

STANDARDIZED PROCEDURE

PEDIATRIC ENDOTRACHEAL INTUBATION (Pediatric)

I. Definition:

This protocol covers the task of endotracheal intubation placement by an Advanced Health Practitioner (AHP). The purpose of this standardized procedure is to allow the Advanced Health Practitioner to safely place an endotracheal tube when needed. An endotracheal tube may be needed in routine (preoperative placement, non-urgent placement and urgent case scenarios).

II. Background Information

A. Setting:

Inpatient pediatric patients or outpatient during Emergency Transport of pediatric patients.

If appropriate, implement procedural support, if available- make sure Child Life is involved, and use age appropriate language and age appropriate developmental needs with care of children

B. Supervision:

The necessity of the procedure will be determined by the AHP in verbal collaboration with the attending physician or his/her designee. Direct supervision will not be necessary once competency is determined, as provided for in this procedure. At that time, general or indirect supervision is acceptable.

Designee is defined as another attending physician who works directly with the supervising physician and is authorized to supervise the AHP.

The Advanced Health Practitioner will notify the physician immediately upon being involved in any emergency or resuscitative events or under the following circumstances:

1. Patient decompensation or intolerance to the procedure
2. Bleeding that is not resolved
3. Outcome of the procedure other than expected

C. Indications:

Endotracheal intubation may be indicated but not limited to maintaining a patent airway, facilitating oxygenation and ventilation, reducing the risk of aspiration, and assisting in the removal of secretions.

D. Precautions/contraindications:

Practitioners performing intubation should be able to rescue patients whose airway is difficult to intubate. Proper cardiovascular monitoring as well as provisions for managing difficult airways must be in place. Patients with a history of or anticipated difficult endotracheal intubation or patients with significant respiratory or hemodynamic instability will be intubated in collaboration with an anesthesiologist.

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III. Materials

The following materials may be used during endotracheal tube placement:

1. Laryngoscope blades, typically starting with Miller 1 for children ≤ 1 yr – see chart
2. Laryngoscope handle, checked for sufficient battery power
3. Proper size cuffed endotracheal tube with 10ml syringe and stylet, see chart for sizing
4. Jackson Reese resuscitation circuit
5. Ambubag
6. Proper size face mask
7. Proper size nasopharyngeal airway
8. Proper size oral airway
9. End tidal CO2 detector
10. Stethoscope
11. Oral suction apparatus
12. Appropriate hemodynamic and oxygen saturation monitoring equipment
13. IV access
14. Supplemental oxygen
15. Appropriate sedating, vasoactive, and reversal agents.
16. Appropriate ETT securing device / materials

Laryngoscope		
Miller 0-1		up to 1 year
Miller 2 or Mac 2		2-12 years
Mac 3		≥ 12 years
Endotracheal tube	Internal diameter	
uncuffed	$\frac{\text{Age (years)}}{4} + 4$	Preferred < 1 yr
cuffed	$\frac{\text{Age (years)}}{4} + 3$	≥ 1 year

IV. Procedure

A. Pre-treatment evaluation:

Assess clinical necessity for intubation. If informed consent is indicated this must be granted before sedation begins. A directed history and physical should be performed that includes:

1. Relevant history of acute and chronic diseases
2. Clarification of code status
3. History of prior intubation
4. Physical exam with attention to anatomical defects of the airway and evidence of respiratory compromise

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5. Current medications and allergies
6. Time of last oral intake
7. Assess airway using Mallampati classification, extent of mouth opening, thyromental distance, palate width, and neck mobility

B. Set up:

Gather all necessary materials and notify Respiratory Therapist to set up ventilator.

C. Patient preparation

1. Explain procedure to patient/caregivers and acquire consent unless emergency
2. Assess for sufficient IV access and attachment appropriate cardiovascular and respiratory monitoring equipment.
3. Position patient in sniffing position. Use blankets as ramps if patient requires additional aligning of oral, pharyngeal, and laryngeal axes.

D. Performing the procedure:

1. Wash hands and don personal protective equipment
2. Check equipment and check endotracheal cuff for leaks if using cuffed tube
3. Insert stylet into endotracheal tube.
4. Attach blade to battery base and assess light function. Have backup blades of different type and sizes available.
5. Preoxygenate with 100% O₂ using ambubag or Jackson-Reese circuit for 3-5 minutes to wash out residual nitrogen gas.
6. If necessary administer appropriate sedatives or opioids.
7. Have an assistant apply cricoid pressure.
8. Assess for ability to mask ventilate.
9. If appropriate administer appropriate neuromuscular blockade and assess for clinical effect.
10. Grasp the laryngoscope in the left hand
11. Open the patients' mouth with the cross finger technique
12. Slowly insert the blade into the right side of the patient's mouth using it to push the tongue to the left. Advance the blade inward and midline toward the base of the tongue.
13. The tip of the curved blade should be placed in front of the epiglottis in the vallecula. The tip of the straight blade should be placed under the epiglottis. Apply pressure caudally and upward with the handle at a 45 degree angle to the bed.
14. Lift the handle until the vocal cords are visualized ensuring that the blade or handle is not levered against the incisors.
15. Grasp the ETT tube with stylet inserted in the right hand.
16. Gently insert the ETT along the right side of the mouth under direct visualization of the vocal cords until the cuff is no longer visible.
17. Firmly hold the ETT in place, withdraw the blade, remove the stylet,

