



# MIAMI TOWNSHIP FIRE & EMS CLERMONT COUNTY, OHIO *PROCEDURE PROTOCOLS*

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## TENSION PNEUMOTHORAX DECOMPRESSION

### Indications

1. Treatment of tension pneumothorax is simple, but the complications of the procedure can be lethal. Diagnosis must be accurate and is not always easy. Field treatment is indicated when the life of the patient is in danger and treatment cannot be delayed until arrival at the hospital.
2. Field relief of a tension pneumothorax is indicated **ONLY** when the patient has progressive severe respiratory distress.
3. Cyanosis.
4. Decreased or absent breath sounds on the affected side.
5. Hypotension.
6. Hypotension can be detected by noting loss of radial pulses.
7. The patient may have distended neck veins.
8. Patient may have a tracheal shift away from the affected side.
9. If the patient is intubated, there should be increased difficulty in ventilating.
10. Usually there will be a loss of consciousness as well.

### Differential Diagnosis

1. Simple pneumothorax without tension.
2. Intubation of one of the main stem bronchi.
3. Hemothorax.
4. Missing lung on one side.
5. Cardiac tamponade.

### Complications

1. Hemorrhage from vessel laceration.
2. Creation of a pneumothorax if one was not already present.
3. Laceration of the lung.
4. Infection.



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## Procedure

1. Assess and secure the patient's airway and provide oxygen per the airway, oxygen and ventilation protocol.
2. Expose the entire chest.
3. Clean the affected side.
4. Prepare for the procedure:
  - A. Select appropriate device:
    - i. Adults: Cook Catheter Device or 10 gauge/3 inch Angiocath
    - ii. Pediatrics: 16 gauge/1.25 inch Angiocath
  - B. Attach *blue securing disk* to the needle/catheter assembly (if using Cook Catheter Device).
  - C. Attach syringe to the needle/catheter assembly, or simply use needle/catheter assembly alone.
5. Insert the needle/catheter assembly in one of two locations:
  - A. Over the top of the rib in the second or third intercostal space in the *midclavicular* line,  

**OR**
  - B. Over the top of the rib of the fifth or sixth intercostal space in the *midaxillary* line.
8. If a tension pneumothorax is present, then a rush of air will be heard or the plunger of the syringe will be easy to pull back.
9. Remove the needle from the catheter, leaving the plastic catheter in place.
10. Secure the *blue securing disc* with the wire tie, and then tape to the patient's skin (if using Cook Catheter Device).
11. Attach the stopcock and tubing to the catheter (if using Cook Catheter Device).
12. Attach the tubing to the *blue end* of the Heimlich Valve (if using Cook Catheter Device).
13. Continually reassess the patient's oxygenation and ventilation status.
14. Multiple needle decompressions may be required until chest tube placement.