TRACHEOTOMY COMMUNICATION AND SWALLOW INTERVENTIONS

I. Description

Voice and swallow disorders commonly result from tracheotomy placement. Patients with tracheotomies may benefit from an evaluation of their communication and swallowing abilities by a speech-language pathologist to address their communication (e.g. tracheotomy speaking valve, talking trach, electrolarynx, AAC strategy, etc.) and swallowing impairments.

II. Purpose

Although a tracheotomy is performed as a life saving procedure, voice and swallow rehabilitation is indicated as soon as feasible following cannula placement to help facilitate restoration of pulmonary health, mental health, and quality of life. The role of the speech – language pathologist in this population includes:

A. Communication restoration
B. Swallow restoration
C. Above all else, do no harm.

III. Indications

Speech-Language Pathology intervention may be warranted following cannula placement with the onset of any of the following:

A. Aphonia / Dysphonia
B. Aphagia / Dysphagia
C. Co-morbid communication disorders

IV. Contraindications

Communication/swallow interventions may be contraindicated if a patient's medical needs supersede his/her therapy needs.

V. Precautions

A. Ensure proper infection control
B. Use proper suction technique as needed
C. Consider ongoing aspiration and reflux precautions
D. Cervical spine precaution
E. Skin integrity precaution
F. Seizure precautions

VI. Equipment

A. When possible, ensure availability of manufacturer's guidelines for the specific tracheostomy system of the patient
B. Suction equipment
C. Obturator appropriate for the given patient's cannula system
D. Oxygen delivery system
E. Cufflator if indicated
F. Pulse Oxymeter
G. Appropriate speaking valve if indicated
H. Correct plug for the patient's specific cannula system
I. Electrolarynx if needed
J. AAC device if indicated
K. Swallow intervention materials as needed
L. Flexible Fiberoptic Endoscopic equipment as provided by the SLP endoscopist

VII. Procedures

A. Terminology
    1. Outer cannula
    2. Inner cannula
    3. Obturator
    4. Luer lock
    5. Fenestration
    6. Cuff
    7. Pilot Balloon
    8. Flange
    9. Trach collar

10. Suction catheter

11. Cufflator
12. Pulse oxymeter
13. SpO2
14. Tracheostomy Plug
15. Speaking Valve

B. Tracheostomy Team Members: In addition to the Speech-Language Pathologist, it is important to identify the other team members.
    1. Patient
    2. Sponsor / Guardian
    3. Family / Significant others (in accordance with HIPPA)
    4. Attending Physician
    5. Consulting Physician(s) (e.g. ENT, Pulmonologist, etc.)
    6. Nurse
    7. Pharmacist
    8. Dietician
    9. Respiratory Therapist
    10. Physical Therapist
    11. Occupational Therapist
    12. Social Worker
    13. Administrator
    14. SLP Endoscopist, as available

C. Evaluation
    1. Conduct motor speech, language and/or cognitive communication examinations if indicated
    2. Refer for an audiological workup if indicated
    3. Obtain a physician's order for a voice and swallow evaluation that specifically includes evaluation for a tracheostomy speaking valve per SLP with treatment if indicated.
    4. Obtain a comprehensive medical, surgical, and psycho-social history.
        a. Obtain a detailed tracheostomy history including but not limited to:

i. Cannula make, type and size
ii. Current respiratory status
iii. History of tracheotomy placement and ventilation
iv. History of weaning from ventilator and/or cannula
v. Secretions (amount, thickness/viscosity, color, and management [e.g. frequency of suctioning, use of saline administration to cannula as part of suctioning, etc])
vi. Documented incidents of hypoxia or anoxia
vii. Documented incidents of apnea
viii. Documented incidents of abnormal respiratory patterns (e.g. Kussmaul's respirations)

b. Obtain a detailed ventilator history, if indicated, including but not limited to:
   i. Manufacturer, model, and type of ventilator being used with appropriate manual, if indicated
   ii. Respiratory rate
   iii. Tidal Volume
   iv. Supplemental Oxygen (liters per minute)

