# NEEDLE THORACOSTOMY: ADULT / ADOLESCENT

## INDICATION:

Decompression of tension pneumothorax causing hemodynamic instability in a chest injury victim.

IMPORTANT: absence of breath sounds and/or shortness of breath alone are not sufficient to indicate a tension pneumothorax. Any of the signs and symptoms listed below must be associated with at least hypoxia **OR** hemodynamic instability to justify a needle thoracostomy.

## SIGNS AND SYMPTOMS OF TENSION PNEUMOTHORAX CAUSING HEMODYNAMIC INSTABILITY:

Signs include:

- Chest injury, either blunt or penetrating (often with flail chest, palpable subcutaneous air, or "sucking" chest wound on side of suspected pneumothorax).
- Absence of breath sounds on the side of the suspected pneumothorax (if breathing); while presence of breath sounds on side without pneumothorax.
- Distended neck veins.
- Circulatory collapse, manifested by hypotension or signs of poor perfusion
- Respiratory arrest

Symptoms include:

- Progressive dyspnea (shortness of breath)

## EQUIPMENT:

- 3.25 inch ARS chest decompression needle (10 G, catheter over needle); or 14 G, minimum 2.5 inch catheter over needle
- Antiseptic skin wipes
- Sterile Vaseline gauze or 4" X 4" dressings and tape

## PROCEDURE:

- Base Contact (if in the setting of an MCI, remote rescue, or tactically unstable scene proceed without base contact and document).
- Explain procedure to patient if conscious.
- Assemble equipment:
- Identify second intercostal space, midclavicular line.
- Prepare site with sterile skin wipe.
- Insert needle using steady pressure and ninety degree angle (perpendicular) to chest wall in lower aspect of the second intercostal space within the midclavicular line.
- Advance needle until one of the following are recognized:
    - A sudden rush of air is expelled through the needle
    - A "popping" or "giving way" is felt as the tip of the needle enters the chest cavity
    - Blood or fluid is expelled through the needle

- Remove needle and leave catheter in place (do not reinsert needle into catheter due to risk of shearing apart plastic catheter).
- Secure catheter with Vaseline gauze alone or 4" X 4" dressing and tape.
- Assess and document any improvement in respiratory status and hemodynamic status.