	Policies and Procedures  Title: <b>ENDOTRACHEAL TUBES (ADULT, PEDIATRIC) – SECURING, CARE OF</b>  <b>RNSP: RN Procedure</b>  I.D. Number: <b>1176</b>
Authorization  [X] Former SktnHR Nursing Practice Committee	Source: Nursing /Respiratory Therapy Date Reaffirmed: July 2018 correction 3.2.13 Date Revised: October, 2017 Date Effective: March 2004 Scope: <b>SktnHR Acute Care</b>

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## DEFINITION

**Endotracheal tubes (ETT):** is a catheter that is inserted into the trachea, via oral or nasal for the primary purpose of establishing and maintaining a patent airway and to ensure the adequate exchange of oxygen and carbon dioxide.

## ROLES

**Advance Care Paramedics** - as outlines in the job description

**Nurse practitioners (RN-NP)** - certified in Securing and Care of Patient with Endotracheal Tubes

**Registered Nurses (RN)** - RNs identified by their manager in targeted practice settings will be certified in RN Specialty Practice (RN Procedure) Endotracheal Tubes (ETT) – Securing and Care of Patient with Endotracheal Tubes

**Registered Respiratory Therapists (RRT):** RRT and student RT under direct supervisor of RRT

## 1. PURPOSE

- 1.1 To maintain a secure and patent airway via ETT.
- 1.2 To minimize tracheal erosion, oral trauma and unplanned extubation by limiting movement of the ETT.

## 2. POLICY

- 2.1 RN certified in this NSP will have first competed the following learning modules/activities prior to securing ET Tubes, and caring for patients with ET Tubes
  - 2.1.1 Complete the required learning module and quiz (teaching and Learning methods may vary e.g. classroom and /or self-study using paper module or on-line learning )
  - 2.1.2 Complete a skills checklist with certified RN during simulation or during first securement of a ETT tube and/or first time caring for patient with ETT Tube to ensure safety checks are followed appropriately
  - 2.1.3 Provide Documentation of learning module quiz and skills checklist to education/supervisor.

## 2.2 Special considerations

- 2.2.1 Securing of ETT is across the maxilla (upper jaw) to decrease chance of displacement, unless contraindicated.
- 2.2.2 Securing of ETT requires two qualified HCP.
- 2.2.3 A HCP qualified in intubation must be readily available when securing ETT.
- 2.2.4 When ETT unsecured, one personnel must always hold the ETT until securing is fully completed.
- 2.2.5 Oral ETT should be repositioned side-to-side every 24 hours and prn in adult patients and prn for pediatric patients.
- 2.2.6 ETTs should be resecured immediately if the current securing method does not appear stable.
- 2.2.7 When securing ETT, avoid wrapping securing devices around tube of pilot balloon or gastric tube.  
  
***NOTE:** if a bite block is in use, the tube of the pilot balloon should also be outside of it.*
- 2.2.8 Cuff will not be deflated prior to moving oral ETT side-to-side.
- 2.2.9 RRT or certified RN, shared responsibility, with written order of physician / RN-NP, will retract or advance ETT in trachea.
- 2.2.10 Continuous patient monitoring is required during ETT care and securing. Manually and mechanically ventilated patients: ETCO<sub>2</sub> and SpO<sub>2</sub>. Non-ventilated patients (i.e. T-piece oxygen): SpO<sub>2</sub>
- 2.2.11 Additional analgesic or sedative, as ordered, may be required for securing ETT

### 3. PROCEDURE

#### 3.1 Securing / re-securing ETT

##### 3.1.1 Supplies:

- Appropriate size of bag-valve-mask (BVM) device, with face mask connected to an oxygen source.
- ETT securement device: Adhesive tape and two tongue depressors or twill tape or commercially available securement device. Pediatrics: precut ETT tapes
- Wet and dry face cloths
- Shaving equipment, optional
- Bite block / oropharyngeal airway, optional
- Adhesive tape remover if using adhesive tape
- Skin prep or hydrocolloid membrane to protect skin if necessary
- Personal protective equipment: mask with attached visor and sterile/non-sterile gloves as required by the situation **(based on a point-of-care risk assessment, the use of other appropriate PPE such as a gown may be considered).**
- Suction set-up for tracheal suctioning and subglottic suction port on 'EVAC' ETT

