

# Chest Tubes: PleurX® Catheter Drainage Procedure

## Site Applicability

All PHC Acute Care & Residential Care sites

## Practice Level:

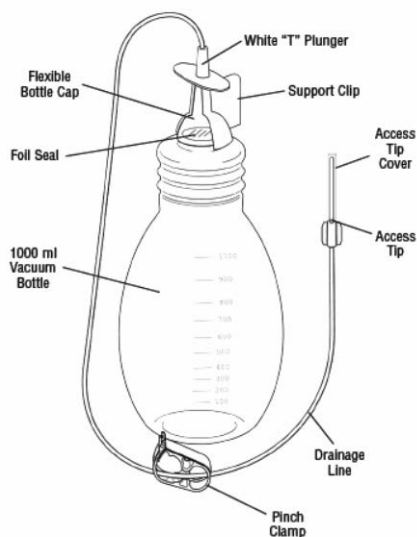
**Basic:** Registered Nurses. LPNs are responsible for Notifying the RN of any abnormal vital signs or respiratory distress

## Need to Know:

- The PleurX® catheter is a tunneled chest tube inserted to treat malignant or chronic pleural effusions.
- PleurX® is only funded under the BC Palliative Benefits Program. If the patient does not qualify for BCPBP, a discussion regarding funding prior to insertion may be warranted. Check with home hospice team prior to inserting Pleurx for any patient's with non-malignancies.
- Main purposes of PleurX drainage are to palliate dyspnea symptom and/or to aim for pleurodesis.
- Sometimes, when the PleurX® catheter is used to drain fluid from the pleural space, the patient may experience pain or cough. The pain and/or cough is due to the lung re-expanding or to changing of intra thoracic pressure. When the patient reports pain or cough, stop the drainage by depressing the white clamp until pain subsides, then gradually and partially, open the clamp and continue until drainage tapers off or if the patient experiences more pain or cough.
- Changing of pleural fluid colour from serosanguinous to dark red or bloody (non-clot) is not uncommon, this changes are depending of disease status and/or systemic therapy received.
- If after finishing PleurX® drain, there is an audible sound of gushing air via PleurX® there may trapped air due to lung physiology. Please contact physician to adjust the amount of the subsequent drain to avoid this situation.

## Equipment & Supplies:

- 1 PleurX® procedure pack. Each pack contains:
  - Vacuum bottle (500 mL or 1000 mL)
  - Drainage line
  - Sterile gloves
  - Valve cap
  - 4x4 gauze
  - Transparent dressing
  - 3 alcohol swabs
- Foam pad
- Blue pad
- Garbage bag



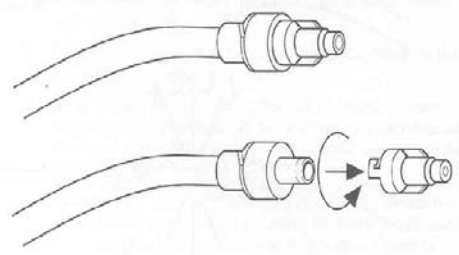
White T-Plunger bottle

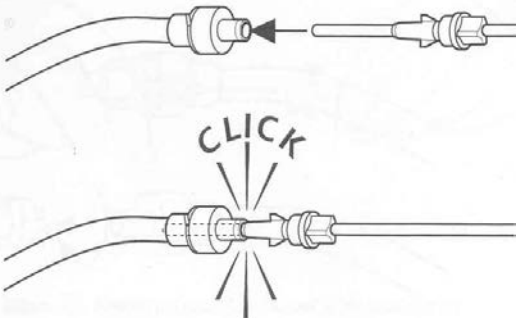
## Procedures

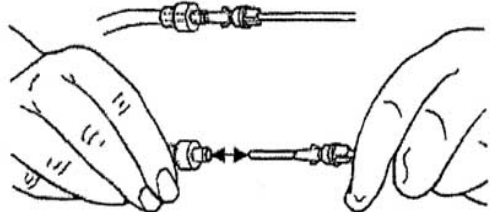
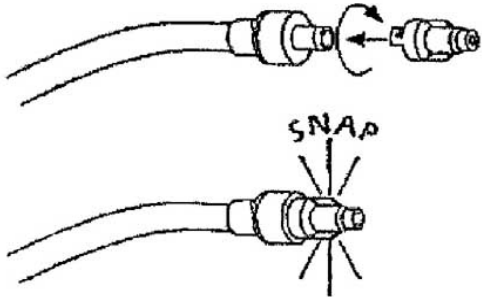
### A. Drainage Procedure

