Tracheostomy/Stoma Care
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What to expect today:

At the end of this training session the Paramedic should be able to:

• Explain the reasons why a patient would have a trach/stoma
• Describe the anatomy and physiology of the respiratory system as well as the anatomical and physiological differences of a patient with a trach/stoma
• Differentiate and recognize the common types of trach tubes and stomas
• Be able to state the appropriate ventilation parameters as it applies to a trach/stoma
• Understand and describe how to administer medications to a patient with a trach/stoma as it applies to ACP/PCP scope of practice
Reasons for a Trachesotmy/Stoma

- Cancer of the larynx
- Gunshot wound to the neck
- Severe laryngeal fractures
- Laryngeal stenosis
- Other forms of trauma
Anatomy and Physiology of the Respiratory System

- The upper airway consists of:
  - The nasal cavity (including sinuses)
  - Nasopharynx
  - Oropharynx
  - Hypopharynx
  - Larynx

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Morgan, 2005
Anatomy and Physiology of the Respiratory System (cont’d)

- Air enters the nasal cavity through the nares
- Air is warmed and humidified by a blood rich membrane
- The air is then filtered by a series of coarse hairs
Anatomy and Physiology of the Respiratory System (cont’d)

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Lalwani, 2004
Anatomy and Physiology of the Respiratory System (cont’d)

• The hypopharynx is located:
  • At the tip of the epiglottis
  • Extends to the glottic opening of the esophagus

• The hypopharynx is also lined with a mucous membrane
  • Also aids in humidifying air that enters here
  • Prevents and protects its surfaces from abrasions
Anatomy and Physiology of the Respiratory System (cont’d)

• The larynx serves 3 functions:

  1. Air passage between the pharynx and the lungs
  2. Prevents aspiration into the respiratory tree
  3. Aids in the production of speech
Anatomy and Physiology of the Respiratory System (cont’d)

- The larynx consists of 9 cartilages

- 6 are paired, 3 are unpaired

- All connected by muscles and ligaments

- The order of cartilages from superior to inferior are:
  1. Thyroid
  2. Arytenoid
  3. Cricoid
Anatomy and Physiology with a Trach/Stoma

- The patient will have an opening in the neck
- Located at base of the neck superior to the manubrium
- The upper portion of Larynx has usually been removed
- Patients may plug their nose to cough, to clear the trach
- Some patients can talk with a trach tube, some cannot
- Anatomical structures below trach/stoma are generally normal
Types of Tracheostomy Tubes

Tintinalli, 2010
Types of Trachostomy Tubes

- Note that Trach/Stomas can either be permanent or temporary
- Can be made of plastic, silicone or metal
- Trach tubes can either be cuffed or un-cuffed
- Either protruding from the neck or is flush
- Type of trach tube depends on procedure/need of patient
Parts of a Tracheostomy Tubes

- Obturator - needed to reinsert a Trach tube. Each obturator is specific for each Trach tube.

- The inner cannula is meant to keep the airway open. Either disposable or reusable. Usually changed/cleaned 1-2 times/day.

- The cuff is used to close the lower airway from the upper airway to allow positive pressure ventilation.

- This part also prevents gross aspiration into lower airway.

Tintini, 2010
Basic Life Support Patient Care Standards

• General Standard of Care, Section 1

• Patient Assessment – Physical Assessments

• Section 1-5F

• “Upon identification of absent/inadequate airway, breathing or circulation (ABC’s) immediately perform appropriate interventions to establish, improve and/or maintain the ABC’s.”
Ventilation of a patient with a Trach/Stoma (PCP/ACP)

- Always perform ABC’s

- Pre-oxygenate by direct connection of BVM to opening of trach
  OR

- Utilize a seal easy mask/pediatric resus. mask
  
  - Place directly over the trach/stoma opening

- Ventilate as necessary
Suction/Ventilation of a patient with a Trach/Stoma (PCP only)

- Assess airway patency, breathing and circulation
- Suction around the stoma to clear secretions
- Do not enter the stoma itself
- Deep suctioning is an ALS intervention at this time
Suction/Ventilation of a patient with a Trach/Stoma (ACP only)

• Gently introduce suction catheter a short distance until resistance is felt

• Do not insert entire catheter

• Intermittently suction while withdrawing the catheter (10 sec. max)

• Vacuum suction pressure should be enough to remove secretions

• May require more than one suctioning attempt
Suction/Ventilation of a patient with a Trach/Stoma (ACP only)

• Ideally follow parameters for oral suctioning

• Be careful not to utilize high vacuum pressures as this may cause:
  
  • Hypoxia
  • Barotrauma
  • Alveolar collapse
  • Pneumothorax
  • Vagal stimulation (causes bradycardia)
Medication Administration for Patients with a Trach/Stoma (PCP)

• Medications that can be administered via trach/stoma:

  • Oxygen

  • Salbutamol (Ventolin)
    • Shortness of breath
    • COPD
    • Asthma
Medication Administration for Patients with a Trach/Stoma (PCP/ACP)

- For EMS Services that have trach masks, use according to training

- For EMS Services that do not have trach masks:
  - Use either a pediatric nebulizer mask or an adult nebulizer mask
  - Direct the medication or oxygen flow toward the trach opening
Medication Administration for Patients with a Trach/Stoma (ACP)

- Medications that can be administered via trach/stoma:
  - Oxygen

- Salbutamol (Ventolin)
  - Shortness of breath
  - COPD
  - Asthma

- Epinephrine (1:10,000), Lidocaine
  - For cardiac arrest situations where an IV/IO cannot be established
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