



## Tracheostomy: Easing the Transition from Hospital to Home

by *Lois Dixon, MSN, RN*

Nurses often care for patients with tracheostomy tubes in critical care settings and other patient care units. The need for a tracheostomy may extend to several months or even years; some patients may require a permanent tracheostomy. As a result, many are discharged from hospital to home before they are ready to be decannulated.

When a patient requires a tracheostomy tube for an extended length of time, home-care management is a reasonable goal. Fitton (1994)<sup>1</sup> identifies three key phases of a program to facilitate the transition from acute care to home care: management, prevention and wellness. This article outlines the nursing care of patients with a long-term tracheostomy within this framework.

### **Management**

The nurse plays an important role in assuring the continuity of care to patients after hospital discharge. The nurse reinforces the patient's previous learning about care and other aspects of airway maintenance, based on the assessed needs and level of family functioning.<sup>2</sup>

## Respiratory Assessment

Decision-making and the development of assessment skills are the primary focus of education, once the patient and family master the necessary technical skills. Because many home-care patients and their families are the primary caregivers, they must be able to evaluate the patient's respiratory status and know how to act in response.

The patient and family should become familiar with the patient's normal respiratory pattern, so they can promptly and safely intervene to prevent or manage a problem.<sup>1</sup> The more that patients listen to their respirations, the more able they are to determine changes from normal respiratory patterns. Encouraging other caregivers to spend time with the patient while still hospitalized will help to develop these assessment skills.<sup>6</sup> Problem solving is fostered by the active participation of both patient and family.<sup>3</sup>

## Suctioning

In addition to learning the suctioning technique, it is imperative that both patient and family recognize the indications for suctioning (Table 1). The nurse teaches them how to suction the airway, based on the assessment of the patient's pulmonary needs. The frequency of suctioning varies for each patient. The nurse evaluates the patient's ability to suction the tracheostomy and clean the inner cannula and reinforces the teaching, when necessary.

The purpose of changing the tracheostomy tube is to minimize infection and granulation tissue formation.<sup>1</sup> The frequency of changes varies but is usually at least once monthly.<sup>4</sup> In most cases, patients can change the tracheostomy tube at home, once they are proficient and confident in their ability.

The nurse involves the patient and family in this process, offering encouragement and support, until they are able to change the tracheostomy tube and tracheostomy ties independently. Emphasis is placed on properly securing the tube to avoid accidental decannulation. While the use of twill tracheostomy ties is widespread, a Velcro<sup>a</sup> tracheostomy tube holder may be easier for the patient to manipulate independently.

## Humidification

Adequate humidification of the trachea is very important. Inspired air which bypasses the nose and enters directly through the tracheostomy is deprived of all natural moisturizing benefits of the upper airway passages. The importance of humidification in reducing the thickness of secretions and build-up of crusty formations is discussed with the patient.<sup>4</sup> Symptoms of insufficient humidity include<sup>5</sup>:

### Indications for Suctioning

- Noisy or moist-sounding respirations
- Increased pulse rate
- Increased or labored respirations
- Nonproductive coughing
- Crackles or wheezes
- Patient requests suctioning
- Tube changes

Table 1

- increased, unproductive coughing
- a change of mucus from thin to a thick, sticky consistency and from clear to pale yellow
- shortness of breath from a mucous-plug obstruction
- blood-streaked mucous
- noisy, labored respirations

For patients who are very young or bedridden, a tracheostomy collar with a warm humidification system is effective.<sup>1</sup> In other situations, the use of a room humidifier or vaporizer may be useful.<sup>2,6</sup> Adequate fluid intake (2000- 2500 ml/day) will help moisten the tracheal tissues and thin secretions.<sup>6</sup>

## **Nutrition**

The patient should be evaluated for nutritional well-being and wound healing. The nurse stresses the relationship between good nutrition, meticulous skin care, and the prevention of wound infection.<sup>4</sup> The patient with a tracheostomy is at risk of nutritional deficiency, because of altered anatomy and less taste and smell sensations.<sup>4</sup> To counter these problems, the patient is encouraged to maintain good oral hygiene and eat high-calorie snacks, if not medically contraindicated. Maintenance of weight is one objective measure of nutritional adequacy.

