

# Mission in Tanzania

2014 Update, From Dr. Roger Härtl

## Weill Cornell Neurosurgeons Conduct First Hands-on Neurotrauma Training Course in Tanzania

This March, a neurosurgical team from the Weill Cornell Brain and Spine Center conducted the first neurotrauma training course for health care providers from East, Central, and Southern Africa, teaching much-needed neurosurgical skills to African surgeons, physicians, residents, and nurses. The weeklong course, presented in collaboration with the Muhimbili Orthopedic Institute (MOI) in Dar Es Salaam, was led by Dr. Roger Härtl, who started the Cornell Neurosurgery Initiative in Tanzania in 2008. Dr. Härtl was joined this year by Neurosurgeon-in-Chief Dr. Philip Stieg, pediatric neurosurgeon Dr. Jeffrey Greenfield, and our neurointensive care specialist Dr. Hal Mangat along with several other Weill Cornell personnel that included anesthesiologists, fellows, and nurses.



Some of the participants in the first hands-on neurotrauma course, March 3, 2014. Dar Es Salaam, Tanzania.

The Cornell Neurosurgery Initiative in Tanzania was created to fill a significant need in that East African nation, where there are five certified neurosurgeons for 45 million people. With access to neurosurgical care severely limited, neurosurgical training is critical to establishing an infrastructure for treating traumatic injuries to the brain and spine, which is the leading cause of death and disability in young adults worldwide. To create that infrastructure, Weill Cornell collaborates with (MOI) and the Tanzanian office of Health Ministry and other academic institutions in North America and Europe to develop neurosurgical care and training programs.

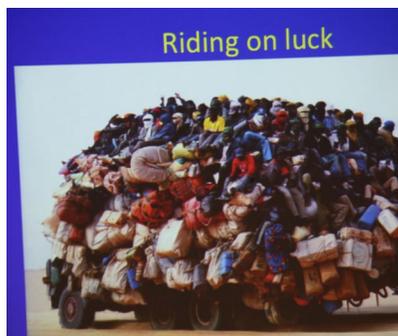
*Clockwise from top right: Dr. Hal Mangat teaching*

*Bottom right: Dr. Härtl shows students the use of spinal instrumentation.*

*Bottom middle: Dr. Stieg demonstrates the use of a drill during hands-on training.*

*Bottom left: A frequent reason for trauma in this part of the world: overloaded trucks and the rapid increase in the number of motorcycles and cars*

*Top left: Dr. Philip Stieg (left) and Dr. Roger Härtl greet Karen March from the USA and Dr. Anthony Figaji from South Africa.*



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Dr. Härtl leads annual missions to Tanzania to implement those programs, with a goal of training local surgeons in basic neurosurgical procedures using locally available equipment and resources as well as integrating donated equipment into the hospital's existing facilities. This year's course included lectures and hands-on laboratory activities to demonstrate basic neurosurgical skills, followed by live surgeries directed by the Weill Cornell team and its European affiliates. The team's goal is not to perform surgery themselves but to use hands-on training to educate neurosurgeons, nurses, and other medical personnel to provide ongoing care on their own — an approach that is both dynamic and empowering.

This year the focus of the training course was on care and treatments for patients with traumatic brain and spine injuries. These debilitating injuries frequently require surgical decompression and stabilization in order to preserve and restore neurological function. The course began with opening remarks from the office of the Ministry of Health, followed by classroom training on the characteristics and clinical management of traumatic brain injury (TBI). Highlights of the classroom training included:

- Dr. Moody Qureshi of Kenya discussed the importance of basic training, citing developing safety standards as a simple and tremendously effective first step.
- Dr. Härtl explained the history behind current management for traumatic brain injuries — a story that echoed Dr. Qureshi's comment on the efficacy of standard protocols.
- Dr. Stieg outlined surgical management of brain injuries.
- Dr. Greenfield discussed the special considerations in the treatment of pediatric neurosurgical patients.
- Dr. Anthony Figaji, a South African neurosurgeon, and Dr. Hal Mangat reviewed nonsurgical intensive care protocols.
- Dr. Othman of Tanzania discussed imaging techniques.

### 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 and note Mission in Tanzania in the memo area. Please mail your check to:

Weill Cornell Brain and Spine Center  
c/o Ana Ignat, Department Administrator  
525 East 68th Street, Box 99  
New York, NY 10065

**By credit card:** Please visit our website: [weillcornellbrainandspine.org/ways-give](http://weillcornellbrainandspine.org/ways-give) and make a donation via credit card by clicking on the "Donate Now" button.

Your contribution will be used for:

- Data collection of Neurosurgery outcomes at Bugando Medical Centre. 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 & Spine Center.
- Support of Neurosurgery Courses at Bugando / Tanzania: For example, we may support travel of African MDs to the courses in Tanzania, support acquisition of cadavers for practical courses, cover costs for meeting venues.
- We DO NOT use your contribution to support travel of any US 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).



*Top left:* Dr. Stieg instructs a resident during aneurysm surgery at Muhimbili Hospital. *Top right:* Dr. Greenfield, with Tanzanian residents, attends to a patient in the operating room. *Bottom left:* Drs. Stieg and Greenfield teach residents the proper approach to an aneurysm case. *Bottom right:* Dr. Stieg and Dr. Härtl congratulate a course participant.

Other speakers included neurosurgeons and nurses from affiliated institutions in the U.S. and Europe.

