

Lesson One – Introduction to Airway Suctioning

LEARN: Introduction to Airway Suctioning Slide Presentation

20 minutes

Purpose:

Participants will learn about the purpose, indicators, supplies, and proper procedure surrounding suctioning.

Materials:

- *Introduction to Airway Suctioning* slide presentation
- Airway Suction Trainer
- Stethoscope
- Monitoring equipment
- Bag resuscitation mask and Venturi mask
- Complete suction unit with oxygen source
- Catheter kit
- Soft suction catheter
- Rigid suction catheter
- Clean gloves
- Sterile gloves
- Specimen collection cup
- Lubricant

Facilitation Steps:

1. Share the following information with participants as you show them the *Introduction to Airway Suctioning* slide presentation.

Slide 1: Title slide.

Slide 2: Suctioning is the mechanical removal of secretions through the mouth, nose, or tracheal tube (tracheostomy tube or endotracheal tube) to clear the airway and improve breathing. Patients who have ineffective coughing, are intubated or ventilated, or have other certain conditions will require suctioning.

Slide 3: The procedures are slightly different depending on whether the patient has a natural or artificial airway. The purpose of suctioning is to remove secretions or obstructions from the airway, prevent tube occlusion, improve oxygenation, or obtain a sputum sample.

Secretions will build up in the lungs and airway if a patient is unable to remove mucus and foreign materials by coughing forcefully. A blockage in the airway can prevent the lungs from receiving adequate oxygen and cause difficulty breathing.

Tracheostomy or endotracheal tube suctioning clears the trachea and lower airway. Tracheostomies cause more secretion accumulation and require frequent suctioning to maintain an open airway and prevent obstruction.

Slide 4: Suctioning has many advantages and disadvantages, but the benefits must outweigh the risks. An advantage of suctioning is that it allows visualization of the cords during intubation by removing secretions (blood, mucus, saliva, and vomit) to establish an airway easier. Successful secretion removal eliminates the possibility of intubation and infection.

However, suctioning is an invasive procedure, and trauma or irritation to the airway can cause increased secretions or bleeding. The process is often painful or uncomfortable. Hypoxemia can occur as a result of suctioning but can be limited by oxygenating the patient both before and after the procedure. Tracheal suctioning may trigger vagal stimulation causing dysrhythmias and hypotension.

Slide 5: A review of the medical record may identify potential contraindications or complications. Most contraindications are relative to the risk of developing adverse effects or condition deterioration. The decision to refrain from suctioning to prevent adverse effects could be fatal.

A patient with recent head or neck injuries cannot receive oral suctioning. Mouth sutures, sores, or sensitive tissues are avoided to prevent further damage.

Slide 6: Suctioning has the potential to create infection and many other adverse effects on the respiratory, cardiovascular, and neurological systems. Decreased lung volumes, hypoxia, alveolar collapse, or trauma to the trachea can affect the respiratory system. Cardiac dysrhythmias, bradycardia, hypotension, hypertension, increased intracranial pressure, or decreased cerebral blood flow are possible suctioning complications. Trauma, irritation, or bleeding in the airway can occur if secretions are not present. Excessive tracheostomy suctioning can result in blood-streaked secretions. Unnecessary suctioning can cause trauma to the mucosal lining and initiate bronchospasm. The patient must be monitored for complications before, during, and after suctioning.

Slide 7: Administering a bronchodilator before suctioning maximizes the diameter of airways and suctioning of secretions. Sedation or pain relief may be administered to patients when necessary and if urgent suctioning is not prolonged. Using normal saline to loosen and remove secretions is not recommended for use with an artificial airway. Instillation of normal saline before tracheal suctioning can affect oxygenation saturation, increase the potential risk for aspiration, and push particles into the lower airway.

Slide 8: Suctioning units are available in mounted and portable units. Mounted units are attached to walls and readily available in each room of medical facilities. A portable suction unit allows emergency medical providers to transfer from initial contact with the patient to the connection of a mounted unit without interruption of availability. Mounted suction units provide more suction power than portable units.

