



Needle Thoracostomy

Paramedic

PROCEDURE

❑ Step 1: Expose the chest, locate appropriate landmarks

- Adult: (≥ 13 years of age*)

Preferred location: Lateral chest wall is identified by finding the Safe Space[‡] of the intersection of the mid-anterior axillary line and ABOVE the nipple line as the nipple lies flat on the chest wall[∞]. This will be the 4-5th intercostal space. A rapid identification of the safe space can be facilitated with the use of a landmark guide.

Alternate location: Anterior chest wall is identified by finding the intersection of the midclavicular line and ABOVE the third rib. This will be the 2nd intercostal space.

- Pediatric: (<13 years of age*)

Site location: Anterior chest wall is identified by finding the intersection of the midclavicular line and the second rib. This will be the 2nd intercostal space.

❑ Step 2: Prepare the location with alcohol prep and ready equipment including catheter and landmark guide if available

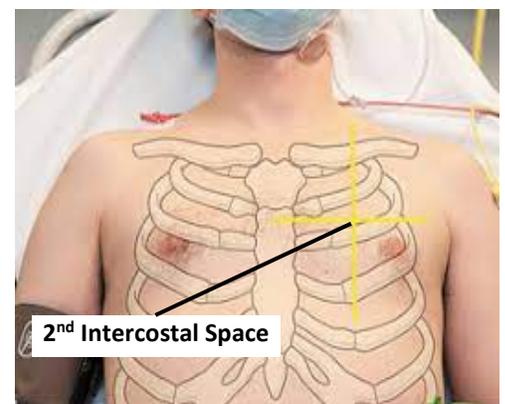
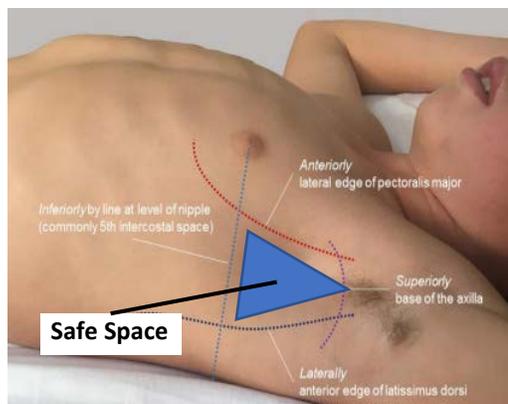
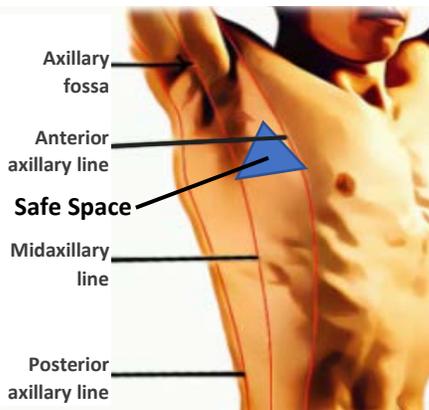
- Adult: (≥ 13 years of age*)
10-14g, 3.25in catheter
- Pediatric: (<13 years of age*)
16g, 1.5in catheter

❑ Step 3: Perform the procedure

Insert the needle at a 90 degree angle over the top of the rib. Remove the needle

once the angiocath is fully inserted--keep the catheter in place. Monitor for clinical improvement or need to repeat.

REFERENCE GRAPHICS



KEY POINTS

- Diagnosis of tension pneumothorax (PTX) in the field requires critical thinking to combine multiple indicators; however, mechanism + vital sign indicators should guide decision making with all traumatic arrests with mechanism fitting a possible PTX requiring immediate needle thoracostomy to all possible affected sides
 - Mechanism indicators: blunt trauma, penetrating trauma with potential path crossing the thorax, spontaneous pneumothorax
 - Vital sign indicators: hypotension, hypoxia, severe tachycardia, elevated respiratory rate
 - Clinical exam indicators: traumatic cardiac arrest, restless/agitated patient, resistance to bagging, decreased/absent breath sounds on the affect side, crepitus/subcutaneous emphysema, rib fractures, deformity to the chest wall
(Note: tracheal deviation and JVD are extremely late findings)
- Signs of successful procedure: BP increase, decreased dyspnea, easier to ventilate, improved color, improved mental status, loss of jugular vein distention
- [‡]The Safe Space ensures the catheter is placed above the diaphragm, within the thorax, and away from large blood vessels
- [∞]Patients with large breasts may have distorted anatomy and the provider must visualize where the nipple would lie if flat to the chest wall
- *Provider clinical judgement of potential chest wall size should supersede exact patient age when choosing correct angiocath size

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