The Pennine Acute Hospitals NHS
NHS Trust

ED / PAEDIATRIC INTEGRATED CARE PATHWAY

ACUTE WHEEZE / EXACERBATION OF ASTHMA IN CHILDREN 2 YEAR AND OVER

This pathway is to be used for all children over 2 year of age when asthma treatment is considered to be appropriate.

Version 2

Expiry date December 2018

Adapted by Lisa Egerton & Dr G. Parker ROH Emergency Department

Patients Name:	DOB:	NHS Number:

Severity Assessment by Triage Staff

1. **Colour**	Cyanosed	No ❒	Yes ❒	**Potentially life threatening**
2. **Physical state**	Breathless on exercise	No ❒	Yes ❒	**Mild / Moderate**
	Breathless at rest	No ❒	Yes ❒	**Severe**
	Agitated or reduced conscious level	No ❒	Yes ❒	**Potentially life threatening**
	Exhausted or fatigued	No ❒	Yes ❒	**Potentially life threatening**
3. **Ability to speak or babble**	With difficulty	No ❒	Yes ❒	**Severe**
	Unable	No ❒	Yes ❒	**Potentially life threatening**
4. **Ability to walk or feed**	With difficulty	No ❒	Yes ❒	**Severe**
	Unable	No ❒	Yes ❒	**Potentially life threatening**
5. **Observations**	Using accessory muscles *(neck muscles / head bobbing)*	No ❒	Yes ❒	**Severe**
	Respiration rate: above 40 *(<5yrs)* above 30 *(>5yrs)*	No ❒	Yes ❒	**Severe**
	Oxygen saturation in air ≤ 92%	No ❒	Yes ❒	**Severe**
6. **PICU/HDU**	Previous PICU Admission (Date_____)	No ❒	Yes ❒	**Severe (Inform Senior Dr)**
	Previous HDU Admission (Date_____)	No ❒	Yes ❒	**Severe**

Classification:	**Mild / Moderate** ❒	**Severe** ❒	**Life threatening** ❒
To be seen by doctor:	**Within 1 hour**	**Within 10 minutes**	**IMMEDIATELY (Resus/Senior Dr)**

Name:	**Time: ___:___**	**Signed:**	**Registration Number:**
Name of clinician informed:			**Time:**
If SpO2 ≤92% Oxygen & monitoring commenced Yes / no		**Signed:**	**Time:**

Triage nurse to commence treatment on page 5, 6 or 7 as indicated by severity

Initial Nursing Assessment

Recent treatment *(please also transcribe any pre-hospital observations onto the ED observation chart in this pathway)*

Treatment in the last 24 hours:	Any other medication:
Inhaled Bronchodilator usage:	Allergies or Drug sensitivities:
Any nebuliser therapy given Yes ❒ No ❒	PEFR – Document reason if not possible -

Regular medications

Bronchodilator	None ❒	PRN ❒	Regular ❒	Which one?
Inhaled steroids	Yes ❒ No ❒			Which one?
Oral steroids	Yes ❒ No ❒			
Other	Yes ❒ No ❒	Specify (if given):		

Immunisation status: Full ❒ Partial ❒ None ❒ Details:

Observations:

Pulse, Resp Rate & Effort, SpO2, Temp, BP, O_2 recorded on ED observation chart *(If O_2 required, use reservoir bag)* ❒

