DERBYSHIRE PRIMARY CARE FORMULARY

Chapter 3: RESPIRATORY SYSTEM
Updated: March 2023

The following prescribing guidelines are relevant to the respiratory chapter and can be found here

- Children's referral guideline for SLIT- Grazax and Acarizax (Derby Children's Hospital only)
- Anaphylaxis treatment for adults and children
- Asthma management in adults/ Asthma management in children
- Chronic Obstructive Pulmonary Disease guideline
- Greener Inhaler Prescribing guidance
- Oxygen guideline

Relevant Resources

- COPD detailing aid
- Greener inhaler choice: Flowchart/ Be Greener and Breathe Better patient information leaflet
- Stepping-down combination asthma inhaler therapy: Adults over 17 years of age
- Optimisation of inhaled corticosteroid (ICS) in COPD
- Respiratory Action Plan and Asthma Self-management Plan
- RightBreathe – inhaler information/training videos

Reducing the carbon impact of inhalers

Metered dose inhalers (MDI), including breath-actuated MDIs, contain propellants known as hydrofluorocarbons (HFCs) which are powerful greenhouse gases and can contribute to global warming. Dry powder inhalers (DPIs) and soft mist inhalers such as a Respimat do not contain propellant so they have a lower carbon footprint than other inhalers.

NHS Derby and Derbyshire ICB/System partners support the prescribing of inhalers with a reduced carbon footprint such as dry powder inhalers (DPIs) and Soft Mist inhalers (SMIs), wherever clinically appropriate and acceptable to the patient. Medication reviews, Structured Medication Reviews or planned Asthma Reviews taking place in primary care should consider moving or facilitating patients to lower carbon options where it is clinically appropriate to do so. See Greener inhaler prescribing guidance.

All formulary dry powder inhalers contain lactose and are contraindicated in patients with hypersensitivity to lactose or milk proteins. Refer to The SPC for full prescribing information

MHRA July 2018 Pressurised metered dose inhalers (pMDI): risk of airway obstruction from aspiration of loose objects. Remind patients to check and remove the mouthpiece cover properly before inhaling a dose and to shake the inhaler to remove loose objects that may have become trapped in the inhaler during storage.

3.1 Bronchodilators

3.1.1 Adrenoreceptor agonists

Short acting beta agonist (SABA)	Traffic Light Classification	Licenced	Additional information
Salbutamol preparation • 100 micrograms CFC Free inhaler (MDI) (**Salamol**) • 100 micrograms Easyhaler (DPI) • 200microg Ventolin Accuhaler (DPI) • 100 micrograms Breath-actuated CFC free inhaler (MDI)	GREEN GREEN GREEN GREEN	Adults and children ≥4 years of age	The metered dose inhaler (MDI) is usually the most cost-effective delivery device for salbutamol and should be considered for new patients and as a matter of routine for all paediatric patients. Salamol MDI is the preferred choice salbutamol inhaler due to lower carbon footprint compared to other salbutamol MDIs. Patients who are unable to use a standard salbutamol MDI may find a dry powder device or breath-actuated inhaler more acceptable. The brand must be specified to avoid confusion with these devices.

• Nebuliser solution 2.5mg/2.5ml			Nebulised bronchodilators should not be prescribed unless a formal nebuliser assessment has been carried out Do not use 5mg salbutamol nebules for COPD, as evidence does not support doses above 2.5mg. Nebulisers should be used with extreme caution in children and only under the care of a respiratory paediatrician (MHRA Aug 2022).
Long acting beta agonist (LABA)	**Traffic Light Classification**	**Licenced**	**Additional information**
Formoterol preparations • 12 micrograms Easyhaler (DPI)	GREEN	Adults and children ≥6 years of age	First-line LABA
• 12 micrograms CFC free inhaler (MDI) (Atimos Modulite)	GREEN	Adults and children ≥12 years of age	Alternative first-line LABA for patients requiring an MDI
Salmeterol preparations • 25 micrograms CFC Free inhaler (MDI) (Soltel)	GREEN 2nd line LABA	Soltel - Adults and children ≥12 years of age Serevent - Adults and children ≥4 years of age	**Soltel** is currently the formulary choice N.B. All brands apart from Serevent contain soya lecithin – **contra-indicated in peanut or soya allergy**). If the patient has a soya or peanut allergy, then prescribe as the brand Serevent

3.1.2 Antimuscarinic bronchodilators

Short acting antimuscarinic bronchodilators (SAMA)	Traffic Light Classification	Licenced	Additional information
Ipratropium • 20 microg inhaler CFC free (MDI)	GREEN	COPD and asthma Adults and children (including those <6 years of age)	Asthma – MDI is not recommended by SIGN/BTS or NICE for routine asthma management. Nebulised solution may be used as an add-on treatment for a severe asthma attack.

