CUH Inpatient Asthma/ Preschool Wheeze Algorithm

For inpatient admission in children aged 2-16 years with wheeze and/or cough AND asthma/preschool wheeze diagnosis and/or past history of wheeze.

TRANSITION FROM EMERGENCY PATHWAY TO INPATIENT PATHWAY

Severe/Life threatening episode should remain in ED and be assessed for admission to PICU/ Transfer via IPATS - If child requires admission ensure transfer to ward occurs as soon as is practical to do so

Moderate
PRAM 4-7

- Continue on 30 mins- 2 hourly salbutamol
- Continuous monitoring of O2 saturations and heart rate
- Supplemental O2 to keep saturations ≥92%

Reassess Vital Signs + PRAM

If at any time PRAM is ≥8 or if PRAM is unchanged or has improved by < 3 points reassess and move to top of 'Severe' pathway

If at any time PRAM 4-7
- Give 30 mins – 2 hourly bronchodilator treatments
- If patient in moderate phase for >8 hours, consider alternate diagnosis

If PRAM ≤ 3
- Clinician to consider discharge by:
- Tolerating salbutamol MDI <6 yrs- 2-6 puffs and >6 yrs 2-10puffs via spacer four hourly
- No recession
- Good air entry on auscultation
- Oxygen saturations in room air ≥92%
- Acceptable oral intake
- Complete discharge checklist

Severe
PRAM 8-12

- Give dose of nebulised salbutamol and review after 20 minutes
- If no improvement then give two further doses 20 minutes apart (i.e. 3 doses over an hour)
- If patient fails to improve then give continuous nebulised salbutamol and move to critical/life threatening pathway
- IV hydrocortisone (if not already given)
- Repeat IV Magnesium sulphate if 6 hours or more have elapsed since previous dose Consider IV aminophyline
- **IV Magnesium Sulphate, salbutamol or Aminophylline are given through separate lines**
- Consider trial of High-Flow nasal cannula O2
- Involve Paeds Consultant
- +/- Senior Reg Anaesthesia 67638

Reassess Vital Signs + PRAM

If poor response (PRAM unchanged or has improved < 3 points) reassess and consider moving to Critical/ life threatening' pathway

If PRAM is improving, move to 'Moderate' pathway

Critical/Life Threatening

Silent chest, exhaustion, cyanosis, increasing hypoxia agitation, confusion, drowsiness, marked tachycardia, bradycardia

- Assess immediately and remain until stabilised
- Involve EM /Paeds Consultant + Senior Reg Anaesthesia 67638
- Oxygen 15L via non rebreather mask
- Salbutamol Nebulised: At least three doses given continuously every 20-30mins, without interruption between doses.
- Ipratropium Nebulised every 20 minutes X 3 doses .
- IV hydrocortisone
- **IV Magnesium Sulphate, salbutamol or Aminophylline are given through separate lines**
- IV Magnesium Sulphate (1st line), can repeat dose if Mg levels not > 2.5mmol/L post initial dose or if more than 6 hours since last dose
- IV Aminophylline (2nd line). Loading dose followed by continuous infusion.
- IV Salbutamol (3rd line)
- IM Adrenaline 10 micrograms/kg (max 500 micrograms) into lateral thigh can be repeated after 5 minutes in asphyxial asthma
- Continuous ECG monitoring and monitor BP
- Venous Gas + Portable Chest X-Ray
- Balanced crystalloid fluid bolus 10mL/kg to achieve euvolaemia or if dehydrated.
- Consider HFNC /Non-invasive Positive Pressure **with IPATS support** (CPAP, BIPAP)

Call IPATS for advice
Consider transfer to CHI, DUBLIN

Other considerations in ongoing care of child with moderate to severe wheeze

- Salbutamol toxicity with increased lactate can be misinterpreted as sign of asthma treatment failure
- Less toxicity with inhaled salbutamol so change from nebulised salbutamol as soon as tolerated
- Daily potassium, lactate, magnesium.
- Daily theophylline level if on IV aminophylline
- Encourage oral fluids, consider PPI
- Caution hyperglycaemia
- No role for chest physiotherapy unless lobar collapse
- Mobilisation for brief periods to be encouraged as tolerated

Medication	<6 years	>6 years
One dose Salbutamol MDI	6 puffs	10 puffs
One dose Ipratropium Bromide MDI	4 puffs	8 puffs
Salbutamol Neb	2.5 mg	5 mg
Ipratropium Neb	125 micrograms	250 micrograms
Prednisolone	1-2 mg/kg OD, 2-5 days	
	Round to the nearest 5mg (max 60mg)	
Dexamethasone (if vomiting prednisolone)	0.3mg/kg PO (max 12mg) as a single dose	
Hydrocortisone	4mg/kg IV 6 hourly (max 100mg)	
If BMI >25 use ideal body weigh for all infusions; ECG monitoring, Monitor BP and Electrolytes		
Magnesium Sulphate	50mg/kg IV over 30 mins (max 2g)	
Aminophylline loading dose	5mg/kg IV (max 500mg) over 30 mins. No loading dose given if on oral theophylline. Then infusion 0.7-1mg/kg/hour. Level 6 hours after infusion commences if treatment to continue. Pause infusion for 20mins before level taken. Target 10-20mg/L	
Salbutamol infusion (IV preparation different from nebulised preparation)	Starting dose 1-2 microgram/kg/min; Caution max dose 20 micrograms/min can easily be exceeding by weight dosing	

Criterions	Descriptions	Score
O_2 Saturation In room air	≥ 95%	0
	92-94%	1
	< 92%	2
Suprasternal retraction Visible	Absent	0
	Present	2
Scalene muscle contraction Palpable	Absent	0
	Present	2
Air Entry If asymmetric: rating determined by most severely affected lung field	Normal	0
	↓ at the base	1
	↓ at the apex and the base	2
	Minimal or absent	3
Wheezing If asymmetric: rating determined by two most severely affected zones	Absent	0
	Expiratory only	1
	Inspiratory (± expiratory)	2
	Audible without stethoscope or silent chest (minimal or no air entry	3
	PRAM SCORE: (max 12)	

Score	0-3	4-7	8-12
Severity	Mild	Moderate	Severe