Purpose:

To provide guidelines related to the monitoring and management of Chest Tubes during interfacility transports.

Procedure:

Identify drainage system as Wet Suction Control Unit or Dry Suction Control Unit. (See Chest Tube Appendix)

- Along with nursing staff, ensure chest tube is patent, securely taped, and is sealed at the chest wall.
- Ensure all connections are secure, airtight, and the collection device is functioning properly.
- Ensure long flexible tubing is free of kinks and is securely fastened to the chest tube and collection device.
- Ensure proper suction is applied to the unit.
- If a water seal is used, ensure it is properly filled and expected tidaling is noted.
- Confirm orders for desired water seal level.
- Wet Suction Control Units must be maintained in an upright position.
- If using a Dry Suction Control Unit, ensure orange flag is visible in window.

Evaluation of proper function

With Wet Suction Control Unit

- Ensure with suction applied there is bubbling in the Suction Control Chamber. (If not check the suction source.)
- Bubbling in the Water Seal Chamber indicates an air leak. (Also seen in Dry Suction Control Units using “Patient Air Leak Indicator”)
• Momentarily clamp the flexible tubing near the chest. NEVER LEAVE CLAMP IN PLACE FOR MORE THAN A FEW SECONDS.

• If the bubbles continue, the leak is between the clamp and the drainage unit. Check all connections and seal with tape if necessary, to maintain an airtight seal.

• If the bubbling stops, the leak is between the clamp and the chest wall. Check connection between chest tube and long flexible tubing; ensure connection is airtight, seal with tape if necessary. Ensure airtight dressing is applied at chest tube insertion site. Seal with occlusive dressing as necessary.

• If proper tidalizing is not observed, check for obstruction in the tubing. Ensure tubing is not kinked. If clots in the tubing are noted, use a milking or stripping action to direct material toward the collection drainage container. (Caution: as vigorous milking or stripping of the chest tube can create dangerously high negative pressures, putting the patient at risk for mediastinal trauma and/or graft trauma.

For unresolved issues contact Medical Control

The following information is provided as further education and is intended to act as an appendix to the protocol.

Wet Suction Control

The amount of suction is regulated by the height of the water column, not the amount of suction. A suction pressure of 20 cm/H2O is commonly recommended.

The suction source is adjusted to produce a gentle bubbling in the suction control chamber. Increasing the suction will increase air flow through the system but will have little effect on the amount of suction imposed on the chest cavity.

The middle chamber of a traditional chest drainage system is the Water Seal Chamber. Bubbling in the water seal chamber indicates an air leak. If there is no air leak, the water level should rise and fall with respiration. During normal respiration, the water level should rise during inhalation and fall during exhalation. If the patient is receiving positive pressure, the water level should fall during inspiration and rise with exhalation. This oscillation is called tidalizing and is one indicator of a patent pleural chest tube.

Wet suction units must be maintained in an upright position.

Dry Suction Control

Dry suction units are controlled by a self-compensating regulator. A dial is used to control the suction setting. Suction is increased until the orange float appears in the suction control indicator window. As
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long as the orange indicator appears in the window the approximate correct amount of suction is applied despite the amount of source suction.

Equipped with a “Patient Air Leak Indicator” this chamber would be filled with water; it is used for “air leak detection” and is not used as a water seal. Bubbling in the water seal indicates a leak.

If there is no tidaling, consider an occlusion somewhere between the pleural cavity and water seal.

PEEP can dampen oscillations.

Vigorous milking or stripping of the chest tube can create dangerously high negative pressures putting the patient at risk for mediastinal trauma and graft trauma.