

Dear Colleague,

The field of Radiology is the fastest changing field in medicine, with exponential growth in technologic advancements causing the radiologic landscape to appear vastly different even from 10 years ago. As a result, disparities between developed and developing countries are more apparent in Radiology than other specialties. Outreach and aid to the developing world often comes in the form of monetary or supply donations, however the goal should be to help develop a self-sustainable system that will benefit not only those directly affected, but future generations. The lack of formally trained Radiologists is an obstacle faced by many developing countries; studies may not be read by a Radiologist for weeks or months, which can be detrimental or even life-threatening to patients. Although teleradiology can help with outreach to developing areas, outside Radiologists are not always well-versed in pathologies endemic or unique to these regions. The ideal situation is to train local Radiologists who have a better understanding of prevalent diseases of the geographic region and are physically present to guide clinicians with any additional action required.

This is the goal of our team and the basis for **PRACTERRA – a Portable Radiology Curriculum for Training, Evaluating, and Retaining Radiologists in Africa**. Our team is based at the University of Rochester Medical Center (URMC) and is comprised of self-motivated Radiology residents under the mentorship of Dr. Michael Potchen – a professor of Radiology of with over a decade of medical experience in sub-Saharan Africa.

We have developed a postgraduate Radiology training curriculum based on a typical North American Radiology residency, but customized to suit the needs and limitations of the Zambian health care system. Zambia a landlocked sub-Saharan country with a population of roughly 17 million people, yet currently has only two trained Radiologists. To address this, we have joined with Lusaka APEX Medical University (LAMU), University Teaching Hospital (UTH-Z) and the Department of Ministry in Zambia to develop a Radiology training program tailored to physicians working within the sub-Saharan medical environment; this curriculum will then be packaged as a computer-based product to be used in other sub-Saharan countries. The PRACTERRA project is funded primarily from an NIH R01 grant and the RSNA Derek Harwood-Nash Education Scholar grant.

In February 2018, six Zambian trainees officially started the LAMU Radiology training program using our curriculum, which includes training under local attending-level physicians and supplemented weekly web conferences led by our own residents. These web conferences include didactic lessons, interactive case reviews, and interesting or challenging cases brought forward by the Zambian trainees. This collaborative effort also involves travel from both parties to experiences the others' working environment. Dr. Potchen serves as Department Head of Diagnostic Radiology and Radiation Sciences at UTH-Z and travels at least twice a year to Zambia. In addition, we plan to have two residents annually travel to Zambia and have done so since January 2018. These visits focus on lectures and hands-on teaching done by our residents; this is a reciprocated learning experience both for the Zambian trainees and our residents. Additionally, during these visits we help with the backlog of cases which inevitably builds up with the lack of manpower, and collect dozens of cases focusing on pathologies endemic to the area. Furthermore, we have secured funding so that the Zambian trainees can spend time at URMC to experience our residency first-hand so that they may better understand the training process, as well as to understand what is expected of a fully-trained Radiologist.

During the four years, the Zambian trainees will be monitored and assessed to ensure progress and eventual readiness to practice as Radiologists in Zambia. The goal is to teach the first cohort of Radiologists in Zambia, and provide them with materials to teach future generations of Radiologists in Zambia and surrounding areas. We will then compile all of our training material – including lectures, recorded training videos for fluoroscopy and sonography, collected cases from Zambia and our own PACS, and evaluation materials – to create a unique packaged computer-based program to be used for training physicians as Radiologists in sub-Saharan Africa.

Working with the Zambian trainees affords us the opportunity to trial our product as we produce it, to make changes dynamically, and ultimately will serve as proof of concept. Although it is still early in their training, we have seen the Zambian trainees become more confident in their Radiologic knowledge, and they are now starting to develop relevant differentials based on their own experiences as practicing clinicians (they have all spent time as general practitioners). From the resident perspective, benefits include exposure to advanced pathologies, learning to work through without cutting-edge technology, experiencing and overcoming the various hurdles in developing countries with limited resources – all which has deepened our understanding and appreciation for Radiology. Moreover, the collaboration between the American and Zambian healthcare systems to develop a Radiology training program from the ground up is an experience that we think is worth sharing.

Thank you for your time and consideration, and we hope to collaborate with you!

Sincerely,

The PRACTERRA team – Simone Montoya, Sarah Mohajeri Moghaddam, Harris Chengazi, Jedidiah Schlung, Kamila Skalski, Thomas Marini, Devanshi Mistry, Solomon Kim, Andrew Olsen, and Michael Potchen