

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>U</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>OTC</p>	<p>Over the Counter</p>
<p>Order of Drug Choice</p>	<p>Where there is no preferred 1st line agent provided, the drug choice appears in alphabetical order.</p>

BNF chapter	3	Respiratory system
Section	3.1	Bronchodilators
Subsection	3.1.1	Adrenoreceptor agonists

Short acting

First choice	<p>Salbutamol 100 micrograms/dose CFC free MDI (Ventolin Evohaler®) (Airomir® inhaler)</p>	<p>GM COPD Management Plan</p> <p>NICE NG80: Asthma diagnosis, monitoring and management</p>
Alternatives	<p>Salbutamol 100 micrograms/dose, 200 micrograms/dose Dry powder (Easyhaler®) Breath actuated (Airomir® Autohaler) Breath actuated (Salamol Easi-Breathe®) Terbutaline 500 micrograms/dose DPI (Bricanyl® Turbohaler) Salbutamol DPI capsules 200 micrograms /dose (Ventolin® Accuhaler)</p>	<p>BTS/SIGN asthma guideline</p> <p>RDTC Cost Comparison charts</p> <p>NICE TA38: Inhaler device</p>
	<p>Salbutamol Nebuliser solution 2.5mg /2.5ml, 5mg / 2.5ml Terbutaline Nebuliser solution 5mg/2ml (Respules)® Salbutamol Injection 500 microgram/ml Solution for intravenous infusion 5mg/5ml Terbutaline Injection 500 microgram/ml 2.5mg/5ml (Bricanyl®)</p>	<p>R</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.

[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.


[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	<p>Formoterol</p> <p>DPI 12 micrograms/dose (Easyhaler)[®]</p> <p>DPI 6 micrograms/dose, 12 micrograms/dose (Oxis[®] Turbohaler)</p>	
Alternatives	<p>Salmeterol</p> <p>MDI 25 micrograms/dose (Serevent Evohaler)[®]</p> <p>DPI 50 micrograms/dose (Serevent Accuhaler)[®]</p>	
<p>MHRA update 2010:</p> <p>Long-acting beta 2 agonists (LABAs) should always be prescribed with concomitant inhaled corticosteroid (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.</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>		
Subsection	3.1.2 Antimuscarinic bronchodilators	
Short acting		
	Ipratropium MDI 20 microgram/dose	
Long acting		
First Choice	<p>Tiotropium</p> <p>2.5 microgram/2.5 microgram, inhalation solution (Spiriva Respimat[®])</p>	<p>GM COPD Management Plan</p>
Alternatives	<p>Aclidinium▼</p> <p>Inhalation powder, 400 microgram/metered inhalation (Eklira Genuair[®])</p> <p>Glycopyrronium▼</p> <p>Inhalation powder, 50 microgram capsules with inhaler device (Seebri Breezhaler[®])</p> <p>Umeclidinium▼</p> <p>Inhalation powder, 55 mcg per inhalation (Incruse Ellipta[®])</p>	<p>MHRA DSU: Respimat compared with Handihaler, Feb 2015</p> <p>MHRA DSU: Braltus (tiotropium): risk of inhalation of capsule if placed in the mouthpiece of the inhaler, May 2018</p>

Respiratory solutions	Ipratropium 250micrograms/1ml, 500micrograms/2ml	
<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>		
Subsection	3.1.3 Theophylline	
First choice	Uniphyllin Continus® (theophylline) Modified release tablets 200mg, 300mg, 400mg	
Alternatives	Aminophylline (Phyllocontin Continus®) Modified release tablets 225mg, 350mg Injection 250mg/10ml	R For injection
Subsection	3.1.4 Compound bronchodilator preparations	
	<p>Acclidinium/formoterol 340/12 DPI (Duaklir® Genuair®▼)</p> <p>Glycopyrronium/indacaterol 85/43 DPI (Ultibro Breezhaler®▼)</p> <p>Umeclidinium/vilanterol 55/22 DPI (Anoro Ellipta®▼)</p> <p>Olodaterol/tiotropium 2.5/2.5 Soft mist inhaler (Spiolto Respimat®)</p>	GM COPD Management Plan
Subsection	3.1.5 Peak flow meters, inhaler devices and nebulisers	
Spacer devices	<p>A2A® Spacer</p> <p>Aerochamber® Plus Standard device with mouthpiece Standard device with adult face mask</p> <p>Volumatic® Large volume device with mouth piece</p>	<p>NICE TA10: Inhaler devices in children under 5</p> <p>NICE TA38: Inhaler device</p>
Additional notes		
<p>MHRA DSU: inhaled corticosteroids and spacers, July 2008</p> <p>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.)</p>		
Nebuliser diluents		
	Sodium chloride Nebuliser solution 0.9% 2.5ml	

