



## MLREMS Advanced Practice Paramedic Clinical Competency Chest Tube Management

**At the end of this skills session, the Paramedic will be able to:**

1. Explain the indications of a chest tube
2. Explain the 3 components of a chest tube drainage system
3. Explain and/or demonstrate the setup of a chest tube drainage system
4. Demonstrate connection of the chest tube drainage system to the chest tube
5. Verbalize securing of connections from the patient to the chest tube drainage system
6. Explain proper chest tube dressing application and management
7. Demonstrate assessment for an air leak and localization
8. Demonstrate and/or explain the procedure for changing a drainage system

Action	Complete
Dons appropriate PPE	
Identifies the 3 main areas of the drainage system	
Set up Chest Drainage Unit, ensuring that patient connections remains sterile. Fill the water seal chamber with sterile H <sub>2</sub> O to the 2 cm line. <ul style="list-style-type: none"><li>■ Twist top off sterile fluid bottle and insert tip into suction port</li><li>■ Squeeze contents into water seal until fluid reaches 2 cm fill line</li><li>■ Once filled, water becomes tinted blue</li><li>■ Do not overfill water seal above 2 cm line</li><li>■ For a "Dry" system<ul style="list-style-type: none"><li>■ Set the suction control regulator on the drainage unit to the prescribed level, typical ~20 cm H<sub>2</sub>O</li></ul></li><li>■ For a "Wet" system<ul style="list-style-type: none"><li>■ Fill the suction regulation chamber with H<sub>2</sub>O to the prescribed level, typically ~20 cm H<sub>2</sub>O</li></ul></li></ul>	
Describe proper technique for withdrawing excess fluid out of water seal chamber <ul style="list-style-type: none"><li>■ Access rubber stopper on water seal chamber and withdraw required amount of water</li></ul>	
Maintaining sterile technique, connect the drainage system to the patient <ul style="list-style-type: none"><li>■ Remove patient tube connector cap(s)</li><li>■ Insert stepped patient tube connector(s) into chest tube</li><li>■ Connect chest drainage system to patient prior to initiating suction</li><li>■ Remove all clamps</li></ul>	



Connect suction the chest drainage system. To apply suction:	
<ul style="list-style-type: none"><li>■ Connect wall source vacuum line directly to chest drain suction line stepped connector</li><li>■ For a "Dry" system<ul style="list-style-type: none"><li>■ Ensure the suction baffle indicates that the appropriate amount of suction is applied</li></ul></li><li>■ For a "Wet" system<ul style="list-style-type: none"><li>■ Set the wall suction to elicit a gentle bubbling in the suction regulation chamber</li></ul></li></ul>	
Secure connections between chest tube and chest drainage system (with adhesive tape)	
Monitor and record amount of chest drainage hourly and at transfer of care at receiving facility	
Maintain the chest tube system as prescribed:	
<ul style="list-style-type: none"><li>■ Maintain water seal at prescribed levels</li><li>■ Maintain drainage tubing in a position to facilitate drainage</li></ul>	
Assess patient/chest tube system:	
<ul style="list-style-type: none"><li>■ Monitor changes in color, character, and amount of chest drainage. Mark level of drainage on unit collection chamber with time and date for measurement.</li><li>■ Assess the water seal chamber for an air leak. Air bubbles observed in the blue tint water going from right to left will confirm a patient air leak.<ul style="list-style-type: none"><li>■ Continuous bubbling in the bottom of the water seal air leak zone will confirm a persistent air leak.</li><li>■ Intermittent bubbling in the air leak zone will confirm the presence of an intermittent air leak.</li><li>■ No bubbling will indicate no air leak is present.</li></ul></li><li>■ Demonstrate procedure for a localized air leak.<ul style="list-style-type: none"><li>■ Clamp tube close to chest. If air leak disappears, leak is in chest.</li><li>■ If air leak continues, leak is in drainage system.</li><li>■ Clamping must be done very quickly, because it can increase intra-pleural pressure and extend or cause a tension pneumothorax.</li></ul></li><li>■ "Milk" chest tube as needed to facilitate drainage.</li></ul>	
Demonstrate or explain procedure for changing a full or contaminated drainage system.	
<ul style="list-style-type: none"><li>■ Prepare new drainage system before clamping chest tube.</li><li>■ Remove tape from chest tube/drainage unit connection.</li><li>■ Disconnect suction source.</li><li>■ Clamp chest tube briefly.</li><li>■ <b>SWIFTLY</b> change to new chest drainage system.</li><li>■ Unclamp chest tube immediately.</li></ul>	



■ Re-tape connections; attach to suction.	
---	--

**Paramedic Name:**

---

**Evaluator Name:**

---

**Evaluator Signature:**

---

**Date:** \_\_\_\_\_