

DERBYSHIRE JOINT AREA PRESCRIBING COMMITTEE (JAPC)

Asthma management in adults ≥ 17 years

This guideline is based on NICE NG80, November 2017, updated February 2020

- JAPC recognises this local asthma guidance (based on National Institute of Health and Care Excellence (NICE) NG80) differs from Scottish Intercollegiate Guidelines Network (SIGN)/British Thoracic Society (BTS) guidance. The evidence base considered by SIGN/BTS and NICE guideline group is broadly similar, but the methodology used to produce the guidance is significantly different
 - SIGN/BTS methodology is a multidisciplinary, clinically-led process which undertakes critical appraisal of the literature and provides clinically-relevant recommendations
 - NICE undertake critical appraisal of the literature with health economic modelling.
 These different processes have resulted in differing recommendations.
- NICE recognise where the recommendations represent a change from traditional clinical practice, people whose asthma is well controlled on their current treatment should not have their treatment changed purely to follow this guidance.
- Uncontrolled asthma is defined as asthma that has an impact on a person's lifestyle or restricts their normal activities.
- Take into account the possible reasons for uncontrolled asthma, before starting or adjusting medicines. These may include:
 - Alternative diagnosis
 - Lack of adherence
 - Suboptimal inhaler technique
 - Smoking (active or passive)
 - Occupational exposures
 - Psychosocial factors
 - Seasonal or environmental factors
- After adjusting maintenance treatment, review the response to treatment changes in 4 to 8 weeks
- If asthma is uncontrolled in adults on a low dose of inhaled corticosteroid (ICS) as maintenance therapy, offer a leukotriene receptor antagonist (LTRA) in addition to the ICS. (The economic evaluation found that the most cost effective treatment option for patients uncontrolled on low dose ICS alone was to trial ICS+LTRA).
- Monitor asthma control at every review. If control is suboptimal confirm the patient's adherence to prescribed treatment. Patients do not always take their medicines exactly as prescribed. Recognise that non-adherence is common and that most patients are non-adherent sometimes. Routinely assess adherence in a non-judgemental way whenever you prescribe or review medicines.
- Monitor the use of short-acting beta₂ agonist (SABA); patients requiring **more than 12** SABA's a year should prompt an asthma review.
- Clinician should ensure that patients receive the smallest dose of an ICS that provides optimal control of asthma, to reduce the risk of side-effects.
- 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) do not contain propellant, so they have a lower carbon footprint than other inhalers. All inhaler prescriptions, 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. 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

- Inhalers should be prescribed by brand name to ensure the patient receives the device they are familiar with.

Document update	Date
p.8 Triple inhalers for asthma added	August 2021
Luforbec added	September 2021
Hierarchy of inhalers updated to promote greener inhaler prescribing	October 2021
Salamol as preferred choice salbutamol MDI (lower carbon footprint)	November 2021
WockAIR added	April 2022
All formulary dry powder inhalers contain lactose – warning added Pg 2	May 2022

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Abbreviations

SABA	Short-acting beta ₂ agonist
ICS	Inhaled corticosteroid
LTRA	Leukotriene receptor antagonist
LABA	Long acting beta agonist
MART	Maintenance and reliever therapy
SMART	Symbicort maintenance and reliever therapy
FeNO	Fractional Exhaled Nitric Oxide
MDI	Metered dose inhaler
Offer	A strong recommendation usually where there is clear evidence of benefit
Consider	A recommendation for which the evidence of benefit is less certain.

Diagnosis of asthma

Currently there is no gold standard test available to diagnose asthma. Both NICE and BTS/SIGN have tried to address the issue of over- and under- diagnosis of asthma.

Diagnosis should be based on clinical assessment **supported** by objective tests that seek to demonstrate variable airflow obstruction or the presence of airway inflammation. Objective tests include:

- Spirometry to confirm airflow obstruction
- Bronchodilator reversibility test
- Peak flow variability
- FeNO
- Bronchial challenge test with mannitol, histamine or methacholine

The two guidance differ on the use of FeNO:

- NICE places FeNO testing in a prominent position in the diagnosis of asthma.
- BTS/SIGN - positive FeNO test indicates the presence of eosinophilic inflammation and increases the probability of asthma, where the structured clinical assessment suggests an intermediate probability

Full details regarding the diagnosis and monitoring of asthma can be found in [NICE NG80](#) and [BTS](#).

