Management of Acute Asthma / Wheeze in Primary Care
Clinical Assessment / Management Tool for 2 – 16 years

Management – Out of Hospital Setting acute Asthma/Wheeze

Child presenting with acute wheeze

→ Immediate resuscitation if required. Dial 999

Table 1: High Risk Factors – Healthcare professionals should be aware of the increased need for hospital admission in children with the following:

- Attack in late afternoon, at night or early in the morning
- Recent hospital admission
- Previous severe attack
- Young age
- Previous cardio-respiratory illness
- Significant co-morbidity
- Already taking oral steroids or high doses of inhaled steroids
- Concern over social circumstances or ability to cope at home
- Food allergy

Table 2: Consider other diagnoses if any of the following are present:

- Fever (pneumonia) >38.5 C
- Dysphagia (epiglottitis)
- Productive cough (pneumonia)
- Inspiratory stridor (croup)
- Breathlessness with light headedness and peripheral tingling (hyperventilation)
- Asymmetry on auscultation (pneumonia or a foreign body etc.)
- Excessive vomiting (GORD)
- Possibility of anaphylaxis

Consider video consultation as part of the assessment to determine the need for a face-to-face consultation in Primary Care

Table 3: Traffic Light system for identifying severity of acute wheeze/asthma

	Green Moderate Asthma	Amber Acute Severe Asthma	Red Life Threatening Asthma
Talking	In sentences	Not able to complete a sentence in one breath Too breathless to talk or feed	Not able to talk / Not responding Confusion / Agitation
Auscultation	Good air entry, mild – moderate wheeze	Decreased air entry with marked wheeze	Silent chest
Respiratory Rate	Within normal range ≤ 40 breaths / min (2-5 years) ≤ 30 breaths / min (>5 years)	>40 breaths / min (2-5 years) >30 breaths / min (>5 years) Use of accessory muscles	Cyanosis Poor respiratory effort Exhaustion
Heart rate	≤ 140 beats / min (2-5 years) ≤ 125 beats / min (>5 years)	> 140 beats / min (2-5 years) > 125 beats / min (>5 years)	Hypotension
Oxygen saturation in air	≥ 94% in air	< 94% in air	< 94% in air
PEFR (if possible)	> 50% best or predicted	33-50% best or predicted	<33% best or predicted

If all green features and no amber or red:

- Give 1 puff via spacer every minute, up until a maximum or 10 puffs, adjusted to clinical response.
- Reassess 15-30 minutes post intervention
- Consider giving 3 – 5 day course of prednisolone 1mg/kg (max 40mg) – 1st dose now (See Table 4: Drug Doses)
- Nebulise if SpO_2 <94% or unable to tolerate a spacer

Oxygen via facemask to maintain SpO_2 94-98% if available

Severe Exacerbation

- If SpO2 < 94% give O2 to achieve SpO2 in air 94-98%
- Give salbutamol –
  - SpO2 ≥ 94% : 10 puffs via MDI and spacer
  - If SpO2 < 94% Nebuliser driven by O2 (Ref Table 4)
  - if nebuliser not indicated/available, give via spacer (10 puffs)
- Reassess after 15 mins, if further treatment needed then repeat salbutamol (as above) and if SpO2 < 94% then add in ipratropium bromide via a nebuliser (refer to Table 4)
- Give oral prednisolone (refer to Table 4)

Reassess as clinically required

Arrange immediate hospital admission via 999
Salbutamol with ipratropium (via nebuliser if require oxygen) (see Table 4)
- oral prednisolone (see Table 4)

Assess response to treatment 15mins after β_2 bronchodilator

Poor Response → **Repeat** salbutamol and **arrange admission via 999**

Good Response

Repeat salbutamol with ipratropium (preferably via **oxygen-driven nebuliser) whilst awaiting hospital transfer as required**

Poor Response

- Consider hospital admission/999
- Oxygen if Sp02 <94%
- Continue with further doses of salbutamol while awaiting transfer
- Add ipratropium dose mixed with salbutamol nebuliser