## **Activities of Daily Living**

Most patients may resume usual activities within four to six weeks after hospital discharge.<sup>7</sup> It is important that the patient understands any limitations of activity.<sup>8</sup>

Because of structural changes that occur with a tracheostomy, the airway is largely unprotected from natural elements, e.g., water, dust. The nurse explains the importance of protecting the tracheostomy stoma from the aspiration of fluids or other irritating substances. Particular care must be taken during bathing and showering. The use of a shower shield or tracheostomy cap prevents the accidental entry of water into the trachea during bathing.

The patient with a tracheostomy is very vulnerable to respiratory infection, because of the loss of filtration of inspired air through the nasal passages. The patient should be instructed to avoid powders, aerosols, and talcums. These substances may be accidentally inhaled through the trachea and cause tracheal damage, leading to infection.<sup>9</sup>

## **Prevention**

### **Emergency Care**

The training of patients and primary caregivers in emergency procedures is an essential component of successful home management. Knowledge of resuscitation techniques is necessary in case of an occluded tracheostomy tube, accidental decannulation, immersion

in water, massive bleeding from the tracheostomy, or aspiration.<sup>1</sup> The basics of cardiopulmonary resuscitation (CPR) are universal to all protocols for emergency care: airway management, reduced breathing, and circulatory support.

The modification of skills for tracheostomy CPR involve airway management, the use and maintenance of tracheostomy tubes, and the comfortable use of respiratory support equipment.<sup>10</sup> Often, teaching CPR to families of patients with tracheostomies is based on the adaptation of basic life-support standards by individual CPR instructors.<sup>10</sup> The major adaptation is learning the mouth-to-stoma breathing technique.

Equipment for tracheostomy emergencies should always be accessible. A portable oxygen source, suction unit, manual resuscitation bag, extra tracheostomy tubes, and an obturator are necessary. The family is encouraged to keep a list of emergency numbers by the telephone.

### **Infection Control**

Although the sterile technique is used in acute-care settings, a clean technique that emphasizes good hand-washing and appropriate cleaning of respiratory equipment is recommended for home care.<sup>1</sup> The patient and family are instructed to change tracheostomy dressings that are soiled or moist. These dressings can harbor bacteria, which contribute to skin breakdown and infection at the tracheal stoma. Careful daily assessment of the stoma for the cardinal signs of infection, such as redness, drainage, swelling, and pain, will alert the patient to early signs of infection and prompt treatment.

The patient with a tracheostomy is also at risk for infection of the pulmonary tree. Bronchopulmonary infections occur, because the tracheostomy bypasses the protective upper airway mechanisms, e.g., filtering, warming, and humidifying the inhaled air. Retained secretions due to decreased mucociliary action and an ineffective or absent cough reflex provide an excellent medium for bacterial growth. Careful suctioning reduces mucosal trauma, which may lead to tracheal infection, and prevents the introduction of bacteria into the trachea.

The patient's neck is another common site of skin breakdown and potential infection, as related to the tracheostomy-securing device. Most often, twill ties. Tissue damage occurs under the ties, which act as a constricting band that puts greater pressure on neck tissues. This pressure decreases the capillary blood supply (ischemia) and may eventually lead to tissue ulceration.<sup>6</sup> An alternative to traditional twill ties is the Velcro™ type holder, which secures the tracheostomy tube. Because of its design, i.e., wide neck band and elastic portion to allow for movement or cough, this device helps to prevent skin breakdown by reducing the amount of pressure on neck tissues.

### **Wellness**

#### **Educational Needs**

Learning self-care is important for patients with long-term tracheostomies, because it provides a sense of self-control and reduces their dependency on others. However, significant partners or family members must be able to provide all aspects of tracheostomy care and other facets of airway management in emergency situations or when the patient is not able to participate in self-care for a variety of reasons, such as age or lack of dexterity.

