

Pediatric Asthma Exacerbation Pathway in the Emergency Department

The following information is intended as a guideline for the acute management of children with asthma. Management of your patient may require a more individualized approach

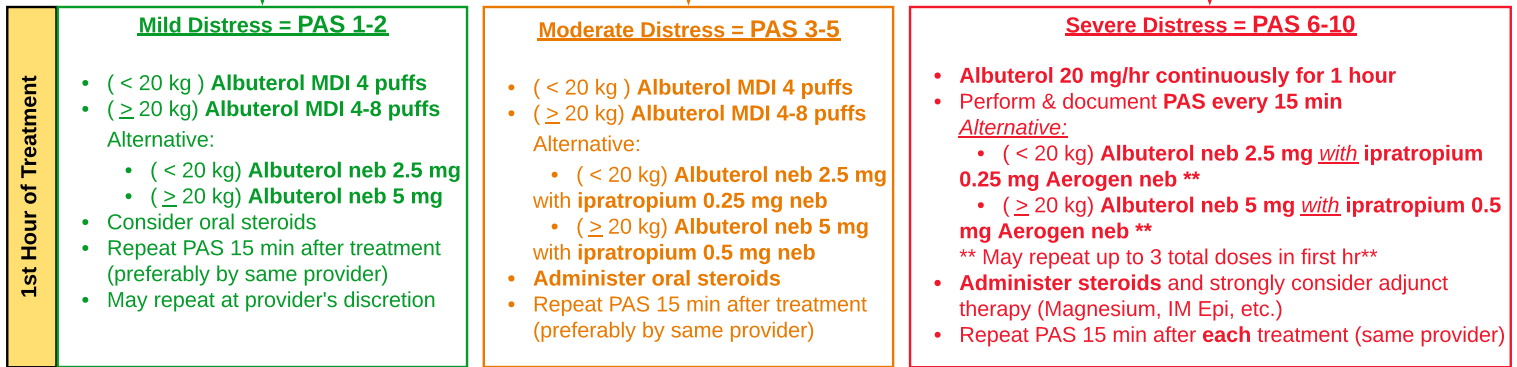
Inclusion Criteria: 2 yo or greater with hx of asthma or recurrent wheezing presenting with acute onset wheezing, cough, shortness of breath, hypoxemia, tachypnea, or other signs of increased work of breathing

Exclusion Criteria: < 2 yo, diagnosed with viral bronchiolitis or croup, history of Cystic Fibrosis, Chronic Lung Disease, Cardiac Disease, or known Airway Anomalies

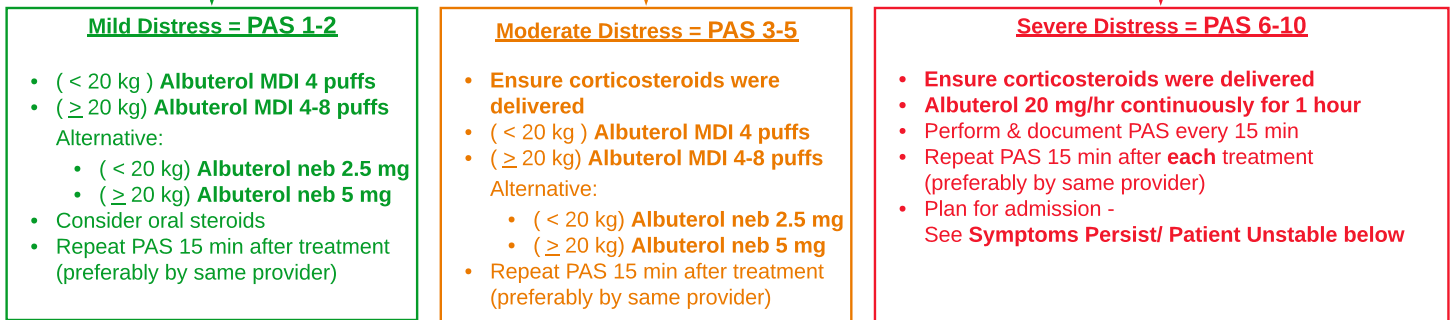
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1. Obtain oxygen saturation and perform vital signs
2. Identify risk factors: Previous intubation or ICU admission, 2+ admissions in past year, 3+ ED visits in past year, Prior ED/ admission in last month, >2 inhalers of albuterol per month, poor perception of symptoms

1. Apply continuous cardio-pulmonary monitors and pulse oximetry. Administer O2 as needed to keep sat goal > 92%
2. Nurse to calculate **Pediatric Asthma Score (PAS)** [SEE FOLLOWING PAGE FOR SCORING CRITERIA]
3. Notify provider of PAS and utilize Pediatric Asthma Order Set based on PAS
4. Administer Corticosteroids* PAS of 3 or greater (search **ED PED Asthma Wheezing Order Set --> Meds--> Asthma (UNC)**)
* Seek medical direction for scores 0-2



Reassess PAS 1 hour post initial treatment



Calculate PAS hourly. Plan disposition at 2 hrs of presentation. **DISPOSITION** decision no later than 4 hrs.

