Clinical Practice Procedures: Respiratory/ Emergency chest decompression – tube thoracostomy

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<th>Date</th>
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<td>Purpose</td>
<td>To ensure a consistent procedural approach to Emergency chest decompression – tube thoracostomy.</td>
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<td>Scope</td>
<td>Applies to all QAS clinical staff.</td>
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<td>Review date</td>
<td>October, 2018</td>
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Tube thoracostomy is an invasive procedure that involves the insertion of a sterile tube into the pleural space to remove pathological collections of fluid and/or air. An appropriately placed chest tube will facilitate normal ventilation by recreating the essential negative pressures allowing for complete expansion of the lung.[1]

**Indications**
- ≥2 air/blood reaccumulations following initial decompressive finger thoracostomy
- Obese patients requiring chest decompression
- Transport time to an appropriate health facility > 30 minutes
- Suspected haemothorax/pneumothorax in the non-ventilated, cardio-respiratory compromised patient

**Contraindications**
- Nil in this setting

**Complications**
- Extrapleural placement[2]
- Life-threatening injury to the heart, great vessels, or damage to the lung.[3]
- Haemorrhage from vessel injury.
- Infection.
Procedure – Emergency chest decompression – Tube thoracostomy

1. Unless anaesthetised, infiltrate the proposed incision site (subcutaneous tissue down to the pleura) with lignocaine 1%. (15–20 mL may be required to achieve appropriate anaesthesia).

2. Prepare the incision site with Betadine® liquid spray.

3. Identify appropriate incision site (5th intercostal space, anterior to the mid axillary line) and ensure you are within the ‘triangle of safety’.

4. Perform a finger thoracostomy in the 5th intercostal space anterior to the mid axillary line (see CPP: Respiratory/Emergency chest decompression – finger thoracostomy).

5. Perform a finger sweep to assess for the release of air and/or blood and lung inflation or deflation.
Procedure – Emergency chest decompression – Tube thoracostomy

6. Alongside the finger, gently insert a sterile Frova Intubating Catheter (FIC) 5 cm past the finger into the pleural space. If resistance is felt, do not force advancement but rather gently rotate the FIC before reattempting advancement.

7. Carefully remove finger from the chest cavity whilst being careful not to dislodge the FIC.

8. Remove and discard the 15 mm ETT connector from an appropriately sized ETT (e.g. Adult male 8.0 / Adult female 7.0) and railroad over the FIC.

9. Carefully remove the FIC.

10. Without inadvertently repositioning the ETT, gently connect the Heimlich valve to the exposed ETT tubing.
11. Inflate ETT cuff with 10 mL of air.
12. Carefully withdraw the ETT until resistance is felt.
13. Using the preformed ETT angle, secure on the patient chest with tape.

15. Consider covering the thoracostomy wound with additional tape or dressings.

**Additional information**

- The potential for exposure to blood and body fluids during this procedure is **HIGH**. All precautions that serve to minimise risk to the clinician and patient are to be minimised.
- Sterile gloves are to be worn for all surgical procedures (See CPP: Other/Donning and doffing of medical gloves).
- Frequently check for development of a tension pneumothorax, especially if the patient is receiving positive pressure ventilation.
- If ICC is actively draining blood, consider connecting the Heimlich valve to a disposable draining bag (Urimaax™).