Staffordshire and Stoke-on-Trent
Integrated Care System

Asthma Children and Young People (CYP) Acute Management

Local Services

NHS 111 is the NHS non-emergency number; it's fast, easy and free to call. This number should be used if patients need:

- medical help fast but it's not a 999 emergency
- think they need to go to ED or need another NHS urgent care service
- don't know who to call or don't have a GP
- need health information or reassurance about what to do next.

Pharmacists

Details of all local pharmacists can be found on the NHS Choices Website (www.nhs.uk).

GP and Out of Hours

A GP is generally the **first** medical professional to contact when a patient feels unwell. If it's outside of GP working hours the patient should be signposted to the 'Out of Hours' GP Service via **NHS 111**.

Hospital at Home Team / Children's Community Nursing Teams (CCNT)

The Hospital at Home Team / CCNTs provide acute nursing care and observation delivered in the community for patients registered with a Staffordshire or Stoke-on-Trent GP. Conditions supported by the service include; pyrexia with diagnosis, coughs, colds and wheezes, diarrhoea and vomiting, ear infections and tonsillitis, bronchiolitis, UTIs and parental anxiety. Interventions carried out include; observations and monitoring (temperature, pulse, respirations, $Sp0_2$ monitoring, hydration and BP), obtaining samples, urine for dipstick, swabs and stools and teaching/supporting parents along with health promotion. The service(s) provide care for children and young people aged under 18 years and is available 7 days per week, 365 days per year, available 09.00 – 21.00. (09.00-17.00 on Public Holidays).

Contact details for the teams are:

North Staffs / Stoke-on-Trent	Stafford & Surrounds, Cannock & Seisdon Peninsular	Tamworth, Lichfield & Burton
01782 30603	**01785 229032**	**01283 504867**

When referring a child/young person with wheeze/asthma to the Teams please ensure you provide a prescription for a new pMDI salbutamol inhaler and that the patient has access to an appropriate spacer device.

Children's Telephone Advice and Referrals

GPs and the CCNTs are able to contact a Consultant Paediatrician for advice and guidance or to discuss a referral. **The service is available 24/7, 365 days per year via 01782 679477.** A clinician to clinician discussion will take place and an agreed management plan for the child shall be agreed, which could be one of the following:

1) It is safe for the child to remain at home under the care of the GP. The GP may consider a referral to the Hospital at Home / CCNT Teams as referenced above.
2) The child needs further investigation, treatment or intervention by a Consultant Paediatrician, but is not urgent. The child can be offered an appointment within the Rapid Access Clinic (RAC) at the Royal Stoke University Hospital, 9:00-11:00am 7 days per week. For Queens Hospital Burton the service week consultant is available on 07551 153192 for advice Mon – Fri 9am-5pm
3) The child requires urgent observation and or assessment the Children's Assessment Unit at Royal Stoke University Hospital is, available 24/7, 365 days per year. For Queens Hospital Burton please call the paediatric registrar on 01283 566333 asking for bleep #625.

Normal Paediatric Values

Age	Mean Respiratory Rate (breathes/minute)	Mean Pulse Rate (pulse/minute)	Blood Pressure
< 1 year	30-40	110/160	70-90
1-2 years	25-35	100-150	80-95
2-4 years	25-30	95-140	80-100
5-12 years	20-25	80-120	90-110
Over 12 years	15-20	60-100	100-120

NICE / Sepsis Guidelines 2017

CONSIDERATION RE: USE OF ORAL PREDNISOLONE

For patients NOT on maintenance oral steroids the dose should be:

1mg/kg once a day (rounded up to the nearest 5mg) and capped at a once daily dose for age as follows:

