



TN Department of Health  
EMS Division  
Board Approved

## **TENNESSEE EMS INTERFACILITY TRANSPORT WITH MECHANICAL VENTILATOR PROGRAM**

### **EMS BOARD POLICY ON VENTILATORY TRANSPORTS:**

Individuals providing Interfacility Transport with Mechanical Ventilator must have successfully completed a training program which was approved by the Division and met the EMS Board approved program requirements and objectives.

### **CANDIDATE PREREQUISITES:**

The following are required prerequisites for individuals entering the Interfacility Transport with Mechanical Ventilator training:

1. Must be currently licensed as a Paramedic with at least two (2) years full time experience as an EMT-P.
2. Proficient in endotracheal intubation and related airway management skills.

### **INSTRUCTOR QUALIFICATIONS:**

#### **DIDACTIC INSTRUCTORS**

Shall be an experienced critical care professional with at least two years transport experience - CCEMT-P, Critical Care RN, MD or DO and an experienced respiratory therapist- CRT, RRT. Must be a TN licensed health care professional. Instructors should be capable and able to encourage interactive learning and facilitate discussions on the topic.

#### **CLINICAL INSTRUCTORS**

Shall be an experienced critical care health care professional with a minimum of two years of ventilator transport experience. Must be a TN licensed health care professional with at least one of the following credentials- CRT, RRT, CCEMT-P, Critical Care RN, MD or DO.

## **MINIMAL EQUIPMENT NEEDS AND INSTRUCTOR RESOURCES**

### **Visual aids and resources**

1. Airway manikins
2. Airway adjunct equipment
3. Endotracheal tube placement confirmation devices
4. Manual ventilating devices
5. Mechanical ventilator
6. Case study scenarios promoting participants to make Clinical decisions.

## **MINIMAL TIME FOR DIDACTIC AND LABATORY**

**16 hours**

## **CLINICAL REQUIRMENTS**

**No less than 6 hours with a minimum of 4 patient contacts.**

All clinical components begin after completion of the Module- respiratory- Interfacility Transport with Mechanical Ventilator Training.

## **EMS INTERFACILITY TRANSPORT WITH MECHANICAL VENTILATOR COURSE OBJECTIVES**

### **TERMINAL OBJECTIVES:**

At the completion of this unit of instruction, the participant shall be able to:

1. Integrate concepts of respiratory anatomy and physiology and pathophysiology into the assessment and management of the adult.
2. Formulate a treatment plan to include pharmacological and mechanical interventions for the patient with respiratory compromise.
3. Identify common ventilatory controls and their physiological effects.

### **COGNITIVE OBJECTIVES:**

At the completion of this unit of instruction, the participant shall be able to:

1. Discuss the anatomy and physiology of the respiratory system.
2. Assess the respiratory system.
3. Define ventilation.
4. Compare the inspiration and expiration as to the direction of air movement, use of energy, and muscles involved.
5. Define the following terms related to ventilation, including elastance, surfactant, compliance, airway resistance, work of breathing, tidal volume, anatomic dead space, and alveolar ventilations.
6. List significant inspection findings related to respiratory distress.
7. Relate assessment findings determined by palpation.
8. Identify adventitious sounds that are characterized as continuous and discontinuous.

9. Relate clinical conditions that produce crackles, wheezes and rhonchi.
10. Formulate a management plan for transporting the patient in respiratory failure.
11. Interpret acid-base balance and arterial blood gases.
12. Discuss the physiology of ventilation and respiration.
13. Identify common pathological events that affect the pulmonary system.
14. Discuss abnormal assessment findings associated with pulmonary diseases and conditions.
15. Compare various airway and ventilation techniques to include invasive and noninvasive, used in the management of pulmonary diseases.
16. Review the pharmacological preparations that may be used for management of respiratory disease, conditions and in transport.
17. Review the use of equipment used during the physical examination of patients with complaints associated. Describe the epidemiology, pathophysiology, assessment findings, and management for the following respiratory diseases and conditions:
  - a. Bronchial asthma
  - b. Chronic bronchitis.
  - c. Emphysema
  - d. Pneumonia
  - e. Pulmonary Edema
  - f. Spontaneous pneumothorax
  - g. Respiratory Distress Syndrome
  - h. Pulmonary thromboembolism.
18. Discuss the indications, contraindications, complications, equipment and techniques for the following:
  - a. Tracheobronchial suctioning for the intubated patient.
  - b. Alternative methods for endotracheal intubation
  - c. Needle/Surgical Cricothyrotomy
  - d. Needle thoracostomy
  - e. End-tidal CO<sub>2</sub> monitoring
  - f. Bag –Valve-Mask Technique
  - g. Mechanical Transport Ventilator
19. Identify common ventilatory controls and their physiological effects-
  - a. Rate
  - b. Tidal Volume
  - c. I- time
  - d. E-time
  - e. Inspiratory flow
  - f. I:E ratio
  - g. PEEP

## **PSYCOMOTOR OBJECTIVES**

At the completion of this unit of instruction, the participant will be able to:

1. Perform orotracheal intubation, digital, and nasotracheal intubation procedure on a manikin with assessment of placement, confirmation using all board approved devices and trouble shooting techniques.
2. Demonstrate the set up, maintenance and trouble shooting of a mechanical ventilator.
3. Assess lung sounds

## **AFFECTIVE OBJECTIVES**

At the completion of this unit of instruction the participant shall be able to.

1. Defend the need and management for controlled ventilations, oxygenation, and airway control in the adult patient in transport.

## **CLINICAL**

### **TERMINAL OBJECTIVE:**

At the completion of this unit of instruction, the participant shall be able to:

1. Integrate a comprehensive assessment and management of respiratory failure patients on a ventilator in transport.

### **CLINICAL EXPECTATIONS AND OUTCOMES**

The student must demonstrate the ability to perform a comprehensive assessment and ventilator management of an adult patient.

### **CLINICAL OUTCOME STATEMENT**

Candidates will demonstrate the ability to manage:

1. Demonstrate assessment and calculations of tidal volumes and pressures.
2. Perform appropriate operation of mechanical ventilation equipment in the following modes:
  - a. Controlled mandatory ventilation (CMV)
  - b. Assist Control (A/C)
  - c. Intermittent mandatory ventilation (IMV)
  - d. Synchronized intermittent mandatory ventilation (SIMV)
  - e. Pressure support ventilation
  - f. Continuous positive airway pressure (CPAP)
  - g. Positive end expiratory pressure (PEEP)
  - h. Bi-PAP/Bi-level ventilation

**Individuals who show competency and successful completion of a TN EMS Interfacility Transport with Mechanical Ventilator Training program which includes both supervised laboratory and clinical experience following the module guidelines may participate in ventilator transports.**