North Central London (NCL) ICS

Acute Wheezy Episode: Management for Children 2 – 5 Years Primary Care Clinical Pathway

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NCL-Wide / Borough(s)	NCL-Wide
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1.0 (B)

Consider other diagnoses and manage as clinically appropriate 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

Key

- Pi – "Must do" actions for GP's / (Triaged by RSS)
- B – Recommendations for Primary Care
- R – Red flag / urgent referral
- O – Routine referral
- P – Public health intervention
- G – Audio-visual aids for patients and GP
- Click icon for clinical evidence
- Right-click to use hyperlink

Note: Alpha-numeric step references are to aid printing in black & white and colour blindness

2.0 (Pi)

Assessment by a healthcare professional with the appropriate training and skills relevant in the care of children and young people - This is equivalent to Tier 2 or above in the new tiered asthma capabilities framework. See reference [**1**] (page 24) for further details

- History – current episode, background control, PMH, FH. Consider smoking cessation in household smokers
- General appearance, cyanosis?
- Use of accessory muscles
- Breathlessness – able to speak/feed?

Investigations:

- Auscultation – air entry, added sounds
- Record temperature, pulse, respiratory rate and oxygen saturation

Investigations must be within 6 months of date of referral

3.0 (B)

Suspected Episodic/Viral Induced Wheeze (VIW): Discrete episodes of wheeze associated with viral upper respiratory tract infections (URTIs) **OR**
Suspected Multi-Trigger Wheeze (MTW): Wheezing with URTIs but also in between episodes with other triggers. Is this early asthma? (see **box 12.0**)

4.0 (B)

MODERATE, ACUTE WHEEZE

- Saturation ≥92% in air
- Heart rate < or equal to 140/min and respiratory rate < or equal to 30/min
- Moderate use of accessory muscles
- Breathless on exertion only, can talk in short sentences

5.0 (B)

SEVERE, ACUTE WHEEZE

- 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

6.0 (R)

LIFE-THREATENING, ACUTE WHEEZE

- Saturations < 92% in air or cyanosis
- Silent chest
- Poor respiratory effort/exhaustion
- Confusion/reduced GCS
- Hypotension/bradycardia (pre-terminal)

IMMEDIATE REFERRAL TO A&E IS APPROPRIATE

7.0 (R)

Whilst waiting for admission to hospital carry out the following actions:

- Give up to a maximum of 10 puffs of 100 microgram salbutamol MDI via spacer (tidal breathing, 1 puff to every 5 breaths). Children under 3 years are likely to require a face mask connected to the mouthpiece of a spacer for successful drug delivery.

AND

- Reassess 20 minutes post intervention
- If the child has an existing asthma diagnosis, or if asthma is suspected consider a stat dose of prednisolone. See **box 10.0** for dosing information

Assess Response

- **Good response**: Continue salbutamol via spacer as needed whilst awaiting admission. Do not exceed 4 hourly dosing
- **Poor response**: Treat as per severe acute wheeze

8.0 (R)

Whilst waiting for admission to hospital carry out the following actions:

- Give up to a maximum of 10 puffs of 100 microgram salbutamol MDI via spacer (tidal breathing, 1 puff to every 5 breaths) **OR**
- Give salbutamol 2.5mg + ipratropium bromide 250micrograms via oxygen driven nebuliser (if not tolerating inhaler or saturations <92% in air)

AND

- Give high flow oxygen via a tight-fitting face mask or nasal cannula at sufficient flow rates to achieve normal saturations of 94 – 98%
- Reassess 20 minutes post intervention
- Give stat dose of prednisolone (see **box 10.0** for dosing information)

Assess Response

- **Good response**: Continue salbutamol via spacer as needed whilst awaiting admission. Do not exceed 4 hourly dosing
- **Poor response**: Repeat salbutamol via oxygen driven nebuliser whilst awaiting admission

9.0 (R)

Immediate medical assessment by a doctor

- **DIAL 999**
- Give high flow oxygen via a tight-fitting face mask or nasal cannula at sufficient flow rates to achieve normal saturations of 94 – 98%
- Give salbutamol 2.5mg + ipratropium bromide 250micrograms via oxygen driven nebuliser if available.
- If not available, give 10 puffs 100mcg salbutamol MDI via spacer (tidal breathing, 1 puff to every 5 breaths)
- Repeat nebulisers/inhalers every 10-20 minutes or more frequent if needed.
- Give stat dose of prednisolone or IV hydrocortisone if the patient is unable to take oral prednisolone orally (see **box 10.0** for further information and dosing information)

10.0

Additional prescribing information

Steroids

- There is growing evidence that oral and inhaled steroids are ineffective in preschool children (< 5yrs) presenting with viral induced wheeze (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 or where asthma suspected
- Consider a trial of inhaled corticosteroids in children with Multiple-trigger wheeze (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 (oral; non enteric coated tablet preferred) dosing information:

- < 12 years: 1 -2 mg/kg once daily (max 40mg daily) for up to 3 days, longer if necessary
- Those already on maintenance steroids or have received oral steroids for more than a few days, give 2mg/kg (max 60mg daily) for up to 3 days, longer if necessary

Hydrocortisone (intravenous) dosing information:

- Consider IV hydrocortisone 4mg/kg (maximum dose 100mg) if child is vomiting or is unable to take oral prednisolone

Inhalers vs nebulisers in acute asthma

For moderate, acute asthma, use an inhaler and spacer.

Indications for nebulisers:

- Low saturations <92%
- Unable to use inhaler and spacer (not compliant)
- Severe and life threatening respiratory distress

Nebulised asthma rescue therapy should only be used for the the acute management of an asthma attack. Home use of nebulisers in paediatric asthma should only be initiated and managed by specialists. See MHRA alert [**2**]

11.0

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.

[**1**] https://www.england.nhs.uk/wp-content/uploads/2021/09/National-bundle-of-care-for-children-and-young-people-with-asthma-resource-pack-September-2021.pdf (pg 24)
[**2**]: https://www.gov.uk/drug-safety-update/nebulised-asthma-rescue-therapy-in-children-home-use-of-nebulisers-in-paediatric-asthma-should-be-initiated-and-managed-only-by-specialists

*** If a child has not performed a peak flow before, the technique used may be suboptimal.**
In this instance the result should be treated with caution. PEF unlikely to be reliable in severe/life-threatening episode.

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

Ref: The British Thoracic Society (BTS) British Guideline on the Management of Asthma (revised 2019) https://www.brit-thoracic.org.uk/quality-improvement/guidelines/asthma/