RSS SESSION SIGN-IN SHEET

Pediatric Care Echo Series
Respiratory Emergencies in Birth to Year 2: The Dreaded Flu Season
December 21, 2017
Ben Eithun, MSN, CRNP, RN,. CPNP-AC, CCRN and **Mary Jean Erschen**, RN

RSS Global Objective(s): Assess pediatric trauma given the news skills and guidelines determined to be safe for children. Identify proper tool and standardized measurement practices to improve diagnosis and treatment of pediatric patients.

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Respiratory Emergencies In Birth to Year 2: The Dreaded Flu Season

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Introductions

- Ben Eithun, MSN, CRNP, RN, CPNP-AC, CCRN, TCRN

Pediatric Trauma Program Manager
Pediatric Level 1 Trauma Center
American Family Children's Hospital
Beithun@uwhealth.org
608-212-9866

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Disclosures

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Objectives

- To understand pediatric anatomic and physiologic factors relevant to pediatric airways
- To describe the treatment of pediatric respiratory disease.

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Classic signs of respiratory distress

- Increased respiratory rate
- Nasal flaring
- Tracheal tugging
- Head bobbing
- Retractions (several types)

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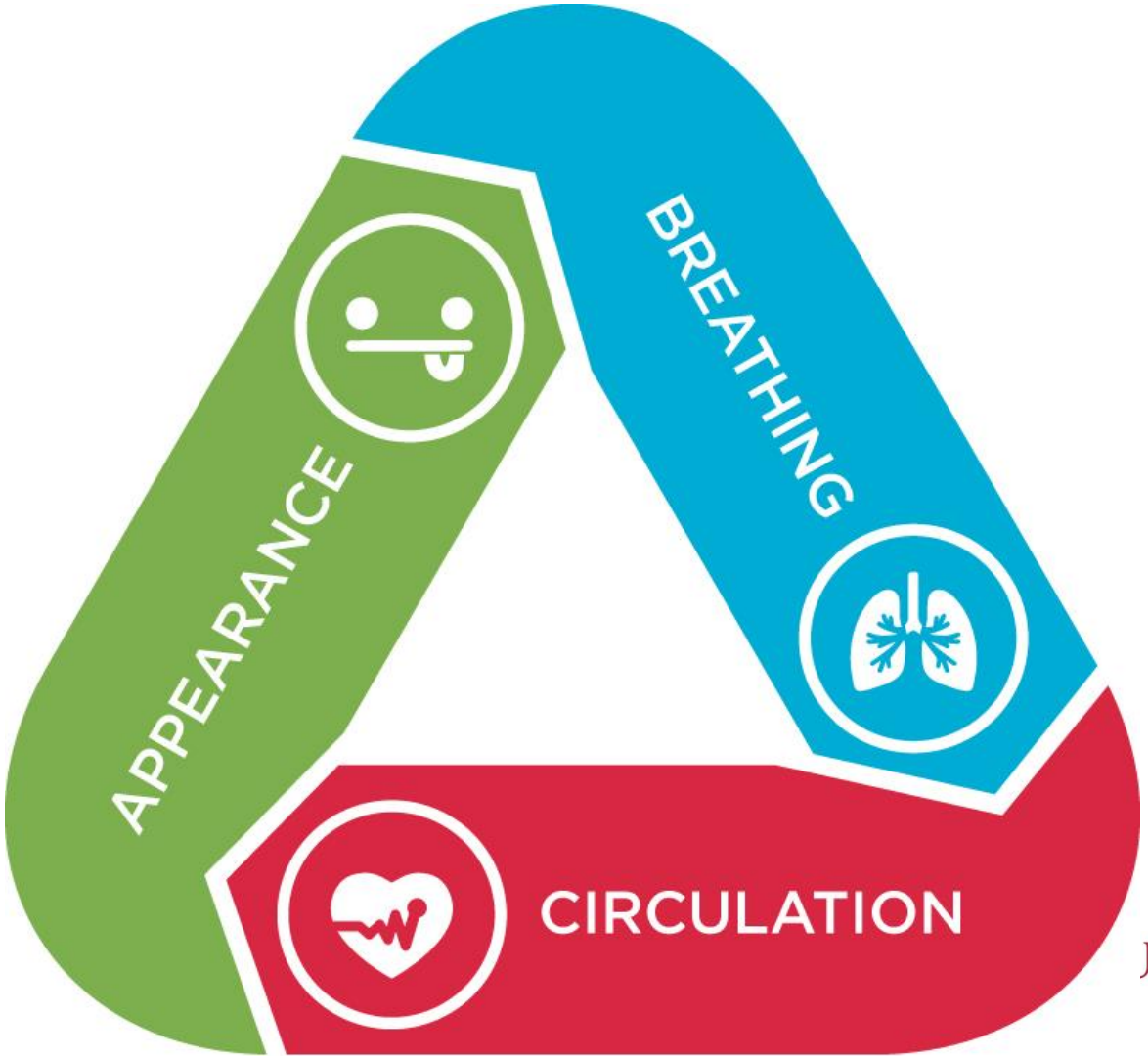

