NTSP Podcast series

National Tracheostomy Safety Project

This month’s top papers: March 2023

Welcome to the latest blog in the literature podcast from the NTSP. We try to bring you a quick roundup of what is hot in the world of tracheostomy and laryngectomy publications by scouring internationally recognised journals and media and bringing you the highlights.

The papers we will discuss this month are detailed below, along with an automated transcript of the podcast. Please note that the transcript is generated by AI and so may not be totally accurate.

You can find the links to the podcast on www.tracheostomy.org.uk and by searching for NTSP on your favourite podcast platform. Some of the podcasts are also uploaded to YouTube if you prefer to get your news that way. Check out the NTSP YouTube channel at https://www.youtube.com/c/NationalTracheostomySafetyProject. Please follow us and/or subscribe to keep up to date! https://x.com/NTSP_UK

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This month’s top papers

- Effectiveness of Pictorial Education Handout on Tracheostomy Care Self-efficacy in Patients With Head and Neck Cancer and Family Caregivers: A Pilot Quasi-Experimental Study
- Interdisciplinary assessment of tracheostomy care knowledge: An opportunity for quality improvement.
- A "royal" total laryngectomy that never was
- Understanding living with tracheostomy ventilation for motor neuron disease and the implications for quality of life: a qualitative study protocol

Effectiveness of Pictorial Education Handout on Tracheostomy Care Self-efficacy in Patients With Head and Neck Cancer and Family Caregivers: A Pilot Quasi-Experimental Study

Lay Summary:

This pilot study investigated a simple, visual solution to help patients with a tracheostomy (a breathing tube in the neck) and their family caregivers feel more confident and less anxious about managing care at home. Learning and performing procedures like suctioning and cleaning the tracheostomy tube are often stressful and overwhelming for laypersons.

Researchers recruited 39 participants, including patients with head and neck cancer and their caregivers, and provided them with large, easy-to-understand pictorial education handouts. The study compared their confidence levels before and after using the visual guides.

The results showed that these picture-based handouts were a very effective tool for improving confidence in performing tracheostomy care. The positive effect was especially strong for caregivers, who gained a large boost in confidence. Crucially, the handouts were most beneficial for people who reported high levels of anxiety about the tracheostomy. This suggests that the visual guides not only teach necessary skills but also act as a powerful tool to relieve the significant emotional stress and fear associated with managing complex medical care at home. The study recommends that nurses and healthcare teams should rely on these pictorial handouts as a primary method to prepare patients for a safe and less anxious transition to home care.

Summary for Healthcare Professionals:

This preliminary pilot quasi-experimental study investigated the efficacy of a pictorial education handout on enhancing **tracheostomy care self-efficacy** among 39 participants, consisting of head and neck cancer patients and their family caregivers. The study utilized a pretest-posttest design to evaluate the effects of A3-size pictorial handouts illustrating key tracheostomy care procedures (suctioning and cleaning).

The results demonstrated a **medium to large effect size** on perceived self-efficacy, confirming the preliminary utility of the handouts as an educational tool for laypersons (Patient Cohen D = 0.46; Caregiver Cohen D = 0.78). A statistically significant association was identified between **higher anxiety levels** at baseline and a **greater subsequent gain in self-efficacy** with the pictorial intervention ($r=0.35, P=.027$).

The authors conclude that pictorial patient education handouts are effective tools for augmenting patients' and family caregivers' confidence in managing complex tracheostomy care. This efficacy is particularly valuable in addressing the psychological burden, as the intervention proved most helpful for individuals reporting high anxiety. The implication for practice is that clinical nurses should integrate these pictorial handouts not merely as instructional aids but as a proactive strategy to mitigate anxiety and bolster self-efficacy during the critical transition to independent home care management.

Interdisciplinary assessment of tracheostomy care knowledge: An opportunity for quality improvement.

Lay Summary:

This study investigated how much nurses, respiratory therapists, and resident doctors know about caring for patients with a tracheostomy (a breathing tube in the neck) to pinpoint areas where training needs to be improved. Tracheostomy care requires knowledge from many different hospital staff members, but a lack of consistent knowledge can lead to serious patient safety issues.

Researchers gave an online knowledge test to 173 participants, including nurses working across all hospital units, respiratory therapists, and residents from surgical specialties. The good news was that over 75% of staff knew the correct answers for basic care procedures like suctioning and humidification.

