

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	≥ 92% in air	< 92% in air	< 92% in air, plus any of the above symptoms
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 of 10 puffs, adjusted to clinical response.
- Reassess 15-30 minutes post intervention
- Consider giving 3 day course of prednisolone 1mg/kg (max 40mg) Those already receiving maintenance oral steroid give 2mg/kg (max 60mg). (See Table 4: Drug Doses)
- Nebulise if SpO₂ <92% or unable to tolerate a spacer

Poor Response

Good Response

- Consider hospital admission/999
- Oxygen if SpO₂ <94%
- Continue with further doses of salbutamol while awaiting transfer
- Add ipratropium dose mixed with salbutamol nebuliser

- Before discharge review overall asthma control, inhaler technique, medication and ask about smoking parent and child (if >11 yrs).
- If yes offer quit smoking support.
- Check understanding of condition and signpost to further resources
- Give asthma / wheeze discharge plan
- Antibiotics should not be routinely given
- Safety Net
- Consider referral to Children's Rapid Response Team (see Table 6)
- Advise parents to contact their GP surgery the next working day to arrange a follow up within 48 – 72 hours. Check they have enough inhaler and appropriate spacer

Oxygen via facemask to maintain SpO₂ 94-98% if available

- β₂ bronchodilator
- via nebuliser (preferably oxygen-driven), salbutamol (see Table 4)
- - if nebuliser not indicated/available, via spacer (see Table 6)
- - oral prednisolone (see Table 4)

Assess response to treatment 15mins after β₂ bronchodilator

Good Response

Poor Response

Repeat β₂ bronchodilator and arrange admission via 999

Arrange immediate hospital admission via 999

- β₂ bronchodilator with ipratropium:
- via nebuliser (preferably oxygen-driven), salbutamol and ipratropium (see Table 4)
- - if nebuliser not indicated/available, β₂ bronchodilator via spacer (see Table 6)
- - oral prednisolone (see Table 4)

Repeat β₂ bronchodilator via oxygen-driven nebuliser whilst awaiting hospital transfer

Table 4: Drug Doses:

Dose of Prednisolone (orally) First line option: plain 5mg tablets Second line option: soluble 5mg tablets	<2yrs 10mg; 2-5yrs 20mg; 5-7yrs 30-40mg; >7yrs 40mg 1 – 2 mg per kg per dose
• 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.	
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)

Table 5: Normal Paediatric values

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 6: 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)
 - Significantly low Sats despite inhaler and spacer use
 - Severe and life-threatening respiratory distress
 - Nebulisers are generally not recommended for home use

Table 7 - Community Children's Nursing Teams**Bedford and North Bedfordshire**

- Children's Community Nursing Team 01234 310103
- Children's Rapid Response Team - 07966025787

Table 8 - Secondary Care Referrals**Bedford General Hospital**

Switchboard 01234 355122: Paediatric Registrar

Asthma medications should not be changed and still follow asthma treatment guidelines even if Covid 19 is suspected. Do not stop inhaled corticosteroids and prescribe oral steroids as indicated.

Table 9 - 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

Peak flow meters and nebulisation

The Public Health England current position is that nebulisation is NOT an aerosol generating procedure. The mist seen around the nebulisation mask is a mist of the nebulised drug solution, considered to be sterile.

- Do not record a peak expiratory flow rate (PEFR) until after salbutamol treatment is completed and **only if** you are considering discharging the patient home. The peak flow meter cannot be used for other patients as it carries a potential infection risk. The use of a peak flow meter is not an aerosol generating procedure.
- Consider the use of MDI and spacer for patients with mild and moderate asthma, nebulisation should ideally be reserved for acute severe and life-threatening asthma.
- Use the minimum flow rate of oxygen to achieve nebulisation, this is normally around 6 litres / min (or as indicated by the mask manufacturer).

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 NICE, SIGN, Bristol guideline, 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: December 2020.