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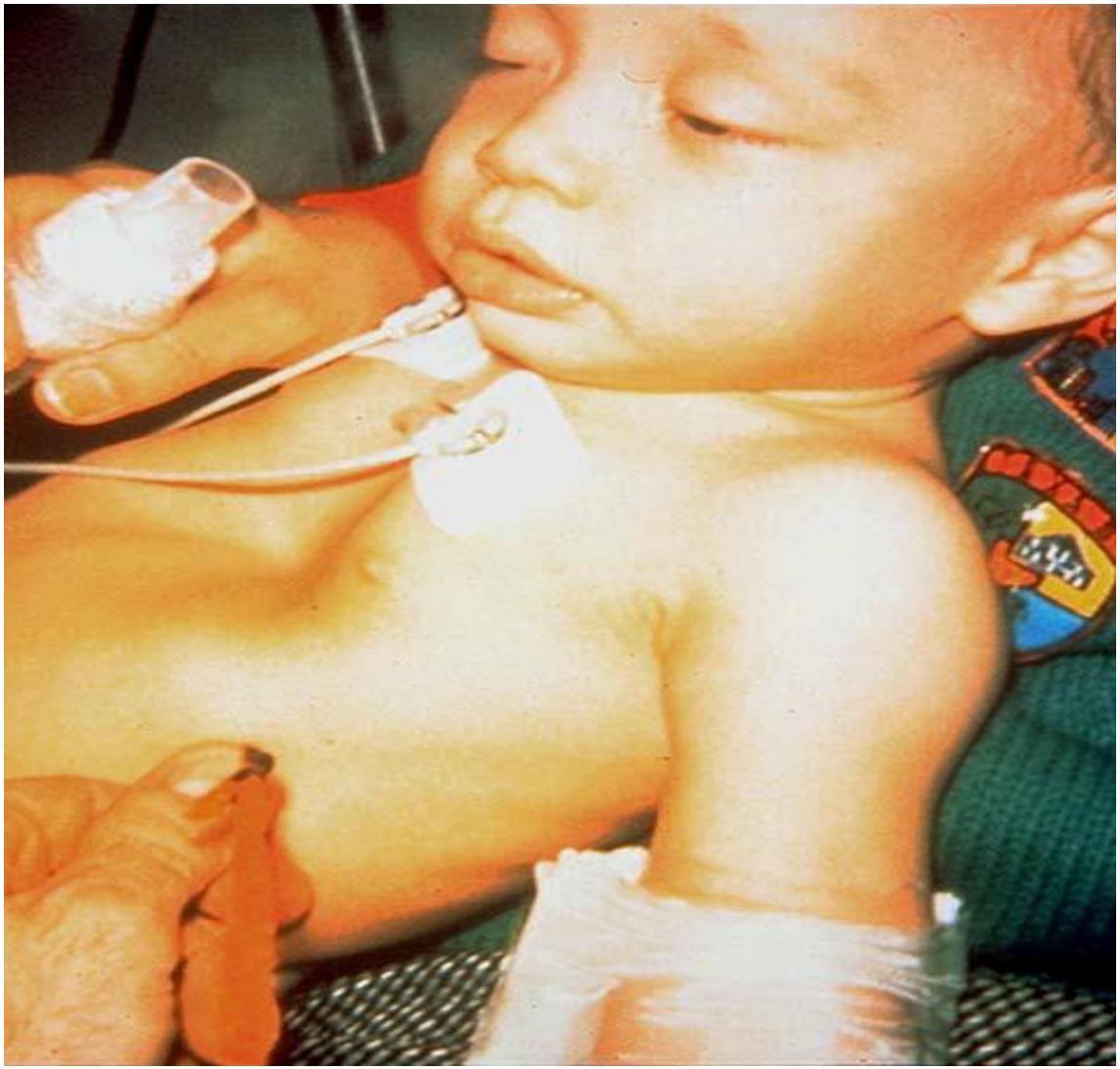

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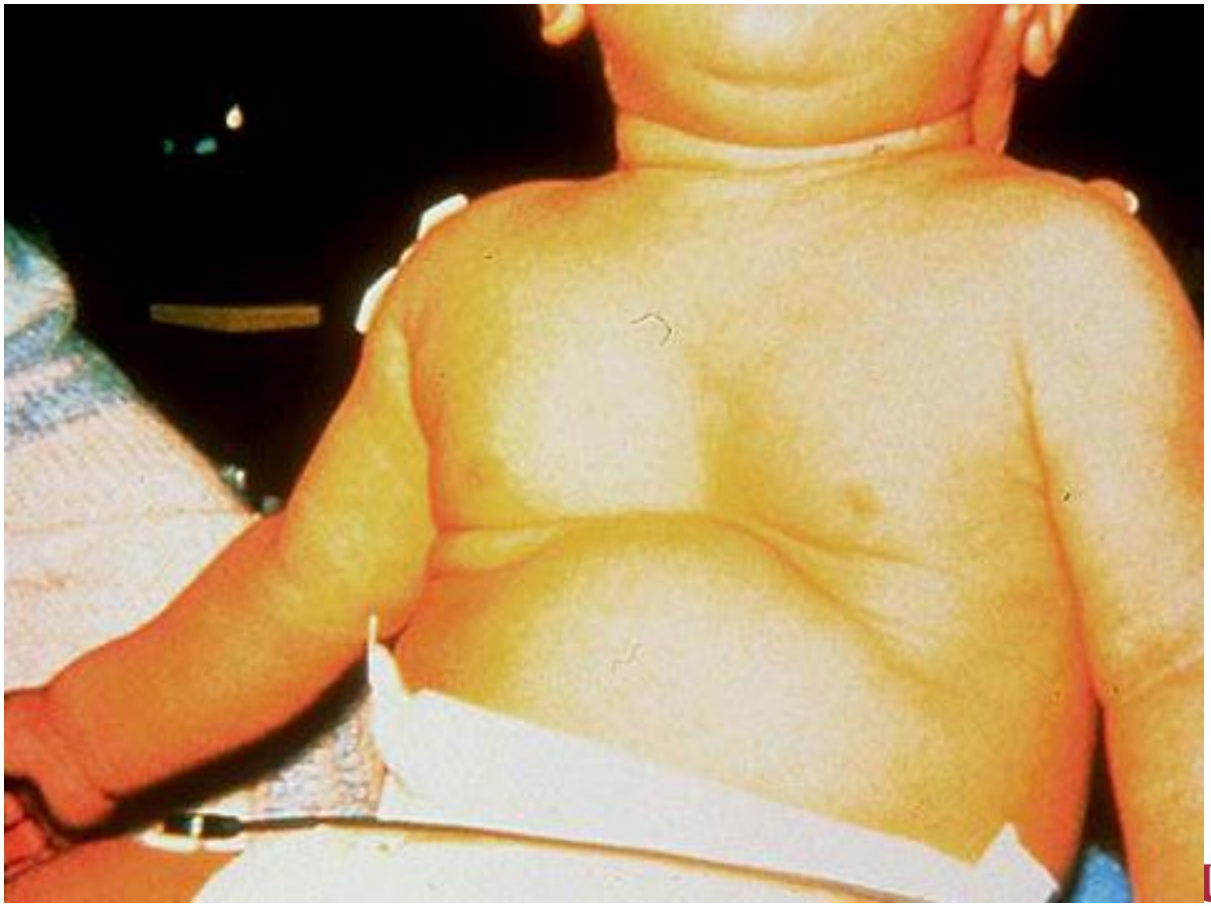

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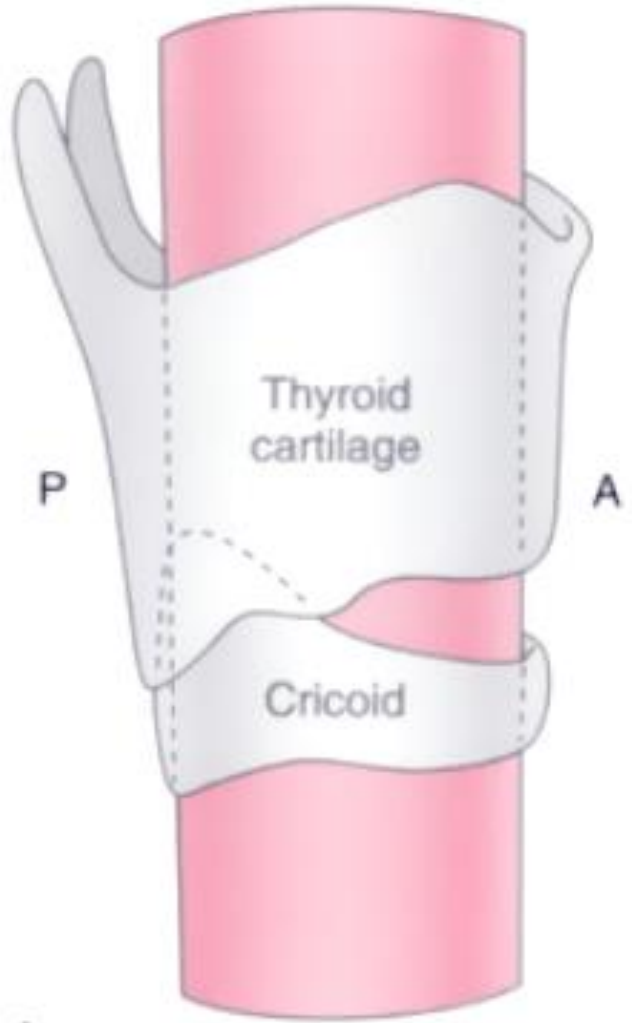
Adult Vs. Pediatric