However, the study found significant and concerning gaps in knowledge regarding high-risk situations. Less than half (only 47%) of all staff could correctly identify every potential sign that a tracheostomy tube was dislodged or misplaced, which is a life-threatening emergency. Major inconsistencies were also found in how staff understood when and how to safely use speaking valves. The assessment highlighted that nurses were particularly disadvantaged, as they were less likely than respiratory therapists to have received standardized tracheostomy training. The authors conclude that to prevent errors and improve patient safety, the hospital must design and implement a mandatory, standardized training program that focuses specifically on emergency management and the safe use of speaking valves for all multidisciplinary staff.

Summary for Healthcare Professionals:

This study performed an interdisciplinary assessment of tracheostomy care knowledge among 173 clinical providers to identify inconsistencies that a standardized educational program could target for quality improvement. Participants included nurses (across all acuity levels), respiratory therapists, and residents from Otolaryngology, General Surgery, and Thoracic Surgery.

The assessment, conducted via an online multiple-choice quiz, confirmed satisfactory knowledge (over 75% correct) in basic tracheostomy care, such as suctioning and humidification. However, the study revealed critical knowledge variation in high-stakes scenarios:

- Emergency Management: Only 47% of all respondents could identify all potential signs of tracheostomy tube displacement. Significant variation was observed in the overall identification and management of tracheostomy emergencies.
- Speaking Valve Use: Significant variation was found regarding the appropriate application of speaking valves. Nurses were specifically identified as being less likely than respiratory therapists to choose the correct scenario for speaking valve use (p=0.042).
- Education Disparity: Nurses were significantly less likely than respiratory therapists to have received standardized tracheostomy education (p=0.006).

The authors conclude that this interdisciplinary knowledge deficit, particularly concerning tracheostomy emergencies and speaking valves, underscores the urgent need for a cohesive educational strategy. Designing a standardized educational program that specifically targets these areas is a critical next step to enhance workforce competency and reduce the risk of preventable adverse events, supporting the 2013 AAOHNS consensus statement calling for reduced variation in tracheostomy care.

A "royal" total laryngectomy that never was

Lay Summary:

This study investigated a surprising health issue faced by patients who have had their voice box surgically removed, a procedure called total laryngectomy. This operation, often done for laryngeal cancer, permanently changes the way a person breathes. It was hypothesized that because patients can no longer hold their breath normally, which is an action people unknowingly use to create internal pressure necessary for bowel movements, they might struggle with chronic constipation.

Researchers surveyed 50 patients who had undergone laryngectomy to determine how common this problem is. The findings confirmed that the prevalence of chronic constipation was significantly high, affecting 36% of the participants (18 cases). This suggests that this quality-of-life issue has been notably underreported and often overlooked.

The study specifically noted that patients who received total laryngectomy were significantly more likely to develop chronic constipation than those who received a more extensive surgery, a total pharyngolaryngectomy. The final conclusion strongly emphasizes that losing the ability to hold one's breath is a key factor in significantly increasing the risk of chronic constipation. This highlights the necessity for doctors and healthcare teams to counsel patients about this unexpected risk before and after surgery and to offer immediate preventative and long-term management strategies to improve their overall quality of life.

Summary for Healthcare Professionals:

This cross-sectional study investigated the prevalence and associated risk factors of chronic constipation in a cohort of 50 patients who have undergone laryngectomy, motivated by the hypothesis that the resultant loss of breath-holding capacity increases intra-abdominal pressure dysfunction during defecation.

The study confirmed a notably high prevalence of chronic constipation, affecting 36% (18 cases) of the patient population. This high rate signals a potentially underrecognized long-term morbidity within this surgical group.

A key finding from the subgroup analysis revealed that patients who underwent total laryngectomy were significantly more likely to have chronic constipation compared to those who underwent total pharyngolaryngectomy. The study concludes that the fundamental physiological change of losing the ability to hold one's breath following total laryngectomy significantly increases the risk of chronic constipation. These findings carry critical implications for clinical practice, underscoring the urgent need to integrate this data into preoperative counseling. It also mandates the implementation of standardized, proactive bowel management protocols—utilizing pharmaceutical and dietary strategies—in both the immediate postoperative period and long-term surveillance to mitigate this specific, predictable adverse functional outcome.