The lectures were followed by breakout demonstrations of the cervical spine, craniotomies for TBI, and ventricular drainage placement and management. The training then moved into the MOI operating rooms, where the visiting faculty directed local surgeons and residents in several cases:

- Dr. Stieg and Dr. Greenfield directed MOI neurosurgeons in the case of a patient with a posterior communicating artery aneurysm. The patient's aneurysm was treated successfully with no intraoperative complications, and she was moved to the ICU for her recovery.
- Thanks to private donors and donations from companies, Dr. Härtl's team and local doctors were able to perform the first minimally invasive spinal instrumentation and decompression procedures with 2D navigation. The generosity of the Leonard and Evelyn Lauder Foundation; Mr. Colin McDonald, his wife Mrs. Carol Hansen and Carol's mother Mr. Grace Hansen; Brainlab; Depuy Synthes; NuVasive and others helped make this possible. We hope this may open up future opportunities to make these technologies available on a consistent basis. Patients who were treated with minimally invasive decompression and 2D navigation technology did very well after surgery.

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In all, more than 100 individuals attended this neurotrauma course, with participants from not only Tanzania but Kenya, Uganda, Sudan, and South Africa—all of whom will bring their newfound skills and knowledge back to their local health care facilities.

Tanzanian neurosurgeon Dr. Othman closed the neurotrauma course with these remarks:

*As this year's course concluded, we were, once again, humbled by the lessons we have learned from our Tanzanian friends — lessons of passion, determination, and will. It is evident that neurological surgery is critically needed in Africa and, with proper training and guidance, it becomes even clearer that the enthusiasm and capacity for such work exists. We are grateful to our Tanzanian colleagues for hosting yet another successful course, and we look forward to future collaborations. The previous model of global health, which depended on medical missions, has been beneficial but largely limiting and unsustainable. With the emerging model of providing education and fostering academic collaborations, the idea of long-term global neurosurgical healthcare may be attainable. In time, we hope that these efforts will act as a pilot model for other hospitals and continue to improve patient outcomes.*



Dr. Joseph Kahamba (left), Dr. Stieg, and Dr. Härtl celebrate at the end of a successful course.

Dr. Joseph Kahamba, head of neurosurgery at Muhimbili Orthopedic Institute, summarized the event this way:

*"...The level of coordinated and synchronized actions between surgeons, anesthesiologists, intensivists, nurses, Brainlab, and all, despite of the shortcomings, was impeccable!! Word from participants is that they would come again for such similar course. All patients operated on are doing well and Japhet will present them at our clinical meeting. ..."*



Clockwise from top left: Dr. Greenfield and residents operate on the craniopharyngioma.

Below: Brainlab image demonstrating the cystic mass.

Bottom left: Cornell nurse Brenna McCann with a patient.

Bottom right: Drs. Stieg, Kahamba, and Greenfield review images.





**FIRST MINIMALLY INVASIVE SPINE PROCEDURE DONE IN TANZANIA.**

*Above left:* Dr. Härtl begins the procedure by establishing reference marks alongside with a resident. *Above right:* Dr. Härtl with residents use BrainLab to identify the appropriate vertebral level. *Right:* Procedure done minimally invasively through tubes. *Middle left:* Press coverage of Dr. Härtl reviewing the technology. *Bottom left (from left to right):* Dr. Gerald, the only neurosurgeon at Bugando medical center and previous Cornell Fellow; a neurosurgeon and course participant from Sudan; Dr. Härtl; Dr. Shabani, a neurosurgeon at MOI and previous Cornell Fellow; Dr. Avelino Parajon, a neurosurgeon and course faculty from Madrid



**ABOUT THE WEILL CORNELL NEUROSURGERY PROGRAM IN TANZANIA**

The Weill Cornell Neurosurgery Program in Tanzania was started by Dr. Härtl in 2008. The program focuses on Bugando Hospital in northern Tanzania, a regional center that serves a population of 14 million people, and on the Muhimbili Orthopedic and Neurosurgery Institute in Dar es Salaam. The program consists of several components:

- Dr. Härtl and his team train local surgeons to perform basic neurosurgical procedures using locally available equipment and resources. His team conducts “hands-on” training of doctors in Tanzania, empowering them with a high level of expertise in the management of neurosurgical disorders and neurosurgical procedures (Wait and Härtl 2010). Providing the highest level of surgical training to these eager, talented surgeons impacts every other level of care—nursing, anesthesia, intensive care treatment, general ward care. Setting the bar high encourages a positive response and team effort involving all areas (Härtl).
- Promising surgeons are selected for a short-term observational fellowship at Weill Cornell Medical College in New York. The purpose of this fellowship is to provide motivated surgeons the opportunity to experience high-level neurosurgical care firsthand. This also greatly facilitates the communication between the Weill Cornell team and the Tanzania surgeons once the surgeon has returned home.
- Every year a neurosurgery meeting is organized with international faculty in East Africa that combines lectures, practical workshops, and even live surgeries (Kahamba 2011). Surgeons and nurses from many African countries participate.
- Regular conference calls and Skype conferences are held between the Weill Cornell team and their colleagues in Tanzania to discuss challenging cases and patient management.
- A database and patient registry has been implemented that monitors surgical patient care and ensures quality (Winkler et al., 2010). The goal is to monitor outcomes of neurosurgical procedures in order to make decisions about the allocation of resources and the success of the current program.

References: 1) Wait SD, Härtl R. World Neurosurg. Jun 2010;73(6):610-611. 2) Härtl R, Ellegala DB. World Neurosurg. Apr 2010;73(4):259-260. 3) Kahamba JF, et al. World Neurosurg. Nov 7 2011. 4) Winkler et al, World Neurosurg. Apr 2010;73(4):264-269.

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