Asthma Management: Inpatient Clinical Practice Guideline
Inclusion: 0-21 year old Presents with Asthma Symptoms, Otherwise Healthy, Non-ICU Patient in 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

If Systemic steroid in last 24 hours?

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 and 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 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
- 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
- Notify PICU Physician of patient status for possible transfer

CRS 6-7
- HS ONLY: Begin transfer process at Attending Physician discretion

CRS ≥8
- Notify PICU Physician of patient status for possible transfer

Reassessment

CRS ≥2?

Continue per Asthma CRS Protocol

Discharge Criteria met?

Discharge

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.

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’ OBIGATION TO PATIENTS. ULTIMATELY THE PATIENT’S PHYSICIAN MUST DETERMINE THE MOST APPROPRIATE CARE. © 2020 Children’s Healthcare of Atlanta, Inc.
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 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 ≥ 2 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>RESPIRATORY</td>
<td></td>
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<tr>
<td>Albuterol MDI 90mcg/puff</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>Inhaled Corticosteroids</td>
<td></td>
<td></td>
<td>Continue home medication if previously prescribed</td>
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<tr>
<td>STEROIDS</td>
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</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>
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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>
<td></td>
<td>15 to &lt;25kg: 12 mg</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>≥25kg: 16mg</td>
<td></td>
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<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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</tbody>
</table>

Adjunct Therapy

<table>
<thead>
<tr>
<th>Medication</th>
<th>Dose</th>
<th>Max Dose</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Albuterol Intermittent with PEP</td>
<td>&lt;15 kg: 2.5mg of albuterol and 5 cm H2O</td>
<td></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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<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>
</tr>
</tbody>
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PICU Criteria

Consider PICU transfer if any of below:
- Acute Respiratory Failure
- CRS ≥8
- FiO₂ ≥50%
- PO₂ ≤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