3.1.2 Explain procedure to patient and family as appropriate including how they can assist procedure.

3.1.3 Perform hand hygiene. Administer analgesic or sedative as ordered / as needed.

3.1.4 Perform hand hygiene.

3.1.5 Don personal protective equipment.

3.1.6 Suction oropharynx / nasopharynx prior to procedure.

3.1.7 Note the proper ETT level of insertion in "cm" (gums / teeth in adults, and upper lip in pediatrics) as landmark.

3.1.8 Auscultate air entry prior to procedure for comparison post procedure.

3.1.9 With one HCP securely holding ETT, the second HCP loosens securement device. If using adhesive tape method remove any excessive adhesive with adhesive tape remover and wipe off with wet face cloth.

3.1.10 Inspect condition of face, lips and oropharynx for any break in integrity.

3.1.11 Shave required area if necessary, being mindful of patient's cultural norms.

3.1.12 Reposition ETT to opposite side of mouth or center. Prior to moving ETT, if patient is able to, ask patient to open his/her mouth. If not, gently open mouth with tongue depressor.

- 3.1.13 Re-secure ETT. Ensure ETT at required cm marking prior to re-securing. For Adults: see Appendix A. For Pediatrics: see Appendix B. Remove PPE and perform hand hygiene.
- 3.1.14 Assess vital signs continually during procedure. Loss of ETCO<sub>2</sub> display or abrupt, severe respiratory deterioration may indicate displaced ETT.
- 3.1.15 Auscultate lung fields to ensure air entry is equal bilaterally and compare to pre-procedure auscultation.

### **3.2 Routine care of patients with ETT**

- 3.2.1 SpO<sub>2</sub> and ETCO<sub>2</sub> monitoring at all times unless otherwise ordered.
- 3.2.2 Ensure appropriate sized face mask and BVM connected to oxygen flowmeter are readily available at all times.
- 3.2.3 Auscultate lung fields for adequate air entry: adults q4h, pediatrics q2h, and prn. Continuously assess patient for deterioration and complications of displacement, obstruction, pneumothorax, oxygenation and ventilation equipment failure.
- 3.2.4 Perform hand hygiene and don a pair of clean gloves. Provide mouth care every 2 – 4 hours and prn as per unit guidelines. Remove gloves and perform hand hygiene.
- 3.2.5 Use oral airway or bite block if necessary.
- 3.2.6 Perform hand hygiene. Don Personal protective equipment: mask with attached visor and sterile/non-sterile gloves as required by the situation (based on a point-of-care risk assessment, the use of other appropriate PPE such as a gown may be considered). Suction ETT as indicated. Refer to nursing policies: Suctioning Adult Patients with Artificial Airways (Ventilated and Non Ventilated) (#1019); Suctioning Pediatric / Neonate Patients Ventilated (Conventional and High Frequency) Via Artificial Airways (#1056). Remove PPE and perform hand hygiene
- 3.2.7 Place ventilator circuit / humidity tubing in dependent position in order to drain condensation away from patient. Caution with patient repositioning to avoid instillation of condensation into ETT. Avoid disconnection of ETT from ventilator circuit to prevent alveolar de-recruitment.
- 3.2.8 Position patient with head of bed elevated to at least 30 degrees unless contraindicated or otherwise ordered.
- 3.2.9 Protect the patient from self-extubation by the following:
  - Educate / reassure patient / family regarding presence of ETT
  - Ensure the ETT is properly secured at all times,
  - Prevent pulling and jarring of the ventilator / humidity tubing and ETT.
  - Patient may need to be restrained Refer to Policy Least Restraint – Mechanical and Environmental 7311-60-012;
  - Sedate / provide analgesia for the patient as ordered per physician's / RN-NP orders.

