9 mcg</b><br>2 puffs BD<br>Triple Age 18+<br>(High dose)<br>                                                                                       |
|                                                                                                                                                                                                                     | <b>Soprobec 100mcg</b><br>2 puffs BD<br>                                                  |                                                                                                                                                                                                                                                   |                                                                                                                                                |                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                             |
| <b>Additional Comments</b>                                                                                                                                                                                          | <b>Additional Comments</b><br>Kelhale - extra fine particle is at least 2 x as potent than standard beclometasone<br><br>For beclometasone with dose counter choose Clenil | <b>Additional Comments</b><br>Fostair - extra fine particle is at least 2 x as potent than standard beclometasone<br><br>Use Combisal for children < 18. For adults 18+ requiring pMDI ICS/LABA choose Fostair pMDI<br><br>* Can be used for MART |                                                                                                                                                | <b>Additional Comments</b><br>Fostair - extra fine particle is at least 2 x as potent than standard beclometasone<br><br>Use Combisal for children < 18. For adults 18+ requiring pMDI ICS/LABA choose Fostair pMDI | <b>Additional Comments</b><br>Trimbow pMDI is licensed for asthma in 2 strengths<br>87/5/9 mcg 2 puffs BD = medium dose ICS<br>177/5/9 mcg 2 puffs BD = high dose ICS<br>Trimbow- extra fine particle is at least 2 x as potent than standard beclometasone |

### Inhaler Choice (See [Visual Aid](#))

- Choose DPI first line where appropriate and in agreement with patient to support greener respiratory care
- Most children can manage a DPI from age 12 where appropriate and inspiratory effort is sufficient (some may transition earlier)
- Check inhaler technique – can the patient replicate a quick and deep breath choose DPI if agreed (see Inhaler device choice guide)
- If continuing with a pMDI ensure spacer (Aerochamber Plus Flow-Vu) is prescribed; reinforce importance of using it (see [Spacer Guide](#))
- Consider compliance - once daily or twice daily or MART regimes
- Prescribe by brand
- Use combination inhalers

## MART Regimes – Further Information

**Consider MART if** inadequate asthma control + frequent need for reliever inhaler, if concordance is a problem or if simplifying the number of inhalers/prescriptions may be helpful. MART regimes can aid compliance and improve asthma control

**Stop regular SABA inhaler on repeat.** Some patients using MART regimes may have an in-date SABA pMDI (plus spacer) reserved for emergency use only if considered necessary (most patients should be SABA free)

Careful education of patients is required for this treatment strategy. Although the licence states maximum dose up to 8/12 puffs daily, patients should be informed that if such high doses are required their asthma is not well controlled and they require a review (see further advice below)

**Only Symbicort Turbohaler has a MART licence for children 12+. There are no MART regimes licensed for children < 12**

**MART regimes are NOT licensed for high dose ICS. Higher strength products e.g. Symbicort® 400/12 and Fostair® 200/6 are NOT licensed for MART**

### Low dose MART regimes

Symbicort® 200/6 Turbohaler 1 puff BD and PRN (up to 8 puffs daily - rarely 12 puffs)  
Fobumix® Easyhaler 160/4.5 1 puff BD and PRN (up to 8 puffs daily – rarely 12 puffs)  
Fostair® 100/6 NEXThaler or pMDI 1 puff BD and PRN (up to 8 puffs daily)

### Medium dose MART regimes

Symbicort® 200/6 Turbohaler 2 puffs BD and PRN (up to 8 puffs daily – rarely 12 puffs)  
Fobumix® Easyhaler 160/4.5 2 puffs BD and PRN (up to 8 puffs daily -rarely 12 puffs)  
Fostair® 100/6 NEXThaler or pMDI 2 puffs BD and PRN (up to 8 puffs daily)

*Patients should seek non urgent advice if using additional rescue doses (above usual maintenance dose) persistently – these patients may require a review of maintenance medication*

*Patients should seek urgent medical advice if acutely unwell due to asthma or needing 8 or more puffs in a day*

*For emergency treatment of acute asthma a patient may take up to 6 puffs (1 puff at a time at 1-minute intervals)– if 6 puffs of ICS/formoterol inhaler do not relieve symptoms seek urgent medical advice*