1. Ipratropium nebulizer solution for COPD should only be used in severe COPD patients [FEV1<30%] after initiation by a specialist.
2. Single component Long acting antimuscarinic bronchodilators (LAMA) inhalers are no longer recommended first line in the management of COPD- see local guidance.

3. Tiotropium is the preferred LAMA if treatment with single component LAMA is required.
   - 18 microgram inhalation powder (DPI) (Tiogiva)- Advise patients NEVER to insert the capsule directly into the mouthpiece, always follow the instructions provided with the inhaler. Tiogiva inhaler device should be replaced every 6 months.
   - 2.5microgram/ inhalation solution cartridge CFC Free (soft mist inhaler) (Spiriva Respimat)- Respimat inhalers are re-usable device with cartridge. Each re-usable inhaler may be used with up to six cartridges. It is **Grey** after consultant/specialist initiation for asthma.
4. Tiotropium
   - MHRA Feb 2015 prescribers should take the risk of cardiovascular side effects into account when prescribing inhaled tiotropium to patients with certain cardiac conditions, who were excluded from clinical trials of tiotropium (See SPC for detail).
   - Plasma concentration of tiotropium increases with decreased renal function in patients with creatinine clearance ≤ 50 ml/min- only use if the expected benefit outweighs the potential risk.

5. Alternative LAMA includes
   - Glycopyrronium bromide inhaler 44microgram caps (DPI) (Seebri Breezhaler)- Once daily LAMA (2nd line). Only use if the expected benefit outweighs the potential risk in patients with severe renal impairment (eGFR below 30 ml/min/1.73 m^2), including those with end-stage renal disease requiring dialysis. These patients should be monitored closely for potential adverse reactions.
   - Umeclidinium inhaler 55microgram/ inhalation (DPI) (Incruse Ellipta)- once daily LAMA (2nd line)
   - Aclidinium inhaler 400microgram/ inhalation (DPI) (Eklira Genuair)- twice daily LAMA (3rd line)

Combination inhalers N.B. Prescribe by brand

LABA/LAMA combinations	Traffic Light Classification	Licenced	Additional information
Tiotropium and olodaterol (**Spiolto Respimat**) (soft mist inhaler)	GREEN 1st line LABA /LAMA	COPD	Respimat inhalers are re-usable device with cartridge. Each re-usable inhaler may be used with up to six cartridges.
Glycopyrronium and Indacaterol (**Ultibro Breezhaler**) (DPI)	GREEN 1st line LABA /LAMA	COPD	Choice should be based on patient tolerance, ease of use, and environmental impact of the inhaler device.
Umeclidinium and vilanterol (**Anoro Ellipta**) (DPI)	GREEN 1st line LABA /LAMA	COPD	
Aclidinium and formoterol (**Duaklir Genuair**) (DPI)	GREEN 1st line LABA /LAMA	COPD	LABA/LAMA combination inhaler is recommended for COPD patients who remain breathless or have exacerbations despite SABA or SAMA treatment and present with no asthmatic features or features suggestive of steroid responsiveness.
Glycopyrronium + formoterol (**Bevespi Aerosphere**) (MDI)	GREEN 2nd line LABA/LAMA for patient requiring an MDI	COPD	

1. Roflumilast is **GREY**- specialist initiation. Roflumilast is a phosphodiesterase type-4 inhibitor with anti-inflammatory properties. It is used as an add-on to bronchodilator therapy in adults with severe COPD with chronic bronchitis as per NICE TA461. Ongoing GP prescribing and care of patients on roflumilast should only be considered if patient is stable and free from adverse reactions, after a minimum of 3 months roflumilast treatment under the respiratory specialist. For more details see local COPD guideline.

3.1.3 Theophylline

Theophylline SR tablets (Uniphyllin Continus) 200mg, 300mg, 400mg

1. Bioequivalence of different brands of oral theophylline cannot be guaranteed. Patients should not change brands once stabilized unless plasma level monitoring is carried out. The brand name should always appear on prescriptions and in correspondence.
2. Common interactions for theophylline which increase clearance and it may therefore be necessary to increase dosage to ensure therapeutic effect include barbiturates, carbamazepine, lithium, phenytoin, rifampicin, primidone, ritonavir. (See SPC for full details)
   The following reduce clearance and a reduced dosage may therefore be necessary to avoid side-effects: allopurinol, cimetidine, corticosteroids, diltiazem, macrolide antibiotics (e.g., erythromycin), frusemide, and oral contraceptives. (See SPC for full details)
3. Smoking can increase theophylline clearance and increased doses of theophylline are therefore required; dose adjustments are likely to be necessary if smoking started or stopped during treatment.

