

**POLICY/PROCEDURE**

Giving Quality to Life

<b>Original Date:</b>	<b>Title:</b>	<b>Number:</b>
<b>Review/Revised:</b>	<b>Passy-Muir Speaking Valves</b>	<b>Page: <u>  1  </u> of <u>  5  </u></b>
		<b>Approved By:</b>

**POLICY:** Patients who are tracheotomized and/or ventilator dependent will be evaluated for one-way speaking valve use.

**PURPOSE:** Speaking valves will be provided to tracheotomized and/or ventilator dependent patients who are candidates for the restoration of upper airway usage, oral communication, and/or weaning from the tracheotomy.

**GENERAL INFORMATION:**

Staff includes respiratory care, nursing, speech pathology, the physician (primary care or pulmonologist) and /or house staff.

**PATIENT SELECTION CRITERIA:**

Candidates for speaking valves should demonstrate the following:

- Alert, responsive and able to make basic attempts at communication (e.g., mouthing, efforts at voicing around the tracheotomy).
- Ability to generate at least minimal phonation upon brief tracheal occlusion or upon cuff deflation, and/or ability to utilize the upper airway via expiratory attempts.
- Ability to tolerate cuff deflation without risk of gross aspiration of patient’s own secretions.
- Generally stable medical status and vital signs; no current infections, i.e., pneumonia or sepsis.

**PATIENT EXCLUSION CRITERIA:**

- Poor responsiveness/persistent lethargy.
- Unstable respiratory/cardiac status, including presence of any current respiratory infections.
- History of tracheal stenosis, obstructing lesions or anatomical abnormalities which may impact upon airway patency. Obtain consult with otolaryngology for these individuals.

**SPECIAL CONSIDERATIONS: NON-VENTILATOR PATIENTS:**

- Inability to voice with tracheal occlusion. In this case, to facilitate upper airway use, downsizing of the tracheotomy tube may be requested by the speech pathologist and

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ordered by the MD. If downsizing is not an option due to anatomical problems (i.e., tracheal stenosis), airway issues or aspiration risk, placement of a fenestrated tube (with a fenestrated inner cannula) may be recommended and attempted for short periods. If patient is still not able to phonate after downsizing and/or with the fenestrated tube, an otolaryngology consult should be requested by the speech pathologist and ordered by the MD.

- Inability to tolerate cuff deflation. Upon initial assessment, if the patient's tracheotomy tube cuff is inflated, a blue-dye test can be performed to rule out gross aspiration of oral secretions. If the blue dye test is negative, and the patient does not have copious secretions, the possibility of cuff deflation during all waking hours will be discussed with the primary care MD, consulting pulmonologist, and respiratory care practitioner. An order can then be generated to maintain cuff deflation at all times.
- Copious secretions (as indicated above), especially when paired with an inability to elevate the head of the patient's bed, may restrict an ability to tolerate prolonged cuff deflation and/or valve placement. These individuals would require further consultation with respiratory therapy and the pulmonologist.

### **SPECIAL CONSIDERATIONS: VENTILATOR-DEPENDENT PATIENTS:**

- Inability to tolerate cuff deflation. Since full cuff deflation is mandatory for use of a Passy-Muir valve, many acutely ill ventilator-dependent individuals may not be candidates for use. Full cuff deflation is difficult to attain for individuals who are receiving continuous positive airway pressure (CPAP) and levels of pressure support ventilation (PSV) of 10 and above, levels of PEEP above 5 and who have end-stage lung disease. Candidacy for cuff deflation must be determined with input from pulmonology and respiratory care, nursing (re: secretion management) and speech pathology (re: swallowing and airway protection abilities.)

### **COMMUNICATING ORDER TO SPEECH PATHOLOGIST AND RESPIRATORY:**

- An order for a speech/language and/or speaking valve evaluation must be generated by the physician. Once the order is written, the speech pathology department is informed by the nurse, MD or unit clerk. As with other types of speech-language assessments, speaking valve evaluations may be suggested to the MD by members of the interdisciplinary team, including the respiratory therapist, nurse, social worker or case manager.
- The speech pathologist will evaluate the patient for speaking valve candidacy (i.e., determine potential for oral communication). This includes the ability to exhale from the mouth and/or the nose and produce voice upon tracheal occlusion (for tracheotomized patients).

