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ASSOCIATION

Use of Voice Prostheses in Tracheotomized Persons With or Without Ventilatory Dependence

Ad Hoc Committee on Use of Specialized Medical Speech Devices

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About This Document

The position statement is an official policy of the American Speech-Language-Hearing Association (ASHA). The Education and Training, Precautions, Definitions, and Knowledge and Skills sections provide guidance on use of specific practice procedures but are not official standards of the Association. This policy statement was prepared by the ASHA Ad Hoc Committee on Use of Specialized Medical Speech Devices: Cathy L. Lazarus, chair; Michelle M. Ferketic, ex officio; Julia B. Bowman; Krzysztof Izdebski; Steven B. Leder; and Rebecca J. Leonard. Diane L. Eger, 1991–1993 vice president for professional practices, served as monitoring vice president. The contributions of the Executive Board and select and widespread peer reviewers are gratefully acknowledged. The Legislative Council adopted the document in November 1992 (LC 34-92).

Guidelines

I. Purpose

The purposes of this document are to:

1. Inform speech-language pathologists that participation in selection and evaluation of talking tracheotomy tubes and one-way speaking valves to allow for oral communication in patients who are tracheotomized with or without ventilatory dependence is within the scope of practice of speech-language pathology.
2. Advise speech-language pathologists of the education and training they need and the circumstances and precautions they must consider before undertaking the procedures.
3. Provide guidance for speech-language pathologists as to the knowledge and skills that are required to select, evaluate, and treat, and to evaluate treatment effectiveness in the patient populations specified.
4. Inform speech-language pathologists that outcome measurement and consumer satisfaction should be reflected within a facility's or program's continuous quality improvement and/or total quality management processes.
5. Educate health care professionals, consumers, and members of the general public about the abovementioned services offered by speech-language pathologists as qualified health care professionals.

II. Introduction

Communication is critical to an individual's overall medical care, psychological function, and social interactions. When speech is compromised, assistive devices or speech prostheses may be used. For example, voice prostheses (commonly referred to as “talking tracheotomy tubes” and “one-way speaking valves”) have promoted the production of intelligible oral communication in patients who have been tracheotomized as a result of spinal cord trauma, neuromuscular disease, and other causes of respiratory failure, such as chronic obstructive pulmonary disease and acute respiratory distress syndrome. Voice prostheses, specifically one-way speaking valves, have also been used with patients who are laryngectomized and have undergone tracheoesophageal fistulization/puncture procedures. Devices

related to this patient population are addressed in “Position Statement and Guidelines for Evaluation and Treatment for Tracheoesophageal Fistulization/Puncture” (ASHA, 1992b).

It is the role of the speech-language pathologist, following referral from and in collaboration with medical specialists, to determine the need for and appropriate type of voice prostheses. The speech-language pathologist also assesses the effectiveness of these communication devices and provides rehabilitation to help the patient obtain an optimum level of communication function.

The practice of speech-language pathology continues to evolve with advances in speech sciences and medicine. The information presented here is intended to offer guidance regarding current aspects of patient selection and the use, evaluation, and ongoing effectiveness of the above-mentioned devices to allow for voice restoration, as well as to encourage future development of technology.

III. Education and Training

Education and training in the use of voice prostheses for voice restoration may vary among practitioners. Not all speech-language pathologists are equally experienced in the advanced technologies pertinent to these devices during their academic and clinical fellowship years. Therefore, a significant portion of professional training must be conducted in settings that allow the speech-language pathologist to gain appropriate background and experience. Most clinicians may need to seek training in the speech-language pathologist's role in the selection, evaluation, management, and use of devices for voice restoration after they complete the requirements for the Certificate of Clinical Competence. This can be accomplished through intensive continuing education or in-service training programs. It is the responsibility of the individual practitioner to determine whether he/she has obtained sufficient education and training to participate with competence in evaluating and treating patients who are ventilator-dependent or tracheotomized and to document such background and training via formal avenues (e.g., coursework, clinical practicum, workshops, research, and publications) or informal avenues (e.g., minutes of departmental meetings, acknowledgment by interdisciplinary team) or both.

ASHA-certified speech-language pathologists who treat persons who are tracheotomized with or without ventilatory dependence are bound by the ASHA Code of Ethics to maintain the welfare of persons served and provide clinical services for which one is competent, considering education, training, and experience (ASHA, current version).

