A. Clinical signs of a tension pneumothorax include:
   1. Dyspnea
   2. Anxiety
   3. Tachypnea
   4. Distended neck veins
   5. Possible tracheal deviation away from the affected side (late sign)
   6. Diminished or absent breath sounds on affected side
   7. Hyper-resonance on affected side when percussed
   8. Shock with hypotension
   9. Decreased lung compliance in the intubated patient

B. The treatment of a tension pneumothorax involves decompression of the affected chest cavity to release the pressure that has developed.

C. Indications for performing emergency decompression is the presence of tension pneumothorax with decompensation as evidenced by more than one of the following:
   1. Respiratory distress and cyanosis
   2. Loss of radial pulse (late shock)
   3. Decreasing level of consciousness

D. Procedure:
   1. Equipment
      i. Adult use 14 gauge, 3.25 inch needle
      ii. Pediatric use 16-18 gauge, 2 inch needle
   2. Locate site:
      i. Second or third intercostals space, midclavicular line – primary / preferred site
      ii. Fourth intercostals space between the fourth and fifth rib, midaxillary line – secondary site
   3. If time permits, prep site with antiseptic solution
   4. Insert the needle just over the top of the rib at a 90° angle to the rib. As the needle enters the pleural space, there will be a “pop”. If a tension pneumothorax is present, there will be a hiss of air as the pneumothorax is decompressed
   5. Advance the catheter into the skin and remove the needle.
   6. Secure the catheter in place
   7. Support with 100% oxygen and transport without delay
Needle Decompression Landmarks for primary site

14 gauge, 3.25 inch angiocath