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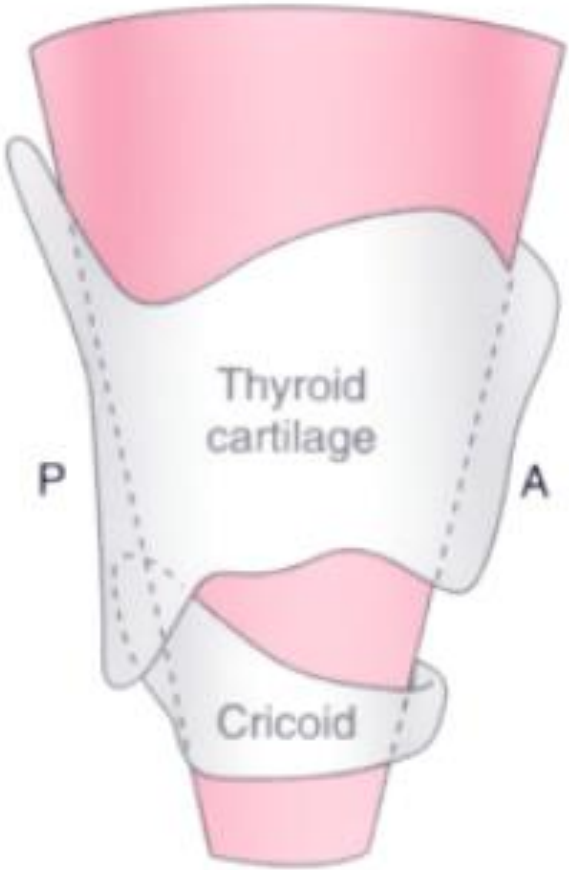

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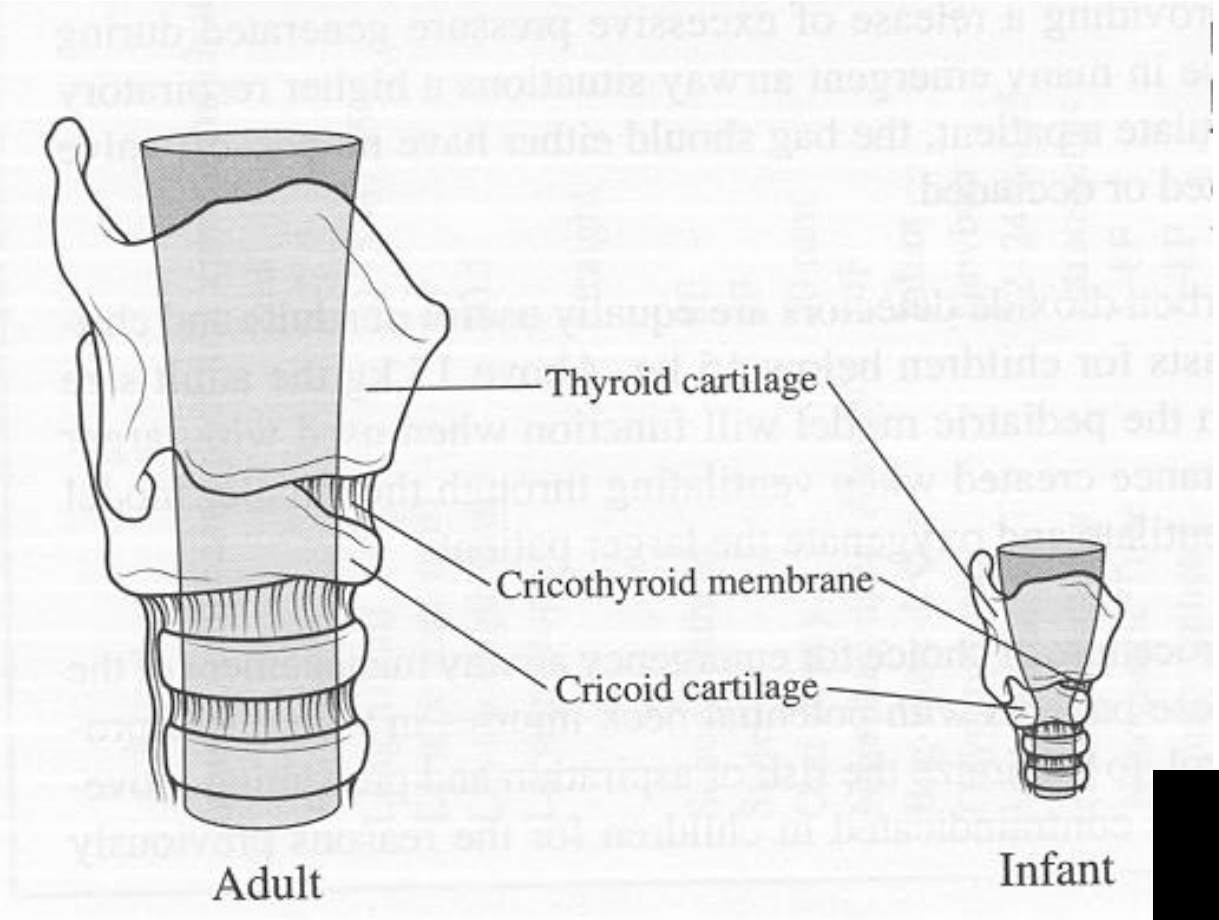
Airway Shape



Adapted from Walls et al. Manual of Emergency Airway Management. 2nd Ed. 2004.

