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Tracheostomy: It Takes a Team

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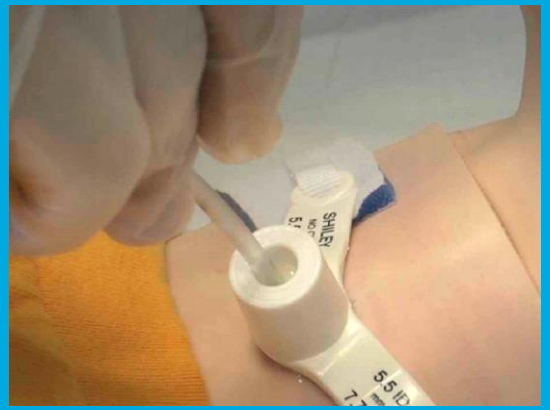
Indications for a Tracheostomy

What is a Trach?

A tracheotomy is a surgical procedure that creates an opening in the neck and windpipe (trachea). A tube is then placed in the opening to keep it open, so air gets to the child's lungs. The terms tracheotomy (the surgery), tracheostomy (the hole), and tracheostomy tube (the actual tube) are all sometimes referred to as the “trach.”

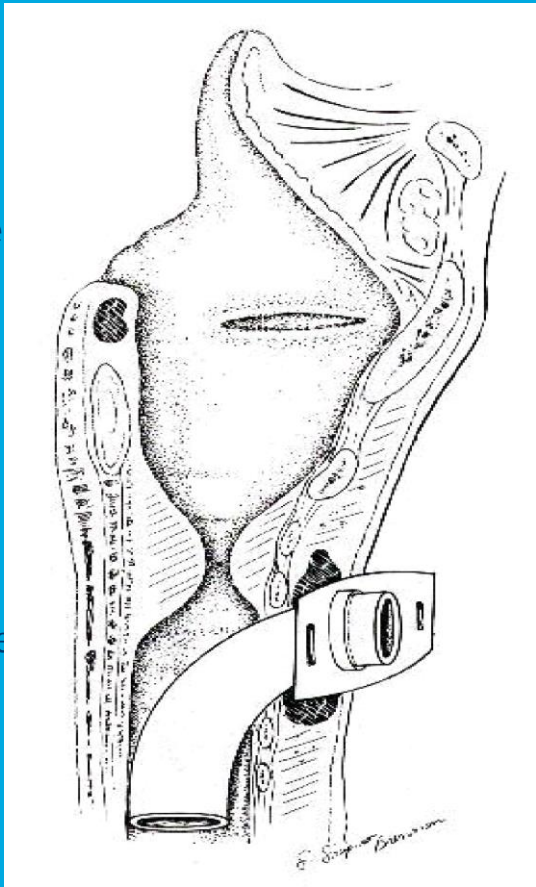


Indications for a Tracheostomy

- Subglottic stenosis
- Tracheomalacia
- Vocal Cord Paralysis
- Obstructive Sleep Apnea
- Congenital abnormality of larynx or trachea (TEF)
- Trauma: Facial
- Prolonged intubation

Subglottic Stenosis

- A narrowing of the larynx usually at the level of the cricoid cartilage.
- Congenital: Congenital subglottic stenosis is usually not diagnosed until the airway is challenged: i.e. respiratory illness.
- Acquired: Caused by long-term intubation, too large of a endotracheal tube, and excessive movement.
- For significant subglottic stenosis a tracheostomy or tracheal reconstructive surgery may be indicated.