IV. Precautions

The following precautions are to be considered prior to participating in the evaluation and treatment of patients who are tracheotomized with or without ventilatory dependence:

1. Ensure the safety of patient and clinician by adhering to universal health precautions to prevent transmission of infectious disease (Centers for Disease Control, 1988; ASHA, 1990).

2. Have previously established protocols concerning who to contact in the event of a medical emergency.

3. Obtain informed consent from the patient, parent/legal guardian, or significant other, as needed, and document treatment.

V. Definitions

Talking tracheotomy tubes are devices designed to allow a patient with adequate cognitive skills who is tracheotomized but may or may not be ventilator-dependent to communicate orally. Talking tracheotomy tubes are single-cuffed tubes designed to allow gas to travel through an external airflow line, exit by way of openings superior to the cuff, and continue up through the glottis and vocal tract, allowing an appropriate power source for voice speech production.

One-way speaking valves are used to allow hands-free communication, with no need for external air flow, in patients who are tracheotomized but may or may not be ventilator-dependent.

VI. Knowledge and Skills: Talking Tracheotomy Tubes

Speech-language pathologists who intend to assist in evaluating and treating patients being considered for talking tracheotomy tubes for voice restoration must ensure that they have the requisite knowledge and skills to be effective and competent members of the professional team charged with this aspect of patient care. Outlined below are specific tasks the speech-language pathologist may be required to perform and the knowledge and proficiencies essential to the successful performance of those tasks.

A. **Task:** Selecting appropriate candidates for talking tracheotomy tubes.

Proficiency in:

1. Discussing all aspects of talking tracheotomy tubes with the patient and significant others.
2. Identifying physical, intellectual, and psychosocial factors that contraindicate or complicate the successful outcome of the talking tracheotomy tube (e.g., medical diagnosis of quadriplegia or laryngeal pathology).

Knowledge/skills needed:

1. Purpose of talking tracheotomy tubes.
2. Advantages and disadvantages of talking tracheotomy tubes.
3. Anatomical and physiological requirements for producing sound and articulation with a talking tracheotomy tube.
4. Physical, intellectual, and psychosocial requirements for successful use of talking tracheotomy tubes.
5. Physical, intellectual, and psychosocial factors that contraindicate or complicate voice restoration with talking tracheotomy tubes.
6. Tracheotomy and cricothyroidotomy surgical procedures.
7. Talking tracheotomy tube function, use, and care.
8. Knowledge of appropriate medical staff to manage tracheotomy tube care (i.e., removal, cleaning, and suctioning of tube).

B. **Task:** Participating with the physician in determining optimum time to institute voice rehabilitation and to select appropriate tracheotomy tube.

Proficiency in:

1. Understanding talking tracheotomy tube function and use.

Knowledge needed:

1. Posttracheotomy anatomy, assessment of tracheotomy size, and determination of excessive air leak.

- C. **Task:** Ensuring that the talking tracheotomy tube is functioning correctly in directing gas flow through the glottis.

Proficiency in:

1. Assessing functioning of the talking tracheotomy tube.

Knowledge needed:

1. Factors that could interfere with talking tracheotomy tube function (e.g., blocked gas flow line, inadequate gas flow rate, incorrect positioning in trachea).
2. Testing procedures used to identify cause of failure to produce audible speech with the talking tracheotomy tube.

- D. **Task:** Teaching the patient (when possible), significant other, or other healthcare provider to use the talking tracheotomy tube.

Proficiency in:

1. Understanding factors that affect the working condition of the talking tracheotomy tube.
2. Occluding the in-line valve in coordination with voice and speech production.

Knowledge needed:

1. Use of in-line valve, timing of using valve to coincide with the patient's speech production, and use of adequate gas flow through the flow line.
2. Patient's ability to use at least one upper extremity to occlude in-line valve.
3. Significant other's ability and availability to occlude the in-line valve.

- E. **Task:** To identify patients who require continuous cuff inflation secondary to chronic aspiration and supraglottic pooling of secretions, and who may benefit from use of a talking tracheotomy tube.