BNF chapter	3	Respiratory system
Section	3.2	Corticosteroids
First choice	<p>Clenil (beclometasone dipropionate) Modulite® MDI 50, 100, 200, 250 microgram/dose</p> <p>Qvar® (beclometasone dipropionate) MDI 50, 100 microgram/dose Easi-Breathe® or Autohaler®</p>	<p>Prescribe beclometasone dipropionate by brand</p> <p>GM COPD Management Plan</p> <p>NICE NG80: Asthma diagnosis, monitoring and management</p> <p>BTS/SIGN asthma guideline</p> <p>NICE TA131: Corticosteroids asthma (children)</p> <p>NICE TA138: Corticosteroids asthma (adult)</p>
Alternatives	<p>Budesonide 100, 200, 400 micrograms / dose DPI (Easyhaler®) (Pulmicort® Turbohaler®)</p> <p>Fluticasone propionate MDI (Flixotide® Evohaler®) 50, 125, 250 micrograms/dose DPI 50,100, 250, 500 micrograms /dose (Flixotide® Accuhaler®)</p>	<p>NICE TA131: Corticosteroids asthma (children)</p> <p>NICE TA138: Corticosteroids asthma (adult)</p>
Respiratory solutions	<p>Budesonide 250micrograms/ml, 500micrograms/ml Respules®</p> <p>Fluticasone propionate 250micrograms/ml, 1mg/ml Nebules®</p>	
<p>MHRA DSU: inhaled corticosteroids and spacers (July 2008)</p> <p>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®</p> <p>MHRA DSU: Corticosteroids: rare risk of central serous chorioretinopathy with local as well as systemic administration (August 2017)</p> <p>Advise patients to report any blurred vision or other visual disturbances during corticosteroid treatment</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>		
Combination ICS / LABA inhalers		
	<p>Beclometasone/formoterol 100/6, 200/6 MDI (Fostair®100/6, 200/6) DPI (Fostair NEXThaler® 100/6, 200/6)</p>	<p>GM COPD Management Plan</p> <p>NICE NG80: Asthma</p>



	<p>Budesonide /formoterol 100/6, 200/6, 400/12 DPI (Symbicort Turbohaler®)</p> <p>Budesonide/formoterol 160/4.5, 320/9 DPI (Duoresp Spiromax®)</p> <p>Fluticasone/formoterol 50/5, 125/5, 250/10 MDI (Flutiform®)</p> <p>Fluticasone/salmeterol 50, 125, 250 MDI (Seretide® Evohaler® 50, 125, 250, Sirdupla® 125, 250)</p> <p>Fluticasone/salmeterol 100, 250, 500 DPI (Seretide Accuhaler® 100, 250, 500, AirFluSal Forspiro®500/50)</p> <p>Fluticasone/vilanterol 92/22 DPI (Relvar Ellipta®)</p>	<p>diagnosis, monitoring and management</p> <p>NICE TA131: Corticosteroids asthma (children)</p> <p>NICE TA138: Corticosteroids asthma (adult)</p> <p>NTS recommendation: Symbicort® and Fostair® as regular maintenance and reliever treatment in asthma as per the SMART/MART regimes</p>
Combination ICS / LABA / LAMA inhalers		
	<p>Fluticasone/umeclidinium/vilanterol† 92/55/22 DPI (Trelegy®)</p> <p>Beclometasone/formoterol/glycopyrronium 87/5/9 MDI (Trimbow®)</p>	<p></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 undertaken to confirm a need for triple therapy to continue</p>
<p>MHRA safety warnings:</p> <p>MHRA DSU: inhaled corticosteroids and spacers, July 2008</p> <p>MHRA DSU: Pressurised metered dose inhalers (pMDI): risk of airway obstruction from aspiration of loose objects, July 2018</p> <p>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.</p> <p>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. Unlike the pressurised metered dose inhaler Fostair NEXThaler® is not licensed for the management of COPD, or for maintenance and reliever therapy (MART) in adults with asthma.</p> <p>Duoresp Spiromax® only indicated for use in those over the age of 18 years</p>		

