PROTOCOL FOR: Chest Tube: Care of the Patient with

DESIRED PATIENT OUTCOMES:

1. Patient will have fluid or air evacuated from pleural space with re-expansion of the lung, or fluid evacuated from the mediastinal/pericardial space post-open heart surgery.
2. Patient will not experience complications secondary to the placement of the chest tube.

CLINICAL ASSESSMENT AND CARE:

1. Nursing assessment of all patients with chest tubes will take place every four hours and PRN including:
   a. Vital signs every four hours or as ordered.
   b. Auscultation and percussion of chest to identify areas of pleural space disruptions. Intrapleural air may be manifested by distant breath sounds to absence of breath sounds, hyperresonance, or tympany to percussion. Intrapleural fluid may be manifested by distant breath sounds to absence of breath sounds, dullness or flatness to percussion.
   c. If mediastinal tubes are present, auscultate heart sounds and assess for signs of cardiac tamponade, which may be evidenced by hypotension, narrowed pulse pressure, muffled or distant heart sounds, and elevated right atrial pressure reflected as distended neck veins.
   d. Assess area around insertion site for presence of crepitus every four hours.
   e. Assess patient's pain/discomfort as per protocol: Pain: Care of the Adult Patient with Pain in the Nursing Practice Manual.
2. Assessment of the chest tube and system will be done a minimum of every four hours. ICU patient may need to be assessed more frequently.
   a. Milking should be performed only with a physician/LIP order. This may be indicated when drainage is bloody with clots, to prevent clots from obstructing the tube. The entire length of tubing should be milked gently, alternately compressing and releasing short sections of the tube, working from the patient going distally.
   b. Water seal is maintained at 2 cm line with sterile water.
   c. Prescribed amount of suction is maintained per MD/LIP order. Suction should not be discontinued without MD/LIP order. Validate that dry suction is sufficient by visualizing the popped bellows.
   d. Assess and record color and quantity of drainage.
   e. Water seal column fluctuates with respirations. A non-fluctuating water seal column may be due to an obstructed chest tube or to re-expansion of the lung. Spontaneous respirations should cause a slight rise in this column with inspiration.

PROTOCOL FOR: Chest Tube: Care of the Patient with

Note: With a mediastinal tube, there should be no fluctuation in the water seal since tubes are not in contact with the pleural cavity.

f. Bubbling in the water seal chamber indicates an air leak into the pleural space from the lung or bronchus. Vigorous bubbling usually indicates that the chest tube has slipped out.

3. Maintain drainage system and tubing below the level of insertion.

4. Dressing should be changed as necessary or when saturated per MD/LIP order. The dressing should be secured with Microfoam (preferred dressing), Elastoplast, or adhesive tape, over plain Vaseline gauze. (Do not use Xeroform.) Place Vaseline gauze over the chest tube/insertion site – be certain not to wrap gauze around the chest tube itself. The dressing should be secure, but not tight. An occlusive dressing is only needed upon removal or dislodgement of the tube. Adhesive remover may be used to facilitate dressing removal. Assess skin for irritation.

5. All connections will be taped securely.

6. The drainage system stand should either be taped to floor or suspended from bed by hooks to prevent spillage.

7. Do not clamp chest tube at any time as this may cause a tension pneumothorax. The tube may be clamped only upon an order by the physician/LIP to do so. This is occasionally done prior to planned removal to assess patient tolerance.

8. Keep sterile cup, sterile water and Vaseline gauze at bedside. (Needed in case of accidental disconnection or dislodgement – see step 11 below.)

9. Keep a back-up drainage system on the unit in case of set breakage/malfunction.

10. Specimen collection may be taken from appropriate port on back of system or from tubing. Port should be prepped with alcohol and specimen drawn up per manufacturer's instructions.

11. Assess the patient at least every four hours for the following complications.

a. Dislodgement of chest tube - either completely out or pushed in too far. Evidenced by disrupted dressing and obvious change in tube placement at site. May also be accompanied by moderate to severe SOB and ectopy. Apply occlusive Vaseline gauze immediately if chest tube is out. Monitor the patient for tolerance and notify the physician/LIP.

b. Disconnection of chest tube from drainage system – place chest tube in cup of sterile water (to water seal) until new drainage system can be set up, then reconnect. Secure the new connection with tape.

PROTOCOL FOR: **Chest Tube: Care of the Patient with**

c. Subcutaneous emphysema - evidenced by a crackling generation under the skin when area around chest tube is palpated. Severe crepitus will present as gross amounts of air under the skin around and above the site. Represents leakage of air into the subcutaneous tissues.

12. Upon discontinuation of the chest tube, apply Vaseline gauze occlusive dressing over insertion site and maintain for 24 hours. Continue to monitor patient tolerance and report any signs of distress to the physician/LIP.

PATIENT EDUCATION:

1. Explain need for chest tube placement and related patient care. Encourage patient to report pain/discomfort.

REFERENCES: Nursing Standards Committee

EFFECTIVE DATE: 2/90

REVISION DATES: 10/91, 10/91, 12/91, 9/00, 9/02, 5/04, 1/05, 1/09