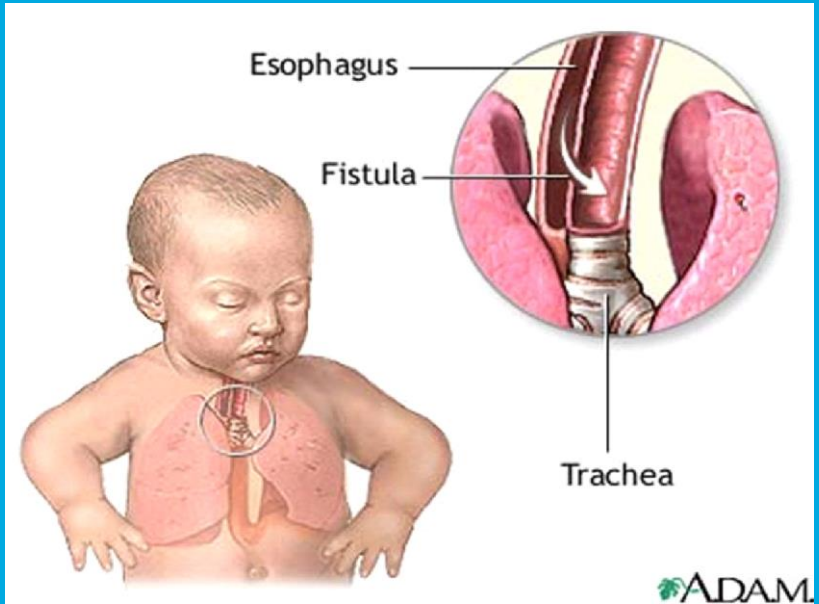


Tracheomalacia

- Tracheomalacia is when the tracheal cartilages collapse during the respiratory cycle.
- Can be more pronounced during illness.
- Diagnosed with a bronchoscopy.
- Severe tracheomalacia may require tracheostomy and sometimes ventilation.

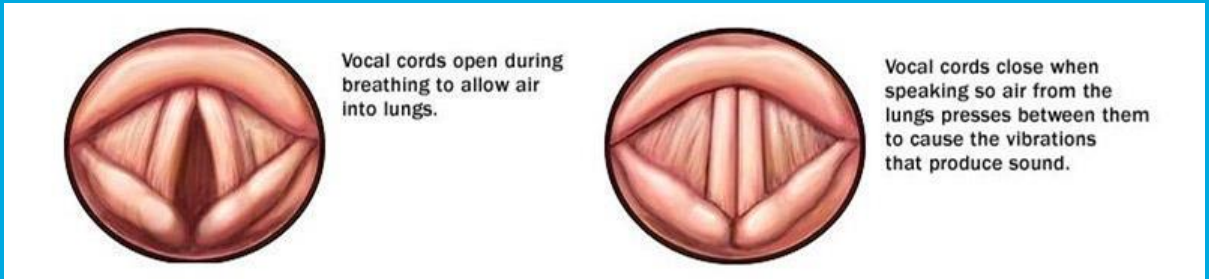
Tracheoesophageal Fistula (TEF)

- Communication between the trachea and esophagus
- Surgical intervention is required to repair the esophagus
- In severe cases a tracheostomy may be indicated
- Sometimes a child with a TEF will have a “spit fistula” created to allow an avenue for oral secretion to escape



Vocal Cord Paralysis

- Vocal cord dysfunction is usually the consequence of other problems such as surgical trauma to the laryngeal nerve during cardiac surgery, Arnold-Chiari malformation of the brain stem, or prolonged intubation.
- Sometimes dysfunction will resolve spontaneously
- Tracheostomy is sometimes required for bilateral vocal cord paralysis



Indications for Chronic Ventilation

Indications for Chronic Ventilation

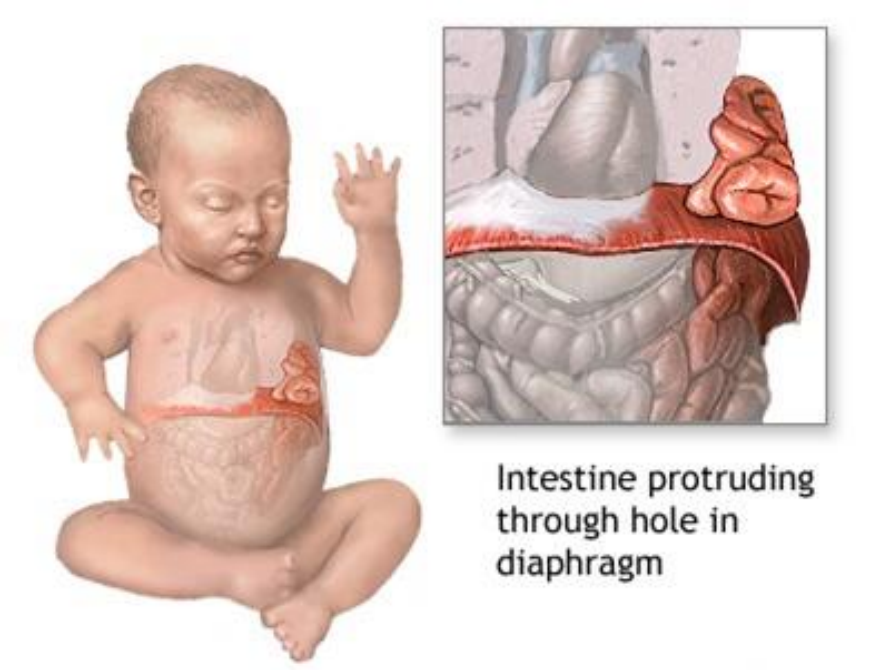
- Central sleep apnea
- Trauma: Neuro or Spinal
- Traumatic Brain Injury (TBI)
- Paralysis of muscles
  - Duchene's Muscular Dystrophy
  - Guillain-Barre
- Bronchopulmonary Dysplasia (BPD)
- Diaphragmatic Hernia
- Bronchomalacia

