

## The Global Tracheostomy Collaborative: Multidisciplinary quality improvement in tracheostomy care

David Roberson, MD, FACS, FRCS,  
and Gerald B. Healy, MD, FACS, FRCS(Hon), FRCSI(Hon)

### HIGHLIGHTS

- Describes the GTC's mission to disseminate safe tracheostomy care worldwide
- Summarizes the five “key drivers” of tracheostomy care improvement
- Discusses the benefits of implementing team-based care and standard protocols

The members of the Global Tracheostomy Collaborative (GTC) assert that tracheostomy-related catastrophic events are like central line-associated infections—they can be eliminated. The GTC is working with health care providers, hospitals, patients, and families around the globe to make the vision of universal safe tracheostomy care a reality. At present, 45 hospitals around the world are members of the GTC, working to implement key drivers that help eliminate adverse events while tracking their outcomes in a worldwide database that already houses more than 2,500 patient admissions.

### Responding to frequent adverse events

Many studies show that tracheostomy-related adverse events occur frequently (between 10 and 20 percent of patients)—including preventable complications that cause permanent injury or death.<sup>1-3</sup> Surgeons

who perform tracheostomies and provide care to patients who require the procedure have, at some point, encountered complications and, on occasion, poor outcomes. Strikingly few of these adverse events occur in the operating room. Catastrophic events are particularly unfortunate because most involve either the absence of preventive or rescue measures that could easily have been in place, or training and staffing deficits that could be readily eliminated.

As with central line-associated infections, it is not enough to “spread the word” on these measures or attempt to educate everyone on these processes. To eliminate tracheostomy-related morbidity and mortality, each hospital should do the following: build a robust system to ensure that clinical decision making for “trach” patients is unified and consistent; implement simple preventative and rescue measures; and ensure that staff trained in rescue measures are always available at the bedside within 3 to 5 minutes of an emergency to intervene before permanent hypoxic injury occurs.

The GTC was founded in July 2012, when the co-author of this article, David Roberson, MD, FACS, FRCS, invited 20 tracheostomy and quality improvement experts from around the world to meet in Glasgow, U.K. That group agreed to incorporate as a not-for-profit organization and to create a program that would disseminate best practices worldwide.

In the decade between 2000 and 2010, two hospitals in very different locations and clinical

environments—Austin Health in Melbourne, Australia, and St. Mary’s Hospital in London, U.K.—built hospitalwide care systems that reduced tracheostomy-related adverse events by 90 percent or more. Although these hospitals serve different populations with different clinical issues, the programs that they developed are strikingly similar in their key attributes.<sup>4-5</sup> Similar programs aimed at reducing tracheostomy-related adverse events have been developed in the U.S., such as the program at Johns Hopkins Medicine, Baltimore, MD.<sup>6</sup>

### Keys to tracheostomy quality improvement

Drawing on these experiences, the GTC has adopted five key drivers of tracheostomy care improvement:

- **Team-based care.** Representatives of all specialties involved in the care of these patients, including surgery (otolaryngology–head and neck, general, thoracic), pulmonology, intensive care, nursing, speech pathology, respiratory therapy, and others depending on hospital staffing, must meet face-to-face at least weekly to review the inpatient tracheostomy census and make joint decisions. With so many services involved, there is no practical way to have consistent and clear care decisions without regular in-person meetings. In addition, every hospital should have a tracheostomy committee that meets monthly to review adverse events and address systemic issues.
- **Standard protocols.** Hospitals must establish protocols so that—barring patient-specific needs or complications—every trach patient receives the same preoperative, perioperative, and postoperative care. When every department, and in some cases every physician, applies different postoperative care standards, important aspects of follow-up care will invariably fall through the cracks because so many different people are involved in tracheostomy care. For example, deaths have occurred because the night shift staff was unaware that in a particular patient, should the tracheostomy dislodge, oral intubation was still an option.
- **Staff education and assignment.** A hospital must develop a training and staff assignment system so that when a tracheostomy occludes at 2:00 am, someone trained to manage this emergency situation will be at the bedside within minutes, before hypoxic injury ensues. An informal poll of approximately 150 attendees at a tracheostomy seminar at the American College of Surgeons Clinical Congress in 2016 showed that less than 2 percent of respondents were confident that this type of training and assignment system was in place at their hospital.
- **Patient and caregiver involvement.** Patients and their families should be involved in all aspects of this process. In particular, patient and family representatives should be on the institutional tracheostomy committee. At Boston Children’s Hospital, the addition of a family member to our tracheostomy committee has prompted us to recognize and address many care vulnerabilities of which we were not previously aware. Due to the fact that the availability of tracheostomy emergency equipment in residential homes varies, we developed an institution-wide “Go Bag” with standard emergency equipment. Our nurses now unpack and review each family’s bag during each visit to the tracheostomy clinic to ensure they are always equipped for emergencies.
- **Data collection.** The GTC has a worldwide database that is compliant with protections in the Health Insurance Portability and Accountability Act, as well as with U.K. and Australian privacy laws. This registry contains key data from member hospitals on each admission for patients with tracheostomies. The GTC issues regular reports to member hospitals that allow them to track their own progress and compare their outcomes with similar hospitals.

### Moving the GTC forward

When a hospital joins the GTC, they are encouraged to develop a multidisciplinary tracheostomy team, conduct weekly multidisciplinary rounds, develop or adopt tracheostomy care protocols, involve patients and families in the care plan, and enter their hospital admission data into the GTC database. The GTC began enrolling hospitals and collecting data in 2014, and many hospitals do not yet have enough data to draw statistically significant comparisons. Most member hospitals anecdotally report improved care. Our most robust data to date comes from a set of hospitals in Manchester, U.K., that demonstrated a 20 percent reduction in length of stay and a statistically significant reduction in major adverse events within 12 months of joining the GTC.

GTC membership includes community hospitals and academic medical centers, as well as multiple freestanding pediatric hospitals and hospitals that provide only adult care or a mixture of adult and pediatric services. Because of the inherent differences in pediatric and adult populations, the GTC does not compare pediatric and adult outcomes in its reports.

In addition to promoting localized quality improvement strategies to enhance hospital-level tracheostomy outcomes, the GTC hosts approximately six webinars annually on all aspects of tracheostomy care.

The GTC also hosts regular international meetings on tracheostomy care. The most recent meeting—the Third International Tracheostomy Symposium in April 2016 at Johns Hopkins University—drew more than 250 attendees from around the world. The GTC will co-host the Fourth International Tracheostomy Symposium, February 2–3, 2018, at the University of Texas Southwestern Medical Center, Dallas.

The GTC welcomes inquiries from any interested hospital facility or system and from any surgeon who would like to participate as an individual in one of the collaborative's working groups. For more information, visit the GTC website at [www.globaltrach.org](http://www.globaltrach.org) or contact Dr. Roberson at [droberson@globaltrach.org](mailto:droberson@globaltrach.org). ♦

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