

**HME**

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**HEAT MOISTURE EXCHANGERS  
BENEFITS, CONSIDERATIONS, PRODUCTS**

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Objectives

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- Understand the benefits of an HME system
- Understand initial post operative laryngectomy considerations for HME use
- Understand products options

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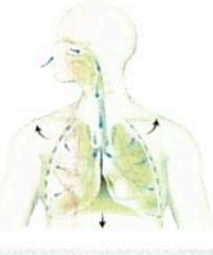
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Anatomy and Physiology Review

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Inspiration



- Air enters nasal passage and is filtered and warmed as it passes through the upper respiratory system
- Air is core body temperature by the time it reaches the alveoli for oxygen exchange
- Normal function of tracheal cilia and goblet cells

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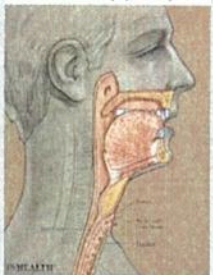
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### Anatomy and Physiology Review

- Post operatively the upper airway is permanently disconnected
  - Natural heat and moisture system is lost
  - Air temperature no longer has opportunity to be sufficiently warmed before it reaches the lower airway
  - Loss of filtration system

After Laryngectomy



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### HME to the Rescue!



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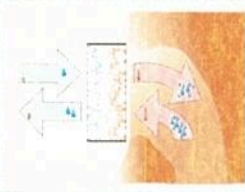
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### What is an HME?

- **Heat Moisture Exchanger**
  - Filters dry, cool air as it passes through the HME and EXCHANGES it for warm and moist air.
  - The HME is encased in a cassette/ cartridge for durability and for ease of placement/removal.



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### HME Benefits

- **Increases breathing resistance**
  - helps maintain lung performance
  - tissue oxygenation
    - Warming of inhaled air to reach core body temperature at level of the alveoli.
- **Maintain healthy tracheal and bronchial cilia**
  - Hair like structures which line the lower airway that help to clear mucous and "dirt" up and out
    - Thins and reduces secretions over time.
    - Reduces lower airway irritation thus reducing coughing.

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### HME Benefits

- **Protects the stoma and lower airway from dust and other particles in the air.**
- **Hygienic occlusion of the stoma during tracheo-esophageal voicing.**
  - No more use of digital occlusion of stoma
  - Decreases bacteria/germs from entering trachea

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### Immediate Post operative HME use

- **Who- Any laryngectomee**
- **When- Immediately after surgery**
  - Not including any patients with complicated post operative courses
- **How- HME cartridges are meant for 24 hour use**
  - Dispose of prior days' cartridge and replace with a new one each day
  - Can be replaced more frequently as needed



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### Immediate post operative HME use

- No more external humidification!
- No more corrugated tubing!



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### Immediate post operative HME use

- HME cartridges can...
  - Improve "directness" of heat, moisture and filtration via placement within intraluminal device.
  - Improve patient mobility.
  - Improve SLEEP!
- Teach...
  - Placement and Removal of the HME
  - Need for disposal/re placement every 24 hours
  - Cough technique
  - BENEFITS!

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### Post operative Pulmonary Kit

- Atos Medical
  - Included within each kit:
    - 30 day supply of HMEs
    - Shower aide
    - Cleaning brushes for laryngectomy tube
    - Neck band
    - Care Tips
      - Written education



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### HME Types

- Atos
  - Xtra Flow (more porous)
  - Xtra Moist
  - Micron
  - Free Hands
- Inhealth Technologies
  - Easy flow (more porous)
  - Classic flow

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### HME Tracheoesophageal voice options

Digital Occlusion	Hands Free HME
	
Atos Medical, Inhealth Technologies	Free Hands Flexi Voice Atos Medical

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### Products for HME attachment

- Laryngectomy tubes
- Laryngectomy buttons
- Adhesive baseplates
- Consider:
  - Anatomy
  - Skin
  - Comfort
  - Patient goals

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### Laryngectomy Tubes

- Laryngectomy tubes
  - Typically used in the post operative phase
    - Can be used long term
  - HME cartridge clips into the face of the laryngectomy tube
  - The tube is secured via foam neck band
    - Allows for comfort while skin and incision sites heal



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### Fenestrated Laryngectomy Tube

- For the purpose of tracheo-esophageal voicing method
- Face of the HME can be pressed to allow for redirection of air through the fenestrations and the voice prosthesis



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### Laryngectomy Button

Available in various lengths to optimize positioning in relation to the voice prosthesis

Secured with:

- Neck band
- Adhesive

HME cartridge clips into face of button



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### Laryngectomy Button

- Laryngectomy Button
  - Available in various lengths to optimize positioning in relation to the voice prosthesis
  - Secured with
    - Neck band
    - Adhesive

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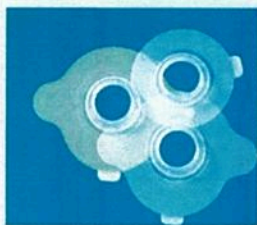
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### Adhesive Baseplates

- Various shapes
- Support/firmness
- Various adhesive backing
  - Skin sensitivity



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### Adhesive Base plates

To apply:

- Start with clean hands!
- Clean and prep the skin
- Apply skin sensitive glue
- Place the center of the baseplate to skin first
- Slowly & evenly spread remainder of adhesive out toward edges
- Eliminate air bubbles as you spread
- Place the HME

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Summary

- Benefits, benefits, benefits!
- What to expect in the immediate post op stage.
- Options as the patient recovers and advances in self care management.

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Photo Credit

ATOS MEDICAL  
INHEALTH TECHNOLOGIES  
CLEVELAND CLINIC  
MH MEDICAL

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