Capacity Building in Malawi

Bryant A. Murphy, M.D., M.B.A., FASA
Janey R. Phelps, M.D., FAAP

"Give a man a fish and you feed him for a day, teach a man to fish and you feed him for a lifetime." – Lao Tzu, 600 B.C.

Lao Tzu is credited as the founder of Taoism, and his words above, although from ancient history, speak directly to the work behind the medical missions adopted by the University of North Carolina (UNC) since 1999. UNC has focused on a long-term dedication to a capacity building relationship with Kamuzu Central Hospital (KCH) in Lilongwe, Malawi. The overarching mission is to identify innovative, culturally acceptable and affordable methods to improve the health of the people of Malawi; this is accomplished through research, health systems strengthening, prevention, training and care. The original partnership with KCH in 1999 was focused on infectious disease research. Now, almost 20 years later, almost every department at UNC has been involved in growing and collaborating with KCH to improve quality of care.

The Department of Anesthesiology at UNC became involved in 2014 when Janey Phelps, M.D., anesthesiologist and passionate educator, accompanied a team from the UNC Department of Otolaryngology to Malawi for a short-term medical mission trip. The overwhelming need for improved anesthesia care was evident to Dr. Phelps and others. The current structure is similar to most low- to middle-income countries (LMICs), and Malawi utilizes anesthesia clinical officers for care. The anesthesia clinical officer training program in the Health Science College is 18-months long, with six months of didactics and 12 months of clinical training accompanied with didactics. Once the anesthesia clinical officers complete this training, they must be able to provide anesthesia care for all ages and all surgical cases. In addition, they provide care to critically ill patients. The last 12 months of training are conducted by anesthesia clinical officers who may or may not have formal training as teachers. There is a standard "curriculum outline," but there is a significant lack of standard lectures or content.

Prior to the collaboration with KCH, the UNC anesthesia department offered international electives to residents through other organizations or universities. In 2017, our department developed a vision to create a resident/fellow international elective that combined clinical and educational efforts. Since the elective began, five residents – a pediatric anesthesia fellow and four attending anesthesiologists – have spent dedicated time at KCH. During this time, the teams have successfully done the following:

- Participated in clinical work in the O.R.
- Provided numerous prepared and on-the-fly didactic lectures
- Introduced a "flipped classroom" style approach to teaching
- Developed a sustainable simulation program
- Conducted two regional workshops to introduce regional blocks with U/S
- Created code boxes for emergencies
- Introduced the use of intralipids for local anesthetic toxicity
- Developed written exams with clinical officer instructors
- Conducted clinical exams
- Initiated quality-improvement projects
- Introduced evidence-based protocols
- Collaborated with research studies

Bryant A. Murphy, M.D., M.B.A., FASA, is Professor of Anesthesiology and Vice Chair for Clinical Operations, University of North Carolina School of Medicine, Chapel Hill.

Janey R. Phelps, M.D., FAAP, is Associate Professor of Anesthesiology and Pediatrics, University of North Carolina School of Medicine, Chapel Hill.

When this work first began, Dr. Phelps was faced with the fact that many mission trips are fraught with barriers. Taking insight from other leaders in global health, she focused on establishing relationships, building trust and engaging in capacity-building. Her first few visits focused on the development of these key relationships, which now have transformed into mutual respect and solid friendships. With that foundation established, the real work of capacity-building could begin.

The days begin early at KCH, with a morning report covering the cases overnight, pre-briefs for high-risk cases of the day, and a brief didactic lecture for the practicing anesthesia clinical officers. The rest of the day is spent delivering elbow-to-elbow clinical care, in situ teaching and more lectures, simulation and hands-on training of not only the technical skills, but also of communication and empowerment. Much of this training is delivered in such a way that it is the first experience for the majority of students. Despite this, it was determined that 100 percent of the students "enjoyed" the simulation training and found it helpful. All of the students would like to see it become a continual part of their training, and fully two-thirds would like to see it as a component of their final testing. Simulation training is performed in the clinical spaces, including the O.R.s, ICUs and high-dependency units, with 88 percent of the students stating it was most helpful when conducted in the theaters.

During one Malawi visit, an anesthesia clinical officer recounted the story of a 35-year-old whose life was saved by the training and resources that were previously provided by UNC. This gentleman had an intra-arterial injection of local anesthesia during a supraclavicular block placement without an ultrasound or nerve stimulator. During previous visits, local anesthesia toxicity education was provided through lectures and simulation training, and intralipids were introduced to KCH. The anesthesia clinical officer remembered their training and was able to appropriately treat this gentleman with intralipids. The clinical officer was not only able to recognize the problem but also provide immediate, resuscitative, life-saving measures for him. Since that episode, an ultrasound was donated by Phillips and two Saturday regional ultrasound workshops have been provided. In addition, cognitive aids and other measures were instituted to assist in emergency procedures.

During a visit to a small, low-resourced district hospital in Malawi, one of the anesthesia clinical officer graduates who participated in UNC's educational efforts was on staff. He was in the first class that received training through the simulation program initiated at KCH by UNC. He described an incident where a spinal anesthetic for a cesarean section led to a high spinal in which the patient became unconscious and needed immediate resuscitation. He described how he handled it calmly and safely and said that he was able to do so partly through the skills he learned from the simulation training.

As demonstrated with the stories above, lasting change and quality improvement can occur with repetitive short-term trips when the focus is on capacity-building, engaged training, trusting relationships based on mutual respect and a focus on education.

The positive impact of these visits is also shared by the visiting physicians and anesthesia clinical officers. Anesthesiologists who are fortunate enough to experience the art of providing anesthesia in low-resource settings learn a great deal from the experience. Physicians leave the LMIC with not only a greater appreciation of the privilege of practicing in the U.S., but with improved physical exam skills, recognition of resource over-utilization and experiences of advance disease states not found in the U.S. This partnership has been symbiotic in so many ways, and UNC is grateful to continue this work.