



This month's top papers: February 2026

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://twitter.com/NTSP_UK



Please note that the comments below and on the podcasts represent the individual authors' opinions and do not reflect the opinions of any of the organisations that the authors work for. Please leave any comments in the chat function or via twitter

This month's top papers

First, a huge global survey from the Global Tracheostomy Collaborative showed the biggest problems in trach care aren't always technical.

Next, we have a series of papers looking at PDT. Fasting, blunt dissection and use of bronch and USS in resource poor settings.

And finally... tracheostomy in cats. Yes, really.

Paper 1: Addressing Education and Care Gaps in Tracheostomy Management: Insights from a Multi-Stakeholder Global Survey

Tracheostomy. 2025 March 31; 2(1): 15–28.
doi:10.62905/001c.129226.



Summary:

Now, this wasn't a technical paper about a new device or a new surgical technique. Instead, it asked a much broader question: what are the biggest real-world problems facing people involved in tracheostomy care around the world?

And importantly, the authors didn't just ask doctors. They surveyed a wide range of stakeholders across 14 countries, including nurses, speech and language therapists, respiratory therapists, physicians, patients, and caregivers. That's important, because so many of the biggest challenges in tracheostomy care happen outside the operating theatre, ICU and even hospital.

The survey itself was relatively straightforward — a 19-item questionnaire asking participants to score the severity of different challenges on a scale from zero to ten, alongside free-text comments about their experiences. But the findings were actually pretty striking. The highest-rated challenge was the limited availability of healthcare professionals with tracheostomy expertise. That scored a median of eight out of ten. And that probably won't surprise many listeners.

Even in well-resourced systems, tracheostomy care expertise can be patchy. Staff turnover is high, training opportunities are variable, and many clinicians may only see tracheostomy emergencies occasionally. In lower-resource settings, those problems become even more pronounced.

The next major themes were inequities in access to care and affordability. Participants described problems with transport, insurance coverage, delayed follow-up, supply costs, and geographical isolation — especially for rural patients and underserved populations. Again, this reflects something we often see clinically. A patient may leave hospital with excellent care plans and training, but the reality of managing a tracheostomy at home can become incredibly difficult if equipment is expensive, community services are limited, or specialist advice is hard to access.

One of the most interesting aspects of the paper was the detail around specific areas of care that people struggle with most.

Suctioning was a major issue. Respondents described wide variation in technique, uncertainty about best practice, and concerns about causing pain or trauma. Tube changes were another area associated with fear and lack of confidence, particularly amongst less experienced staff and family caregivers.

And stoma care problems included pressure injuries, skin breakdown, and infections — all areas that many of us know can have a huge impact on quality of life, despite sometimes receiving relatively little formal training attention.

The authors repeatedly came back to one central issue: workforce competency. They argue that many complications associated with tracheostomy are not really caused by the tracheostomy itself, but by gaps in education, communication, systems, and support. That's a really important distinction. Because it suggests that improving outcomes may depend less on inventing entirely new technologies, and more on getting the basics consistently right — standardised education, multidisciplinary teamwork, accessible expertise, and caregiver empowerment.

The paper strongly advocates for simulation-based training and standardised curricula. Again, that aligns closely with what many groups internationally — including the NTSP and Global Tracheostomy Collaborative — have been pushing for years.

Simulation allows staff to rehearse emergency scenarios safely, improve communication, and build confidence before encountering real patients. And importantly, it helps standardise approaches across professions and organisations.

Another key message was the importance of caregiver empowerment. Many respondents felt that families were often underprepared for discharge, lacked confidence in emergency management, and did not receive sufficiently tailored education. That's particularly relevant as more complex patients are being managed at home, often with long-term tracheostomies and ventilatory support.

The authors also discussed the potential role of newer technologies — including telehealth, virtual reality, augmented reality, and even artificial intelligence.

They suggest these technologies could help scale education globally, particularly in low-resource settings where access to specialist trainers is limited.

Now, listeners will know this is an area we're particularly interested in ourselves. But I thought the paper made a sensible and balanced point here. Technology alone is not the answer. If digital systems are expensive, inaccessible, or poorly integrated, they risk widening inequalities rather than reducing them. The authors are very clear that innovation has to be paired with equitable access and thoughtful implementation.

The study does have limitations. The survey was distributed through the Global Tracheostomy Collaborative, so respondents may already represent relatively engaged or resource-rich institutions. Caregivers were also underrepresented compared with healthcare professionals. And as with any survey, responses are subjective and self-reported. But despite that, I think the paper provides a valuable snapshot of the current state of global tracheostomy care.

