

# Radiology and Global Health: Interprofessional Collaboration in Educational Initiatives

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The University of North Carolina at Chapel Hill (UNC) established a chapter of RAD-AID International in 2012. The group was founded by the UNC Division of Radiologic Science, and its membership draws from the Department of Allied Health Sciences and the Department of Radiology. To date, there are 45 members of the UNC RAD-AID chapter, including 7 radiologists, 17 technologists, 3 nurses, 1 radiation therapist, 1 biomedical engineer, 1 radiologist assistant, 6 technologist faculty members, and 9 students from these two departments. The mission of the chapter is to increase radiology's contribution to sustainable global health initiatives and to develop long-term educational relationships with international partner organizations. The purpose of this communication is to discuss the interprofessional activities of the UNC RAD-AID chapter with colleagues in Malawi.

## BACKGROUND

Malawi is a landlocked country in southeastern Africa with a population of approximately 16 million. Life expectancy in Malawi is 58 years for men and 60 years for women. Approximately 10% of the

population has human immunodeficiency virus infection or acquired immune deficiency syndrome, with 70% of hospitalized patients afflicted with these conditions. Malaria and tuberculosis are very common in Malawi. There are four central hospitals in Malawi, with two Malawian radiologists in the country providing care and support for the entire population.

UNC Project Malawi has been present in Lilongwe, the capital city, since 1999, with well-established programs in infectious disease, public health, surgery, and obstetrics. In conjunction with UNC Project Malawi and RAD-AID International, the RAD-AID chapter at UNC established a partnership with colleagues at the Malawi College of Health Sciences (MCHS) Radiography Programme and in the Kamuzu Central Hospital (KCH) Department of Radiology in early 2013.

The work of the UNC RAD-AID chapter in Malawi is a combined effort of radiologists, technologists, nurses, other medical imaging professionals, and students at UNC to promote educational partnerships with radiology colleagues in Malawi. The chapter's goals are an initiative under the aforementioned UNC Project Malawi [1]:

The University of North Carolina Project-Malawi (UNC Project) is a collaboration between the University of North Carolina at Chapel Hill and the Malawi Ministry of Health. It is based on the campus of Kamuzu Central Hospital (KCH) in Malawi's capital, Lilongwe. The mission of UNC Project-Malawi is to identify innovative, culturally acceptable, and affordable methods to improve the health of the people of Malawi, through research, health systems strengthening, prevention, training, and care.

In-country leaders from KCH are Suzgo Mzumara, MMed Radiology(Nrb), MBBS(Mw), Clin Fellowship MRI(USA), consultant radiologist, and Deus Nkhota, principal radiographer. In-country leaders at the MCHS Radiography Programme are Peter Shaba, acting head of the program, and Lovemore Afune, head of the program.

The UNC Division of Radiologic Science in the School of Medicine's Department of Allied Health Sciences is an educational program with certificate-, baccalaureate-, and master's-level education for radiologic technologists.

During 2013, with guidance from UNC Project Malawi and RAD-AID International leadership, UNC Division of Radiologic Science faculty members initially established relationships with colleagues in Malawi to pursue bilateral educational goals. UNC RAD-AID chapter faculty members provide guest lectures and training on requested topics for colleagues in Lilongwe. Topics are requested by faculty members at MCHS and by colleagues in the Department of Radiology at KCH (see Table 1). While pursuing these goals, the Division of Radiologic Science strengthened its newly developed global health curriculum component for student technologists, encouraging their involvement in international collaboration. Additionally, the educational partnership with MCHS and KCH allows UNC's faculty members to increase understanding and expertise regarding radiology in the international environment and its provision in a culturally and linguistically competent fashion.

The development of a global health education program for residents and fellows is a goal being fostered within the Department of Radiology. Previously, global health

has not been a core mission within the department. Over the past couple of years, the importance of radiology in global health has been more fully recognized, with increased interest from faculty members and trainees. The Department of Radiology's new mission to create a sustainable global health program is important given the improving technologies and evolving communication methods that are creating an ever more interconnected world [2,3]. With these advances, an increasing volume of medical imaging will be performed in countries where technology has been traditionally limited. In recent years, it has become apparent that radiology trainees, and prospective trainees, have a strong interest in global medicine. Many medical students have been involved in global health programs and wish to continue their involvement in residency and fellowship. Not only does a global health education experience help produce a well-rounded and informed radiologist, but it also helps instill the values of lifelong learning, professionalism, communication, and teamwork.

## COLLABORATION AND GOALS

KCH services a population of more than 1 million people and is one of four central hospitals in Malawi managed by the Ministry of Health. There are approximately 1,000 beds within the hospital and four operating theaters. Imaging modalities available in the KCH Department of Radiology include radiography, CT (installed in 2013), and ultrasound. In total, there are two ultrasound rooms, two x-ray rooms (one of which has digital capability), and a CT scanner (64-slice Ingenuity; Philips Medical Systems, Andover, Massachusetts) [4]. In a personal conversation with Dr Mzumara in March 2014, he reported that the average patient wait time for a CT scan is 1 month and for sonography or radiography is 2 or 3 days. During a typical day, 70 to 100 x-ray studies, 10 to 15 ultrasound examinations, and 15 to 20 CT scans are performed.

In September 2013, members of the UNC RAD-AID chapter traveled to Lilongwe and established an educational partnership with the MCHS Radiography Programme and with radiology personnel at

**Table 1.** Topics of guest lectures by UNC RAD-AID chapter members

Topic	Presenter	Date
Physics principles of mammography	Brett Murdock, MD	March 2015
Introduction to mammography from the technologist perspective	Melissa Lang	March 2015
Patient care for the radiologic technologist	Lauren Fuller	March 2015
Introduction to radiobiology and radiation protection	Sara Long, RT(R)	March 2015
Introduction to MR physics principles and pathology	Melissa Culp, MEd, RT(R)(MR)	October 2014
Introduction to sonography and sonography principles in vascular imaging	Sara Ferge, RT(R), ARDMS	October 2014
CT physics and protocols	Melissa Davis, MD	March 2014
Human resources management and continuous quality improvement	Melissa Jackowski, EdD, RT(R)(M)	March 2014
Digital radiography overview	Andrew Woodward, MA, RT(R)(CT)(QA)	March 2014
Introduction to sectional anatomy	Issack Boru, BS, RT(R)(MR), and Heather MacMoyle, BS, RT(R)	March 2014

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