

How Often Should Tracheostomy Tubes Be Changed?

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As the general manager of a DME company that specializes in tracheostomy (invasive) positive pressure ventilation, I have noticed an increase over the past two to three years in requests to perform tracheostomy tube changes in ventilator users' homes. It seems that there are fewer and fewer providers who are willing to perform this procedure that can be risky and potentially life-threatening. For those who are willing to brave this endeavor, here are a few practical guidelines.

Unfortunately the healthcare industry has not established clear-cut guidelines for how often, if at all, routine trach changes should occur, especially in the homecare setting. One should not base the practice purely upon tradition, e.g., "Our hospital always changes the trach tube every month," but upon evidence. Regrettably the evidence for this practice is lacking.

However, the industry has provided several recommendations regarding the process of changing the trach. These recommendations include the following:

1. The initial tracheostomy tube change (outer cannula) should always be performed in the acute care setting and preferably by the surgeon or ENT,

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Services on the Aircraft

Air carrier personnel must provide the following assistance, when requested, for a person with a disability ... assistance in stowing and retrieving carry-on items, including mobility aids and other assistive devices stowed in the cabin. Carriers must permit passengers with a disability to bring the following ... for stowage or use within the cabin ... POCs, ventilators and respirators that use non-spillable batteries, as long as they comply with applicable safety, security and hazardous materials rules.

May a carrier refuse to allow a passenger to stow on the aircraft any respirator, ventilator, CPAP machine or FAA-approved POC that does not have a manufacturer's label indicating compliance with the standards of RTCA/DO-160 (current edition) or other applicable FAA or non-U.S. government requirements for medical portable electronic devices?

No. Carriers must allow passengers to *carry* a respirator, ventilator, CPAP machine or FAA-approved POC on-board aircraft, subject to applicable safety requirements, even if the device may not be *used* onboard the aircraft.

When the required manufacturer's label is not present on a ventilator, respirator, CPAP machine or FAA-approved POC, what safety requirements apply to the stowage of the device on the aircraft?

To be accepted for stowage on an aircraft, a ventilator, respirator, CPAP machine or FAA-approved POC that does not have the required manufacturer's label on the device must comply with FAA size and weight limits and have the battery removed, packaged and protected from short circuit and physical damage in accordance with the FAA's Special Federal Aviation Regulation (SFAR) 106, Section 3 (b)(6). ▲

and it should occur between three to seven days after the initial surgery. Once the initial change has occurred, the homecare provider can take over the changes in the home.

2. Tracheostomy tube changes should be performed by a qualified individual who is well-trained, experienced and prepared for untoward circumstances that may occur during the change, such as malplacement of the tube (false channel), a blown cuff, bleeding and patient decompensation, to list a few.

3. The individual changing the tube should always have a back-up trach tube that is one size smaller than the tube being replaced.¹ A functional and tested resuscitation bag with mask should be present at the bedside, and supplemental oxygen would be ideal.

The bottom line for trach changes is don't change them too often if there is no evidence of infection, bleeding and the trach tube cuff (if present) is intact; it's not encrusted; and there is no stenosis (narrowing) or tracheomalacia (flaccidness). And, don't change them too infrequently, particularly if there is a cuffed tube involved, because there is nothing worse and more painful for a ventilator user than having to remove a cuffed trach tube that has not been changed for an extended period. Caregivers should discuss with the user and the physician the possibility of extending a trach change from every month to every two months, as long as there are no issues; they have effectively decreased trach changes by 50%.

Complications of Long-Term Tracheostomy

My company cares for many patients who have used tracheostomy ventila-

tion for years, some more than 20. Generally, there are few complications associated with long-term tracheostomy, but they do sometimes occur.

Infection is of course a risk factor. According to some sources, 75% of trached patients are colonized with *Pseudomonas aeruginosa* within 10 days of the procedure.² *P. aeruginosa* is an opportunistic pathogen that will manifest itself when an individual's immune defenses are low. The keys to resisting *P. aeruginosa* and other staph infections are maintaining hygienic trach care practices (caregivers must learn to religiously *wash their hands!*) and suction techniques, and notifying one's physician when secretion color changes.

Another complication is granuloma, a lump or nodule of granulation tissue, that can result from abrasion by the trach tube at the stoma. If large enough, a granuloma may cause airway obstruction.

Tracheomalacia is a significant risk for patients who have a cuffed trach tube. It is imperative that the cuff not be overinflated. We see it all too often — caregivers or family members overfill the cuff and inevitably the ventilator user ends up with a distended trachea, esophageal fistula or other complications. The best practice is to use minimal leak technique for cuff inflation — just enough air injected into the cuff in order to allow only a slight leak at peak inspiration from the ventilator.

Although the healthcare industry may not have clear-cut guidelines regarding trach changes, it is heading in the right direction.

References

1. AARC Clinical Practice Guideline: Long-Term Invasive Mechanical Ventilation in the Home — 2007 Revision & Update, 10.1.10.

2. Private communication, December 1, 1994, Michael W. Sicard, MD, Bobby R. Alford Department of Otolaryngology-Head and Neck Surgery, Baylor College of Medicine, Houston, Texas.