

2000 General Principles of Airway Management

An intact airway, adequate oxygenation, and ventilation are essential for all patients with medical or traumatic conditions. Throughout this protocol it is assumed that EMS personnel will maintain a patent airway and provide appropriate supplemental oxygenation.

1. Observe BSI precautions and use appropriate level of protection when performing any aerosol generating procedures.
2. To open the airway initially, choose method most suitable for patient.
3. Assess ventilations.
 - a. Begin BVM ventilation if patient is not breathing.
 - b. Relieve partial or complete airway obstruction, if present.
4. Assess oxygenation; use supplemental oxygen as needed to maintain saturation per protocol.
 - a. If ventilating adequately, provide supplemental oxygen per protocol.
 - b. If NOT ventilating adequately:
 - i. Bag-valve-mask ventilation with 100% oxygen.
 - ii. Choose airway adjunct to maintain patency.
 - iii. Appropriately size and insert airway adjunct.
 - iv. Consider positioning the patient on side (if medical problem).
 - v. If patient is breathing spontaneously and conscious, consider using Continuous Positive Airway Pressure (CPAP).
 - c. When using pulse oximetry, adjust oxygen delivery to maintain saturation per oxygen protocol.
5. Consider intubation for those patients who cannot protect their own airway or who require positive pressure ventilation.
 - a. Confirm endotracheal tube placement:
 - i. Observe for chest rise and fall.
 - ii. Verify the presence of lung sounds and the absence of epigastric sounds.
 - iii. Attach the EtCO₂ monitor and verify CO₂ production by waveform.
 - iv. Adjust ventilation to assure EtCO₂ between 35-45 mmHg.
 - v. Apply spinal motion restriction with a c-collar or by taping the head to prevent head movement during transport when a patient is intubated.
6. If unable to intubate, maintain airway with airway adjunct and use of BVM.
7. If unable to maintain airway with basic maneuvers AND unable to intubate:
 - a. Consider supraglottic airway
 - b. Consider cricothyrotomy (requires extensive training and permission from medical director)

Special Considerations

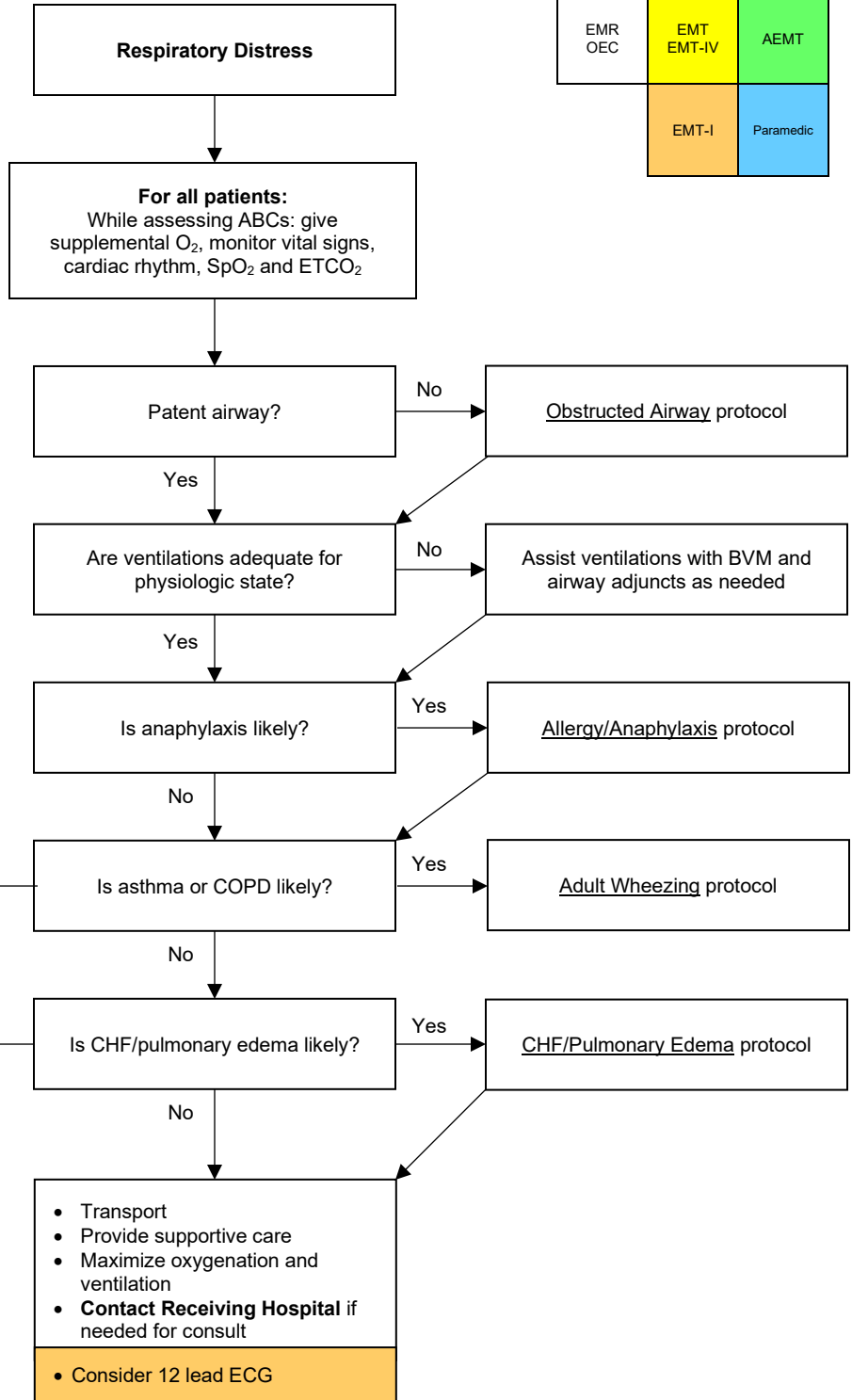
1. Consider assisting ventilations in those patients whose respiratory status does not improve after receiving oxygen by non-rebreather mask.
2. Use the trauma endotracheal intubation method with patients who have suspected compromised cervical spines.