Good Response

- Before discharge review overall asthma control, inhaler technique, medication and ask If parent smokes or if child smokes (if >11 years old). If yes, offer quit smoking support.
- Check understanding of condition and signpost to further resources (Asthma + Lung UK)
- Ensure that Personalised Asthma Action Plan is up-to-date
- Antibiotics should not be routinely given
- Give safety net advice
- Consider referral to appropriate community team (see next page)
- Advise parents to book a follow-up review with their GP surgery within 2 working days
- Check they have enough inhaler and appropriate spacer
- If second (or more) asthma attack within 12 months, consider referral to secondary care

Table 4: Drug Doses:

Dose of Prednisolone (orally) **Plain 5mg tablets** (can be crushed if required) **Where child already receiving maintenance oral steroid**	**2-5yrs 20mg; 5-7yrs 30-40mg; >7yrs 40mg** **1 – 2 mg per kg per dose (max.40mg)** **2mg/kg (max. 60mg)**

- If given, should be given within the first hour
- In mild to moderate viral induced wheeze, steroids may not be necessary
- Three days is usually sufficient, but can be increased / tailored to the number of days necessary to bring about recovery.
- Weaning is unnecessary unless the course of steroids exceeds 14 days.
- Dexamethasone 0.6mg/kg may be given as alternative to prednisolone.

Dose of Salbutamol nebulisers	<5yrs 2.5 mg; >5yrs 5mg
Dose of Ipratropium Bromide nebulisers	250 mcg all ages (or up to 500mcg via nebuliser for over 12 years)

Adapted from APLS+	Respiratory rate at rest:	Heart rate:	Systolic BP: (mmHg)
Pre-school 2 – 5 years	25 - 30	95 - 140	85 - 100
School 5 - 11 years	20 – 25	80 – 120	90 - 110
Adolescent 12-16 years	15 – 20	60 – 100	100 - 120

Table 5: Inhalers vs Nebulisers

- For moderate asthma, use an inhaler and spacer.
- If >5 years old use the mouthpiece rather than mask (providing their technique is good)

Indications for nebulisers:

- Low saturations <94%
- Unable to use inhaler and spacer (not compliant)
- Severe and life-threatening respiratory distress
- Nebulisers are generally not recommended for home use

Milton Keynes

Children's Primary Care Team

- Tel: 01908 303030 (choose option 4)

Milton Keynes Hospital

- Paediatric asthma nurse – Tel: 01908 996574 (Monday -Friday, 08:30 to 16:30)
- Paediatrician on call - Tel: 01908 660033 (bleep paediatrician on call)

North Bedfordshire

Children's Rapid Response Team
Tel: 07966025787

Bedford General Hospital
Switchboard Tel: 01234 355122 - Paediatric Registrar

Table 6 - Predicted Peak Flow: for use with EU / EN13826 scale PEF meters only

Height (m)	Height (ft)	Predicted EU PEFR (L/min)	Height (m)	Height (ft)	Predicted EU PEFR (L/min)
0.85	2'9"	87	1.30	4'3"	212
0.90	2'11"	95	1.35	4'5"	233
0.95	3'1"	104	1.40	4'7"	254
1.00	3'3"	115	1.45	4'9"	276
1.05	3'5"	127	1.50	4'11"	299
1.10	3'7"	141	1.55	5'1"	323
1.15	3'9"	157	1.60	5'3"	346
1.20	3'11"	174	1.65	5'5"	370
1.25	4'1"	192	1.70	5'7"	393

Luton and South Bedfordshire

Children's Rapid Response Team

- Tel: 07966025787

Luton & Dunstable Hospital

- GP Urgent Connect (Monday - Friday 9am - 5pm) 01582 297297 for referrals and advice
- Out-of-hours: Switchboard 01582 491166: Paediatric Registrar bleep 733

This guidance has been produced by Primary Care and consultant clinicians across Bedfordshire, Luton and Milton Keynes, and is written in the following context:

This assessment tool was arrived at after careful consideration of the evidence available including but not exclusively including NICE and SIGN guidelines, EBM data and NHS evidence. Healthcare professionals are expected to take it fully into account when exercising clinical judgement. The guidance does not, however, override the individual responsibility of healthcare professionals to make decisions appropriate to the circumstances of the individual patient, in consultation with the patient and/or guardian or carer. Issue date: Sept 2023 v2.6