Proficiency in:

1. Diagnosis of chronic aspiration and/or inability of patient to handle secretions (ASHA, 1992a).

Knowledge needed:

1. Upper airway anatomy and physiology.
2. Alterations in oropharyngeal and laryngeal anatomy and functioning for swallowing secondary to the patient's medical condition.
3. Voice quality associated with inability to clear secretions.

- F. **Task:** Identifying the need for tracheal suctioning.

Proficiency in:

1. Identifying indicators for suctioning.

Knowledge needed:

1. Upper airway anatomy and physiology.
2. Alterations in oropharyngeal and laryngeal anatomy and functioning for swallowing secondary to the patient's medical condition.
3. Voice quality associated with inability to clear secretions.
4. Intraoral and peritracheal suctioning techniques.
5. Appropriate management for pharyngeal and tracheal suctioning (e.g., patient or significant other, or contacting appropriate medical/healthcare personnel).

- G. **Task:** Identifying appropriate management for suctioning.

Proficiency in:

1. Identifying appropriate personnel to manage suctioning.

Knowledge needed:

1. Appropriate person(s) who are qualified and appropriately trained to suction (e.g., appropriate medical/ health care personnel, patient, or significant others).

VII. Knowledge and Skills: One-Way Speaking Valves

Speech-language pathologists who assist in evaluating and treating patients who are tracheotomized and may or may not be ventilator dependent and who require one-way speaking valves for voice restoration must ensure that they have the requisite knowledge and skills to be effective and competent members of the professional team charged with this aspect of patient care. Outlined below are specific tasks the speech-language pathologist may be required to perform and the knowledge and proficiencies most essential to the successful performance of those tasks.

- A. **Task:** Selecting appropriate candidates for one-way speaking valves.

Proficiency in:

1. Discussing all aspects of one-way speaking valves with the patient and significant others.
2. Identifying physical, intellectual, and psychosocial factors that contraindicate or complicate the successful outcome of the one-way speaking valve.

Knowledge needed:

1. Purpose of one-way speaking valves.
2. Advantages and disadvantages of one-way speaking valves.
3. Anatomical and physiological requirements for sound production and articulation with a one-way speaking valve.
4. Physical, intellectual, and psychosocial requirements for successful use of one-way speaking valves.
5. Physical, intellectual, and psychosocial factors that contraindicate or complicate voice restoration with one-way speaking valves.
6. Tracheotomy and cricothyroidotomy surgical procedures.
7. One-way speaking valve function, use, and care.

- B. **Task:** Participating with physicians in determining optimum time to institute voice rehabilitation and in selecting appropriate one-way speaking valve.

Proficiency in:

1. Understanding one-way speaking valve function and use.

Knowledge needed:

1. Posttracheotomy anatomy, assessment of tracheotomy size, and determination of excessive air leak.

- C. **Task:** Ensuring that the one-way speaking valve is functioning correctly in directing gas flow through the glottis.

Proficiency in:

1. Assessing functioning of the one-way speaking valve.

Knowledge needed:

1. Factors that could interfere with one-way speaking valve function (e.g., cuff inflation, copious secretions, supraglottic stenosis).
2. Testing procedures used to identify cause of failure to produce audible speech with the one-way speaking valve.

D. **Task:** Teaching the patient or significant others to use and manage the one-way speaking valve.

Proficiency in:

1. Understanding factors that affect the working condition of the one-way speaking valve.

Knowledge needed:

1. Effects of vocal effort on speech production.
2. Appropriate care of the one-way speaking valve.
3. Appropriate time to use the one-way speaking valve.

E. **Task:** Identifying the need for tracheal suctioning.

Proficiency in:

1. Identifying indicators for suctioning.

Knowledge needed:

1. Upper airway anatomy and physiology.
2. Alterations in oropharyngeal and laryngeal anatomy and functioning for swallowing secondary to the patient's medical condition.
3. Voice quality associated with inability to clear secretions.
4. Intraoral and peritracheal suctioning techniques.
5. Appropriate management for pharyngeal and tracheal suctioning (i.e., patient or significant other, or contacting appropriate medical personnel).

F. **Task:** Identifying appropriate management for suctioning.

Proficiency in:

1. Identifying appropriate personnel to manage suctioning.

Knowledge needed:

1. Appropriate person(s) who are qualified and appropriately trained to suction (e.g., appropriate medical/ healthcare personnel, patient, or significant others).

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