Asthma Management: Inpatient Clinical Practice Guideline
Inclusion: 0-21 year old, otherwise healthy patient with acute asthma exacerbation

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

Initiate Asthma Guideline Order Set

Give Systemic Steroid
No
Yes

Systemic steroid in last 24 hours?

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

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

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

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

Definitions
CRS: Clinical Respiratory Score
HFNC: High Flow Nasal Cannula

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

Reassessment

NO

CRS ≥ 2?

NO

Discharge Criteria met?

Yes

Discharge

NO

NO

Yes

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.
**Asthma Management: Inpatient Clinical Practice Guideline**

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

---

### 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 $O_2$ sat > 90%
- Attempt to wean $O_2$ if sat > 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 ≥ 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

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

### 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)

### Discharge Criteria

- **Discharge Criteria:**
  - CRS ≤2
  - Room Air for ≥ 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

### Discharge Instructions

- **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

---

*[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.]*