(2) If age-related vital signs and patient's condition indicate hypoperfusion, administer initial fluid bolus of 20 mL/kg LR IV/IO.
If patient's condition does not improve, administer the second bolus of fluid at 20 mL/kg LR IV/IO.

Administer diphenhydramine.
1 mg/kg SLOW IVP or IM
Maximum single dose 50 mg
Additional doses of diphenhydramine require medical consultation

(3) A combination of albuterol/Atrovent® via nebulizer:
- **For an infant less than 1 year of age**, administer albuterol 1.25 mg via nebulizer; Atrovent® is contraindicated.
- **For a child 1 year of age or greater, but less than 2 years of age**, administer albuterol 1.25 mg and Atrovent® 250 **mcg**.
  For a patient 2 years of age or greater, administer albuterol 2.5 mg and Atrovent® 500 **mcg**.

(4) If further treatments are indicated, an additional albuterol-only nebulizer may be given.

j) Mild Allergic Reaction **(NEW '20)**

(1) Consider diphenhydramine. 1 mg/kg SLOW IV or IM. Maximum single dose 25 mg.
OR

(2) Consider epinephrine (1:1,000) if patient has a history of life-threatening allergic reaction to the same allergen.
(a) Less than 5 years of age: 0.15 mg in 0.15 mL IM.
(b) 5 years of age or greater: 0.5 mg in 0.5 mL IM.

NN. ANAPHYLAXIS

1. Inclusion Criteria
   a) Anaphylaxis is a condition defined by respiratory and/or cardiovascular collapse resulting from an exaggerated response of the body's immune system to any substance.
   b) Anaphylaxis is likely to present with one or more of the following:
      (1) Acute onset of illness after exposure to a known allergen with two or more of the following:
         (a) urticaria of skin and/or mucosa or acute swelling/edema (eg, tongue, airway, stridor, lips)
         (b) respiratory compromise
         (c) hypotension
         (d) persistent GI symptoms of vomiting, abdominal pain, or diarrhea
      (2) Acute onset of illness after exposure to a **known** allergen with hypotension

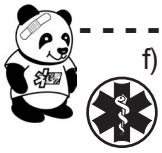
2. Treatment
   a) Assist patient experiencing moderate to severe symptoms or mild symptoms with a history of life-threatening allergic reaction with the patient's prescribed or EMS service's epinephrine auto-injector or manual (1:1,000) 0.5 mg in 0.5 mL IM or patient's prescribed fast-acting bronchodilator.
   b)  Consider additional doses of epinephrine (1:1,000) 0.5 mg in 0.5 mL IM.
   c) Additional treatments to consider AFTER administration of the initial dose of epinephrine
      (1) Albuterol inhaler (2 puffs) may be repeated once within 30 minutes.

   d) Administer epinephrine
      (1) Epinephrine (1:1,000) 0.5 mg in 0.5 mL IM
      (2) May repeat epinephrine IM every 5 minutes for a total of 3 doses for severe reactions.
      (3) For patients who are in extremis with severe hypotension or impending respiratory failure, consider initiating an epinephrine drip after having administered 3 doses of IM epinephrine.
         (a) Initiate epinephrine infusion
            (i) Add 1 mg of epinephrine (either 1:1,000 or 1:10,000) in a 100 mL bag of LR or NS
            (ii) Use a Microdrip set (60 drops/mL) for infusion administration
            (iii) Adult epinephrine infusion dosage:
               (1) Administer infusion through a free-flowing IV, ideally 20 gauge or larger, or by IO
               (2) Start infusion at 1 mL/min (60 drops/min) IV/IO
               (3) Check blood pressure every 5 minutes. If MAP is less than 65 mmHg or systolic blood pressure is less than 90 mmHg, increase to a maximum rate of 2 mL/min (120 drops/min).

