

## Policy and Procedure- Passy Muir Valve for Ventilator Dependent Patients

### **PURPOSE:**

The Passy-Muir Valve (PMV) is a bias-closed, one way valve that allows trach patients to inspire via trach tube and exhale through upper airway and vocal cords to produce voice. The PMV may also improve secretion management, sensation and swallowing. It may be used with tracheostomy patients, including those that require mechanical ventilation.

### **STANDARD OF PRACTICE:**

A physician order is required prior to PMV trials. Assessment and trials are conducted by qualified members of a multi-disciplinary PMV team, which may include RTs, SLPs, nurses and/or physicians.

### **PATIENT EXCLUSION CRITERIA:**

1. Severe medical instability
2. Unstable respiratory/cardiac status
3. Severe risk for aspiration
4. Poor responsiveness
5. Inability to tolerate cuff deflation
6. Foam-filled cuff (ex. Bivona Trach)
7. Thick and copious, unmanageable secretions
8. History of tracheal stenosis, tracheal edema, obstructing lesions or anatomical abnormalities which may impact airway patency.
9. \*Caution to be used with pts who have end stage COPD

### **ASSESSMENT CRITERIA FOR USE OF THE PASSY-MUIR VALVE:**

\*PMV may be initiated within 72 hours of admission, as per MD order, providing secretions are adequately managed.\*

1. Pt is medically stable.
2. Pt is able to tolerate cuff deflation which will allow air to pass around the trach tube. Many patients can be successfully ventilated with a deflated cuff adjusting tidal volumes as needed.  
**Using a valve with an inflated cuff may result in barotrauma or fatal respiratory arrest.**
3. Pt is able to adequately manage secretions (i.e. cough, be able to expectorate or swallow oral secretions)
4. Airway patency has been established. Pt may be able to exhale efficiently around trach tube through pharynx and larynx and out the mouth and nose. (Note: The trach tube and cuff itself may cause obstruction requiring switching to a smaller or cuffless tube.)
5. Bedside assessment of cuff deflation: Suction trach and oropharynx, deflate cuff and have pt inhale. Achieve cuff deflation, look for loss of exhaled Vt and drop in PIP. The patient may not be able to vocalize initially; this does not preclude use of PMV.

6. Lung compliance: Trach tube size must allow for adequate expiratory flow. (Caution: Severe COPD causes a loss of lung elasticity and recoil, prolonged exhalation and air trapping. )

**PROCEDURE:**

1. Comprehensive review of patient chart including primary diagnosis, medical history, date of Tracheostomy/type/size.
2. Bedside assessment prior to placement which will include: vital signs (pre and post HR, RR, SPO2 and may include BP), secretions, vent settings, weaning (pt's current weaning schedule), air flow/cuff leak.
3. Educate patient and family
4. Apply caution label to the cuff pilot line.
5. Position patient comfortably (45-90 degrees). Ensure vent circuit and trach tube are in proper position.
6. Suction trach tube and oral cavity.
7. Slowly deflate trach tube cuff. Cuff must be completely deflated to maximize space for exhalation. **Note: PMV cannot be used with foam cuff trach tubes (Bivona, etc.)**
8. Repeat suction if necessary
9. Assess airway-loss of exhaled Vt, decreased PIP, and oral air may be heard coming out through mouth/nose. SLP may conduct trials of finger occlusion of trach.
10. Place PMV in-line with vent circuit or oxygen set up. Use a ¼ twist for friction tight fit to trach tube.

**VENT PATIENTS:** Adjust alarm and vent settings

- a. Turn low volume/VE alarms to minimal setting
  - b. Adjust set VT to compensate for volume lost. May increase until PIP matches pre-PMV PIP (Not necessary with PC or PS ventilation).
  - c. Adjust PEEP levels; PEEP>5 CM may need to be decreased to prevent air trapping. PMV adds 2-3 cm additional PEEP during PC/PS ventilation
11. Continue to monitor vital signs. Remove PMV if any STOP criteria are present.
  12. Assess patient's ability to cough and clear secretions. Suction as needed.
  13. Once PMV is in place and patient's breathing is relaxed, establish speech and assess quality. Swallowing assessment may also be performed by SLP.
  14. When trial is complete, PMV will be removed and RT will reinflate cuff and reset vent setting and alarms.
  15. PMV to be used as tolerated. ( Please note: tolerance may vary from one day to the next. )
  16. Document trials in patient's medical log and complete PMV checklist daily.

**\*Patients should never wear to PMV through the night or during napping. Supervision is required.**

**Troubleshooting Considerations:**

1. Assess for secretions

2. Evaluate for stenosis or granulation. May consider ENT consult.
3. Recheck cuff deflation. May need to downsize trach.
4. If end stage COPD, may be physiological and patient may not be able to tolerate PMV.
5. If not evidence of obstruction, provide re-assurance and education limiting use until patient becomes more comfortable.

**PMV RE-ASSESSMENT:**

If patient is unable to use the PMV, LIP should be notified to consider:

1. Trach tube downsizing
2. ENT consults regarding airway issues

**CARE AND CLEANING:**

1. PMV should be cleaned as needed
2. Wash in warm soapy water
3. Rinse thoroughly with warm water
4. Set aside to air dry
5. **DO NOT USE** hot water, peroxide, bleach, vinegar or alcohol as they will damage the silastic membrane.
6. **DO NOT** wipe or brush valve.
7. Thoroughly rinse all residue to prevent sticking.