Management of adults aged 17 years and over, with newly diagnosed asthma

For a small cohort of patients consider SABA for symptom relief for infrequent short-lived wheeze and normal lung function
(BTS/SIGN recommend initiation of treatment in association with an ICS)

Review response in 4-8 weeks *

Offer low dose of inhaled corticosteroid (ICS), as first-line maintenance therapy **With SABA for symptom relief**

Review response in 4-8 weeks *

Offer low dose inhaled ICS plus LTRA as maintenance therapy **With SABA for symptom relief**

Review response in 4-8 weeks *

Offer low dose inhaled ICS plus LABA, with an or without LTRA treatment (*Discuss with the patient whether or not to continue LTRA treatment, taking into account the degree of response*) **With SABA for symptom relief**

Review response in 4-8 weeks *

If MART not considered appropriate for the patient

Offer low dose inhaled ICS plus LABA within a MART* regimen, with an or without LTRA treatment (**MART is the preferred option for most patients, by virtue of cost reduction and number of exacerbations*) **Low dose ICS + LABA within a MART* regimen**
(see Table 2 for MART doses)

Review response in 4-8 weeks *

Consider ↑inhaled ICS to moderate dose plus LABA, as fixed dose combination inhaler, with or without a LTRA treatment, plus SABA **or** **Consider ↑inhaled ICS to moderate dose plus LABA within a MART regimen, with or without a LTRA treatment** **Moderate dose ICS + LABA within a MART* regimen or change to a SABA**
(see Table 2 for MART doses)

Review response in 4-8 weeks *

Consider ↑inhaled ICS to high dose plus LABA as fixed, with an or without LTRA treatment **With SABA for symptom relief**

or **Consider seeking advice from an Asthma Specialist**

or **Consider a trial of an additional drug (e.g., a long acting muscarinic receptor antagonist or SR theophylline)**

*If asthma uncontrolled- check diagnosis, inhaler technique, adherence, exposure to smoking & triggers and suitability of current treatment