NN. ANAPHYLAXIS (Continued)

(4) If above blood pressure goals are not met upon reaching maximum rate, obtain online medical consultation.

e) Additional treatments to consider AFTER administration of the initial dose of epinephrine
   (1) Albuterol/Atrovent® via nebulizer: albuterol 2.5 mg and Atrovent® 500 mcg; may repeat albuterol neb 2.5 mg one time
   (2) Diphenhydramine 50 mg SLOW IVP or IM
   (3) Establish IV access with LR
   (4) Administer 20 mL/kg bolus for hypotension
   (5) Dexamethasone 10 mg IV/IO



f) Assist patient experiencing severe symptoms with the patient's prescribed or EMS service's epinephrine:
   (1) Less than 5 years of age: 0.15 mg IM in the lateral thigh via epinephrine auto-injector or manual administration 0.15 mg in 0.15 mL IM
   (2) 5 and greater: administer 0.3 mg IM in the lateral thigh via epinephrine auto-injector or manual administration 0.5 mg in 0.5 mL IM
   (3) Consider additional doses of epinephrine (1:1,000) 0.5 mg in 0.5 mL IM.
   (4) Additional treatments to consider AFTER administration of the initial dose of epinephrine
      (a) Albuterol MDI inhaler (2 puffs) may be repeated once within 30 minutes.

   (5) Less than 5 years of age: administer 0.15 mg in 0.15 mL IM
   (6) 5 and greater: administer 0.5 mg in 0.5 mL IM
   (7) May repeat every 5 minutes for a total of 3 doses for severe reactions.
   (8) Consider pediatric epinephrine infusion for refractory anaphylactic shock. **(NEW '20)**

g) Additional treatments to consider AFTER administration of the initial dose of epinephrine
   (1) Albuterol/Atrovent® via nebulizer
      (a) For an infant less than 1 year of age, administer albuterol 1.25 mg via nebulizer; Atrovent® is contraindicated.
      (b) For a child 1 year of age or greater, but less than 2 years of age, administer albuterol 1.25 mg and Atrovent® 250 mcg.
      (c) For a child 2 years of age or greater, administer albuterol 2.5 mg and Atrovent® 500 mcg.
      (d) If further respiratory treatments are needed, an additional albuterol-only nebulizer may be given.
   (2) Diphenhydramine 1 mg/kg SLOW IVP or IM
   (3) Establish IV access with LR
   (4) Administer 20 mL/kg bolus for hypotension
   (5) Dexamethasone 0.5 mg/kg to a maximum of 10 mg IV/IO

OO. RESPIRATORY DISTRESS: CHLORINE OR PHOSGENE EXPOSURE (NEW ’20)

1. Inclusion Criteria

   Patient with suspected exposure to chlorine or phosgene who may exhibit any of the following: wheezing and/or crackles, abnormal respiratory rate, rapid heart rate, stridor, grunting, cyanosis, mottled skin, altered mental status, nasal flaring, retractions, accessory muscle use, dyspnea, diminished or absent breath sounds, and/or tripod positioning.

ENSURE BSI AND DECONTAMINATION OF THE PATIENT WITH SUSPECTED CHLORINE OR PHOSGENE EXPOSURE.

2. Treatment
   a) For patients with dyspnea with wheezing or symptoms related to bronchospasm, treat with bronchodilators and dexamethasone per Asthma/COPD Protocol.
   b) For patients with dyspnea and rales or suspected pulmonary edema, treat supportively with oxygen and CPAP, as indicated per CHF Protocol.

SYMPTOMS OF CHLORINE/PHOSGENE EXPOSURE CAN BE DELAYED FOR UP TO 48 HOURS. PATIENTS MAY RAPIDLY DETERIORATE ONCE SYMPTOMS PRESENT.

PP. RESPIRATORY DISTRESS: ASTHMA/COPD

1. Inclusion Criteria

   Patient may exhibit any of the following: wheezing and/or crackles, abnormal respiratory rate, rapid heart rate, stridor, grunting, cyanosis, mottled skin, altered mental status, nasal flaring, retractions, accessory muscle use, dyspnea, diminished or absent breath sounds, and/or tripod positioning.

2. Treatment

ALERT CONSIDER MEDICAL CONSULTATION FOR PATIENTS WITH A CARDIAC HISTORY.

a) Assist patient experiencing moderate to severe symptoms or mild symptoms with a history of life-threatening allergic reaction with the patient's prescribed fast-acting bronchodilator or prescribed epinephrine auto-injector.

b) Use of the EMS service's manual epinephrine (1:1,000) 0.5 mg in 0.5 mL or 0.3 mg via epinephrine auto-injector IM requires medical consultation.

c) Albuterol inhaler (2 puffs) may be repeated once within 30 minutes.

d) Consider additional doses of patient's prescribed fast-acting bronchodilator or manual epinephrine (1:1,000) 0.5 mg in 0.5 mL or 0.3 mg via epinephrine auto-injector IM.