And perhaps the biggest takeaway is this: many of the most important challenges in tracheostomy care are not purely technical. They are educational, organisational, social, and systemic. Improving care therefore requires collaboration between healthcare professionals, patients, families, educators, policymakers, and healthcare systems.

The authors conclude that scalable education programmes, policy reform, equitable resource distribution, and interdisciplinary collaboration are all essential if we want to improve tracheostomy outcomes worldwide. And I think that's a message many of us working in this field would strongly agree with.

Paper 2. Effect of Duration of Pre-Procedure Fasting on Clinical Outcomes in Intensive Care Patients Undergoing Percutaneous Tracheostomy

Medical Science Monitor, 2026; 32: e950128

DOI: 10.12659/MSM.950128



Abstract

- The study evaluated the impact of different durations of pre-procedure fasting on aspiration pneumonia and clinical outcomes in ICU patients undergoing percutaneous tracheostomy. No significant difference in aspiration pneumonia was found, but prolonged fasting increased oxygen requirements and delayed nutritional recovery.
- Findings suggest shortening or individualizing fasting times may improve metabolic and respiratory stability without increasing aspiration risk.
- No significant differences were noted in ICU/hospital stay or mortality across fasting durations.

Introduction

- Percutaneous tracheostomy, frequently performed in ICU patients needing prolonged ventilation, often requires fasting to reduce aspiration risk, but fasting durations vary widely and lack consensus in critically ill patients.
- Prolonged fasting may impair nutrition and clinical recovery, highlighting the need to define optimal fasting protocols.
- This study aimed primarily to assess the effect of fasting duration on aspiration pneumonia, with secondary outcomes including respiratory and nutritional parameters, complications, length of stay, and mortality.

Material and Methods

- A retrospective single-center study included 222 adult ICU patients undergoing percutaneous tracheostomy with enteral nutrition, grouped by fasting duration (<1 h, 1-4 h, 5-12 h, >12 h). Patients with surgical tracheostomy, severe complications, or COVID-19 were excluded.
- Data collected included clinical scores (APACHE-II, NRS-2002), respiratory parameters (FiO₂, SpO₂, ventilation modes), nutritional parameters, and outcomes; aspiration pneumonia was diagnosed by integrated clinical, radiological, and microbiological criteria.
- Statistical analyses involved chi-square tests, ANOVA or Kruskal-Wallis for group comparisons, and effect sizes to quantify differences.

Results

- Demographic and baseline clinical variables, including APACHE-II and nutritional risk scores, did not differ significantly among fasting groups, and main diagnoses such as cerebrovascular and pulmonary diseases were evenly distributed.
- Respiratory parameters before tracheostomy were similar, but patients fasting >12 h required significantly higher FiO₂ 48 h post-procedure compared to those fasting <1 h; SpO₂ values remained comparable across groups.
- Time to reach target caloric intake increased significantly with longer fasting, with patients fasting >12 h taking substantially longer.
- No significant differences in ICU/hospital length of stay, aspiration pneumonia incidence, complications, or mortality were observed among fasting groups.
- Mechanical ventilation modes before and after tracheostomy showed no significant differences across groups, although a general shift toward spontaneous breathing modes post-tracheostomy was noted.

Discussion

- Baseline group similarities support that observed differences relate to fasting duration, not confounders; prolonged fasting was associated with higher oxygen needs post-tracheostomy and delayed nutritional recovery.
- The incidence of aspiration pneumonia was not influenced by fasting duration, questioning the benefit of prolonged fasting to reduce aspiration risk and supporting early, uninterrupted enteral nutrition per guidelines.
- Complication rates were similar, confirming the safety of percutaneous tracheostomy and that fasting duration does not affect complication development or mortality.
- Transition to spontaneous ventilation modes was more pronounced with shorter fasting, though not statistically significant, suggesting potential benefits of shorter fasting for ventilator weaning.
- Limitations include retrospective design, single-center setting, potential selection bias, limited representation in longest fasting group, and lack of data on specific clinical parameters like muscle mass or microbiology.

Conclusions

- Prolonged pre-tracheostomy fasting does not reduce aspiration pneumonia or improve survival but delays nutritional recovery and increases oxygen requirements.
- Traditional extended fasting before tracheostomy should be reconsidered in favor of shorter, individualized fasting strategies to optimize clinical outcomes in ICU patients.
- Larger, prospective multicenter studies are warranted to validate these findings and refine clinical protocols.

