Focus on Nursing

This year's course featured an expanded focus on nursing care. Our nursing team (E. Haley Vance, DNP, of Vanderbilt University, Allison Basham, PA, of Weill Cornell Medicine, and Hadija Mndeme, RN/CCN, of Muhimbili Orthopedic Institute) organized sessions for classroom and hands-on training. Attendees came from as far away as Kenya—an 18-hour bus ride away.

Nurses receive generalized training as part of their degree program, but there is no specific instruction on how to care for spinal cord or traumatic brain injury patients. In these complicated patients, managing common issues such as elevated blood pressure or blood sugar can make a marked difference in patient outcomes. Our sessions provided essential information and techniques that nurses can use immediately in their daily work caring for patients, then pass along to new nurses as the neuro service continues to grow. Observation time in the ICU also gave our team a chance to identify other topics where additional training would be helpful.

Basham also led an Emergency Neurological Life Support (ENLS) session on meningitis and encephalitis.

Top: E. Haley Vance, DNP, leads a classroom session for nurses on caring for patients with spine injuries. Bottom: Weill Cornell Medicine PA Allison Basham (right) in the intensive care unit with local nurses, including Hadija Mndeme (left), where she both observed and trained.

ABOUT THE WEILL CORNELL NEUROSURGERY PROGRAM IN TANZANIA

The Neurosurgical Mission in Tanzania, now in its tenth year, is conducted in collaboration with the Foundation for International Education in Neurological Surgery (FIENS) and consists of several components:

1. Our multidisciplinary teams of surgeons, anesthesiologists, nurses, and biomedical engineers train local health care providers to deliver basic neurosurgical care using locally available equipment and resources. Each year we hold a "hands-on" course for doctors and nurses in Tanzania, empowering them with a high level of expertise in the management of neurosurgical disorders and neurosurgical procedures. Providing the highest level of surgical training to these eager, talented surgeons impacts every other level of care—nursing, anesthesia, intensive care treatment, and general ward care. Setting the bar high encourages a positive response and team e ort involving all areas.
2. After the course our faculty members stay in Tanzania and operate together with local colleagues. Together we are operating on children and adults in the region, with very good surgical outcomes.
3. Promising African surgeons are selected for short-term observational fellowships at Weill Cornell Medical College in New York. The purpose of this fellowship is to provide motivated surgeons firsthand experience with high-level surgical care. The close working relationship also greatly facilitates the communication between the Weill Cornell Medicine team in New York and the MOI surgeons once the surgeon has returned to Tanzania.
4. Each year we fund one European or North American neurosurgeon to live and work in Tanzania for 12 months.
5. Weekly conference calls and Skype conferences are held between the Weill Cornell team and their colleagues at MOI to discuss challenging cases, patient management, and ongoing research.
6. An IRB-approved database for traumatic brain and spinal injury has been implemented at MOI to monitor patient care and ensure quality. This and previous projects have led to several publications in peer-reviewed journals.
7. Tanzanian and western teams prepare joint scientific publications and lectures at medical meetings.

Dr. Härtl hopes that these efforts will over time improve patient outcomes and serve as a model for other hospitals and programs.

For more information please see our Facebook page:
https://www.facebook.com/TanzaniaNeurosurgeryProject/

Mission in Tanzania

2018 Update, *From Dr. Roger Härtl*

There is an old saying that if you give someone a fish, you feed them for a day, but if you teach that person to fish, you feed them for life. That's the founding principle behind the Weill Cornell Medicine Tanzania Neurosurgery Project, and after a decade I can proudly say that it is working. We are far from finished, but we are making great progress.

The project is a collaborative independent effort that I founded in 2008 in collaboration with the Foundation for International Education in Neurological Surgery (FIENS). Our goal is expanding and improving neurosurgery services in Tanzania—not by providing direct services and donations but by training, guiding, and developing local health care providers and facilities.