---

e) Establish IV access with LR on all Priority 1 or 2 patients and all patients with a history of cardiac disease.

f) Patients with moderate to severe respiratory distress may require high flow oxygen via non-rebreather mask, continuous positive airway pressure (CPAP), or BVM while receiving medication via nebulizer.

g) Administer a combination of albuterol/Atrovent® via nebulizer.
Albuterol 2.5 mg and Atrovent® 500 **mcg**

h) If further treatments are indicated, an additional albuterol-only nebulizer may be given.

i) Consider CPAP if patient continues to deteriorate in spite of above nebulized treatments. Continue inline nebulizations.

j) Consider the administration of epinephrine 1:1,000.
0.3 mg IM in the lateral thigh via epinephrine auto-injector or
0.5 mg in 0.5 mL IM
May repeat every 5 minutes for a total of 3 doses for severe reactions.

k) For moderate to severe exacerbations, consider the administration of dexamethasone 10 mg IV/PO.

l) For moderate to severe exacerbations, consider the administration of magnesium sulfate 1–2 grams, mixed in 50–100 mL of approved diluent, IV/IO over 10–20 minutes.

PP. RESPIRATORY DISTRESS: ASTHMA/COPD (Continued)

m) Consider additional doses of epinephrine or albuterol.

n) Assist patient(s) experiencing moderate to severe symptoms or mild symptoms with a history of life-threatening allergic reaction with the patient's prescribed or EMS service's epinephrine (1:1,000) 0.15 mg in 0.15 mL IM or patient's prescribed fast-acting bronchodilator.

ALERT MEDICAL CONSULTATION IS REQUIRED IF THE PATIENT HAS CONGENITAL HEART OR CHRONIC LUNG DISEASE.

o) Fast-acting bronchodilator (2 puffs) may be repeated once within 30 minutes.

p) Consider additional doses of patient's prescribed fast-acting bronchodilator or epinephrine (1:1,000) 0.15 mg in 0.15 mL IM.

q) Patients with moderate to severe respiratory distress may require high flow oxygen via non-rebreather mask, CPAP, or BVM while receiving medication via nebulizer.

r) Administer a combination of albuterol/Atrovent via nebulizer:
   (1) **For an infant less than 1 year of age**, administer albuterol 1.25 mg via nebulizer; Atrovent is contraindicated.
   (2) **For a child 1 year of age or greater, but less than 2 years of age**, administer albuterol 1.25 mg and Atrovent 250 **mcg**.
   (3) **For a patient 2 years of age or greater**, administer albuterol 2.5 mg and Atrovent 500 **mcg**.

s) If further treatments are indicated, an additional albuterol-only nebulizer may be given.
   AND/OR

ALERT MEDICAL CONSULTATION IS REQUIRED IF THE PATIENT HAS CONGENITAL HEART OR CHRONIC LUNG DISEASE.

t) Administer epinephrine 1:1,000.
   Less than 5 years of age: 0.15 mg IM in the lateral thigh via epinephrine auto-injector or manual administration 0.15 mg in 0.15 mL IM
   5 years and greater: administer 0.3 mg IM in the lateral thigh via epinephrine auto-injector or manual administration 0.5 mg in 0.5 mL IM
   May repeat every 5 minutes for a total of 3 doses for severe reactions.

u) For moderate to severe exacerbations, consider the administration of dexamethasone 0.5 mg/kg PO/IV up to a maximum dose of 10 mg.

v) Consider magnesium sulfate 50 mg/kg IV/IO to a max of 2 grams given over 10–20 minutes (mixed in 50 - 100 mL of approved diluent).

ALERT MAGNESIUM ADMINISTRATION OFTEN CAUSES HYPOTENSION IN CHILDREN. CONSIDER ADMINISTERING BOLUS 20 ML/KG OF LACTATED RINGER'S WITH THE ADMINISTRATION OF MAGNESIUM.

w) Consider additional doses of albuterol or epinephrine.