## Cautions and Considerations

Smoking can decrease the effects of ICS - continue to encourage smoking cessation at every opportunity

Remind patients to rinse their mouth after using ICS

Issue a [Steroid Emergency Card](#) for patients on prolonged high dose ICS

Any patient who has been prescribed > 12 salbutamol inhalers in 12 months should be invited in for **urgent** review; however 3+ SABA inhalers in 12 months could indicate poor control and these patients are at risk of asthma attack and should have a review of treatment

All patients discharged from hospital post asthma exacerbation should have a primary care review within 2 working days as per [NICE QS 25](#)

Consider fracture risk assessment (DEXA scanning) for patients on high dose inhaled steroids and/or frequently requiring oral steroids

**Caution montelukast** – [Reminder of the risk of neuropsychiatric reactions](#)

### Stepping down ICS

High doses of ICS may cause long term harm, if a patient is well controlled and stable then consider reducing the dose

It is suggested that doses can be reduced by 25-50% every 3 months for stable patients, although 50% of patients will need to step up again

After ICS is reduced the patient should have their treatment reviewed within 4-8 weeks

Any decision to step down should be made with the patient and the patient's personalised asthma action plan updated

# Treatment Algorithm - Children <12

Step up if control not achieved → consider step down if appropriate →

## Important Information

For children < 12 MART regimes are not licensed

**Referral criteria for children under 2 -the threshold for seeking expert opinion should be lowest in these children**

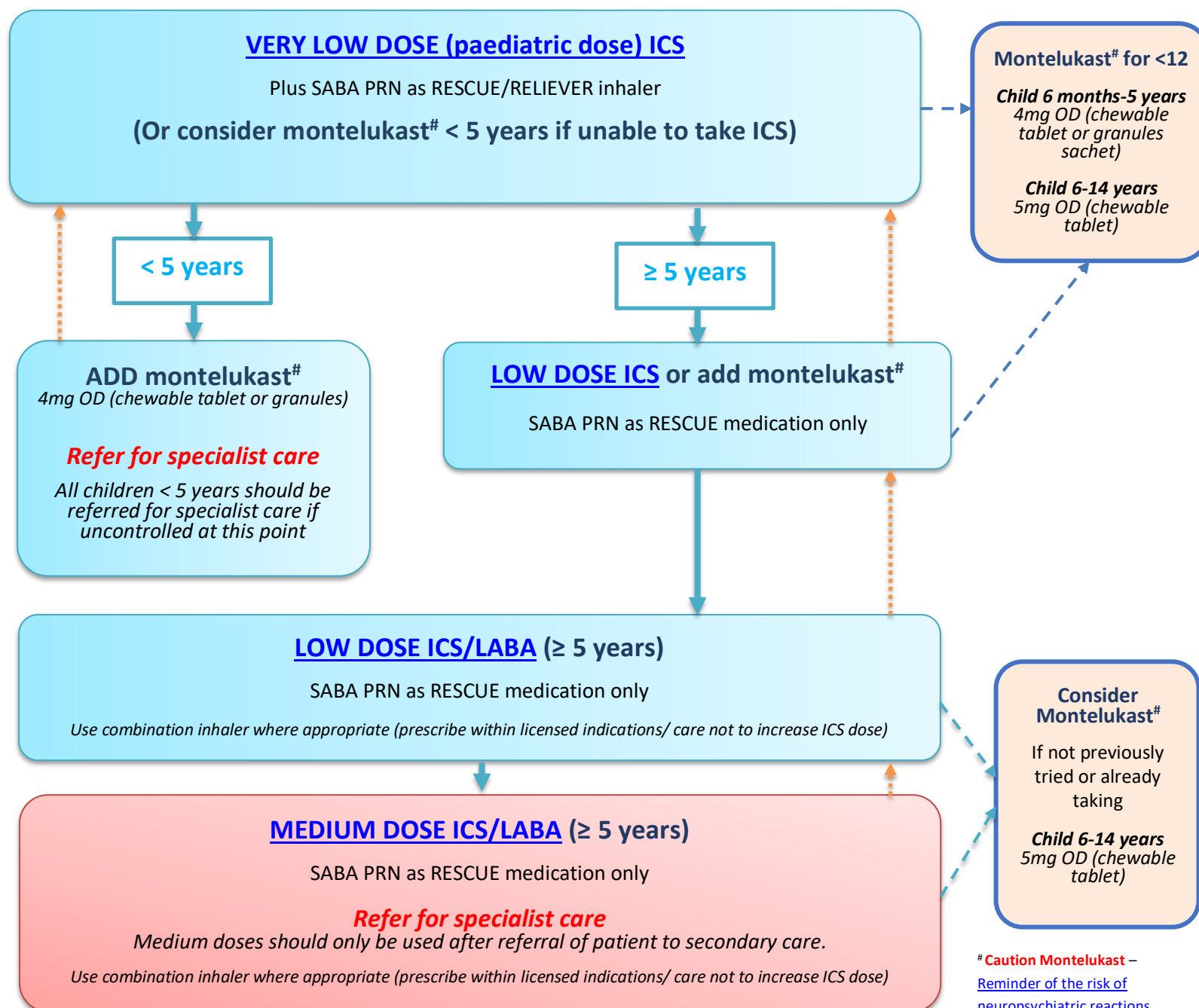
Monitor growth (height and weight centile) of children with asthma on an annual basis

