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

Initiate Asthma Guideline Order Set

Give Systemic Steroid
- No
  - Systemic steroid in last 24 hours?
    - Yes
      - CRS Score and Assessment
        - Oxygen for SpO2 < 90%

Treat per Asthma CRS Protocol

- **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

For CRS 0-5, preferred albuterol delivery method is metered dose inhaler if tolerated

Definitions

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

(CRHC) 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 Presents with Asthma Symptoms, Otherwise Healthy, Non-ICU Patient in Acute Asthma Exacerbation

General Orders/ Education
- Measure Height
- Vital Signs every 4 hours and PRN
- Initiate Asthma Education
  o Asthma Class
  o Asthma Basics
- 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 O₂ sats ≥ 90%
- Attempt to wean O₂ if sats ≥ 90%
- 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 O₂ sat ≥ 90% for ≥ 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>RENSORY</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Albuterol MDI</td>
<td>&lt;15 kg: 4 puffs with spacer per CRS score ≥ 15 kg: 8 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>
</tr>
<tr>
<td></td>
<td>Albuterol Intermittent Treatment</td>
<td>&lt;15 kg: 2.5 mg via nebulizer per CRS score ≥15 kg: 5 mg via nebulizer per CRS score</td>
<td>5mg</td>
</tr>
<tr>
<td></td>
<td>Albuterol Continuous Treatment</td>
<td>&lt;15 kg: 7.5 mg/hr via nebulizer per CRS score ≥15 kg: 15 mg/hr via nebulizer per CRS score</td>
<td>15mg</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><strong>STERiods</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></td>
<td>Dexamethasone PO</td>
<td>PO (tablets) q24 hours x 2 doses &lt;12kg: 4 mg 12 to &lt;15kg: 8 mg 15 to &lt;25kg: 12 mg ≥25kg: 16mg</td>
<td>16mg/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 no IV access</td>
</tr>
</tbody>
</table>

Adjunct Therapy

<table>
<thead>
<tr>
<th>Medication</th>
<th>Dose</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<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>
</tr>
<tr>
<td></td>
<td>Magnesium Sulfate</td>
<td>50mg/kg IV over 20 min</td>
</tr>
<tr>
<td></td>
<td>High Flow Nasal Cannula (HFNC)</td>
<td>See campus specific HFNC guidelines (SR, ECH/HS) and notify attending Physician</td>
</tr>
</tbody>
</table>

PICU Criteria

Consider PICU transfer if any of below:
- Acute Respiratory Failure
- CRS ≥8
- FiO₂ ≥50%
- PCO₂ >85
- 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.