THIS PAGE IS INTENTIONALLY BLANK

QQ. RESPIRATORY DISTRESS: CROUP

1. Inclusion Criteria
   Forms of Croup:
   Mild - Barky cough exhibited without stridor at rest (Priority 2)
   Moderate - Barky cough with stridor at rest without agitation, may exhibit mild respiratory distress (Priority 2)
   Severe - Stridor at rest, signs of severe respiratory distress that is associated with agitation or decreased level of consciousness (Priority 1)

ALERT IF EPIGLOTTITIS IS SUSPECTED, I.E., DROOLING WITH ABOVE SIGNS AND SYMPTOMS, DO NOT INITIATE THIS PROTOCOL WITHOUT APPROPRIATE MEDICAL DIRECTION.

2. Treatment
   a) Ensure that the patient has a patent airway and adequate respiratory effort. Assess respiratory status looking specifically for signs and/or symptoms of respiratory distress (nasal flaring, retractions, increased/decreased respirations, skin color, change in level of consciousness).

   b) Place patient on cardiac monitor and record vital signs. (This may be done concurrently with medication administration if patient is unstable.)

   c) MILD: For children exhibiting symptoms of a mild croup presentation, administer dexamethasone 0.5 mg/kg PO up to a maximum dose of 10 mg.

   d) MODERATE: For children who exhibit symptoms of a moderate croup presentation, administer dexamethasone 0.5 mg/kg PO up to a maximum dose of 10 mg. If no change in patient's condition, then administer 2.5 mL of epinephrine 1:1,000 via nebulizer.

   e) SEVERE: If respiratory distress is so severe that respiratory arrest is imminent:
      (1) First, administer 0.01 mg/kg of epinephrine 1:1,000 IM (max single dose of 0.5 mg).
      (2) Then administer dexamethasone 0.5 mg/kg IV up to a maximum dose of 10 mg AND 2.5 mL of epinephrine 1:1,000 via nebulizer. If IV not established, give IM dexamethasone.

   f) Establish communications with the appropriate facility and obtain medical direction if patient is less than 1 year of age, if additional nebulized epinephrine is needed due to level of distress, or if other interventions or directions are needed.

ALERT ALL PATIENTS WHO RECEIVE NEBULIZED EPINEPHRINE **MUST** BE TRANSPORTED BY AN ADVANCED LIFE SUPPORT UNIT TO THE APPROPRIATE MEDICAL FACILITY.

RR. RESPIRATORY DISTRESS: PULMONARY EDEMA/CONGESTIVE HEART FAILURE

1. Inclusion Criteria
   Accurate diagnosis of congestive heart failure (CHF)/acute pulmonary edema (APE) as the cause of respiratory distress can be challenging. The most accurate identification of CHF/APE is made using the medical history, risk factors, medications, and physical exam with interpretation of blood pressure.
   CHF/APE is difficult to distinguish, at times, from other respiratory causes. Factors most associated with a short-of-breath patient having CHF include: **a history of CHF**, exam features **of jugular venous distension and EKG evidence of atrial fibrillation**. CHF patients are commonly on anti-hypertensive and cardiac medicines. **Orthopnea** (use of additional pillows to prop the head up during sleep), **Dyspnea on Exertion** and **Paroxysmal Nocturnal Dyspnea** (PND) are symptoms associated with CHF/APE. Blood pressure is frequently elevated, usually greater than 160/100 but not uncommonly greater than 180/120.

   EMS clinicians should strongly consider CHF/APE in patients possessing the factors above, presenting with acute respiratory distress, tachypnea, hypoxia, rales, or wheezing and marked hypertension, even in the absence of peripheral edema.

GERIATRIC PATIENTS DEMONSTRATING MARKED HYPERTENSION IN ASSOCIATION WITH SHORTNESS OF BREATH/RESPIRATORY DISTRESS AND WHEEZING (IN THE ABSENCE OF ASTHMA OR INFECTION) STRONGLY SUGGESTS CHF/APE.

