Section 2: Respiratory problems and management
Managing ICC drainage and ICC removal
Date created: June 2006
Date revised: June 2009
Review date: June 2012

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MANAGING INTERCOSTAL CATHETER DRAINAGE & ICC REMOVAL

The purpose of drainage devices are to help expand the lungs and re-establish normal negative pressure in the thoracic cavity by removing air or fluid in a closed, one-way fashion. There are 2 systems in use: the Atrium (6B) and under water seal (SCN)

KEY POINTS

- Always place the drain below the level of the infant's chest. Avoid "milking" of chest drains as this generates a high negative pressure and causes lung tissue to be sucked into the trochar catheter. Check tubing is secure and not kinked and no dependant loops. Lay tubing across the bed before dropping directly to the drainage unit. Tubing may need to be cut to the required length and may need to be secured to the bed. Ensure the drainage units are secured at the bedside.
- The drainage unit or tubing should not be changed routinely as this can increase the incidence of infection. It is safe practice to leave drainage units and tubing in place for 6 days. Change dressing if there is obvious blood or exudate staining.
- Clamping of chest drain tubing should be avoided, especially a bubbling chest drain. This may lead to a tension pneumothorax. The tubing should only be clamped if raising the drainage unit above chest height or if changing the unit. It should be clamped close to the chest wall and unclamped as soon as possible. There should be a non-toothed clamp at the bedside at all times – one clamp for each tube.
- The addition of suction helps to overcome a large air leak by improving the rate of air and fluid out of the chest.
- Hourly observations of bubbling, swinging and drainage measurements should be recorded on the observation chart.
- Excessive bubbling or a sudden decrease in bubbling may indicate a system leak or a tension pneumothorax.
- Blocking of the tubing may create a tension pneumothorax or surgical emphysema.
- Label drainage units if there is more than one. Mark the level of drainage per shift.

EXTRA INFORMATION

Atrium (See booklet)

1. Always fill suction control (A) to 5 cmH_2O unless directed otherwise.
2. Always fill water seal (B) to 2 cm line. This compartment is where you observe for bubbling, swinging NOT column A.
3. The suction control stopcock must be ON for initial setup and should not be turned OFF during patient use.
4. To connect multiple chest drains to one suction source insert a 'Y' connector onto the wall suction tubing then connect each drain onto one end of the 'Y'.

CHEST DRAIN REMOVAL

Chest drains are removed on medical orders when air and fluid accumulation has resolved. This is indicated when drainage, bubbling and fluid fluctuations have ceased, air movement is symmetrical and lung fields are clear and equal. The chest tube should be clamped for up to 6 hours prior to removal.

Chest X-ray confirmation of resolution should be obtained prior to removing the drain. Chest drains can be removed by medical staff or a nurse deemed competent in the procedure, however because of the risk of reaccumulation, a medical officer should be in the unit when the drain is removed. This is a clean aseptic technique. Consider appropriate sedation / analgesia.

EQUIPMENT

- Dressing pack
- Gauze
- N/Saline
- Stitch cutter
- Dressing
- Leukostrips
- Tegaderm (optional)

PROCEDURE

1. Clamp drain and turn off suction if not already done
2. Remove existing dressing and suture
3. Place gauze over drain site and remove drain on expiration. Send tip if indicated
4. Seal insertion site with gauze and tegaderm (may need leucostrips if large incision)
5. Watch for signs of re-accumulation. Repeat CXR as necessary
6. Document the chest drain removal in the infant's progress notes and on the observation chart. The volume of exudate in the drainage unit should be documented in the output column of the observation chart.