

Global Neurosurgery Update

2024-2025

Ongoing Innovation and Training in Tanzania

Our team has been going to Tanzania since 2008, first to bring equipment and supplies and later, as we learned more about what is most effective, to deliver expertise. Having learned that boosting the skills of local providers is the best way of improving ongoing care, we instituted a formal training course in 2014. Every year for the past decade, we have assembled a Western-trained team of experts to share knowledge and skills with our colleagues in Tanzania. (We did it remotely during the pandemic, but we never missed a year!)

I cannot tell you how gratifying it was this year to look out over a classroom filled with more than 100 assembled health care providers, not only from many regions of Tanzania but also from Malawi, Rwanda, Congo, Kenya, Uganda, and Zambia. These surgeons, nurses, OR staff, and other dedicated professionals take their newfound knowledge and skills back to millions of people who would not otherwise have access to top-notch care.

This year's course included a new module on endoscopic spine surgery, which is just now gaining traction in the West. The benefits of minimally invasive approaches, which get patients up on their feet and back to their lives quickly, are apparent everywhere—and nowhere as much as in a nation of limited resources. I am so grateful to Brainlab, Joimax, Depuy Synthes, UpSurgeOn, and Realists for their support, making high-tech equipment and training models available for efficient, cost-effective training.

As we began our second decade of the annual course (and getting closer to the 20th anniversary of that first trip), we continue to look for ways to expand and improve the program. Our ongoing exchange of fellows is one example of how close communication and collaboration help us grow.

Since 2016, when Dr. Maria Santos agreed to spend a year on the shores of Lake Victoria

as the only neurosurgeon for 500 miles, we have been sending Global Neurosurgery Fellows to Tanzania on a regular basis. It has been quite an adventure, with some fellows able to stay only a few months—and one unexpectedly staying on much longer when the pandemic closed the border on her. The dedication and hard work of all these young neurosurgeons gives me hope for the continued growth of the program.

None of this would be possible without the support and assistance of the local organizing committee at Muhimbili Orthopedic Institute, especially Dr. Hamisi Shabani and Dr. Zarina Shabhay. I am also grateful to Dr. Magalie Cadieux, our most recent Global Neurosurgery Fellow, for all her great work on the course as well as for her work throughout the year. Having completed her fellowship year in Tanzania, Dr. Cadieux (originally from Montreal, Canada) has now moved on to a faculty position at Washington University in St. Louis. We wish her the best in her career and look forward to the arrival of our next fellow, who arrives this November.

Thank you all for your continued interest and support of this project, which is so close to my own heart. I am so grateful that it is close to yours as well.



Roger Härtl, MD
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Director of Spinal Surgery at Weill Cornell Medicine
Neurosurgical Director, Och Spine at NewYork-Presbyterian/Weill Cornell Medical Center

Top to bottom: Addressing the assembled participants at the opening of our weeklong course, 2024; flashback to our 2009 trip; in 2014, for our first official course, we assembled a team that included specialists in brain tumors and pediatrics as well as spinal surgery; in 2024 we added a new training module on endoscopic spine surgery, taught on innovative spine models and then performed on several patients.



New Global Neurosurgery Fellow Selected for 2024-2025

Our in-country global fellowship program is one of our most valuable projects in Tanzania. For eight years we have sent Western-trained neurosurgeons to work alongside local providers, bridging the distance and advancing our training, research, and educational projects.

We have been truly impressed by the dedication of these fellows, who give their all to

the program. They also forge a unique bond. Not just at the time of handoff, but for years after their assignment, our fellows continue to show their commitment to our work as well as to each other.

At this year's course, we were grateful for the participation of our current fellow, **Dr. Magalie Cadieux**, as well as our incoming

fellow, **Dr. Marta Garvayo**. We also welcomed back **Dr. François Waterkeyn**, our 2021-2022 fellow, and **Dr. Beverly Cheserem** (2019-2020) who participated as faculty in this year's course. It is gratifying to know that our fellows maintain their passion not only for this project, but for the broader issues in global neurosurgery.

What Does a Global Neurosurgery Fellow Do?

As Dr. Cadieux completed her fellowship year, we asked her for a summary of the work she had done. It's an impressive list. Over the course of a year Dr. Cadieux scrubbed in to 120 surgical cases, including:

- 26 cases of degenerative spine disease
- 21 tumor cases
- 6 cases of pediatric scoliosis deformity
- 37 spine trauma cases
- 18 cases performed with high-tech navigation

In addition, she participated in 10 research projects with manuscripts currently in various stages of production before publication and was instrumental in the planning and execution of the 2024 courses. In addition, Dr. Cadieux laid the groundwork for the Global Neurosurgery Roundtable, a new monthly series of webinars that brings together an international community for sessions covering a wide range of topics in global neurosurgery. (Registration and schedule are at tanzanianeurology.org)



L-R: Dr. Corinna Zygourakis, spine surgeon at Stanford University School of Medicine; Dr. Marta Garvayo, incoming Global Health Fellow; Dr. Magalie Cadieux, the 2023-2024 fellow, and Beverly Cheserem, our 2019-2020 fellow, now a neurosurgeon at Aga Khan University Hospital in Nairobi, Kenya.

