

## NEEDLE THORACOSTOMY

**INDICATIONS:** Suspected tension pneumothorax associated with hypoxia and or hypotension and tachycardia. This procedure should be reserved for patients in critical condition and have, in addition to abnormal vital signs, some of the following findings.

- ✓ Tachypnea
- ✓ Cyanosis
- ✓ Hyperexpansion
- ✓ Jugular venous distention
- ✓ Tracheal deviation
- ✓ Subcutaneous emphysema
- ✓ Diminished breath sounds  
(usually unilateral)

### **ADDITIONAL CONSIDERATIONS:**

1. Suspect this condition in patients with chest trauma and/or any patient undergoing positive pressure ventilation with pre-existing lung disease (e.g. COPD)
2. Tension pneumothorax may often develop sometime after the initiation of positive pressure ventilation. Close observation and reassessment of the patient during transport is important.

**PRECAUTIONS/COMPLICATIONS:** May cause a pneumothorax or major vascular or cardiac injury.

### **PROCEDURE (observe strict aseptic precautions):**

1. Identify 2<sup>nd</sup> intercostal space in the mid-clavicular line on affected sides.
2. Prepare area with topical antimicrobial.
3. Use a 10-14 gauge #3-3.5" long catheter.
4. Make a small incision through the skin using the beveled edge of the catheter needle to avoid skin plugs and ease the passage of the catheter.
5. Introduce the catheter in a vertical fashion just above the superior border of the lower rib.

6. Advance the angiocath just enough to pierce the pleura and then slide the plastic catheter over the needle all the way into the pleura space (advance it to the hub).
7. Completely remove the needle. Leaving the catheter in place, assess for the expression of air and secure the catheter with dressings to ensure the vertical position is maintained.
8. If only a partially positive response is achieved with the first insertion and condition persists, consider repeating the procedure and interspace lower or 2 cm. lateral to the initial insertion.
9. Confirm that the receiving hospital is notified that this procedure has been done (include in radio patch) so as to allow them time to prepare for a formal tube thoracostomy.