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

- Initiate Asthma Guideline Order Set

- Give Systemic Steroid if needed
- Systemic steroid in last 24 hours?
- CRS Score and Assessment
  - Oxygen for SpO2 < 90%

- CRS 0:
  - Albuterol q6 hours

- CRS 1-2:
  - Albuterol q4 hours

- CRS 3:
  - Albuterol q3 hours x2, then every 4 hours

- CRS 4-5:
  - Albuterol q3 hours

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

- CRS ≥8:
  - Continuous albuterol Aerosol for 2 hours
  - Notify physician
  - Continuous pulse ox monitor
  - Off guideline
  - Consider transfer to PICU

- 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:
    - Reload for another 2 hour continuous albuterol treatment
    - May repeat Q2H continuous treatment as needed
    - Notify Provider prior to every continuous treatment
    - Notify Attending Physician prior to initiation of HFNC
    - HS ONLY: Begin transfer process at Attending Physician discretion
  - CRS ≥8:
    - Notify PICU Physician of patient status for possible transfer

- Reassessment
  - CRS ≤ 2?
    - Yes: Discharge Criteria met?
      - Yes: Discharge
      - NO: Continue per Asthma CRS Protocol
    - NO: Continue per Asthma CRS Protocol

Definitions:
- CRS: Clinical Respiratory Score
- HFNC: High Flow Nasal Cannula
- MDI: Metered Dose Inhaler
- NPPV: Non-invasive Positive Pressure (BiPAP/CPAP)
- PEP: Positive Expiratory Pressure

Literature shows that Viral Panel Testing is not routinely indicated in the care of 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

### 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>
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<tr>
<td>Albuterol MDI</td>
<td>&lt;15 kg: 4 puffs with spacer per CRS score</td>
<td>8 puffs</td>
<td>Consider decreasing dose as able; Concern for VQ mismatch with higher dosing</td>
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<tr>
<td></td>
<td>≥15 kg: 8 puffs with spacer per CRS score</td>
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<td></td>
</tr>
<tr>
<td>Albuterol Intermittent Treatment</td>
<td>&lt;15 kg: 2.5 mg via nebulizer per CRS score</td>
<td>5mg</td>
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<tr>
<td></td>
<td>≥15 kg: 5 mg via nebulizer per CRS score</td>
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<td></td>
</tr>
<tr>
<td>Albuterol Continuous Treatment</td>
<td>&lt;15 kg: 7.5 mg/hr via nebulizer per CRS score</td>
<td>15mg</td>
<td></td>
</tr>
<tr>
<td></td>
<td>≥15 kg: 15 mg/hr via nebulizer per CRS score</td>
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<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>I nhaled Corticosteroids</td>
<td></td>
<td></td>
<td>Continue home medication if previously prescribed</td>
</tr>
<tr>
<td><strong>STEROIDS</strong></td>
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<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>
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<tr>
<td></td>
<td>&lt;12kg: 4 mg</td>
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<tr>
<td></td>
<td>12 to &lt;15kg: 8 mg</td>
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</tr>
<tr>
<td></td>
<td>15 to &lt;25kg: 12 mg</td>
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</tr>
<tr>
<td></td>
<td>≥25kg: 16mg</td>
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</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 no IV access</td>
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<tr>
<td><strong>Adjunct Therapy</strong></td>
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</tr>
<tr>
<td>Albuterol Intermittent with PEP</td>
<td>&lt;15 kg: 2.5mg of albuterol and 5 cm H2O</td>
<td>Consider if diminished breath sounds, chronic hypoxemia, persistent crackles, or atelectasis</td>
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<tr>
<td></td>
<td>15-18 kg: 5mg of albuterol and 8 cm H2O</td>
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<td></td>
<td>18-25 kg: 5mg of albuterol and 10 cm H2O</td>
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<tr>
<td></td>
<td>&gt;25kg: 5mg of albuterol and 12 cm H2O</td>
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<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 campus specific HFNC guidelines (SB, ECH/HS) and notify attending Physician</td>
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<tr>
<td>Non-invasive positive pressure (NPPV)</td>
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</tbody>
</table>

### PICU Criteria
Consider PICU transfer if any of below:
- Acute Respiratory Failure
- CRS >8
- FiO2 ≥50%
- PCO2 >55
- Initiation of NPPV/HFNC (refer to HFNC guidelines)

### 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
- 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.**