Just-In-Time Learning Series:

MANAGEMENT OF THE PEDIATRIC PATIENT: RESPIRATORY VIRUSES

Region 8 MOUNTAIN PLAINS Regional Disaster Health Response System

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Common Respiratory Pathogens Affecting Children

- Flu
- RSV
- COVID-19

The trends in these pathogens, often in tandem, account for spikes in admission rates that leave pediatric hospitals at full to overflow capacity. As a result, many non-pediatric facilities may need to manage pediatric patients for longer periods of time.

Pediatric Risk Factors Associated with Complications for More Severe Disease

- Children under 2 years
- Individuals under 19 years receiving long-term aspirin
- Persons of all ages with chronic pulmonary, cardiovascular, renal, hepatic, metabolic, hematologic, neurologic and neurodevelopment conditions.
- Persons with immunosuppression
- American Indians/Alaska Natives
- Persons who are morbidly obese (BMI >40)

Consider the following assessment steps in triaging a pediatric patient: **General appearance,** including the tone, level of interaction, and abnormal gaze or speech. A quick **assessment of breathing** to identify abnormal sounds, retractions, flaring or gasping. Lastly, **circulation to skin,** such as pallor, mottling, or cyanosis.

SIGNS OF RESPIRATORY DISTRESS IN PEDIATRIC PATIENTS

Early Signs

- Increased respiratory rate
- Nasal flaring
- Intercostal, supraclavicular, and sub costal retractions
- Neck muscle use
- Audible noises: stridor, wheezing
- "see-saw" respirations

Late Signs

- RR >60, then slow rate or apnea
- Cyanosis
- Decreased muscle tone
- Severe accessory muscle use
- Poor peripheral perfusion
- Altered mental status
- Grunting
- Head bobbing

Respiratory Distress: able to use compensatory methods or treatments to protect oxygenation and ventilation. Adequate oxygenation can be achieved by multiple methods - ***start with less invasive and advance as needed.***

What to do for respiratory distress:

- Visualize chest rise
- Optimize airway positioning (towel roll, horizontal plane)
- Relieve obstructions (suction, jaw thrust/chin lift, nasal/oral pharyngeal airway)
- Oxygen
- Monitors and equipment (pediatric sizes)
- Treat fever

Methods of providing oxygenation and ventilation:

- Nasal cannula
- Masks: simple, non-rebreather
- Heated high flow
- Non-invasive ventilation
- Invasive ventilation
- Monitoring: ETCO2, pulse oximetry, cardiorespiratory monitor

Respiratory Failure: can no longer exchange gas with compensatory methods

- Hypoxia despite oxygen
- Signs of poor ventilation
  - Hypercarbia gives sense of air hunger, agitation(older child "I can't breath")
  - Stress response: tachycardia, hypertension, diaphoresis, looks distressed
- Lethargy (CO_2 narcosis is late sign)
- Assisted ventilation needed to avoid respiratory arrest

Intubation - When to secure the airway:

- Respiratory failure (hypoxia and/or hypercapnia, apnea, on BPAP max settings and looking tired
- Reduced LOC
- Impending airway compromise
- High risk for aspiration
- Prolonged transport with at risk airway

The associated training video to this document was published on XX/XX/XXXX. The training can be viewed on Youtube at Mountain Plains RDHRS. The MPRDHRS JIT Learning Series is funded by Award Number 6 HITEP200043-01-13 from the Administration for Strategic Preparedness and Response (ASPR).

Resources: Statewide data: Colorado: https://cdphe.gov/viral-respiratory-diseases-report

National institutes of health: https://pmc.ncbi.nln.nih.gov