TENSION PNEUMOTHORAX

ADULT

Indication

Blunt or penetrating Chest Trauma with:

- Hemodynamically unstable (tachycardia, tachypnea, hypotension, altered mental status, cyanosis, jugular vein distension, tracheal deviation, respiratory failure) with suspected tension pneumothorax and decreased breath sounds.
- Traumatic cardiac arrest patients with signs of thoracoabdominal trauma.

Spontaneous Tension Pneumothorax

- Hemodynamically unstable (tachycardia, tachypnea, hypotension, altered mental status, cyanosis, jugular vein distension, tracheal deviation, respiratory failure) with suspected tension pneumothorax and decreased breath sounds.
- Patients that are young, tall, and thin are at highest risk for spontaneous tension pneumothorax.
- Have a high index of suspicion for spontaneous tension pneumothorax in suspected asthmatic related cardiac arrest.

BLS Standing Orders

Assess Vitals.
Obtain Sp02.
Oxygen. Titrate to Sp02 94% or higher.
Assist ventilations as needed.

ALS Standing Orders

Cardiac Monitor.
Utilize ETC02.
IV/IO access.

Procedure

Perform Needle Thoracostomy

- Location
  - Lateral: 4th or 5th intercostal space, mid-axillary or 5th intercostal space anterior-axillary line **(anterior axillary is preferred first attempt site)**.
  - Anterior: 2nd intercostal space, mid-clavicular line.
- Use minimum 3.5-inch Thoracostomy needle (14ga or larger).
- Insert the needle at 90° angle just over the superior border of the rib.
- Leave the catheter in place, do not attach anything to the catheter.
- Monitor and continue to reassess breath sounds.
- If no return of air or blood, consider making attempt at second site. Do not remove any catheters from failed attempts.
- Two attempts only per affected side

Cover any open wounds with a chest seal or occlusive dressing

PEDIATRIC

Traumatic Tension Pneumothorax only

Perform Needle Thoracostomy

- Location
  - Lateral: 4th or 5th intercostal space, mid-axillary or **5th intercostal space** anterior-axillary line **(anterior axillary is preferred first attempt site).**
  - Anterior: 2nd intercostal space, mid-clavicular line.
- Use minimum 1.5-inch Thoracostomy needle (14ga).
- Insert the needle at 90° angle just over the superior border of the rib.
- Insert to half the length of the needle, and advance only the catheter, the remaining distance.
- Leave the catheter in place, do not attach anything to the catheter.
- Monitor and continue to reassess breath sounds.
- If no return of air or blood, consider making attempt at second site. Do not remove any catheters from failed attempts.
- Two attempts only per affected side

Cover any open wounds with a chest seal or occlusive dressing

Special Considerations

- Not all needle thoracostomies have a traditional gush of air sound. Monitor lung sounds and patient condition for efficacy of needle decompression.
- Preferred technique for pediatric placement includes attaching a syringe or half-filled Normal Saline flush to the hub of the thoracostomy needle to watch for air or blood return during advancement of the needle. This will aid in identifying correct placement and relief of Tension Pneumothorax and ensure minimum required depth for successful needle insertion (no more than half the length of the needle in patients 14 and younger).

Base Hospital Orders Only

Contact Base Hospital for additional treatment

Approved Needle Thoracostomy Sites

A Mid-clavicular line in the 2nd intercostal space
B Mid-axillary line in the 4th or 5th intercostal space*
C Anterior axillary line in the 5th intercostal space*

*Above the anatomic nipple line

Note: If an initial attempt at one approved site is unsuccessful, consider utilizing an alternate approved site