

## Pharmacological Management of Asthma in Children (age 2-17): Quick Summary

This is based on the revised British Thoracic Society-Scottish Intercollegiate Guidelines Network guideline, which no longer recommends the use of short-acting  $\beta_2$  agonist (SABA) alone for the management of asthma.

**Patients seen with asthma exacerbation in hospital, emergency department or out-of-hours service should be followed-up within two working days of receiving such notification. This is to allow optimisation of treatment and to identify those patients whose asthma remains out of control.**

Key principles		Aim of pharmacological management is to achieve complete control of asthma.	
<ul style="list-style-type: none"> <li>• Patient should start treatment at the stage most appropriate to initial severity of their asthma.</li> <li>• Achiever early control and maintain control by increasing treatment as necessary and decreasing treatment when control is good.</li> <li>• Always demonstrate inhaler technique to patient/parent and ensure technique is satisfactory</li> <li>• Ensure patient has a personalised asthma action plan.</li> <li>• Use of peak flow meter is recommended, scores should be recorded in a peak flow diary and this should be used alongside a personalised asthma action plan</li> <li>• Check concordance and inhaler technique; reconsider diagnosis if response to treatment is unexpectedly poor.</li> <li>• Remind patient/parent to return to clinic if symptoms return after 'stepping down'</li> <li>• Offer annual influenza vaccination to all patients with asthma that require continuous or repeated use of inhaled or systemic corticosteroids or with previous exacerbations requiring hospital admission</li> <li>• <b>Patients requiring more than four SABA inhalers (e.g. Ventolin® Evohaler®, Easyhaler® salbutamol, etc.) per year should be assessed and prevention optimized.</b></li> <li>• Educate parents who smoke on the effects of passive smoking on the child. Refer to stop smoking service.</li> <li>• Prescribing of nebulas is NOT recommended in children.</li> <li>• Rhinitis is a risk factor for the development and increasing severity of asthma. Consider asthma in all patients with rhinitis. Treat both conditions.</li> </ul>		<ul style="list-style-type: none"> <li>• No daytime symptoms</li> <li>• No night-time awakening due to asthma</li> <li>• No need for rescue medication</li> <li>• No asthma attacks/ exacerbations/ flare-ups</li> <li>• No limitation on activity including exercise</li> <li>• With minimal side-effects from medication</li> <li>• Normal lung function</li> </ul>	
		Criteria for specialist referral	
<p><b>Monitoring</b></p> <ul style="list-style-type: none"> <li>• Monitor growth (height and weight centile) of children with asthma on an annual basis</li> <li>• For children treated with medium- or high-dose ICS, specific written advice about steroid replacement in the event of a severe intercurrent illness or surgery should be part of the management plan. Consider issuing a steroid treatment card.</li> </ul>		<ul style="list-style-type: none"> <li>• Unexpected clinical findings (e.g. focal signs, abnormal voice or cry, dysphagia, inspiratory stridor)</li> <li>• Poor response to monitored initiation of asthma treatment</li> <li>• Symptoms present from birth or perinatal lung problem</li> <li>• Severe upper respiratory tract infection</li> <li>• Patient anxiety or need for reassurance</li> <li>• Family history of unusual chest disease</li> <li>• Severe/life-threatening asthma attack</li> <li>• Persistent wet or productive cough</li> <li>• Excessive vomiting or possetting</li> <li>• Diagnosis unclear</li> <li>• Failure to thrive</li> <li>• Nasal polyps</li> </ul>	
Spacer devices		When to consider escalation to regular preventer (ICS)	
<ul style="list-style-type: none"> <li>• Always offer a compatible spacer device with a metered dose inhaler (MDI).</li> <li>• Spacer devices should be cleaned once a month by washing in a mild detergent and then allowed to dry in air without rinsing; the mouthpiece should be wiped clean of detergent before use.</li> <li>• Patients should be advised not to switch between spacer devices as they may not be interchangeable. Spacer devices should be replaced every 6-12 months.</li> <li>• <b>Drug Delivery Devices:</b> Please refer to NICE guidance on Inhaler Devices, <a href="http://www.nice.org.uk/TA38">www.nice.org.uk/TA38</a>. Oral candidiasis is a common side-effect particularly with corticosteroids inhaled via some dry powder devices.</li> </ul>		<ul style="list-style-type: none"> <li>• Using inhaled B<sub>2</sub> agonist three times a week or more</li> <li>• Symptomatic three times a week or more</li> <li>• Waking with symptoms one night a week</li> <li>• An exacerbation requiring oral corticosteroid</li> </ul>	