Paper 3. Safe (re)tracheostomy in critically ill patients with previous neck surgery using the minimally-invasive tracheostomy approach

JTCVS Techniques 2025; 35 (C)
doi.org/10.1016/j.xjtc.2025.102171



Abstract

- This study evaluates minimally-invasive tracheostomy (MIT) in 11 critically ill patients with prior neck surgery, including surgical tracheostomy, showing safety and feasibility.
- MIT was used bedside in ICU patients with risk factors such as obesity, scarring, fibrosis, and vascular abnormalities without complications.
- Findings suggest MIT can serve as a nonsurgical tracheostomy method even in patients previously considered unsuitable for such approaches.

Introduction and Background

- Conventional percutaneous dilatational tracheostomy (PDT) is generally not recommended for patients with prior neck surgeries due to heightened risk of complications.
- MIT is a newly developed approach integrating ultrasound, diaphanoscopy, blunt dissection, and bronchoscopic guidance to enhance safety in high-risk patients.
- MIT is faster, safer, and less labor-intensive than surgical tracheostomy (ST), and avoids limitations of PDT and hybrid techniques in anatomically challenging cases.

Methods

- Retrospective evaluation was performed on 11 ICU patients with prior neck surgery who underwent bedside MIT between 2023 and 2025 at a German university hospital.
- MIT involved skin incision, blunt tissue dissection, probe puncture with diaphanoscopy, and continuous bronchoscopic monitoring, adapted for patient anatomy.
- Pre-procedure evaluation included ultrasound with color Doppler for vascular mapping, bronchoscopic airway assessment, and coagulation status management.

Patient Characteristics and Risk Factors

- Patients aged 56-75 years had histories including prior surgical tracheostomy, neck dissection, pharyngectomy, thymectomy, as well as conditions such as obesity (including morbid obesity), liver cirrhosis, and cancer.
- Scarring, dense pretracheal vasculature, goiters, fragile skin, and coagulation abnormalities were common, posing significant risks for tracheostomy complications.
- Selection of puncture site in MIT avoided direct contact with scar tissue by using median or anterolateral approaches informed by imaging and bronchoscopy.

Results

- MIT was performed successfully in all cases without major complications including bleeding, tracheal laceration, pneumothorax, or misplacement of tracheostomy tubes.
- Procedure duration was similar for initial tracheostomy and retracheostomy; no decannulation failures or need for reintervention were reported in surviving patients.
- Some patients had transient voice impairment resolving within 3 months; no airway symptoms, infections, or tracheal stenosis occurred during follow-up.

Discussion

- MIT demonstrates a safe, reliable, and efficient bedside method for (re)tracheostomy in high-risk critically ill patients with prior neck surgery, expanding nonsurgical options beyond traditional surgical tracheostomy.
- Compared to conventional PDT, MIT adapts to challenging anatomy via skin incision, blunt dissection, and ultrasound-guided puncture trajectory, facilitating reinsertion after accidental dislodgement and minimizing complications.
- Limitations include the small, retrospective cohort and operator expertise, underlining the need for multicenter prospective studies to confirm generalizability. An algorithm for tracheostomy approach selection based on risk and experience is proposed.

Paper 4: Landmark-Guided Percutaneous Tracheostomy Without Visualization in Resource-Limited Settings

The Laryngoscope, 2026; 0:1–8
doi.org/10.1002/lary.70397



Abstract

- Evaluated the feasibility, safety, and learning curve of landmark-guided percutaneous dilatational tracheostomy (PDT) without bronchoscopic or ultrasound guidance in resource-limited settings.
- Analyzed 71 adult patients; median procedure time was 7 minutes with a 14.1% complication rate and a significant learning curve observed.
- Prior cerebrovascular accident and increased cricoid–manubrium distance predicted longer procedure times, suggesting practical patient selection factors.

Introduction

- PDT is preferred over surgical tracheostomy for its efficiency and lower infection risk, but usually requires bronchoscopic or ultrasound guidance to ensure safety.
- Visualization adjuncts are often unavailable in resource-limited settings, leading to reliance on landmark-guided PDT, which has favorable safety in experienced hands but lacks comprehensive learning curve data.
- A healthcare labor crisis prompted adoption of landmark-guided PDT by a surgeon experienced in surgical but not percutaneous techniques, motivating this study.

Methods

- Single-center retrospective study conducted at Seoul St. Mary's Hospital, including 71 adult ICU patients undergoing landmark-guided PDT without visualization adjuncts between August 2024 and June 2025.
- Standardized bedside PDT protocol utilized anatomical landmarks for needle insertion, dilation, and tube placement, with procedural monitoring but no guidance during puncture or dilation; fiberoptic laryngoscopy was used only for confirming tube position when available.
- Outcomes measured included procedure time, complications (major bleeding, pneumothorax, subcutaneous emphysema), and anatomical predictors (cricoid–manubrium distance, skin–trachea depth); statistical analysis assessed learning curve and predictors of procedural difficulty.

