DERBYSHIRE PRIMARY CARE FORMULARY

Chapter 3: RESPIRATORY SYSTEM
Updated: March 2022

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

- Allergic rhinitis in children due to grass allergy- Grazax (with 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
- Nebuliser guideline
- 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
- Summary of common inhalers
- Adult Asthma Diagnosis Algorithm North/ South Respiratory Action Plan

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. 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.

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.

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

3.1 Bronchodilators

3.1.1 Adrenoreceptor agonists

Short acting beta agonist (SABA)	Traffic Light Classification	Licenced	Additional information
Salbutamol preparation • Salamol MDI 100micrograms • Easyhaler 100,200 micrograms (DPI) • Breath-actuated 100 micrograms • Nebuliser solution 2.5mg/2.5ml	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 breath-actuated inhaler or dry powder device more acceptable. The brand must be specified to avoid confusion with Autohaler devices Nebulised bronchodilators should not be prescribed unless a formal nebuliser assessment has been carried out (see nebuliser guideline). 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.

Long acting beta agonist (LABA)	Traffic Light Classification	Licenced	Additional information
Formoterol preparations • Easyhaler 12 micrograms (DPI)	GREEN	Adults and children ≥6 years of age	First-line LABA
• CFC free MDI inhaler 12 micrograms (Atimos Modulite)	GREEN	Adults and children ≥12 years of age	Alternative first-line LABA for patients requiring an MDI
Salmeterol preparations • MDI inhaler 25 micrograms	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 • CFC free MDI inhaler 20 microg • Nebuliser solution 250 microg/1ml, 500 microg/2ml	GREEN	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. COPD - Nebulised solution - Only in severe COPD [FEV1 <30%]; initiated by a specialist
Long acting antimuscarinic bronchodilators (LAMA)	**Traffic Light Classification**	**Licenced**	**Additional information**
Tiotropium • Tiogiva18 micrograms inhalation powder, hard capsules (DPI) **Or** • Respimat 2.5 micrograms/ inhalation	Tiogiva and Respimat - GREEN 1st line LAMA for COPD Respimat - **GREY after consultant/ specialist initiation** for asthma.	COPD COPD and asthma in adults only	**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. Respimat inhalers are re-usable device with cartridge. Each re-usable inhaler may be used with up to six cartridges. Further Information can be found here. 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.

Alternative **LAMA**	**Traffic Light Classification**	**Licenced**	**Additional information**
• **Glycopyrronium bromide inhaler** 44mcg caps (Seebri Breezhaler) (DPI)	**GREY 2nd line LAMA**	COPD	Once daily LAMA (2nd line to tiotropium). 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** 55mcg/ inhalation (Incruse Ellipta) (DPI)	**GREY 2nd line LAMA**	COPD	once daily LAMA (2nd line to tiotropium)
• **Aclidinium inhaler** 400mcg /inhalation (Eklira Genuair) (DPI)	**GREY 2nd line LAMA**	COPD	twice daily LAMA (2nd line to tiotropium)

Combination inhalers N.B. Prescribe by brand

LABA/LAMA combinations	**Traffic Light Classification**	**Licenced**	**Additional information**
Tiotropium and olodaterol (Spiolto Respimat)	**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. Further Information can be found here. Choice should be based on patient tolerance, ease of use, and environmental impact of the inhaler device. 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.
Aclidinium and formoterol (Duaklir Genuair) (DPI)	**GREEN** 1st line LABA /LAMA	COPD	
Indacaterol and glycopyrronium (Ultibro Breezhaler) (DPI)	**GREEN** 1st line LABA /LAMA	COPD	
Umeclidinium and vilanterol (Anoro Ellipta) (DPI)	**GREEN** 1st line LABA /LAMA	COPD	
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) 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)

3.1.5 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 MDI (source MIMS). See Right Breathe website for information on spacer compatibility.

2. **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
3. Spacer devices should be washed with washing up liquid and allowed to dry in air without rinsing or wiping before first use and once a month thereafter. This reduces static charge on the device and increases the amount of drug delivered. Replace every 6-12 months.
4. 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)
5. 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.