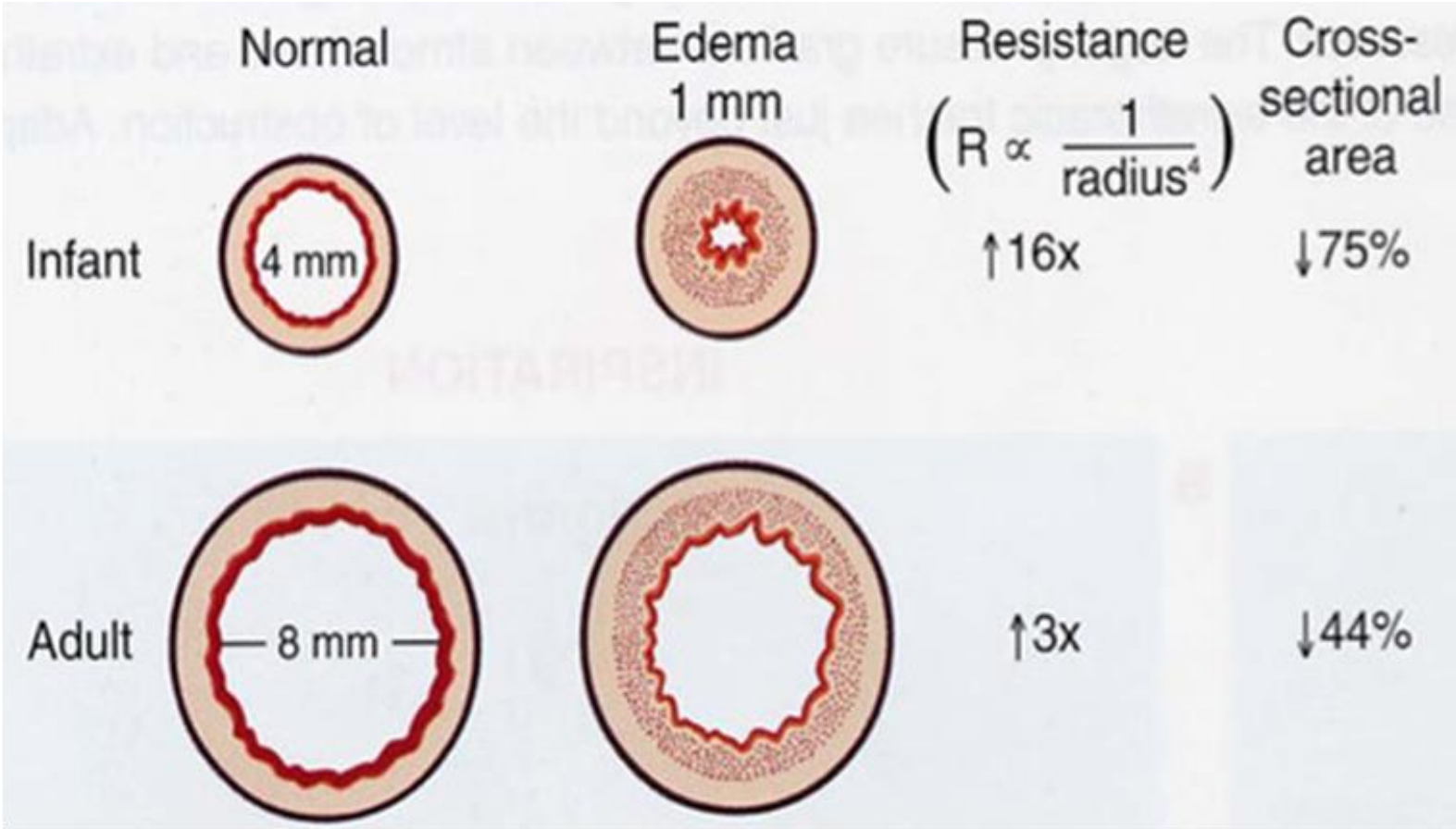


Figure 2: Peds vs. Adult Airway: Effect of 1mm circumferential edema

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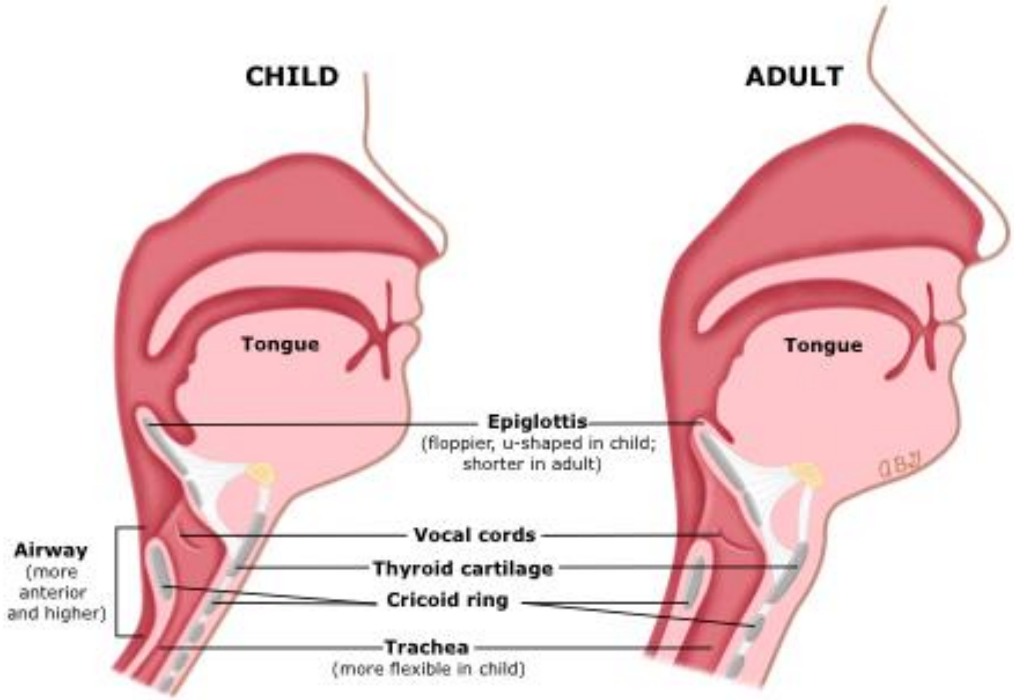
Anatomy of the epiglottitis

- Location
- Angle
- Shape
- Floppy



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Baseline respiratory values

- Premature: 40-70 bpm
- 0-3 months: 35-55 bpm
- 3-6 months: 30-45 bpm
- 6-12 months: 25-40 bpm

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Resources Available

- Children's Hospital of Philadelphia Clinical Pathway:

