Asthma Exacerbation: Emergency Department

Children's Mercy KANSAS CITY | Evidence Based Practice

Pt > 2 years of age in the Emergency Department with signs and symptoms of asthma exacerbation

Is there impending/actual respiratory failure?

Yes

In addition to severe therapies below, consider:
- **Epinephrine:**
  For Adele Hall ED-
  1 mg/mL solution, 0.01 mg/kg IM
  For CM Kansas ED-
  7.5 to < 25 kg: 0.15 mg/0.3mL (1:2000) IM (EpiPen Jr)
  ≥ 25 kg: 0.3mg/0.3mL (1:1000) IM (EpiPen)
- **Continuous Positive Airway Pressure**
- **Non-invasive positive airway pressure or endotracheal intubation**

No

Is the exacerbation severe, moderate, or mild?

Severe

- **Oxygen** to achieve $SpO_2 \geq 90\%$
- **Place IV**
- **Start NS fluid bolus 20 mL/kg**
- **Methylprednisolone IV**
  2 mg/kg/day q24 OR divided q12
  Max: 60 mg/day
- Continuous **albuterol**** (nebulized)
  < 20 kg: 10 mg/hr
  ≥ 20 kg: 15 mg/hr

with

- **Ipratropium bromide** (nebulized)
  1500 mcg x1 with continuous **albuterol****

If not already administered:

- **Magnesium sulfate IV**
  50 mg/kg (Max: 2 grams)

Review indications for transfer to intensive care

Moderate

- **Oxygen** to achieve $SpO_2 \geq 90\%$
- **Dexamethasone**
  0.6 mg/kg PO x1 dose (Max: 12 mg)
  (2nd dose on day 2 may be considered)
  OR
  Prednisolone/Prednisone PO
  2 mg/kg/day x3-5 days (Max: 60 mg/day)
- **Albuterol** (MDI with spacer)
  < 20 kg: 4 puffs
  ≥ 20 kg: 8 puffs
  OR
  Continuous albuterol** (nebulized)
  < 20 kg: 10 mg/hr
  ≥ 20 kg: 15 mg/hr

If not already administered, consider:

- **Magnesium sulfate IV**
  50 mg/kg (Max: 2 grams)
- **Ipratropium bromide** (nebulized)
  1500 mcg x1 with continuous **albuterol****

Mild

- **Oxygen** to achieve $SpO_2 \geq 90\%$
- **Systemic steroid if ≥ 2 albuterol treatments are required:**
  Dexamethasone
  0.6 mg/kg PO x1 dose (Max: 12 mg)
  OR
  Prednisolone/Prednisone PO
  2 mg/kg/day x3-5 days (Max: 60 mg/day)
- **Albuterol** (MDI with spacer)
  < 20 kg: 4 puffs
  ≥ 20 kg: 8 puffs

Assess response to treatment

Does the pt meet discharge criteria?

Yes → Discharge with home asthma care and PCP follow-up

No

Continue care as above;
If not already administered, recommend:
- Corticosteroid (oral, IV, or IM)
- Ipratropium bromide (nebulized)
- Magnesium sulfate IV

Reassess response to treatment

Does the pt meet discharge criteria?

Yes → Discharge with home asthma care and PCP follow-up

No

- Admit to Gen Peds or PICU
- Continue ED care and reassessments until transfer
- > 4 hrs continuous albuterol should prompt discussion with Gen Peds team and/or PICU about appropriate unit of admission
- Review indications for transfer to intensive care

Is intensive care required?

No → Inpatient algorithm

Yes → Admit to intensive care

Albuterol Dosing:**
- Continuous albuterol alone: 0.083% (2.5mg/3mL)
- If combined with ipratropium 0.5% solution (0.5 mL = 2.5 mg)

Asthma Exacerbation Algorithms:
- Asthma Care Continuum
- Ambulatory
- Urgent Care
- Inpatient

QR Colde for mobile access

Contact: EvidenceBasedPractice @cmh.edu

Link to synopsis and references

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This clinical pathway is meant as a guide for physicians and healthcare providers. It does not establish a standard of care, and is not a substitute for medical judgment which should be applied based upon the individual circumstances and clinical condition of the patient. Printing of Clinical Pathways is not recommended as these documents are updated regularly . Copyright © The Children's Mercy Hospital 2023. All rights reserved.