The Importance of Tracheostomy Progression in the Intensive Care Unit

LINDA L. MORRIS, PhD, APN, CCNS
ERIK McINTOSH, RN, MSN, ACNP-BC
ANDREA WHITMER, RN, MSN, ACNP-BC

A plan to progress a tracheostomy toward decannulation should be initiated unless the tracheostomy has been placed for irreversible conditions. In most cases, tracheostomy progression can begin once a patient is free from ventilator dependence. Progression often begins with cuff deflation, which frequently results in the patient’s ability to phonate. A systematic approach to tracheostomy progression involves assessing (1) hemodynamic stability, (2) whether the patient has been free from ventilator support for at least 24 hours, (3) swallowing, cough strength, and aspiration risk, (4) management of secretions, and (5) toleration of cuff deflation, followed by (6) changing to a cuffless tube, (7) capping trials, (8) functional decannulation trials, (9) measuring cough strength, and (10) decannulation. Critical care nurses can facilitate the process and avoid unnecessary delays and complications. (Critical Care Nurse. 2014;34[1]:40-50)

Tracheostomy is now considered a common procedure,1 and so it is important for nurses to become knowledgeable about tracheostomy progression, beginning immediately postoperatively and continuing through long-term care. Most tracheostomies placed in patients in intensive care units (ICUs) are done in order to facilitate weaning from mechanical ventilation. After the patient has been liberated from mechanical ventilation and the need for the tracheostomy is resolved, there should be a plan to progress toward decannulation. Daily evaluation of the progress toward decannulation can reduce length of stay, infection rates, and overall health care costs.2-5 In this article, we review a systematic method for tracheostomy progression and describe how critical care nurses can facilitate this process.

CNE Continuing Nursing Education

This article has been designated for CNE credit. A closed-book, multiple-choice examination follows this article, which tests your knowledge of the following objectives:

1. Discuss a systematic method for tracheostomy progression
2. Describe how critical care nurses can facilitate the process of decannulation
3. List outcomes achieved with a standardized clinical practice guideline for tracheostomy patients

©2014 American Association of Critical-Care Nurses doi: http://dx.doi.org/10.4037/ccn2014722
Indications for Tracheostomy

Indications for placing a tracheostomy tube are discussed in a companion article in a previous issue of Critical Care Nurse and can be summarized into problems of ventilation, airway obstruction, airway protection, and secretion management. Patients can require ventilator support because of muscle weakness, hypercarbia, or hypoxia. Patients with airway obstruction include those with swelling, stricture, paralyzed vocal cords, or unusual anatomy of the upper airway. A third group includes patients with an inefficient swallow and/or cough mechanism who are unable to protect the airway. This dysfunction is frequently seen in patients after a high spinal cord injury, cerebrovascular accident, or traumatic brain injury. Neurological patients with oropharyngeal dysphagia may exhibit slow closure of the laryngeal vestibule and slow opening of the upper esophageal sphincter, which can lead to aspiration-related events. Videofluoroscopy or barium swallow test is the gold standard in the assessment of dysphagia. Finally, patients who cannot manage their secretions because of their volume, viscosity, or a poor cough effort may also require a tracheostomy.

Tracheostomy Progression and Critical Care Nurses

As discussed in a previous article, the critical care nurse can play an instrumental role in preventing long-term complications such as tube dislodgment, tube obstruction from mucus buildup, infection, fistulas, and tracheomalacia. For some patients, a tracheostomy tube is placed as a short-term solution, for example, to facilitate weaning from mechanical ventilation. When the issue is resolved, the tracheostomy tube is no longer needed. For these patients who have reversible conditions requiring management with a tracheostomy, the critical care nurse can identify patients who are ready to progress to the next phase of care.

