Acute Asthma Attack: Management for Known Asthmatic Children (5 – 16 Years)

NHS Islington Clinical Commissioning Group

Consider other diagnosis if any of the following are present:
- Fever or productive/persistent wet cough
- Breathlessness with light headedness and peripheral tingling (hyperventilation)
- Asymmetry on auscultation/focal chest signs
- Excessive vomiting or dysphagia
- Inspiratory stridor
- Clubbing or nasal polyps
- Tachypnoea without wheeze
- New onset wheeze in older child +/- orthopnoea

1. Assessment by appropriate healthcare professionals (Dr/Nurse)
- History – current episode, background control, PMH, FH, smoking
- Use of accessory muscles, cyanosis, appearance
- Breathlessness – able to speak/feed?
- Auscultation – air entry, added sounds
- Peak flow (actual and %best/predicted)
- Record vital signs including saturation

2. Moderate
- Saturation ≥92% in air
- Moderate use of accessory muscles
- Breathless on exertion only, can talk in short sentences
- Moderate wheeze
- Peak flow ≥ 50% best/predicted*

3. Severe
Presence of <u>any</u> of the following:
- Saturations <92% in air
- HR >125 bpm, RR > 30 breaths/min
- Marked use of accessory muscles
- Too breathless to talk/feed, unable to complete sentences
- Peak flow 33-50% best/predicted*

4. Life-threatening
Presence of <u>any</u> of the following:
- Saturations < 92% in air or cyanosis
- Silent chest
- Poor respiratory effort/exhaustion
- Confusion/reduced GCS
- Hypotension/bradycardia (pre-terminal)
- PEF <33% best/predicted*

5. Give 10 puffs of 100 microgram salbutamol MDI via spacer (tidal breathing, 1 puff to every 5 breaths)
- Reassess 20 minutes post intervention
- Consider giving 3 day course of soluble prednisolone 1mg/kg (max 40mg). Those already receiving maintenance oral steroid give 2mg/kg (max 60mg). (Box 18)

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

No

Yes

7. Discharge Plan (BTS recommendations)
- Before discharge review background asthma control
- Check inhaler technique and review medication
- Ask about smoking - parent and child (if > 11yrs). 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 GP/Practice Nurse review within 48hrs. Give safety netting advice.
- Complete a three day course of prednisolone (Box 18)

8. Give burst therapy: 10 puffs 100mcg salbutamol MDI via spacer (tidal breathing, 1 puff to every 5 breaths) + 2 puffs 20mcg ipratropium bromide
- **<u>or</u>** 5mg salbutamol via oxygen driven nebuliser (if not tolerating inhaler or saturations <92% in air) + ipratropium bromide (250mcg - age 5-12; 500mcg - age >12)
- Aim saturations 94-98%
- Give high flow oxygen if available
- Reassess 20 minutes post intervention
- Repeat treatment every 20 minutes if necessary
- Give 3 day course of soluble prednisolone 1mg/kg (max 40mg). If already on maintenance oral steroid give 2mg/kg (max 60mg). (Box 18)
- Reassess 1 hour post starting treatment

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

Yes

No

Primary Care Pathway

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

A&E Pathway

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

11. Immediate medical assessment by a doctor
- Dial 999 / 2222 (in hospital)
- Give high flow oxygen if available
- Give salbutamol 5mg + ipratropium bromide (250mcg – age 5-12; 500mcg – age >12) 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) + 2 puffs 20mcg ipratropium bromide
- Repeat nebulisers/inhalers every 10-20 minutes or more frequent if needed.
- Give soluble prednisolone 1mg/kg (max 40mg). Those already receiving maintenance oral steroid give 2mg/kg (max 60mg). (Box 18)

Primary care Pathway

A&E Pathway

12.(Primary Care)
- Dial 999
- Contact duty paediatric SpR
- Send written assessment with patient
- Continue oxygen, salbutamol and ipratropium therapy (Box 11)

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

*** 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/
www.itchysneezywheezy.co.uk

Referral to secondary care if: (Box 14)
- Diagnosis unclear or in doubt
- Symptoms present from birth or perinatal lung problem
- Persistent wet or productive cough
- Family history of unusual chest disease
- Failure to thrive or weight loss
- Nasal polyps or clubbing
- Co-existing food allergies

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

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

Acute Asthma Attack Management Pathway for Known Asthmatic Children (5 – 16 Years)

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. Normal Paediatric Values

Respiratory Rate at Rest:

2-5yrs	25-30 breaths/min
5-12yrs	20-25 breaths/min
>12yrs	15-20 breaths/min

Heart Rate:

2-5yrs	95-140 bpm
5-12yrs	80-120 bpm
>12yrs	60-100 bpm

Systolic Blood Pressure:

2-5yrs	80-100 mmhg
5-12yrs	90-110 mmhg
>12yrs	100-120 mmhg

16. Inhalers vs nebulisers

For moderate asthma, use an inhaler and spacer. If >5 years old 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. Nebulised drug doses

Salbutamol

2-5 yrs	2.5 mg
> 5 yrs	5 mg

Ipratropium bromide

< 12 yrs	250 mcg
12-18 yrs	500 mcg

18. Prednisolone

- <12 yrs – 1mg/kg (max 40mg) daily
- 12-18 yrs – 40mg daily
- Those already receiving maintenance steroid, give 2 mg/kg (max 60 mg)
- Repeat the dose in children who vomit and/or consider IV steroids
- 3 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.

19. Predicted peak flows

For use with PEF meters EU/EN13826

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

20. Poor asthma control

- Frequent use of reliever
- Limiting daily activities
- Poor sleep, nocturnal cough
- Frequent exercise induced symptoms
- Frequent hospital admissions or GP/A+E attendances
- Frequent courses of prednisolone

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- **Difficult Asthma**: Difficult asthma is defined as persistent symptoms and/or frequent exacerbations despite treatment at step 4 or 5

- Asthma Control Test: www.asthma.com/resources/asthma-control-test.html

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 within this document, please contact Dr John Moreiras (john.moreiras@nhs.net)

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