Formulary choices for the treatment of adult asthma

Drug	Brand name	Device	Traffic light classification	Licensed indication	Daily dose range	Cost per device*	30 day cost	Annual cost	
SABA									
Salbutamol 100mcg	Salamol MDI	MDI	Green	Asthma	2 puffs as required	£1.46 (200 dose)	NA	NA	
Salbutamol easyhaler 100mcg	Easyhaler salbutamol	DPI	Green	Asthma	2 puffs as required	£3.31 (200 dose)	NA	NA	
Salbutamol Easi-breathe 100mcg	Salamol Easi-breathe	Breathe actuated inhaler	Green	Asthma	2 puff as required	£6.30 (200 dose)	NA	NA	
LTRA									
Montelukast tablets	Montelukast	Oral tablet	Green	Asthma (adults & children >15 yrs)	10mg ON	£4.08x 28	£4.37	£52	
Inhaled Corticosteroid									ICS dose
Beclometasone 100mcg MDI standard particle size	Soprobe 100mcg	MDI	Green	Asthma (adults & children)	2 puffs BD	£5.57 (200 dose)	£3.34	£40	400mcg bec
	Clenil modulite 100mcg	MDI	Green	Asthma (adults & children)	2 puffs BD	£7.42 (200 dose)	£4.45	£53	400mcg bec
Beclometasone 50 mcg MDI Extrafine particle size	Kelhale 50mcg	MDI	Green	Asthma (adults >18 years)	1 puffs BD	£5.50 (200 dose)	£1.65	£20	100mcg extrafine
	Kelhale 100mcg	MDI	Green	Asthma (adults >18 years)	2 puffs BD	£5.50 (200 dose)	£3.30	£40	200mcg- extrafine
Beclometasone 50mcg MDI extrafine particle size	QVAR 50mcg	MDI	Green	Asthma (adults & children >5 yrs)	1 puff BD	£7.87 (200 dose)	£3.71	£45	100mcg extrafine
					2 puff BD	£7.87 (200 dose)	£4.72	£57	200mcg extrafine
Budesonide 100mcg	Easyhaler budesonide 100mcg	Breath-actuated DPI	Green	Asthma (adults & children >6 yrs)	1-2 puffs BD	£8.86 (200 dose)	£2.66	£32	200mcg bud
					2 puffs BD	£8.86 (200 dose)	£5.32	£64	400mcg bud
LABA/ICS combination products									
Budesonide/formoterol 100/6mcg	Fobumix 80/4.5	Breath-actuated DPI	Green 1 st line ICS/LABA	Asthma (adults > 18yrs)	1 puff BD	£21.50 (120 dose)	£10.75	£129	200mcg bud
					2 puffs BD	£21.50 (120 dose)	£21.50	£258	400mcg bud
Budesonide/formoterol 200/6mcg	Fobumix 160/4.5	Breath-actuated DPI	Green 1 st line ICS/LABA	Asthma (adults > 18yrs)	1 puff BD	£21.50 (120 dose) ¹	£10.75	£129	400mcg bud
					2 puffs BD	£21.50 (120 dose) ¹	£21.50	£258	800mcg bud
Budesonide/formoterol 400/12mcg	Fobumix 320/9	Breath-actuated DPI	Green 1 st line ICS/LABA	Asthma (adults > 18yrs)	1 puff BD	£21.50 (60 dose)	£21.50	£258	800mcg bud
					2 puffs BD	£21.50 (60 dose)	£43	£516	1600mcg bud
Budesonide/formoterol 160/4.5	WockAIR 160/4.5	Breath-actuated DPI	Green	asthma (≥12years age) and COPD	1 puffs BD	£19 (120 dose)	£9.50	£114	400mcg bud
					2 puffs BD	£19 (120 dose)	£19	£228	800mcg bud
Budesonide/formoterol 320/9	WockAIR 320/9	Breath-actuated DPI	Green	asthma (≥12years of age) and COPD	1 puffs BD	£19 (60 dose)	£19	£228	800mcg bud
Beclometasone/ formoterol 100/6mcg Extrafine particle size	Luforbec 100/6	MDI	Green alternative 1 st line if requiring MDI	Asthma (adults > 18yrs)	1 puff BD	£20.52 (120 dose)	£10.26	£123	200mcg extra fine
					2 puffs BD	£20.52 (120 dose)	£20.52	£246	400mcg extrafine

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Beclometasone/ formoterol 100/6mcg Extrafine particle size	^a Fostair Nexthaler 100/6 or ^a Fostair MDI 100/6	Breath-actuated DPI or MDI	Green	Asthma (adults > 18yrs)	1 puff BD	£29.32 (120 dose)	£14.66	£176	200mcg extra fine
					2 puff BD	£29.32 (120 dose)	£29.32	£352	400mcg extrafine
Beclometasone/ formoterol 200/6mcg extrafine particle size	^a Fostair Nexthaler 200/6 or ^a Fostair MDI 200/6	Breath-actuated DPI or MDI	Green	Asthma (adults > 18yrs)	2 puff BD	£29.32 (120 dose)	£29.32	£352	800mcg extra fine
Budesonide/formoterol 200/6mcg	DuoResp Spiromax 160/4.5	DPI	Green alternative ICS/LABA	Asthma(adults > 18yrs)	1 puffs BD	£27.97 (120 dose)	£13.99	£168	400mcg bud
					2 puffs BD	£27.97 (120 dose)	£27.97	£336	800mcg bud
Budesonide/formoterol 400/12mcg	DuoResp Spiromax 320/9	DPI	Green alternative ICS/LABA	Asthma (adults > 18yrs)	2 puffs BD	£27.97 (60 dose)	£55.94	£671	1600mcg bud
Budesonide/formoterol 100/6mcg turbohaler	Symbicort 100/6 turbohaler	Breath-actuated DPI.	Green alternative ICS/LABA	Asthma (adults & children > 6yrs)	1 puffs BD	£28 (120 dose)	£14	£168	200mcg bud
					2 puffs BD	£28 (120 dose)	£28	£336	400mcg bud
Budesonide/formoterol 200/6 turbohaler	Symbicort 200/6 turbohaler	Breath-actuated DPI.	Green alternative ICS/LABA	Asthma (adults & children > 12yrs)	1 puffs BD	£28 (120 dose)	£14	£168	400mcg bud
					2 puffs BD	£28 (120 dose)	£28	£336	800mcg bud
Budesonide/formoterol 400/12 turbohaler	Symbicort 400/12 turbohaler	Breath-actuated DPI	Green alternative ICS/LABA	Asthma (adults only)	1 puffs BD	£28 (60 dose)	£28	£336	800mcg bud
					2 puffs bd	£28 (60 dose)	£56	£672	1600mcg bud
					2 puffs bd	£19 (60 dose)	£38	£456	

