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EMERGENCY MEDICAL SERVICES POLICIES and PROCEDURES

NEEDLE THORACOSTOMY

I. Purpose: To define the indications, procedure, and documentation for needle thoracostomy by paramedics in the prehospital setting.

II. Authority: Health and Safety Code, Division 2.5, Section [1798](#) and [1798.2](#). California Code of Regulations, Title 22, Division 9, Section [100175](#).

III. Definitions: None

IV. Policy:

- A. Paramedics may perform needle thoracostomy on patients with a suspected tension pneumothorax.

V. Procedure:

- A. *Indications* – Any Patient That Meets the Following Criteria
 - 1. Clinical suspicion of pneumothorax (e.g. trauma, dyspnea, chest pain);
 - 2. Systolic Blood Pressure less than 90mmHg (adults) or 70mmHg (pediatrics less than 40kg) and signs of hypoperfusion; AND
 - 3. Absent, or decreased, breath sounds on the affected side; OR
 - 4. Traumatic Arrest
 - a. Bilateral needle decompression is indicated in traumatic arrest
- B. *Contraindications*
 - 1. None in this setting.
- C. *Equipment*
 - 1. Antiseptic solution
 - 2. 10mL syringe
 - 3. 3.0cm or 8.0-8.5cm needle (10-14 gauge over-the-needle catheter) or SBCEMSA-approved needle decompression air release device
 - 4. Connection tubing
 - 5. One-way valve
 - 6. Tape
 - 7. Additional supplies required (not included in kit): PPE, occlusive dressing
- D. *Procedure*
 - 1. Attach the syringe to the needle/catheter
 - 2. Identify and prep the site with antiseptic solution:
 - a. *Preferred Adult Site:* The lateral placement is the preferred method which is the fourth intercostal space in the anterior-axillary line (lateral to nipple).
 - b. *Alternative Adult Site and Preferred Pediatric Site:*
 - i. Pediatric Patients < 40kg: 3cm Needle
 - ii. Pediatric Patients > 40kg: 8-8.5cm Needle
 - iii. If unable to access lateral placement due to patient size, position, or failed attempt, locate the second intercostal space in the mid-clavicular line.

APPROVAL:

SIGNATURE ON FILE
Nicholas Clay, EMS Agency Director

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Daniel Shepherd, MD, EMS Agency Medical Director

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3. Insert the needle/catheter perpendicular to the skin over the rib and direct it just over the top of the rib into the intercostal space
4. After inserting the needle under the skin, maintain negative pressure in the syringe.
5. Advance the needle/catheter through the parietal pleura until a “pop” is felt and/or air or blood enters the syringe, then advance **ONLY** the catheter (not the syringe/needle) until the catheter hub is against the skin.
 - a. **CAUTION:** Do not reinsert needle into cannula due to danger of shearing cannula.
6. Hold the catheter in place and remove and discard the syringe and needle.
7. Attach one-way valve as appropriate.
8. Secure the catheter hub to the chest wall with occlusive dressing, dressings, and tape. Safely discard needle.
9. Re-evaluate the patient (vital signs, lung sounds, etc.).

E. Documentation

1. All needle thoracostomy attempts must be documented in the Santa Barbara County Electronic Patient Care Report (ePCR) in accordance with Policy 700 – Documentation of Prehospital Care.
2. Documentation will include the following:
 - a. Location of Procedure
 - b. Size of Equipment
 - c. Number of Attempts
 - d. If Procedure was Performed Successfully
 - e. Presence of Complications
 - f. Patient Response to Procedure
 - g. Any Applicable Comments (Free-Text Box)
 - h. Person Performing Procedure

VI. References:

- A. [Policy 700 – Documentation of Prehospital Care](#)

VII. Attachments

- A. Axillary Planes Diagram

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Attachment A – Axillary Planes Diagram