5. Assess hydration / nourishment status
6. Assess positioning and mobility of the head, neck and torso
7. Document prior level of function and date of onset
8. Review previous therapy if applicable and related functional outcomes
9. Conduct oral, pharyngeal, and laryngeal physical exam prior to placing a speaking valve and/or administering trial PO materials
10. Consider evaluation for a tracheostomy speaking valve (e.g. Passy-Muir, Shiley, Montgomery, Olympic, Bivona, etc.)
    a. Consider airway precautions with tracheostomy speaking valves used with cannulas that have cuffs:
       i. Ensure cuff deflation prior to tracheostomy speaking valve placement
       ii. Ensure removal of tracheostomy speaking valve prior to re-inflation of the cuff
       iii. It is preferred that a cufflator be used to ensure appropriate inflation of a cuff in accordance with the cannula system's manufacturer's guidelines. However, if a cufflator is unavailable, then may consider use of minimal leak test procedure for cuff inflation / re-inflation.
    b. Obtain baseline pulse oxymetry and vital signs

c. Assess both resting and forced breath sounds via cervical auscultation (may also consider assessment of lung sounds via thoracic auscultation). The presence of stridor may contraindicate the use of a tracheotomy speaking valve until the upper and/or lower airways can be imaged (e.g. endoscopic examination)
d. If there is an absence of significant stridor and if the patient's baseline SpO_2 and vital signs are stable, then consider suctioning the patient (if the cuff is inflated, consider deflating the cuff at the same time that suctioning is initiated to ensure the best chance of evacuating sputum, vomitus, etc. that may have collected on top of the inflated cuff). Avoid suctioning the patient for more than 10 seconds at a time to minimize risk of inducing hypoxia.
e. Hyperoxygenate the patient if indicated.
f. Place a gloved finger over the orifice of the cannula while cueing the patient to talk in order to assess voicing.
g. Ensure ongoing monitoring of SpO_2 via pulse oxymetry and reassess both resting and forced respiration via cervical auscultation (and thoracic auscultation if indicated) to ensure airway patency (e.g. to detect emergence of significant stridor during digital occlusion).
h. If patient maintains stable SpO_2 while achieving voicing with digital occlusion without any signs/symptoms of distress, then consider placing the appropriate tracheotomy speaking valve.
i. Reassess voicing while ensuring maintenance of stable SpO_2 saturation. If patient is unable to maintain stable SpO_2, then:
    i. Consider an increase in the liter flow of supplemental oxygen with physician approval
    ii. Consider an increase in respiratory rate. With a ventilator dependent patient, consider adjusting the respiratory rate control with physician approval. With a non-ventilator dependent patient, consider coaching the patient to volitionally increase his/her own respiratory rate as clinically tolerated.
    iii. Consider an increase in tidal volume. With a ventilator dependent patient, consider adjusting the tidal volume control with physician approval. With a non-ventilator dependent patient, consider coaching the patient to

volitionally increase the depth of his/her inhalations and exhalations.

iv. If the patient is a mouth breather and the oxygen is being delivered to the cannula, then coach patient to maintain labial closure.

v. May consider a combination of some or all of the abovementioned techniques.

vi. If patient is unable to maintain stable SpO_2, then a speaking valve is contraindicated at that time. If this is the case, then other communication strategies should be considered (e.g. talking trach, electrolarynx, AAC strategy, etc.)

j. Again perform cervical auscultation to further assess resting and forced breath sounds to reassess airway patency.

