

RSV Cases Surging
NWC EMSS
Practice ALERT

RESPIRATORY SYNCYTIAL VIRUS

2.1 MILLION CHILDREN UNDER AGE 5 ARE DIAGNOSED EVERY YEAR

CDC

IDPH
 ILLINOIS DEPARTMENT OF PUBLIC HEALTH
 PROTECTING HEALTH. IMPROVING LIVES.

HEALTH ALERT

JB Pritzker, Governor Sameer Vohra, MD, JD, MA, Director

Summary and Action Items
 Illinois has seen a steady increase in emergency department visits and hospitalizations due to respiratory infections (especially RSV) in those under 18. The elevated visits and hospitalizations are creating a health system crisis in pediatric critical care access with an **acute shortage** in pediatric intensive care unit (PICU) beds, directly impacting the health system capacity heading into the fall/winter. This advisory is to alert providers to the situation and provide tools to help mitigate the surge in respiratory illnesses.

Situational Awareness
 Currently in Illinois, there are 289 PICU beds, with more than 50% of the beds in the City of Chicago. As of October 18, 2022, there were only 6% open PICU beds remaining across the state. As we head into flu season and await a potential COVID-19 surge, this low number of PICU beds makes prevention of non-vaccine preventable infections, like RSV and other respiratory diseases, even more important. When [PICU bed capacity is compromised, the hospital system's ability to fully address acute care and serious illness may also become compromised, leading to severe health outcomes, including death.](#) Protecting this critical infrastructure is vital for children across Illinois.

Community Recommendations
 Providers and health care facilities are advised to encourage the following community actions and messages to decrease the overall burden of respiratory illness and, consequently, the need for hospitalization of children.

a) Mask indoors in crowded areas, especially at large gatherings during the upcoming holiday season, to prevent acquiring any infection, such as RSV, flu, or COVID-19.

Seriousness of URIs in children

More serious than adults

Significant obstruction d/t small size of Eustachian tubes, larynx and bronchi

Poor cough reflex and minimal pulmonary reserves

Partial obstruction of upper airways is evidenced by **stridor**

Respiratory Syncytial Virus (RSV)

Most important cause of lower respiratory disease in children

RSV

Spread from respiratory secretions via contact with infected persons or contaminated surfaces

Infection occurs after virus contacts mucous membranes of eyes/mouth/nose

25-40% have S&S of **bronchiolitis** or **pneumonia**; 0.5-2% require hospitalization

RSV infects epithelial cells

Differential if child presents with resp distress?

Primary pulmonary problems

Bronchiolitis

- 90,000 children hospitalized/yr
- 4,500 deaths/yr from RSV

Croup: 90% of stridor cases in children older than neonates

Epiglottitis: changing demographic

FBAO: 90% < 4 yrs

Differential cont.

Pneumonia

- RSV most common cause by age 1
- S&S infection; isolated crackles

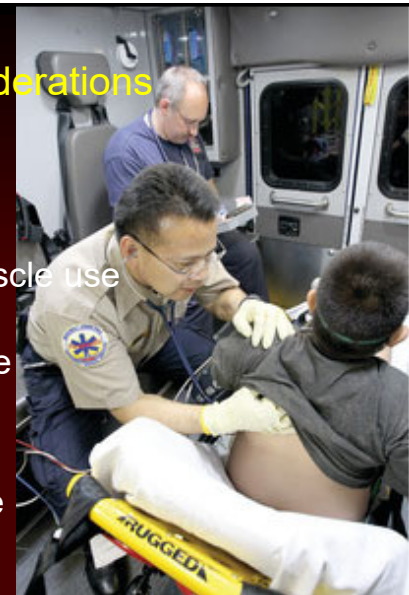
Asthma


- Most common chronic peds disease
- 4.8 million < 18 years old
- 50-80% develop S&S < age 5

IMC special considerations

Evaluate:

- Ventilation (EtCO₂)
- Oxygenation (SpO₂)
- WOB, accessory muscle use
- Degree of airway obstruction/resistance
- Speech/cry, cough
- Lung sounds
- Mental status, fatigue
- Cardiac status





RESPIRATORY SYNCYTIAL VIRUS

SYMPTOMS

- > **COUGH**
- > **CONGESTION**
- > **LACK OF APPETITE**
- > **FUSSINESS**

In 1-2 days, breathing labored; retractions; apnea in infants
 Prolonged expiratory phase w/ air trapping & wheezing
 Fever; tachypnea (>50-60), shallow
 With severe exhaustion, infant may arrest