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- If the patient is ventilator dependent, the speech pathologist will contact the respiratory therapist to coordinate an evaluation session. A joint evaluation will be conducted to determine candidacy for valve use and tolerance of the speaking valve in-line with the ventilator tubing.

**OBTAINING SPEAKING VALVES:**

- Passy-Muir speaking valves are stored in the speech pathology department. The speech pathologist will bring the appropriate valve to the bedside for the initial consultation with the respiratory care practitioner.

**PROCEDURE:**

- I. Tracheotomized patients: The role of the speech pathologist during the speaking valve placement procedure will be to explain the purpose of the speaking valve to the patient, insure that the cuff is deflated, place the valve on the tracheotomy tube, monitor clinical status (via pulse oximetry and patient observation) and patient reaction and provide patient and staff teaching. The role of the respiratory therapist will be to assist in monitoring patient tolerance of the valve, integrate valve use into the weaning protocol as appropriate, and provide patient and family teaching. The role of the nurse will be to assist with valve placement, monitor patient tolerance and wear schedule, and provide patient and family teaching.
  - A. Inform nursing staff that a speaking valve evaluation will be taking place.
    1. Suction the patient via tracheotomy and mouth. The cuff should be slowly deflated as suctioning is simultaneously performed.
    2. Insure that the tracheotomy cuff is completely deflated.
      - a. If the tracheotomy tube cuff is inflated, contact MD and respiratory therapy to insure that cuff deflation is an option. If cuff deflation is not contraindicated, proceed with next step. If cuff deflation is not an option, reassess patient candidacy and explore potential for cuff deflation.
    3. Baseline measurements of oxygen saturation, pulse rate and general patient comfort are taken.
    4. The tracheotomy tube is briefly covered via finger occlusion to insure that the patient is still able to produce voice and generate airflow through the upper airway. If patient is unable to produce voice or seems unable to exhale out the mouth and nose, further assessment of the upper airway must occur before proceeding with valve placement.
      - a. If patient is able to phonate, the procedure continues with placement of the speaking valve onto the 15mm hub of the tracheotomy tube.
      - b. The patient is immediately encouraged to begin using the upper airway by phonating and blowing. The speech pathologist stays with the patient to continue instruction and provide clinical monitoring.
      - c. The length of the initial trial is dependent upon patient tolerance. The patient should be closely monitored during this initial trial by speech pathology so that the valve can be removed before significant changes from baseline status occur. Significant changes include a rapid drop in O<sub>2</sub> saturation as measured by pulse oximetry, a consistent increase in pulse rate, increased work of breathing, shortness of breath, or patient complaint of discomfort. These changes would necessitate immediate removal of the valve. A slow decrease in SpO<sub>2</sub> can be addressed by an increase in

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FI02, if the patient's clinical signs are stable and if deemed appropriate by the respiratory care practitioner.

5. If the patient tolerates the initial trial, a wear schedule will be developed with nursing staff. Nursing staff can take the primary role in monitoring the patient's tolerance of the valve during wartime. The respiratory care practitioner will be informed of the patient's status so that valve use may be incorporated into daily respiratory care.
  - a. If the patient can only tolerate the valve for a few moments, the speech pathologist will not leave the device at bedside but will remove the valve and return to conduct further diagnostic assessment.
6. The patient, when appropriate and staff will be in serviced regarding valve placement, wear time and change in suction protocol. The valve must be removed prior to attempts at tracheal suctioning. Patient may be provided with a catheter for oral self suctioning once upper airway flow is restored.
7. A warning tag indicating the presence of the valve and need for maintenance of cuff deflation while the valve is being used will be placed around the pilot balloon of the tracheotomy tube cuff.
8. The MD will be alerted as to results of the evaluation and will generate the order indicating "cuff deflation, speaking valve use for....."
9. Follow-ups by speech pathology and patient/family teaching by speech pathology and nursing will assist in transitioning the patient to successful valve use, and monitoring patient outcome.