Patients Name:	**DOB:**	**NHS Number:**

Observation Chart

		Pre-Hosp		Hospital observations																			
DATE																							
TIME																							
TEMPERATURE																							
	200																						200
	190																						190
Blood Pressure	180																						180
	170																						170
	160																						160
	150																						150
mm/ Hg	140																						140
	130																						130
	120																						120
	110																						110
	100																						100
Pulse rate	90																						90
	80																						80
	70																						70
	60																						60
	50																						50
	40																						40
	30																						30
	20																						20
Respirations	10																						10
	5																						5
	0																						0
0_2 Saturation %																							
Administered 0_2 Litres / min																							
Effort of breathing* (1+, 2+. 3+ or E)																							
***Effort of breathing scale**: 1+ = minimal effort, 2+ = moderate effort, 3+ = high effort, E = exhausted																							
AVPU																							
MANCHEWS																							
Record observations / abbreviations in appropriate time column, to provide a visual record of treatment given and patient response.																							
Salbutamol inhaler (1^{st}, 2^{nd}, 3^{rd})																							
Salbutamol nebuliser (S) or with ipratropium mixed (M) 1^{st}, 2^{nd}, 3^{rd}																							
Review time post treatment *(in minutes)*																							
Prednisolone (P)																							
IV Magnesium (Mg)																							
IV Salbutamol (S)																							
IV Hydrocortisone (H)																							
IV Aminophylline (A)																							
Practitioner's initials																							

Initial Nursing Notes

Name: **Signed:** **Position:**

Patients Name:	DOB:	NHS Number:

LIFE THREATENING ASTHMA
PAEDIATRIC PATHWAY

Age 2-5 years
Life threatening asthma:
- SpO2 < 92% in oxygen

Plus any one of following:
- Cyanosis
- Silent chest
- Poor respiratory effort
- Agitation or exhaustion
- Confusion

Age > 5 years
Life threatening asthma:
- SpO2 < 92% in oxygen

Plus any one of the following:
- PEF <33% best or predicted
- Cyanosis
- Silent chest
- Poor respiratory effort
- Altered consciousness level

SIMULTANEOUSLY:

TIME COMMENCED:

Summon senior help (Consultant, anaesthetist and paediatrician)

Arrange rapid transfer of patient to Resus/HDU (for continuous monitoring ECG/SpO2/Resps)

High flow oxygen via face mask or nasal specs to maintain SpO2 > 94%

Nebulised β2agonist every 20 minutes – salbutamol (age 2-5yr: 2.5mg, age >5yr: 5mg) **PLUS**

Nebulised ipratroprium bromide every 20 minutes (2-5 yrs 250mcg, >5 yr: 250-500mcg) all via O2

Oral prednisolone (2-5 yrs 20mg, > 5 yrs 30-40mg) **OR** if not tolerating orally:-

Intravenous hydrocortisone bolus **(**4mg/kg; max 100mg per dose)

Intravenous Magnesium Sulphate bolus (40mg/kg over 20 mins. Max dose 2 grams)

And/or **Intravenous salbutamol bolus** (15mcg/kg over 5 mins. Max dose 250mcg)

IMPROVING?

YES

Ensure NO life threatening signs

- Admit to HDU under Paeds
- Continue nebuliser and steroid treatment according to clinical condition
- Oxygen to maintain SpO2 ≥ 94%
- Continuous monitoring – ECG, SpO2, Resps

NO

If not improving rapidly (within 10-20 mins):

Iv salbutamol infusion (1-5mcg/kg/min)

And/or **iv aminophylline** loading dose + infusion
- Loading dose 5mg/kg over 20 mins
- Infusion 0.5-1mg/kg/hr

Consider **CXR/blood gas/antibiotics**

Consider alternative diagnosis

See advice in Acute severe asthma guideline on intranet

Contact NWTS 08000 848382 for advice

Patients Name:	DOB:	NHS Number:

SEVERE ASTHMA
PAEDIATRIC PATHWAY

Age 2-5 years
Severe asthma:

- Spo2 < 92%
- Heart rate > 140/min
- Respiratory rate > 40/min
- Use of accessory muscles
- Too breathless to talk or eat

Age > 5 years
Severe asthma:

- SpO2 < 92%
- Heart rate >125/min
- Respiratory rate > 30/min
- Use of accessory neck muscles
- Too breathless to talk or eat
- PEF 33-50% best or expected

TIME COMMENCED:

Summon senior help (ED middle grade /Consultant/Paediatrics/ APNP)

Continuous monitoring (ECG/SpO2/resps)