3.2.10 Continuous monitoring of patient for air leak such as:

- Gurgling sounds
- Vocalization
- Loss of tidal volume (if ventilated)
- Change in ETCO<sub>2</sub> waveform
- Change in SpO<sub>2</sub>
- Signs of respiratory distress

3.2.11 Continuously monitoring ETT for obstruction

- Gurgling sounds
- Vocalization
- High pressure ventilator alarm
- Abrupt, severe change in SpO<sub>2</sub>
- Loss of tidal volume (if ventilated)

3.2.12 Continuously monitoring ETT for displacement

- Gurgling sounds
- Vocalization
- Abrupt, severe change in SpO<sub>2</sub>
- Change in ETCO<sub>2</sub> waveform
- Loss of tidal volume (if ventilated)

3.2.13 Care of subglottic suction port on ETT – RRT / RN scope of practice.

- Ensure subglottic suction port is connected to suction tubing and is connected to wall suction canister and regulator.
- Ensure suction regulator is set at 20 – 30mmHg
- Ensure suction regulator is labeled as Subglottic port to prevent inadvertent change in set suction pressure

**3.3 Document on Appropriate Record:**

- Date and time on Ventilator Monitor Sheet, Patient Care Plan and Nursing Flowsheet (if applicable) of the proper ETT level of insertion in “cm” (gums / teeth in adults, and upper lip in pediatrics) as landmark as well as “L”, “R”, or “M” to refer to left, right or mid-mouth pre and post adjustments.
- Assessment of respiratory status (i.e. rate, rhythm, presence of secretions, SpO<sub>2</sub>, ETCO<sub>2</sub>).
- Air entry/ breath sounds before and after ETT repositioning or retaping.
- Condition of skin and mucosa including oral cavity / nares.
- Patient’s tolerance of procedure.
- If patient is suctioned, document amount, type and color of secretions and if any specimens obtained.

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## Appendix A

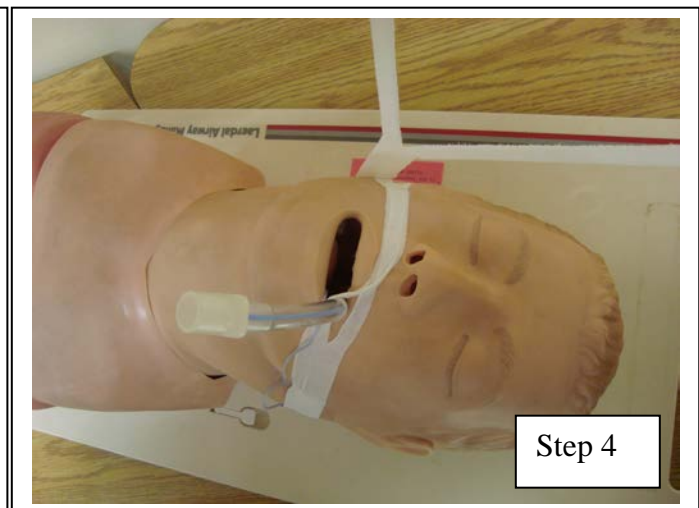
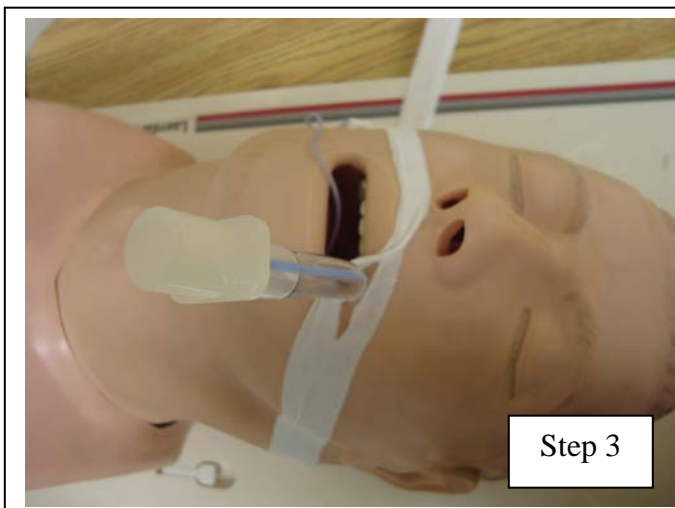
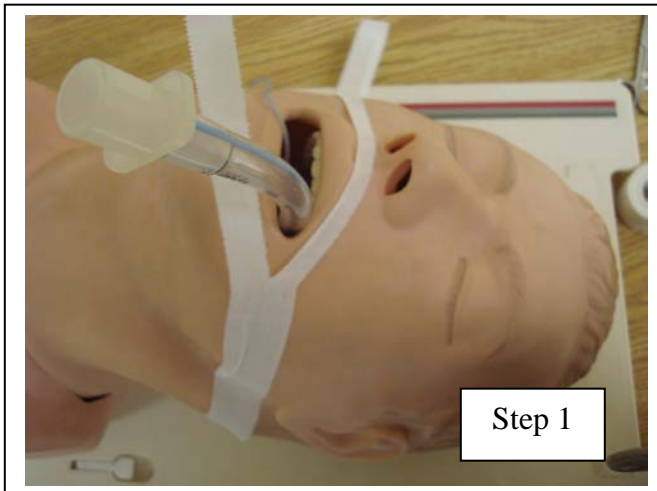
## Adult