## Age 2-5



### Step 1

**Regular preventer** -Very low dose ICS or LTRA if unable to take ICS

**SOPROBEC 100mcg/dose MDI** (beclometasone)  
1 puff BD

OR

Montelukast 4mg each evening

### Step 2

**Initial add-on therapy** -Very low dose ICS plus LTRA

**SOPROBEC 100mcg/dose MDI** (beclometasone)  
1 puff BD

PLUS

Montelukast 4mg each evening

### Step 3

**Additional controller therapies** – consider increasing ICS to low dose

**SOPROBEC 100mcg/dose MDI** (beclometasone)  
2 puffs BD

PLUS

Montelukast 4mg each evening

### Step 4

#### Specialist Therapies

Refer patient for specialist care

## Age 6-11



### Step 1

**Regular preventer** -Very low dose ICS

**SOPROBEC 100mcg/dose MDI** (beclometasone)  
1 puff BD

**EASYHALER Budesonide 100mcg/dose  
DPI**  
1 puff BD

### Step 2

**Initial add-on therapy** -Very low dose ICS plus LABA or LTRA

**Symbicort Turbohaler DPI 100/6** (budesonide/formoterol)  
1 puff BD

OR

Add montelukast 5mg each evening  
to Step 1

### Step 3

**Additional controller therapies** – consider increasing ICS to low dose or add LTRA or LABA

Low dose ICS/LABA  
plus LTRA

No response to LABA, consider  
stopping and only recommend  
low dose ICS or plus LTRA

**Symbicort Turbohaler  
DPI 100/6**  
(budesonide/formoterol)  
2 puffs BD

**SOPROBEC 100mcg/dose MDI**  
(beclometasone) 2 puffs BD

**EASYHALER Budesonide  
100mcg/dose  
DPI**  
2 puffs BD

PLUS

Montelukast 5mg each  
evening

OR  
Add montelukast 5mg each  
evening to either above

### Step 4

#### Specialist Therapies

Refer patient for specialist care

## Age 12- 17



### Step 1

**Regular preventer** - Low dose ICS

**SOPROBEC 100mcg/dose MDI**  
(beclometasone)  
2 puffs BD

**EASYHALER Budesonide 100mcg/dose  
DPI**  
2 puffs BD

### Step 2

**Initial add-on therapy** – add inhaled LABA to low dose ICS (fixed dose or MART)

**Symbicort Turbohaler DPI 200/6** (budesonide/formoterol)  
1 puff BD

**Symbicort MDI 100/3**  
2 inhalations BD

MART

**Symbicort Turbohaler DPI 200/6** (budesonide/formoterol)  
1 puff BD, 1 puff PRN max 8 puffs per day

**Symbicort MDI 100/3**

2 inhalations BD, 2 inhalations PRN max 16 inhalations per day

*If control remains poor, consider TTT before stepping up*

### Step 3

**Additional controller therapies** – consider increasing ICS to medium dose or add LTRA to **step 2**

Low dose ICS/LABA  
plus LTRA

No response to LABA, consider stopping and only  
recommend medium dose ICS or plus LTRA

