

## **Needle cricothyroidotomy with percutaneous transtracheal ventilation (PTV): Procedure summary and clinical tips**

1. Use universal precautions and sterile technique. Cleanse the site.
2. Attach a 3- to 10-mL syringe with a few mL of saline to a 13 to 18 gauge IV catheter.
3. Enter the cricothyroid membrane in its inferior-central part, directing the needle caudally at an angle of 30 to 45 degrees.
4. Advance the needle while continuously applying negative pressure on the syringe, until air bubbles are seen
5. Advance the catheter forward off the needle until its hub rests at the skin surface & remove the needle.
6. Hold the catheter firmly in place at all times
7. Connect the high pressure tubing (connected to a valve and a source of 100 percent oxygen) to the catheter.
8. Give a few ventilations by delivering short bursts of gas to reconfirm placement
9. Secure the transtracheal catheter.
10. Begin regular ventilation with I:E ratio 1:4 and respiratory rate 10 to 12 breaths/min in the patient without complete upper airway obstruction; in patients with complete airway obstruction: I:E ratio 1:8 to 1:10 respiratory rate 5 to 6 breaths/min).
14. Establishment a more definitive airway.

### **Equipment**

- Universal precautions (gown, cap, mask, eye protection, sterile gloves)
- Povidone iodine for site cleansing
- Sterile drape
- 1 percent lidocaine without epinephrine in syringe for local anesthesia
- Three to 10 mL syringe filled with sterile saline

### **Catheter (large bore) — AVOID needleless safety catheters**

- Infants and young children - 16- to 18-gauge IV catheters
- Adults and adolescents - 12- (ID 2.8 mm) to 16-gauge (ID 1.5 mm) IV catheters (angiocath) or 6 French transtracheal catheter

### **Bag-valve-mask connector options —** If a bag-valve-mask will be used for patient ventilation, then it should connect to the catheter using one of the following adapters:

- 3 mL Luer lock syringe with plunger removed with 7.5 mm ID ETT connector
- 3.0 mm ID endotracheal tube connector attached directly to the catheter
- 2.5 mm ID ETT connector attached to cut off IV tubing with Luer lock end connected directly to the catheter

### **Oxygen tubing connector options —** If oxygen tubing will be used to connect to the oxygen source, then the clinician may use one of the following options:

- Direct connection of oxygen tubing to catheter
- Y connector
- Three-way stopcock