Securing Endotracheal Tubes

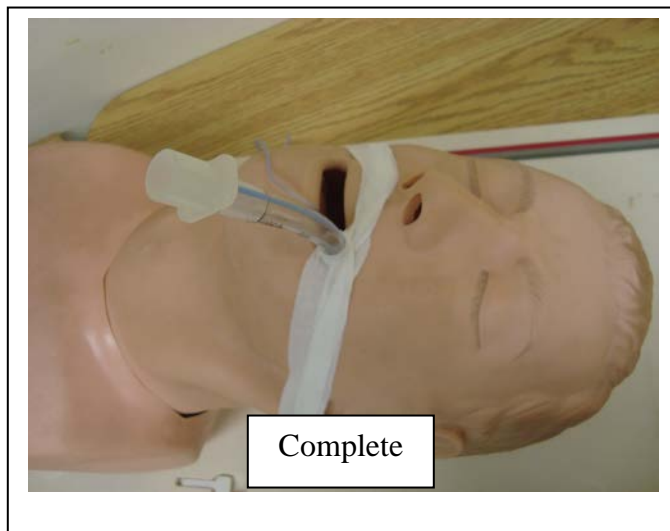
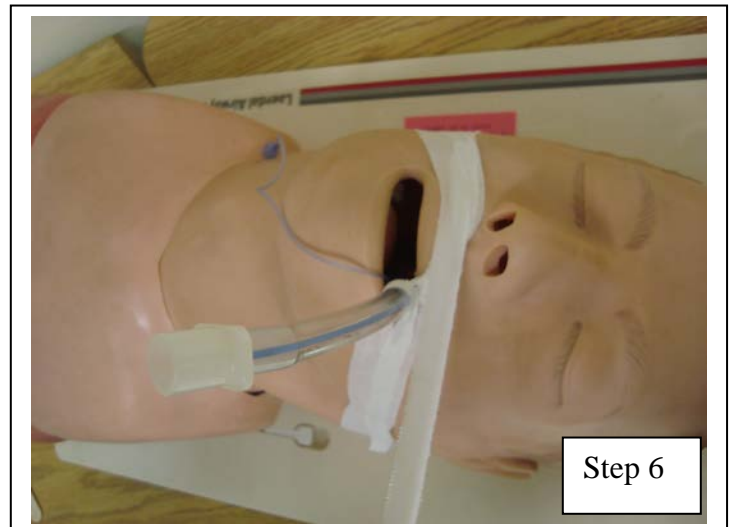
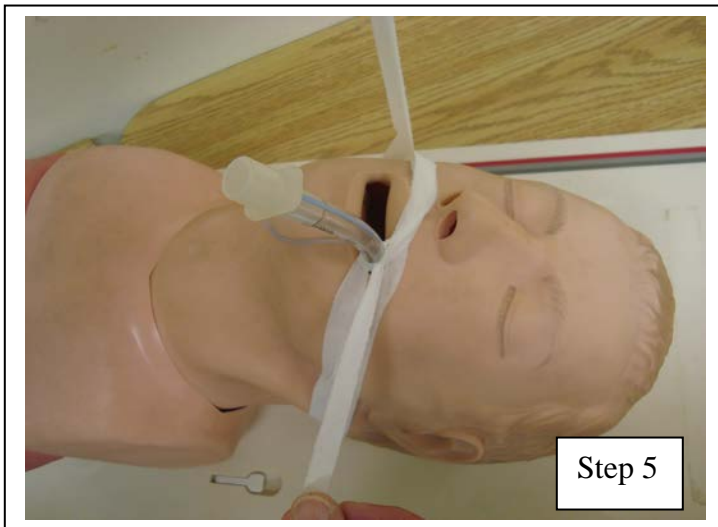
Method 1 – commercially available ETT holders – see package directions,

