

SECTION V

**SUPPLEMENTAL
PROTOCOLS**

V. SUPPLEMENTAL PROTOCOLS

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CRICOTHYROTOMY

NU-TRAKE

If age greater than 5.

1. Hyperextend the patients head (contraindicated in suspected cervical spine injury), and palpate to identify the cricothyroid membrane.
2. Pinch 1 cm of skin and insert sharp tip of knife blade through the skin. Make a small incision by cutting in an outward motion.
3. The needle should puncture the cricothyroid membrane at approximately the same angle as the lower edge of the housing. Aspirate. An easy moving syringe obturator denotes tracheal entrance. If you are able to gently rock the housing from side to side it is an indication that the needle has not punctured the posterior wall of the trachea.
4. The stylet and syringe are removed as a unit by twisting the luer adapter counter-clockwise and lifting out.
5. The blunt needle is gently moved further into the trachea until the housing rests on the overlying skin. A freely rocking motion will again confirm the proper depth of insertion.
6. In all cases, begin with the smallest airway (4.5 mm) and insert airway and obturator together pushing with the thenar eminence resting against the cap of the obturator. Airway and obturator are pushed (not squeezed) downward into the needle, which is divided lengthwise and spreads apart to accommodate them.
7. Obturator is removed, leaving a clear passage for air to reach the lungs. If airway size requires change, this can be easily performed by leaving the housing and needle guide in place, while removal and insertion of airways are made. Ties are threaded through the brackets on the sides of the housing.
8. System in operation: Bag valve or universal adapter (15 mm) may be fitted to the top of the housing. Expansion of the lungs can also be started by mouth to mouth respiration, with fingers closing off the vents in the housing.

CRICOTHYROTOMY

PEDIA-TRAKE

For pediatric cases aged 1 to 5.

1. Hyperextend head if possible. Incise skin overlying the cricothyroid membrane 1-2 cm.
2. Hold the trachea. Grasp the needle halves at the collar. Puncture the cricothyroid membrane with the needle. An easy moving syringe obturator denotes tracheal entrance.
3. Rotate the locking collar and disengage the stylet and syringe.
4. Move the blunt needle further, gently. Rotate the needle tip slightly upward. Squeeze the handles to accommodate proper tube size.
5. Insert the tracheal tube. Remove obturator. Maintain the instrument in place until medically sound to remove. Secure instrument and tube with ties.
6. Removal of the instrument. Turn the locking key counterclockwise to release. Remove handle one while holding and flexing the tracheal tube. Remove handle two.
7. Secure the tube with ties. Begin ventilation of the patient with mouth to airway, BVM or demand head respiration.

CRICOTHYROTOMY

PER-TRACH

1. Test the needle for air leaks prior to use by placing a sterile gloved finger over the tip.
2. Air aspiration with the syringe should produce a vacuum. Test the cuff of the tube and then deflate cuff.
3. Pinch the skin over the cricothyroid membrane or trachea and make a one to two cm. vertical incision in the midline.
4. Insert the needle through the incision perpendicular the airway.
5. Draw air with the syringe to confirm needle placement.
6. Remove the syringe and incline the needle to 45 degrees towards the carina before threading the filiform portion of the dilator into the airway through the needle.
7. The device is used with the thumb on the knob while the second and third fingers are curved under the flange of the tube. Force is applied with the thumb.
8. Squeeze the wings and open them outward to split and remove the needle. It's helpful if a second rescuer holds the device in place while the operator uses both hands to remove the needle.
9. Exert pressure and force the dilator into the airway and place the tube into a functional position, with the face plate against the skin.
10. Remove the dilator. Inflate the cuff (1 to 8cc) and attach BVM. Assess lung sounds and check for leakage around the tube.
11. Secure the tube in place with the umbilical tape that is provided.

PERTRACH PRECAUTIONS

1. Retracting the leader portion of the dilator back through the un-split needle can result in sheering off the leader with a resultant tracheal foreign body.
2. Insertion of the device through the thyroid cartilage can injure the vocal cords.

CRICOTHYROTOMY

QUICKTRACH

Use a 4.0 mm Quicktrach for patients greater than 5 years of age.

Use a 2.0 mm Quicktrach for patients from 1-5 years of age.