Acute Respiratory Distress from CHF may range from mild to severe, life-threatening cases of Acute Pulmonary Edema. This classification is for patients with Systolic BP greater than 110 mmHg.

a) **Asymptomatic – dyspnea on exertion but no symptoms at rest.**
b) **Mild – mild dyspnea at rest, despite O_2 treatment. Able to speak in full sentences.**
c) **Moderate – moderate dyspnea. O_2 saturation less than 93% on oxygen. Systolic BP usually greater than 150. Unable to speak in full sentences. Normal mental status.**
d) **Severe – severe dyspnea, respiratory failure, hypoxia (O_2 saturation less than 90% on oxygen), diaphoresis, Systolic BP commonly greater than 180. One word sentences, altered consciousness.**

The goals of treatment are to reduce the pressure of blood returning to the heart (preload) and the resistance that the left ventricle must pump against (afterload). The most effective and safe medication for these goals is nitroglycerin (NTG).

RR. RESPIRATORY DISTRESS: PULMONARY EDEMA/CONGESTIVE HEART FAILURE (Continued)

2. Treatment

a) Position patient in High Fowler's position.

b) Rate the patient's difficulty breathing on a scale where 0 is "no trouble breathing" and 10 is "the worst trouble breathing."

c) Continuous positive airway pressure (CPAP) should be considered for moderate dyspnea and must be implemented in severe dyspnea. (Use early; attempt to administer 3 doses of NTG while setting up, acclimatizing the patient, and applying CPAP.)

ALERT PERFORM 12-LEAD EKG (IF AVAILABLE), AND IF INFERIOR WALL WITH POSTERIOR WALL EXTENSION MI IS PRESENT, WITHOLD NTG. CONSULT FOR FURTHER ADMINISTRATION.

d) Establish IV access with LR.

e) Identify rhythm and treat according to appropriate algorithm.

f) For patients with hypertension and moderate to severe symptoms, administer NTG (does not require IV before administration). If SBP drops below 90 mmHg, treat with medical fluid bolus: initial bolus 250–500 mL, may repeat once.
   (1) Asymptomatic - apply oxygen per GPC to maintain O_2 saturation greater than 93%.
   (2) Mild - administer low-dose NTG 0.4 mg SL at 3–5 minute intervals, to a maximum dose of 1.2 mg.
   (3) Moderate and severe - CPAP is preferred therapy. Until CPAP is applied, administer high-dose NTG. Assess BP before each administration.

ALERT CPAP IS THE PREFERRED THERAPY. DO NOT REMOVE CPAP TO CONTINUE ADMINISTERING NTG.

High Dose NTG until CPAP is applied or if CPAP is not tolerated. (Dose at 3–5 minute intervals.)
   (4) Administer 1 dose of NTG 0.4 mg SL and apply 1 inch of NTG paste.
   (5) Administer 1 dose of NTG 0.8 mg SL.
   (6) Continue 0.8 mg SL NTG dosing to achieve a 20% reduction in SBP.

ALERT IF BLOOD PRESSURE IS LOW, CONSIDER SMALL FLUID BOLUS(ES) FOLLOWED BY EPINEPHRINE.

g) Consider epinephrine infusion (1 mg epinephrine in 100 mL LR), starting at 1 mL/min (60 drops/min). Titrate to systolic BP of 90 mmHg. Maximum rate of 2 mL/min (120 drops/min). IV infusion pump preferred.

RR. RESPIRATORY DISTRESS: PULMONARY EDEMA/CONGESTIVE HEART FAILURE (Continued)

MEDICAL CONSULTATION IS REQUIRED IF THE PATIENT HAS CONGENITAL HEART OR CHRONIC LUNG DISEASE.

h) Position patient in semi-Fowler's position.

i) Establish IV access with LR.

j) Identify rhythm and treat according to appropriate algorithm.

k) Patients with moderate to severe respiratory distress may require high flow oxygen via non-rebreather mask, CPAP, or BVM while receiving medication via nebulizer.

