

# ASTHMA PATHWAY

## EMERGENCY DEPARTMENT



Phase 1  
60 Minutes

### Assessment History

- Potential triggers
- Time of onset
- Comorbidities: heart disease, airway problems other than asthma, adrenal problems, hypertension, diabetes mellitus
- Steroids in past 24 hours
- History of intubation, ED visits, hospitalizations

### Identify Asthma Exacerbation

- Child with asthma with cough, wheeze or respiratory distress
- Vital Signs
  - SpO<sub>2</sub><90%, place on O<sub>2</sub>
  - Weight (kg)
  - Assign RS
  - Order ED asthma order set
  - Notify RT
  - Notify provider if severe

### Possible Diagnostic Testing

- \*Routine testing NOT recommended
- Consider CXR if patient has one of the three F's:
    - Focal findings, foreign body suspected, failure to respond
  - RVP if consistent with influenza-like illness or atypical pneumonia
  - CBC
  - CBG
  - BMP

### Moderate-Severe RS: 5 or above

- Place on CR monitors
- Attempt oral dexamethasone 0.6mg/kg PO once (max 16mg/day). If not tolerated, give IM dexamethasone 0.6mg/kg if no IV access OR IV methylprednisolone 2mg/kg/dose (max 60mg/day) for first dose then subsequent days dosing is 1mg/kg/dose BID
- Utilize Aerogen device unless not available, tracheostomy present, or limited by degree of hypoxemia.
  - Duoneb via Aerogen device
    - <10kg = 1 ampule (3mL)
      - 2.5mg Albuterol + 0.5mg Ipratropium
    - >10kg = 2 ampules (6mL)
      - 5mg Albuterol + 1mg Ipratropium
  - If NOT able to use Aerogen device
    - Start weight-based high-dose combination nebulizer treatment:
 

Albuterol Nebulized	+	Ipratropium Bromide
2.5mg x3 = 7.5mg (for <10kg)		500mcg (for <10)
5mg x3 = 15mg (for >10kg)		1000mcg (for >10kg)

### Mild RS: 2-4

- Albuterol
    - 4 puffs for <10kg
    - 8 puffs for >10kg
  - Consider dexamethasone 0.6mg/kg PO once (max 16mg/day)
- OR**
- Prednisone/prednisolone 2mg/kg PO once (max 60mg/day)

- RT reassign RS and provider to reassess patient at the end of treatment.
- Initiate asthma education.

Phase 2  
120 Minutes

### If Moderate RS: 5-8

- If Aerogen device used:
  - Albuterol via Aerogen device
    - 2.5mg for < 10kg
    - 5mg for >10kg
- If Aerogen device NOT used:
  - Start albuterol MDI Q1-2H

### If Mild RS: 2-4

- Consider albuterol MDI in 2H

RT reassign RS, provider to reassess within 2 hours of treatment

### If Severe RS: 8 or above

- If Aerogen device used:
  - Albuterol via Aerogen device
    - 5mg for <10kg
    - 10mg for >10kg
- If Aerogen device NOT used:
  - Continuous Albuterol for 1 hour (0.5 - 1mg/kg/hr)
  - Place PIV
- Start IVF; normal saline bolus 20mL/kg (max 1,000mL) if giving magnesium sulfate
- Consider magnesium sulfate 50mg/kg IV (max 2g)
- Consider terbutaline 10mcg/kg (max 250mcg)
- Consider epinephrine 0.01mg/kg (max 0.5mg/dose)
- Consider further diagnostic testing
- Provider to reassess hourly while on continuous albuterol

Is patient worsening or RS >8?

Provider to reassess within 1 hour of nebulizer completion. Is hourly reassessment ≥ 9?

Does patient need Q2-4H treatments or SpO<sub>2</sub> remains <90%?

Admit on continuous albuterol and IVF (unless qualifies for PICU)

Place in observation (See inpatient asthma pathway)

### Discharge

- Consider scheduling albuterol Q4h for 24-48H and repeating steroid dosing (refer to table).
- Consider referral based on "Abbreviated EPR-4 and Pulmonology Referral Guidelines"
- Recommend follow-up within 3-7 days with PCP

### Indications for Considering PICU

- Worsening work of breathing after combined nebulizer
- FIO<sub>2</sub>>60% of need for positive pressure
- No response to magnesium sulfate
- Need for terbutaline
- Previous history of intubation/PICU
- Declining mental status
- Being managed with continuous albuterol >1mg/kg/hr or >20mg/hr

Phase 3  
Disposition



**Disclaimer:** Pathways are intended as a guide for practitioners and do not indicate an exclusive course of treatment nor serve as a standard of medical care. These pathways should be adapted by medical providers, when indicated, based on their professional judgement and taking into account individual patient and family circumstances.