In 2008 there were three neurosurgeons in Dar es Salaam, the largest city in Tanzania, serving a nation with a population of 43 million people spread over an area twice the size of California. Today there are eight neurosurgeons in the country—which now has a population of 57 million. Many of those people are nowhere near one of those neurosurgeons, so people continue to die of brain and spine trauma, birth defects, and tumors that would be easily treated elsewhere.

The situation in Dar es Salaam is in desperate condition compared to the United States. Overcrowded waiting areas are filled with patients who have spent several days just reaching the hospital. They come bearing MRI or CT scans that are old and poor quality (if they have them at all). If they are admitted to the hospital, patients stay in dorm-like rooms with up to 20 other patients. Their families are expected to provide food for them while they are in the hospital. And too many conditions have been left untreated for so long that local providers are simply not able to offer a cure.

Still the progress is gratifying to see. Thanks to a large international network of donors, we have been able to support our colleagues in Tanzania with costly surgical technology, such as a microscope that helps improve surgical outcomes. After several years of exchanging fellows—Tanzanian fellows spend time in New York with me to train, and we support a western-trained Global Neurosurgery Fellow posted in Tanzania—we have an established pipeline of talent to improve surgical skills there. And our weekly Skype meetings mean ongoing oversight and mentoring of providers there.

We are so thankful to our supporters for making this effort possible and for allowing it to continue. Special thanks this year to Robert Essel, a New York photographer who paid his own way and donated his time and talent to accompany us on the trip to document conditions there. It's because of generosity like this that we are able to bring you this annual report on our work. Please consider a donation to help the project grow—your support means so much to us, and to the people whose lives you are saving.

Top: Dr. Härtl consults with Dr. Jospeh Kahamba on a surgical case. Center: Dr. Härtl performs the first minimally invasive spinal procedure in Tanzania for a patient with lumbar spinal stenosis. Bottom: After a decade of neurosurgical trips, Dr. Hartl gets rock-star treatment from the Tanzanian media.

Help support our ongoing work. Make a donation today at weillcornellbrainandspine.org/tanzania

Critical Support at Highest Levels

Tanzania's new president is as committed to improving health care as his predecessor was

One of the reasons our Tanzania Mission has been successful is the support we've had from the government. Former president Jakaya Kekwete was an early, enthusiastic supporter and provided insights into how to advance local health care. We were delighted that he visited the course again this year to reflect on the achievements of the project over the last decade.

We were especially honored when the current president of Tanzania, John Magufuli, invited us to the presidential residence to thank us for our efforts. His promise of ongoing support means a lot to us and will help us overcome obstacles in the future.

We were also honored to meet with Polycarp Cardinal Pengo, Archbishop of Dar es Salaam. Cardinal Pengo has traveled to New York City for treatment, and he recognizes the need for improved local care so those without the resources to travel can be cared for at home. You can watch a video of our interview at **weillcornellbrainandspine.org/tanzania**

Top right: Dr. Härtl is introduced to His Excellency John Magufuli. the President of Tanzania at the statehouse. Bottom right: Former president Kikwete stopped by for a visit. Below: Polycarp Cardinal Pengo talked with Dr. Härtl about the importance of making quality care available at home.

A Passion for Pediatrics

The littlest patients we treat are the most heartbreaking ones

Two of the most vexing problems we encounter in Tanzania are hydrocephalus and neural tube defects, both of which are rampant in Africa. In the developed world, hydrocephalus is easily detected and treated in infancy, and the incidence of neural tube defects has been greatly reduced through routine use of folic acid supplements during pregnancy. In the third world, however, untreated hydrocephalus leads to serious deformity and permanent brain damage, and folic acid deficiency still causes thousands of cases of spina bifida and other neural tube defects.