Understanding living with tracheostomy ventilation for motor neuron disease and the implications for quality of life: a qualitative study protocol

Lay Summary:

This document outlines the protocol for a comprehensive study aimed at understanding the real-life experience and quality of life implications for people with Motor Neuron Disease (MND) who rely on tracheostomy ventilation (T-MV). MND is a devastating neurological disease, and while T-MV prolongs life by managing breathing difficulties, the decision to pursue it is complex, involving trade-offs between extending survival and accepting severe changes to daily life.

The study acknowledges that T-MV often results in the loss of speech and oral feeding, as well as a high degree of physical and social dependence, which can lead to significant social isolation. Because of these profound impacts, the research uses a qualitative approach, focusing on capturing the authentic, lived experiences of both the patients and their primary caregivers.

The method involves conducting in-depth, semi-structured interviews and using creative tools like patient-generated photographs (photo-elicitation) to gain deeper insight into the patients' daily lives and social networks. The ultimate goal of this multi-site UK study is to explore the entire process, from the initial difficult decision-making and the resulting barriers to care, to the emotional and practical burden placed on the caregivers. By gaining this detailed understanding, the researchers hope to identify how to improve care, reduce the feeling of isolation, and enhance the overall quality of life for this vulnerable patient and caregiver population.

Summary for Healthcare Professionals:

This is a protocol for a qualitative, multi-site case study designed to elucidate the lived experience and Quality of Life (QOL) implications of tracheostomy ventilation (T-MV) in patients with Motor Neuron Disease (MND) and their respective caregivers. The study is grounded in the reality that T-MV, while life-sustaining for respiratory failure in MND, entails substantial morbidity, including loss of speech, dependence on oral intake, and severe functional and social limitations.

The primary objective is to conduct in-depth semi-structured interviews with both the patient cohort and their caregivers, with subsequent data interpretation via thematic analysis. A core component of the methodology involves using photo-elicitation (patient-generated photography) and an Ecomap (a tool to map social networks) to objectively and subjectively assess social participation, isolation, and functional status.

The anticipated outcomes are focused on multiple domains: identifying barriers to community participation, defining the comprehensive burden of care for caregivers, detailing the complex decision-making process regarding T-MV, and describing the physical and psychological impact of T-MV on patients' daily lives. This research aims to provide the granular, patient-centered data necessary to develop evidence-based clinical practice guidelines and advocacy strategies that ensure the specialized needs and quality of life concerns of this highly medically complex population are proactively addressed throughout their disease trajectory.

Scientific abstracts and references

Cancer Nurs. 2023 Mar 31. doi: 10.1097/NCC.0000000000001237. Online ahead of print.

Effectiveness of Pictorial Education Handout on Tracheostomy Care Self-efficacy in Patients With Head and Neck Cancer and Family Caregivers: A Pilot Quasi-Experimental Study.

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BACKGROUND: Learning and performing tracheostomy care are challenging for laypersons. Effective pictorial patient education handouts are needed for nonprofessional individuals to learn health management skills. OBJECTIVES: The study aims to (1) evaluate the preliminary efficacy of the pictorial education handout on patients' and family members' self-efficacy in tracheostomy care and (2) identify demographic, psychological, and education-related factors associated with lower self-efficacy on tracheostomy care. INTERVENTIONS/METHODS: This was a preliminary pilot study with a pretest-posttest design. We recruited a total of 39 participants, including 22 patients with head and neck cancer-related tracheostomy and 17 family caregivers in 2021. All participants received A3-size (297 × 420 mm) pictorial patient education handouts on how to suction and how to clean their tracheostomy at home. RESULTS: Pictorial education handouts showed a medium to large effect size on self-efficacy in the patient (Cohen D = 0.46) and caregiver participants (Cohen D = 0.78). Participants with higher anxiety were associated with a greater gain in self-efficacy with the pictorial patient education handouts (r = 0.35, P = .027). CONCLUSIONS: Pictorial patient education handouts were effective tools for improving patients' and family caregivers' confidence in tracheostomy care, and it is particularly helpful for individuals with high anxiety with tracheostomy. IMPLICATION FOR PRACTICE: Clinical nurses should use the pictorial education handouts not only to assist patients and family members on learning and practicing tracheostomy care but also to relieve anxiety associated with tracheostomy care at home.