Decannulation protocols can be quite diverse, varying from nearly 2 weeks to a rapid “1-step” capping trial. Some of these protocols include bronchoscopic assessment of the airway, but Rumbak and colleagues reported that routine bronchoscopy was unnecessary. Zhu and colleagues identified a lack of standardization in management and surveillance of tracheostomy patients. They suggested that development of a standardized clinical practice guideline for surveillance and management of tracheostomy patients could augment and improve outcomes, improve quality of care, and decrease costs. Critical care nurses can lead the effort to standardize care for the patient, which includes tracheostomy progression.

Ten Steps Toward Decannulation

Tracheostomy progression is a process, usually with the eventual goal of decannulation. As a patient’s condition improves from ventilator dependence to successful weaning, members of the critical care team may be unsure how to safely track the pathway to tracheostomy decannulation. This process should begin in the ICU, facilitated by the critical care nurse and critical care team. The team includes but is not limited to the intensivists, advanced practice nurses, respiratory care practitioners, case managers, occupational therapists, physical therapists, and the speech language pathologist. Tracheostomy progression should be included as a goal for discussion during the daily ICU rounds. Tracking of progress to step-down units and long-term placement facilities should be included in this plan as well. This process can be done in an organized fashion by following this 10-step plan for tracheostomy progression.

An important point to remember is that for a tracheostomy patient to be considered for progression, it must be determined that the initial need for the tracheostomy has been resolved. Once it has been determined that the tracheostomy is no longer needed, the following systematic steps can be used as a standardized approach to decannulation. We use a methodical 10-step approach toward decannulation in order to create a model that can
### Table 1  Ten steps of tracheostomy progression to decannulation