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
Subsection	3.3.3	Phosphodiesterase type-4 inhibitors
	Roflumilast (Daxas[®]▼) 500 microgram tablet	G_n Following specialist initiation Approved for the treatment of COPD in line with NICE TA461

BNF chapter	3	Respiratory system
Section	3.4	Antihistamines, hyposensitisation, and allergic emergencies
Subsection	3.4.1	Antihistamines
Non-sedating antihistamines		
First choice	Cetirizine Tablets 10mg Oral solution ^{SF} 5mg / 5mL	GMMMG (2017): The management of chronic urticaria in primary care for adults and children
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	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
Second choice	Hydroxyzine Tablets 10mg, 25mg Oral solution 10mg / 5mL	
Do Not Prescribe	Alimemazine Tablets and oral solution	Criterion 2 (see RAG list)
Subsection	3.4.2 Allergen immunotherapy	
	Bee and Wasp Allergen Extracts Pharmalgen® Subcutaneous injection, initial and maintenance treatment sets	R NICE TA246 Venom anaphylaxis - immunotherapy pharmlagen Specialist use only
	Mepolizumab ▼ (Nucala®) 100 mg powder for solution for injection	R NICE TA431: Mepolizumab for treating severe refractory eosinophilic asthma
	Omalizumab Injection pre-filled syringe 75mg/0.5ml, 150mg/1ml	R NICE TA339: Omalizumab

		for previously treated chronic spontaneous urticaria NICE TA278: asthma (severe, persistent, patients aged 6+, adults) - omalizumab (rev TA133, TA201)
	Reslizumab ▼ (Cinqaero®) 10 mg/mL concentrate for solution for infusion	R NICE TA479: Reslizumab for treating severe eosinophilic asthma (NHS England commissioned)
Grey drugs Items which are listed as Grey are deemed not suitable for routine prescribing but may be suitable for a defined patient population	Tree and grass pollen extracts (Pollinex®) Pollinex should only be prescribed in accordance with local commissioning arrangements.	R Criterion 1 (see RAG list)
Do Not Prescribe	Grass pollen extract Grazax®	Criterion 2 (see RAG list)
Subsection	3.4.3 Allergic emergencies	
Anaphylaxis		
	Adrenaline / Epinephrine Intramuscular injection for self-administration 1 in 1000 - 0.5ml, 1ml Emerade ® Auto-injector 150, 300 and 500 microgram dose (adrenaline) Epipen ® Auto-injector 300 microgram dose (adrenaline) Jext ® Auto-injector 300 microgram dose (adrenaline)	Resuscitation Guidelines MHRA DSU (2017): Adrenaline auto-injectors: updated advice after European review
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.		

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 07733318436 or Karen.hatch@lancashirecare.nhs.uk</p> <p>Refer to additional notes document for further information.</p>		

BNF chapter	3	Respiratory system
Section	3.7	Mucolytics
	Carbocisteine Capsules 375mg, liquid 250mg/5ml	
Dornase alfa		
	Dornase Alfa nebuliser solution 2500 units/2.5mL	
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	 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		
Do Not Prescribe	Cough medicines	<u>Criterion 1 (see RAG list)</u>

BNF chapter	3	Respiratory system
Section	3.11	Antifibrotics
	<p>Pirfenidone Capsules 267mg</p>	<p>R NICE TA504: Pirfenidone for treating idiopathic pulmonary fibrosis</p>