

Chapter 3. Respiratory system

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Key

	<p>Red drug see GMMMG RAG list <i>Click on the symbols to access this list</i></p>
	<p>Amber drug see GMMMG RAG list <i>Click on the symbols to access this list</i></p>
	<p>Green drug see GMMMG RAG list <i>Click on the symbols to access this list</i></p>
	<p>If a medicine is unlicensed this should be highlighted in the template as follows Drug name U</p>
	<p>Not Recommended</p>
	<p>Over the Counter In line with NHS England guidance, GM do not routinely support prescribing for conditions which are self-limiting or amenable to self-care. For further details see GM commissioning statement.</p>
Order of Drug Choice	<p>Where there is no preferred 1st line agent provided, the drug choice appears in alphabetical order.</p>

BNF chapter	3	Respiratory system
<u>Greater Manchester Respiratory Management Plans:</u>		
<ul style="list-style-type: none"> • GM Asthma Management Plan and Inhaler Guide • GM COPD Management Plan and Inhaler Guide • All available from https://gmmmg.nhs.uk/guidance/clinical-guidance-and-pathways/ 		
Section	3.1	Bronchodilators
Subsection	3.1.1	Adrenoreceptor agonists
Short acting		
First choice	<p>Salbutamol</p> <p>100 micrograms/dose, 200 micrograms/dose</p> <p>Dry powder: Easyhaler®</p> <p>200 micrograms/dose</p> <p>Dry powder capsules: Ventolin® Accuhaler (on formulary for COPD only)</p> <p>Terbutaline</p> <p>500 micrograms/dose</p> <p>Dry powder: Bricanyl® Turbohaler</p>	<p>GM COPD and Asthma Management Plans</p> <p>NICE NG80: Asthma diagnosis, monitoring and management</p> <p>BTS/SIGN asthma guideline</p> <p>NICE TA38: Inhaler device</p>
Alternatives	<p>Salbutamol</p> <p>100 micrograms/dose, 200 micrograms/dose</p> <p>Breath-actuated: Airomir® Autohaler, Salamol Easi-Breathe®</p> <p>MDI: Salamol MDI</p>	
Nebuliser solutions	<p>Salbutamol</p> <p>Nebuliser solution 2.5mg /2.5ml, 5mg / 2.5ml</p> <p>Terbutaline</p> <p>Nebuliser solution 5mg/2ml (Respules)®</p>	<p>MHRA DSU: Nebulised asthma rescue therapy in children: home use of nebulisers in paediatric asthma should be initiated and managed only by specialists, August 2022</p>
Injections	<p>Salbutamol</p> <p>Injection 500 microgram/ml</p> <p>Solution for intravenous infusion 5mg/5ml</p> <p>Terbutaline</p> <p>Injection 500 microgram/ml 2.5mg/5ml (Bricanyl®)</p>	<p>R</p> <p>R</p>
<p>Respiratory solutions should be reserved for patients with distressing or disabling breathlessness despite maximum therapy with inhalers. The need for continued therapy with respiratory solutions should be reviewed by a specialist respiratory service.</p> <p>MHRA DSU: short-acting beta 2 agonists, Nov 2013: the use of short-acting adrenoreceptor agonists for tocolysis in premature labour has been restricted to 48 hours' maximum parenteral use under specialist supervision, after a European safety review.</p>		

[MHRA DSU: Pressurised metered dose inhalers \(pMDI\): risk of airway obstruction from aspiration of loose objects, \(July 2018\)](#)

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. The mouthpiece cover should be replaced securely after use. There are reports of patients who have inhaled objects into the back of the throat, resulting in coughing. In some cases objects were aspirated, causing airway obstruction.

