

Dry Powder Inhaler (DPI) Pathway: preferred first choice options to minimise carbon footprint

Start at most appropriate level. MOVE UP to improve control, MOVE DOWN to find and maintain lowest controlling therapy. Check adherence with existing therapies and inhaler technique before initiating a new therapy

Initial add-on therapy – Add in a long acting β2 Agonist (LABA) (as an ICS/LABA combination inhaler)

Fobumix Easyhaler
160/4.5micrograms(budesonide/formoterol)
1 Dose BD

Fostair Nexthaler
100/6 micrograms
(beclometasone [extrafine particle]/formoterol)
1 Dose BD

Aectura Breezhaler
125/62.5 micrograms
(indacaterol/mometasone)
1 Dose OD

Additional controller therapies -If asthma control remains inadequate consider the following:

- If benefit from LABA but control still inadequate consider increasing to fixed **Medium** dose ICS/LABA
- OR:** Consider trial of Montelukast 10mg tablets 1 daily

Fobumix Easyhaler 160/4.5 micrograms
(budesonide/formoterol) 2 Doses BD

Fostair Nexthaler 100/6 micrograms
(beclometasone[extrafine particle]/ formoterol)
2 Doses BD

Aectura Breezhaler 125/127.5 micrograms
(indacaterol/mometasone) 1 Doses OD

Relvar Ellipta* 92/22 micrograms
(fluticasone furoate / vilanterol) 1 Dose OD

- If no response to LABA – consider stopping LABA

If above ineffective and control remains inadequate, consider adding 4-8 week trial of Long-Acting Muscarinic Antagonist (LAMA) **Soft mist inhaler (SMI)**

Spiriva Respimat (SMI)(tiotropium 2.5micrograms) 2 Dose OD

NOTE **Relvar** 92/22micrograms has been designated as both a low and medium dose ICS

*Consider **MART** therapy first line (see page 4 for more information)

High Dose therapies: If still poorly controlled refer to specialist and consider:

- Increasing to fixed **High** dose ICS/LABA

Fobumix Easyhaler 320/9 micrograms
(budesonide/formoterol), 2 Dose BD

Fostair Nexthaler 200/6 micrograms
(beclometasone[extra fine
[article]]/formoterol) 2 Doses BD

Relvar Ellipta 184/22 micrograms
(fluticasone furoate /vilanterol)
1 Dose OD

Aectura Breezhaler 125/260
micrograms(indacaterol/mometasone)
1 Dose OD

- A trial of Montelukast 10mg tablets 1 daily (if not already trialed)
- If Triple therapy (ICS/LABA plus LAMA) is needed, consider single fixed dose inhaler:

Energair Breezhaler 114/46/136 micrograms
(indacaterol/glycopyrronium/mometasone)
1 Dose OD
(Please note this is classed as **High** dose ICS)

Specialist therapies:

**SR theophylline (Amber recommended),
Biologics (Red)**

Salbutamol 100 micrograms Easyhaler 2 Doses as required

SYMPTOM RELIEF

Short acting β2 Agonist (SABA) as required “Reliever” to be available for all stages of the pathway.
Patients using 3 or more SABA inhalers per year should be reviewed

Pan Mersey Guidelines for the Management of Adults with Asthma (18 years and over)

Based on the [BTS / SIGN British Guideline on the Management of Asthma July 2019](#) (although [NICE Guideline \[NG80\]: Asthma](#) referenced in parts)

Metered Dose Inhaler (MDI)
Pathway: less preferred due to higher carbon emission inhalers

Start at most appropriate level. MOVE UP to improve control, MOVE DOWN to find and maintain lowest controlling therapy. Check adherence with existing therapies and inhaler technique before initiating a new therapy

Regular Preventer - Low dose inhaled corticosteroid (ICS)

Beclometasone 100 micrograms MDI + spacer
 2 Doses BD
 Prescribe by BRAND eg. **Soprobe** or **Clenil**

Beclometasone (*extra fine particle*) 100 micrograms MDI + spacer
 1 Dose BD
 Prescribe by BRAND eg **Kelhale** or **QVAR**