NOTE: IT IS PREFERRED THAT THE ABOVE PROCEDURE BE PERFORMED SIMULTANEOUSLY WITH A FIBEROPTIC ENDOSCOPIC EVALUATION OF SWALLOWING (FEES) PROCEDURE SO THAT THE LARYNGEAL PHYSIOLOGY FOR PHONATION CAN BE ASSESSED IN CONJUNCTION WITH THE SWALLOW PHYSIOLOGY.

k. At this point if the patient is maintaining both a stable SpO_2 and stable vital signs, then proceed with the voice evaluation to further assess voice and to consider voice treatment interventions.

11. Upon completing the voice evaluation, proceed with the dysphagia evaluation in tandem with the FEES protocol. If FEES is unavailable in the current facility, then consider an out of facility referral for FEES vs a modified barium swallow.
    a. Determine current method of intake:
        i. Oral intake (e.g. note present cuff status for PO intake if applicable, food consistencies, liquid consistencies, medication consistencies, etc.)
        ii. Non-oral intake (e.g. NGT, NGJ, PEG, PEJ, TPN, etc.)
    b. Consider assessing the swallow with and without the tracheostomy speaking valve placed. If patient is unable to tolerate tracheostomy speaking valve, then consider assessing

the swallow with the cuff inflated vs deflated assuming that it is a deflatable cuff.

NOTE: IF LESIONS, MASSES, ANATOMICAL ABMORMALITIES, LARYNGEAL AND/OR TRACHELA STENOSIS, ETC. WHICH MAY POSE A THREAT TO AIRWAY PATENCY ARE INDENTIFIED DURING THE FEES PROCEDURE, THEN CONSIDER CONSULTATION WITH OTOLARYNGOLOGY WITH DIRECT LARYNGOSCOPY.

12. Special Considerations for Non-Ventilator Dependent Patients:
    a. If the patient exhibits an inability to voice with tracheal occlusion, there may be a need to facilitate increased upper airway use. A downsizing of the tracheostomy tube may be requested by the speech pathologist and ordered by the attending physician.
    b. If downsizing is not an option due to anatomical challenges (e.g., tracheal stenosis, airway issues, etc.) then the placement of a fenestrated cannula may need to be considered at that time.
    c. If patient is still not able to phonate after downsizing and/or placement of the fenestrated cannula, then a talking tracheotomy system may be indicated.
    d. If a talking tracheostomy system is ineffective, then consider other alternatives for communication (electrolarynx, AAC strategy, speechreading, sign/gestures, etc.)

13. Establish valve wear time schedule: The length of the initial tracheostomy valve trial (wear time) is dependent upon patient tolerance.
    a. 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.
    b. Significant changes include a rapid drop in O^2 saturation as measured by pulse oxymetry, 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^2 can be addressed by an increase in FiO^2, if the patient's clinical signs are stable and if deemed appropriate by the attending physician.

c. 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 wear-time.

d. The patient, when appropriate, and staff will be in-serviced regarding valve placement and wear-time schedule. 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.

e. A warning tag indicating the presence of the valve and need for maintenance of cuff deflation while the valve is being used may be placed around the tracheostomy cuff's pilot balloon.The physician will be alerted as to results of the evaluation and will generate the following orders:

i. "Patient may wear tracheostomy valve as clinically tolerated"

ii. "Ensure cuff deflation prior to tracheostomy valve placement and at all times while wearing tracheostomy valve"

f. SLP will provide ongoing education and counseling to patient, family, significant others, staff, etc. as needed. SLP will collaborate with nursing to transition the patient to successful valve use as clinically tolerated.

NOTE: THE PRIMARY ROLE OF THE SPEECH-LANGUAGE PATHOLOGIST DURING THE SPEAKING VALVE PLACEMENT PROCEDURE WILL BE TO EXPLAIN THE PURPOSE OF THE SPEAKING VALVE TO THE PATIENT, ENSURE THAT THE CUFF IS DEFLATED, PLACE THE VALVE ON THE TRACHEOSTOMY TUBE, MONITOR CLINICAL STATUS (VIA PULSE OXIMETRY, VITAL SIGNS, AND PATIENT OBSERVATION).