Long acting

First choice	Indacaterol Inhalation powder capsules 150 microgram, 300 microgram, with inhaler device (Onbrez Breezhaler®)	
Alternatives	Formoterol DPI 12 micrograms/dose: (Easyhaler®) DPI 6 or 12 micrograms/dose: (Oxis® Turbohaler)	

[MHRA DSU: Long-acting β2-agonists in asthma: reminder for use in children and adults, Sept 2010:](#)

Long-acting beta 2 agonists (LABAs) should always be prescribed with concomitant inhaled corticosteroids (ICS) and only when ICS alone is not sufficient to control asthma symptoms. Review LABA therapy regularly, prescribe the lowest effective dose, and stop if there is no benefit.

[MHRA DSU: Long-acting β-agonists: use in COPD, July 2009](#)

Overall benefits of long-acting β-agonists (LABAs) in the treatment of chronic obstructive pulmonary disease (COPD) continue to outweigh any risks when used in line with relevant guidelines.

[MHRA DSU: Pressurised metered dose inhalers \(pMDI\): risk of airway obstruction from aspiration of loose objects, \(July 2018\)](#)

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. The mouthpiece cover should be replaced securely after use. There are reports of patients who have inhaled objects into the back of the throat, resulting in coughing. In some cases objects were aspirated, causing airway obstruction.

Subsection	3.1.2 Antimuscarinic bronchodilators	
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Short acting

	Ipratropium MDI 20 microgram/dose	
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Long acting

First Choice (asthma)	Tiotropium 2.5 microgram inhalation solution (Spiriva Respimat®)	GM COPD and Asthma Management Plans MHRA DSU: Respimat compared with Handihaler, Feb 2015
First Choices (COPD)	Glycopyrronium Inhalation powder, 50 microgram capsules with inhaler device (Seebri Breezhaler®) Umeclidinium Inhalation powder, 55 mcg per inhalation (Incruse Ellipta®▼)	

<p>Alternatives (COPD)</p>	<p>Tiotropium 2.5 microgram inhalation solution (Spiriva Respimat®)</p> <p>Acclidinium Inhalation powder, 400 microgram/metered inhalation: Eklira Genuair®▼</p>	
<p>Respiratory solutions</p>	<p>Ipratropium 250micrograms/1ml, 500micrograms/2ml</p>	
<p>MHRA DSU: Pressurised metered dose inhalers (pMDI): risk of airway obstruction from aspiration of loose objects, (July 2018)</p>		
<p>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. The mouthpiece cover should be replaced securely after use. There are reports of patients who have inhaled objects into the back of the throat, resulting in coughing. In some cases objects were aspirated, causing airway obstruction.</p>		
<p>Subsection</p>	<p>3.1.3 Theophylline</p>	
<p>First choice</p>	<p>Theophylline (Uniphyllin Continus®) Modified release tablets 200mg, 300mg, 400mg</p>	
<p>Phyllocontin® (aminophylline) Continus 225mg and Phyllocontin® Forte Continus 350mg modified-release tablets have been discontinued in the UK. For further information including advice on switching to alternatives, see the DHSC Supply Disruption Alert</p>		
<p>Subsection</p>	<p>3.1.4 Compound bronchodilator preparations</p>	
<p>First choice</p>	<p>Glycopyrronium/indacaterol 85/43 micrograms Dry powder inhaler: Ultibro Breezhaler®▼</p> <p>Umeclidinium/vilanterol 55/22 micrograms Dry powder inhaler: Anoro Ellipta®▼</p>	<p>GM COPD Management Plan</p>
<p>Alternatives</p>	<p>Olodaterol/tiotropium 2.5/2.5 micrograms Soft mist inhaler: Spiolto Respimat®</p> <p>Formoterol/glycopyrronium 7.5/5 micrograms MDI: Bevespi Aerosphere®</p> <p>Acclidinium/formoterol 340/12 micrograms DPI: Duaklir® Genuair®▼</p>	

