

**Asthma inhaler guidelines (Paediatric <12 years)**

Version:	1
Ratified by:	
Date ratified:	
Name of responsible committee/individual:	
Date issued:	
Review date:	
Target audience:	<ul style="list-style-type: none"> <li>• All employees and contracted staff working on behalf of NHS Kent and Medway (NHSKM), including temporary staff, contractors and seconded staff.</li> <li>• Members and participants of the NHSKM board and its committees.</li> <li>• Third parties acting on behalf of NHSKM, including shared services and other agency staff including local authority.</li> <li>• Any member of the public, including patient representatives and members of the voluntary and community sector completing work on behalf of NHSKM.</li> </ul>
Document status:	Live
Document location:	Shared drive, internet page

**Document history of revisions:**

Version	Created by	Date	Main changes/comments
1	Cath Cooksey and Sola Akeremale		New document
2	Cath Cooksey	23/11/23	Updates from MTW feedback

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Interventions to be considered for ALL patients at ALL stages

<h3>ENSURE DIAGNOSIS IS CORRECT</h3> <p>80-100% of best reading. Follow your regular medication plan, and go ahead with normal activities.</p> <p>50-80% of best reading. Caution, your asthma might be increasing. Follow your medication instructions to get back to your green zone.</p> <p>&lt;50% of best reading. Medical Alert! Get medical advice and attention immediately.</p>	<h3>HOUSEHOLD SMOKING AND VAPING CESSATION</h3>	<h3>VACCINATION</h3> <p>VACCINATION</p>	<h3>ASTHMA ACTION PLAN</h3>
<h3>INHALER TECHNIQUE AND USE OF SPACER</h3> <p>Adapter</p> <p>Spacer</p> <p>Mask</p>	<h3>RECORD EXACERBATIONS</h3>	<h3>RECORD POSSIBLE TRIGGERS</h3> <p>Key triggers</p> <p>Dust Mites</p> <p>Fragrance</p> <p>Cigarette Smoke</p> <p>Cleaning Chemicals</p> <p>Pets</p> <p>Mould</p>	<h3>OVER-USE OF SABA</h3>

**Diagnosing Asthma –Asthma diagnosis in children is more difficult. Where possible carry out objective testing, such as PEFr and spirometry.** Symptom history, triggers and family history will often guide the likely diagnosis.

**Lifestyle advice-**

Discuss potential trigger factor avoidance. This could be pollen, exposure to pets, perfumes, or exercise, and is individual to each patient. Record on the patient’s self-management plan.

**Inhaler choice** - When considering the most appropriate inhaler for a patient we need to consider several things:

- Patient’s inspiratory flow- Dry Powder inhalers require greater respiratory effort, and this may not always be appropriate for children. Use In-check dial or dummy inhalers.
- Patient usability- Consider using the same type of inhaler as the patient progresses through the asthma pathway. This will improve inhaler technique and concordance.
- Carbon footprint- The NHS has committed to lowering the global warming potential (GWP) for inhalers.

**THIS IS NOT INTENDED TO REPLACE ALL POTENTIAL FORMULARY AND SECONDARY CARE INHALER CHOICES, BUT TO SHARE BEST PRACTICE WHEN CONSIDERING PATIENTS JOURNEY THROUGH INHALER PATHWAY. PLEASE PRESCRIBE ALL INHALERS BY BRAND.**

**Review-** Review patients within 8-12 weeks of starting any new therapy to assess efficacy. If no benefit is experienced review concordance and consider escalating or switching therapy. Inhaler technique, side effects and efficacy (using ACT score) should be assessed at **EVERY** interaction.

**ALL PATIENTS REQUIRE AN ASTHMA MANAGEMENT PLAN-** Child: [Child Asthma Action Plan – Asthma + Lung UK \(asthmaandlung.org.uk\)](http://Child Asthma Action Plan – Asthma + Lung UK (asthmaandlung.org.uk))

**Escalation and de-escalation- Before changing inhaled therapy:**

- Check inhaler concordance and technique
- Eliminate any trigger factors
- Review diagnosis if outcomes are unexpectedly poor
- On changing therapy review after 8-12 weeks to assess benefit
- If patient is stable consider reducing ICS dose by 25% and review every 3 months to assess efficacy

**Referral-** Check concordance with inhaled therapy, then consider referral to secondary care if:

- Diagnosis is unclear.
- The patient has required 2 or more courses of oral corticosteroids in a 12-month period, despite concordance to inhaled therapy.
- The patient is still exacerbating despite escalation to maximum inhaled therapy.

**Spacers:**

Metered dose inhalers (MDI) propel the active ingredient at 70mph, and without a robust inhaler technique, or the use of a spacer, 90% of this dose will hit the back of the throat, and eventually be swallowed, thus reducing the therapeutic effect. For children <6 years a spacer must be prescribed and renewed at least every 12 months. This is also important for any children under 12 years using an MDI. Several types of spacer are recommended for children:

- With no mask (usually blue)
- With a child mask (usually yellow)
- With an infant mask (usually orange)

**Key**

**Carbon footprint**

Low High Very High

**Inspiratory Flow**

Low Medium Med High

**Inhaler Type**

MDI  
Turbohaler  
Easyhaler

A trial of Montelukast 5mg (4mg chewable for 2-5 year olds), 1 tablet each evening, can be added at any escalation stage. Review after 4-8 weeks and discontinue if no benefit

**Inhaled Short acting B<sub>2</sub> agonist (SABA): MDI Salamol or DPI- Salbutamol EasyHaler (if inspiratory flow is acceptable in 6 years plus only)**

