

Skill Station

Needle Decompression

Objective

- Demonstrate the proper procedure for needle decompression of a tension pneumothorax.

Reference

- *PHTLS: Prehospital Trauma Life Support*, 10th ed.

Evaluation

- Verify the accuracy of the student's ability to properly manage a simulated tension pneumothorax on a manikin's thoracic section and perform a needle decompression by means of observing the student's procedures and technique.

Equipment

- Needle decompression simulator—1
- Betadine/alcohol prep—1 per student
- Needle/catheter 10 to 14 gauge and 3.5 inches (8 cm)—1 per student
- Adhesive tape—1 roll
- Personal protective equipment—1 set per student

Instructor Guidelines

- Ensure that each student has all required materials.
- Read the objective and the evaluation statement to students.

Performance Steps

1. The student prepares the equipment.
2. The student verbalizes that body substance isolation (BSI) precautions were considered.
3. The student verbalizes that the patient's progressive respiratory distress, unilateral absent/diminished breath sounds, and decompensated shock are associated with chest trauma.
4. The student identifies the fifth intercostal space along the anterior axillary line on the affected/injured side.
5. The student verbalizes that the needle to be used for the procedure is a large-bore (10- to 14-gauge) IV needle that is at least 3.5 inches (8 cm) in length.

6. The student verbalizes the importance of ensuring that the needle entry site is between the fourth and fifth ribs and not at risk for penetrating the spleen or liver.
7. The student cleans the site with an antimicrobial solution (alcohol or betadine).
8. The student inserts the needle into the chest:
 - a. The student removes the plastic cap from the needle. The student also removes the cover to the needle's flash chamber.
 - b. For lateral decompression, the student inserts the needle in the fifth intercostal space along the anterior axillary line.
 - c. As the needle enters the pleural space, a "pop" is felt, followed by a possible hiss of air. The student ensures that the needle is advanced all the way to the hub.
 - d. The student removes the needle, leaving the catheter in place.
 - e. If tension pneumothorax recurs (as noted by return of respiratory distress), the student repeats the needle decompression on the affected/injured side.
9. The student stabilizes the catheter hub to the chest wall with adhesive tape.
10. The student listens for increased breath sounds or observes decreased respiratory distress.
11. The student removes gloves and disposes of them appropriately.

Critical Criteria

- The student identified the correct needle for the procedure (large-bore [10- to 14-gauge] IV needle that is at least 3.5 inches [8 cm] in length).
- The student recognized progressive respiratory distress, unilateral absent/diminished breath sounds, and decompensated shock as indications for needle decompression.
- The student performed the needle decompression at the proper landmarks.
- The student performed the procedure in a manner that was safe for the patient.