- www.chop.edu/pathways

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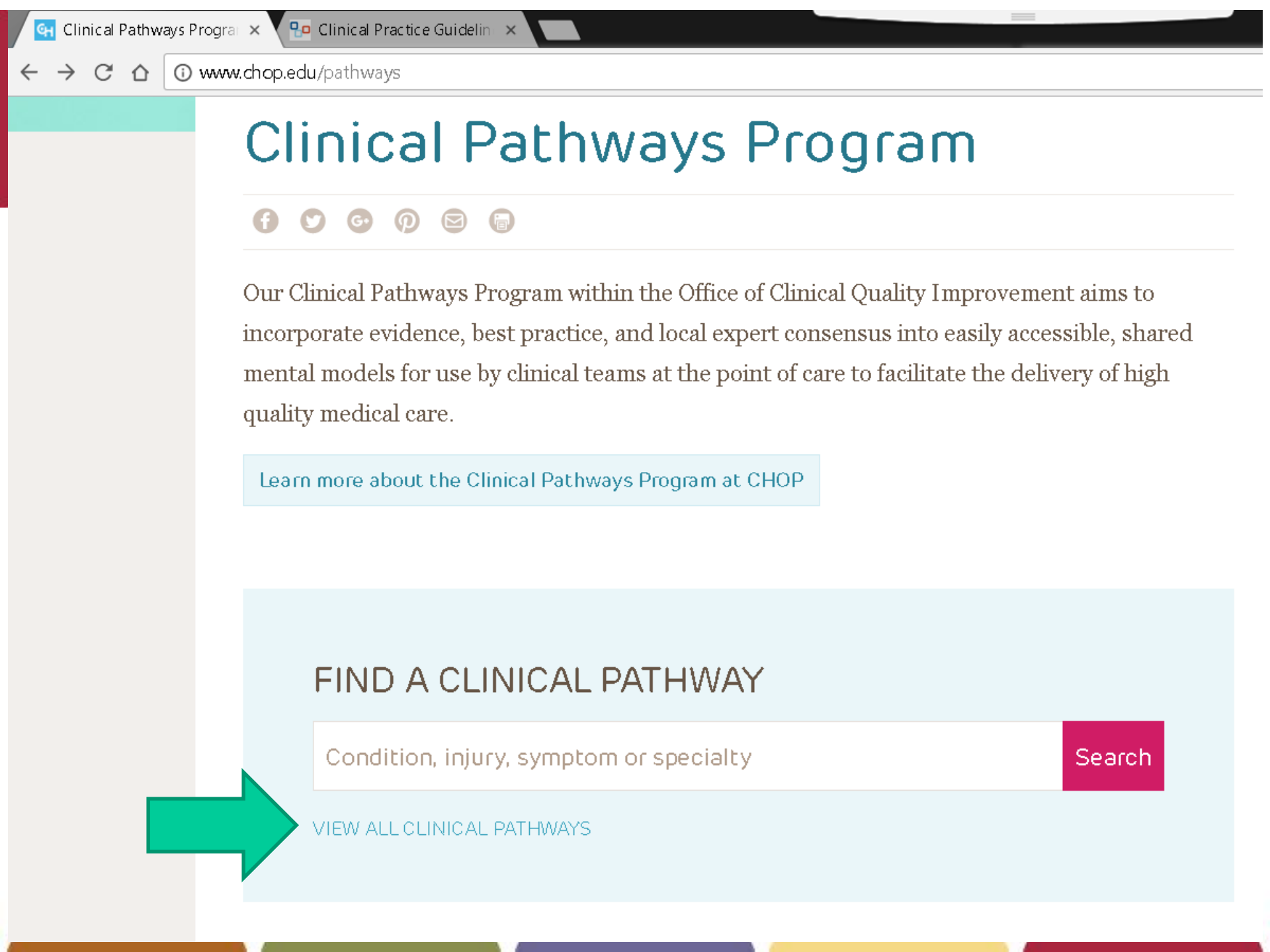
Clinical Pathways Progra
Clinical Practice Guidelin
www.chop.edu/pathways
Clinical Pathways Program
Our Clinical Pathways Program within the Office of Clinical Quality Improvement aims to incorporate evidence, best practice, and local expert consensus into easily accessible, shared mental models for use by clinical teams at the point of care to facilitate the delivery of high quality medical care.
Learn more about the Clinical Pathways Program at CHOP
FIND A CLINICAL PATHWAY
Condition, injury, symptom or specialty
Search
VIEW ALL CLINICAL PATHWAYS

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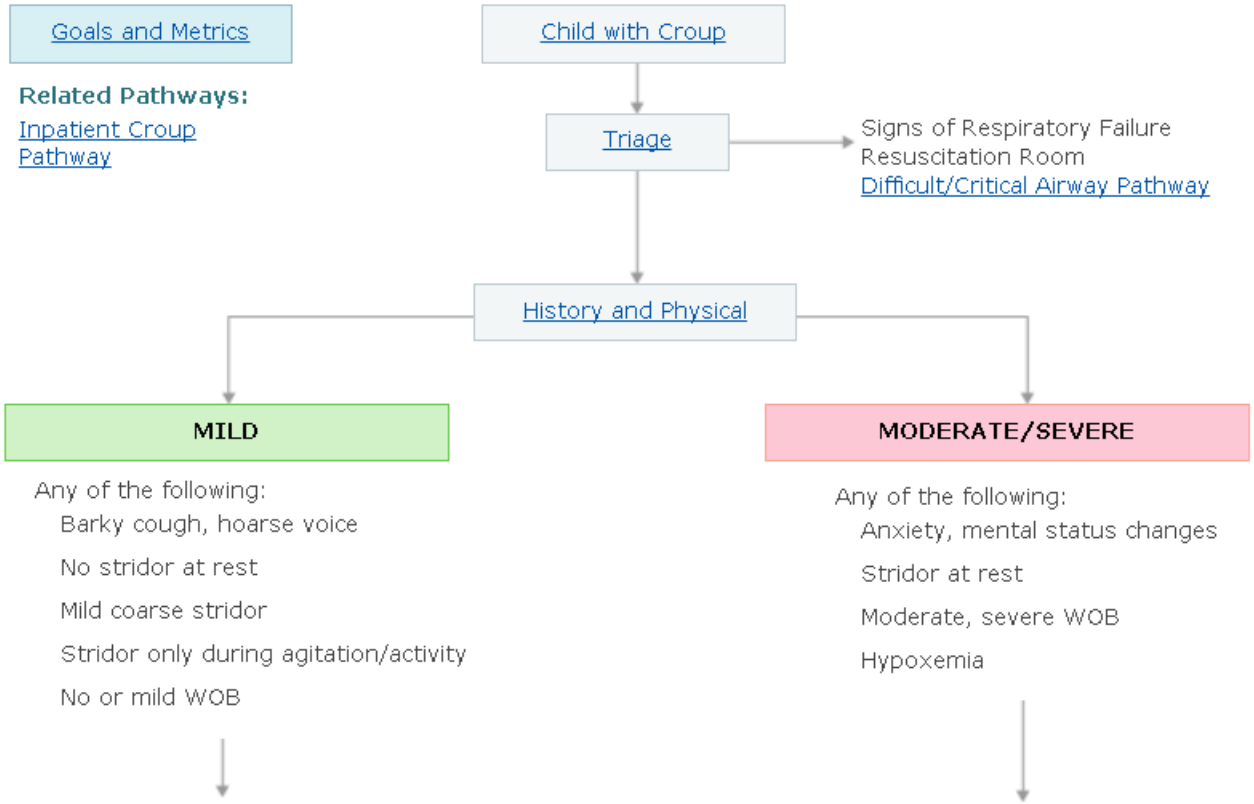
ED Pathway for the Evaluation/Treatment of the Child with Croup



