Respiratory Distress

Initial actions:

- Conduct scene size-up, primary assessment, & immediate life-saving interventions. Have an airway adjunct, ventilation & suction devices nearby & ready.
- Promptly administer oxygen as tolerated by the patient and, if available, titrate with pulse oximetry to desired SpO_2.
- Place the patient in a position of comfort (preferably seated in fowler's position)
- Request Advanced Life Support (ALS) considering their availability & hospital proximity.
- Obtain baseline vital signs, SAMPLE history, & conduct a secondary assessment attentive to respiratory fatigue, failure, or arrest.

Initiate the following treatment(s) as indicated & appropriate for awake, spontaneously breathing patients with respiratory distress.

Prompt transport is important – DO NOT delay transport to administer these treatments.

<table>
<tr><th>Therapy</th><th colspan="2">Short-acting bronchodilator mist</th><th>Continuous Positive Airway Pressure (CPAP)</th></tr>
<tr><td>Form</td><td>Metered Dose Inhaler (MDI)</td><td>• Unit-dose solution by small volume nebulizer (SVN)
• High-flow nebulizer (HFN)</td><td>• Driven by oxygen or air
• Full face or nasal mask, NO nasal prongs</td></tr>
<tr><td>Source</td><td colspan="2">Must be prescribed for, & supplied by, the patient</td><td>• Prescribed for, & supplied by, the patient
• Supplied by EMT/agency under Medical Director</td></tr>
<tr><td>Authorization</td><td colspan="2">All EMTs</td><td>• Patient prescribed, or
• EMTs under on-line Medical Control, or
• Medical Director protocol</td></tr>
<tr><td>Age</td><td colspan="2">No restriction</td><td>18 years or older</td></tr>
<tr><td>Indication(s)</td><td colspan="2">• Dyspnea & signs of respiratory distress associated with bronchospasm (breath sounds diminished or wheezing, retractions, etc.)
• Alert patient physically able to use inhaler or nebulizer.</td><td>• Dyspnea & signs of respiratory distress associated with pulmonary edema (breath sounds diminished, wheezing, or significant rales; retractions; etc.)
• Continuation of CPAP therapy in progress prior to EMS arrival or initiated by ALS.</td></tr>
<tr><td>Contraindications</td><td colspan="2">• Medication is expired.
• Known hypersensitivity or allergy to the medication.
• Inability of the patient to physically assist in using the device.
• Maximum prescribed dose has been met or exceeded prior to EMS arrival</td><td rowspan="2">• Respiratory failure or apnea
• Hypotension (SBP < 100 mm Hg)
• Pneumothorax
• Facial, laryngeal, or pulmonary trauma
• Tracheoesophageal fistula
• Recent tracheal, esophageal, or gastric surgery
• Active or anticipated vomiting or upper GI bleeding
• Failure to tolerate or completely seal CPAP mask</td></tr>
<tr><td></td><td><u>SVN and/or HFN</u>
Solution is discolored, cloudy, or precipitated</td></tr>
<tr><td>Adverse Effects</td><td colspan="2">• Hyperglycemia • Hypokalemia • Palpitations
• Anxiety • Tremors • Nausea
• Vomiting • Dry mouth • Epitaxis
• Hypertension • Dyspepsia • Insomnia
• Headache • Sinus tach
• Throat irritation • Paradoxical bronchospasm</td><td>• Claustrophobia • Epitaxis • Chest discomfort
• Excessive cooling • Nausea • Sinus discomfort
• Difficulty exhaling • Cardiac arrhythmia
• Pneumothorax • Pneumomediastinum
• Edema • Aerophagia
• Subcutaneous emphysema</td></tr>
</table>