2010 ADULT UNIVERSAL RESPIRATORY DISTRESS

EMR OEC	EMT EMT-IV	AEMT
	EMT-I	Paramedic

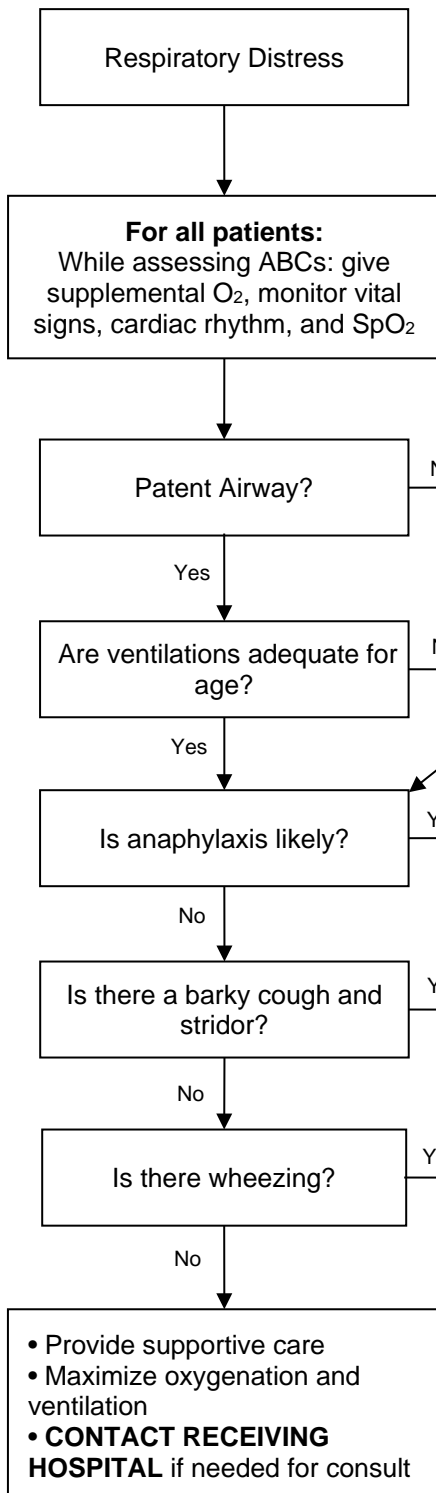
- Consider pulmonary and non-pulmonary causes of respiratory distress:**
- Pulmonary embolism
 - Pneumonia
 - Heart attack
 - Pneumothorax
 - Sepsis
 - Metabolic acidosis (e.g.: DKA)
 - Anxiety
 - Cardiac tamponade
 - Cardiac dysrhythmia

- Mixed picture may exist**
- Goal is maximization of oxygenation and ventilation in all cases
 - CPAP may be particularly useful in mixed picture with hypoxia and/or hypoventilation
 - Avoid albuterol in suspected pulmonary edema



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	EMT-I	Paramedic



Age-appropriate ventilation rate in respiratory failure:

Age	Breaths/min
Neonate	40
Infants	30
Children	20

Assisted ventilation rates listed do not apply to the patient in cardiac arrest

Characteristics of Stridor:

- High-pitched, harsh sound most often heard on inspiration
- Occurs with upper airway restriction
- Significant restriction may result in biphasic stridor (heard on inspiration and expiration)

Consider pulmonary and non-pulmonary causes:

- Foreign body
- Croup
- Pneumonia
- Bronchiolitis
- Pulmonary embolism
- Sepsis
- Metabolic derangement
- Anxiety

9250 MEDICATIONS

OXYGEN

Description

Oxygen added to the inspired air increases the amount of oxygen in the blood, and thereby increases the amount delivered to the tissue. Tissue hypoxia causes cell damage and death. Conversely, hyperoxia has been linked with worsened outcomes, such as with acute coronary syndromes and stroke. Therefore, oxygen should not be viewed as a harmless drug where more is better. EMS personnel should add additional oxygen when hypoxia, shock, or respiratory distress are present titrating to pulse oximetry. However, 100% oxygen is indicated in some circumstances, such as with carbon monoxide poisoning or pre-intubation oxygenation.

Indications

- Suspected hypoxemia or respiratory distress from any cause
 - Hypotension/shock states from any cause
 - Suspected carbon monoxide poisoning
 - Obstetrical complications, childbirth
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Precautions

- If the patient is not breathing adequately, the treatment of choice is assisted ventilation, not just oxygen.
 - When pulse oximetry is available, titrate SpO₂.
 - Do not withhold oxygen from any patient in respiratory distress, including COPD patients.
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Administration

- Use the appropriate oxygen delivery method and flow rate to achieve SpO₂ of 94% to 99% when oxygen therapy is indicated.
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Special Notes

- Do not use permanently mounted humidifiers. If the patient warrants humidified oxygen, use a single patient use device.