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East Lancashire Health Economy
Asthma/Pre-school Wheeze for Children Under 5

East Lancashire Health Economy
Medicines Management Board
www.elmmb.nhs.uk NHS

Diagnosis of Asthma in Children Under 5 years:
Approximately half of all children with preschool wheeze will not develop childhood asthma even if they have a high asthma predictive index. Whilst the BTS gives no clear guidance the Global Initiative for Asthma (GINA) and the USA National Asthma Education and Prevention Program recommend long term daily inhaled corticosteroids in preschool children with 4 or more exacerbations in the last 12 months (not necessarily unscheduled GP or hospital visits) when the child has either other atopic features or there is a strong family history of asthma. Such a treatment has been shown to increase symptom free days and reduce the need for oral steroid courses but not hospital admissions or un-scheduled doctor's visits. Please see over for further information regarding diagnostic indicators.
Assessment of symptoms: Use a symptom diary to assess the frequency of respiratory symptoms e.g. cough, wheeze, shortness of breath and chest tightness (www.asthma.org.uk)

Aim to control asthma, defined* as:
- No daytime symptoms
- No night time awakening due to asthma
- No need for rescue medications
- No exacerbations
- No limitations on activity including exercise
- Normal lung function
- With minimal side effects

Smoking:
- Ask about the child's exposure to second-hand smoke
- Offer patient/parents/carers smoking cessation advice
- Always advocate a smoke-free home & car (www.smokefree.nhs.uk)

Prescribing Tips
- Always use the lowest effective doses to achieve control
- Review patients regularly, considering step up and step down according to patient's recent asthma control
- When using Inhaled steroids (ICS) consider total daily steroid load (including intranasal, topical and oral steroids taken)
- A spacer device is recommended when using a Metered Dose Inhaler (MDI)
- Check inhaler technique and adherence to medicine regimen at each appointment and/or before any change in treatment
- **Provide patients/parents/carers with personalised action plans**

STEP UP and STEP DOWN

STEP 1	**Short-acting β2-agonist (SABA)**	
	Salbutamol MDI 100 micrograms 2 puffs as required via spacer device plus mask ***Always provide written instruction and demonstrate inhaler technique.***	If using SABA more than 2 times weekly or child has symptoms more than twice a week or is waking once a week then go to STEP 2.
STEP 2 **Re-assess control at ONE month** (Stop after one month if no benefit)	**SABA + inhaled corticosteroid (ICS) or Leukotriene receptor antagonist (LTRA)**	
	Montelukast granules/chewable tablets 4mg at night **Montelukast granules can be administered either directly in the mouth, or mixed with a spoonful of cold or room temperature soft food (e.g. applesauce, ice cream, carrots and rice).** **Or** Clenil Modulite MDI (beclometasone) 50 micrograms 2 puffs twice daily via spacer device plus mask	At Step 2 If child is still symptomatic: • Check inhaler technique & size of mask • Check adherence to treatment If still symptomatic go to **STEP 3**
STEP 3 **Re-assess control at ONE month**	• **SABA plus ICS plus LTRA** Refer children <2years to specialist Consider specialist advice when increasing ICS dose	
	Clenil Modulite 50 micrograms 2 puffs twice daily via spacer device +/- mask **plus** Montelukast 4mg granules/ chewable tablets at night **or** Increase ICS to Clenil Modulite 100 micrograms 2 puffs twice daily via spacer device plus mask **(Stop after 1month if no benefit)**	At step 3 If child is still symptomatic: • Check inhaler technique • Check adherence to treatment • Review the diagnosis of asthma • If still symptomatic seek specialist advice (STEP 4)
STEP 4	**SEEK SPECIALIST RESPIRATORY ADVICE** **Refer to formulary for alternative preparations and devices.**	

* Based on National Asthma Management Guidelines—British Thoracic Society / Scottish Intercollegiate Guidelines Network 2012

ASTHMA MEDICATIONS — Licensing and Approximate Costs (Drug Tariff July 2014) *Based on recommended doses, 365