3.1.5 Peak flow meters, inhaler devices and nebulisers

Appropriate peak flow meter
Appropriate spacer device — **EasyChamber Spacer** fits most MDIs
Volumatic for Soprobec, Clenil, Flixotide

1. EasyChamber fits most MDIs, and is compatible with formulary choices. Although not listed, this includes Luforbec.
2. See Right Breathe website for information on spacer compatibility.
3. Follow usage and cleaning instructions supplied with the spacer.
4. **Spacers should not be regarded as interchangeable** – patients whose asthma is well-controlled and who are using a spacer should always use the same type of spacer and not switch between spacers. Different spacers may deliver different amounts of inhaled corticosteroid, which may have implications for both safety and efficacy see Drug Safety Update, July 2008
5. Parents/carers of children with an acute asthma attack at home, and symptoms not controlled by up to 10 puffs of salbutamol via a pMDI and spacer, should seek urgent medical attention. (BTS/SIGN 2019)
6. Standard-range EU peak flow meters are suitable for both adults and children; low-range peak flow meters are appropriate for severely restricted airflow in adults and children.
7. MHRA Aug 2022 : home use of nebulisers in paediatric asthma should be initiated and managed only by specialists (under a treatment plan). Use of a nebuliser purchased independently of medical advice for use in the home to deliver nebulised asthma rescue medications to children can mask a deterioration in the underlying disease and may increase the risk of potentially fatal delays in seeking medical attention if asthma deteriorates.

3.2 Corticosteroids

N.B. Prescribe by brand; use MDI with spacer device for all doses of inhaled corticosteroid.
See adults and children's asthma guidance for inhaled corticosteroid doses

Corticosteroids (ICS)	Traffic Light Classification	Licenced	Additional information
Beclometasone dipropionate • **Soprobec** MDI 50, 100, 200, 250 micrograms	GREEN	Asthma- adults and children	BNFC doses for Soprobec in asthma: Child: 100microg BD increased in necessary up to 400microg daily in 2-4 divided doses.
• **Kelhale** MDI 50,100 microgs (extra fine particles)	GREEN	Asthma- adults >18 years	Kelhale is therapeutically equivalent to Qvar.
• QVAR MDI 50, 100 micrograms (extra fine particles)	GREEN	Asthma- >5 years of age	SPC doses for Qvar in asthma- Children aged 5 years and over: Mild – 50 micrograms BD Moderate – 50 to 100 micrograms BD Severe- 100 micrograms BD Kelhale/Qvar or fluticasone are twice as potent as Soprobec (e.g. Kelhale/Qvar or fluticasone 50 microg is equivalent to Soprobec100microgs)
Budesonide • Easyhaler (DPI) 100, 200,400 microg/ inhalation	GREEN	Asthma- >6 years of age	
Fluticasone • Flixotide Accuhaler (DPI)100 microgram • Flixotide Evohaler (MDI) 50 microgram	GREEN for children GREY for adults	Asthma- >4 years of age	As per children's asthma guidance

Combination inhalers N.B. Prescribe by brand. See asthma and COPD guideline.

LABA/ICS combination	Traffic Light Classification	Licenced	Additional information
Budesonide and formoterol • **Fobumix easyhaler DPI** 80/4.5, 160/4.5, 320/9	GREEN 1st line LABA/ICS combination inhaler	Asthma (≥18 years of age) & COPD	Fobumix 80/4.5, 160/4.5, 320/9 is equivalent to Symbicort 100/6, 200/6, 400/12 respectively
• WockAIR DPI 160/4.5, 320/9	GREEN	Asthma (≥12years of age) & COPD	WockAIR and DuoResp 160/4.5, 320/9 is equivalent to Symbicort 200/6, 400/12 respectively
• DuoResp Spiromax DPI 160/4.5, 320/9	GREEN	Asthma (≥18 years of age) & COPD	
• Symbicort Turbohaler DPI 100/6	GREEN	Asthma (>6 years of age) & COPD	
Symbicort Turbohaler DPI 200/6, 400/12	GREEN	Asthma (>12 years of age) & COPD	
• Symbicort MDI 200/6	GREEN	COPD	
Beclometasone (extra fine) **and formoterol** • **Luforbec MDI 100/6**	GREEN 1st line for patients requiring an MDI	Asthma (≥18 years of age) & COPD	100 micrograms of beclometasone dipropionate via Luforbec/Fostair products are equivalent to 250 micrograms of beclometasone dipropionate in standard particle CFC-free inhalers.
Luforbec MDI 200/6		Asthma (≥18 years of age)	
• Fostair Nexthaler DPI 100/6	GREEN	Asthma (≥18 years of age) & COPD	
Fostair Nexthaler DPI 200/6		Asthma (≥18 years of age)	