<table>
<thead>
<tr>
<th>Step</th>
<th>Action</th>
<th>Rationale</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Ensure the hemodynamic stability of the patient</td>
<td>If the patient is hemodynamically stable, move to step 2 If not, reassess when patient is stable</td>
<td>Patients who do not have stable vital signs are not ready for tracheostomy progression</td>
</tr>
<tr>
<td>2. Assess if the patient been free from ventilator support for more than 24 hours</td>
<td>If yes, move to step 3 If no, reassess in 24 hours</td>
<td>Patients need time to stabilize after being on ventilator support</td>
</tr>
<tr>
<td>3. Assess whether the patient is able to protect his/her airway with a strong cough and swallow his/her own secretions</td>
<td>If yes, move to step 4 If no, reassess and consider: a. Formal swallowing evaluation b. Vigorous physical mobility</td>
<td>A bedside assessment of cough and swallow help determine aspiration risk Patients who have adequate cough and swallow mechanisms are a lower risk for aspiration</td>
</tr>
<tr>
<td>4. Assess if the patient can mobilize and manage his/her secretions</td>
<td>If yes, move to step 5 If no, reassess and ensure optimal hydration and humidification and coughing and deep breathing exercises</td>
<td>Patients who can manage their own secretions (cough, swallow) are a lower risk for aspiration Patients who can manage their own secretions often require less suctioning</td>
</tr>
<tr>
<td>5. Deflate cuff</td>
<td>If there are no signs or symptoms of aspiration or respiratory distress with cuff deflation, leave cuff deflated for 24 hours and move to step 6 If there are signs and symptoms of aspiration or respiratory distress with cuff deflation, reinflate cuff and reassess when appropriate</td>
<td>Cuff deflation minimizes long-term complications of an inflated cuff, such as tracheal stenosis or tracheomalacia Patients who do not tolerate cuff deflation may exhibit signs of continued coughing, desaturation, increased respiratory distress, etc</td>
</tr>
<tr>
<td>6. Change to cuffless or tight to shaft (TTS) tube</td>
<td>If the patient has tolerated cuff deflation for 24 hours or more, change to cuffless tube or TTS tube of the same or smaller size and move to step 7 Evaluate amount and consistency of secretions: those patients with large amounts of thick secretions may require a dual-cannula cuffless tube; those with minimal secretions may benefit from a single cannula cuffless tube</td>
<td>Patients who can tolerate prolonged cuff deflation are usually candidates for a cuffless tracheostomy tube Patients who continue to require intermittent positive pressure ventilation or bronchial hygiene maneuvers can benefit from a TTS tube (single cannula) Assessing volume and consistency of secretions will help determine the optimal tube to place (dual cannula vs single cannula)</td>
</tr>
<tr>
<td>7. Cap the cuffless or TTS tracheostomy tube</td>
<td>If the patient does not show signs or symptoms of desaturation, increased work of breathing and respiratory rate, stridor, and/or signs of obstruction, leave tube capped for 24-48 hour hours as tolerated and move to step 8 If the patient does show signs or symptoms of desaturation, increased work of breathing and respiratory rate, stridor, and/or signs of obstruction, remove cap, suction vigorously and return to tracheostomy collar Consider a smaller tube and/or airway evaluation before progressing to the next step</td>
<td>After the tube is changed to cuffless or TTS tube, it can be capped; DO NOT cap a standard low-pressure, high-volume tracheostomy tube; even with the cuff fully deflated, the bulk of the deflated cuff creates a risk of airway obstruction</td>
</tr>
<tr>
<td>8. Functional decannulation trial</td>
<td>If the patient is able to tolerate continuous prolonged capping for 24 hours or greater with no signs or symptoms of respiratory distress, move to step 9 If the patient is unable to tolerate continuous prolonged capping, return to step 7</td>
<td>Prolonged capping is a method to assess the patient’s ability to function without the tube, ie, “functional decannulation” After the patient has tolerated a period of continuous capping, he or she can be evaluated for decannulation Patients who do not tolerate prolonged capping are not ready for decannulation and may require additional capping trials and/or physical therapy</td>
</tr>
<tr>
<td>9. Assess cough strength by checking vital capacity and/or peak cough flow</td>
<td>If the vital capacity is at least 15 mL/kg or if the peak cough flow is at least 160 L/min, move to step 10 If the vital capacity is not at least 15 mL/kg or if the peak cough flow is not at least 160 L/min, the patient will require continued capping trials and a physical therapy plan before progressing to step 10</td>
<td>Peak cough flow and vital capacity are measures to estimate the patient’s cough strength (there will be a leak around a cuffless tube)</td>
</tr>
<tr>
<td>10. Decannulation</td>
<td>Remove tube and cover stoma with gauze dressing; keep stoma clean</td>
<td>Stoma will heal itself over the next 1 day to 2 weeks</td>
</tr>
</tbody>
</table>
begin in the ICU (Table 1). Last, evaluating the patient’s overall strength to assess readiness for rehabilitation is necessary. This plan should include exercise training, nutritional intervention, and psychosocial support. Many ICU patients are physically deconditioned over time and will benefit from these programs. Including these programs in tandem with tracheostomy progression will increase the patients’ chances of successful decannulation.

Step 1: Determine Hemodynamic Stability
Tracheostomy progression begins with an assessment of hemodynamic stability. Patients who have unstable vital signs are not ready to progress and need time to stabilize. Thorough assessment of the patient including vital signs is necessary to determine stability.

Step 2: Ventilator Independence for More Than 24 Hours
Patients need time to stabilize after they have been liberated from ventilator support and should not progress to the next step until they have been stable on a tracheostomy collar or t-piece for at least 24 hours. However, some patients continue to require part-time ventilator support—most commonly, nocturnal ventilator support. Those patients may be progressed in a different way that is discussed later in this article.

Step 3: Assess Swallow, Cough Strength, and Aspiration Risk
Assessment of the adequacy of the cough strength and ability to swallow secretions is necessary because these are the 2 primary mechanisms responsible for airway protection. If the cough is very weak and secretions cannot be mobilized, or the patient is unable to swallow, the risk for aspiration is increased. A speech language pathologist can do a formal evaluation of swallowing to determine the exact nature of the problem and recommend strategies for improvement. Failure to pass a swallowing evaluation does not prevent tracheostomy progression, but can be used as part of the overall assessment of tracheostomy patients. During this time, the ICU nurse can also encourage the patient to practice swallowing his or her saliva rather than relying on oral suctioning.

