

Tracheal Intubation – Pediatric Protocol

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Preamble

Tracheal intubation is the definitive advanced life support technique for airway management. The purpose is to either secure the airway or to ensure adequate ventilation and oxygenation.

The pediatric airway is particularly challenging due to the small patient size, differences in anatomy, and relatively high oxygen demand in pediatric patients. In addition, respiratory compromise is the most common antecedent event prior to a cardiorespiratory arrest. Prompt, proper management of the airway is essential in the management of a critically ill pediatric patient.

Requirements

1. Fully licensed Technician-Advanced Paramedic.
2. Certification in tracheal intubation – pediatric protocol by the Medical Director.

Indications

1. Unconscious patient with no gag reflex requiring airway protection.

Contraindications

1. Patient age 16 years or greater.

Suggested Tracheal Tube Sizes and Depth

	approx weight (kg)	Laryngoscope blade	tracheal tube size	centimeters at lips
Newborn (0-3 months)	3 – 5	0 or 1, straight	3.0 – 3.5	10 – 10.5
Infant (3-12 months)	6 – 9	1, straight	3.5 – 4.0	10 – 10.5
Small child (1-4 years)	10 – 14	2, straight	4.5 – 5	11 – 13
Child (5-8 years)	15 – 22	2, straight or curved	5 –5.5	14 – 16
Large child (>8 years)	24 – 30	2 or 3 , straight or curved	6*	17 – 18

*cuffed tracheal tube used only for a child greater than 8 years old; all other tubes are uncuffed

Procedure

1. Perform patient assessment and record vital signs, level of consciousness, and oxygen saturation.
2. Assess that patient meets criteria for this protocol.
3. Ensure there are no contraindications to use of this protocol.
4. Initiate basic life support treatment measures, including supplemental oxygen.
 - these take precedence over management using this protocol
5. Ensure cervical spine immobilization is in place, if indicated.
6. Preoxygenate and ventilate with 100% O₂ using bag-valve mask.
7. Second EMS personnel applies cricoid pressure.
8. Airway is visualized directly using laryngoscope, following accepted procedure.
 - do not rock or lever the laryngoscope on the patient's teeth
9. When vocal cords have been visualized, pass tracheal tube through the cords.
10. Inflate tracheal tube cuff if using a cuffed tube.
11. Begin ventilation and confirm tube placement following accepted procedure.
 - confirmation of tube placement must include end-tidal CO₂ detection
 - ensure the end-tidal CO₂ detection device used is age- or weight-appropriate
12. Release cricoid pressure.
13. Secure tracheal tube. Do not cut tracheal tube.

14. Insert an oral airway or suitable alternative.

15. Initiate transport, unless other emergency condition requires immediate treatment.

Notes:

- Each attempt at intubation should be limited to thirty (30) seconds, with adequate oxygenation and ventilation between attempts.
- A maximum of two (2) attempts at tracheal intubation is permitted.
- Tracheal tube position must be checked frequently, and after any transfer or movement of the patient, because tube displacement occurs easily in pediatric patients.

Documentation Requirements

The following information must be documented on the patient care report form:

1. Patient's presenting signs and symptoms, including vital signs, level of consciousness and oxygen saturation.
2. Indications for protocol use.
3. Size and tube depth in centimeters (at the lips) of tracheal tube.
4. Number of intubation attempts.
5. Repeat assessment and vital signs, as indicated.
6. Changes from baseline, if any, that occur during treatment or transport.
7. Signature and license number of EMS personnel performing any transfer of function skills.

Certification Requirements

1. Attend in-depth classes and lectures on pediatric airway anatomy, physiology, advanced airway management, and tracheal intubation.
2. Be able to identify:
 - criteria for intubation
 - contraindications to intubation
 - complications of intubation
 - alternate, non-invasive methods of airway management

3. Complete a minimum of twenty (20) successful intubations on pediatric patients under direction of the medical director or physician designate.
4. Pass a written examination.
5. Pass practical scenarios incorporating potential complications related to pediatric tracheal intubation.
6. Certification is by the Medical Director.

Recertification Requirements

1. Review class and recertification is done every 12 months.
2. A minimum of twenty (20) successful intubation every twelve (12) months:
 - a minimum of ten (10) must be carried out on pediatric patients in the field or a suitable hospital setting
 - a maximum of ten (10) may be carried out in a simulated setting under the supervision of the medical director or physician designate. These may involve use of a pediatric mannequin or alternative, as approved by the medical director.
3. A record will be kept to document all cases where this protocol is used.

Decertification

1. Decertification is at the discretion of the Medical Director or the Provincial Medical Director, Emergency Medical Services, Manitoba Health & Healthy Living.

Quality Assurance Requirements

1. Appropriate quality assurance policies must be in place. The Medical Director or designate must review all instances where this protocol is used. As a minimum, the following must be assessed:
 - i) appropriateness of implementation
 - ii) adherence to protocol
 - iii) any deviation from the protocol
 - iv) corrective measures taken, if indicated
2. Yearly statistics for protocol use compiled and forwarded to Emergency Medical Services, Manitoba Health & Healthy Living.