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	Adults and children	BNFC doses for Soprobec in asthma: Child: 100microg BD increased in necessary up to 400microg daily in 2-4 divided doses.
• Clenil Modulite MDI 50, 100, 200, 250 micrograms (Standard particles)	GREEN	Adults and children (SPC does not specify age range) in asthma	BNFC doses for Clenil in asthma: • Child 2-11 years: 100-200 microg BD • Child 12 -17 years: 200 - 400microg BD Adjusted according to response; increased if necessary up to 1mg BD.
• **Kelhale** MDI 50,100 micrograms (extra fine particles)	GREEN	Adults >18 years	Kelhale is therapeutically equivalent to Qvar.
• QVAR MDI 50, 100 micrograms (extra fine particles)	GREEN	Adults and children in asthma aged >5 years of age in asthma	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 Qvar or fluticasone are twice as potent as Clenil: • Qvar or fluticasone 50 microg is equivalent to Clenil 100 microg • Qvar or fluticasone 100 microg is equivalent to Clenil 200 microg
Budesonide • Easyhaler (breath actuated DPI) 100, 200,400 microg/ inhalation	GREEN	Adults and children >6 years of age in asthma	*Covid-19- see note below*
Fluticasone • Flixotide Accuhaler (DPI)100 microgram • Flixotide Evohaler (MDI) 50 microgram	GREEN for children GREY for adults	Adults and children >4 years of age in asthma	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	Adults (≥18 years of age) for Asthma and COPD	Breath-actuated DPI 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	Adults (≥18 years of age) for Asthma and COPD	
• Symbicort Turbohaler DPI 100/6	GREEN	Adults for COPD; Adults and children >6 years of age for asthma	
• Symbicort Turbohaler DPI 200/6, 400/12	GREEN	Adults for COPD; Adults and children >12 years of age for asthma	
• Symbicort MDI 200/6	GREEN	Adults for COPD only	
Beclometasone (extra fine) **and formoterol** • **Luforbec MDI 100/6**	GREEN 1st line for patients requiring an MDI	Adults (≥18 years of age) for Asthma and COPD	The beclometasone component of Luforbec and Fostair is extrafine and is the equivalent dose to Kelhale/ Qvar, and twice as potent as Soprobec/Clenil.
• Fostair MDI 100/6, 200/6	GREEN	Adults (≥18 years of age) for Asthma and COPD	Fostair or Kelhale/Qvar 200 micrograms equivalent to Soprobec/ Clenil 400 micrograms
• Fostair Nexthaler DPI 100/6, 200/6	GREEN	Adults (≥18 years of age) for Asthma and COPD	
Fluticasone propionate and salmeterol • **Combisal** MDI 50/25 • Seretide MDI 50 • **Seretide Accuhaler** DPI 100 • **Fixkoh Airmaster** 50/100	GREEN for children GREY for adults	Adults and children >4 years of age for asthma Adults and children >12 years of age for asthma	See children's asthma guidance. Combisal MDI is the cost-effective alternative for Seretide evohaler. Children receiving Seretide 50 Evohaler or Seretide 100 Accuhaler should be reviewed at age 18 year and considered for the formulary choice ICS/LABA combination inhalers.
• Combisal MDI 125/25, 250/25	GREEN for children GREY for adults	Adults and children >12 years of age for asthma	
• Fusacomb Easyhaler DPI 500/50 • Fixkoh DPI 50/500	GREY - limited place of therapy for adults	Adults (>18 years of age) for asthma and COPD Adults and children >12 years of age for asthma; COPD	Fluticasone/ salmeterol combination has limited place of therapy in adults- following choices in local COPD guidance only. Fusacomb Easyhaler/ Fixkoh DPI 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)	GREY 1st line triple combination	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.
Fluticasone, vilanterol and umeclidinium (Trelegy) (DPI)	GREY alternative 1st line triple combination	COPD	
Mometasone, indacaterol and glycopyrronium (Enerzair Breezhaler) (DPI)	GREY after consultant/	Asthma in adults	

Beclometasone, formoterol and glycopyrronium (Trimbow) (MDI)	**specialist initiation** for asthma. **GREY** **GREY after consultant/ specialist initiation** for asthma.	COPD Asthma in adults	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.
Budesonide, formoterol and glycopyrronium (Trixeo aerosphere) (MDI)	**GREY**	COPD	

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. Advice 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, oral solution 5mg/5ml *Non-sedating*
Loratadine 10mg tabs, oral solution 5mg/5ml *Non-sedating*
Chlorphenamine tabs 4mg, syrup 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 (NITCE 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
EpiPen auto-injector 0.3mg, **EpiPen Jr** auto-injector 0.15mg PIL /EpiPen Jnr PIL
Jext auto-injector 150 micrograms, 300 micrograms PIL

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

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

3. 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.
4. 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 prescribe as *NACSYS 600mg effervescent tablets*

1. NICE NG115 (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.