Method 2 - Adhesive Tape

- Preparing the tape
  - Cut two strips of 1" tape; one approximately 90 cm and the other 30-cm long. Center the shorter strip on top of the longer strip, sticky sides together. This prevents hair at the nape of the neck from sticking to tape
  - Fold sticky ends over and clip approximately 1 cm.
  - Optional - place tongue depressors on distal ends of tape and fold over.
- Note:** *Tongue depressors serve as a guide as tape is passed behind patient's neck.*
- Clean the patient's skin. Shave if necessary
- Apply skin prep or hydrocolloid membrane over skin where adhesive tape will be applied
- Secure with adhesive tape as shown
- NOTE: Nasotracheal tubes can be secured using the same procedure as orotracheal tubes but increases length to 90cm adhesive tape to 105cm.



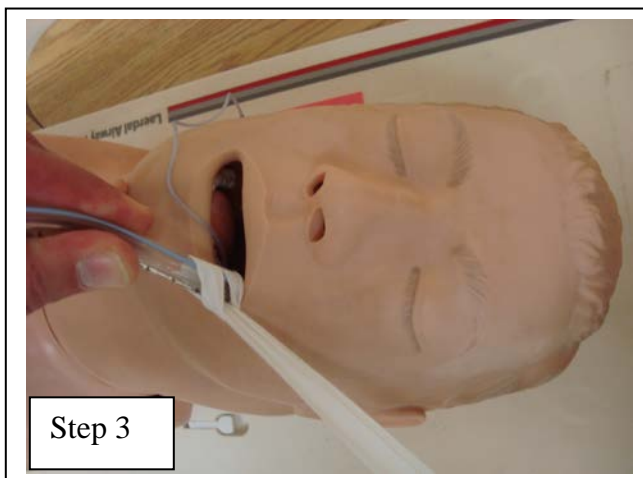
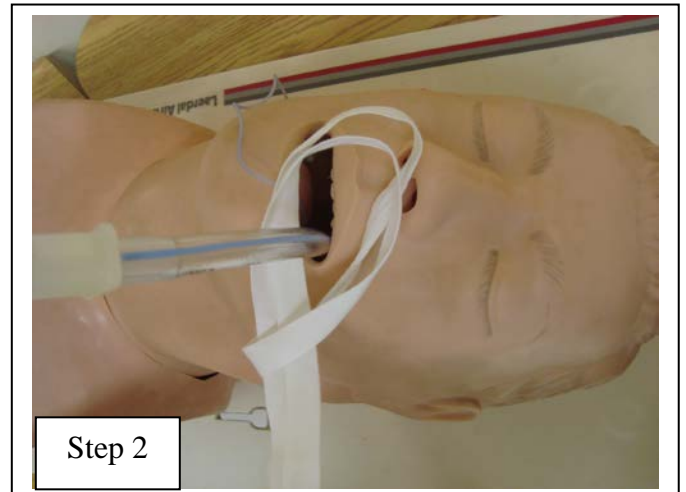
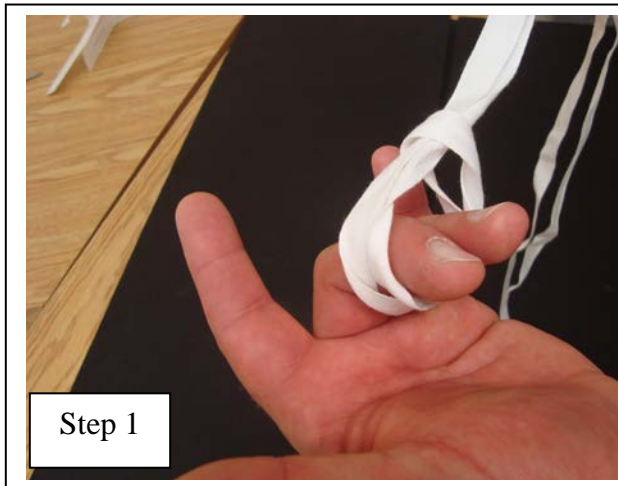




