

**REGION I EMERGENCY MEDICAL SERVICES  
STANDING MEDICAL ORDERS  
EMT – Intermediate, EMT – Paramedic**

**SMO: Needle Decompression of Chest**

**Overview:** Thoracic decompression is placement of a needle through the chest wall of a critical patient who has a life threatening tension pneumothorax and is rapidly deteriorating due to intra-thorax pressure. Patients at risk of developing a tension pneumothorax include: penetrating chest trauma, blunt chest trauma, patients receiving positive pressure breathing I.e. intubated or receiving BVM assisted ventilation, patient's with COPD.

**INDICATIONS:** A patient suffering from a tension pneumothorax. Signs and symptoms may include: restlessness and agitation, severe respiratory distress, increased airway resistance on ventilating patient (pt becomes hard to bag / ventilate), JVD, abdominal rigidity, tracheal deviation, subcutaneous emphysema, unequal breath sounds, absent on the affected side, hyper resonance to percussion on the affected side, hypotension, cyanosis, respiratory arrest.

**OBJECTIVE FINDINGS**

- Signs of restlessness/agitation
- Cyanosis
- severe Respiratory distress
- increased airway resistance on ventilating the patient
- JVD
- Tracheal Deviation
- Subcutaneous Emphysema
- unequal Breath sounds
- Hypotension
- Respiratory arrest

**EQUIPMENT NEEDED:**

- large bore over-the-needle catheter (2-inch, 14-gauge)
- 12-20 cc syringe
- Provodine-iodine prep or alcohol prep

## **PROCEDURE**

- \_\_\_ Identify probably pneumothorax. Observe universal precautions. Use sterile gloves if possible.
- \_\_\_ Locate the second intercostal space in the mid-clavicular line on the side of the pneumothorax.
- \_\_\_ Cleanse the site with povidine-iodine preps and maintain as much of a sterile field as possible.
- \_\_\_ Prepare equipment
- \_\_\_ Attach a 12-20 cc syringe to a 2-inch, 14-gauge over-the-needle catheter.
- \_\_\_ Then take the needle and pass it into the chest, directing the needle just over the third rib and into the thoracic cavity. You should feel a “pop”, possibly hear a rush of air and observe the plunger of the syringe push outward. Be cautious that the IV catheter does not “kink” or bend, thus preventing the release of intrathoracic air pressure.
- \_\_\_ Advance the catheter while removing the needle / syringe.
- \_\_\_ If it appears that the catheter (14 – gauge or other) is not working, then place additional catheter(s) to relieve the tension pneumothorax.
- \_\_\_ Secure the catheter in the chest wall with a dressing and tape.
- \_\_\_ Reassess patient and continue trauma care, transport ASAP.

## **Documentation of Adherence to Protocol:**

- \_\_\_ Presence of respiratory distress
- \_\_\_ Presence of notably decreased or absent breath sounds on affected side
- \_\_\_ Other signs and symptoms present--- JVD, tracheal deviation, etc.
- \_\_\_ Response to decompression

## **Medical Control Contact Criteria**

- \_\_\_ Medical Control should be contacted whenever there is a question as to what is the best option for the patient; however, most circumstances will not allow the time to contact Medical Control in cases of tension pneumothorax. This procedure must be rapidly performed within 1-2 minutes of detecting tension pneumothorax, in order to prevent hypoxia, hypotension and death..

## **PRECAUTIONS AND COMMENTS**

- If you needle decompress a chest, leave any and all needle decompression catheters in place even if attempt did not result in clinical improvement. Be sure to report to ED staff the number and placement of attempts.
- Should a decompression needle become dislodged, replace only if the patient’s clinical condition warrants it. You must report any/all dislodged needle decompression attempts to ED staff.

7/04

Reviewed:

Revised:

EMS/ Region1 SMOs