Initial add-on therapy – Add in a long acting β2 Agonist (LABA) (as an ICS/LABA combination inhaler)

Fostair (beclometasone [*extra fine particle*]/formoterol)
 100/6micrograms MDI + spacer
 1 Dose BD

Luforbec (beclometasone [*extra fine particle*]/formoterol)
 100/6micrograms MDI + spacer
 1 Dose BD

Additional controller therapies -If asthma control remains inadequate:

If benefit from LABA but control still inadequate consider increasing to **Medium** dose ICS/LABA

OR: Consider trial Montelukast 10mg 1 daily

Fostair (beclometasone [*extra fine particle*]/formoterol) 100/6micrograms MDI + spacer
 2 Doses BD

Luforbec (beclometasone [*extra fine particle*]/formoterol) 100/6micrograms MDI + spacer
 2 Doses BD

If no response to LABA – consider stopping

If above ineffective and control remains inadequate, consider trial of Long-Acting Muscarinic Antagonist (LAMA):

Spiriva Respimat (SMI)(tiotropium 2.5micrograms)
 2 Doses OD

Trimbow (beclometasone [*extra fine particle*]/formoterol/glycopyrronium 87/5/9micrograms)
 MDI + spacer 2 Doses BD

High dose therapies: If still poorly controlled refer to specialist and consider:

- Increasing to fixed **High** dose ICS/LABA

Fostair (Beclometasone [*extra fine particle*]/formoterol) 200/6micrograms MDI + spacer
 2 Doses BD

- Trial of Montelukast 10mg tablets 1 daily (if not already trialled)

Specialist therapies:

SR theophylline (Amber recommended)
Biologics (Red)

*Consider **MART** therapy first line (see page 4 for more information)

Use of a spacer device is recommended for use with all MDI

Salamol® 100 micrograms MDI 2 Doses PRN

NOTE: Ventolin Evohaler has a higher carbon footprint and should not be prescribed

SYMPTOM RELIEF

Short-acting β2 Agonist (SABA) as required “Reliever” to be available for all stages of the pathway.

Patients using 3 or more SABA inhalers per year should be reviewed

• **As per BTS, complete control of asthma is defined as:**

- no daytime symptoms
- no night-time awakening due to asthma
- no need for rescue medication
- no exacerbations
- no asthma attacks
- minimal side effects
- no limitations on activity including exercise
- Normal lung function (in practical terms FEV₁ and/or PEF > 80% predicted or best).

Key  = low carbon footprint  = high carbon footprint

Symbols indicates whether an inhaler has a high (≥35 g CO₂e per actuation) or low (<35 g CO₂e per actuation) carbon footprint. The 35g CO₂e per actuation value was selected as this was the upper carbon footprint value for a DPI/SMI found in PrescQIPP analysis (Ref [Lowering the inhaler carbon footprint – November 2020](#))

AVOID prescribing: Both **Flutiform** MDI and **Symbicort** MDI (all strengths) contain Chlorofluorocarbon (CFC) HFA2227ea which has a much higher global warming potential than HFA134a (used in most other MDIs) (Ref [The Problem with Inhalers – Green Inhaler](#))

- PrescQIPP have developed a bulletin [Lowering the inhaler carbon footprint – November 2020](#) to support with this National agenda

LTRA (montelukast)

- Trial may benefit patients with seasonal allergies/atopy/ exercise induced asthma.
- Ensure inhaled preventor ICS therapy is continued.
- Review in 4-8 weeks; discontinue if in-effective.
- Counsel regarding neuro-psychiatric adverse effects

Long-Acting Muscarinic Antagonist (LAMA)

- Trial can be considered following treatment with medium dose ICS/LABA.
- Assess response after 4-8 weeks and discontinue if ineffective
- Consider specialist referral





For information regarding low, medium, high dose ICS : [Categorisation of inhaled corticosteroids-Adults \(BTS Sign 158 PDF\)](#)