Fluticasone propionate and salmeterol • **Combisal** MDI 50/25 • Seretide MDI 50 • **Seretide Accuhaler** DPI 100 • **Fixkoh Airmaster** DPI 50/100 • Combisal MDI 125/25, 250/25 • Fixkoh DPI 500/50 • Fusacomb Easyhaler DPI 500/50	**GREEN** for children **GREY** for adults **GREY** - limited place of therapy for adults	Asthma >4 years of age Asthma >12 years of age Asthma >12 years of age Asthma >12 years of age & COPD Adults (>18 years of age) for asthma and COPD	See children's asthma guidance. Combisal MDI is the cost-effective alternative for Seretide evohaler. Children receiving Seretide/combisal 50 MDI or Seretide/ Fixkoh 100 Accuhaler should be reviewed at age 18 year and considered for the formulary choice ICS/LABA combination inhalers. Fluticasone/ salmeterol combination has limited place of therapy in adults- following choices in local COPD guidance only. Fixkoh DPI/ Fusacomb Easyhaler are cost-effective alternative for Seretide Accuhaler 500
Triple combination (ICS+ LABA+ LAMA)	**Traffic Light Classification**	**Licenced**	**Additional information**
Beclometasone, formoterol and glycopyrronium (Trimbow NEXThaler DPI) **Fluticasone, vilanterol and umeclidinium** (Trelegy) (DPI) **Mometasone, indacaterol and glycopyrronium** (Enerzair Breezhaler) (DPI) **Beclometasone, formoterol and glycopyrronium** (Trimbow) (MDI) **Budesonide, formoterol and glycopyrronium** (Trixeo aerosphere) (MDI)	**GREY** 1st line triple combination **GREY** alternative 1st line triple combination **GREY after consultant/ specialist initiation** for asthma. **GREY** **GREY after consultant/ specialist initiation** for asthma. **GREY**	COPD COPD Asthma in adults COPD Asthma in adults COPD	Indicated for the maintenance treatment of moderate to severe COPD. Triple therapy is reserved for exceptional use in severe disease in the presence of persistent exacerbations despite other treatments. Triple therapy in a single inhaler may be preferable for people who have difficulty using more than one device or who find their medication regimen difficult or confusing and have trouble complying with treatment. However triple therapy lack flexibility and makes it difficult to amend the individual medicines if treatment needs changing for any reason. Use of combination product is cheaper than using the separate components. Enerzair Breezhaler and Trimbow MDI are licensed for asthma in adults not adequately controlled with a maintenance combination of a LABA+ ICS who experienced one or more asthma exacerbations in the previous year. Locally this is classified as specialist initiation only.

1. All doses of inhaled steroid delivered via an MDI should be via a spacer device. This form of administration improves delivery of drug to the airways reducing local effects e.g., oral candida and also reduces swallowing of the drug and absorption from the GI tract.
2. **SIDE EFFECTS**: Inhaled steroids do not usually cause adrenocortical suppression at normal doses (up to about 1500 micrograms/day of beclometasone (standard particle size)). However, in paediatric practice adrenal suppression has been seen at doses as low as 800 micrograms/day (standard particle size). All children on these doses should have careful growth monitoring and a written management plan advising about the risk of adrenal suppression. Oral candidiasis may be related to dose and dose frequency. Patients should be advised to rinse the mouth after use of high dose steroids to help minimize this. Dysphonia can occur. The use of a large volume spacer device may reduce these local adverse effects.
3. Inhaled corticosteroids and adrenal suppression in children – *'Adrenal suppression may be under-recognised'.* Prescribers are reminded that:
   - It is important to monitor therapy regularly and titrate down to the lowest dose at which effective control of asthma is maintained.
   - Growth (height and weight centile) should be monitored at least annually in children with asthma.