RSV

Most recover in 8-15 days

40% infants develop reactive airway disorders (wheezing/asthma) as adults




Bronchiolitis

Infection/inflammation of lower airways most commonly caused by RSV in children 2-24 mos

Most common wheezing-associated illness in pts < 2 yrs

Acute wheezing, cough, & respiratory distress prominently seen at night

PMH otitis media in > 50% of cases



<https://youtu.be/J29QpwrDiXs>

Monitor SpO₂ and ETCO₂ on all in distress

Do not delay transport setting up medication

Usually poorly responsive to bronchodilators

If severe: May need adv. airway, BVM ventilation and IVF for dehydration

<p>Respiratory Syncytial Virus (RSV)/Bronchiolitis: Child < 2 w/ S&S of bronchiolitis or pneumonia Early S&S like a cold: runny nose, cough, mild fever. Breathing becomes more labored w/ fever. Severe: retractions; apnea; prolonged expiration w/ air trapping and wheezing, RR rapid and shallow, w/ increasing exhaustion child may develop respiratory/cardiac arrest.</p>	<p>Time Sensitive pt</p>
<p>EMERGENT: None to mild CR compromise: Peds IMC only; anticipate rapid deterioration</p>	
<p>CRITICAL: Moderate to severe CR compromise:</p> <p>Bradycardia, AMS, marked ventilatory distress, retractions, ineffective air exchange, and/or actual or impending respiratory arrest</p> <p>2. Nebulize EPINEPHRINE (1 mg/10 mL) 0.5 mg (5 mL) w/ 6 L O₂/HHN/mask (aim mist at child's face) or / BVM Position to optimize air exchange (upright) Do not delay transport setting up medication</p> <p>3. Continued inadequate ventilations/oxygenation: Position supine in sniffing position O₂/ high flow NC / mask Ventilatory failure: PPV 15 L O₂/ Peds BVM at age-appropriate rate using slow compressions of bag Unable to ventilate: Temporarily stop ambulance Rx per Peds Airway Adjuncts SOP Least invasive way possible</p>	

NWC EMSS 2022 SOP 81 Full compliance by 11-1-2022

A febrile (105° F) 6-month-old infant presents with a poor feeding and decreased activity over the past 3 days.

The child appears dehydrated & lethargic, is warm to touch, coughing; RR 70 (shallow); SpO₂ 90%; ETCO₂ 33 w/ square waveform; isolated crackles present in the right lower lung field (no stridor or wheezing); HR 120.

What should you suspect?
What should you anticipate?

Pneumonia Sepsis

Differential diagnosis cont.

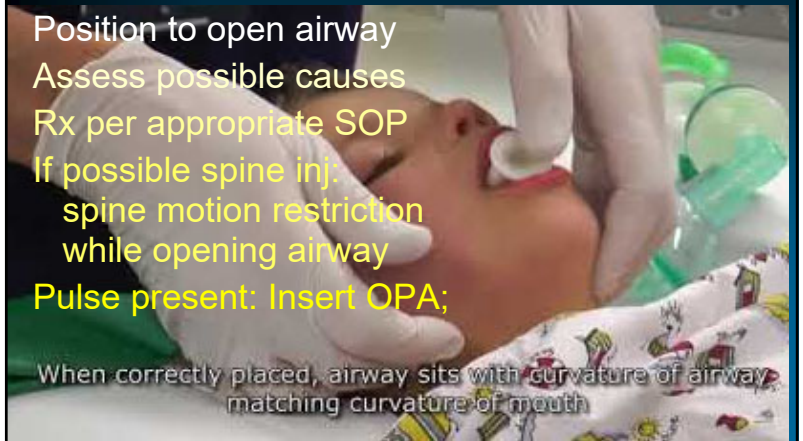
	Pneumonia	Asthma	Bronchiolitis
Age	All ages	1 & up	6 mos – 2 yrs
Onset	Gradual	Rapid	3 – 5 days
Position	Variable	Prefer erect	Prefer erect
Stridor	None	None	None
Lung sounds	Isol. crackles	Wheeze/absent	Wheeze/absent
Cough	Yes	Yes or no	Yes
Voice change	No	Possible	No
Drool	No	No	No
Dysphagia	No	No	No
Temperature	Yes	None	Yes

Respiratory Arrest

Position to open airway
 Assess possible causes
 Rx per appropriate SOP
 If possible spine inj:
 spine motion restriction
 while opening airway

Pulse present: Insert OPA;

When correctly placed, airway sits with curvature of airway matching curvature of mouth



Peds Respiratory Arrest

Ventilate w/ peds BVM 1 breath every 2-3 sec.
 Unable to ventilate: peds airway adjuncts SOP
 Recheck pulse q. 2 min.