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Conflict of interest statement: The authors have no conflicts of interest to disclose.

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Interdisciplinary assessment of tracheostomy care knowledge: An opportunity for quality improvement.

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PURPOSE: A 2013 AAOHNS consensus statement called for reduced variation in tracheostomy care. Multidisciplinary approaches and standardized protocols have been shown to improve tracheostomy outcomes. This study aims to identify inconsistencies in knowledge in order to design standardized education targeting these areas to improve quality of care. MATERIALS AND METHODS: An online, multiple-choice tracheostomy care knowledge assessment was administered to nurses and respiratory therapists in ICUs, stepdown units, and regular nursing floors, as well as residents in otolaryngology, general surgery, and thoracic surgery. The survey was administered and data were recorded using the Select Survey online platform. RESULTS: 173 nurses, respiratory therapists, and residents participated in this study. Over 75 % of respondents identified correct answers to questions addressing basic tracheostomy care, such as suctioning and humidification. Significant variation was observed in identification and management of tracheostomy emergencies, and appropriate use of speaking valves. Only 47 % of all respondents identified all potential signs of tracheostomy tube displacement. Respiratory therapists with over 20 years of experience ($p = 0.001$), were more likely to answer correctly than those with less. Nurses were less likely than respiratory therapists to have received standardized tracheostomy education ($p = 0.006$) and were less likely than others to choose the appropriate scenario for speaking valve use ($p = 0.042$), highlighting the need for interdisciplinary education. CONCLUSIONS: An interdisciplinary assessment of tracheostomy care knowledge demonstrates variation, especially in identification and management of tracheostomy emergencies and appropriate use of speaking valves. Design of a standardized educational program targeting these areas is underway.

DOI: 10.1016/j.amjoto.2023.103865 PMID: 37004318

Eur Ann Otorhinolaryngol Head Neck Dis. 2023 Mar 30:S1879-7296(23)00044-3. doi: 10.1016/j.anorl.2023.03.003. Online ahead of print.

A "royal" total laryngectomy that never was.

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With this historical vignette, ending the series dedicated to the pioneers of total laryngectomy, published in the EuropeanAnnals of Otorhinolaryngology Head & Neck Diseases to mark the 150th anniversary of the first description of this surgical procedure in humans, the authors recount what history called "The Crown Prince's illness", and wonder what might have happened if the total laryngectomy proposed for Crown Prince Friedrich had finally been performed.

DOI: 10.1016/j.anorl.2023.03.003 PMID: 37003898

BMJ Open. 2023 Mar 13;13(3):e071624. doi: 10.1136/bmjopen-2023-071624.

Understanding living with tracheostomy ventilation for motor neuron disease and the implications for quality of life: a qualitative study protocol.

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INTRODUCTION: Home mechanical ventilation can be used to manage symptoms of breathlessness and sustain life for people living with motor neuron disease (plwMND). In the UK, less than 1% of plwMND use tracheostomy ventilation (TV). This contrasts with some other countries, where rates are much higher. Due to a lack of evidence about its feasibility, cost-effectiveness or outcomes, TV is not covered in the UK National Institute for Health and Care Excellence guidance. Most plwMND receiving TV in the UK do so as an unplanned crisis intervention, which can lead to a prolonged hospital stay while a complex care package is arranged. There is insufficient literature addressing the burdens and benefits of TV, how it should be initiated and delivered, and how future care choices for plwMND can be supported. The aim of this research is to provide new understandings of the experiences of plwMND using TV, and those of family members and healthcare professionals (HCPs) involved in their care. METHODS AND ANALYSIS: A UK-wide qualitative study with two workstreams: (1) Patient focused case studies (n=6) including plwMND, family members and HCPs to focus on experiences and tasks of daily living from multiple perspectives. (2) Interviews with plwMND (n=10), family members, including bereaved family members (n=10) and HCPs (n=20) on broader experiences and issues relating to use of TV, such as ethical considerations and decision making. ETHICS AND DISSEMINATION: Ethical approval has been granted by the Leicester South Research Ethics Committee (22/EM/0256). All participants will be asked to provide electronic, written and/or audio recorded informed consent. Study findings will be disseminated in peer-reviewed journals and conference presentations and used to develop new resources for teaching and public information.

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