<2 yrs. old = max dose 10mg

2 to <5 yrs. old = max dose 20mg

5 to <12 yrs. old = max dose 30mg

≥12 yrs. = max dose 40mg

- Duration of treatment is normally for **three days** (up to five days) but the length of course should be tailored to the number of days necessary to bring about recovery.
- If the patient is on an oral maintenance steroid: dose at 1-2mg/kg rounded up to the nearest 5mg (**max. 60mg**) once a day and a weaning plan may be needed and should be discussed with a paediatric respiratory consultant.
- Weaning of prednisolone should not normally be necessary for most patients receiving short courses of oral steroids. However, clinical judgment should be exercised to assess risk of adrenal suppression e.g., weaning may be necessary for patients who have recently had repeated courses of IV/PO steroids or patients on long-term maintenance oral steroids. Please discuss with the paediatric respiratory team if unsure to determine if a weaning plan is needed.

Staffordshire and Stoke-on-Trent Integrated Care System

Asthma

Clinical Pathway and Assessment Tool – Child with Acute Asthma Aged 2-5 Years

Child presenting with Suspected Acute Exacerbation of Asthma

Consider other diagnosis if any of the following are present

- Fever
- Dysphagia
- Asymmetry
- Excessive Vomiting
- Inspiratory Stridor
- Productive Cough
- Breathlessness with light headlines and peripheral tingling (hyperventilation).

No → Suspected Acute Exacerbation of Asthma **ASSESS**

Yes → It may not be asthma: seek expert help (consider use of another pathway)

If all green features and no amber

- SpO2 ≥92% in air
- Speech normal /feeding normally
- Heart rate ≤140/min
- Respiratory rate ≤40/min.

Mild/Moderate Exacerbation

- Give β-agonist 2 puffs (one puff every 30-60 seconds) every 5 minutes up to 6 puffs according to response via MDI and spacer (with facemask in children 3 years or less) using tidal breathing
- Use patient own spacer where available
- Consider oral prednisolone 1mg/kg up to 20mg once daily.

ASSESS RESPONSE AFTER 15 MINS

Good response (green features)

No response or deterioration, consider referral to paediatric team at Royal Stoke University / Burton Hospital. If amber or red features present refer to Royal Stoke University / Burton Hospital.

Good Response

- Advise patient to continue using β-agonist via spacer as needed, but not exceeding 6 puffs 4 hourly
- Give 'Asthma advice/information Sheet' and PAAP
- If prescribed give prednisolone for up to 3 days
- Arrange community follow up within 2 working days
- Review inhaler technique
- Continue preventer as prescribed
- Consider referral to H@H CCN Team for follow up.

If all amber features and no red

- SpO2 ≥92% in air
- Cant complete sentences/ too breathless to talk
- Heart rate >140/min
- Respiratory rate >40/min
- Use of accessory muscles.

Severe Exacerbation

- Give oxygen via a facemask / nasal prong to achieve SpO2 94-98%
- Give nebulised salbutamol at 2.5mg or terbutaline 5mg driven by 6-8 litres oxygen or β-agonist 10 puffs via spacer ± facemask if nebuliser not available
- Give an appropriate dose of oral prednisolone 1mg/kg up to 20mg once daily.

- If symptoms are not controlled repeat β-agonist via 6-8litres oxygen driven nebuliser.
- Call 999 for an emergency ambulance to take you to your nearest ED.
- Stay with the child until ambulance arrives.

If any red features

- SpO2 < 92%
- Silent chest, cyanosis
- Poor respiratory effort
- Arrhythmia or hypotension
- Exhaustion, altered consciousness.

Life Threatening

- Give oxygen via a facemask to achieve SpO2 94-98%
- Call 999 for an Emergency Ambulance to take you to your nearest ED.
- Give nebulised salbutamol 2.5mg or terbutaline 5mg and ipratropium 250 micrograms dose driven by 6- 8 litres of oxygen
- Give an appropriate dose of oral prednisolone 1mg/kg up to 20mg daily
- Repeat β-agonist via oxygen driven nebuliser whilst waiting for ambulance to arrive
- Continually assess child after each intervention
- Ensure continuous oxygen delivery to maintain SpO2 above 94-98%
- Stay with child whilst waiting for ambulance to arrive
- Send written assessment and referral details.

