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Title:	Passy Muir Valve Placement		
Chapter / Department:	Physical Medicine Department		
Policy Number:		Original Effective Date:	04/01/2017
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SCOPE: To establish a safe and standardized procedure for the placement of a Passy Muir Valve (PMV) on adult and pediatric tracheostomy tube or ventilator patients**.**

PREREQUISITE: Physician order to initiate PMV.

ABSOLUTE CONTRAINDICATIONS: Severe upper airway obstruction, medical instability, foam-cuffed trach tube.

RELATIVE CONTRAINDICATIONS: Severe aspiration risk, thick, excessive or otherwise unmanageable secretions.

GENERAL GUIDELINES

- Tracheostomy tube cuffs must be **COMPLETELY** deflated prior to placement of Passy Muir Valve (PMV).
- Use of a PMV with a foam-filled trach cuff is contraindicated.
- Use of standard precautions with all tracheostomy tube patients.
- Place pilot balloon safety label as provided in the package. Additional bedside labels are available within the package and highly encouraged.
- After the initial SLP assessment, the SLP may deflate the tracheostomy tube cuff in non-ventilator patients for the PMV trial in absence of the RT if the SLP has had the training and completed the competency check offs on lung sounds, sterile suction and cuff deflation/inflation. SLP may also inflate the cuff if needed post PMV removal due to "STOP" criteria, physician ordered and/or the need for manual resuscitation.

PREPARING THE PATIENT

- To reduce anxiety and ensure successful transition to the PMV, the patient and family should be instructed in the direction for use of the PMV including contraindications, cautions and warning. The TOM (tracheostomy observation model) will be utilized in education.
- Position patient in upright position, allowing for comfort and adequate chest/lung expansion.

- Prepare to monitor SpO2, respiratory rate, heart rate and work of breathing.
- Assess patient for oral and tracheal secretions and suction needs.

PMV PLACEMENT ON NON-VENTILATOR PATIENTS

- Slowly and completely deflate tracheostomy tube cuff: this allows the patient time to adjust to the change in airflow and for the patient to mobilize and cough secretions above the cuff.
- Assess patient for additional oral and tracheal suction needs.
- SLP will assess glottal patency by looking for signs that the patient is exhaling adequately through the upper airway. These could include observing the patient coughing, vocalizations, reflexive oral movements, throat clearing or feeling the flow of air on the hand held at the patient's mouth and/or nose.
- Place PMV on trach hub: keep one hand on the trach flange to maintain trach tube position in airway, without creating pressure to the trachea or discomfort to the patient.
- Give valve ¼ turn clockwise. Do not place PMV on forcefully, as this will increase difficulty with removal.
- Continue to monitor patient's vitals and refer to the "STOP" Criteria: and/or other signs of respiratory distress as an indicator to remove the PMV.
- When removing the PMV, use one hand on the trach flange to stabilize tracheostomy tube and give a gentle clockwise turn.
- Clean and store appropriately in container provided. Do not close the lid of the container unless PMV is completely dry. Clean daily and PRN with warm water and mild soap. Rinse well and let air dry completely before next use.

STOP CRITERIA

Sustained:
HR increased by > 20 beats/min
RR > 35 breaths min
FiO2 ≥ 60% to maintain SpO2 90%

TROUBLE SHOOTING

- Patient demonstrates or reports increased work of breathing
    - Check to ensure trach tube cuff completely deflated
    - Check patient position and position of trach tube
    - Assess for need of oral or tracheal suction
    - Patient anxiety: patients may initially be anxious with the change in airflow with PMV. Review education with patient. May slowly increase usage overtime.
- Patient continues to exhibit increased work of breathing
    - Remove PMV
    - Consider trach tube downsizing
    - Contact physician, consider ENT consult if work of breathing does not resolve
- Patient starts to cough and the PMV pops off
    - Assess patient for need of tracheal suction
    - Ensure that the PMV is being place securely onto the hub of the trach tube
- Patient continues to cough very hard without relief
    - This may be a sign of upper airway obstruction
    - This may be a sign of "air trapping", which could indicate a need for a trach tube with a smaller outer diameter
- The PMV is making a "honking: sound
    - The valve may be soiled. Clean per procedure and try again before replacing.
    - If the PMV continues to make noise and has been used for two months or longer, it may be time to replace the PMV
- Little or no voice is being heard with the PMV on
    - Check patient's position, making sure they are positioned for good breath support
    - Patient may have weak or damaged vocal folds. Consult with patients' SLP
    - Diaphragm weakness may result in inadequate breath support, consult with physical therapist for diaphragm strengthening strategies
    - Vocal cords may be weak from non-use, and will strengthen with time and practice

PMV USE WITH VENTIALTOR PATIENTS: PROCESS

- Ventilator setting adjustments to accommodate the PMV require a physician order.
- Prepare patients as stated in prior section.
    - Note patient's Peak Inspiratory Pressure (PIP) and Tidal Volume (VT)
    - Adjust PEEP levels to avoid auto cycling, may turn off or decrease
    - Slowly and completely deflate trach cuff
    - Assess patient for oral and tracheal suction needs
    - Note patient's PIP and exhaled VT after trach cuff deflation
        - If a significant loss is observed, it is a good indication that the upper airway is patent and the patient is able to exhale around the tracheostomy tube
        - SLP will assess glottal patency by looking for signs that the patient is exhaling adequately through the upper airway. These could include observing the patient coughing, vocalizations, reflexive oral movements, throat clearing, or feeling the flow of air on the hand held at the patient's mouth and/or nose.
    - Place the PMV in line with ventilator circuit by removing the 15 mm adapter between the inline suction catheter and 6 inch flex tubing and replacing it with PMV.
    - Adjust ventilator settings to ensure patient's ventilation needs are being met. Volume/pressure augmentation may be needed due to leak. May increase volume in increments up to 200cc's without physician order. Do not exceed baseline PIP.
    - Adjust sensitivity to avoid auto-cycling if needed.
    - Adjust ventilator alarms as indicated: general rule is to set the low pressure alarm to a pressure that when the vent is disconnected with the PMV inline that it will alarm. (To check this, disconnect the omniflex from the trach with the PMV in-line with the circuit). High Pressure alarm 10cmwp above PIP and low MV alarm to off when PMV in. High RR will be set 15 breaths above patient's average.
- When PMV session is complete:
    - Remove PMV
    - Return ventilator setting to primary settings
    - Reset ventilator alarms as indicated
    - Re-inflate trach cuff

Reference: American Speech and Hearing Association
Passy Muir Inc.