

# NEEDLE CHEST DECOMPRESSION

## OVERVIEW:

Needle thoracentesis is a relatively simple technique used to relieve intrathoracic pressures from tension pneumothorax. When performed correctly and under the correct circumstances needle thoracentesis is a safe and life-saving procedure.

## INDICATIONS:

- ❑ To relieve tension pneumothorax
  - Signs and symptoms include:
    - decreased or absent breath sounds with:
      - History consistent with suspected tension pneumothorax
      - Chest trauma or COPD or Positive pressure ventilation
    - Shock or rapidly decreasing blood pressure
    - Progressive respiratory distress
    - Tracheal deviation away from the affected side
    - Jugular vein distension
    - Asymmetrical chest movement with inspiration
      - Also consider flail segment
    - Hyper-expanded chest on affected side
    - Drum like percussion on affected side
    - Increased resistance to positive pressure ventilation, especially if intubated

## CONTRAINDICATIONS:

- ❑ Patients exhibiting no signs or symptoms of a tension pneumothorax

## PROCEDURE:

- ❑ Elevate head of stretcher to 30 degrees
- ❑ Connect syringe to top of 12 or 14G X (at least) 3" length, over-the-needle catheter
- ❑ Expose the entire chest
- ❑ Clean the chest vigorously with alcohol or Betadine
- ❑ On the affected side locate the mid-clavicular line and insert the IV catheter over the superior margin of the third rib (2<sup>nd</sup> intercostals space)
- ❑ The needle should make contact with the rib, then slide over it
  - This approach should avoid the intercostal vessels positioned near the lower border of each rib
- ❑ If air in the thoracic cavity is under tension, the plunger will easily pull and pop off the syringe
- ❑ Remove syringe, advance the catheter, and then remove the needle and dispose of it in a sharps container.
- ❑ Auscultate breath sounds
- ❑ Secure with gauze and tape
- ❑ Ventilate and monitor ETCO<sub>2</sub>

# NEEDLE CHEST DECOMPRESSION CONT.

## CONSIDERATIONS:

- ❑ Simple/non-tension pneumothorax is relatively common and is not immediately life threatening. Do not decompress simple/non-tension pneumothorax in the field
- ❑ Patient's chest should be auscultated often for return of tension pneumothorax or other respiratory complications.
- ❑ Tension pneumothorax is a rare condition that can occur with trauma, or spontaneously; it can also occur as a complication of CPR.
- ❑ Tension takes time to develop, but the rate of development can be increased by forceful ventilation
- ❑ Needle chest decompression is painful; be sure the procedure is done promptly
- ❑ Tension pneumothorax can be precipitated by the occlusion of an open chest wound
  - If patient deteriorates after dressing an open chest wound, remove the dressing
- ❑ Possible complications of the procedure include:
  - Creation of pneumothorax if none existed previously
  - Laceration on the lung
  - Laceration of blood vessels
  - Infection