Our Partners in Neurosurgery: Nurses

Nursing is such a critical component of patient care that we have started offering a parallel track in neurosurgical nursing during our annual course. This year's course included two days of nursing sessions, with mornings devoted to classroom lectures covering topics from emergency and critical care to nutrition to sedation and pain management. Afternoons were spent on bedside nursing, with a focus on brain and spine injuries and extraventricular drain care.



Credit for organizing and chairing the nursing sessions goes to local nurses Sylvia Massawe, Dorcas Magawa, Donatila Kwelukulwa, and Hadija Mndeme, with support from Memory Mpore and Madhuri Sawanth, who chaired sessions. Special thanks go to Haley Vance, DNP, an acute care pediatric nurse practitioner who traveled from Vanderbilt University in Nashville, Tennessee, for this year's course; Yee Yit Cheng, longtime global health advocate and president of the Asian Congress of Neurosurgical Nurses, who joined us from Kuala Lumpur in Malaysia; and Karen March, MN, RN, a longtime participant in our courses who joined the faculty virtually this year.



FIRST ENDOSCOPIC SPINE SURGERY

We were fortunate to have endoscopic spine surgery pioneer Dr. Lynn McGrath as part of our visiting faculty this year. Dr. McGrath and team spent several days on classroom lectures and case reviews, then began training sessions on high-tech simulation models. The team evaluated patients awaiting surgery, and selected two that were excellent candidates for endoscopy. Both were young and suffering from disabling pain—one from a herniated disc and the other from lumbar stenosis caused by arthritis—and both walked out of the hospital after their procedures. They were the first two endoscopic spine procedures performed in Tanzania (believed to be the first endoscopic spine procedures performed anywhere in sub-Saharan Africa).

“It’s truly amazing to see,” says Dr. McGrath. “These patients had been virtually crippled from the pain of their conditions, and to see them walking out of the hospitals, back to their families, is extremely gratifying. With the right equipment and trained staff, we can revolutionize how spine surgery is performed in Africa.”

Endoscopic surgery is relatively new, but it allows surgeons to repair herniated discs, spinal stenosis, and other painful spine conditions with incisions barely an inch long. Patients usually walk out of the hospital the same day and rarely need future surgeries to revisit the endoscopic repair. Patients who undergo endoscopic spine surgery have been shown to have a 93 percent lower risk of infection or hematoma, with faster recovery. These benefits are important to any patient but are especially meaningful in a low-resource environment, where infections and other complications pose tremendous risk.

“We are so grateful to Joimax for the loan of more than a

million dollars’ worth of equipment and personnel,” says Dr. McGrath. “The endoscopes and monitors are the foundation of this test program—for this to succeed we need the equipment, medical staff trained to use it, and support staff to maintain it. Joimax generously provided the endoscopes as well as the technicians to train local providers. We are also grateful to Realist, which provided the innovative high-tech training models that allowed us to teach the endoscopic techniques on simulators first, before we went into the operating room.”



Above: Dr. McGrath trains the local team on the spinal endoscope, which allows a surgeon to navigate to the surgical area while keeping eyes on the screen.

Left and below: The team then moved into the operating suite, where Dr. McGrath led the surgical team in the first-ever endoscopic spine surgeries in Tanzania. That patient as well as a second walked out of the hospital just hours after their procedures.



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Highlights of Our 2024 Global Neurosurgery Course

The core of the 2024 trip was our neurosurgery course, which included two full days of lectures and panel discussions at the Protea Marriott Courtyard in Dar es Salaam, followed by two days when we worked in parallel, with the surgical team moving to the operating room and nursing staff attending two intensive days of classes covering neurosurgical and bedside nursing care. This year we also hosted a webinar with members of the European Association of Neurosurgical Societies (EANS) to share perspectives on global neurosurgery.

We welcomed several new international faculty to the course, including Dr. Corinna Zygourakis (Stanford University), Dr. Lynn McGrath (Weill Cornell Medicine), and Dr. Claudius Thome (Innsbruck University, Austria). Long-term faculty members continue to participate in the

course, and we are especially grateful to Dr. Halinder Mangat (Kansas City University; top row, far left), Dr. Christopher Bonfield (Vanderbilt University), Dr. François Waterkeyn (Grand Hopital de Charleroi, Belgium), and Dr. Beverly Cheserem (Aga Khan University Hospital, Kenya). Local faculty included Dr. Hamisi Shabani (top right), Dr. Zarina Shabhay, Dr. Maxigama Ndossi, and Dr. John Mtei, to name just a few. We are so grateful to those who donate time and talent to this project, to the providers who come from across Africa to take advantage of the opportunity, and to the commercial supporters and private philanthropists who make this program possible. Special thanks to UpSurgeOn for the loan of cranial training modules, Brainlab for navigation software (bottom right) as well as to Depuy Synthes, Kusum Pharm, and Decima HealthPoint.

