Surgical technique, including cricothyrotomy, requires waiver from Colorado Board of Medical Examiners

Indications:

1. Cricothyrotomy is to be used as a last resort in treating the failed airway. It is an aggressive procedure for airway access in patients with severely compromising upper airway obstruction due to medical, traumatic or foreign body causes.

Precautions:

1. Cricothyrotomy is contraindicated in children less than 8 years of age due to difficulty in establishing landmarks. A needle cricothyrotomy may be used instead.
2. Bleeding is rare if you stick with a vertical incision over the cricothyroid membrane, however, the cricothyroid artery may be lacerated during the procedure. Insertion and inflation of ET tube through the cricothyrotomy will protect the patient from blood draining into the airway. Afterwards, direct pressure can be applied.
3. Vertical incision over the cricothyroid membrane should be done deeply enough to cut skin, soft tissues, and membrane to reach the trachea in one cut without dissection. You are unlikely to cut or puncture too deeply to go out the back of the trachea.
4. The primary problem with needle cricothyrotomy is poor gas exchange. It is hard to force adequate volume through a relatively tiny catheter and the patient cannot exhale through the catheter. There is also no balloon seal of the airway from blood, secretions, or emesis. However the procedure may ensure enough time to rapidly transport a pediatric patient to the ED without severe anoxic injury.

Technique:

1. Expose the neck.
2. Identify the cricothyroid membrane area. Feel the “V” of the top of larynx or “Adam’s apple”. Approximately one finger width below the prominence of the “apple” is the membrane.
3. Stabilize the skin and trachea by stretching the area horizontally with the thumb and index finger of left hand.
4. Make a deep puncture-like incision vertically over the cricothyroid membrane, cutting skin, soft tissues, and membrane in one cut, using your right hand.

5. Keep blade in the incision and insert the tracheal hook. Remove the blade. With the left hand pull the hook down to the bottom of the incision and this will stabilize the trachea.
6. With your right hand, insert an endotracheal tube into the incision. Begin bagging the patient with 100% O2.
7. If the air is going into the neck tissues laterally, you are not in the trachea and need to check the incision and ET tube placement.
8. Inflate cuff balloon. Auscultate over stomach and both lungs. If you hear breath sounds on only one side, too much of the ET tube has been inserted. Deflate cuff balloon and reposition ET tube. Much less of the ET tube is inserted in the cric intubation than in the oral intubation. An end tidal CO_2 monitor should be attached, when available.
9. Secure the tube and control any bleeding by direct pressure.

Needle Technique (for children under 8 years of age)

1. Expose neck and identify cricothyroid space.
2. Attach syringe to large IV catheter.
3. Puncture skin and advance catheter at 45° angle caudally while withdrawing with syringe. When catheter “pops” into trachea and air is freely drawn into syringe, advance catheter off stylette.
4. Use 3.0 ET adapter to connect catheter to bag-valve.
5. Auscultate lungs for air movement and secure catheter in place. This airway is neither definitive nor protective. The ED will need to upgrade the airway.