(*Price per MIMs online March 2020 and DT) (^a -100 micrograms of beclometasone dipropionate extrafine in Fostair are equivalent to 250 micrograms of beclometasone dipropionate in a non-extrafine formulation)

(¹ Fobumix 160/4.5 is available in 120 dose and 60 dose inhalers, however it is cost-effective to use the 120 dose inhaler compared to the 60 dose inhaler)

MART/SMART regimens (<https://www.medicines.org.uk/emc/>)

Regimen	Fobumix MART	WockAIR	Luforbec MART	Fostair MART	Symbicort SMART	DuoResp Spiromax MART
Device	Budesonide/ formoterol 80/4.5 or Budesonide/ formoterol 160/4.5	Budesonide/ formoterol 160/4.5 only	Beclometasone/ formoterol 100/6	Beclometasone/ formoterol 100/6	Budesonide/formoterol 100/6 or budesonide/formoterol 200/6	Budesonide/formoterol 160/4.5 only
Maintenance dose	2 puffs daily, Maintenance dose of 2 inhalations twice daily may be appropriate.	2 puffs/ day, increased if necessary to 2 puffs twice a day for some patients.	1 puff twice a day	1 puff twice a day	100/6 - 2 puffs daily; 200/6 - 2 puffs daily, For some patients 2 puffs twice daily may be appropriate	2 puffs daily, increased if necessary to 2 puffs twice a day for some patients
As required dose	1—2 puffs to relieve symptoms as needed; max 6 puffs on any single occasion.	1-2 additional puff as needed. No more than 6 puffs should be taken on any single occasion.	1 additional puff as needed, if symptoms persist an additional puff can be taken	1 additional puff as needed, if symptoms persist an additional puff can be taken	1 puff as required, if symptoms persist an additional puff can be taken. No more than 6 puffs on any single occasion	1-2 puffs to relieve symptoms as needed. Not more than 6 puffs should be taken on any single occasion
Maximum in 24 hours	Normally 8 puffs in 24 hours. 12 puffs daily can be used for a limited period	Normally 8 puffs in 24hours. 12 puffs in 24h for a limited period.	8 puffs in 24 hours	8 puffs in 24 hours	Normally 8 puffs in 24 hours 12 puffs in 24 hours for a limited period	12 puffs in 24 hours for a limited period
Maximum cost per 24 hours	£1.43 - £2.15	£1.26	£1.37	£1.95	£1.87 - £2.80	£2.80

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ICS doses

The doses in this table should be used as a guide and should not be interpreted as a definitive statement of the relative potencies of the different inhaled steroids.