HOURLY REASSESSMENT

Symptoms Resolve / Patient Stable - DISCHARGE

- Contact PCP for follow up
- Education regarding proper medication administration
- Rx for albuterol Q4 hours for cough or worsening sx
- Consider Rx for oral corticosteroids
- Consider maintenance therapy (inhaled corticosteroids)
- Provide patient with Asthma Action Plan

Symptoms Persist / Patient Unstable - ADMISSION

- Admit
 - Patients who continue to require continuous albuterol treatment (CAT) with PAS of ≤ 6 can be admitted to **Intermediate Care Unit**
 - Patients who continue to require CAT with PAS of ≥ 7 will likely need **PICU** admission
- Continue bronchodilator therapy
- Perform PAS prior to transfer to floor/ PICU
- Consider adjunct therapy (Mg [50 - 75 mg/kg; max 2 g], Heliox)
- Pulmonary/ PICU consult at discretion of PED attending

1. PAS should be done prior to treatment and repeated 15 minutes afterward (preferably by the same provider)
2. Add elements into a single score
3. Document score in Epic flowsheet and/or other areas of clinical documentation

ELEMENT		POINTS		
		0	1	2
1. Respiratory Rate Obtain over 30 sec and multiply by 2	2 - 3 yrs	≤ 34	35-39	≥ 40
	4 - 5 yrs	≤ 30	31-35	≥ 36
	6 - 11 yrs	≤ 26	27-30	≥ 31
	≥ 12 yrs	≤ 23	24-27	≥ 28
2. Auscultation Auscultate anterior and posterior lung fields Assess air entry and presence of wheezing		No Wheezes	Expiratory Wheezes	Inspiratory & expiratory wheezes <u>OR</u> diminished breath sounds
3. Work of Breathing Assess for nasal flaring or retractions (suprasternal, intercostal, subcostal)		≤ 1 sign	2 signs	≥ 3 signs
4. Dyspnea * As developmentally appropriate. * If sleeping AND not showing physical signs of respiratory distress, score the patient zero for this category		Speaks full sentences, playful, <u>AND</u> takes PO well	Speaks partial sentences, short cry <u>OR</u> poor PO	Speaks short phrases, grunting, <u>OR</u> unable to take PO
5. O2 Requirement ** ** Do not take patients off supplemental oxygen to obtain score		$\geq 92\%$ on RA		Supplemental oxygen required to maintain saturations above 92%

Recommendations for Pediatric Patients with Severe Refractory Asthma in the ED

Indications / Definition:

PAS > 6 after completion of initial high dose albuterol treatment or worsening clinical symptoms after initial therapy, signs of impending respiratory failure (inability to speak, altered mental status, intercostal retractions, worsening fatigue)

Standard Therapies Initiated: High dose albuterol, ipratropium, steroids, and supplemental oxygen and IV fluids if indicated, monitoring

Maximum recommended dose of albuterol in 1 hour: 40 mg

Assess Resources and Call PICU for admission and/or consultation \implies Consider CXR \implies Proceed to Adjunct Therapies

Adjunct Therapies

Strongest Evidence of Benefit:

Magnesium sulfate (50 - 75 mg/kg/dose IV, as a single dose, max 2g -- administer over 20 min)

Systemic beta-agonists:

IM EpiPen (< 15 kg: 0.01 mg/kg/dose; 15 kg to < 30 kg: 0.15 mg [EpiPen Jr]; ≥ 30 kg= 0.3 mg [EpiPen])

IV terbutaline (2-10 mcg/kg IV bolus over 20 min, then drip 0.1 mcg/kg/min IV (starting dose))

Others Therapies to Consider:

Ketamine

Heliox (80:20 -- if no supplemental oxygen requirement -- currently only available in the PICU)

Non-invasive Positive Pressure Ventilation

Intubation -- Only indicated for Apnea or Impending Arrest