



Jackson Hole Fire/EMS Operations Manual

Approved by: Will Smith, MD, Medical Director

Approved by: Willy Watsabaugh, Chief

Title: **Procedure Guidelines:
Needle Cricothyrotomy**

Division: 17

Article: 2.6

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NEEDLE CRICOTHYROTOMY (Procedure Guidelines)

SCOPE OF PRACTICE

All EMT-Intermediates and Paramedics shall operate within their authorized Scope of Practice as limited to those skills and medication approved for use by the Physician Medical Director and Physician Task Force on Pre-Hospital Care as approve and authorized by the Wyoming Board of Medicine

Scope of Practice: Paramedic

INDICATIONS:

The only indication for cricothyrotomy is the inability to secure an airway by other procedures such as endotracheal intubation or multi-lumen airways (i.e. cervical spine trauma, maxillofacial trauma, oropharyngeal obstruction caused by foreign bodies, infections, or edema resulting from allergic reactions or inhalation injury).

CONTRAINDICATIONS:

- The possibility of rapidly establishing an easier and less invasive airway.
- Acute laryngeal disorders such as laryngeal fractures that cause distortion or obliteration of landmarks.

ADVANTAGES:

- Needle Cricothyrotomy is a viable alternative to surgical cricothyrotomy and may be more suitable in the prehospital setting.

DISADVANTAGES:

- Carbon dioxide buildup occurs rapidly; hence the procedure can be used only for short periods of time; approximately 30 minutes. A definitive airway such as surgical cricothyrotomy must still be established.

COMPLICATIONS:

- Pneumothorax
- Subcutaneous emphysema

- Catheter dislodgement
- Hemorrhage
- Esophageal or mediastinal injury
- Hypercarbia

PROCEDURE:

- Observe appropriate body substance isolation
- Place the patient supine and hyperextend the head and neck (maintain neutral position if you suspect cervical spine injury). Position yourself at the patient's side. Manage the patient's airway with basic maneuvers and supplemental oxygen while preparing the equipment
- Gently palpate the inferior portion of the thyroid cartilage and the cricoid cartilage. The indentation between the two is the cricothyroid membrane.
- Prepare the anterior neck with antiseptic swabs. Firmly grasp the laryngeal cartilages and reconfirm the site of the cricothyroid membrane.
- Attach a large-bore 14 gauge IV needle (or 18 gauge pediatric < 1 yo or approximately <10 kg) to a 10 mL syringe. Carefully insert the needle into the cricothyroid membrane at midline, directed 45 degrees caudally (towards the feet). Often you will feel a pop as the needle penetrates the membrane.
- Advance the needle no more than 1 cm, then aspirate with the syringe. If air returns easily, the catheter is in the trachea. If blood returns or you feel resistance to return, re-evaluate needle placement. After you confirm proper placement, hold the needle steady and advance the catheter and withdraw the needle.
- Reconfirm placement by again withdrawing air from the catheter with the syringe. Secure the catheter in place.
- Check for adequacy of ventilations. Look for the chest to rise. Listen for bilateral breath sounds in the chest. If spontaneous respirations are absent or inadequate, begin ventilation with BVM.
- Connect 3.0 ET tube hub to patient's catheter. Connect BVM to hub and ventilate patient.
- Provide inhalation to exhalation ratio of 1:4 to 1:5 with breath rate of 10 to 12/min. Exhalation then occurs passively through the glottis, due to elastic recoil of the lungs and chest wall. It may be necessary to gently compress chest to assist exhalation process. Keep in mind that you may need to adjust rate to the patient's needs, particularly in COPD and asthma patients who often require longer exhalation time.
- Continue ventilatory support, assessing for adequacy of ventilations and looking for the development of any potential complications