Step 4: Assess Management of Secretions
Secretions and the patient’s ability to manage them should be assessed by recognizing thickness, color, and suctioning requirements. Ideally, secretions should be thin so that they are more easily mobilized by coughing or suctioning. Adequate hydration plays a key role in thickness of secretions. Patients with poor cough strength or poor cough reflex usually require more suctioning than do patients with a strong cough.

Step 5: Assess Toleration of Cuff Deflation
Step 5 is cuff deflation and is recommended as soon as the patient has been liberated from ventilator support. A common myth is that an inflated cuff decreases the risk of aspiration, but an inflated cuff can actually increase the risk of aspiration. It has been demonstrated that the inflated cuff anchors the trachea to the anterior part of the neck and results in reduced movement of the larynx and obstruction of the esophagus. Suiter et al demonstrated that deflation of the cuff reduced risk of aspiration of liquids and improved laryngeal excursion. Amathieu and colleagues demonstrated that the swallowing reflex was progressively more difficult to elicit with increasing cuff pressure. Therefore, patients should not be fed orally with the cuff inflated. Deep oropharyngeal, or subglottic, suctioning should be performed before cuff deflation because of the large amounts of secretions that collect above the inflated cuff. These secretions usually accumulate regardless of the effectiveness of the swallow. Deep subglottic suctioning is best done with a soft suction catheter because this type of suctioning often elicits the gag reflex, and caution should be used to minimize trauma to the tissues that may occur with a rigid suctioning device. Some patients can react strongly to cuff deflation, not because of respiratory distress or aspiration, but because of movement of air in their oropharynx, a feeling that may be unfamiliar after long-term cuff inflation. In these patients, slow cuff deflation over several minutes, combined with an explanation of what they are feeling, may help to minimize this reaction.

Once the cuff is deflated, patients should be assessed for desaturation of less than 92% and any signs of respiratory distress, such as increased respiratory rate, continued coughing, increased work of breathing, anxiety, or stridor, muscle retraction, or nasal flaring. If the patient
exhibits any signs of distress, the cuff should be reinflated and the patient assessed to ensure that the symptoms are relieved.

**Step 6: Change to Cuffless Tube**

After a period of prolonged cuff deflation (24 hours or longer), the patient is ready for step 6, when the tube is changed to a cuffless one, which will allow safe capping trials. In order to determine the proper size of the cuffless tube, it may be helpful to assess the patient’s ability to breathe around the tube and the deflated cuff. The tube can be occluded with a gloved finger (never with the cuff inflated) for a few breaths and the patient should be assessed for signs of respiratory distress, as described earlier.

The patient should be prepared for a change to a cuffless tube. Determining the size of the tube to place can be confusing to many clinicians, so tube sizing deserves some discussion. The 2 largest US manufacturers of tracheostomy tubes (Shiley and Portex) use different sizing systems; therefore, it is important to consider 3 primary measurements when considering size needs: inner diameter, outer diameter, and length. When a patient is breathing through the tube with the cuff inflated, the largest inner diameter is appropriate. However, when breathing around the tube, as in capping, using the narrowest feasible outer diameter is optimal. But this must be weighed against the volume and thickness of secretions that are suctioned. For example, in most adults, a size 4 cuffless tube should be used only when secretions are minimal and only when the tube is capped, because the size 4 tube may be too small to effectively pass a suction catheter that is large enough to remove thick secretions.

When evaluating the type of tube to place, an assessment of the amount and consistency of secretions is necessary. Patients with thick secretions can often benefit from a dual cannula tube, with either a disposable or a reusable inner cannula. The purpose of an inner cannula is for ease of cleaning or replacing in the event of respiratory distress; patients with thin secretions may not need an inner cannula.