Respiratory Distress

Administration (MDI)	• Obtain & use spacer, if available • Determine number of puffs that make one dose per physician order • Coach the patient to exhale, depress canister while inhaling, hold breath as long as comfortable, then exhale slowly through pursed lips or nose • Separate puffs within one dose with 30-60 seconds of oxygen • May repeat one full dose once if indications remain after 5 minute reassessment unless the repeat dose would exceed the maximum prescribed dose			
Administration (SVN) or (HFN)	• Select mouthpiece or mask delivery • Assemble & supply O_2 to SVN or HFN according to manufacturer's specifications • Coach patient to slowly & deeply inhale the mist, hold breath as long as comfortable & then exhale slowly • Tap nebulizer as necessary to encourage solution to accumulate & settle into cup/bowl & sustain mist delivery • Replace the original oxygen device after fog concludes • May repeat once if indications remain after 5 minute reassessment unless the repeat dose would exceed the maximum prescribed dose			
Administration (CPAP)	• Limit CPAP to no more than 10 cm H_2O unless directed by medical control or patient prescription • Brief patient on what to expect & how to cooperate when CPAP mask is applied • Assemble & supply O_2 to CPAP device according to manufacturer's specifications • Assure a snug fit of CPAP mask & adequate O_2 supply • Reassess for tolerance of therapy, gastric distention, respiratory fatigue or failure, hypotension, &, if available, SpO_2 desaturation • Be prepared to abandon CPAP & provide original O_2 therapy or assisted ventilation • If possible, notify receiving facility prior to arrival that patient is receiving CPAP			
Documentation	**MDI** **SVN** **HFN**	Note dose(s), time(s) of administration & patient response & communicate this during transfer of care to ALS and/or receiving facility staff	**CPAP**	Note therapy, CPAP pressure, & patient response & communicate this during transfer of care to ALS and/or receiving facility staff

Initiate the following treatment(s) as indicated & appropriate for patients with respiratory fatigue/failure or arrest.

Prompt transport is important – DO NOT delay transport

- Assess lung sounds and respiratory effort
- If ventilatory status is inadequate (patient is cyanotic, visible retractions, severe use of accessory muscles/poor work of breathing, altered mental status, respiratory rate less than 10 breaths per minute, or signs of poor perfusion) proceed with positive pressure ventilations via BVM.
    - Provide BLS according to AHA standards
    - Each ventilation should be sufficient to cause the chest to visibly rise without causing excessive gastric distention
    - Patients who require BVM ventilation should have a PEEP valve attached to the BVM set to 5-10 cm of water dependent on suspected etiology.
        - *See below note pertaining to Pulmonary Edema/CHF and Bronchoconstriction/COPD/Asthma for settings.*
    - Consider ventilating certain patients in the semi/full fowler's position.
    - Patients with severe congestive heart failure (CHF) will often decompensate in the supine position and should not be placed supine.
- Reassess patient, especially lung sounds and effort, vital signs, and oxygen saturation while en-route to the hospital.
- Transport should not be significantly delayed by on-scene activity

REMEMBER: When questions or concerns arise, contact Medical Command.

A note about *Pulmonary Edema/CHF and Bronchoconstriction/COPD/Asthma*

Acute exacerbations of Bronchoconstriction/COPD/Asthma

Symptoms include: Cough, shortness of breath (SOB), wheezing, and/or air hunger.

Signs include: Wheezing, diminished breath sounds, retractions, and tachypnea. Patients with Bronchoconstriction can have rales and hypertension.

Treatment: Bronchodilators and steroids are the mainstay of treatment. CPAP generally with lower PEEP settings near ***5*** can often help reduce the patient's work of breathing and help nebulized medications get to the smaller airways.

Pulmonary Edema/CHF

Symptoms include: SOB, orthopnea (increased distress when supine), air hunger, sensation and appearance of drowning, acute onset.

Signs include: Rales, tachypnea, pink frothy sputum, tripod position, often severe hypertension, lower extremity edema. Patients with CHF can wheeze

Treatment: A higher PEEP of ***10*** is often necessary to treat these patients.

Many patients suffer from both syndromes. Distinguishing between them is often a challenge. CPAP is generally effective for both conditions. Bronchodilators can be lifesaving for Bronchoconstriction/COPD/Asthma, yet can worsen CHF exacerbations. If in doubt, contact Medical Command.