1. Assess need for breakthrough analgesic prior to procedure	Some patient's experience discomfort during the draining procedure. Ask patient before beginning.
2. Position the patient in a comfortable semi-fowlers position, and place a blue pad under the patient	To protect the bedding and the patient's clothing from potential soiling
3. Wash hands and put on clean gloves	
4. Remove old dressing and discard into garbage bag.	

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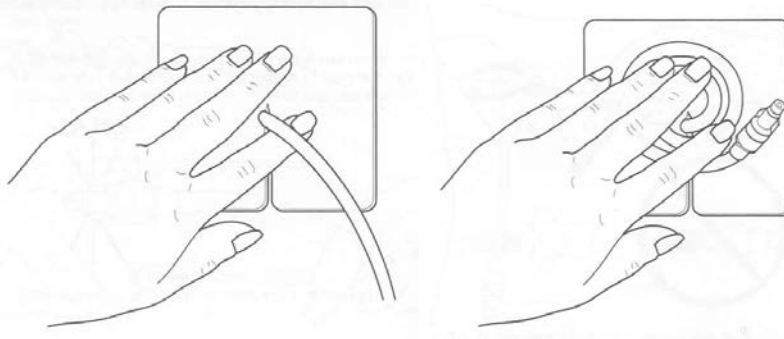
5. Remove gloves, discard, and wash hands again	
6. Assess PleurX® catheter insertion site for redness, swelling, and drainage around catheter. Report any concerns to the physician	
<p>7. Open procedure pack and peel open Vacuum Bottle package, maintaining sterile fields</p> <ul style="list-style-type: none"> <li>• Tear open alcohol pads but do not remove pads from the pouches. Place them on the sterile field a short distance from sterile items.</li> <li>• Open alcohol swab packs and add swabs to sterile field</li> <li>• Put on sterile gloves</li> <li>• Place vacuum bottle on the sterile field</li> <li>• Remove paper from the tubing and discard</li> </ul>	
<ul style="list-style-type: none"> <li>• Check that the support clip is in place and that the foil seal is not broken. If the support clip is not in place and the foil seal is punctured you will need a new vacuum bottle</li> <li>• <b>Make sure clamp on the tubing is closed</b></li> </ul>	
<p>9. Prepare Pleurx® catheter:</p> <ul style="list-style-type: none"> <li>• open the package containing the new cap for the catheter and place the cap on the sterile field</li> <li>• Hold the PleurX® catheter firmly in your non-dominant hand. Using a gentle counter-clockwise twisting motion, remove cap from catheter valve and discard</li> </ul>	
10. While holding the base of the catheter valve in one hand, clean around the valve opening with an alcohol pad.	
11. Remove plastic protector sheaf from the tip of the drainage line	