Any child on medium dose ICS or above should be under the care of a specialist paediatrician for the duration of treatment

## Please note:

Different products and doses are licensed for different age groups and some are not licensed for use in children at all. Prior to prescribing, the relevant Summary of Product Characteristics should be checked.  
[www.medicines.org.uk/emc](http://www.medicines.org.uk/emc)

BTS/SIGN classification for ICS strengths have been used in this guideline. The starting doses for children are considered the very low dose (paediatric) doses, stepping up to low dose ICS then medium dose ICS (only after secondary care referral). High dose ICS strengths should not be used for children under 12 without specialist intervention



## Inhaler Choice Guide for Children <12

**pMDI plus spacer remains the preferred delivery method for most children under 12 years – [prescribe appropriate spacer](#)**

| SABA                                                                                                                                                               | Very Low dose ICS<br>(Usual starting dose)                                                                                                                            | Low dose ICS                                                                                                                                                             | Low dose ICS/LABA                                                                                                                                                                  | Medium dose ICS/LABA                                                                                       |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------|
| <b>Salamol pMDI</b><br><b>100mcg (+spacer)</b><br>1-2 puffs PRN<br>               | <b>Flixotide Evohaler</b><br><b>50 mcg pMDI (+spacer)</b><br>1 puff BD<br>Age 4+<br> | <b>Flixotide Evohaler</b><br><b>50 mcg pMDI (+spacer)</b><br>2 puffs BD<br>Age 4+<br> | <b>Combisal 25/50 mcg pMDI (+spacer)</b><br>2 puffs BD<br>Age 4+<br>                            | <b>Refer for specialist care</b><br>Higher strength products are available but are not licensed < 12 years |
|                                                                                                                                                                    | <b>Soprobec 50 mcg pMDI (+spacer)</b><br>2 puffs BD<br>                              | <b>Soprobec 100 mcg pMDI (+spacer)</b><br>2 puffs BD<br>                              |                                                                                                                                                                                    |                                                                                                            |
| <b>Easyhaler</b><br><b>Salbutamol 100mcg DPI*</b><br>1-2 puffs PRN<br>Age 4+<br> | <b>Easyhaler Budesonide</b><br><b>100 mcg DPI*</b><br>1 puff BD<br>Age 6+<br>        | <b>Easyhaler Budesonide</b><br><b>100mcg DPI*</b><br>2 puffs BD<br>Age 6+<br>         |                                                                                                                                                                                    |                                                                                                            |
|                                                                                                                                                                    | <b>Pulmicort Turbohaler</b><br><b>100 mcg DPI*</b><br>1 puff BD<br>Age 5+<br>       | <b>Pulmicort Turbohaler</b><br><b>100 mcg DPI*</b><br>2 puffs BD<br>Age 5+<br>       | <b>Symbicort Turbohaler</b><br><b>100/6 mcg DPI*</b><br>2 puffs BD<br>Age 6+ (not as MART)<br> | <b>Refer for specialist care</b><br>Higher strength products are available but are not licensed < 12 years |
| <b>Additional Comments</b><br>SABA monotherapy is NOT recommended. Use SABA as rescue medication only                                                              | <b>Additional Comments</b><br>For beclometasone with dose counter choose Clenil                                                                                       | <b>Additional Comments</b><br>For beclometasone with dose counter choose Clenil                                                                                          | <b>Additional Comments</b><br>Combisal 25/50 is licensed from 4+ but should only be used in children 5+ as part of this algorithm                                                  | <b>Additional Comments</b>                                                                                 |