**Step 7: Capping Trials**

With a cuffless tracheostomy tube (Figure 1), capping trials can begin (step 7). The goal of capping is to prevent air from entering and exiting through the tracheostomy tube itself, allowing airflow to be redirected around the tube and through the upper airway. Capping a tracheostomy tube has many benefits, including restoring speech, restoring glottis function, including taste, smell, Valsalva movement (bearing down), improving cough and swallow, and decreasing the volume of secretions.22

Figure 2 illustrates a cuffless tube that is capped, where the patient breathes around the tube on both inspiration and expiration. Initiation of capping trials can induce respiratory distress, especially when there is insufficient space to move air around the tube, so it is important to assess the patient properly for appropriateness of and tolerance to capping. The most serious complication of
Capping is airway obstruction due to either the bulk of the tube preventing effective airflow around it or mucus buildup within or around the tube.

Two authors suggest that it may be safe to cap a cuffed tube with the cuff deflated; however, we cannot recommend this practice. Because of the danger of airway obstruction, a standard low-pressure cuffed tube should never be capped, even when the cuff is completely deflated. The bulk of the deflated cuff creates a great deal of resistance when breathing around it and renders the cuff prone to mucus buildup, which increases the potential for occlusion of the airway. Figure 3 shows the bulk of a deflated cuff and the resistance to airflow around it, compared with airflow around a cuffless tube.

The cuffless tube should be capped and the patient assessed for respiratory distress as discussed earlier: desaturation, increased work of breathing and respiratory rate, stridor, and/or signs of obstruction. Capping trials force the patient to breathe around the tracheostomy tube, instead of through it, so oxygen should be provided by nasal cannula. If any signs of respiratory distress are present, the cap should be immediately removed and the patient suctioned.

If the patient cannot tolerate capping of an appropriately sized tube, a speaking valve can be used as an interim step to capping. A speaking valve allows inspiration through the tube, but the valve closes on exhalation, forcing air through the upper airway. Therefore, supplemental oxygen should be provided by a humidified tracheostomy collar. Like capping, speaking valves also have benefits in addition to phonation, including fewer secretions, improved swallow, cough, Valsalva maneuver, and restoration of intrinsic positive end-expiratory pressure.

Patients who do not tolerate capping may require a smaller tube, or they may have some other obstruction within the airway such as paralyzed vocal cords. These patients may require further bronchoscopic evaluation to determine the cause of the obstruction.

When the immediate capping trial is successful, it is necessary to assess the respiratory status several times during the next few hours, ensuring that the capping trial continues to be well tolerated. If there are no difficulties, the patient can often have the tube capped as long as tolerated.

**Step 8: Functional Decannulation**

After the patient has tolerated prolonged capping for 24 to 48 hours, he or she can be evaluated for decannulation (step 8). This period of prolonged capping is an assessment of “functional decannulation” and is done to evaluate a patient’s ability to function without the tube. Secretions tend to diminish over time when the tube is capped. If respiratory distress should develop, the cap should be immediately removed and the patient suctioned and returned to a humidified tracheostomy collar.

During the time of functional decannulation, the patient must be free from respiratory distress and able to clear secretions. Once these steps have been satisfied and the patient’s condition remains stable, the patient may continue to the next step.

**Step 9: Cough Strength**

Step 9 is an objective measurement of cough strength such as vital capacity or peak cough flow. Cough strength must be adequate to enable patients to expectorate all their secretions. It is recommended that in order to be successfully decannulated, peak cough flow should be at least 160 L/min or vital capacity should be at least 15 mL/kg, or 1 L for most adults. If cough strength does not meet the minimum acceptable range, the patient will need a vigorous physical therapy program before decannulation.
Step 10: Decannulation

When the patient has met the minimum requirements for cough strength and has tolerated a period of prolonged capping, he or she is ready for step 10: decannulation. The tracheostomy tube is simply removed and the stoma covered with sterile gauze. The stoma will heal by secondary intention, and rate of stomal healing varies, ranging from 1 day to 2 weeks. After the tube has been removed, the voice may be quite soft and airy. This altered voice can be remedied by using several gauze pads to provide a thick cushion over the stoma. The patient can also be taught to use digital pressure over the gauze to increase the strength of the voice until the stoma heals completely.