Learn More

Evidence

An update highlighting the effectiveness of 0.15 mg/kg of dexamethasone +

Comparison between single-dose oral prednisolone and oral dexamethasone for the treatment of croup: A randomized, double-blind clinical trial +

A randomized comparison of dexamethasone 0.15 mg/kg versus 0.6 mg/kg for the treatment of moderate to severe croup +

Efficacy of a small single dose of oral dexamethasone for outpatient croup: a double blind placebo controlled clinical trial +

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Bronchiolitis

- Supportive Care!
- Suction, Suction, Suction
- Hydration, Nutrition
- Fever Management

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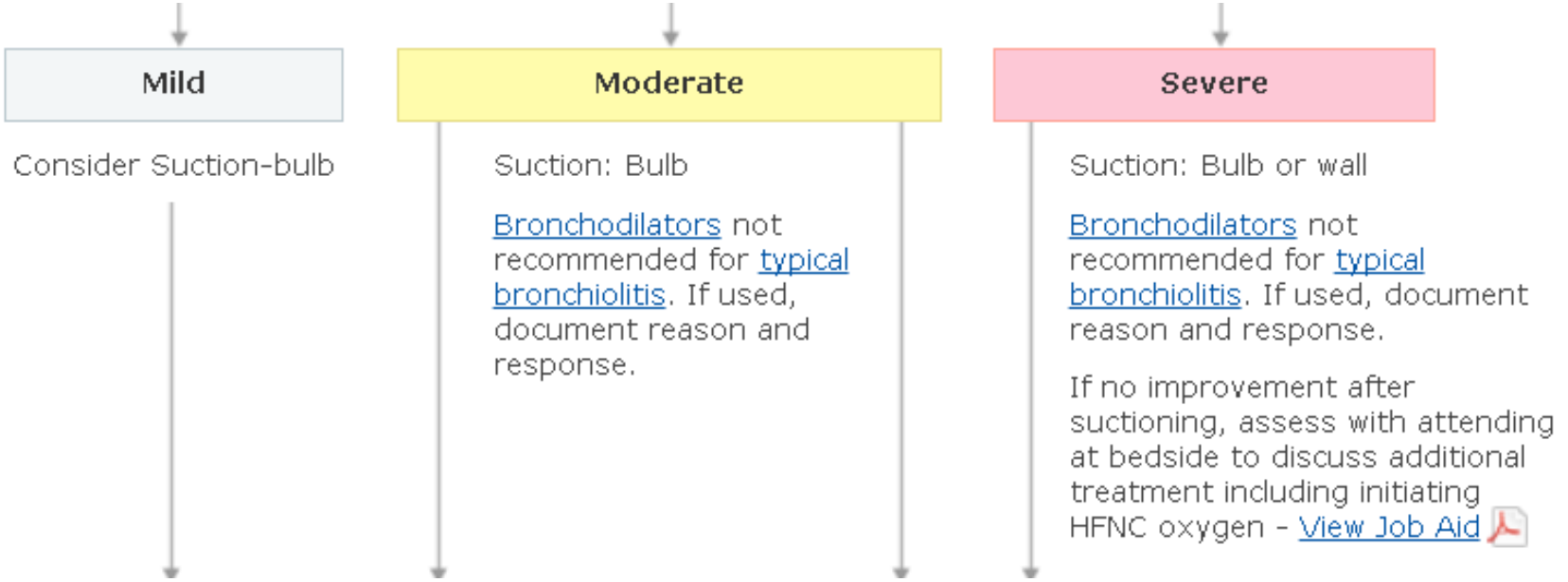
Bronchiolitis Treatment Pathway



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Admission versus Discharge

- Discharge Criteria:
  - Oxygen saturation>90% awake
  - Adequate oral intake
  - Mild/moderate work of breathing
  - Reliable caregiver
  - Able to obtain follow up

- Admission:
  - Repeated assessment
  - Response
  - Stage of illness
- If not met:
  - Inpatient: requires O2
  - ED/Obs: mild disease with expected LOS <24 hours
  - ICU: Apnea, severe distress, requires Non-invasive

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High Flow Nasal Canula

Bronchiolitis Pathway ONLY

Age	Flow [lpm]	FiO_2	Location	Monitoring Minimum
< 3m	2-4	< 40%	Floor	Pulse oximeter, CR Monitor, q1 hour vitals
	> 4	> 40%	ICU*	Central monitoring, q1 hour vitals
3m – 12m	4 – 8	< 40%	Floor	Pulse oximeter, CR Monitor, q1 hour vitals Initiate at 6-8 lpm after suctioning and wean rate as tolerated. If continued increased work of breathing at 8 lpm, consult ICU or call CAT team
	> 8	> 40%	ICU*	Central monitoring, q1 hour vitals
12m – 2 yr	4- 10	< 40%	Floor	Pulse oximeter, CR Monitor, q1 hour vitals Initiate at 6-8 lpm after suctioning and wean rate as tolerated. If continued increased work of breathing at 10 lpm, consult ICU or call CAT team
	> 10	> 40%	ICU*	Central monitoring, q1 hour vitals
*Should evaluate patient's need for noninvasive or invasive mechanical ventilatory support (e.g., with blood gas, X-ray, etc)				

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Job Aid: Guidelines for Initiation of High Flow Nasal Cannula Outside the ICU

Other Indications

Age	Flow [lpm]	FiO_2	Location	Monitoring Minimum
< 3m	2 - 3	< 40%	Floor	Pulse oximeter, CR Monitor, q1 hour vitals
	> 3	> 40%	ICU*	Central monitoring, q1 hour vitals
3m – 12m	2 – 4	< 40%	Floor	Pulse oximeter, CR Monitor, q1 hour vitals
	> 4	> 40%	ICU*	Central monitoring, q1 hour vitals
12m – 2yr	3 - 5	< 40%	Floor	Pulse oximeter, CR Monitor, q2 hour vitals
	> 5	> 40%	ICU*	Central monitoring, q1 hour vitals
2yr – 6yr	4 - 6	< 40%	Floor	Pulse oximeter, CR Monitor, q2 hour vitals
	> 6	> 40%	ICU*	Central monitoring, q1 hour vitals
> 6yr	6 - 10	< 40%	Floor	Pulse oximeter, CR Monitor, q2 hour vitals
	> 10	> 40%	ICU*	Central monitoring, q1 hour vitals
*Should evaluate patient's need for noninvasive or invasive mechanical ventilatory support (e.g., with blood gas, X-ray, etc)				

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Bronchiolitis Evidence

Pediatrics
November 2014, VOLUME 134 / ISSUE 5
From the American Academy of Pediatrics
Clinical Practice Guideline