A negative pressure vacuum creates suction from a compressor. Negative pressure should be set at 80-120 mmHg, but adjusted for pediatric patients or thick secretions. However, suction pressure that is set too high can cause tissue damage. Tubing is attached with connection tubing to the machine that pulls out mucus and other secretions through a Yankauer or soft

suction catheter, and then deposited into a collection container.

Slide 9: Suction catheters are available in two forms, an open suction catheter system and a closed suction system (in-line suctioning). Suctioning an endotracheal tube or a tracheostomy can use both open and closed systems. An open suction catheter system requires a ventilator disconnection before suctioning, while a closed suctioning system involves a device that facilitates ventilator directed oxygenation.

Suction catheters can be rigid or soft. Rigid catheters (e.g. Yankauer) are used for oral and oropharynx suctioning, but cannot be used to clear deep secretions. A soft catheter is for suctioning the nasopharynx, tracheal tube, or during situations where a rigid catheter is not appropriate. The correct catheter size must be used to ensure that it will pass smoothly and does not cause trauma to the airway. A 12 or 14 Fr sized catheter is appropriate when performing nasotracheal suctioning.

The oral suction catheter is available in many sizes. The suction catheter must be less than half the diameter of the tracheal tube. The measurement between the tip of the nose to the earlobe should be the catheter's length.

Slide 10: Personal protection equipment such as gloves, a self-inflating bag, and an oxygen source for resuscitation (if needed) are additional supplies needed when suctioning. A Venturi mask is necessary to oxygenate the patient as compensation during suctioning. A lubricant is needed when performing nasotracheal suctioning to allow the catheter to pass without difficulty.

Slide 11: Before suctioning, verify the identity of the patient with current physician orders or the medical chart. Provide detailed instructions of the procedure to the patient when possible before suctioning to help ease anxiety and promote understanding. All information must be repeated each time a suctioning event occurs, as some patients may not remember previous instructions. Instructions must include the reason that suctioning is needed, consequences for not suctioning, and the

effects. Inform the patient that suctioning is uncomfortable but brief and necessary. Also, more than one attempt may be required. Ensure that all essential equipment is monitoring the patient. Place the patient in a semi-Fowler's position with their head in a neutral position, unless contraindicated. Perform an assessment before, during, and after suctioning to monitor for complications or contraindications.

Slide 12: Stand on the side of the patient, hyperoxygenate for 1 minute using a Venturi mask. Insert the tip of the catheter without applying suction into the oral cavity and advance the catheter towards the oropharynx by gently pushing the tongue down. Apply suction by placing a finger over the catheter side opening while moving the tip of the catheter around the mouth until secretions are clear.

Demonstrate for participants on the Airway Suction Trainer.

Slide 13: Stand on the side of the patient, place a Venturi mask over the tracheostomy tube or endotracheal tube to hyperoxygenate for 1 minute using a non-sterile gloved and nondominant hand. Hold the catheter with the dominant sterile gloved hand to insert the catheter into the tube without applying suction. Once resistance is felt, pull the catheter back 1-2 cm. Place and remove a finger over the catheter side opening intermittently to apply suction while withdrawing the catheter from the tube between 10-15 seconds. Reapply the Venturi mask with the nondominant hand to reoxygenate for 1 minute.

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Slide 14: Return oxygen to the previously prescribed rate immediately after tracheal suctioning is complete. A respiratory assessment is completed after each event to monitor changes, improvement, or side effects. Increased difficulty in breathing, hypoxia, discomfort, worsening vital signs, and bloody sputum are adverse effects to monitor and address appropriately. Document all actions of the procedure immediately in the patient's chart.

Slide 15: Gloves, gown, mask, goggles, and/or a face mask are worn with droplet and airborne precautions if secretions are likely to splash or if an aggressive cough is stimulated. Tracheal suctioning is performed before oral or nasal suctioning, after which the catheter is discarded. A new and separate suction catheter is used for oral and nasal suctioning to prevent contamination and infection of the lower airways. A tracheostomy tube with an inner cannula will remain in place to prevent the collection of secretions.

Slide 16: Record in the patient's chart immediately after the procedure. Document the date, time, size and type of catheter, preparation and description of procedure, assessment throughout each stage of the procedure, tolerance, effectiveness, administration of medication or oxygen, characteristics of secretions, and whether a sputum sample was collected.