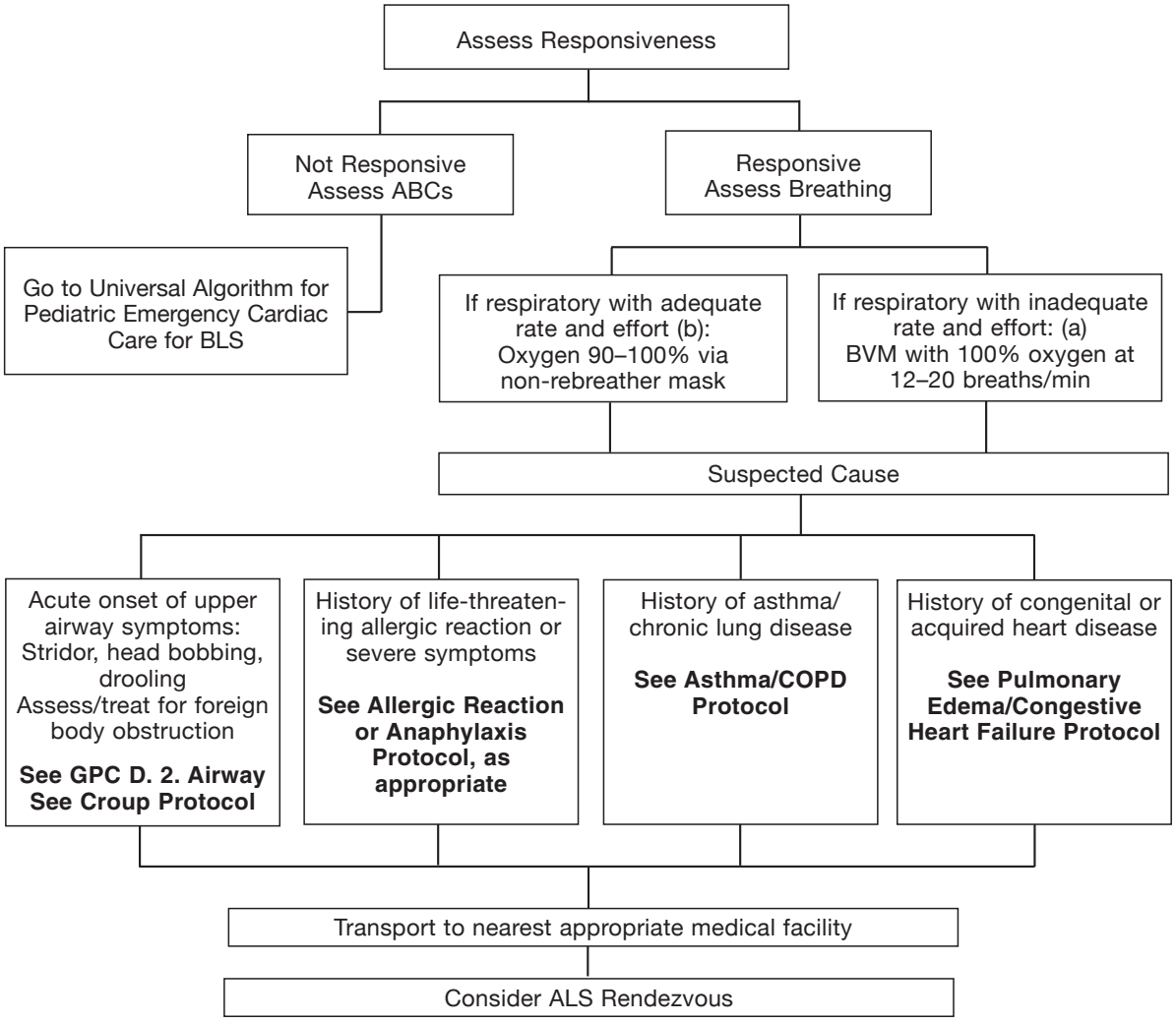
l)  Consider albuterol.
For children less than 2 years, albuterol 1.25 mg
For children greater than or equal to 2 years, albuterol 2.5 mg

m)  Consider morphine.
0.1 mg/kg SLOW IVP/IO/IM (1–2 mg/min)
Maximum dose 5 mg

n)  Consider epinephrine infusion with medical consultation.

