

INTUBATION: THE ESSENTIALS

Presented by:

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INTRODUCTION

Intubation, the insertion of a breathing tube into the trachea, is an advanced medical skill that when practiced properly saves lives and when done poorly can be fraught with complications. The purpose of these materials is provide you with a clearer understanding of airway management and more specifically intubation. You will also learn what to look for in the documentation of the intubation attempt. Frank W. Nagorka is an experienced trial lawyer who has defended EMS cases throughout the United States. He has been an attorney for more than 25 years and a paramedic for 20 of those 25 years.

AIRWAY MANAGEMENT

All EMS providers are trained that the patient's "ABCs" must be assessed and then continuously monitored. The ABCs stands for 'airway, breathing and circulation'. Regardless of the EMS providers skill level, the ABCs remain paramount. You will see that A and thus airway is always first and thus most important. The airway can be managed in a variety of ways:

- Simple monitoring for the conscious and responsive patient.
- Coma position
- Chin-lift: jaw thrust
- Nasal Airway
- Oral Airway
- Combitube
- Intubation

[Oxygen can be utilized with all these airway management techniques.]

These airway management techniques listed run from the easiest to the most difficult. All but the last of these techniques can be used by BLS (basic life support) personnel while intubation is reserved for those with advanced training, usually at the paramedic level.

Each airway management technique has its place and the rationale for using the airway management technique should be documented along with the specific details of the technique. You should be aware of each technique and the reasons for its use. If the patient does not have a patent airway then the patient will not survive.

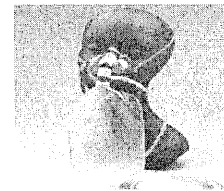
BRIEF DESCRIPTION OF THE OTHER DEVICES

The following section provides basic information regarding devices other than an endotracheal tube and additionally provides information on their use:

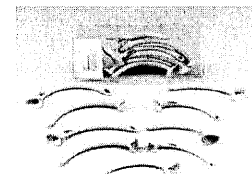
- ❑ *Cannula:* A two-pronged device that fits in the nose. Provides a low flow oxygen environment. Should only be used in conscious patients that need a low-level of oxygen enrichment.



- ❑ *Face masks:* These devices come in a variety of styles from simple face masks to non-rebreather face masks. These devices are designed to provide the patient with increasing levels of oxygenation. The patient's oxygen level should be monitored with a pulse oximeter. If it is not available, then the patient's clinical condition should be monitored and documented.

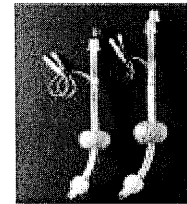


- ❑ *Airways:* Generally, there are two types of airways that can be used in the field by EMTs. The purpose of these airways is, as the name implies, to keep the airway open. Generally, these airways can only be placed in the unconscious patient. The nasal airway, a flexible silicon tube is inserted into the nostril and can be used for the obtunded patient that still has a gag reflex. The oral airway generally cannot be used in a patient with a gag reflex. Neither of these airways will prevent the patient from aspirating vomit. The primary purpose of these airways is to keep the tongue from occluding the airway.



- ❑ *Combitube:* EMTs at a basic level are now trained to use this device and it can serve as a secondary airway device if an advanced provider cannot secure a patent airway with an endotracheal tube. The provider uses a blind insertion technique, no visualization, and then tries to ventilate through tube number 1 and if the provider cannot ventilate through tube number one then the provider ventilates through tube number 2. From personal

experience, the combitube is easy to use but it is not considered the gold standard for airway management. Additionally, one cannot push drugs down the combitube as one can using the endotracheal tube.



ENDOTRACHEAL TUBES and INTUBATION

The endotracheal tube is a hollow tube made of supple plastic that is designed to be slipped between the vocal cords and then into the trachea. Its principle purpose is to ensure that the patient maintains an airway under all circumstances. If the patient vomits, no vomit can enter the lungs. Additionally the tube can be used for the introduction of certain medications.

The following is a an example of a protocol in use in the city of Chicago for endotracheal intubation:

I. ORAL ENDOTRACHEAL INTUBATION

INDICATIONS

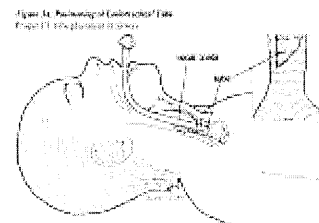
Oral endotracheal (ET) intubation should be considered for patients with apnea, inadequate respiratory effort, or an inability to protect their airway (e.g., Glasgow Coma Scale less than or equal to 8.)

