Acute Wheezy Episode
Management for Children 2 to 5 years

NHS Islington Clinical Commissioning Group

Consider other diagnosis if any of the following are present:
- Fever
- Inspiratory stridor
- Dysphagia
- Tachypnoea without wheeze
- Persistent wet/productive cough
- Asymmetry on auscultation/focal signs
- Excessive vomiting or faltering growth
- Barking cough
- Finger clubbing, nasal polyps
- Symptoms present from birth

1. Assessment by appropriate healthcare professionals (doctor/nurse)
- History – current episode, background control, PMH, FH, smoking
- Vital signs including saturations
- General appearance, cyanosis?
- Use of accessory muscles
- Breathlessness – able to speak/feed?
- Auscultation of chest – air entry, added sounds

1. Episodic/Viral Induced Wheeze (VIW): Discrete episodes of wheeze associated with viral upper respiratory tract infections (URTIs)
(OR) Multi-Trigger Wheeze (MTW): Wheezing with URTIs but also in between episodes with other triggers. Is this early asthma?

2. Moderate
- Saturation ≥92% in air
- Moderate use of accessory muscles
- Breathless on exertion only
- Moderate wheeze

5.
- Give 6 puffs of 100 microgram salbutamol MDI via spacer (tidal breathing, 1 puff to every 5 breaths)
- Reassess 20 minutes post intervention

6. Good response?
- Subtle or no use of accessory muscles
- Can complete sentences (if old enough)
- Minimal wheeze
- Saturations >94%

No → box 8. Yes → box 7.

7. Discharge plan (BTS recommendations)
- Before discharge review background wheeze/asthma control
- Check inhaler technique
- Review medication
- Ask about smoking (parent). If yes, offer quit smoking support.
- Check understanding of condition and signpost to further resources*
- All children need a written personal wheeze/asthma action plan, for regular medication and what to do when they start to become unwell*
- Give a weaning plan for salbutamol 100 micrograms MDI plus spacer .
  - Day 1: 6 puffs every 4 hours
  - Day 2: 4 puffs every 6 hours
  - Day 3: 2 puffs as required
- Advise parents to book a GP/Practice nurse review within 48hrs. Review as above.

Steroids (*see box 19*): There is little evidence for steroids in VIW, but it may be helpful in MTW. Consider if >3 episodes of VIW (unlicensed indication).

3. Severe
Presence of any of the following:
- Saturations <92% in air,
- HR >140 bpm, RR > 40 breaths/min
- Marked use of accessory muscles
- Too breathless to talk/feed, unable to complete sentences

8. Give 6 puffs of 100 microgram salbutamol MDI via spacer (tidal breathing, 1 puff to every 5 breaths) **or** 2.5mg salbutamol via oxygen driven nebuliser (if not tolerating inhaler or SpO_2 <92%). Also give atrovent (ipratropium bromide) - 1 puff of 20mcg inhaler **or** 250mcg nebuliser)
- Give high flow oxygen (aim SpO_2 94-98%)
- Reassess 20 minutes post intervention
- Repeat treatment every 20 minutes if needed
- Reassess 1 hour post starting treatment

9. Good response?
- Subtle or no use of accessory muscles
- Can complete sentences (if old enough)
- Minimal wheeze
- Saturations >94%

Yes → box 7. No → Primary Care Pathway / A&E Pathway

10. (Primary care)
- Dial 999
- Contact duty paediatric registrar (*see box 14*)
- Continue oxygen, salbutamol and atrovent therapy (*see box 8*)
- Send written assessment with patient

10. (A&E)
- Dial 2222
- Follow local acute wheeze emergency guidelines

4. Life-threatening
Presence of any of the following:
Saturations < 92% in air
- Silent chest
- Poor respiratory effort/exhaustion
- Confusion/reduced GCS
- Cyanosis
- Hypotension, bradycardia (pre-terminal)

11.
- Immediate medical assessment by a doctor
- Dial 999 / 2222 (in hospital)
- Give high flow oxygen if available
- Give salbutamol 2.5mg & ipratropium bromide 250mcg via oxygen driven nebuliser if available. If not give 6 puffs of 100mcg salbutamol + 1 puff of 20mcg ipratropium bromide MDI via spacer.
- Repeat nebulisers/inhalers every 10-20min or more frequently if needed (back-to-back).
- Give oral steroids (*see box 15+19*)

No → Primary Care Pathway / A&E Pathway

12. (Primary Care)
- Dial 999
- Contact duty paediatric registrar (*see box 14*)
- Continue oxygen, salbutamol and ipratropium therapy (*see box 11*)
- Send written assessment with patient
- Ambulance transfer

12. (A&E)
- Dial 2222
- Follow local acute wheeze emergency guidelines

* **Useful resources**:
www.asthma.org.uk/for-professionals/
www.itchysneezywheezy.co.uk