	Low dose	Moderate dose	High dose
Beclometasone dipropionate ¹			
Standard particle CFC-free inhalers	200-500 micrograms per day in 2 divided doses	600-1000 micrograms per day in 2 divided doses	1,200-2,000 micrograms per day in 2 divided doses.
Extra-fine particle CFC-free inhalers ²	100-200 micrograms per day in 2 divided doses	300-400 micrograms per day in 2 divided doses	500-800 micrograms per day in 2 divided doses
Budesonide			
Dry powder inhalers	200-400 micrograms per day as a single dose or in 2 divided doses	600-800 micrograms per day as a single dose or in 2 divided doses	1,000-1,600 micrograms per day in 2 divided doses
Fluticasone propionate			
Metered dose and dry powder inhalers ³	100-250 micrograms per day in 2 divided doses	300 - 500 micrograms per day in 2 divided doses ^a	600-1,000 micrograms per day in 2 divided doses ^a
Fluticasone furoate ⁴			
Dry powder inhaler	--	100 micrograms as a single daily dose	200 micrograms as a single daily dose
Ciclesonide			
Metered dose inhaler	80-160 micrograms per day as a single dose	240-320 micrograms per day as a single dose or in 2 divided doses	400-640 micrograms per day in 2 divided doses
Mometasone furoate			
Dry powder inhaler	200 micrograms per day as a single dose a day	400 micrograms per day in 2 divided doses	Up to 800 micrograms per day in 2 divided doses

¹ CFC-containing beclometasone dipropionate MDIs are no longer available, so are not included. The MHRA advises that beclometasone dipropionate CFC-free inhalers should be prescribed by brand name (Drug safety update, July 2008).

² Extra-fine particle CFC-free inhalers include brands such as Qvar, Kelhale and Fostair, which are more potent than standard particle CFC-free inhalers. Fostair and Fostair NEXThaler are combination products containing beclometasone dipropionate with formoterol. 100 micrograms of beclometasone dipropionate via Qvar and Kelhale products are approximately equivalent to 200 micrograms of beclometasone dipropionate in standard particle CFC-free inhalers. 100 micrograms of beclomethasone dipropionate via Fostair products are approximately equivalent to 250 micrograms of beclometasone dipropionate in standard particle CFC-free inhalers.

³ Flixotide Evohaler and Flixotide Accuhaler are licensed up to 2,000 micrograms per day (in 2 divided doses), which is approximately equivalent to 4,000 micrograms per day of budesonide. The manufacturer's SPC advises that, because of the risk of systemic effects, doses of fluticasone propionate above 1,000 micrograms per day should be prescribed only for adults aged 17 years and over with severe asthma where additional clinical benefit is expected, demonstrated by either an improvement in pulmonary function and/or symptom control, or by a reduction in oral corticosteroid therapy.

^aFluticasone doses changed to be in line with GINA.

⁴ At the time of publication (February 2018), fluticasone furoate was only available in a combination product, Relvar Ellipta (fluticasone furoate with vilanterol). The manufacturer's SPC states that in people with asthma, fluticasone furoate 100 micrograms once daily is approximately equivalent to fluticasone propionate 250 micrograms twice daily, and fluticasone furoate 200 micrograms once daily is approximately equivalent to fluticasone propionate 500 micrograms twice daily. See also the NICE evidence summary Asthma: fluticasone furoate/vilanterol (Relvar Ellipta) combination inhaler (2014).

Asthma self-management plan

All patients with asthma should receive self-management education and a written personalised asthma plan. However, remember some patients will have specific needs. Less than 50% of people use their medicines as prescribed. Advise on:

- When and how to take their medicines
- Correct inhaler technique
- Avoidance of known trigger factors
- Recognising poor control.
- Weight loss management and smoking cessation should be offered to those who are overweight or smoke

Decreasing maintenance treatment

Consider decreasing maintenance treatment when a person's asthma has been controlled with their current maintenance therapy **for at least** 3 months

Criteria for stepping down

(See local [step down guidance](#))

- Doses of medication can be reduced by 25-50% every 3 months for stable patients while maintaining symptom control.
- After treatment is stepped down the patient should have their treatment reviewed within 4-8 weeks.
- Stepping down should be explained to the patient and be part of their personalised asthma action plan.
- Only consider stopping ICS treatment completely for people who are using low dose ICS alone as maintenance therapy and are symptom-free.

Uncontrolled asthma

Uncontrolled asthma has an impact on a person's lifestyle or restricts their normal activities.