Clinical Practice Guideline: The Diagnosis, Management, and Prevention of Bronchiolitis

Shawn L. Ralston, Allan S. Lieberthal, H. Cody Meissner, Brian K. Alverson, Jill E. Baley, Anne M. Gadomski, David W. Johnson, Michael J. Light, Nizar F. Maraqa, Eneida A. Mendonca, Kieran J. Phelan, Joseph J. Zorc, Danette Stanko-Lopp, Mark A. Brown, Ian Nathanson, Elizabeth Rosenblum, Stephen Sayles III, Sinsi Hernandez-Cancio

Article | Figures & Data | Info & Metrics | Comments

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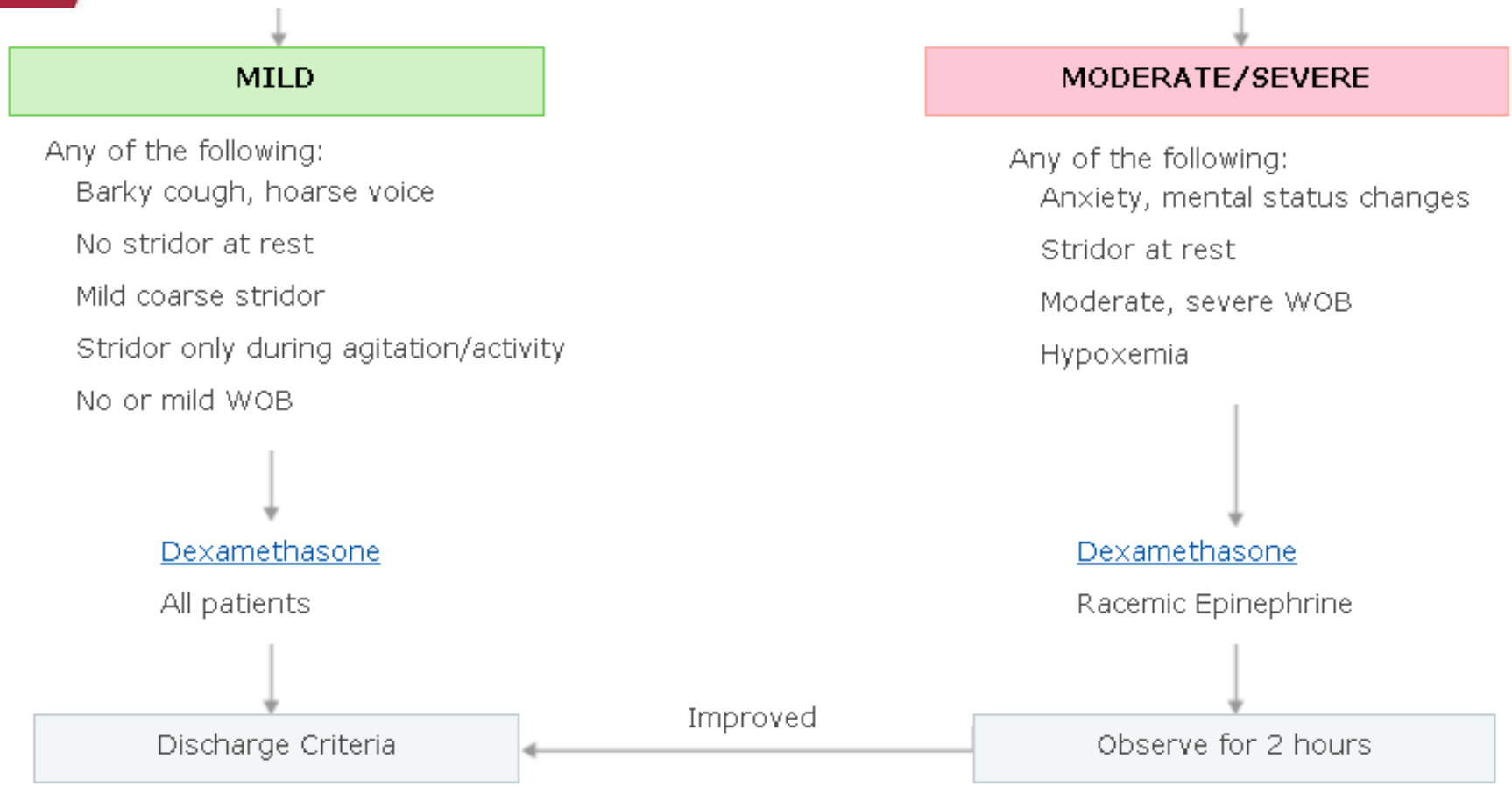
Croup



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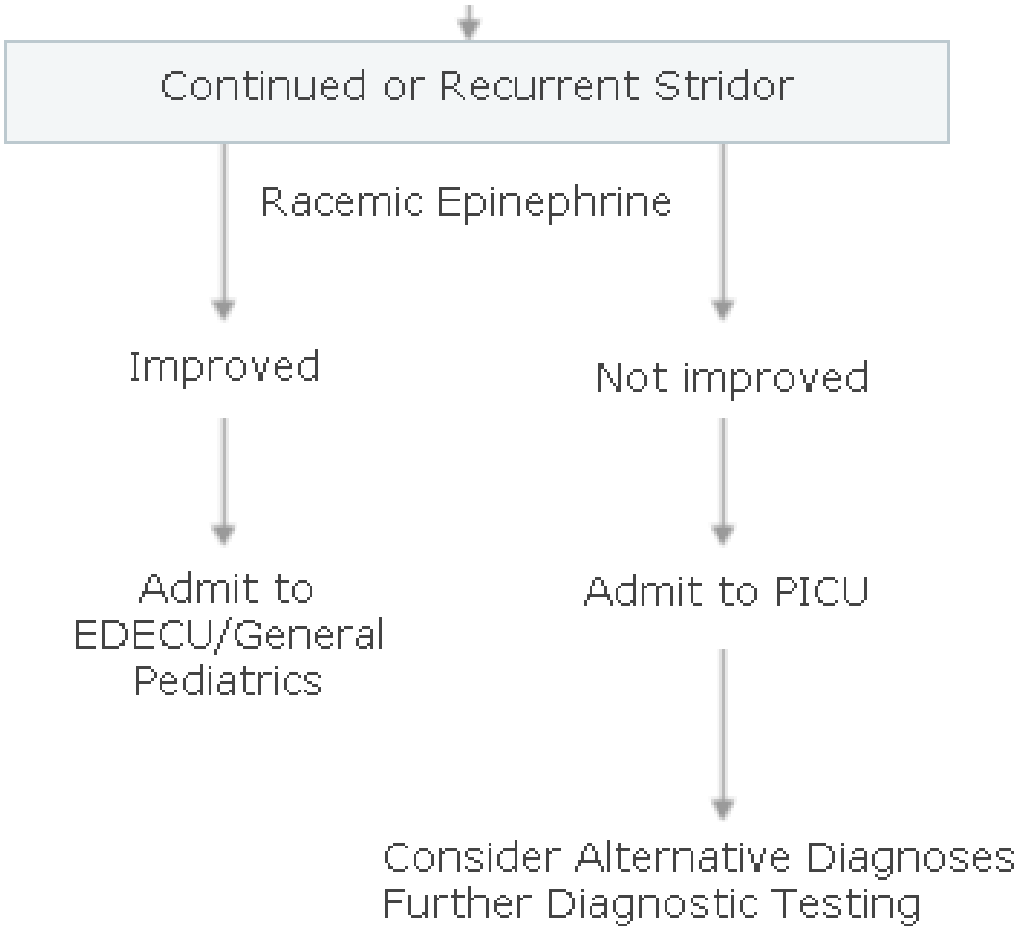
After 2 hours observation