Referral to secondary care if: (see box 14)
- Diagnosis unclear or in doubt
- Symptoms present from birth or perinatal lung problem
- Excessive vomiting or posseting
- Persistent wet/productive cough, nasal polyps or clubbing
- Family history of unusual chest disease
- Failure to thrive or weight loss
- Coexisting food allergies

Referral to secondary care if: (see box 14)
- Unexpected clinical findings e.g. focal signs, abnormal voice or cry, dysphagia, inspiratory stridor
- Failure to respond to conventional treatment (particularly inhaled corticosteroids >beclometasone 400 mcg/day (or equivalent) or frequent use of prednisolone (>2 courses/year)
- Previous HDU/recurrent admissions or A+E attendances
- Parental anxiety/need for reassurance or social concerns

Ref: The British Thoracic Society (BTS) British Guideline on the Management of Asthma (revised 2016)

Acute Asthma Attack / Wheezy Episode Management Pathway for Children 2 to 5 years

NHS North Central London

13. Community Children's Nursing (CCN) Teams

Barnet
Tel: 020 8216 5242
E: rf-tr.childrenshomecareteam@nhs.net

Camden & South Barnet
Tel: 020 7830 2571
E: rf.communitychildrensnurses@nhs.net

Enfield
Tel: 020 8375 1992
E: rf-tr.childrenshomecareteam@nhs.net

Haringey
Tel: 020 8887 3301
E: northmidchildrenscommunitynurses@nhs.net

Islington
Tel: 0203 316 1950
whh-tr.islingtonchildrensnursing@nhs.net

14. Secondary Care Referrals

For urgent referrals, contact paediatric registrar on call via hospital switchboard

Barnet Hospital
Dr. Sue Laurent
Sue.Laurent@nhs.net
Switchboard: 020 8216 4600

Royal Free Hospital
Dr. Rahul Chodhari
R.Chodhari@nhs.net
Switchboard: 020 7794 0500

North Middlesex Hospital
Dr. Arvind Shah and Dr. Dhruv Rastogi
Switchboard: 020 8887 2000

University College Hospital
Dr. Eddie Chung
Switchboard: 020 3456 7890

Whittington Hospital
Dr. John Moreiras
John.moreiras@nhs.net
Switchboard: 020 7272 3070

15. Asthma predictive Index (API)

• For a positive API there must be a history of ≥4 wheezing episodes, with at least one doctor diagnosed episode.

•In addition the child must meet either one major criteria or at least two minor criteria::

Major criteria
•Parental history of asthma
•Doctor diagnosed eczema (atopic dermatitis)
•Allergic sensitisation to at least 1 aeroallergen (e.g. trees, grasses, dust mites)

Minor Criteria
•Allergic sensitisation to milk, egg or peanuts
•Wheezing unrelated to colds
•Blood eosinophils > 4%

16. Inhalers vs. nebulisers

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

Indications for nebulisers:
•Low saturations <92%
•Unable to use inhaler and spacer (not compliant)
•Severe and life-threatening respiratory distress
•Nebulisers are not generally recommended for home use.

17. Viral Induced wheeze (VIW)

• 1/3 of children have an episode of wheezing in the first 3 years of life, usually triggered by a viral infection. Only 20% of these children will go on to have asthma. The classification and treatment of wheeze in this age group continues to be debated.
• They should not routinely be labeled as having asthma as the pathophysiology of a VIW is different from that of asthma.
• Caveat: early onset asthma may be indistinguishable from VIW at first presentation.

• It is important to consider the temporal pattern of wheezing:
• Episodic (viral) wheeze: child only wheezes with viral URTIs and is symptom free in between episodes.
• Multiple-trigger wheeze: child wheezes with URTIs but also with other triggers such as exercise, smoke and allergen exposure.

19. Steroids

• There is growing evidence that oral and Inhaled steroids are ineffective in preschool children (< 5yrs) presenting with VIW and therefore should not be prescribed routinely.
• Careful assessment of all children presenting with wheeze remains essential to ensure that the diagnosis of asthma is not missed.
• Consider oral corticosteroids in those who need HDU and/or have a positive API (box 15)
• Consider a trial of inhaled corticosteroids in children with MTW (i.e. beclometasone 200-400mcg daily for 4 to 8 weeks). If there is no improvement, stop. If there is improvement, stop and see if symptoms recur on stopping. If inhaled corticosteroid needed, the dose can then be reduced to the minimum amount required.

Prednisolone by mouth:
• <12 years 1 mg/kg (max. 40 mg) daily for up to 3 days (children's BNF)
• If weight not available, use a dose of 20mg for children 2-5 years (BTS guidelines 2012)

This guidance is written in the following context: This pathway was arrived at after careful consideration of the evidence available including but not exclusively using the BTS guidelines. 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. If you have any queries with regards to the information contained with this document please contact Dr John Moreiras (john.moreiras@nhs.net)

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