

## Invited Commentary

# The Multidisciplinary Tracheostomy Team

## A Parachute for Tracheostomy-Dependent Children

Jeremy D. Prager, MD, MBA; Christopher D. Baker, MD

**In their article** “Association of a Multidisciplinary Care Approach With the Quality of Care After Pediatric Tracheostomy,” McKeon et al<sup>1</sup> present their single-center experience of implementing a multidisciplinary tracheostomy team (MDT).



### Related article

Having taken the Global Tracheostomy Collaborative’s 5 key drivers for tracheostomy care to heart (standardization of care protocols, broad staff education, patient and family involvement, monitoring of outcomes, and multidisciplinary collaboration), the authors and their institution created an MDT in 2015.<sup>2</sup> This MDT consists of clinicians from 11 disciplines involved in the care of patients with tracheostomies. The group meets regularly, communicating with and seeing patients in both inpatient and outpatient settings. The makeup of the multidisciplinary team and its activities are presented in Table 1 and the Methods section of the article.<sup>1</sup> Patients at Boston Children’s Hospital who were tracheostomy dependent or who underwent tracheostomy placement during the study period were observed by the MDT prospectively. Data presented therein were collected from 2015 to 2018.

The article describes 2 main interventions or quality improvement initiatives of the MDT in detail: tracheostomy-related adverse event (TRAE) monitoring and the standardization of tracheostomy supplies, including the distribution of tracheostomy “go-bags.”<sup>1</sup> The authors have previously described the creation of a TRAE monitoring system.<sup>3</sup> When comparing the third year after implementation of the MDT with the first year, the authors report a 58% reduction in reported TRAEs.<sup>1</sup> The authors also report improved caregiver preparedness and continuity of care, as well as improved collaboration between different specialties, as secondary outcomes.<sup>1</sup>

This is an important study that demonstrates how an MDT may improve patient safety and quality of care. Other multidisciplinary programs have described how standardization of patient and family education and the discharge process can prevent complications and reduce overall length of stay for children undergoing tracheostomy placement.<sup>4,5</sup> McKeon et al<sup>1</sup> provide a detailed description of their MDT and its approach to care, including a detailed use of a reproducible TRAE monitoring method, which is a benefit for readers who have yet to implement multidisciplinary tracheostomy care at their own institutions.

This study has several important limitations. As a prospective quality improvement study, there was no control

group, and results from a preintervention cohort of historical patients were not described. Second, many changes were made to care delivery at once, making it difficult to know which changes were responsible for the observed reduction in TRAEs. It is also unclear whether the findings are generalizable, that is, would similar interventions be effective at other institutions? Finally, it is challenging to measure how well teams function. As such, improved caregiver preparedness and team collaboration are more impressions than quantifiable data.

In presenting their work, the authors struggle to describe the experience of those who function in a complex work environment and in diverse teams.<sup>1</sup> It is difficult to pinpoint the cause of an observed outcome when there are so many moving parts. Conveying this information can be challenging as well. However, what works at one center can be shared, then other centers can build on that foundation or modify the approach to meet the unique needs of different patient populations. The metrics being collected as TRAEs could be adopted by other institutions to more consistently measure adverse events, providing opportunities for shared quality improvement through multicenter collaboratives.

The effect of standardized tracheostomy care on financial data is another way of demonstrating the value created for patients and health care organizations by MDTs. A growing body of literature demonstrates financial benefits to the patients and their families when multidisciplinary care is coordinated. In addition, charges to insurers and costs to provide care may decrease as well, as we have noted in our own multidisciplinary aerodigestive program.<sup>6</sup>

The safety of patients whose complex care poses implicit risk is a top priority for all. Patient care can be improved further by extending tracheostomy education to other community members (eg, school nurses, case workers, emergency response teams). Applying novel technologies such as telemedicine and advanced monitoring may increase our ability to identify adverse events with sufficient time to intervene. The worst outcomes such as accidental death fortunately occur quite infrequently. However, this makes determining whether improvements in care actually reduce these events quite challenging. In this context, multidisciplinary teams and quality collaboratives can work toward achieving greater safety, even in cases where randomized clinical trials are not appropriate.<sup>7</sup>

### ARTICLE INFORMATION

**Author Affiliations:** Department of Otolaryngology, School of Medicine and Pediatric Otolaryngology, Children’s Hospital Colorado, University of Colorado, Aurora (Prager);

Department of Pediatrics, Section of Pulmonary Medicine, School of Medicine, University of Colorado, Aurora (Baker).

**Corresponding Author:** Jeremy D. Prager, MD, MBA, Department of Otolaryngology, School of

Medicine and Pediatric Otolaryngology, Children’s Hospital Colorado, University of Colorado, 13123 E 16th Ave, B-455, Aurora, CO 80045 ([jeremy.prager@childrenscolorado.org](mailto:jeremy.prager@childrenscolorado.org)).

**Published Online:** September 19, 2019.  
doi:10.1001/jamaoto.2019.2499

**Conflict of Interest Disclosures:** Dr Prager is a board member and owns founder's stock in Triple Endoscopy, Inc. He has also been issued a patent for Triple Endoscopy. No other disclosures were reported.

#### REFERENCES

1. McKeon M, Kohn J, Munhall D, et al. Association of a multidisciplinary care approach with the quality of care after pediatric tracheostomy. [published online September 19, 2019]. *JAMA Otolaryngol Head Neck Surg*. doi:10.1001/jamaoto.2019.2500
2. Bedwell JR, Pandian V, Roberson DW, McGrath BA, Cameron TS, Brenner MJ. Multidisciplinary tracheostomy care: how collaboratives drive quality improvement. *Otolaryngol Clin North Am*. 2019;52(1):135-147. doi:10.1016/j.otc.2018.08.006
3. McKeon M, Munhall D, Walsh BK, et al. A standardized, closed-loop system for monitoring pediatric tracheostomy-related adverse events. *Laryngoscope*. 2018;128(10):2419-2424. doi:10.1002/lary.27251
4. Baker CD, Martin S, Thrasher J, et al. A standardized discharge process decreases length of stay for ventilator-dependent children. *Pediatrics*. 2016;137(4):e20150637. doi:10.1542/peds.2015-0637
5. Gaudreau PA, Greenlick H, Dong T, et al. Preventing complications of pediatric tracheostomy through standardized wound care and parent education. *JAMA Otolaryngol Head Neck Surg*. 2016;142(10):966-971. doi:10.1001/jamaoto.2016.1803
6. Ruiz AG, Bhatt JM, DeBoer EM, et al. Demonstrating the benefits of a multidisciplinary aerodigestive program. [published online March 27, 2019]. *Laryngoscope*. 2019. doi:10.1002/lary.27939
7. Smith GCS, Pell JP. Parachute use to prevent death and major trauma related to gravitational challenge: systematic review of randomised controlled trials. *BMJ*. 2003;327(7429):1459-1461. doi:10.1136/bmj.327.7429.1459