# ASTHMA PATHWAY

## Dosing Guidelines for Medications



Severity Level and Medication	<10kg	>10kg			
<b>Mild</b> Albuterol  Dexamethasone <b>OR convert to</b> Prednisone/Prednisolone	4 puffs q4h + 2 puffs q4h PRN  *Reduce patient to 2-4 puffs prior to discharge  0.6mg/kg PO daily x1 (max 16mg/dose), optional 2nd dose in 24-48 hours  2mg/kg once (max 60mg) follow ed by 1mg/kg BID (max 60mg/day) for 3-5 days	8 puffs q4h + 4 puffs q4h PRN  0.6mg/kg PO daily x1 (max 16mg/dose), optional 2nd dose in 24-48 hours  2mg/kg once (max 60mg) follow ed by 1mg/kg BID (max 60mg/day) for 3-5 days			
<b>Moderate</b> Albuterol  Dexamethasone <b>OR convert to</b> Prednisone/Prednisolone	4 puffs q2h + 2 puffs q1h PRN  0.6mg/kg PO daily x1 (max 16mg/dose), optional 2nd dose in 24-48 hours  2mg/kg once (max 60mg) follow ed by 1mg/kg BID (max 60mg/day) for 3-5 days	8 puffs q2h + 4 puffs q1h PRN  0.6mg/kg PO daily x1 (max 16mg/dose), optional 2nd dose in 24-48 hours  2mg/kg once (max 60mg) follow ed by 1mg/kg BID (max 60mg/day) for 3-5 days			
<b>Severe</b> Continuous Albuterol  Dexamethasone <b>OR convert to</b> Prednisone/Prednisolone	0.5 - 1mg/kg/hr (Med-Surg max 20mg/hr) *Round to nearest 5mg/hr  0.6mg/kg PO daily x1 (max 16mg/dose), optional 2nd dose in 24-48 hours  2mg/kg once (max 60mg) follow ed by 1mg/kg BID (max 60mg/day) for 3-5 days				
<b>Initial Treatment ED only</b> Combination Nebulizer: Albuterol + Ipratropium Bromide	2.5mg x 3 = 7.5mg + 500mcg	5mg x 3 = 15mg + 1000mcg			
<b>Escalation Therapies</b> Normal Saline Bolus + Magnesium Sulfate  Terbutaline (ED only)  Epinephrine (ED only)  Methylprednisolone  Ipratropium Bromide (IP only)	20mL/kg IV (max 1L)  50mg/kg IV (max 2g/dose)  10mcg/kg subcutaneous (max 250mcg)  0.01mg/kg IM (max 0.5mg/dose)  1mg/kg q6h IV (max 60mg/dose)  250mcg (2.5mL) neb q6h (for 24 hours)   500mcg (5mL) neb q6h (for 24 hours)				
<b>Asthma Action Plan</b> Albuterol	<table border="0" style="width: 100%;"> <tr> <td style="text-align: center; vertical-align: top;">                     2 puffs q4h PRN                       4 puffs q20min PRN up to 3                 </td> <td style="text-align: center; vertical-align: middle;"> <u>Yellow Zone</u>   <u>Red Zone</u> </td> <td style="text-align: center; vertical-align: top;">                     4 puffs q4h PRN                       8 puffs q20min PRN up to 3                 </td> </tr> </table>		2 puffs q4h PRN  4 puffs q20min PRN up to 3	<u>Yellow Zone</u>   <u>Red Zone</u>	4 puffs q4h PRN  8 puffs q20min PRN up to 3
2 puffs q4h PRN  4 puffs q20min PRN up to 3	<u>Yellow Zone</u>   <u>Red Zone</u>	4 puffs q4h PRN  8 puffs q20min PRN up to 3			



**Disclaimer:** Pathways are intended as a guide for practitioners and do not indicate an exclusive course of treatment nor serve as a standard of medical care. These pathways should be adapted by medical providers, when indicated, based on their professional judgement and taking into account individual patient and family circumstances.