A. Introduction

The importance of maintaining a clear airway is to avoid forcing secretions and fluids in the lungs that result in aspiration. Suctioning is a priority in any airway management, whether routine or an emergency, and must be readily available in order to avoid aspiration.

B. Rigid/Tonsil (Yankauer) Tip Suction

EMR/BLS

1. Turn on the assembled suction device with Rigid/Tonsil (Yankauer) suction catheter and ensure in proper working order.

2. Measure rigid tip catheter to ensure proper insertion depth from the corner of the mouth to the earlobe or corner of the mouth.

3. Open the mouth using the “scissor” or “crossed-finger” technique and insert the rigid tip only as far as you can visualize.

    a) Note any large foreign bodies or materials which may occlude the airway and remove with the Magill forceps.

4. Place a finger over the suction control opening of the rigid tip to occlude and apply suction. Begin suctioning in a circular motion while withdrawing the rigid tip.

    a) Monitor for the patient’s overall clinical appearance, heart rate, and SaO2.

    b) If the patient deteriorates or bradycardia occurs, administer high-flow O2 until the clinical appearance and heart rate improves to normal limits.

    NOTE: Airway suctioning can be performed simultaneously during airway management attempts (e.g. orotracheal intubation, visual/video laryngoscopy, etc.).

5. Continue oxygenation of the patient and perform airway management as necessary.

6. Document procedure time and result in the ePCR.

    NOTE: Rule-of-Thumb for airway suctioning – suction for no longer than:
    15 seconds for Adults, 10 seconds for Children, 5 seconds for Infants

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C. Soft/French (Whistle) Tip Suction

Utilize primarily for airway obstructions secondary to blood, secretions, or other substances in patients currently being assisted by an airway adjunct, endotracheal tube, nasotracheal tube, iGel, cricothyrotomy or tracheostomy tube (stoma). Can be used for suctioning thin secretions from the nose and inserting along the side of the cheeks for a patient with trismus.

EMR/BLS

1. Turn on the assembled suction device with Soft/French (Whistle) tip suction catheter and ensure in proper working order.

    a) Select the appropriately sized soft tip catheter (the size should less than 50% of the internal diameter of the endotracheal tube or stoma [common conversion 1 mm = 3 French]).

    b) Maintain the sterile plastic packaging over soft tip catheter and utilize as a keeper.

2. Measure soft tip catheter to ensure proper insertion depth by using the patient's suprasternal notch and the end of the airway as depth guides (clinical judgment of depth is required when suctioning cricothyrotomy and tracheostomy tubes).

3. If necessary, remove BVM from the airway adapter.

4. Insert the soft tip catheter suction through the airway device to the appropriate desired depth and place a finger over the suction control opening to occlude and apply suction. Begin suctioning while withdrawing the soft tip slowly.

    a) If difficulty suctioning is encountered, a small amount of Normal Saline solution (Max 10 mL) may be used to loosen secretions.

5. Continue oxygenation of the patient and assist ventilation as necessary with BVM.

6. Document procedure time and result in the ePCR.

NOTE: Rule-of-Thumb for airway suctioning – suction for no longer than:
15 seconds for Adults, 10 seconds for Children, 5 seconds for Infants

D. Laerdal Suction Unit (LSU) Operation

1. Ensure all necessary parts are accounted for and in a clean and serviceable condition.

2. Ensure the patient suction tubing is appropriately attached to the patient port on the suction canister lid.

    a) The most appropriate suction catheter shall be selected and attached to the other end of the suction tubing.

3. Release the patient suction tubing by release the blue strap on the right side of unit.

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4. Only operate the LSU in an upright position to prevent any overflow of the suctioned material.

5. Set the LSU operating knob to the desired vacuum level appropriate for the patient and the LSU will begin to operate and the green light power indicator will remain continuously lit while the unit is operating.

    a) Higher vacuum levels (> 200 mmHg) are generally selected for oropharyngeal suctioning.

    b) Lower vacuum levels (80 – 200 mmHg) are usually selected for suctioning of the trachea through an airway device, nose, children and infants.

    c) The suction canister is recommended to be replaced once it is 3/4 full or after each use.