CONTRAINDICATIONS

Inability to visualize anatomical landmarks.

EQUIPMENT

1. Mandatory oral and optional nasal airway
2. Bag-valve-mask
3. O₂
4. Suction
5. Stethoscope
6. Appropriately sized ET tube and optional stylet
7. Appropriately sized Laryngoscope blade and handle
8. 10cc syringe
9. Esophageal Detector Device (EDD) - is contraindicated in patients less than 5 years of age and/or less than 20 kilograms.
10. Tape
11. Pulse oximeter and capnography (if available)



PROCEDURE

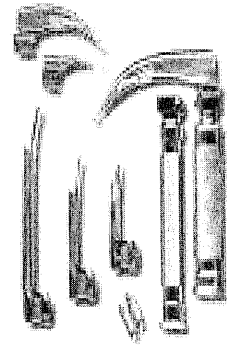
1. Apply personal protective equipment.
2. Position patient to open airway and maintain in-line stabilization for all suspected trauma patients.
3. Create seal with mask on patient's face and hyperventilate patient with bag-valvemask device.
4. Assemble all equipment and test for function. Attach pulse oximeter (if available).
5. Remove oral airway, insert laryngoscope blade to visualize vocal cords.
6. Insert the ET tube until the cuff passes through the cords and remove the stylet if used.
7. Upon insertion of ET tube, immediately attach EDD with bulb compressed **BEFORE VENTILATION**.
8. If EDD rapidly re-inflates, inflate cuff of ET tube to maximum of 10cc's.
9. If EDD remains compressed or **SLOWLY** re-inflates, revisualize ET tube placement with laryngoscope, reposition as indicated and return to step 7.
10. If re-inflation still does not occur and visual placement is verified, inflate cuff and proceed to step 12.
11. If ET tube placement cannot be visualized with direct laryngoscopy, return to step 3. May repeat for a total of three (3) attempts, then proceed to Part II -- Combitube Intubation.
12. All patients, once intubated, should have both lungs auscultated for adequate ventilation. Next auscultate the epigastric area for absence of air movement, then secure the ET tube and insert oral airway as needed. Attach capnography (if available).
13. If inadequate lung sounds are auscultated on the **LEFT** side, the tube should be pulled back in 1 cm increments until equal breath sounds are heard.
14. Lung sounds should be continually re-assessed throughout patient contact and whenever patient is moved or position changed. Continually reassess pulse oximeter and capnography (if available).
15. If at any time:
 - the bag becomes difficult to compress,
 - there is evidence of hypoperfusion (changes in vital signs, mental status or decreased capillary refill),
 - change in tube position does not demonstrate clinical improvement,Tube placement verification should be reassessed by direct visualization. Reassess pulse oximeter and capnography (if available). If the ET tube is inappropriately placed, return to step 3.
16. If the ET tube is appropriately placed, consider chest decompression for tension pneumothorax.
17. Continue to assist ventilations as indicated.
18. Documentation should include all procedures associated with intubation process that were attempted and completed.

DOCUMENTATION OF SUCCESSFUL INTUBATION

Remember this, it is not wrong to intubate the esophagus, but it is definitely wrong not to recognize the improper intubation:

The following are various methods to document proper placement of the endotracheal tube and additionally to document that the tube has remained in the proper location:

- Document size of tube
- Document checking of equipment
- Document type of blade used
- Document use of stylette
- Document passage of tube through the vocal cords
- Document checked for lung sounds and absence of abdominal sounds
- Document capnography
- Document colorimetric device
- Document ET tube detector
- Document diamond number at upper teeth
- Document proper securing of tube
- Document checking for tube place following movement of patient



CONCLUSION

Intubation is a marvelous technique but like all techniques it must be practiced and must be done with care and precision. The key to successfully defending cases where prehospital intubation is in question lies in the careful documentation of the technique.

Should you have questions or concerns in a specific case, please feel to contact me at 312-863-3699 at the office or via email at fnagorka@mbwulaw.com.