1. Open the package, remove the device and familiarize yourself with its contents.
2. Place the patient in a supine position. Assure stable positioning of the neck region (place a pillow or towel under the patient's shoulders) and hyperextend the neck. Secure the larynx laterally between the thumb and forefinger. Find the cricothyroid ligament (in the midline between the thyroid cartilage and the cricoid cartilage). This is the puncture site.
3. Firmly hold the device and puncture the cricothyroid ligament at a 90 degree angle. (Note: Because of the sharp tip and conical shape of the needle, an incision of the skin with a scalpel is not necessary.) The opening of the trachea is achieved by dilating through the skin. This reduces the risk of bleeding as only the smallest necessary opening is made.
4. After puncturing the cricothyroid ligament, check the entry of the needle into the trachea by aspirating air through the syringe. If air is present, the needle is within the trachea. Should no aspiration of air be possible because of an extremely thick neck, it is possible to remove the stopper and carefully insert the needle further until entrance into the trachea is made. Now change the angle to 60 degrees and advance the device forward into the trachea to the level of the stopper. The stopper reduces the risk of inserting the needle too deeply and causing damage to the rear wall of the trachea.
5. Remove the stopper. After the stopper is removed, be careful not to advance the device further with the needle still attached.
6. Hold the needle and the syringe firmly and slide only the plastic cannula along the needle into the trachea until the flange rest on the neck. Carefully remove the needle and syringe. Next, secure the cannula with the neck tape, apply the connecting tube to the 15 mm connection and connect the other end to the BVM.

ADULT INTRAOSSEOUS DEVICE

GENERAL CONSIDERATIONS

Any medications or fluids that can be administered using IV infusion can be infused with an adult IO.

IO medication dosages and fluid boluses are the same as those used in IV infusion, as both procedures route directly into the patient's bloodstream.

INDICATIONS

- A. Inability to obtain peripheral access in an adult patient that requires access in an emergency manner.
- B. **Its use should be considered after two IV attempts have failed or if no peripheral IV sites are found and exhibits one or more of the following:**
 - a. **An altered mental status (GCS of 8 or less)**
 - b. **Respiratory compromise (SaO₂ 80% after appropriate oxygen therapy)**
 - c. **Hemodynamic instability (systolic BP <90)**
- C. **The IO is not intended nor should it be considered for prophylactic use.**

CONTRAINDICATIONS

- A. Fracture of the tibia or femur – consider alternate tibia.
- B. Previous orthopedic procedure at insertion site.
- C. Infection at injection site.
- D. Inability to locate landmarks (significant edema, obesity)
- E. Pre-existing medical condition (tumor near site or peripheral vascular disease)
- F. Excessive fatty tissue at the insertion site, obesity.

EMT-I, EMT-P

- A. **The EZ-IO or the B.I.G. (Bone Injection Gun) is the two adult IO devices approved by the MCB for use.** The requirements of use are that the members of the department are intimately familiar with the device, they are comfortable with the device, and they have trained extensively with the device.
- B. See your departments training manual, or your training officer for your device specific instructions for use. **The FAST One is not recommended at this time.**
- C. **Pain, in alert patients, consider 20 to 50 mg of 2% Lidocaine IO, prior to saline infusion.**

EMT-I, EMT-P

- A. Wear appropriate PPE.
- B. Determine EZ-IO/B.I.G. indications.
- C. Rule out contraindications and locate insertion site.
- D. Cleanse insertion site and prepare EZ-IO/B.I.G. driver and needle set.
- E. Stabilize leg and insert EZ-IO/B.I.G. needle.
- F. Remove stylet and confirm placement.
- G. Flush or bolus the catheter with 5 ml of normal saline.
- H. Connect IV tubing and begin infusion.
- I. Apply dressing and monitor the site and the patient condition.

QUIKCLOT ACS+

INDICATIONS

QuikClot may be used in the following situations:

- A. To stop traumatic bleeding

NOTE: QuikClot should only be used as an adjunct for injuries upon determination that conventional methods have been inadequate to stop bleeding

PRECAUTIONS

Spurting blood from small diameter wounds such as small caliber entrance-only bullet wounds require careful evaluation and treatment since the source of bleeding may not be at the same location.

Head and scalp wounds produce profuse volumes of blood that can cause discomfort from exothermic reaction during application.

APPLICATION

Apply direct firm pressure to wound using sterile gauze dressing.

If bleeding is stopped or nearly stopped after pressure, wrap and tie bandage to maintain pressure on the wound and transport.

If moderate to severe bleeding continues after 90 seconds, hold QuikClot ACS+ and rip open packet

Remove previously applied bandages and wipe away as much excess blood and liquid in wound area as possible.

Pack self contained sponge into wound.

Immediately reapply direct pressure for one to two minutes, then wrap and protect area with compression bandage.

Transport as soon as possible.

Be certain QuikClot ACS+ package accompanies patient to the ED so the physician or medical staff can follow directions to remove QuikClot.