In certain populations of patients who may require repeated tracheostomies, such as those with myasthenia gravis, spinal cord injuries, or sleep apnea, a tracheostomy button (Figure 4) may be placed instead of decannulation. A tracheostomy button may also be useful to patients who are in active rehabilitation whose secretions are minimal but whose cough strength is not quite strong enough for decannulation. A tracheostomy button is a device that can be used to stent open the stoma; such devices are used more often in a rehabilitation setting than in an acute care hospital. The purpose of the button is to keep the stoma open for a prescribed period, after which it can be removed. The primary benefit of the tracheostomy button is that it removes the airway resistance created by the occupied space of a capped tracheostomy tube (Figure 5). This factor may be significant in some patients with limited airway reserve. If patients require frequent suctioning, the button should be removed and replaced with a tracheostomy tube.

Patients Who Require Intermittent Ventilation

Some patients are unable to be fully weaned from ventilator support and may require intermittent support, most commonly, nocturnal ventilation. These patients require positive pressure ventilation during the night, but may be free from the ventilator during the day. These patients can benefit from use of the Bivona TTS, or tight to shaft, tube (Figure 6), which has a low-volume, high-pressure cuff. The cuff seals the airway when inflated,
but has no bulk when deflated. The tube can be safely capped when deflated, as long as the space around the outside of the tube is sufficient for airflow. Capping the tube while off the ventilator can sometimes be used as an adjunct in weaning patients from ventilator support.

Figure 7 illustrates the inflation and deflation characteristics of the high-pressure, low-volume tracheostomy tubes compared with standard low-pressure, high-volume cuffs.29 Note that the standard low-pressure cuff is quite bulky even when fully deflated. This compares to the high-pressure TTS cuff, which essentially disappears on deflation.

Upon inflation, however, the cuff of the standard low-pressure tracheostomy tube diffuses pressure across a wider surface area, while the high-pressure cuff focuses pressure in a small area. This focused pressure creates the need for added precautions with inflation of the high-pressure cuff. When a patient is returning to mechanical ventilator support, the TTS cuff should be inflated with sterile water, not saline or air. Sterile water will help to distribute pressure evenly and prevent the loss of cuff volume that occurs when inflated with air as it diffuses out of the cuff. Saline should not be used because it damages the cuff over time.30

It is important to use a minimal leak technique when inflating the cuff of the TTS tube because its high-pressure cuff will create elevated direct cuff pressure measurements.30 Table 2 discusses the procedure for minimal leak technique.31 Bivona TTS tracheostomy tubes are single-cannula tubes, so large amounts of thick secretions may increase the risk for obstruction. Regular assessment of tube patency as well as pulmonary hygiene, suctioning, and efforts to mobilize secretions are very important. If difficulty passing a suction catheter or mucus plugging occurs with the TTS tube, the tube should be changed, perhaps to a tube with an inner cannula.1

Nursing Implications
The critical care nurse can act as a facilitator to execute a planned and systematic approach to downsizing and decannulation. Table 3 identifies a simple tracheostomy progression checklist that can be used during daily rounds. When each question can be answered with yes, the patient is ready for decannulation. It is necessary to use the nursing process to develop a plan of care and coordinate the various disciplines to set goals toward timely decannulation. Executing policies and procedures within the scope of tracheostomy progression along with facilitating these steps of tracheostomy progression can lead to a successful plan of decannulation.

Conclusion
Tracheostomy progression is an important consideration in daily assessment and planning. Nurses can motivate and encourage progress toward decannulation. Unless a tracheostomy is placed for an irreversible condition,
Table 3  Tracheostomy progression checklist

<table>
<thead>
<tr>
<th>Questions</th>
<th>Circle a response</th>
<th>Date completed</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Is the patient free from ventilator support?</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>2. Can the cuff be deflated?</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>3. Can the tracheostomy be changed to cuffless or TTS?</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>4. Does the patient tolerate prolonged capping of the cuffless (or TTS) tracheostomy?</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>5. Is the vital capacity at least 1 L?</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>6. Can the patient manage his/her own secretions?</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>7. Has the initial need for the tracheostomy been resolved, with no further need for the tracheostomy?</td>
<td>Yes</td>
<td></td>
</tr>
</tbody>
</table>