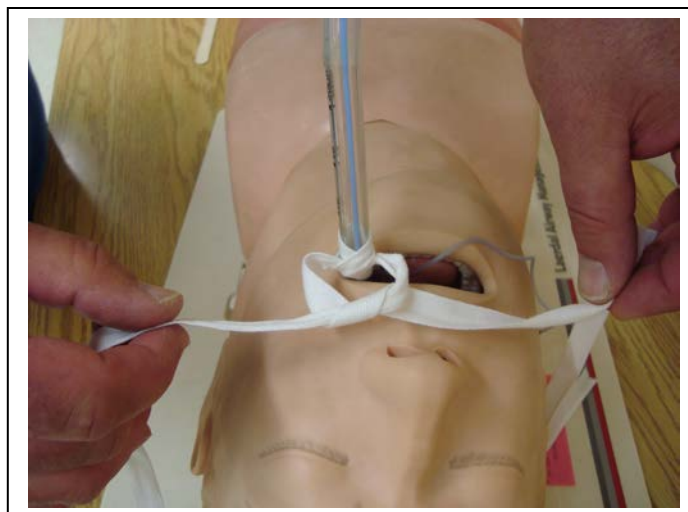
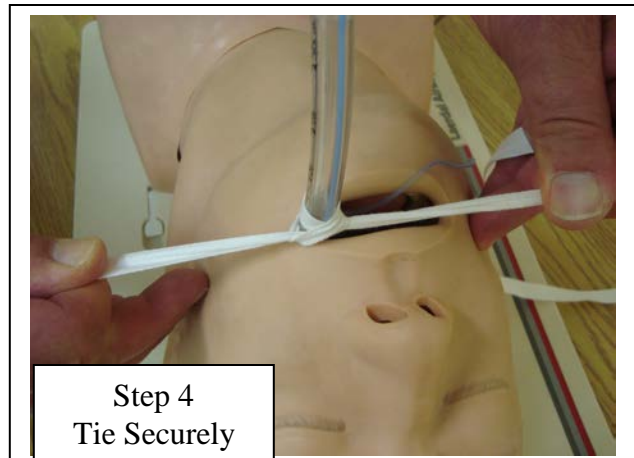
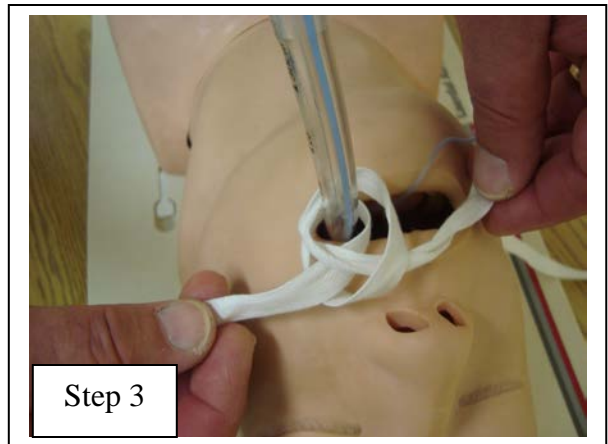
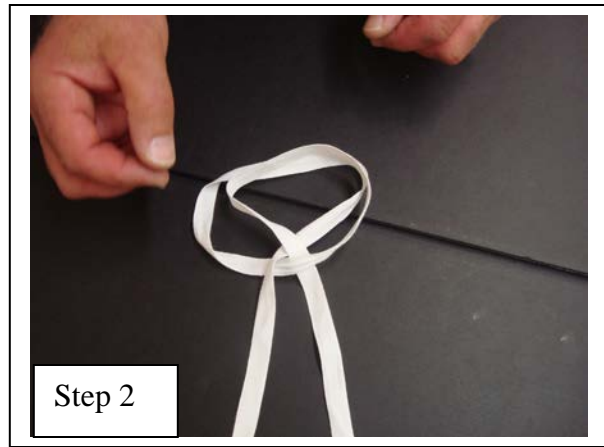
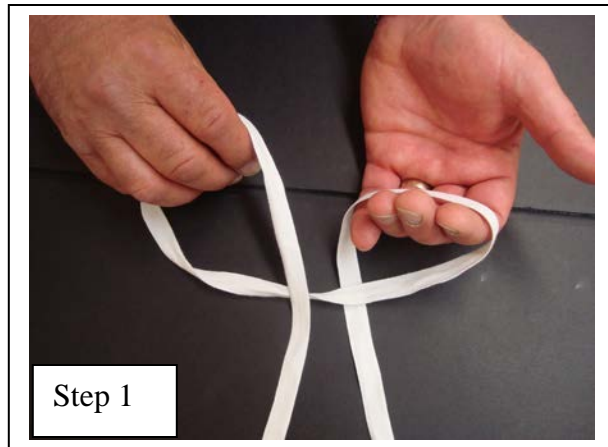
– Method 3 – Twill Tape:

- Twill tapes may be used if the patient is allergic to adhesive tape, has a beard or has facial burns.
- Tie a reef knot or a clove hitch knot and place around the ETT. Avoid securing pilot balloon to ETT.
- Tie tape around patient's head and neck and secure with a square knot around the side.
- The tape should hold the ETT securely without putting pressure on the skin (i.e. should be able to easily place one finger between ties and skin).
- If facial swelling increases, the tape needs to be re-secured.

Lark's Head Knot Method



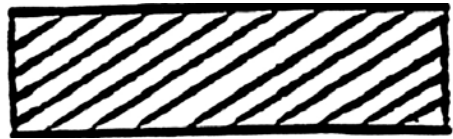
Clove hitch method



Optional:  
Tie an extra knot  
prior to securing  
around patient's  
neck

**Appendix B****Pediatrics**Securing Endotracheal Tubes:

- Consider extra sedation if required
- Check tube position at lip and on x-ray.
- Hold tube securely. PICU: hold from the head of the bed position. Heel of hand should rest on patient's forehead for nasal tubes. For oral tubes, grasp tube firmly with gauze and stabilize against roof of mouth.
- Cleanse cheeks.
- Apply Compound Tincture Benzoin under nose and along the cheeks.
- Apply mustache tape to upper lip.
- Cut strip width from tape according to the size of the upper lip of the child.

1<sup>st</sup> mustache tape

- Cut two strips of Elastoplast tape (width and length will depend on the size of the child) and cut down the middle of half of the tape.



- Tape left or right side of the tube by putting upper strip of tape from cheek to cheek under nose. Use lower tape to secure tube, wrapping around 2 – 3 times and securing on the same side.
- Reverse order if nasally intubated.
- Apply second strip of tape the same way but the opposite side.
- Secure tapes with another mustache tape.

2<sup>nd</sup> mustache tape

- Auscultate air entry.
- Tape left or right side of the tube by putting upper strip of tape from cheek to cheek under nose. Use lower tape to secure tube, wrapping around twice and securing on the same side.
- Reverse order if nasally intubated.
- Apply second strip of tape the same way but begin with the opposite cheek.
- Secure tapes with another mustache tape.
- Auscultate air entry.