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Croup Treatment Considerations

TREATMENT CONSIDERATIONS

Dexamethasone: 0.3 mg/kg, MAX 8 mg

Racemic Epinephrine: 2.25% solution, 0.5 mL in 3 mL NS

CONSIDER ALTERNATIVE DIAGNOSES

Age < 6 months, or > 6 years

Poor response to treatment

Duration of stridor > 4 days or cough > 10 days

Non-elective intubation in past 6 months

Prolonged intubation

Recurrent croup

- 2nd episode within 30 days
- > 3 episodes in the last 12 months

Toxic appearance

Drooling, difficulty swallowing, severe anxiety

Asymmetry of the respiratory exam

FURTHER DIAGNOSTIC TESTING

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Further Testing

Airway X-ray and/or Chest X-ray	**Not routinely recommended** *Consider if:* Suspected foreign body – esophageal or airway Deviation from expected clinical course Severe disease, toxic appearance
Viral RRP	**Viral testing is not routinely recommended** *Consider testing if:* Diagnosis is in question Prolonged fever
Pertussis PCR	**Pertussis Testing is not routinely recommended** *Consider if:* History of apnea and prolonged cough Known exposure Unimmunized or only partially immunized Significant pertussis activity in the community

ENT Consultation	**Consultation is not routinely recommended in the ED** *Consider outpatient follow up with ENT if resolution of symptoms and:* History of non-elective intubation in past 6 months History of prolonged intubation Recurrent croup 2nd episode within 30 days > 3 episodes in the last 12 months

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Influenza

- In young children respiratory illness does not necessarily have a respiratory presentation
- 30% of infants who influenza do not present for respiratory symptoms
- Fever is most common presentation complaint

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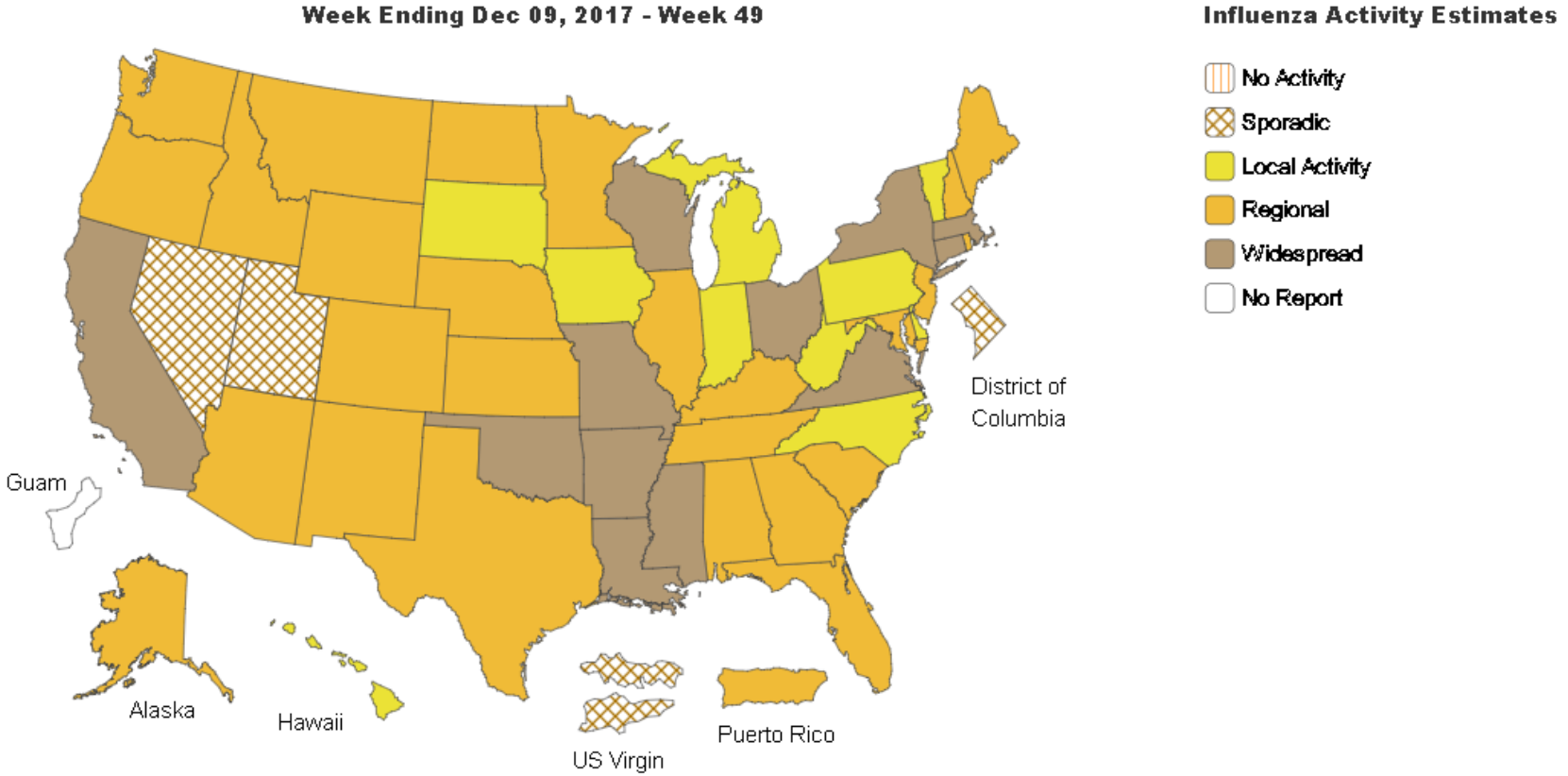
CDC Influenza as of Dec 9th



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Tamilflu/Oseltamivir

- If patient requires admission: Rapid Flu A/B test recommended.
- If patient doesn't need admission, consider rapid test for anyone who is not previously healthy and under 24 months of age.
- Most likely to be effective within 48 hours of symptoms

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Other Things to Consider

- Reactive Airway Disease
- Anaphylaxis
- Trauma

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- Questions?

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