II. Ventilator Dependent Patients: The role of the speech pathologist during the speaking valve placement procedure will be to explain the purpose of the speaking valve to the patient, insure that the cuff is deflated, place the valve on the tracheotomy tube, monitor clinical status (via pulse oximetry and patient observation) and patient reaction and provide patient and staff teaching.

The role of the respiratory care practitioner is to assess patient's respiratory status, deflate the tracheotomy tube cuff, insure that the cuff is fully deflated, make appropriate modifications to the ventilator, monitor patient's clinical status and reaction and provide patient and staff teaching. The respiratory care practitioner will also determine if levels of PEEP and PSV preclude valve placement at this time, or if there are options for other modes of ventilation.

- A. Suction the patient via tracheotomy and mouth.
  1. Insure that the cuff, if not already deflated, is completely deflated. See "e" below.
    - a. If the tracheotomy tube cuff is inflated, the patient should be suctioned carefully as air is simultaneously being removed from the cuff.
  2. Baseline measurements of oxygen saturation, pulse rate and general patient comfort are taken.
  3. If this is the initial trial of cuff deflation, the respiratory therapist will slowly deflate the cuff while the speech pathologist encourages the patient to begin phonation.
  4. Modifications to the ventilator may be necessary at this time, including e.g., increasing tidal volume and FIO<sub>2</sub> to compensate for the newly created leak in the upper airway. The respiratory therapist will make necessary changes to the ventilator alarms, including the exhaled tidal volume alarm.
  5. The patient's ability to tolerate cuff deflation will be observed. If the patient is able to voice, and otherwise utilize the upper airway while tolerating full cuff deflation, either the speech pathologist or respiratory therapist will place the ventilator valve in line with the ventilator tubing. The connection can be made via valve placement on a swivel adapter or on the 15mm hub of the tracheotomy tube, via an additional piece of ventilator tubing.

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6. The length of the initial trial is dependent upon patient tolerance. The patient should be closely observed during this initial trial by the respiratory therapist and the speech pathologist so that the valve can be removed before significant changes from baseline status. These changes would include rapid decreases in oxygen saturation, increases in pulse or respiratory rate, increased work of breathing or shortness of breath, increased respiratory rate, high ventilator pressures and/or patient report of discomfort.
7. If the patient tolerates the initial trial, the physician may order an ABG. A wear schedule will be developed with nursing staff. The respiratory therapist will incorporate the valve placement into daily respiratory care or the weaning protocol as appropriate. If the patient has difficulty during this initial trial, the valve will be removed from bedside and the respiratory care practitioner and speech pathologist will return for further diagnostic assessment.
8. The patient, when appropriate and staff will be in serviced regarding valve placement, wear time and change in suction protocol. The valve must be removed prior to attempts at tracheal suctioning. Patient may be provided with a catheter for oral self suctioning once upper airway flow is provided.
9. A warning tag indicating the presence of the valve and need for maintenance of cuff deflation while the valve is being used will be placed upon the pilot balloon of the tracheotomy tube cuff.
10. The MD will be alerted as to results of the evaluation and will generate the order indicating "cuff deflation, speaking valve use for....."
11. Follow-ups by speech pathology and respiratory therapy and patient/family teaching by respiratory therapy, speech pathology and nursing will assist in transitioning the patient to successful valve use, and in monitoring patient outcome.

**III. ASSESSMENT OF EFFECTIVENESS:**

- A. For tracheotomized patients, the speech pathologist will follow up with staff and the patient to determine tolerance and ability to advance wear time. Criteria will include maintenance of baseline O<sub>2</sub> saturation and pulse readings, general patient comfort during wear time, and ability to speak and swallow with the valve in place. For ventilator dependent patients, the respiratory therapist and speech pathologist will follow the patient's progress with nursing staff. Respiratory care will also document patient tolerance during their rounds.
  1. Determination of speaking valve effectiveness will be made by assessment of patient/family response, restoration of upper airway use while maintaining adequate ventilation, decreased need for suctioning, facilitation of better P.O. intake, and consistent voice production.

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