STEP	Drug	Dose	Licensed for	Unit Cost	Annual Cost *
1	Salbutamol MDI *Plus appropriate spacer device*	100mcg (200 dose unit)	All ages	£1.50	
2 & 3	Clenil Modulite MDI *(+ spacer)* Montelukast	50mcg (200 dose unit) 4mg granules/tabs (28)	All ages 6 months +	£3.70 £2.01 / £4.22	£27.01 £26.20 / £55.01

DIAGNOSIS OF ASTHMA IN CHILDREN (*See Asthma Guidelines for Children Under 5 yrs & BTS/SIGN Guidelines 2012)*

Clinical features that increase the probability of asthma

- More than one of the following symptoms: wheeze, cough, difficulty breathing, chest tightness, particularly if these symptoms:
  - ⇒ are frequent and recurrent
  - ⇒ are worse at night and in the early morning
  - ⇒ occur in response to, or are worse after, exercise or other triggers, such as exposure to smoke, pets, cold or damp air, or with emotions or laughter
  - ⇒ occur apart from colds
- Personal history of atopic disorder
- Family history of atopic disorder and/or asthma
- Widespread wheeze heard on auscultation
- History of improvement in symptoms or lung function in response to adequate therapy

Clinical features that lower the probability of asthma

- Symptoms with colds only, with no interval symptoms are likely to represent viral induced wheeze
- Isolated cough in the absence of wheeze or difficulty breathing
- History of moist cough
- Repeatedly normal physical examination of chest when symptomatic
- No response to a trial of asthma therapy
- Clinical features pointing to alternative diagnosis
- Recurrent episodes of lower respiratory tract infections (LRTI)
- Failure to thrive

INHALER DEVICES (further information/advice on inhaler devices is available at: www.asthma.org.uk)

- In children under 5 years the MDI plus spacer are the preferred delivery device. A face mask should be used until the child can breathe effectively via the mouthpiece.
- It is the prescriber's responsibility to ensure that the child can use the inhaler device correctly
- Spacer devices should be cleaned monthly rather than weekly as per the manufacturers recommendations, or performance can be adversely affected
- Replace spacers at least annually or more frequently if necessary
- Nebuliser therapy is not considered appropriate in the management of chronic asthma in children

KEY POINTS

- If the diagnosis of asthma is unclear or in doubt or there is a failure to respond to asthma therapy at any stage, refer to a specialist respiratory paediatrician
- Avoid high dose inhaled corticosteroids (ICS) e.g. doses over 400mcg of Clenil Modulite a day. Children requiring high doses of inhaled steroid or > 3 courses of oral prednisolone a year should be referred to a specialist respiratory paediatrician
- Qvar is not licensed in children under 12 years of age and should not be used as the pharmacokinetic and pharmacodynamic properties are different in children
- All children with asthma should have their height monitored on a regular basis e.g. at the annual review. If there are any concerns regarding growth then the child should be referred to a specialist respiratory paediatrician
- Exercise-induced asthma symptoms are indicative of poorly controlled asthma
- Adherence to asthma medications should be monitored by checking prescriptions issued
- Monitor the use of SABA as high use > 10—12 puffs a day can indicate poorly controlled asthma that puts patients at risk of fatal or near fatal asthma

Spacer Device	Sizes	Sizes Approximations—will vary	Cost	Replacement
Volumatic	Volumatic spacer device Volumatic with paediatric mask	No Information Available	£3.81 £6.70	Replace after 6-12 months
Aerochamber Plus	AeroChamber Plus Child Mask AeroChamber Plus Infant Mask	Child (yellow): 12 months to 5 years Infant (Orange): 0-18 months	£7.92 £7.92	Replace after 12 months
Vortex	Vortex with mouthpiece Vortex with mask for child Vortex with mask for infant	4 years and over Frog child mask: age 2+ years Ladybug baby mask: age 0-2 years	£6.28 £7.99 £7.99	Replace after 12 months

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