Subsection	3.1.5 Peak flow meters, inhaler devices and nebulisers	
Spacer devices	A2A[®] Spacer Aerochamber[®] Plus Standard device with mouthpiece Standard device with adult face mask Volumatic[®] Large volume device with mouth piece	NICE TA38: Inhaler device Use of a spacer device is recommended for all pMDIs. Check SPCs for device and spacer compatibility.
Additional notes MHRA DSU: inhaled corticosteroids and spacers, July 2008 Spacers should not be regarded as interchangeable: patients who use a spacer with their inhaler should use the spacer device named in the Summary of Product Characteristics (where specified by name.)		
Nebuliser diluents		
	Sodium chloride Nebuliser solution 0.9% 2.5ml	

BNF chapter	3	Respiratory system
Section	3.2	Corticosteroids
GM Asthma Management Plan GM COPD Management Plan NICE NG80: Asthma diagnosis, monitoring and management BTS/SIGN asthma guideline NICE TA138: Corticosteroids asthma (adult)		
First choice	Budesonide 200 micrograms/dose Dry powder inhaler: Easyhaler® Dry powder inhaler: Pulmicort Turbohaler®	GM Asthma Management Plan NICE NG191: Managing COVID-19
Alternatives	Beclometasone dipropionate 200 micrograms/dose Dry powder inhaler: Easyhaler® 50 micrograms/dose Breath-actuated: Qvar Easi-breathe® MDI: Qvar MDI 100 micrograms/dose MDI: Clenil Modulite®	Prescribe beclometasone dipropionate by brand
Respiratory solutions	Budesonide 250micrograms/ml, 500micrograms/ml Respules® Fluticasone propionate 250micrograms/ml, 1mg/ml Nebules®	
MHRA DSU: inhaled corticosteroids and spacers (July 2008) The MHRA has advised that beclometasone dipropionate CFC-free inhalers should be prescribed by brand name. Clenil Modulite® and Qvar® are not interchangeable. Qvar® has extra fine particles, and is approximately twice as potent as Clenil Modulite® MHRA DSU: Corticosteroids: rare risk of central serous chorioretinopathy with local as well as systemic administration (August 2017) Advise patients to report any blurred vision or other visual disturbances during corticosteroid treatment MHRA DSU: Pressurised metered dose inhalers (pMDI): risk of airway obstruction from aspiration of loose objects, (July 2018) 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. The mouthpiece cover should be replaced securely after use. There are reports of patients who have inhaled objects into the back of the throat, resulting in coughing. In some cases objects were aspirated, causing airway obstruction.		

Combination ICS/LABA inhalers		
First choices (asthma)	<p>Budesonide/formoterol DPI 160/4.5, 320/9: Fobumix Easyhaler® DPI 100/6, 200/6, 400/12 Symbicort Turbohaler®</p> <p>Beclometasone/formoterol DPI 100/6, 200/6: Fostair NEXThaler®</p> <p>Fluticasone/vilanterol DPI 92/22, 184/22: Relvar Ellipta®</p> <p>Mometasone/indacaterol DPI 125/62.5, 125/127.5, 125/260: Ateectura Breezhaler®</p>	<p>GM Asthma Management Plan</p> <p>NICE NG80: Asthma diagnosis, monitoring and management</p> <p>NICE TA138: Corticosteroids asthma (adult)</p>
Alternative (asthma)	<p>Beclometasone/formoterol MDI 100/6, 200/6: Fostair®</p>	
First choices (COPD)	<p>Fluticasone/vilanterol DPI 92/22: Relvar Ellipta®</p> <p>Beclometasone/formoterol DPI 100/6: Fostair NEXThaler®</p>	GM COPD Management Plan
Alternative (COPD)	<p>Beclometasone/formoterol MDI 100/6: Fostair®</p>	
Combination ICS/LABA/LAMA inhalers		
First choice (asthma)	<p>Mometasone/indacaterol/glycopyrronium DPI 114/46/136: Enerzair Breezhaler®</p>	GM asthma Management Plan
Alternative (asthma)	<p>Beclometasone/formoterol/glycopyrronium MDI 87/5/9: Trimbow®</p>	
First choices (COPD)	<p>Fluticasone/umeclidinium/vilanterol DPI 92/55/22: Trelegy Ellipta®▼</p> <p>Beclometasone/formoterol/glycopyrronium DPI 87/5/9: Trimbow® NEXThaler</p>	<p>G_n</p> <p>GM COPD Management Plan</p> <p>Patients currently on triple therapy should not be automatically switched onto these agents without a clear assessment being</p>