<p>12. Insert the tip of the drainage line into the catheter valve – you will feel and hear a <b>click</b> when they lock in place. <i>Ensure that the valve and access tip are fully engaged. If they are not, it is possible for them to be accidentally separated. If this should occur, a new drainage set should be used to avoid potential contamination of the PleurX® catheter</i></p>	
<p>13. Activate the suction:</p> <ul style="list-style-type: none"> <li>For the white T-plunger bottle, break seal by removing the plastic support clip by pulling on the 'wing' and push white T plunger through the foil seal</li> </ul>	
<p>14. To drain the catheter, open the pinch clamp on the drainage tubing. Use the pinch clamp to control the rate of the fluid removal:</p> <ul style="list-style-type: none"> <li>Set the clamp to have a steady flow of fluid make sure the fluid is not flowing too rapidly as this may cause increased pain.</li> <li>Stop procedure if symptoms of pain, increased dyspnea appear and wait until they subside before starting to drain the catheter again. Restart drainage very slowly by keeping pressure on the clamp to control the rate of flow.</li> <li>Stop procedure if patient appears in distress or shock, and contact physician.</li> <li>Remove only the amount of fluid directed by the physician.</li> <li>If drainage slows or stops suddenly, ask patient to deep breathe and cough or to change position to see if further drainage can be stimulated.</li> <li>When drainage complete, close the pinch clamp</li> </ul>	

<p>15. Disconnect the vacuum bottle set by pulling the access tip out of the catheter valve with a smooth action</p>	
<p>16. Close the clamp on the drainage bottle</p>	
<p>17. Wipe the external surface of the catheter valve with the second alcohol pad</p>	
<p>18. Place a new valve cap over the catheter. Gently twist the valve clockwise until it snaps into its locked position. <b>Do not force the valve cap on, as the catheter valve is easily broken and cannot be repaired</b> – the PleurX® tube would have to be replaced</p>	

### B. Applying new dressing

1. Cleanse around the catheter site with the alcohol swab. Let dry for one minute.
2. Place the foam catheter pad around the catheter and onto the patient's chest - feed the catheter through the opening in the pad. Coil the catheter on top of the foam pad. Cover with 3 to 4 gauze pads and cover with a large transparent dressing.



3. Assess the patient's response to the procedure:

- Respiratory status
- General condition
- Vital signs

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- The patient's report of how they are feeling
  - Drainage description
4. Discard the vacuum bottle(s):
- Place in biohazardous waste garbage bag (yellow)
  - Place in biohazardous waste bin (yellow)

**Patient/Resident Education:**

1. Explain purpose of chest tube to patient and family as necessary.
2. Encourage patients to request analgesics as needed
3. Teach patient to report to nurse any unusual respiratory symptoms
4. If appropriate, provide the family/patient with:
  - the PleurX® catheter drainage kit *Instructions for Use* manual
  - the PleurX® catheter drainage kit video

**Documentation:**

Record VS as required on clinical record

Record all assessment, drainage volumes and interventions in the Interdisciplinary Notes or the 24 hour Flow Sheet as appropriate

**Related Documents and Resources:**

1. [B-00-12-10102](#) - Chest Tubes: Pleurx® Pleural Catheter; Connecting to a Disposable Chest Drainage System
2. [BD-00-07-40010](#) Chest Tubes: Maintenance of the Pleur-Evac Sahara
3. [BD-00-07-40015](#) - Chest Tubes and Chest Drainage Systems: Management of Potential Complications
4. [BD-00-07-40011](#) - Chest Tubes: Patient Assessment and Interventions
5. [BD-00-12-40016](#) - Chest Tubes: Thoracic Percutaneous Pigtail Drainage Catheters or Small Bore Chest Tubes - Assisting with Insertion
6. [Pleurx® Drainage Kit: Instructions for Use](#)
7. [Elsevier Skills](#)

**References:**

1. L.Ferreiro, J.Suarez-Antelo and L. Valdes. Pleural procedures in the management of malignant effusions. *Annals of Thoracic Medicine* Volume :12(1) :3-10.

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2. A.M. Egan, D. McPhillips, S.Sarkar and D.P. Breen. Malignant Pleural effusion. QJ Med 2014;107:179-184.
3. . Pleurx Drainage Video, . <http://www.bd.com/en-ca/products/medical-surgical-systems/pleurx-drainage-system>
4. PleurX Drainage Kit Instructions for Use (2014). Carefusion Corporation, 75 North Fairway Drive, Vernon Hills, IL, USA.

**Persons/Groups Consulted:**

Respirologist

Registered Nurse, Palliative Care Unit SPH

**Developed By:**

Palliative Outreach &amp; Consult Team

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