- A well-controlled asthmatic should have a maximum of 3 relievers in a 12-month period – if required more often review treatment.
- Patients should receive self-management education including a **Personalised Asthma Action Plan (PAAP)**- evidence base to support health outcomes for people with asthma- [Asthma UK- Asthma Action Plan](#)
- Consider if patient is required to carry an NHS Steroid Emergency Card- see Pan Mersey [Steroid emergency card - adrenal insufficiency and adrenal crisis- who is at risk and how should they be managed safely](#) and [Society of Endocrinology](#)

Key considerations when choosing inhaler devices:

- **Consider carbon footprint of device alongside patient specific factors to assess device suitability.**
- **DPIs have a lower carbon impact than MDIs and should be used whenever possible**
- **DPIs require a more forceful inspiratory flow than MDIs and some patients may continue to need an MDI for this reason, or as a preference. Patient choice must always be considered**
- See [NICE Patient Decision Aid – Inhalers for Asthma](#)
- Where patient has difficulty with inhaler devices, consider suitability of device over drug choice within that drug class. Products other than those listed are included in the Pan Mersey Formulary and may be used where necessary
- When changing device, ensure patient have been trained and assessed as competent with inhaler technique – ideally face to face
- ALWAYS prescribe by brand and device to ensure the patient receives the same device when dispensed
- When moving through treatment stages ensure device consistency and adherence where possible
- Review any changes after 2-3 months until complete control is achieved
- Advise patients to return used inhalers to their pharmacy for safe disposal

Maintenance and Reliever Therapy (MART)

Inhaler	Dosage	Maximum daily number of puffs	Carbon impact
Fobumix Easyhaler 160/4.5 micrograms (DPI)	Either 1 puff twice daily plus PRN or 2 puffs twice daily plus PRN	12	
Fostair Nexthaler 100/6 micrograms (DPI)	1 puff twice daily plus PRN	8	
Fostair 100/6 micrograms (MDI) less favourable due to higher carbon emissions	1 puff twice daily plus PRN	8	
Luforbec 100/6 micrograms (MDI) less favourable due to higher carbon emissions	1 puff twice daily plus PRN	8	

Please note there are other ICS/LABA inhalers licensed for MART on formulary.

Benefits of MART:

- Supports adherence to ICS and avoids over reliance on SABA
- One inhaler to act as both reliever and daily maintenance therapy
- The use of a separate reliever inhaler (SABA) is NOT required

Appropriate for patients requiring low dose ICS or medium dose ICS who are able to self-manage in line with their personalised asthma Self-Management Plan and who are compliant to therapies. **Patient education around this management strategy is required**

In persons using a MART regime, a persistent requirement for PRN doses of their inhaler more than twice per week indicates poor asthma control and should prompt a review of therapy. Persons using a MART regime may require prescribing of a greater number of MART inhalers.

Management of Acute Asthma exacerbations

Use a Short-Acting Beta-2 Agonist (Salbutamol) **MDI** via a large-volume spacer to relieve acute symptoms. For an adult, give 4 puffs initially, followed by 2 puffs every 2 minutes according to response, up to 10 puffs. Repeat every 10-20 minutes if clinically necessary ([NICE](#))

Short courses of prednisolone may be required for acute exacerbations of asthma. Adult dose — 40–50 mg once a day for 5 days ([BTS](#)) ([NICE](#))

If exacerbation leads to admission, the patient should be followed up in Primary Care post discharge.

Indications for specialist referral:

- Diagnosis unclear
- Poor response to treatment
- Suspected occupational asthma
- Severe/life-threatening asthma attack requiring hospitalisation
- ≥2 courses of oral steroids/ year despite optimising therapy in primary care

For more detailed information on asthma management, see:

- www.asthma.org.uk
- [BTS / SIGN British Guideline on the Management of Asthma](#)
- [NICE NG80: Asthma: diagnosis, monitoring and chronic asthma management](#)
- [Global Initiative for Asthma \(GINA\)](#)

Detailed information on inhalers/licensed indication/dosing/price/inhaler technique demonstration:

[Right breathe](#)

Resource to support reducing carbon footprint of inhalers in Primary care:

[Greener Practice Asthma Toolkit](#)