Alternatives (COPD)	<p>Budesonide/formoterol/glycopyrronium MDI 160/5/7.2: Trixeo Aerosphere®</p> <p>Beclometasone/formoterol/glycopyrronium MDI 87/5/9: Trimbow®</p>	<p>undertaken to confirm a need for triple therapy to continue</p>
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MHRA safety warnings:

[MHRA DSU: inhaled corticosteroids and spacers, July 2008](#)

[MHRA DSU: Pressurised metered dose inhalers \(pMDI\): risk of airway obstruction from aspiration of loose objects, July 2018](#)

Fostair® is a CFC-free, fixed-dose combination of beclometasone and formoterol, which is licensed for the management of asthma and COPD in patients aged 18 years or older. Similar to Qvar®, Fostair® contains an extra fine formulation of beclometasone and is more potent than traditional CFC-containing beclometasone inhalers.

Fostair NEXThaler® is licensed for the regular treatment of asthma in patients over the age of 18 years where a combination of ICS/LABA is appropriate.

BNF chapter	3	Respiratory system
Section	3.3	Cromoglicate and related therapy and leukotriene receptor antagonists
Subsection	3.3.2	Leukotriene receptor antagonists
First choice	Montelukast Tablets 10mg	NICE NG80: Asthma diagnosis, monitoring and management MHRA DSU: Montelukast: reminder of the risk of neuropsychiatric reactions, April 2024
Subsection	3.3.3	Phosphodiesterase type-4 inhibitors
	Roflumilast (Daxas[®]▼) 500 microgram tablet	 Following specialist initiation TA461: Roflumilast for treating chronic obstructive pulmonary disease

BNF chapter	3	Respiratory system
Section	3.4	Antihistamines, hyposensitisation, and allergic emergencies
Subsection	3.4.1	Antihistamines
NICE NG202: Obstructive sleep apnoea/hypopnoea syndrome and obesity hypoventilation syndrome in over 16s		
Do Not Prescribe	Insect bites and stings	In line with NHS England guidance, GM do not routinely support prescribing for conditions which are self-limiting or amenable to self-care. For further details see GM commissioning statement .
	Mild to moderate hay fever/seasonal rhinitis See commissioning statement for exceptions	
Non-sedating antihistamines		
First choice	Cetirizine Tablets 10mg Oral solution ^{SF} 5mg / 5mL	
Second choice	Loratadine Tablets 10mg Oral solution 5mg / 5mL	
Do Not Prescribe	Levocetirizine Tablets and oral solution	Criterion 2 (see RAG list)
Sedating antihistamines		
First choice	Chlorphenamine Tablets 4mg Oral solution 2mg / 5mL	
Second choice	Hydroxyzine Tablets 10mg, 25mg Oral solution 10mg / 5mL	Hydroxyzine is favoured by dermatologists for its anti-itch and sedating effects MHRA DSU: Hydroxyzine: risk of QT prolongation and Torsade de Pointes, April 2015
Do Not Prescribe	Alimemazine Tablets and oral solution	Criterion 2 (see RAG list)
Intramuscular steroid injections		
	Triamcinolone 40 mg/mL IM injection (Kenalog)	R for management of allergic rhinitis. Limited place in therapy

