Enhancing the Safety of Medical Suction Through Innovative Technology

May-June 2008 Issue, Article: Enhancing catheter2. Researchers are examining the connection between tube, lung tissue can be drawn into the eyelets of the thoracic ach. If too much negative pressure is applied through a chest Flow rate is the term used to describe how fast air, fluid, or Physics of Suctioning and anemia as well as formation of scar tissue.

Why a Safety Mindset is Important

Today, medical suction is used for newly born babies and sen-1950s, airway suction levels were first regulated for safety. Since the 1920s, it has been used to empty the stomach, and in the 1970s, to remove accumulated secretions from the respiratory tract. Medical suction is an essential part of clinical practice. Since suctioning is a routine procedure in many care settings, clinicians often have little training on the principles of Suctioning. 1. "The Principles of Vacuum and Clinical Application in the Hospital Environment"

Abstract:

Medical suctioning is essential for patient care. It is important to properly set and regulate suction levels. However, few clinicians receive training on the principles of suctioning, and many do not realize the potential risks associated with incorrect suctioning.

Increasing the internal diameter of suction tubing or catheters will increase flow better than increasing the negative pressure. Three main factors affect the flow rate of a suction system:•  The viscosity of the matter being removed•  The amount of negative pressure (vacuum)•  The resistance of the suction system:

Video 1: Clinical Animation Video

"Avoiding the Hazards of Inadvertent Administration of High Suction Pressures" Video 2: Clinical Video

"Understanding the Hazards of Tracheal Oversuctioning"

Reference Information

1. Excerpt from American Association of Respiratory Care® 2010 published Guidelines Endotracheal Suctioning of Mechanically Ventilated Patients with Artificial Airways; Section 2.3
There are two most commonly overlooked key aspects of clinical suctioning that could lead to over-suctioning and various clinical complications:

1. Choosing the appropriate suction pressure:
   - Recommended Guidelines for setting Suction Pressures
     - Endotracheal
       - Adults: <150 mmHg
       - Infants: -60 to -80 mmHg
     - Nasogastric drainage
       - Adult: -30 to -40 mmHg (Intermittent)
   - Always follow your institution’s recommended guidelines for clinical suctioning.

2. Setting the suction pressure correctly:
   - Always Occlude-To-Set for proper suction levels
     - The negative pressure must be checked by occluding the end of the suction tubing before attaching it to the suction catheter, and prior to each suctioning event.
   - OHIO MEDICAL’S Push-To-Set™ Technology is an integrated passive safety system designed to prevent inadvertent over-suctioning.

   THE TECHNOLOGY:
   - When the vacuum adjustment knob is depressed, the vacuum flow path is “automatically occluded” and will accurately reflect maximum suction pressure.
   - Because the patented PTS technology occludes the flow path when the knob is depressed, the clinician is not required to occlude the flow path to set maximum pressure.

   DID YOU KNOW......
   - Push-To-Set™ technology enhances setting safe suction pressures through automatic occlusion.
   - Digital technology enhances display of accurate suction pressure (±1%) providing unsurpassed safety.

If not occluded . . .

and/or not properly set . . .

The results could be . . .

 inadvertent high suction pressures. Hazards during suctioning are as follows:

During tracheal suctioning:
  - Hypoxia/Hypoxemia[1]
  - Atelectasis[1]
  - Mucosal tissue tears[2]
  - Bleeding[2]
  - Increased risk of infection[2]

During nasogastric suctioning:
  - Mucosal tissue tears[2]
  - Bleeding[2]
  - Increased risk of infection[2]

Are your Vacuum Regulators helping you to avoid over suctioning your patients?

Always Occlude-To-Set for proper suction levels

Always follow your institution’s recommended guidelines for clinical suctioning.

Recommended Guidelines for setting Suction Pressures

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Nasogastric drainage
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If the flow path is not occluded, the pressure setting may be as high as -635 mmHg.

Suction-induced Lung De-recruitment

One Simple, One Handed Step

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*See back cover for reference information