Lower threshold for admission if:

- Attack in late afternoon or at night
- Recent hospital admission or previous severe attack
- Concern re: social circumstances or ability to cope at home.

Clinical Pathway and Assessment Tool – Child with Acute Asthma Aged 5-12 Years

Child presenting with Suspected Acute Exacerbation of Asthma

Consider other diagnosis if any of the following are present

- Fever
- Dysphagia
- Asymmetry
- Excessive Vomiting
- Inspiratory Stridor
- Productive Cough
- Breathlessness with light headlines and peripheral tingling (hyperventilation).

No → Suspected Acute Exacerbation of Asthma **ASSESS**

Yes → It may not be asthma: seek expert help (consider use of another pathway)

If all green features and no amber

- SpO2 ≥92% in air
- PEF ≥50% best or predicted in those ≥5yrs
- Speech normal
- Heart rate ≤125/min
- Respiratory rate ≤30/min.

Mild/Moderate Exacerbation

- Give β-agonist 2 puffs (one puff every 30-60 seconds) every 5 minutes up to 6 puffs according to response via MDI and spacer using tidal breathing
- Use patient own spacer where available
- Consider soluble prednisolone 1mg/kg up to 30mg once daily.

ASSESS RESPONSE AFTER 15 MINS

Good response (green features)

No response or deterioration, consider referral to paediatric team at Royal Stoke University / Burton Hospital. If amber or red features present refer to Royal Stoke University / Burton Hospital.

Good Response

- Advise patient to continue using β-agonist via spacer as needed, but not exceeding 6 puffs 4 hourly
- Give 'Asthma advice/information Sheet' and PAAP
- If prescribed give prednisolone for up to 3 days
- Arrange community follow up within 2 working days
- Review inhaler technique
- Continue preventer as prescribed
- Consider referral to H@H CCN Team for follow up.

If all amber features and no red

- SpO2 <92% in air
- PEF 33% - 50% or predicted in those ≥5yr
- Can't complete sentences
- Heart rate >125/min
- Respiratory rate >30/min
- Use of accessory muscles.

Severe Exacerbation

- Give oxygen via a facemask / nasal prong to achieve SpO2 94-98%
- Give nebulised salbutamol at 5mg or terbutaline 5-10mg driven by 6-8 litres oxygen or β-agonist 10 puffs via MDI and spacer if nebuliser not available
- Give an appropriate dose of oral prednisolone 1mg/kg up to 30mg once daily.

- If symptoms are not controlled repeat β-agonist via oxygen driven nebuliser or spacer if nebuliser not available
- Call 999 for an emergency ambulance to take you to your nearest ED.
- Stay with the child until ambulance arrives.

Lower threshold for admission if:

- Attack in late afternoon or at night
- Recent hospital admission or previous severe attack
- Concern re: social circumstances or ability to cope at home.

If any red features

- SpO2 < 92%
- PEF <33% best or predicted in those ≥5yrs
- Silent chest, cyanosis
- Poor respiratory effort
- Arrhythmia or hypotension
- Exhaustion, altered consciousness.

Life Threatening

- Give oxygen via a facemask to achieve SpO2 94-98%
- Call 999 for an emergency ambulance to take you to your nearest ED.
- Give nebulised salbutamol 5mg or terbutaline 5-10mg and ipratropium 250 micrograms dose driven by 6-8 litres of oxygen
- Give an appropriate dose of oral prednisolone 1mg/kg up to 30mg daily
- Repeat β-agonist via oxygen driven nebuliser whilst waiting for ambulance to arrive.
- Continually assess child after each intervention
- Ensure continuous oxygen delivery to maintain SpO2 above 94-98%
- Stay with child whilst waiting for ambulance to arrive
- Send written assessment and referral details.