High flow oxygen to achieve SpO2 > 94%

Nebulised β2agonist every 20 minutes (age 2-5yr: 2.5mg, age >5yr: 5mg) via O2

If poor response add nebulised ipratropium bromide every 20 minutes
(age 2-5yr: 250mcg, Age >5 yr: 250-500mcg) all via O2

Continue for up to 2 hours depending on response

Oral prednisolone (age < 5 yr: 20mg, 5-12 yr: 30mg, >12 yr: 40mg) all once daily
OR (if vomiting) **iv hydrocortisone** (4mg/kg; max 100mg per dose)

Intravenous magnesium sulphate bolus (40mg/kg over 20 mins. Max dose 2 grams)

IMPROVING?

YES

Arrange admission under paediatrics

- Close observation
- Oxygen to maintain SPo2 >94%
- Nebulised /inhaled β2agonist 1-4 hourly
- Nebulised/inhaled ipratropium bromide 4 hourly
- Continue steroids

NO

If poor response after 1 hour:

IV magnesium sulphate bolus (if not already given)
40mg/kg over 20 mins. Max dose 2 grams

Consider **IV salbutamol bolus** (if not already given)
15mcg/kg over 5 mins. Max dose 250mcg

Continuous nebulisers

Consultant review (if not already seen)

If no improvement after 20 minutes, refer to life threatening pathway:

Start salbutamol or aminophylline infusions
Contact consultant anaesthetist
Contact NWTS (08000 848382)

Patients Name:	DOB:	NHS Number:

MILD/MODERATE ASTHMA
PAEDIATRIC PATHWAY

NB: if patient has signs & symptoms across categories, always treat according to their most severe features

Age 2-5 years
Mild/moderate asthma:

- SpO2 ≥ 92%
- No clinical features of severe asthma

Age > 5 years
Mild/moderate asthma:

- SpO2 ≥ 92%
- No clinical features of severe asthma
- PEF ≥50% best or predicted

TIME COMMENCED:

Salbutamol inhaler 10 puffs via spacer device (1 puff every 30-60 seconds depending on response)

Oral Soluble prednisolone (age < 5 yr: 20mg, age 5-12 yr: 30mg, age >12 yr: 40mg) all once daily

Reassess within 1 hour

IMPROVING?

YES

Observe for 3-4 hours:

- Minimum of hourly observations
- Ensure SpO2 > 94%
- Continue **inhaled salbutamol** 1-4 hourly
- **MANCHEWS** improving
- If no relapse after 3 hours consider **discharge with inhalers and prednisolone** for 3 days
- Give **discharge leaflet with written step down advice**
- Refer to **CCNT for review** in next 24 hours
- **GP follow** up in 48 hours

NO

Closer observation:

Ensure SpO2 ≥ 92%

Give further 10 puffs of **inhaled salbutamol**

Admit to paediatrics for further observation

Consider **CXR** if:

- Diagnosis uncertain
- Clinical suspicion of pneumothorax
- Lobar or lung collapse – not improving

If deteriorating:

Re-assess asthma classification and follow relevant pathway

Patients Name:	DOB:	NHS Number:

Review of treatment

If patient has 3 nebulisers in quick succession without significant improvement, consider IV Magnesium or other relevant IV therapy. Refer to the Paediatric Asthma Pathway.

Classification: Mild / Moderate ❒ Severe ❒ Life threatening ❒ (Inform Senior Dr)

Reassessment: **MANCHEWS**

❒Improving ❒Unchanged *(requiring further treatment)* ❒Inadequate response *(escalate treatment)* ❒Worsening *(escalate treatment)*

Plan:

❒Further Treatment (***Follow relevant Paediatric Asthma pathway to progress treatment and document plan below)***
❒Refer to Paediatrics
❒Discharge as per mild/moderate pathway

Clinician's Name:	Time: ___:___	Signed:	Registration Number:

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Clinician's Name:	Time: ___:___	Signed:	Registration Number:

