Pediatric Respiratory Distress/CHF/Pulmonary Edema

For congenital heart disease

History
- Congestive heart failure
- Past medical history
- Medications
- Cardiac history and surgeries

Signs and Symptoms
- Hypotension/shock
- Accessory muscle use
- Mottling
- Bilateral rales/crackles
- Anxiety
- Orthopnea
- Jugular vein distension
- Pink, frothy sputum
- Peripheral edema
- Diaphoresis
- Hypertensive
- Wheezing

Differential
- Congenital heart disease
- Myocarditis
- Myocardial infarction
- Congestive heart failure
- Asthma
- Anaphylaxis
- Aspiration
- Pleural effusion
- Pneumonia
- Pulmonary embolus
- Pericardial tamponade
- Toxic exposure

Airway patent? Ventilation adequate? Oxygenation adequate?

Yes
- Cardiac monitor
- Consider, 12-Lead ECG
- Establish IV/IO
- Consider, EtCO₂ monitoring

No
- Respiratory Arrest/Respiratory Failure

Assess symptom severity

MILD
- Cyanosis, accessory muscle use, < 2 word sentences, or decreased LOC
- Apply Oxygen to maintain \(\text{SpO}_2\) ≥ 92% or known baseline

Improving?

Yes
- Notify receiving facility. Consider Base Hospital for medical direction

No
- Respiratory Arrest/Respiratory Failure

SEVERE
- Hypotension/Poor perfusion
- Consider, CPAP
- Consider, Albuterol
- For age dependent hypotension, Dopamine
- Use Broselow Tape; refer to dosing guide

CARDIOGENIC SHOCK
- Hypotension/Poor perfusion
- Consider, Dopamine
- Contact Base Hospital for consult

E - Effective November 2018

P - Effective August 2020
Pearls

- A trial of Albuterol can be considered in the undifferentiated patient.
- Hypotension is age dependent. This is not always reliable and should be interpreted in context with the patient’s typical BP, if known. Shock may be present with a seemingly normal blood pressure initially. Hypotension is defined as:
  - Neonate: < 60mmHg or weak pulses
  - Infant: < 70mmHg or weak pulses
  - 1-10 years: < 70mmHg + (age in years x2)
  - Over 10 years: < 90mmHg
- Congenital heart disease varies by age:
  - < 1 month: Tetralogy of Fallot, transposition of the great arteries, and coarctation of the aorta
  - 2-6 months: Ventricular septal defects (VSD), atrioseptal defects (ASD)
  - Any age: Myocarditis, pericarditis, SVT, and heart blocks
- Treatment of congestive heart failure/pulmonary edema may vary depending on the underlying cause and may include the following with consultation of the Base Hospital:
  - Fentanyl
  - Nitroglycerin
- Do not assume all wheezing is pulmonary, especially in a cardiac child. Avoid albuterol unless there is a strong history of recurrent wheezing secondary to pulmonary etiology; consult the Base Hospital.