Education begins well before hospital discharge to provide sufficient time for the patient and other caregivers to learn these procedures. Because of the large volume of information to be learned, the patient and family are often anxious about home management. When the family assumes the role of primary caregiver, nurses must emphasize the emotional aspects of this role in addition to skill development. Careful education and preparation for home management before discharge reduces this anxiety.

### **Stressors and Supports**

To promote successful home management, the nurse needs to be knowledgeable about current home-care trends. The nurse should continually update knowledge about home equipment, community resources, and nursing skills in preparation for acting as a resource for patients and their families.

Once the patient is home, the community or home-health nurse is involved in monitoring and evaluating how well the patient and family are adapting to home care. The nurse addresses any adaptation problems that the patient or family may experience. The nurse listens to the patient's anxieties and frustrations and offers appropriate support and encouragement.

The patient and family may view the illness and tracheostomy as a loss and may need help to grieve this loss.<sup>11</sup> Grieving is a developmental task that the patient and family may need to address before they can psychologically cope with home-care education. The variety of emotions provoked by the patient with the tracheostomy tube influences all levels of family relationships.<sup>11</sup> The nurse plays a key role in helping the patient and family to explore their feelings, reassuring them, when necessary, and making appropriate referrals for support, when needed.

Support services for the patient and family can often be identified before hospital discharge. Help in locating vendors of medical supplies such as shower shields, trach caps, Velcro™ holders, respite services, or home-care nurses is important to offer to the patient and family. Early identification of alternative caregivers is important to assure that instruction of all aspects of tracheostomy care is given before the family assumes care of the patient. Providing this support often alleviates much of the family's anxiety about caring for the patient at home.

### **Conclusion**

Caring for a patient with a tracheostomy in the home setting requires both patient and family to acquire many new skills. The nurse helps them integrate these new skills into their daily lives. In this way, the patient and family learn the necessary skills and achieve a level of confidence that eases the transition to home care.

**Author's note:**

Aaron's Tracheostomy Page, an award-winning web site maintained by a registered nurse, is a comprehensive web resource for the patient and family dealing with tracheostomy home care.<sup>8</sup> Primarily aimed at families with children, much information crosses all age groups. It contains practical advice for oft-encountered problems as well as online resources for many tracheostomy-related links, message boards, chat rooms, and product information. The site can be accessed at [www.bissells.com/trach.htm](http://www.bissells.com/trach.htm).

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**References**

1. Fitton CM. Nursing management of the child with a tracheotomy. *Pediatric Clinics of North America* 1994;41(3):513-523.
2. Barnes LP. Tracheostomy care: preparing parents for discharge. *Maternal Child Nursing* 1992;17(6):293.
3. Bryant K, Davis C, Lagrone C. Streamlining discharge planning for the child with a new tracheostomy. *Journal of Pediatric Nursing* 1997;12(3):191-192.
4. Minsley MH, Wrenn S. Long-term care of the tracheostomy patient from an outpatient perspective. *ORL-Head and Neck Nursing* 1996;14(4):18-22.
5. Roberts NK. The selective approach to successful stomal management at home. *ORL-Head and Neck Nursing* 1995;13(4):12-16.
6. Craven RF, Hirnle CJ. *Fundamentals of nursing: Human health and function* (2nd ed.). Philadelphia: Lippincott, 1996
7. Ignatavicius DD, Workman ML, Mishler MA. *Medical- surgical nursing: A nursing process approach* (2nd ed.). Philadelphia: Saunders, 1995.
8. Bissell C. Aaron's Tracheostomy Page, 1998. On-line. Available: <http://www.bissells.com/trach.htm>

9. Tuori J. Disorders of the larynx & tracheobronchial tree. In Burrell MJ, Gerlach M, Pless S (eds.), *Adult nursing: Acute and community care* (2nd ed.). Stamford, CT: Appleton & Lange, 1996: pp. 730 - 766.

10. Buzz-Kelly L, Gordin P. Teaching CPR to parents of children with tracheostomies. *Maternal Child Nursing* 1993;18(3):158-163.

11 Ronczy NM, Beddome MAL. Preparing the family for home tracheotomy care. *AACN Clinical Issues Critical Care Nurse* 1990;1(2):367-377.



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