4. If a doctor considers that a child's asthma is not controlled on the maximum licensed dose of their inhaled corticosteroid, despite the addition of other therapies, the child should be referred to a specialist in the management of paediatric asthma.
5. Patients on high dose ICS (>1000 microgram BDP equivalent/day) should be advised to carry a blue steroid card.
6. Advise patients to report any blurred vision or other visual disturbances due to rare risk of central serous chorioretinopathy with corticosteroids (MHRA August 2017).
7. The role of Single maintenance and reliever therapy (SMART) and Maintenance and reliever therapy (MART) has a limited place in therapy for patient therapy and selection.
8. National patient safety alert August 2020 - steroid emergency card to be issued by prescribers to help healthcare staff to identify appropriate patients and gives information on the emergency treatment if they are acutely ill, or experience trauma, surgery or other major stressors. For further guidance on this see when should I issue a steroid emergency alert card
9. **Inhaled Budesonide for treatment of COVID-19**- Inhaled budesonide should no longer be considered as a treatment for individuals with COVID-19 infection other than within the context of a clinical trial. People already using budesonide for conditions other than COVID-19 should continue treatment if they test positive for COVID-19. See NICE NG191 Covid-19 rapid guideline: managing COVID-19 (updated Dec 2021)

3.3.2 Leukotriene receptor antagonists

See adult and children's asthma guidance

Montelukast tabs 10mg, chewable tabs 4mg, 5mg, granules 4mg

1. Granules are more expensive and should be reserved for children between 6 months and 2 years old or if chewable tablets not suitable. 4mg chewable tablets are licensed in children 2-5 years old; 5mg chewable tablets are licensed in children 6-14 years old.
2. MHRA September 2019 Prescribers should be alert for neuropsychiatric reactions in patients taking montelukast and carefully consider the benefits and risks of continuing treatment if they occur.
   Patients, parents and carers should be warned of possible adverse reactions affecting sleep, behaviour and mood. If these occur the patient, parent or carer should be advised to contact their doctor or nurse for advice on stopping montelukast.

3.4.1 Antihistamines

For treatments of minor self-limiting conditions such as mild to moderate hay fever, self-care is encouraged. Treatments are available to purchase over-the-counter.

Cetirizine 10mg tabs	*Non-sedating*
Loratadine 10mg tabs, oral solution Sugar-Free 5mg/5ml	*Non-sedating*
Chlorphenamine tabs 4mg, oral solution Sugar-Free 2mg/5ml	*Sedating*

1. JAPC has classified Alimemazine as **Do Not Prescribe (DNP)** due to lack of cost-effectiveness. Suitable alternative to use is promethazine.

3.4.2 Allergen immunotherapy

1. Omalizumab (NICE TA278) for allergic asthma is **RED** NHSE commissioned.
2. Mepolizumab (NICE TA671) for eosinophilic asthma is **RED** NHSE commissioned.

3.4.3 Allergic emergencies

Emerade auto-injector 300 micrograms, 500 micrograms (see advice below) PIL
Jext auto-injector 150 micrograms, 300 micrograms PIL
EpiPen auto-injector 0.3mg, **EpiPen Jr** auto-injector 0.15mg PIL /EpiPen Jnr PIL

1. See MHRA June 2023- Adrenaline auto-injectors (AAIs): new guidance and resources for safe use- including an easy step-by-step guide on what to do in an emergency and updated advice on body positioning. A toolkit of resources is available for health and social care professionals to support the safe and effective use of AAIs. Use the materials to inform patients and caregivers what do if they suspect anaphylaxis and how to use adrenaline auto-injectors (AAIs)

2. MHRA 2017 recommends two adrenaline auto-injectors should be prescribed which patients should carry at all times.
3. Adrenaline has a narrow therapeutic index. Primary care clinicians should prescribe in line with product licensing as summarised in the table below:-

	Weight range	Dose
Emerade	>30kg	300 micrograms
Jext	15-30kg >30kg	150 micrograms 300 micrograms
Epipen	Between 7.5 to 25kg >25kg	150 micrograms (Epipen Junior) 300 micrograms

4. The 500micrograms adrenaline dose (Emerade) should only be prescribed for self-administration on the advice of a specialist, for example where a repeated second dose of adrenaline (300microg) was necessary or in obese patients where a larger dose is necessary.
5. For educational material produced by manufacturer see links:- Emerade, EpiPen, Jext
   Other resources see links: Emerade, Epipen, Jext (key differences between devices)

3.7 Mucolytics

Carbocisteine 375mg caps, 750mg/10ml oral solution sachets
Acetylcysteine *600mg Sugar-free* ***effervescent tablets***

1. NICE NG115 COPD in over 16s: diagnosis and management (Dec 2018):
   - Consider mucolytic drug therapy for people with a chronic cough productive of sputum.
   - Only continue mucolytic therapy if there is symptomatic improvement (for example, reduction in frequency of cough and sputum production).
   - Do not routinely use mucolytic drugs to prevent exacerbations in people with stable COPD.