Bronchopulmonary Dysplasia (BPD)

- BPD is a chronic disease resulting from acute respiratory disease in the neonatal period.
- Risk factors include prematurity, high inspired oxygen concentrations, positive pressure ventilation, and PDA.
- BPD results in bronchiolar and interstitial changes resulting in thickened walls and fibrosis.
- Sometimes requires long-term ventilation.

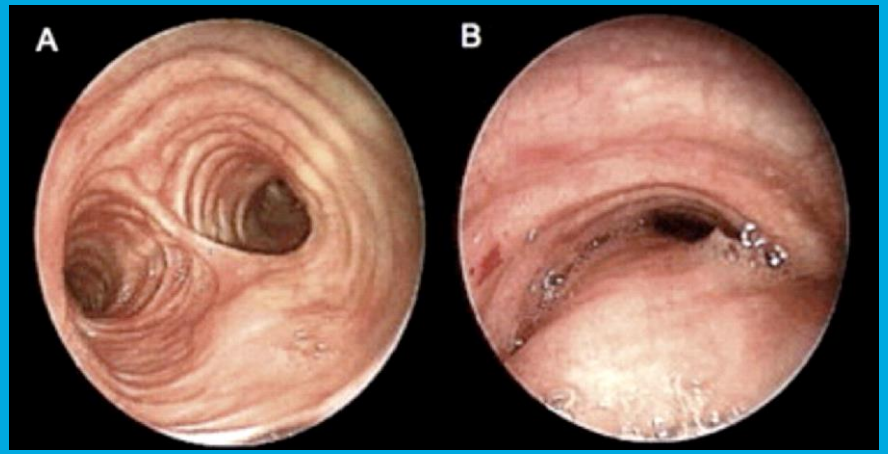
Congenital Diaphragmatic Hernia (CDH)

- Abnormal development of the diaphragm during fetal development causes one or more of the abdominal organs to herniate through the diaphragm
- Results in underdevelopment of the affected lung
- Surgical intervention in the first few hours to days of life is required
- Severe cases may result in need for chronic ventilation



Bronchomalacia

- Collapsing of the airways below the trachea
- Children with bronchomalacia may need a trach and ventilation



Nursing Priorities

Go Bag: Supplies that Must be with Student at all Times

- Trained Caregiver
- Extra trachs
  - One of the same size
  - One half a size smaller
- Extra trach ties
- Scissors
- Suction machine
- Suction catheters
- Ambu bag
- Pulse ox machine and probe

Humidification

- Proper humidification is essential to the tracheostomy dependent child
- Without proper humidification a mucous plug is inevitable
- Humidification at school:
  - Heat Moisture Exchanger (HME)
- Ventilator
- Saline for instillation or nebulization

Suctioning

- Suction Machine
- Gloves
- Suction Catheter
  - Length
  - Diameter
- Saline (not for routine use)
- Suction at least every 4 hours and as needed
- Monitor quantity and quality of secretions

Prevention is the Key!