Subsection	3.4.2 Allergen immunotherapy	
	<p>Bee and Wasp Allergen Extracts Pharmalgen® Subcutaneous injection, initial and maintenance treatment sets</p>	<p>R NICE TA246 Venom anaphylaxis - immunotherapy pharmalgen Specialist use only</p>
	<p>Benralizumab (Fasenra®▼) Injection pre-filled syringe 30mg/1ml</p>	<p>R NICE TA565: Benralizumab for treating severe eosinophilic asthma (NHS England commissioned)</p>
	<p>Dupilumab (Dupixent®▼) Pre-filled pen or syringe: 200mg, 300mg</p>	<p>R NICE TA751: Dupilumab for treating severe asthma with type 2 inflammation (NHS England commissioned) MHRA DSU: Dupilumab (Dupixent▼): risk of ocular adverse reactions and need for prompt management, Nov 2022</p>
	<p>Mepolizumab (Nucala®▼) 100 mg powder for solution for injection</p>	<p>R NICE TA671: Mepolizumab for treating severe eosinophilic asthma (NHS England commissioned)</p>
	<p>Omalizumab Injection pre-filled syringe 75mg/0.5ml, 150mg/1ml</p>	<p>R NICE TA339: Omalizumab for previously treated chronic spontaneous urticaria NICE TA278: for treating severe persistent allergic asthma (NHS England commissioned) GMMMG commissioning statement: Unlicensed use of omalizumab for severe chronic inducible urticarias (solar urticaria, cold and heat urticaria, symptomatic dermographism, delayed pressure urticaria and cholinergic urticaria) (ICS commissioned)</p>
	<p>Reslizumab (Cinqaero®▼) 10 mg/mL concentrate for solution for infusion</p>	<p>R NICE TA479: Reslizumab for treating severe eosinophilic asthma (NHS England commissioned)</p>
	<p>Tezepelumab (Tezspire®▼) 210mg pre-filled syringe</p>	<p>R NICE TA880: Tezepelumab for treating severe asthma (NHS England commissioned)</p>

<p>Grey drugs</p> <p>Items which are listed as Grey are deemed not suitable for routine prescribing but may be suitable for a defined patient population</p>	<p>Peanut protein powder (Palforzia®▼)</p> <p>Capsules for opening: 0.5mg, 1mg, 10mg, 20mg, 100mg, 300mg</p> <p>Only for use in people aged 18 and over if treatment started between the ages of 4 to 17, as per NICE guidance.</p>	<p>R</p> <p>Criterion 1 (see RAG list)</p> <p>NICE TA769: Palforzia for treating peanut allergy in children and young people</p>
	<p>Tree and grass pollen extracts (Pollinex®)</p> <p>Pollinex should only be prescribed in accordance with local commissioning arrangements.</p>	<p>R</p> <p>Criterion 1 (see RAG list)</p>
<p>Do Not Prescribe</p>	<p>Grass pollen extract</p> <p>Grazax®</p>	<p>Criterion 2 (see RAG list)</p>
	<p>Dupilumab</p> <p>Dupixent®</p> <p>For chronic rhinosinusitis with nasal polyps</p>	<p>Criterion 1 (see RAG list)</p> <p>NICE TA648: Dupilumab for treating chronic rhinosinusitis with nasal polyps</p>
	<p>Omalizumab</p> <p>Xolair®</p> <p>For chronic rhinosinusitis with nasal polyps</p>	<p>NICE TA678: Omalizumab for treating chronic rhinosinusitis with nasal polyps</p>
<p>Subsection</p>	<p>3.4.3 Allergic emergencies</p>	
<p>Anaphylaxis</p>		
	<p>Adrenaline/epinephrine</p> <p>Intramuscular injection for self-administration</p> <p>1 in 1000 - 0.5ml, 1ml</p> <p>Emerade® Auto-injector 300 microgram dose (adrenaline)</p> <p>Epipen® Auto-injector 300 microgram dose (adrenaline)</p> <p>Jext® Auto-injector 300 microgram dose (adrenaline)</p>	<p>Resuscitation Guidelines</p> <p>MHRA DSUs:</p> <p>Adrenaline auto-injectors (AAIs): new guidance and resources for safe use, June 2023</p> <p>Adrenaline auto-injectors: reminder for prescribers to support safe and effective use, Nov 2021</p> <p>Adrenaline auto-injectors: updated advice after European review, Aug 2017</p>
<p>Note: It is advisable to prescribe adrenaline auto-injector by brand to avoid confusion. There may be differences in the shelf life between brands, please check the SPC for details.</p>		

