

PASSY-MUIR TRACHEOSTOMY SPEAKING VALVE

PURPOSE: To set guidelines for use of Passy-Muir Tracheostomy Speaking Valve (PMV).

SCOPE: All qualified & properly-trained Respiratory Care Practitioners.

POLICY: Respiratory Care Practitioners will work in collaboration with the Speech Pathologist and nursing staff for initial and subsequent use of Passy-Muir valve.

PRODUCT INFORMATION:

The Passy-Muir tracheostomy speaking valve is a one way valve that attaches to the universal 15 mm hub of most tracheostomy tubes. With inspiration, the one-way valve opens allowing air to enter the lungs. Upon expiration, the one way valve closes thereby redirecting air past a deflated cuff and through the vocal cords creating speech. The Passy-Muir valve is intended for use in providing vocalization without a finger occlusion.

There are 3 models of the Passy-Muir speaking valve and can all be used interchangeably on or off the ventilator.

- Model #007 (aqua) - 15 mm I.D/22 mm O.D dual taper speaking valve
- Model #2000 (clear)- 15 mm I.D/23 mm O.D is a low profile tracheostomy & ventilator speaking valve
- Model #2001 (purple)- 15 mm I.D/23 mm O.D low profile tracheostomy & ventilator speaking valve

All models require attachment of a wide-mouth non-disposable (rubber) 6” flex tubing between the PMV and the ventilator wye. Only the aqua model can be connected directly into a disposable ventilator tubing.

BENEFITS:

- I. Allows patients to use own voice to speak with natural tone and quality.
- II. More sterile technique than the finger occlusion.
- III. Reduction in secretions.
- IV. Increased energy level/increased sense of well being.
- V. Restores sense of smell.
- VI. Improves ability to swallow.
- VII. Weight gain/increased appetite.
- VIII. Demonstrated to expedite weaning from the ventilator and tracheostomy tube.

INDICATIONS AND PATIENT SELECTION CRITERIA:

- I. Tracheostomy
 - patient must have near normal voice articulation
 - patient needs to possess adequate language and cognitive skills
 - cardiopulmonary status must be stable
- II. Tracheostomy tube can be:
 - cuffed - CUFF MUST BE DEFLATED FOR USE
 - cuffless
 - fenestrated
 - metal - Jackson type - will need a special adapter (15 mm hub from plastic ETT's)

WARNING: DO NOT USE PMV WITH BIVONA CUFFED TRACHEOSTOMY TUBES.

- III. Patients must be able to protect their airway from aspiration as confirmed by a Speech Therapist.
- IV. Awake, and responsive patients.

CONTRAINDICATIONS:

- I. Inflated cuff (unable to tolerate deflated cuff).
- II. Severe tracheal and laryngeal stenosis.
- III. Copious/excessive pulmonary secretions.
- IV. Obtunded/unconscious patients.
- V. Laryngectomized patients. Passy-Muir valve is not a vocal prosthesis.
- VI. Severely ill patients with end stage pulmonary disease.
- VII. Foam-filled cuffed tracheostomy tube.

PROCEDURE:

- I. Verify order and assess patient for indications or contraindications in the use of PMV.
- II. Request a physician order, for a **speech evaluation** to assess oral-motor integrity and rule out upper airway obstruction (e.g. tumors, stenosis, granulation tissue). Continue only if speech evaluation is satisfactory. If not, inform ordering physician.
- III. Verify patient using two identifiers.
- IV. Wash hands, don gloves, identify patient, and explain procedure to the patient, family, and R.N.