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18. For cuffed tubes: Inflate the ETT cuff if large leak is noted – do not overinflate
19. Attach end tidal CO2 monitor and Jackson-Reese circuit to the ETT and give positive pressure breaths.
20. Assess for proper placement of ETT by end tidal CO2 waveform, fogging in ETT, bilateral breath sounds, symmetric chest movement, and absence of breath sounds over the epigastrium, as well as return to baseline vital signs.
21. If assessment indicates that the ETT is not placed in the trachea, deflate the cuff and remove the ETT. Resume mask ventilation with 100% O2. Consult with ICU fellow or anesthesia staff on strategy to reattempt intubation.
22. If breath sounds are absent on the left, deflate the cuff and withdraw the ETT 0.5-1 cm and evaluate for correct placement.
23. Secure the ETT with tape or appropriate device.
24. Attach the ETT to the mechanical ventilator.

F. Follow-up treatment

1. Order and review STAT portable CXR to evaluate the location of the tip of the ETT.
2. Order and review arterial blood gas 30 minutes post intubation.

V. Documentation

A. Documentation is in the electronic medical record

1. Documentation of the pretreatment evaluation and any abnormal physical findings.
2. Record the time out, indication for the procedure, procedure, type and size of tube used, EBL, the outcome, how the patient tolerated the procedure, medications (drug, dose, route, & time) given, complications, and the plan in the note. Clinical events may also require an event or progress note. The patients' primary service should be notified of the intubation if they are not already aware.

B. All abnormal or unexpected findings are reviewed with the supervising physician.

VI. Competency Assessment

A. Initial Competence

1. The Advanced Health Practitioner will be instructed on the efficacy and the indications of this therapy and demonstrate understanding of such.
2. The Advanced Health Practitioner will demonstrate knowledge of the following:

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- a. Medical indication and contraindications of pediatric endotracheal intubation
 - b. Risks and benefits of the procedure
 - c. Related anatomy and physiology
 - d. Consent process (if applicable)
 - e. Steps in performing the procedure
 - f. Documentation of the procedure
 - g. Ability to interpret results and implications in management.
3. Advanced Health Practitioner will observe the supervising (attending) physician perform each procedure a minimum of **three** times in its entirety.
 4. The Advanced Health Practitioner will perform the procedure a minimum of **three** times under direct supervision of the supervising (attending) physician.
 5. Supervising (attending) physician will document Advanced Health Practitioner's competency prior to performing procedure without supervision.
 6. The Advanced Health Practitioner will ensure the completion of competency sign off documents and provide a copy for filing in their personnel file and a copy to the medical staff office for their credentialing file.

B. Continued proficiency

1. The Advanced Health Practitioner will demonstrate competence by successful completion of the initial competency.
2. Each candidate will be initially proctored and signed off by an attending physician. Demonstration of continued competence shall be monitored through the annual evaluation and documentation of successfully performing **three** procedures within the past year and review of the procedures and any complications associated with them. A log of all intubations should be kept by the individual nurse practitioner. In cases where this minimum is not met, the Advanced Health Practitioner must demonstrate skill with this procedure in a simulation or skills lab, or the attending, must again sign off the procedure for the AHP. The AHP will be signed off after demonstrating 100% accuracy in completing the procedure.
3. Demonstration of continued proficiency shall be monitored through the annual evaluation.
4. A clinical practice outcomes log is to be submitted with each renewal of credentials. It will include the number of procedures performed per year and any adverse outcomes. If an adverse outcome occurred, a copy of the procedure note will be submitted.

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VII. RESPONSIBILITY

Questions about this procedure should be directed to the Chief Nursing and Patient Care Services Officer at 353-4380.

VIII. HISTORY OF PROCEDURE

Written January 2011, Initial Policy approved February 2011 by CIDP and EMB

Revised most recently July 2012 by Subcommittee of the Committee for Interdisciplinary Practice

Reviewed most recently July 2012 by the Committee on Interdisciplinary Practice

Approved most recently July 2012 by the Executive Medical Board and the Governance Advisory Council.

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