Clinical Pathway and Assessment Tool – Child with Acute Asthma Aged 12+ Years

Child presenting with Suspected Acute Exacerbation of Asthma

Consider other diagnosis if any of the following are present

- Fever
- Dysphagia
- Asymmetry
- Excessive Vomiting
- Inspiratory Stridor
- Productive Cough
- Breathlessness with light headlines and peripheral tingling (hyperventilation).

No → Suspected Acute Exacerbation of Asthma **ASSESS**

Yes → It may not be asthma: seek expert help (consider use of another pathway)

If all green features and no amber

- SpO2 ≥92% in air
- PEF ≥50% best or predicted
- Speech normal
- Heart rate ≤110/min
- Respiratory rate ≤25/min.

Mild/Moderate Exacerbation

- Give β-agonist 2 puffs (one puff every 30-60 seconds) every 5 minutes up to 6 puffs according to response via MDI and spacer using tidal breathing
- Use patient own spacer where available
- Consider oral prednisolone 1mg/kg up to 40mg once daily.

ASSESS RESPONSE AFTER 15 MINS

Good response (green features)

No response or deterioration, consider referral to paediatric team at Royal Stoke University / Burton Hospital. If amber or red features present refer to Royal Stoke University / Burton Hospital.

Good Response

- Advise patient to continue using β-agonist via spacer as needed, but not exceeding 6 puffs 4 hourly.
- Give 'Asthma advice/information Sheet' and PAAP
- If prescribed give prednisolone for up to 3 days
- Arrange community follow up within 2 working days
- Review inhaler technique
- Continue preventer as prescribed
- Consider a referral to H@H CCN Team for follow up.

If all amber features and no red

- SpO2 <92% in air
- PEF 33% - 50% or predicted
- Can't complete sentences
- Heart rate >110/min
- Respiratory rate >25/min
- Use of accessory muscles.

Severe Exacerbation

- Give oxygen via a facemask / nasal prong to achieve SpO2 94-98%
- Give nebulised salbutamol at 5mg or terbutaline 10mg driven by 6-8 litres oxygen or β-agonist 10 puffs via spacer ± facemask if nebuliser not available
- Give an appropriate dose of oral prednisolone up to 40mg once daily.

- If symptoms are not controlled repeat β-agonist via oxygen driven nebuliser or spacer ±facemask if nebuliser not available
- Call 999 for an emergency ambulance to take you to your nearest ED.
- Stay with the child until ambulance arrives.

If any red features

- SpO2 < 90%
- PEF <33% best or predicted
- Silent chest, cyanosis
- Poor respiratory effort
- Arrhythmia or hypotension
- Exhaustion, altered consciousness.

Life Threatening

- Give oxygen via a facemask to achieve SpO2 94-98%
- Call 999 for an emergency ambulance to take you to your nearest ED.
- Give nebulised salbutamol 5mg or terbutaline 5-10mg & ipratropium 500 micrograms dose driven by 6- 8 litres of oxygen
- Give an appropriate dose of oral prednisolone up to 40mg daily
- Repeat β-agonist via oxygen driven nebuliser whilst waiting for ambulance to arrive.
- Continually assess child after each intervention
- Ensure continuous oxygen delivery to maintain SpO2 above 94-98%
- Stay with child whilst waiting for ambulance to arrive
- Send written assessment and referral details.

Lower threshold for admission if:

- Attack in late afternoon or at night
- Recent hospital admission or previous severe attack
- Concern re: social circumstances or ability to cope at home.

Asthma Advice

Using the reliever (blue) inhaler safely

If there any of the following symptoms, give **TWO** puffs of the reliever (blue) inhaler via a MDI and spacer, one puff every 30-60 seconds:

- A wheeze
- An increased effort of breathing
- Chest tightness
- Reduced peak flow (5 years and above).