In the top two photos at right, a child who suffers from hydrocephalus is prepared for surgery. Weill Cornell Medicine neurosurgery resident Dr. Benjamin Rapoport and MOI chair of neurosurgery Dr. Hamisi Shabani performed an endoscopic third ventriculostomy, a procedure that creates an opening to allow the cerebrospinal fluid to bypass the obstruction that is blocking the flow of cerebrospinal fluid. In the center photo, Dr. Shabani joins Weill Cornell Medicine pediatric neurosurgeon Dr. Caitlin Hoffman and chief neurosurgical resident Dr. Hilarie Tomasiewicz evaluating a patient with severe hydrocephalus.

In the bottom two photos Dr. Japhet Ngerageza, head of neurosurgery at Muhimbili University of Health and Allied Sciences Academic Medical Center, reviews the next day's surgical cases with Dr. Hoffman and Dr. Tomasiewicz. One of those cases was a baby with a meningocele, a form of spina bifida (far right, bottom). The surgery was successful and the spinal cord was closed.

A Neurosurgical First In Tanzania

Clipping an aneurysm is a routine procedure in the United States: A neurosurgeon removes a small section of the skull to reach the site of the malformation, then places a tiny metal clip at the aneurysm's base to cut it off from the artery and keep blood from entering it. In Tanzania, however, this disease cannot be treated, and patients who can afford it go abroad for surgery; those who can't usually leave the condition untreated (creating a risk for future bleeding in the brain). During this year's trip Dr. Philip Stieg performed what is believed to be the first-ever clipping of an aneurysm in Tanzania, operating on a young woman whose aneurysm had already bled once and was at great risk for another.

Dr. Stieg did the procedure together with Dr. Japhet Ngerageza, head of neurosurgery at Muhimbili University of Health and Allied Sciences (MUHAS) Academic Medical Center (who spent several months in New York in 2016 with Dr. Härtl as part of the Tanzania fellowship program). The surgery went well and the patient was discharged a few days after surgery with almost no risk of rebleeding.

This surgical first is just the beginning: Now that we have shown that aneurysm clipping can be done safely in this setting, we will work together to train and teach local neurosurgeons how to perform this procedure on their own. The ability to do these will be a game-changer in Africa.

Top left: Dr. Stieg reviews the clipping procedure with Dr. Japhet Ngerageza. Above: Dr. Stieg leads the surgery, with Dr. Ngerageza assisting. Top right: Dr. Stieg observes the results of the procedure on an OR monitor.

How can you help:

All gifts are 100% tax deductible. There are two ways to make a monetary contribution:

By check: Make check payable to Weill Cornell Medical College, with Mission in Tanzania in the memo area. Please mail your check to:

Weill Cornell Medicine Brain and Spine Center
c/o Roseann Henry, Director of Special Projects
525 East 68th Street, Box 99
New York, NY 10065

By credit card: Make a secure online donation by visiting our website at **weillcornellbrainandspine.org/tanzania** and clicking on the "Donate Now" button.

Your contribution will be used for:

- Data collection of neurosurgery outcomes at the Muhimbili Orthopedic Institute (MOI). We support a salary for a data collection person and the maintenance of the database.
- Support of fellowships of Tanzanian MDs to Weill Cornell Brain and Spine Center.
- Support of neurosurgery courses at MOI. For example, we may help pay for travel of African MDs to the courses in Tanzania, acquisition of cadavers for practical courses, and costs for meeting venues.
- We DO NOT use your contribution to support travel of any U.S. surgeons to Tanzania.
- We DO NOT use your contribution to purchase any medical supplies or equipment. We may, however, use it to fund a container to ship urgently needed equipment to Tanzania (for example, an operating microscope).

Our weeklong trip now starts with two full days in a classroom in Dar es Salaam, this year providing lectures and instruction to 100 participants from all over East Africa. The teaching faculty includes neurosurgeons from Weill Cornell Medicine in New York as well as experts from elsewhere in the United States plus the United Kingdom, Pakistan, Turkey, Germany, Austria, Spain and Malaysia.