Replacing the Suction Canister

1. Disconnect the angled connector from the vacuum port on the suction canister lid.

    a) Connect the “suction end” of the patient suction tubing in the vacuum port to avoid spillage.

    b) Do NOT dispose the LSU blue angled connector and tubing (replace if damaged and only as necessary).

2. Release the suction canister holder by pressing down on the release arm while sliding the holder outward.

3. Remove the canister from the holder.

4. Dispose of the suction canister with contents safely into a biohazard waste container.

5. Replace holder with a new suction canister with a properly seated lid and slide the holder back into the locked position.

6. Connect new suction tubing to the canister and secure tubing with the blue strap.

Unit Maintenance

1. If device is not used frequently, it is recommended that a device test should be performed on a monthly basis. This test allows for the end-user to initiate a device test to identify whether or not the LSU is operating satisfactorily, assembled correctly, or if service is necessary.

2. Prior to beginning test, ensure that the suction tubing is not occluded or bent.

3. Press and hold the TEST-button while simultaneously setting the operating knob to 500+ mmHg.

4. As soon as the second LED light of the Battery Status Indicator comes on, fully occlude to suction tubing with a finger.

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a) Maintain the tubing occluded until only the first LED light remains on.

5. To display the test results, cycle through the different steps by pressing the TEST-button once for each result.

6. To exit the device test mode, set the operating knob back to the off (0 mmHg) position.

Device Test Results

Test Step *On Battery Status Indicator*	**Test Result - Passed** *On Vacuum Indicator*	**Action** *If Test Failed*
STEP 1 - Occlusions	≤ 100 mmHg	Check for possible occlusions and run test again
STEP 2 – Vacuum Build-Up Efficacy (3 secs.)	≤ 300 mmHg	Check connectors, tubing, canister lid for air leakage/damage, and exhaust outlet for occlusion.
STEP 3 – Max Achievable Vacuum (10 secs.)	≥ 500 mmHg	Check connectors, tubing, canister lid for air leakage/damage, and exhaust outlet for occlusion.
STEP 4 – Air Leakage	≥ 450 mmHg	Check connectors, tubing, canister lid for air leakage/damage.

Cleaning the Unit

1. Disconnect the LSU from the external power supply or wall bracket.

2. Use a minimum amount of liquid disinfectant to avoid electrical shock hazard.

    a) Do not immerse the LSU or allow the unit to stand in water or any other liquids.

3. Use a cloth dampened with a mild detergent or disinfectant to clean the external surfaces of the LSU.

    a) Wipe the surfaces again with water again if a mild detergent is used.

4. Dry the surfaces using a clean cloth or paper towel.

Charging the Battery

1. Ensure the LSU operating knob is in the off position (0 mmHg).

2. Connect either the external AC- or DC-power to the LSU or lock LSU back in place into the mounted wall bracket to begin charging.

3. During charging operations, the battery status indicator will indicate the approximate achieved battery capacity.

    a) The LSU must be placed on charge for a minimum of 4 hours in order to reach the full battery capacity.

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b) It is recommended to store the LSU on continuous charge and immediately after use to maintain satisfactory operation of the battery.

c) The battery should be replaced via an EMS Service Request when it does not pass the Battery Quality Check. It is indicated for replacement when the unit does not operate continuously at 500 mmHg for 20 minutes or more.

d) The LSU battery does not charge while the unit is in operation.

E. Hand-Operated Suction (V-Vac Suction Unit)

A manual portable unit that is designed for quick and effective suction providing a variety of suction pressures from ~170 – 380 mmHg.