3. Consider transport to the pediatric specialty center that follows patient.

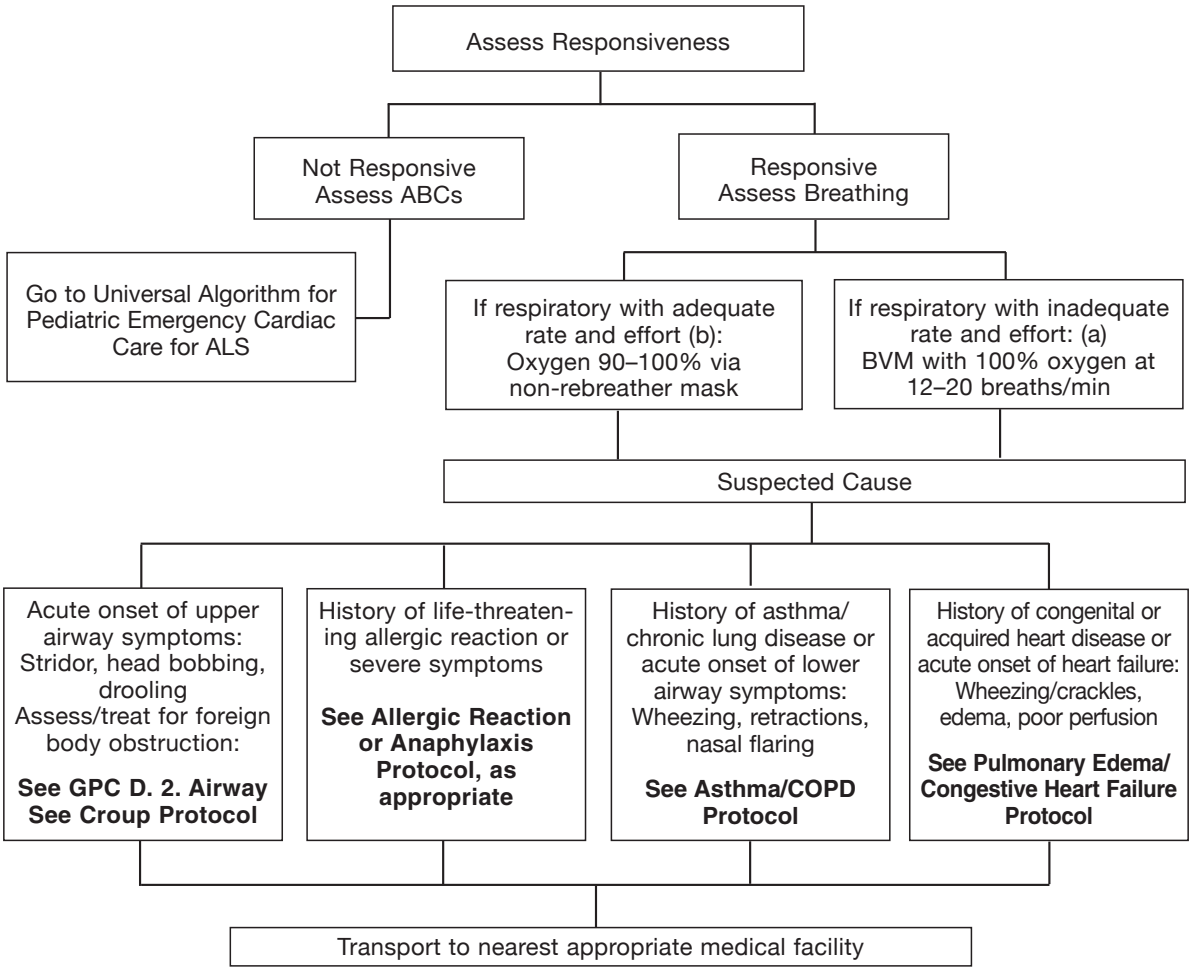
6. UNIVERSAL ALGORITHM FOR PEDIATRIC RESPIRATORY DISTRESS FOR BLS



(a) Inadequate RR: Infant less than 20 breaths per minute, Child less than 16 breaths per minute, Adolescent less than 12 breaths per minute. Inadequate effort: Poor chest rise, shallow respirations/ poor air movement, cyanosis, severe retractions, paradoxical breathing.

(b) For children with chronic lung disease or congenital heart disease: Maintain or increase home oxygen to maintain patient's target saturations.

7. UNIVERSAL ALGORITHM FOR PEDIATRIC RESPIRATORY DISTRESS FOR ALS



(a) Inadequate RR: Infant less than 20 breaths per minute, Child less than 16 breaths per minute, Adolescent less than 12 breaths per minute. Inadequate effort: Poor chest rise, shallow respirations/ poor air movement, cyanosis, severe retractions, paradoxical breathing.

(b) For children with chronic lung disease or congenital heart disease: Maintain or increase home oxygen to maintain patient's target saturations.