See [Table of active ingredients](#) for drug contents of each inhaler

\*Dry powder options have been included in this table for situations where you may wish to transition a child onto a DPI before the age of 12. An appropriate age to consider a change to DPI is towards the end of primary school/transition to secondary school (age 11/12)

### Inhaler Choice (see [Visual Aid](#))

- **DPIs in children** – seek specialist advice if considering this
- **pMDI plus spacer remains the preferred delivery method for most children under 12 years.**
- For ANY child when considering a DPI you MUST ensure they have the appropriate inspiratory effort
- An appropriate time to consider a change to DPI is towards the end of primary school/transition to secondary
- Check inhaler technique
- **Prescribe pMDIs with appropriate spacer** (Aerochamber Plus Flow-Vu); reinforce the importance of using it ([see Spacer Guide](#))
- Prescribe by brand
- Use combination inhalers

## Glossary of Terms and Abbreviations

|                  |                                                                                                                   |
|------------------|-------------------------------------------------------------------------------------------------------------------|
| ACT              | Asthma Control Test                                                                                               |
| BD               | Twice daily                                                                                                       |
| BTS              | British Thoracic Society                                                                                          |
| DPI              | Dry powder inhaler                                                                                                |
| FBC              | Full blood count                                                                                                  |
| FeNO             | Fractional exhaled nitric oxide                                                                                   |
| FEV <sub>1</sub> | Forced expiratory volume in 1 second                                                                              |
| GINA             | Global Initiative for Asthma                                                                                      |
| HCP              | Health care professional                                                                                          |
| ICS              | Inhaled corticosteroid                                                                                            |
| IgE              | Immunoglobulin E                                                                                                  |
| ICS/LABA         | Inhaled corticosteroid/long-acting $\beta$ agonist combination inhaler                                            |
| LAMA             | Long-acting muscarinic antagonist                                                                                 |
| MART             | Maintenance and reliever therapy                                                                                  |
| NICE             | National Institute for Health and Care Excellence                                                                 |
| OD               | Once daily                                                                                                        |
| PAAP             | Personalised asthma action plan                                                                                   |
| PEFR             | Peak expiratory flow rate                                                                                         |
| pMDI             | Pressurised metered dose inhaler                                                                                  |
| PRN              | When required                                                                                                     |
| SABA             | Short-acting $\beta$ agonist                                                                                      |
| SIGN             | Scottish Intercollegiate Guidelines Network                                                                       |
| SMI              | Soft mist inhaler                                                                                                 |
| Triple           | Combination inhaler with inhaled corticosteroid/<br>long-acting $\beta$ agonist/long-acting muscarinic antagonist |

## Table of active ingredients

|                      |                                                           |
|----------------------|-----------------------------------------------------------|
| Aectura Breezhaler   | Indacaterol + mometasone                                  |
| Easyhaler Budesonide | Budesonide                                                |
| Easyhaler Salbutamol | Salbutamol                                                |
| Enerzair Breezhaler  | Indacaterol + glycopyrronium + mometasone                 |
| Flixotide Evohaler   | Fluticasone propionate                                    |
| Fobumix Easyhaler    | Budesonide + formoterol                                   |
| Fostair pMDI         | Fine particle beclometasone + formoterol                  |
| Fostair NEXThaler    | Fine particle beclometasone + formoterol                  |
| Kelhale pMDI         | Fine particle beclometasone                               |
| Pulmicort Turbohaler | Budesonide                                                |
| Relvar Ellipta       | Fluticasone furoate + vilanterol                          |
| Salamol pMDI         | Salbutamol                                                |
| Soprobec pMDI        | Beclometasone                                             |
| Spiriva Respimat     | Tiotropium                                                |
| Symbicort Turbohaler | Budesonide + formoterol                                   |
| Trimbow pMDI         | Fine particle beclometasone + formoterol + glycopyrronium |