Asthma Management: Inpatient Clinical Practice Guideline

Inclusion: 0-21 year old, otherwise healthy patient with acute asthma exacerbation

Updated 1/31/24

Literature shows that Viral Panel Testing is **not** routinely indicated in the care of acute asthma exacerbation

*__Ensure asthma directed therapies are optimized prior to initiating or increasing HFNC__

0-21year old patient admitted with asthma symptoms (wheezing, cough, SOB, increased WOB)

→ Initiate Asthma Guideline Order Set

→ Systemic steroid in last 24 hours?
- No → Give Systemic Steroid → CRS Score and Assessment
- Yes → CRS Score and Assessment

CRS Score and Assessment
Oxygen for SpO2 ≤90%

Treat per *Clinical Respiratory Score (CRS)*

CRS 0-2
- Albuterol q4 hours

CRS 3-5
- Albuterol q2 hours x 2
- Reassess and rescore q2h
- Space treatments to q4h if two consecutive CRS 0-2.

CRS 6-7
- Continuous albuterol aerosol for 2 hours
- Notify physician
- Continuous pulse ox monitor and CR monitor

For CRS 0-5, preferred albuterol delivery method is Metered Dose Inhaler (MDI), if tolerated

CRS ≥8
- Continuous albuterol treatment for 2 hours
- Notify physician
- Continuous pulse ox monitor
- Transfer to PICU

CRS 6-7 → **Reassessment and Rescore**

CRS <6
- Reassessment in 1 hour
- Intermittent albuterol in 2 hours x 1, then return to treatment per CRS score

CRS 6-7
- Repeat 2 hour continuous albuterol treatment
- **Notify *Provider* prior to every continuous treatment**
- **HFNC only by provider order***
- ***HS ONLY: Begin transfer process at Attending Physician discretion***

CRS ≥8
- Transfer to PICU
- Continuous albuterol treatment for 2 hours

CRS 0-2, CRS 3-5, CRS <6, CRS 6-7 → **Reassessment**

→ **CRS≤2?**
- NO → Continue to treat per CRS → CRS Score and Assessment
- Yes → **Discharge Criteria met[2]?**
  - NO → Continue to treat per CRS
  - Yes → **Discharge[3]**

Definitions

CRS: Clinical Respiratory Score
HFNC: High Flow Nasal Cannula

DEVELOPED THROUGH THE EFFORTS OF CHILDREN'S HEALTHCARE OF ATLANTA AND PHYSICIANS ON CHILDREN'S MEDICAL STAFF IN THE INTEREST OF ADVANCING PEDIATRIC HEALTHCARE. THIS IS A GENERAL GUIDELINE AND DOES NOT REPRESENT A PROFESSIONAL CARE STANDARD GOVERNING PROVIDERS' OBLIGATION TO PATIENTS. ULTIMATELY THE PATIENT'S PHYSICIAN MUST DETERMINE THE MOST APPROPRIATE CARE. © 2020 Children's Healthcare of Atlanta, Inc.

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General Orders/ Education

- Measure Height
- Vital Signs every 4 hours and PRN
- Initiate Asthma Education
  - Asthma Class
  - Asthma Basics
  - MDI with Spacer
- Encourage Hydration; Consider IVF if CRS >6
- Consider contact droplet isolation if febrile or upper respiratory symptoms

Respiratory

- Oxygen via NC/mask (if mask, warm & humidify) to keep O_2 sats $\geq$ 90%
- Attempt to wean O_2 if sats > 90% on current settings
- Continuous pulse oximetry and CR monitor when on continuous aerosol
- Frequent reassessment per care team member while on continuous treatment
- Intermittent pulse ox check before each treatment until O_2 sat > 90% for $\geq$ to 4 hours, then discontinue pulse oximetry.
- DO NOT USE CONTINUOUS PULSE OXIMETER IF PATIENT IS RECEIVING INTERMITTENT TREATMENTS
- **Notify the physician when the patient is on room air and treatments are every 4 hours**

Medication

Medication	Dose	Max Dose	Comment
RESPIRATORY			
Albuterol MDI 90mcg/puff	<15 kg: 4 puffs with spacer, frequency per CRS ≥ 15 kg: 4- 8 puffs with spacer, frequency per CRS, dose based on clinical assessment	8 puffs	Consider decreasing dose as able
Albuterol Intermittent Treatment	<15 kg: 2.5 mg via nebulizer, frequency per CRS ≥15 kg: 2.5- 5 mg via nebulizer, frequency per CRS, dose based on clinical assessment	5mg	
Albuterol Continuous Treatment	<15 kg: 7.5 mg/hr via nebulizer ≥15 kg: 15 mg/hr via nebulizer	15mg	
Ipratropium Bromide	0.25-0.5mg per nebulizer TID	0.5mg	If persistent cough present; maximum effect seen in first 24 hrs
Inhaled Corticosteroids			Continue home medication if previously prescribed
STEROIDS			
Prednisone/ Prednisolone PO	2mg/kg PO daily OR 1mg/kg PO BID for 5 days	80mg/day (40mg/dose)	
Dexamethasone PO	PO (tablets) q24 hours x 2 doses <12kg: 4 mg 12 to <15kg: 8 mg 15 to <25kg: 12 mg ≥25kg: 16mg	16mg/dose	Dosing based on 0.6mg/kg/dose
Methylprednisolone	1mg/kg/dose IV q12 hours	40mg/dose	If not tolerating PO or vomiting
Dexamethasone IM	0.6mg/kg IM q24 hours x 2 doses	16mg/dose	If need parenteral steroid and no IV access
Adjunct Therapy			
Albuterol Intermittent with PEP	<15 kg: 2.5mg of albuterol and 5 cm H2O 15-18 kg: 5mg of albuterol and 8 cm H2O 18-25 kg: 5mg of albuterol and 10 cm H2O >25 kg: 5mg of albuterol and 12 cm H2O		Consider if diminished breath sounds, chronic hypoxemia, persistent crackles, or atelectasis
Magnesium Sulfate	50mg/kg IV over 20 min	2 grams/ dose	If more than 2 doses, check Mg level; if signs and symptoms of dehydration give IVF prior to administration
High Flow Nasal Cannula (HFNC)			See system HFNC Best Practice Recommendation, and notify attending Physician
Non-invasive positive pressure (NPPV)			

PICU Criteria

Consider *PICU transfer if any of below:*

- *Acute Respiratory Failure*
- *CRS ≥8*
- *FiO2 ≥50%*
- *PCO_2 >55*
- *Initiation of NPPV/HFNC (refer to HFNC BPR)*

[2]Discharge Criteria

- CRS $\leq$ 2
- Room Air for $\geq$ 4 hours
- Treatments Q4 hours or less often
- Asthma Education Complete
- Parents able to follow-up with PCP within 2-3 days or access emergency care if needed

[3]Discharge Instructions

- Asthma action plan
- Asthma basics
- MDI with spacer education
- Follow-up with PCP in 2-3 days
- Consider daily controller medication
- Administer influenza vaccine, unless contraindicated, refused, or already given

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