Uncontrolled asthma is defined as

- 3 or more days a week with symptoms or
- 3 or more days a week requiring use of a SABA or
- 1 or more nights a week with awakening due to asthma.

Monitoring asthma control (http://www.pcrs-uk.org/opinions/asthma_review_final.pdf)

If there is evidence of poorly controlled asthma the following should be considered and addressed appropriately:

- Review/confirm asthma diagnosis
- Check inhaler technique at every review and ask the patient to demonstrate.
- Check medication adherence. Is the patient taking the medicines as prescribed? Look at prescribing history to see if it is consistent with the amount the patient should have taken.
- Offer smoking cessation advice to patients/parents/carers. Advocate a smoke-free home and car. Smoking reduces the effect of inhaled steroids and increased doses may be needed in current and ex-smokers.
- Link with rhinitis. Asthma and rhinitis co-exist in the majority of patients. Diagnosis of co-morbid rhinitis should be actively pursued in all patients with uncontrolled asthma.
- Adjusting therapy. After consideration of diagnosis, adherence, inhaler technique, smoking status, triggers and concomitant rhinitis, patients with poorly controlled asthma should be advised to step-up their medication. It is equally important to consider stepping down treatment in patients who are consistently well controlled.
- After adjusting maintenance treatment, review the response to treatment changes in 4 to 8 weeks

Assessment of asthma control

Various tools are available for use to assess asthma control. Examples of available tools include:

Asthma control questionnaire (ACQ)	Well validated in adults and children >5 years. A composite scoring system with a strong bias to symptoms.	NICE NG80 –recommended
Asthma control test or children's asthma control test (ACT)	Validated in adults and children ≥4 years. 95% range for repeat measure and minimally clinically important difference not defined	NICE NG80 –recommended
Mini asthma quality of life questionnaire or paediatric asthma quality of life questionnaire	Well validated quality of life questionnaire. Scores usually reported as the mean of responses across the four domains with values lying between 1 and 7. Higher scores indicate better quality of life.	
Royal College of Physicians (RCP) 3 questions	Not well validated in adults or children, but simple to use	<ol style="list-style-type: none"> 1. Have you had difficulty sleeping because of asthma symptoms (including cough)? 2. Have you had your usual asthma symptoms during the day (cough, wheeze, chest tightness or breathlessness)? 3. Has your asthma interfered with your usual activities (e.g., housework, work, school, etc.)? <p>Yes to any of these questions implies uncontrolled asthma.</p> <p>http://www.pcrs-uk.org/opinions/asthma_review_final.pdf</p>
(Adapted from BTS/SIGN 2016)		

- Monitor asthma control at each review in patient's ≥17 years of age using either spirometry or peak flow variability testing.
- NICE states do not use FeNO to monitor asthma control.

For an acute asthma attack in adults, the BTS/SIGN recommend

Use a SABA (Salbutamol) via a large-volume spacer to relieve acute symptoms.

- For an adult, give 4 individual puffs initially, followed by 2 individual puffs every 2 minutes according to response, up to 10 puffs. Repeat every 10–20 minutes according to clinical response.
- Prescribe a short course of oral prednisolone 40–50 mg once a day for 5 days

Role of Long-acting muscarinic antagonists (LAMAs) in asthma

There is limited role for the use of a LAMA in asthmatic patients. Tiotropium (Spiriva Respimat) may be considered in patients with airflow obstruction under the supervision of a specialist. (See SPC for further information).

There are now two licensed triple combination inhalers both classified as **GREY** after specialist initiation: to be used in severe asthma with a demonstrated airflow obstruction.

- Beclometasone 87mcg/ formoterol 5mcg/ glycopyrronium 9 mcg (Trimbow) (MDI)
- Mometasone 136mcg/ indacaterol 114mcg/ glycopyrronium 46mcg (Enerzair Breezhaler) (DPI)

Combination inhalers

There is no difference in efficacy in giving inhaled steroid and LABA in combination or in separate inhalers. Combination inhalers have the advantage of guaranteeing that the LABA is not taken without inhaled steroids and are, therefore recommended by MHRA and NICE as the use of LABA alone has been associated with asthma deaths.