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| Providence HEALTH CARE | Department: **Respiratory Services** | Date Originated: May 2005<br>Reviewed/Revised: **November 2010** |
| **PROCEDURE** | Topic: Critical Care – Cook Airway Exchange Catheter for Airway Management (Respiratory Therapy)<br>Number: B-00-12-12055 | Related Links: |



## APPLICABLE SITES:

St. Paul's Hospital
Mount Saint Joseph Hospital

## GENERAL INFORMATION:

The Cook Airway Exchange Catheter is a blunt-tipped radiopaque catheter with centimeter markings to facilitate placement. The catheter is supplied with a Rapi-Fit adapter (with either a 15 mm connector or a luer lock connector), permitting use of ventilatory devices during exchange procedure.

The Cook Airway Exchange Catheter (CAE catheter) is intended for uncomplicated, atraumatic endotracheal tube exchange.

Elective exchange of the endotracheal tube will be done by a physician who is capable of intubating the patient using direct laryngoscopy should the tube exchange not be possible.

## CAUTIONS:

Attention should be paid to the insertion depth of catheter into patient's airway and the correct tracheal position of replacement endotracheal tube. Markers on the CAE catheter refer to the distance from the tip of the catheter. The catheter and endotracheal tube should not be advanced beyond the carina.

Ensure proper sizing of the CAE catheter when used within a double-lumen endotracheal tube. Failure to do so may cause small fragments to be shaved off during removal of the catheter.

To avoid barotrauma, ensure that the tip of the CAE catheter is always above the carina by approximately 2 – 3 cm.

## POTENTIAL ADVERSE EVENTS:

- Barotrauma resulting in pneumothorax or pneumomediastinum
- Perforation of the bronchi or lung parenchyma

## EQUIPMENT:

- Cook Airway Exchange Catheter (with or without Rap-Fit adapters)
- Endotracheal tube (size 6.0 or larger)
- 10 or 12 mL syringe
- Intubation supplies and emergency equipment

## PROCEDURE:

### USE OF RAPI-FIT ADAPTER:

A ventilatory or oxygen delivery device may be used at any time during the endotracheal tube exchange procedure by utilizing the optional Rapi-Fit adapter.

1. To attach Rapi-Fit adapter, position the adapter on the catheter, then push the white collar forward and lock into position.

2. Attach small-bore oxygen tubing to the luer connection of the Rapi-Fit adaptor.

3. Adjust the oxygen flow to 2 L/min.

4. To remove the adapter, pull the white collar back to release, and then remove from the catheter.

**CAUTION: This method of oxygen delivery may result in lung hyperinflation and barotrauma with subsequent pneumothorax or pneumomediastinum. Rising chest wall, pulse oximetry and oral air flow should be carefully monitored. Ensure that gas trapping is minimized by decreasing the oxygen flow as necessary.**

Supplemental oxygen may also be administered during the procedure by a free-flow method using small-bore tubing directed towards the oral pharynx with a flow rate of 10 L/min.

### ENDOTRACHEAL TUBE EXCHANGE:

1. Before advancing the CAE catheter into the existing endotracheal tube to be replaced, confirm correct ETT position.

2. Using the outer margin of the patient's mouth or nasal orifice as a landmark, note the marking on the endotracheal tube. A piece of tape or other marker may be placed on the CAE catheter at the corresponding distance from the tip to aid in correct placement within the endotracheal tube.

3. The physician will advance the CAE catheter with the sideport end first into the endotracheal tube to be replaced. It is recommended that a sterile lubricant be applied to the opening of the ETT prior to introduction of the CAE catheter.

**CAUTION: To avoid barotrauma, ensure that the tip of the CAE catheter is always above the carina approximately 2 – 3 cm.**

4. Properly position the CAE catheter within the endotracheal tube by aligning the appropriate centimeter mark on the CAE catheter with the corresponding centimeter mark on the endotracheal tube. This placement is determined by visualizing the indicated centimeter length of the endotracheal tube in place, as shown on its surface scale.

5. Fully deflate the cuff of the endotracheal tube and remove the Rapi-Fit adapter (if used) while maintaining the position of the CAE catheter. Remove the endotracheal tube, leaving the CAE catheter in place.

6. While maintaining the position of the CAE catheter and using the patient's mouth or nares (depending on approach) as a landmark, advance the new endotracheal tube over the CAE catheter and position appropriately.

   **NOTE:** Ensure that the catheter is not withdrawn past the vocal cords at any time.

   **NOTE:** It is recommended that a sterile lubricant be applied to the tip of the endotracheal tube prior to advancing the tube.

7. Remove the CAE catheter and inflate the cuff of the new ETT. Return patient to ventilatory support and secure the new endotracheal tube in place. Confirm tube position for proper placement via capnography and CXR.

**If unable to advance the ETT over the exchange catheter or if the catheter is accidentally withdrawn past the vocal cords, remove the catheter and provide manual resuscitation via mask. Proceed with standard re-intubation procedure.**

## REFERENCES:


1. *Cook Airway Exchange Catheters with Rapi-Fit Adapters, Instructions for Use*. Cook Medical Incorporated. 2008. www.cookmedical.com

2. *Coroner's Report Log # OCC 10 00346 – Recommendations.* Office of the Chief Coroner of Ontario. September 2010.

3. Baraka, A. *Tension Pneumothorax Complicating Jet Ventilation via a Cook Airway exchange Catheter.* Anesthesiology 1999; 91: 557-558.

4. Cooper, RM. The use of an endotracheal ventilation catheter in the management of difficult extubations. Can J Anaesth. 1996/43:1/90-93.