Tips & tricks to Pediatric Respiratory Distress

EDAP by the Sea 9.7.16

Joelle Donofrio, DO, FAAP
RCHSD EMS Medical Director
Pediatric Emergency Medicine Assistant Professor UCSD

Parents consent (and child assent if possible) obtained in all videos.
No children were harmed in the making of these videos.

Kids = 13% of all EMS runs

Basics in Peds Airway

Step 1: Stabilize
Step 2: ID problem
Step 3: Solve/Improve Problem

Tips and tricks for the pediatric airway

Pediatric Assessment Triangle
- Only need your eyes -

<table>
<thead>
<tr>
<th>Age</th>
<th>Weight (kg)</th>
<th>Respiration (min-max)</th>
<th>Heart rate (min-max)</th>
<th>Systolic (min-max)</th>
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<tbody>
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<td>Newborn</td>
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Life Threatening Event

ABC’s

- Kids -
  * Breathe faster
  * Higher heart rates
  * Lower blood pressure

Airway Sounds
Airway Positioning
Instructions

- Tone
- Interactive
- Consolable
- Look/Grasp
- Speech/Cry

Breathing

Circulation

Pediatric Assessment Triangle

- Pallor
- Mottling
- Cyanosis
Tips and tricks for the pediatric airway

Step 1: Stabilize
Step 2: ID problem
Step 3: Solve/Improve Problem

Anatomy Lesson: upper or lower

EMS Solution:
Sniffing position

Problem:
Big head = kinked airway

EMS Solution:
Clear the Airway

Problem:
Obligate nose breathers
Problem:
Big tongue = Airway Obstruction

Solution 1:
Jaw Thrust

Problem:
Small upper airways = inc resistance

Problem Increased:
Narrow Subglottic region
**EMS Solution 1:**
Remove secretions

**EMS Solution 2:**
Inhaled epinephrine

**EMS Solution 3:**
SC/IM epinephrine

**ED Solution:**
Steroids

**Problem:**
Small lower airways = inc resistance

**EMS Solution 1:**
Albuterol (Beta agonist)
EMS Solution 2:
Ipratropium (anticholinergic)

- Wheezing, Retractions
- Asthmatics, Not bronchiolitis
- 0.25-0.5 mg nebulized

EMS Solution 3:
SC/IM epinephrine

- Anaphylaxis or Impending resp failure
- 0.01 mg/kg of 1:1000 IM

ED Solution 4:
Steroids

- Dex 0.6 mg/kg (max 10mg) PO/IM
- Prednisolone 1 mg/kg PO
- Methylprednisone 2 mg/kg IV

ED Solution 5:
Magnesium Sulfate

- Severe asthma
- 25-75 mg/kg IV over 20 min

ED Solution 6:
Positive Pressure

- Nasal CPAP
- High flow
- BiPAP
- Etc...
- terbutaline, aminophylline, lorazepam, ketamine, etc.

Problem:
Respiratory Failure
Solution: Bag Mask Ventilation

Now let's go save some kids

Case 1
10 year old asthmatic male with SOB.

Problem: Lower airway dz

More info please

S/S- Wheezing, SOB
Allergies- Peanuts
Meds- Albuterol, epipen
Pertinent Med hx- H/o asthma, allergic rhinitis. Had appendix removed at age 6y
Last meal- cookies 10 minutes ago
Events leading up to event- Started having cough and wheeze. Family tried albuterol x2 with only minimal improvement.

Exam
A- Airway patent
B- Wheezing bilat
C- Strong pulses, CR < 2sec
D- AVPU: Alert
E- ...

Dx?

Anaphylaxis
Epi IM = #1 for peds

**Adequate Perfusion**

1. Epi IM
2. Vasoressin
3. Dopamine
4. Adenosine
5. Epinephrine

**Poor Perfusion**

6. Epi IM
7. Dopamine
8. Adenosine
9. Epinephrine
10. Establish Base Contact (ALL)
11. If symptoms persist: Epinephrine

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**Patient presents with possible anaphylaxis**

- Initial assessment:
  - Does clinical judgment support anaphylaxis? Consider N/A/PAAN criteria

- Immediate interventions:
  - Assess airway, breathing, circulation
  - HV access, oxygen, monitoring
  - Supine position
  - IM Epinephrine (anterior-lateral thigh)

- Other interventions (based on initial response):
  - Rapid fluid infusion (IV, IO)
  - Repeat IM epinephrine
  - IV epinephrine infusion
  - Bronchodilators
  - Steroids
  - H1/H2 antihistamines
  - Glucagon
  - Establish airway

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**Assessment 1st Protocol 2nd**

- Stridor = Epi IM NOT on protocol!
- Wheeze = Epi IM after base contact
- Poor perfusion = Epi not on protocol!

**Dx Anaphylaxis = Life saving**
If wheezing/stridor

Think of exposure

check skin, BP/perfusion, and GI

More info please

S/S- Barky cough, runny nose, fever, stridor
Allergies- PCN (rash)
Meds- Ranitidine
Pertinent Med hx- Developmentally delayed, G-tube dependent, h/o laryngomalacia and reflux
Last meal- pedialyte 1 hour ago, G-tube feed 3 hours ago
Events leading up to event- Recent cold, bark cough x 2 days, fever x 1 day, got worse at 10pm tonight

Exam
A- Airway patent but with stridor
B- Insp & exp stridor, retracting
C- Strong pulses, CR < 2sec
D- AVPU: lethargic
E- No rash

Dx? Resp failure with stridor

Case 2

12 month old with stridor

Problem: Upper airway dz

PAT: Respiratory Failure

Croup

Swollen Epiglottis

Croup

Inside the Trachea

Swollen Tissue

Narrow Airway

Trachea (Windpipe)

Healthy

Croup
**Historical Croup**

**Bacterial Croup = Bacterial tracheitis**

**Viral Croup = modern day croup**

- Ill appearing
- Non-responsive to racemic epi & steroids

**Racemic epi, steroids & antibiotics & IV hydration**

+/- heliox & intubation

- Responds to racemic epi & steroids

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**Case 3**

**2 Month Old ALTE**

**Problem:** Lower/upper?

**Problem:** Lower airway dz

**Exam**

- Airway patent
- Mild retractions
- Strong pulses, CR < 2 sec
- AVPU: Smiling
- No rash

**Dx?** Bronchiolitis

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**Bronchiolitis**

**Treatment**

- Suction
- Oxygen if < 90%
- Nebulized 3% saline

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**What type of breathing is this?**

**Kussmaul from DKA**

**hint:** Not all respiratory distress is a respiratory problem
Questions, Concerns, Comments, Jokes?

Remember
1. Stabilize
2. ID problem
3. Solve problem
*** Don't forget to Expose***

Thank You!

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