- V. Suction patient's oral cavity and trachea to remove accumulated secretions.
- VI. Reposition patient for optimal breathing mechanics.
- VII. Ensure that the inner cannula is in place and adaptable to the Passy-Muir valve.
- IX. Place patient on pulse oximeter. Apply supplemental O₂ to maintain adequate saturation.
- IX. If patient is using a cuffed tracheostomy tube, slowly deflate the cuff. Additional suctioning may be required once cuff is fully deflated. For patients, with increased secretions, consider suctioning while deflating the cuff.
- X. Place Passy-Muir valve on tracheostomy tube with a 1/4 turn twist. If forced on too hard, it may occlude the valve.
- XI. If patient is on the ventilator, attach PMV between in-line suction T and flex connector using Fischer Paykel adapter 112. The following settings & alarms must be adjusted before placing the Passy-Muir valve in line with the vent circuit.
 - A. For 7200:
 1. Increase set tidal volume targeting the pre-cuff deflation PIP, or whatever exhaled tidal volume ordered by physician.
 2. Zero out the PEEP to avoid back pressure (auto PEEP) generated when the valve closes.
 3. Turn off low exhaled tidal and minute volume alarms.
 4. Set high pressure limit alarm 10 cwp above PIP and low pressure alarm 5-10 cwp below PIP. (Set above 10cm H₂O)
 5. Verify that apnea parameters are set correctly.
 6. If patient is on CPAP or SIMV, pressure support may need to be adjusted to maintain adequate spontaneous tidal volume.
 - B. For 840:
 1. Do the same things as for 7200.
 2. Adjust "D sens" (found in "More Settings") to 95%.
 3. For patients on pressure support, adjust E sens to terminate end of inspiration and compensate for long inspiratory time.
 - Remember to change D sens back to 75% after PMV trial.
 4. Or, change to the NIV mode. Once the 840 is placed in NIV mode, the "D"-sense automatically shuts off, the RT can set the low exhaled volume alarms to "0", the RT can adjust the low pressure alarm to mimic the low volume alarm by setting the low pressure alarm to 5-10 cmH₂O below the peak airway pressure, (this low pressure alarm is also an early warning sign of fatigue as well and must be set at least 10cm H₂O) and the RT can set a specific inspiratory time for the PS breaths, eliminating

excessively long breaths due to the leak in the system created when the cuff is deflated.

- XII. Once the valve is in place, evaluate the patient for at least 15 minutes for the following:
- Respirations, heart rate and blood pressure
 - Respiratory distress/adequate airflow/obstructed airway
 - Vocal quality
 - Oxygen saturation
 - Breath sounds
 - Overall comfort. May need to coach and re-educate patients to breathe through their upper airway
 - Signs/symptoms of hypercarbia
- XIII. Place warning labels (included with the kit) on the chart and at the head of bed indicating Passy-Muir valve is in use. Place "caution" sticker on the pilot balloon.

SPECIAL CONSIDERATIONS:

- PMV may be trialed 48-72 hours after insertion of a tracheostomy tube providing surgical secretions are minimal and a speech evaluation has been completed.
- Valve can be used in some patients up to 18-20 hours. **DO NOT USE VALVE WHEN THE PATIENT IS SLEEPING.**
- Humidification and oxygen can be supplied through a mask or trach collar.
- Take valve off before aerosolization of medication.
- With proper training, patients and family members can apply and remove the valve independently. All training must be documented in the EMR under education.

CLEANING: The PMV is designed for single patient use. It is recommended that the valve be replaced after two months.

- I. The valve should be cleaned daily after the last usage.
- A. Swish PMV in soapy, warm water (not hot water).
 - B. Rinse thoroughly with warm water (DO NOT USE HOT WATER).
 - C. Place on clean paper towel and air dry overnight. Place in storage container.
- II. The valve should be replaced every 2 months - or prn if it vibrates, gets sticky or noisy. The date the valve was started should be written on the blank half of the pilot balloon sticker.
- III. DO NOT CLEAN WITH THE FOLLOWING:
- | | |
|--------------|-------------------------------------|
| A. Hot water | E. Ethylene Oxide/Gas sterilization |
| B. Peroxide | F. Autoclave |
| C. Bleach | G. Radiation sterilization |
| D. Alcohol | |

CHARGES:

Use the Pulmonary Therapy Charge Sheet and return to clerical.

OTHER DEVICES/METHODS FOR CONSIDERATION IF PATIENT NOT A CANDIDATE FOR PASSY-MUIR VALVE:

- Cuffless tracheostomy tube (single cannula or inner cannula) with finger occlusion.
- Fenestrated tracheostomy tube (cuffed or cuffless) with finger occlusion.
- Cuffless/deflated cuff with trach plugged. Requires the removal of the inner cannula.
- Olympic trach talk
- Electrolarynx