Results

- Patients had a median age of 68 years; most procedures (94.4%) were performed in ICU bedside settings.
- Complications occurred in 14.1% of cases, mostly minor bleeding and subcutaneous emphysema; major bleeding and pneumothorax were rare; complications decreased with operator experience.

- Median procedure time was 7 minutes, decreasing significantly with experience from 35 min initially to about 5 min later; a strong learning curve was demonstrated ($r = -0.41$, $p < 0.001$).
- Multivariable analysis identified cerebrovascular accident history ($\beta = 5.029$ min, $p = 0.018$) and cricoid–manubrium distance ($\beta = 0.136$ min/mm, $p = 0.030$) as independent predictors of longer procedure time.

Discussion

- Landmark-guided PDT without visualization adjuncts is feasible and safe after a brief learning phase, achieving comparable procedural times and complication rates with guided methods in experienced hands.
- Early complications clustered in initial cases, supporting a structured startup period; preprocedural assessment of CVA history and cricoid–manubrium distance can help anticipate procedural difficulty.
- Adjunctive tools like bronchoscopy or ultrasound remain important for high-risk patients or distorted anatomy, but landmark-guided PDT is a viable alternative in resource-limited settings with proper protocols.
- The study's limitations include single-operator design, possible underdetection of subtle injuries without bronchoscopy, and limited follow-up for late complications.

Conclusions

- Single-operator landmark-guided PDT without real-time visualization can be efficiently and safely performed in resource-limited environments following an initial learning curve.
- A history of cerebrovascular accident and increased cricoid–manubrium distance serve as simple preprocedural indicators to identify potentially difficult cases.
- Implementation of standardized anatomical approaches, explicit conversion criteria, and disciplined bedside workflows supports favorable outcomes when adjuncts are unavailable, though selective adjunct use is recommended in complex scenarios.

Paper 5: Complications and outcomes of temporary tracheostomy in 24 cats

Journal of Small Animal Practice (2026);01–7

DOI: 10.1111/jsap.70093



Abstract

- This study reports complications and outcomes of temporary tracheostomy tubes in 24 cats, hypothesizing lower complication rates and better outcomes than previously reported.
- Most common causes for tracheostomy were inflammatory/infectious laryngitis (33%) and laryngeal neoplasia (25%). Complications occurred in 54%, but 87% had successful management.
- Mortality was mainly due to underlying diseases, with no euthanasia attributed to tracheostomy complications.

Introduction

- Temporary tracheostomy bypasses upper airway obstruction and is used in cats and dogs for various conditions like laryngeal neoplasia and trauma.
- Mortality rates in dogs vary from 5-40%, with high complication rates but often successful management.
- Limited data on outcomes in cats suggest higher complication and mortality rates compared to dogs.

Materials and Methods

- Retrospective review of medical records from three referral centers (2004-2020) for cats undergoing temporary tracheostomy, with documented complications and outcomes.
- Data included signalment, indication, surgical details, postoperative care, complications, hospitalization duration, and short-term outcome until tracheostomy site healing.
- Complications classified as minor or major; outcomes categorized as survived, euthanised due to underlying disease, euthanised due to complications, or died. Success defined as survival or euthanasia unrelated to tube complications.

Results

- Twenty-four cats included; most common indications were inflammatory/infectious laryngitis (33%) and laryngeal neoplasia (25%). No intraoperative complications recorded.
- Complications occurred in 54% (13/24) cats; major complications included complete obstruction (29%) and tube dislodgement (8%). Minor complications included partial obstruction and infections.
- Majority (87%) had successful tracheostomy tube management; 58% survived to discharge; 29% euthanised due to underlying disease without tracheostomy influence; no euthanasia due to tracheostomy complications. Three cats (12%) died in hospital with tracheostomy in place, causes not always related to tracheostomy.

Discussion

- Despite a high complication rate (54%), successful management was achieved in 87% of cats; mortality mostly related to underlying diseases rather than tracheostomy tube issues.
- The complication rate is lower than previously reported studies in cats (66-87%); tube obstruction was the most common complication consistent with literature.
- Differences between cats and dogs include common indications for tracheostomy and pathophysiology of complications like mucus plugs; mucolytic therapy role is unclear and requires more research.

Conclusion

- Temporary tracheostomy can be successful and life-saving in cats with appropriate postoperative monitoring despite frequent complications. Outcomes depend largely on underlying disease severity rather than tracheostomy complications.

Additional Information

- There was no financial conflict of interest; data available on request subject to ethical considerations.
- Study was multicentre and retrospective with limitations including variability in medical records and small sample size.

Scientific abstracts and references