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Plan:

❒Further Treatment (***Follow relevant Paediatric Asthma Pathway to progress treatment and document plan below)***
❒Refer to Paediatrics
❒Discharge as per mild/moderate pathway

Clinician's Name:	Time: ___:___	Signed:	Registration Number:

Patients Name:	DOB:	NHS Number:

Please ensure that this checklist is completed for all patients being discharged from the ED

CHECKLIST PRIOR TO DISCHARGE FROM EMERGENCY DEPT			
✓ Child is maintaining SpO2 >94% in air on 4 hourly inhalers		YES	NO
✓ Child has had a medical review prior to discharge		YES	NO
✓ Inhaler technique has been checked		YES	NO
✓ Parent/patient has an adequate supply of all medication and inhalers		YES	NO
✓ Advice re smoking cessation has been given where appropriate		YES	NO
✓ Does the parent have a clear understanding of treatment provided at discharge		YES	NO
✓ 'Discharge Asthma Plan' has been completed and given to parents / patient		YES	NO
✓ CCNT referral form has been completed and faxed		YES	NO
DATE: **TIME:**	**NAME:**	**SIGNATURE:**	**DESIGNATION:**

Asthma in Children

Information for Patients, Parents and Carers

What should I do when I go home?
Your child has had an asthma attack but is now well enough to go home. They may continue to have mild symptoms over the next day or so and the following information should help you to manage your child's asthma.

- Give your child …….puffs of their reliever inhaler **(BLUE) every 4-6 hours.** As they get better you can give the inhaler less often and then stop it. Remember to always shake the inhaler before every puff and only give 1 puff at a time.

- If your child has been given steroid tablets please give them as prescribed and complete the course.

- If your child has a preventer inhaler (**BROWN, ORANGE, RED OR PURPLE)** then continue to give this as prescribed by your General Practitioner (GP) or Hospital Doctor.

- Your child has been referred to your local Children's Community Nursing Team (CCNT), if you have not heard from them please contact your referrer.

- If your child's condition gets worse at any time or does not seem to be improving with this treatment, see your GP earlier or take your child to the nearest Accident & Emergency Department.

There are instructions overleaf for the "Step down" use of your child's reliever inhaler over the next week.

What should I do if my child has a cold?
Give your child 2-6 puffs of their reliever inhaler **(BLUE)** every 4-6 hours. As your child gets better you can give the inhaler less often then stop it. Instructions are provided overleaf. If at any time your child is getting worse and the reliever is not helping, see your GP.

It is important to get medical advice for your child if they are getting worse as some further treatment may be necessary.

When should I seek urgent help?
If any of the following occur you must call an ambulance by dialling **999.**

- Your child is breathing faster than usual and is using their tummy muscles to breathe.

- Your child is too breathless to speak in sentences.

- Your child is too breathless to feed.

- Your child looks tired or pale or blue around the nose and mouth.

Whilst waiting for the ambulance to arrive, give your child 10 puffs (1 puff every 1 minute) of the reliever inhaler (BLUE) using your spacer as you have been shown. You can then continue to give 1 puff every minute until the ambulance arrives.

See also www.asthma.org.uk (Asthma UK) for further information.

MY ASTHMA TREATMENT STEPDOWN PLAN

	RELIEVER Name: Colour:	
	Number of Puffs	**Times per day**
DAY 1		
DAY2		
DAY 3		
DAY 4		
DAY 5		
DAY 6		
DAY 7		

PRINT: **SIGNED:** **DESIGNATION:**

This action plan forms a guide to reducing your child's reliever inhaler. This plan may be altered by your Children's Community Nurse (CCN) when she/he assesses your child.

Please continue to take your PREVENTER inhaler as prescribed.

What if I require further information?

If you require any further advice after your child has been discharged home then please use one of the following options:

- Call NHS 111 on telephone number **111**
- Contact your General Practitioner (GP)
- Take your child to the nearest Accident & Emergency Department