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2020 RAD-AID Medical Student Program Project and Experience Report

17 September 2020

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Medical Students and Global Radiology: an educational approach

Abstract

Given the widespread demand among medical students for more structured education in global health, RAD-AID has partnered with a medical school in the southeastern United States for the development of an elective rotation for students during their final year of medical school. The structured consists of completing that RAD-AID Medical Student Program in combination with our Medical Student Global Radiology Elective, which has curriculum, guided project completion, and mentored scholarship production.

Introduction

Medical imaging and radiology are key to the screening, diagnosis, and treatment of many medical conditions. According to the World Health Organization, approximately three to four billion people globally lack access to basic imaging services.[1] That translates to nearly half of the world's population being at risk for negative health outcomes that could be prevented or treated if radiology services were available. RAD-AID International is a nonprofit organization with the mission of improving and increasing access to radiology and medical imaging services in low-resource regions of the world.

Given the widespread demand among medical students for more structured education in global health, RAD-AID has partnered with a medical school in the southeastern United States for the development of an elective rotation for students during their final year of medical school. [2] The primary objective behind this undertaking was to create an elective that would increase medical students' exposure to global radiology early in their training. RAD-AID has operations in thirty-one countries assisting with implementation, improvement, and optimization of radiology and radiation therapy. By partnering with RAD-AID, students in the elective will be able to become involved with the organization's myriad of projects across the globe.

My interest in global health stems from a realization I made early in life that we live in a deeply interconnected world. My parents immigrated to the United States from Sudan nearly thirty years ago. As a child of immigrants with extended family spread across the globe, I have always been cognizant of the inequities that exist globally and the privilege I possess by being born in the United States.



Structure of RAD-AID Medical Student Program

The Medical Student Program consists of a comprehensive curriculum based on RAD-AID's textbook titled "Radiology in Global Health" that equips medical students with the critical skills and knowledge necessary to carry out a global health project in radiology. Interested students must apply for admission into the online course. The coursework is based on assigned readings from the textbook along with discussions of the material. The curriculum consists of seven core modules including: Introduction & Review of Stakeholders, Medical Ethics in Global Health Radiology, Access vs Availability, Equipment in Global Health Radiology, Cultural Competence, Radiology Readiness Assessment, and Educational Strategies. Students must also select three additional elective modules of which a variety of topics can be chosen.

Upon completion of coursework, students are equipped with a thorough understanding of radiology's role in global health, barriers to widely accessible medical imaging in low-resource regions, and methodologies essential to planning, implementing, and monitoring a radiology project. Students are then eligible to apply for fieldwork and become a RAD-AID Global Health Radiology Medical Student Scholar by completing a field project. Students in the past have done a wide array of projects with RAD-AID. Examples of prior projects include carrying out on-site clinical capacity building projects in Kenya, assisting with development of educational curriculum for sonographers in Malawi, or working in a local clinic in Haiti to increase breast cancer screening. [3]

The RAD-AID Medical Student Program has been invaluable in terms of equipping me with the necessary skills and knowledge to conduct global health work responsibly so as to not harm resource-limited communities. As healthcare providers, we aim to do no harm to our patients; this same philosophy should be applied to global health. The RAD-AID Medical Student Program has shown me that conducting ethical global health work requires thoughtful leaders who are able to solve complex issues in an effective and sustainable manner.



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Institutional - Medical Student Elective in Global Radiology

The elective, titled *Global Radiology*, was created in partnership with RAD-AID and the institution's Office of Global Health Education. The overarching objectives for students include learning how medical imaging applies to issues of disease and poverty in global health and the strategies for implementing radiology initiatives in resource-limited regions. The specific educational objectives are listed below:

Table 1: Educational Objectives

Objective 1	<ul style="list-style-type: none">• Learn how medical imaging applies to issues of disease and poverty in global health and resource-limited communities.
Objective 2	<ul style="list-style-type: none">• Apply the strategies of implementing radiology in resource-limited regions.
Objective 3	<ul style="list-style-type: none">• Understand the key roles of radiology in medically underserved regions—either international or low-resource areas of the United States.
Objective 4	<ul style="list-style-type: none">• Analyze how the fields of public health, epidemiology, and radiology service provision interface at the population level for disease screening, policy development and broad-based community interventions.
Objective 5	<ul style="list-style-type: none">• Evaluate how radiology in medically underserved regions can be appropriately assessed and studied in order to plan and implement an effective radiology service addressing unmet needs of populations in poor areas.

Course components:

The foundation of the coursework consists of guided reading and discussions based on RAD-AID's textbook, *Radiology in Global Health: Strategies, Implementation, and Applications 2nd Ed*, Mollura, Culp, Lungren. Publisher: Springer; 2019 edition. Didactic lectures from practitioners and experts in the field of global radiology will be scheduled throughout the rotation. These lectures may also overlap with lectures given to radiology residents at the institution. There will also be various case discussions involving radiology in low-resource regions of the world. Following completion of coursework, the student develops an international or domestic project.



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The Course Director will guide students in project planning and scholarly work. Some sort of scholarship related to the project is a requirement (presentation, manuscript, etc.) In addition to guiding project design, the course director will assist with travel logistics, such as connections for safe housing by utilizing existing, established partnerships. No funding is provided through the elective; however, the course director will guide the student toward potential funding sources such as funding through the institution's Office of Global Health Education.

Course Prerequisites:

Interested students must complete an online application. Pre-requisites include prior completion of a four-week radiology elective as well as completion of RAD-AID's Medical Student Global Radiology Program. Permission from the course director must be obtained six to twelve months before intended start date. This is necessary due to the length of time needed to create a project within an existing program and to arrange travel logistics. Visiting medical students and international visiting medical students are not eligible for this elective. Lastly, the institution's Office of Global Health travel safety requirements must be completed no later than 60 days from departure date for travel to be approved.

Role of RAD-AID:

RAD-AID can increase visibility of the elective to medical students by announcing the availability of the course to its membership. RAD-AID also has teams operating in 31 countries as well as the WHO Headquarters; this gives the organization the scale and scope to provide mentoring for on-site international projects. [4] Lastly, RAD-AID will provide lectures and other instructional materials to support the clerkship.

This experience has allowed me to marry two of my biggest passions: medical education and global health. I thoroughly enjoyed helping craft a curriculum that we felt provides a strong foundation in global radiology and fulfills our institution's stringent educational requirements for electives. I am hopeful that this elective will allow medical students at UNC interested in global radiology the opportunity to nurture their passion in global health while also bolster the skills and knowledge needed to become engaged in this work.

Conclusion:

Due to the interest of medical students in global health, our institution created a medical student elective in global radiology in partnership with RAD-AID International so that these learners can gain experience and understand the future opportunities of radiology's role in global health.



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