- Know the child
  - History: Why do they require a trach?
  - Baseline status
- Equipment: Be familiar with use and maintenance
  - Ensure student always has emergency equipment with them (go bag)
- Monitor the child's status
  - Awake, alert, trained caregiver 24/7
- Note changes to status
  - Secretions
  - Oxygenation
  - Position of trach
- Provide Routine care
  - Suctioning
  - Proper humidification
  - General Trach Care: Cleaning, changing the trach

When Prevention Does Not Work

- **BE SYSTEMATIC WHEN ASSESSING FOR A PROBLEM**
  1. Is the trach in the stoma?
  2. Is the trach patent?
     - If child is stable attempt to suction trach. Saline can be used if secretions are thick.
     - If child does not improve with suctioning, is not stable, or mucous plug is suspected, change the trach.
       - IT IS NEVER WRONG TO CHANGE THE TRACH! **WHEN IN DOUBT CHANGE IT OUT**
  3. Start manual ventilation: use bag with manometer

- **Call 911 if student is not improving or actions do not solve the problem**
- **Monitor CV status and start CPR if at anytime it becomes indicated**

Tracheostomy Complications

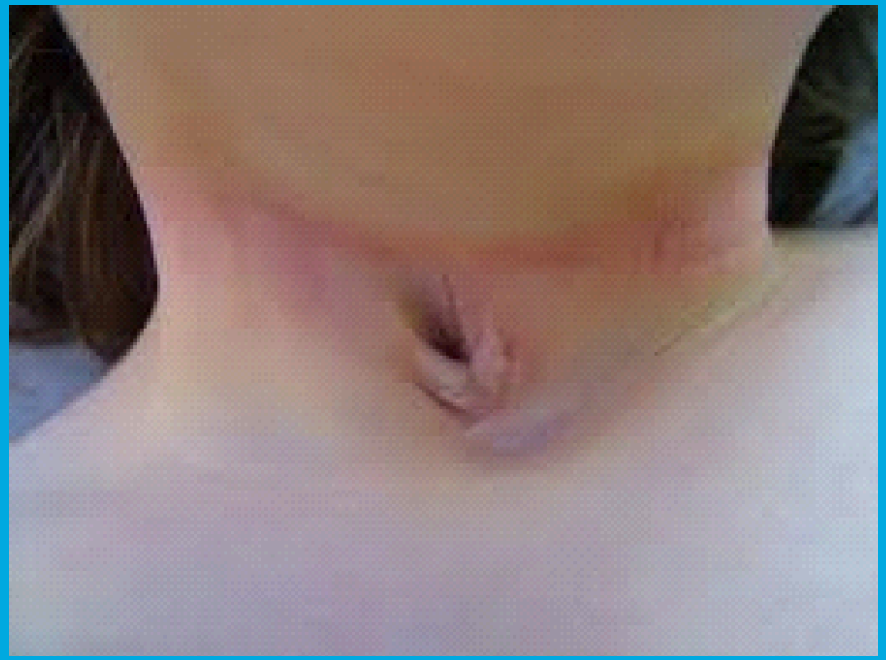
Mucous Plugs

Mucous plugs are secretions that are thick from either lack of humidity or illness. These can cause the tracheostomy tube to completely occlude leading to a medical emergency.

Preventing a plug = ***HUMIDIFCIATION***

Skin Breakdown

Some redness is to be expected, but careful assessment, routine repositioning and thorough cleaning usually will prevent it from becoming a problem.



Skin Breakdown

Yeast is a common finding in children with tracheostomies and is characterized by a red area with a raised pinpoint rash.

Keeping skin dry and clean is the best prevention for yeast overgrowth.

Granuloma

Granulomas are overgrowth of scar tissue often caused by excessive moisture and/or friction at the trach site

Keeping the trach site clean and dry and reducing friction will help prevent granulomas from forming

Granuloma?

Some irregular skin folds around the stoma are normal and may be confused with granulomas

Developmental Support

Therapy Tools

- Positioning aids
- One way valve/Speaking Valve
  - Must be used under direct supervision of a trained caregiver
- Signing videos/ handouts

Developmental care goes hand in hand with medical care. One gives these kids life, and the other gives them a life worth living

Implications for School Nurses

Know your student

- Why do they have a trach?
- Do they have the supplies they need at school?
- Are you familiar with equipment and how to use it?

Skill knowledge

- Following delegation guidelines
- Ensuring within scope of practice
- IHP development
- Resources

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Questions?