

# CLOSED CHEST DRAINAGE

## Student Reference Guide

WEST COAST UNIVERSITY

Student:

<b>NPSG</b>	Wash hands per CDC guidelines ➤ <b>Verbalize 20 seconds per CDC hand washing guidelines.</b>
	Provide patient privacy ➤ <b>Verbalize and physically demonstrate.</b>
<b>NPSG</b>	Introduce yourself
<b>NPSG</b>	Identify patient correctly using two identifiers (check to chart) ➤ <b>Patient's name and date of birth.</b>
<b>NPSG</b>	Verify allergy status

### GENERAL SURVEY

Perform environmental safety check.
Ensure proper body mechanics.
Gather and prepare supplies, equipment, and PPE as needed.
Verify MD order on chart.
Assess need for procedure. Educate patient about the procedure. ➤ <b>Closed chest drainage systems allow removal of air and fluid from the chest cavity to prevent tension pneumothorax</b>

### REPLACING A CLOSED-CHEST DRAINAGE SYSTEM (VALIDATE)

Confirm absence of air leak by observing water-seal chamber or air-leak meter. (For air leak, do not clamp chest tube). ➤ <b>Be familiar with parts of the closed chest drainage system</b>
Raise bed height.
Don clean gloves.
Open, remove outer wrap of drainage system.
Open inner wrap; two sides, then back, then front. ☆ <b>Keep in mind that this refers to the drainage system which is different from opening a sterile kit.</b>
Inspect new drainage system.
Obtain pre-filled syringe at the back of the closed chest drainage system.
Instill fluid into water-seal chamber to 2-cm mark. ☆ <b>Instill contents of pre-filled syringe solution at the blue suction port located on top of the closed chest drainage system</b>
Remove gloves, perform hand hygiene, don PPE.
Double-clamp tube close to insertion site by placing clamps in <b>opposite</b> directions. ☆ <b>Please note that clamps should be clamped 1 ½ to 2 ½ inches from insertion site to minimize dead space and stop air from entering or exiting the catheter.</b>
Disconnect end of chest tube from old system and reconnect it to new system. ☆ <b>Maintain sterile, no-touch, technique to avoid introducing pathogens into the pleural space.</b>
Remove clamps from chest tube.
Discard old system and all waste material in appropriate receptacle.
Position new system on bed frame. ☆ <b>Please remember that the tubing remains below the level of the insertion site.</b> ☆ <b>The chest tube drainage system at the bedside needs to be in an upright position at least 1 inch below the patient's chest to maintain an adequate seal.</b> ☆ <b>When positioning, do not create dependent loops, kinks, or pressure within the tubing.</b> ☆ <b>Avoid lifting the drainage system above the patient's chest because fluid could flow back into the pleural space.</b>
Check for fluctuation in water-seal chamber as patient breathes ☆ <b>Normal fluctuations of 2" to 4" reflect pressure changes in the pleural space during respiration.</b> ☆ <b>Also known as "tidaling", the water level in water seal chamber rises with inhalation and returns to baseline with exhalation.</b>
Observe oscillation of fluid in suction-control chamber; adjust suction source as necessary to generate gentle bubbling. ☆ <b>Based on MD order, the closed chest drainage system will be to water seal or to wall suction.</b> ☆ <b>The dry suction control dial is usually turned to -20 cm H2O. When there is an MD order to connect closed chest drainage system to wall suction, an orange float ball appears in an indicator window to the calibrated triangular mark indicating correct amount of wall suction delivery is achieved.</b> ➤ <b>For WCU validations, the closed chest drainage system will be ordered as water seal. It will not be connected to wall suction.</b>
Assess patient; ensure comfort.

**DISCLAIMER: THIS DOCUMENT SERVES AS A REFERENCE GUIDE AND IS NOT THE OFFICIAL VALIDATION CHECKLIST.**

- ☆ Ongoing assessment is important. Assess and document vital signs including respiratory rate. Note the rate and depth of respirations, lung sounds and patient's oxygen saturation. Assess for any chest pain or difficulty breathing.

### REPLACING A CHEST-TUBE INSERTION SITE DRESSING (VALIDATE)

Assess patient's pain level.

- ☆ Perform a comprehensive pain assessment.

Raise bed height, lower head of bed.

Assess closed chest drainage system.

Don PPE (gloves and mask).

Position patient on unaffected side.

Place linen-saver pad beneath patient.

Remove dressing, noting color, consistency, amount of drainage on dressing. (COCA)

- **MUST verbalize and observe chest tube insertion site for redness, swelling, pain, excessive or unusual drainage.**
- **Palpate around dressing site to check for subcutaneous emphysema (air in the tissues under the skin that produces a crackling sensation on palpation).**

Discard dressing in appropriate receptacle.

Remove gloves, perform hand hygiene.

Set up sterile field. Open sterile petrolatum dressing and place it next to the sterile field.

- ☆ If sterile technique is broken, please verbalize that you have broken sterile technique to restart the procedure.

Don sterile gloves

Clean around insertion site with antiseptic.

Place sterile petroleum gauze around the chest tube at insertion site.

Place drain pad across chest tube. Use gauze pads around chest tube to create even surface.

- ☆ Place 4x4 drain dressings on top of each other in opposite directions to seal the insertion site from any air entry and escape. Place 4x4 gauze pad on top of the drain dressings to create an even surface.

Place tape so that it adheres firmly against chest wall adjacent to chest tube. Place end of tape firmly against chest wall on opposite side of chest tube. Repeat until entire dressing is covered and sealed.

Assess patient; provide comfort.

Discard used materials.

### DOCUMENTATION - CHEST TUBE INSERTION CHEST-TUBE INSERTION SITE DRESSING

Informed consent

Date, time of insertion

Anatomical location of insertion

Size of tube

Reason for insertion

Breath sounds, respiratory rate and depth, oxygen saturation before and after insertion

Characteristics, amount of chest tube drainage

Dressing application, status

Complications (if applicable)

For patients going home with mobile drainage device: instructions, contact information, follow-up appointments

Discard tubing and blood bag. Flush IV as needed.

### DOCUMENTATION - CHEST TUBE & DRAINAGE SYSTEM MAINTENANCE

Schedule for drainage checks, dressing changes

Status of insertion site, surrounding skin

Type of dressing

Drainage on dressing

Dressing change time, date

Respiratory assessment

Characteristics, amount of chest tube output

Functioning of closed-chest drainage system

Any procedural changes (i.e., reduction in suction, open to water seal)

Strategies to promote ventilation, oxygenation (head of bed elevation, incentive spirometry, positional changes, ambulation)

Pain level, interventions for pain management

### DOCUMENTATION - CHEST TUBE REMOVAL

Date, time of removal

Breath sounds, respiratory rate and depth, oxygen saturation before and after removal

Characteristics, amount of chest-tube drainage

Dressing application, status

Complications (if applicable)