**Symbicort Turbohaler  
DPI 200/6**  
(budesonide/formoterol)  
1 puff BD

**SOPROBEC 200mcg/dose MDI** (beclometasone)  
2 puffs BD

PLUS

Montelukast 5mg each  
evening

**EASYHALER Budesonide 200mcg/dose  
DPI**  
2 puffs BD

OR  
Add montelukast 5mg each evening to either  
above

### Step 4

#### Specialist Therapies

Refer patient for specialist care

<b>MART</b> (Maintenance and reliever therapy)	<ul style="list-style-type: none"> <li>MART is the use of a single combination inhaler for maintenance and reliever therapy, consider MART if a history of asthma attacks on low/medium dose ICS/LABA.</li> <li>MART requires careful patient education and quantity of inhalers used should be monitored. Patients taking rescue doses of their combination inhaler once a day or more on a regular basis should have their treatment reviewed.</li> <li>Symbicort Turbohaler DPI 200/6 – 1 puff BD, 1 puff PRN for relief of symptoms, increase if necessary up to 6 puffs PRN, max 8 puffs per day; up to 12 puffs daily can be used for a LIMITED time but medical assessment is recommended.</li> <li>Symbicort MDI 100/3- 2 puffs BD, 2 puffs PRN for relief of symptoms, increased if necessary up to 12 inhalations PRN; usual max 16 inhalations per day; up to 24 inhalations daily can be used for LIMITED time but medical assessment is recommended.</li> </ul>						
	<b>Abbreviations and notes</b>	OD – Once daily	BD – Twice daily	QDS- Four times daily	DPI – Dry powder inhaler	ICS – Inhaled corticosteroid	PRN – When required
	LABA – Long-acting $\beta_2$ agonist		BDP – Beclometasone dipropionate		MART- Maintenance and reliever therapy	LTRA- Leukotriene receptor antagonist	

<p><b>Stepping DOWN – Move down to find and maintain lowest controlling therapy</b></p> <ul style="list-style-type: none"> <li>Complete control needs to be achieved for 12 weeks before stepping down</li> <li>ICS/LABA – Step down to the lowest dose of combination inhaler and then from a combination inhaler to a single agent ICS (<b><math>\geq 5</math> years</b>).</li> <li>ICS – Reduce ICS dose by 25 – 50%.</li> <li>After stepping down, review in 6 to 12 weeks: step patient up again if symptomatic during this period</li> <li><b>Stepping down before 12 weeks of control can lead to exacerbations and hospital admissions</b></li> </ul>	<p><b>Stepping UP – Think TTT first, then move up to improve control if needed</b></p> <p><b>Before initiating a new drug therapy or stepping up, practitioners should check:</b></p> <ul style="list-style-type: none"> <li>Compliance with existing <b>T</b>herapy</li> <li>Inhaler <b>T</b>echnique</li> <li><b>T</b>rigger factors</li> </ul> <p>After stepping up, it is recommended to review patient in 8 weeks</p>
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Inhaled beclometasone dipropionate equivalent doses

ICS	Very low dose	Low dose	Medium dose
Beclometasone dipropionate	200mcg daily	200mcg daily	400mcg daily
Budesonide	200mcg daily	200mcg daily	400mcg daily

<b>References</b>	
A. British Thoracic Society (2019). Position Statement – Environmental and Lung Health 2019	
B. British Thoracic Society and Scottish Intercollegiate Guidelines Network (2019). SIGN 158: British guideline on the management of asthma - quick reference guide British Thoracic Society and Scottish Intercollegiate Guidelines Network (2019). SIGN 158: British guideline on the management of asthma - a national clinical guideline	
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D. British National Formulary Children <a href="https://bnfc.nice.org.uk/">https://bnfc.nice.org.uk/</a> .	
E. Exogenous steroids, adrenal insufficiency and adrenal crisis-who is at risk and how should they be managed safely. <a href="https://www.endocrinology.org/media/4030/spssfe_supporting_sec_final_hls-19022021-2-1.pdf">https://www.endocrinology.org/media/4030/spssfe_supporting_sec_final_hls-19022021-2-1.pdf</a> .	
F. Healthy London Partnership- London Asthma Standards for Children and Young People (Revised August 2020) <a href="https://www.healthylondon.org/wp-content/uploads/2020/09/HLP-Asthma-standards-1.pdf">https://www.healthylondon.org/wp-content/uploads/2020/09/HLP-Asthma-standards-1.pdf</a> .	
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