If there are still have symptoms after 5 to 10 minutes, give another TWO puffs, one puff every 30-60 seconds.

If needed, repeat to a total of six puffs. This can be repeated every four hours up to a 24-hour period.

If still requiring four hourly after 24 hours - arrange an urgent GP review.

If your child still has symptoms after six puffs give up to 10 puffs.
If symptoms have improved you still need to arrange an urgent review with your GP or take your child to the Emergency Department (ED)

If your child:

- Has no improvement after 5-10 minutes of taking 10 puffs of reliever (blue) inhaler
- Symptoms are getting worse
- Is too breathless or exhausted to speak
- Has a peak flow 40% or less (over 5 years old).

CALL 999 IMMEDIATELY

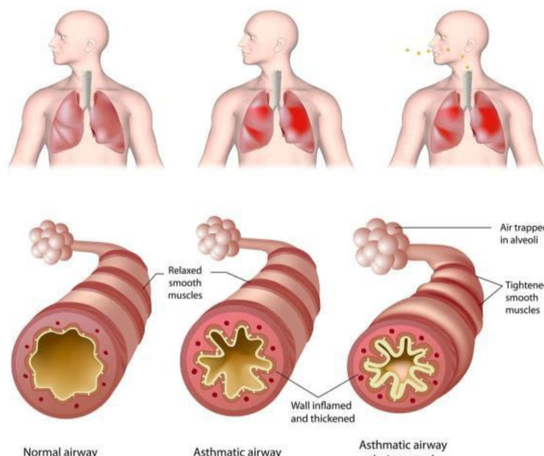
- **Stay where you are with your child**
- **Keep calm**
- **Wait for an ambulance to arrive**
- **Give a further 10 puffs of reliever (blue) inhaler**
- **If symptoms are still no better and the ambulance has not arrived contact 999 again immediately.**

*** It is important to continue to use preventer treatment as prescribed**

Asthma Information Sheet

What is asthma?

Asthma is caused by inflammation of the airways. These are the small tubes, called bronchi, which carry air in and out of the lungs. If you have asthma, the bronchi will be inflamed and more sensitive than normal.



Asthma can start at any stage, but it most commonly starts in childhood. At least 1 in 10 children, and 1 in 20 adults, have asthma.

In an asthma attack the muscles of the air passages in the lungs go into spasm and the linings of the airways swell. As a result, the airways become narrowed and breathing becomes difficult.

What causes asthma in children?

In young pre-school children, wheezing is usually brought on by a viral infection – causing a cold, ear or throat infection. Some people call this ‘viral-induced wheeze’ or ‘wheezy bronchitis’, whilst others call it asthma. Most children will grow out of it, as they get to school age.

In older children, viruses are still the commonest cause of wheezing. But other specific triggers may also cause an asthma attack such as:

- An allergy e.g. animals
- Pollens and mould particularly in hayfever season
- Cigarette smoke
- Extremes of temperature
- Stress
- Exercise (however, sport and exercise are good for you if you have asthma. If necessary, an inhaler can be used before exercise to prevent symptoms from developing).

Your child MAY be having an asthma attack if any of the following happens:

- Their reliever isn’t helping or lasting over four hours
- Their symptoms are getting worse (cough, breathlessness, wheeze or tight chest)
- They are too breathless or it’s difficult to speak, eat or sleep
- Their breathing may get faster and they feel like they can’t get their breath in properly
- Young children may complain of a tummy ache.

Follow the advice sheets and give reliever inhaled treatment.

If your child’s symptoms improve and you do not need to call 999, you still need to take them to see a doctor or asthma nurse within 24 hours of an asthma attack. Most people who have asthma attacks will have warning signs for a few days before the attack. These include having to use the blue reliever inhaler more often; changes in peak flow meter readings, and increased symptoms, such as waking up in the night. Don’t ignore these warning signs as they indicate that your child’s asthma control is poor and they risk having a severe attack.