Excess Secretion/Large Particle Suctioning

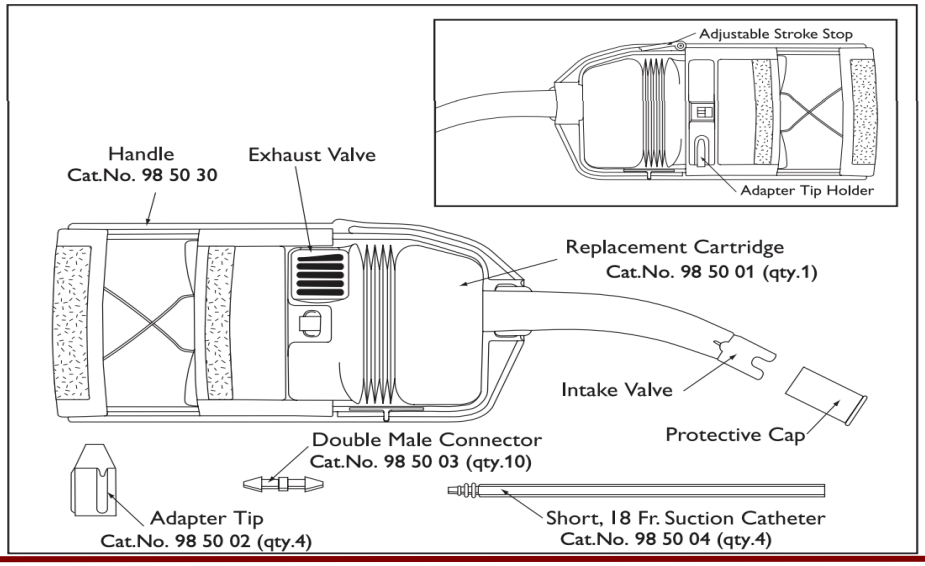
1. Measure V-Vac Intake Valve to ensure proper insertion depth.
2. Open the mouth using the “scissor” or “crossed-finger” technique and insert the V-Vac Intake Valve tip only as far as you can visualize.

    a) Note any large foreign bodies or materials which may occlude the airway and remove with the Magill forceps.

3. Create suction pressure by pulling back and squeezing on handle while slowly withdrawing out of the mouth. Repeat as necessary.

    a) To avoid clogging of the exhaust filter on the side cartridge when it is partially filled, do not point the V-Vac tip upward.

Components



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Adapter Tip

1. Provided for additional uses and applications and can be stored on the adaptor tip holder of the V-Vac handle.

2. A short, non-sterile 18 French suction catheter can be attached to the adaptor tip for use to suctioning thin secretions from the nose and/or inserting along the side of the cheeks for a patient with trismus.
3. Ensure the suction catheter is firmly seated into the adapter tip prior to use.

    a) The adapter tip should be pushed over the intake valve.

    b) A double male connector is also available to be used with the adapter tip with female-ended catheters.

Cartridge Removal and Installation

1. Place the protective cap over the intake valve.

2. Hold the handle of the V-Vac with the tip pointed away, use the heel of the left palm to push out the cartridge reservoir while maintaining a grip on the handle frame beneath the nozzle tip.

3. As the V-Vac cartridge pops out, hold firmly with the right hand and pivot it to a right-angle position to remove from the handle frame.

4. Replace with a new cartridge by holding on to the handle with the left hand and placing the new cartridge at a right-angle, inserting the oval-shaped hole into the clip of the handle.

5. Pivot cartridge forward and snap it in place firmly to seat the cartridge appropriately. The protective cap can remain in place on the intake valve until the next use.

Stroke Adjustment

1. Securing the stroke stop to achieve only a maximum of ~170 mmHg of suction pressure.

2. Squeeze the handle of the V-Vac handle and flip over the stroke stop on the top.

3. Push down the stroke top to lock it into place.

Cleaning

1. The V-Vac handle can be cleaned thoroughly by scrubbing with warm soapy water.

2. Rinse and dry before installing a new cartridge on the V-Vac handle.

3. Check the condition of the handle and the functionality of the unit prior to returning into service.

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