Please review patients using more than 3 SABA in a 12 - month period

<b>LOW</b> <b>Metered dose Inhaler (MDI)</b> Requires LOW inspiratory Flow Technique: Slow and Deep ( all require a spacer)		<b>Dry powder inhaler (DPI):</b> Requires MEDIUM-HIGH inspiratory Flow. Technique: Steady/forceful and deep. <b>ASSESS ABILITY TO USE DPI ON AN INDIVIDUAL BASIS</b>	
<b>At diagnosis of asthma or "suspected asthma" 5 years and under SABA prn, and 6 -11 years "low dose ICS" prn when SABA required</b>			
5 years and under Salamol MDI <b>prn</b> To be used as a trial to relieve symptoms If uncontrolled after 68 weeks	6-11 years (low dose ICS) Clenil 50mcg 2 puffs bd <b>prn</b> OR Flixotide Evohaler 50mcg 1 puff bd <b>prn</b> AND Salamol MDI <b>prn</b>	5 years and under Not recommended	6-11 years Easyhaler Budesonide 100mcg 1 puff bd <b>prn</b> AND Easyhaler Salbutamol <b>prn</b>
<b>Treatment escalation 1 - For 5 years and under addition of "low dose" ICS, and 6 -11 years "low dose" ICS regularly plus SABA pr n</b>			
Clenil 50mcg 2 puffs bd with spacer AND Salamol MDI <b>prn</b>	Clenil 50mcg 2 puffs bd with spacer OR Flixotide Evohaler 50mcg 1 puff bd AND Salamol MDI <b>prn</b>	Not recommended	Easyhaler Budesonide 100mcg 1 puff bd (regular preventor) AND Easyhaler salbutamol <b>prn</b>
<b>Treatment escalation 2 - For children 5 years and under escalate to "medium dose ICS" or "low dose ICS" plus LTRA. For children aged 6-11 escalate to "medium dose" ICS OR "low dose ICS/SABA" and SABA prn</b>			
Clenil 100mcg 2 puffs bd OR Clenil 50mcg 2 puffs bd PLUS 4mg chewable Montelukast at night AND Salamol MDI <b>prn</b>	Clenil 100mcg 2 puffs bd OR Flutiform 50/5 inhaler 2 puffs bd AND Salamol MDI <b>prn</b>	Not recommended	Easyhaler Budesonide 100mg 2 puffs bd OR Symbicort Turbohaler 100/6 2 puffs bd AND Easyhaler salbutamol <b>prn</b>
<div style="border: 1px solid black; padding: 5px; display: inline-block;">REFER</div>			

**NOTE: ALTHOUGH SOME 6-11 YEAR OLDS WILL BE ABLE TO USE A DPI SUCCESSFULLY, AND SOME ARE LICENSED, SOME MAY PREFER TO USE AN MDI WITH A SPACER. COUNSEL THE CHILD/ADOLESCENT THOROUGHLY WITH NEW INHALER TECHNIQUE.**

**NOTE: NEBULISED BRONCHODILATION SHOULD NOT BE PRESCRIBED IN PRIMARY CARE. THIS INCREASES THE RISK OF POOR OUTCOMES IN CHILDREN.**

**EXACERBATION GUIDELINES- Under 12 years**

<b>Assess the patient: Check the severity of the exacerbation by assessing presentation as below:</b>		
<b>Moderate</b>	<b>Severe</b>	<b>Life-threatening</b>
Peak flow (PEFR): $\geq 50\%$ of predicted or best Resp rate $\leq 40$ /min (2-5 years) or $\leq 30$ /min (6-11 years) Pulse rate $\leq 140$ bpm (2-5 years) or $\leq 125$ bpm (6-11 years) O2 saturation on air: $>92\%$ Normal speech	Pulse rate: $>140$ bpm (2-5 years) or $>125$ bpm (6-11 years) Respiratory rate: $>40$ /min (2-5 years) or $>30$ /min (6-11 years) O2 saturation on air: $<92\%$ PEFR: 33-50% predicted or best ( $<50\%$ in children) Inability to complete sentences Use of accessory muscles	PEFR $<33\%$ of predicted or best O2 saturation on air: $<92\%$ Drowsy, confused, silent chest, cyanosis, hypotension, cardiac arrhythmia
<b>Start treatment</b>		
SABA: 1 puff every 30-60 secs up to a maximum of 10 puffs. If no improvement repeat after 10-20 mins. Prednisolone: 1-2mg/kg per day for 3- 5 days (max 40mg per dose) Controlled O2 (if available): Target SAT : 93-95%	While waiting for hospital transfer start SABA MDI via spacer and O2 if available.	
<b>Assess symptoms</b>		
Continue treatment with SABA and assess response at an hour or earlier if patient declines.		
<b>IF NO IMPROVEMENT TRANSFER TO HOSPITAL</b>	<b>TRANSFER TO HOSPITAL</b>	
<b>On discharge from hospital/ or post exacerbation:</b>		
<ul style="list-style-type: none"> <li>Follow up with GP or practice nurse within 48 hours of exacerbation/hospital discharge</li> <li>Check inhaler technique and concordance</li> <li>Provide with an asthma self-management plan (<a href="http://ChildAsthmaActionPlan.org.uk">Child Asthma Action Plan – Asthma + Lung UK (asthmaandlung.org.uk)</a>)</li> <li>Advise patient to seek urgent medical assistance if symptoms deteriorate</li> </ul>		

## References

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