BNF chapter	3	Respiratory system
Section	3.6	Oxygen
<p>Home Oxygen Provision</p> <p>Most patients who are prescribed oxygen have respiratory disease, typically COPD, cystic fibrosis or pulmonary fibrosis. People with chronic asthma or sleep disordered breathing may also benefit. Oxygen therapy is also an effective treatment for some people with cardiac or neurological disease (e.g. cluster headaches) and is an important element in palliative medicine.</p> <p>There is a requirement of CCGs to formally commission a HOS-AR (Home Oxygen Assessment and Review) service that will clinically deliver the full requirements of oxygen therapy to the community, ensuring that good assessment and review provision will impact positively on emergency hospital admissions and out-patient appointments.</p> <p>For further advice and support please contact the clinical lead of your HOS-AR service or your regional oxygen lead; Karen Hatch on 07733 31 8436 or Karen.Hatch@lancashirecare.nhs.uk</p>		

BNF chapter	3	Respiratory system
Section	3.7	Mucolytics
First choice	Acetylcysteine 600mg effervescent tablets	G_n NB: not suitable for patients who require a low sodium diet
Alternative	Carbocisteine Capsules 375mg, liquid 250mg/5ml	G_n
Dornase alfa		
	Dornase Alfa nebuliser solution 2500 units/2.5mL	R
Additional notes Dornase alfa must only be initiated within hospital for the treatment of cystic fibrosis.		
Hypertonic sodium chloride		
	Hypertonic sodium chloride for nebulisation 3%, 6% (MucoClear®) 4ml vials 7% (Nebusal®) 4mL vials	Prescribe by brand to avoid unlicensed special use.
Mannitol		
	Mannitol inhalation powder Hard capsules 40mg	R NICE TA266: Mannitol for cystic fibrosis

Additional notes

[NICE TA398 \(July 2016\): Lumacaftor–ivacaftor for treating cystic fibrosis homozygous for the F508del mutation](#) **NOT RECOMMENDED**

[NICE NG78: Cystic fibrosis: diagnosis and management](#)

[MHRA DSU: Ivacaftor, tezacaftor, elexacaftor \(Kaftrio▼\) in combination with ivacaftor \(Kalydeco\): risk of serious liver injury; updated advice on liver function testing, Feb 2022](#)

Section	3.9 Cough preparations	
Do Not Prescribe	Cough medicines Simple linctus, codeine linctus, pholcodine linctus	Criterion 1 (see RAG list) In line with NHS England guidance, GM do not routinely support prescribing for conditions which are self-limiting or amenable to self-care. For further details see GM commissioning statement .

Section	3.10 Systemic nasal decongestants	
Do Not Prescribe	Coughs, colds and nasal congestion Pseudoephedrine nasal sprays and oral preparations	In line with NHS England guidance, GM do not routinely support prescribing for conditions which are self-limiting or amenable to self-care. For further details see GM commissioning statement . MHRA DSU: Pseudoephedrine: very rare risk of posterior reversible encephalopathy syndrome (PRES) and reversible cerebral vasoconstriction syndrome (RCVS).

BNF chapter	3 Respiratory system	
Section	3.11 Antifibrotics	
	Pirfenidone Capsules 267mg	R NICE TA504: Pirfenidone for treating idiopathic pulmonary fibrosis MHRA DSU: Pirfenidone (Esbriet): risk of serious liver injury; updated advice on liver function testing