Radiotherapy is a key modality for cancer treatment, with half of cancer patients receiving some type of radiation therapy during the course of their treatment. Nigeria has the biggest gap between radiotherapy availability and need, with one machine per 19.4 million people, compared to one machine per 250,000 people in high-income countries. Given these disparities, there is a need to optimize the use of existing resources and promote greater equity in access to radiotherapy in Nigeria, as well as in other under-resourced countries. This project aimed to identify the barriers to radiotherapy delivery, and to quantify the treatment capacity and needs of a federal teaching hospital in Nigeria using patient questionnaires (n=50) and semi-structured key-informant interviews (n=28). Chidinma found that 20% of patients had sought care from a traditional healer, 80% of the patients could not afford their radiotherapy without receiving financial assistance, and only 6% of the patients had federal insurance, which did not cover radiotherapy services. Of the patients who had completed radiotherapy treatment, 91.3% had experienced treatment delay due to healthcare worker strikes, power failure, machine breakdown, and prolonged wait times. Also, the timeliness of a patient’s cancer care correlated with their employment status and distance from radiotherapy center. This study identified the sociocultural, political, and economic barriers encountered in accessing radiation oncology care in Nigeria. These findings will be used to inform efforts to expand the availability of radiotherapy and improve current treatment capacity in Nigeria and in other under-resourced countries.
Carolyn Renee Hricko  

**Project Title:** Developing an Assessment Tool for Airway Health in India  
**Partner Organizations:** TARU Leading Edge, Help Delhi Breathe

Carolyn completed her practicum in Delhi, India where she worked on several projects assessing the impacts of climate change and resource use on health. Her practicum activities included conducting a global literature review of heat waves, environmental change and health, writing a case study of TARU Leading Edge’s cool roof and passive ventilation project, and presenting a talk and discussion titled, “Environmental Sustainability in the Post-Paris Era”. The cornerstone of her practicum was the opportunity to work with Help Delhi Breathe, a citizen initiative for clean air. She joined them in planning a rally to raise awareness of the adverse health effects of air pollution and press the government to improve air quality in Delhi, home to the worst air pollution in the world. Carolyn also worked with her preceptor, Dr. Nitish Dogra (MPH Class of 2005), on developing an airway health assessment tool and educational brochure specifically designed for an Indian audience and context. Physicians in India are now using the assessment tool for patient education, neighborhood organizations are checking daily pollution levels against the tool to inform their plans and activities to minimize threats to their health, and advocacy groups are sharing the tool with their networks. While air quality in India remains a major threat to health, this assessment tool represents an important step in broader awareness and better information about the link between air quality and health.

Komal Kumar  

**Project Title:** Development of the Donor App: A Smartphone Application for Identifying Live Organ Donors  
**Partner Organization:** Epidemiology Research Group in Organ Transplantation at Johns Hopkins University, Facebook, ORGANIZE

Komal’s practicum focused on the development of a smartphone application that allows waitlisted candidates to share their story of living with end stage organ disease and their need for a live donor transplant onto Facebook in order to identify a live donor. Over 115,000 Americans are currently awaiting kidney or liver transplantation. Unfortunately the supply of deceased donor organs does not meet this overwhelming demand. In fact, many waitlist candidates will die waiting unless they are able to identify a live organ donor. Though benefits of live donation over deceased donation are clearly known, the current rates of live donor transplantation are low. A number of studies have demonstrated barriers to live donor transplantation, including candidates being uncomfortable to directly ask others to donate an organ and not knowing whom in their network to ask. For the practicum, Komal coordinated with the developers as well as the research team in order to ensure smooth app developing. Komal recruited patients for a pilot study in order to test if the app is easy to use in our specific patient population. She directly guided patients through the app experience as she demonstrated how to download and use the app. Moreover, she attended meetings at the Facebook office in Washington DC and with the developers to provide feedback on the results thus far. Leveraging our society’s ubiquitous use of smartphones and social media, the Facebook app is an inexpensive and easy to use tool that has the potential to increase live donor transplantation.
Hasan Shamsh Merali

**Project Title:** Developing a Comprehensive Neonatal Health Care Program for Home Deliveries in Remote Fishing Villages on the Tonle Sap Lake, Cambodia

**Partner Organization:** The Lake Clinic - Cambodia

Throughout the Tonle Sap Lake, Cambodia are dozens of floating villages that are completely isolated from the rest of the country. The majority of births occur at home and Hasan sought to develop a comprehensive newborn care program for village midwives. Working with the NGO, The Lake Clinic - Cambodia, Hasan developed a Khmer language training module, an enhanced birth kit, and a monitoring system to track the use of the kits. The first part of Hasan’s practicum was completing the course taught by Dr. Luke Mullany, Issues in the Reduction of Maternal and Neonatal Mortality. During his coursework, Hasan had a chance to learn about effective interventions to reduce maternal and newborn deaths. Working with his preceptors, they used best evidence data to select practices and items that are proven to reduce neonatal mortality. Their final educational module included training on immediate drying of the newborn, delayed cord cutting, early initiation of breastfeeding, kangaroo care, delayed bathing, and warning signs to refer the infant to a health center. The enhanced birth kit included soap, a clean sheet, gloves, two cord clips, a clean blade, chlorhexidine and sterile gauze, vitamin A, and misoprostol for the mother. Working with the Health Promotion Specialist at The Lake Clinic, they began training midwives and distributing kits in January, 2016 and will continue to monitor their use via a monthly feedback system. The implementation of this project will have a significant impact on reducing neonatal mortality in the villages they serve.

Michelle J. Sun

**Project Title:** A Novel Point-of-Care Test of Chlamydia Trachomatis Antibodies for Trachoma Surveillance in Nepal

**Partner Organization:** Nepal Netra Jyoti Sangh

Trachoma has been the leading infectious cause of blindness worldwide, but as countries are nearing elimination, it is important to develop robust methods to define elimination. Michelle’s project involved field-testing a novel lateral flow assay (LFA) developed by the Centers for Disease Control (CDC) for detection of trachoma antibodies for comparison with a gold standard laboratory test that requires processing in the U.S. The project was part of a country-wide trachoma surveillance effort in Nepal and the first field test of the LFA. Michelle met with the LFA developer, worked on the database development, and prepared a manual of procedures. In Nepal, she presented at a trachoma surveillance training. She established LFA procedures in the field and worked closely to train local technicians so testing could continue after she left. They tested 754 children ages 1-9 in fifteen villages in the Kanchanpur district. Sensitivity was 63.6% and specificity was 99.1%, with low inter-rater agreement, likely due to the time-sensitivity of test results. Early field-testing identified necessary adaptations to the LFA kit, including the incorporation of a micropipette and dropper solution bottle. While the LFA can easily be used in the field, further development and testing is needed. In Nepal, Michelle saw firsthand the challenges of working in a resource-limited setting, the politics involved, and the importance of local partners in the success and acceptance of our project. She was able to meld her interests in biomedical engineering, public health, and ophthalmology, and gain practical experience at the intersection of these fields.
For information about the nomination process for the Practicum Awards, please visit here.
For more information about the Office of Public Health Practice and Training, please visit here.