Abbreviation: TTS, tight to shaft.

there should be a plan for a systematic approach to tracheostomy progression. Following such a plan will lead to timely decannulation and avoid unnecessary delays and complications. CCN

Financial Disclosures

Dr Morris is a coeditor/author of the 2010 edition of Tracheostomies: The Complete Guide. She has been a consultant for Covidien and was the recipient of research funding for a study of outcome evaluation of a structured program of deep breathing and arm exercises for patients with new tracheostomies, funded by an Eleanor Wood-Prince Grant: A Project of the Woman's Board of Northwestern Memorial Hospital.

letters

Now that you've read the article, create or contribute to an online discussion about this topic using letters. Just visit www.ccnonline.org and select the article you want to comment on. In the full-text or PDF view of the article, click "Responses" in the middle column and then "Submit a response."

Outlooks


References

The Importance of Tracheostomy Progression in the Intensive Care Unit

**Facts**

- Indications for placing a tracheostomy tube can be summarized into problems of ventilation, airway obstruction, airway protection, and secretion management.
- Critical care nurses can play an instrumental role in preventing long-term complications such as tube dislodgment, tube obstruction from mucus buildup, infection, fistulas, and tracheomalacia. For some patients, a tracheostomy tube is placed as a short-term solution. For these patients who have reversible conditions requiring management with a tracheostomy, the critical care nurse can identify patients who are ready to progress to the next phase of care.
- Tracheostomy progression is a process, usually with the eventual goal of decannulation. As a patient's condition improves from ventilator dependence to successful weaning, members of the critical care team may be unsure how to safely track the pathway to tracheostomy decannulation. This process should begin in the intensive care unit, facilitated by the critical care nurse and critical care team. Tracheostomy progression should be included as a goal for discussion during the daily intensive care unit rounds.
- An important point to remember is that for a tracheostomy patient to be considered for progression, it must be determined that the initial need for the tracheostomy has been resolved.
- A systematic approach to tracheostomy progression involves assessing (1) hemodynamic stability, (2) whether the patient has been free from ventilator support for at least 24 hours, (3) swallowing, cough strength, and aspiration risk, (4) management of secretions, and (5) tolerance of cuff deflation, followed by (6) changing to a cuffless tube, (7) capping trials, (8) functional decannulation trials, (9) measuring cough strength, and (10) decannulation.
- Critical care nurses can act as facilitators to execute a planned and systematic approach to downsizing and decannulation. The Table identifies a simple tracheostomy progression checklist that can be used during daily rounds. When each question can be answered with yes, the patient is ready for decannulation. It is necessary to use the nursing process to develop a plan of care and coordinate the various disciplines to set goals toward timely decannulation.
- Tracheostomy progression is an important consideration in daily assessment and planning. Nurses can motivate and encourage progress toward decannulation. Unless a tracheostomy is placed for an irreversible condition, there should be a plan for a systematic approach to tracheostomy progression. Following such a plan will lead to timely decannulation and avoid unnecessary delays and complications.

**Table**  Tracheostomy progression checklist

<table>
<thead>
<tr>
<th>Questions</th>
<th>Circle a response</th>
<th>Date completed</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Is the patient free from ventilator support?</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>2. Can the cuff be deflated?</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>3. Can the tracheostomy be changed to cuffless or TTS?</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>4. Does the patient tolerate prolonged capping of the cuffless (or TTS) tracheostomy?</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>5. Is the vital capacity at least 1 L?</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>6. Can the patient manage his/her own secretions?</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>7. Has the initial need for the tracheostomy been resolved, with no further need for the tracheostomy?</td>
<td>Yes</td>
<td>No</td>
</tr>
</tbody>
</table>

Abbreviation: TTS, tight to shaft.