

# MPH Field Experience Grants

2015-2016 Report



Johns Hopkins Bloomberg School of Public Health

## Overview

Public health historian Socrates Litsios has called John Black Grant a “twentieth-century public health giant,” yet one who faced an “almost constant struggle to get others to accept his ideas,” as do many progressive public health workers today. Grant’s beliefs that medical care should be integrated with public health services, and that medical students should receive field training in communities outside the traditional hospital setting, united his many contributions to the health of countries around the world.



Grant’s own MPH training at the newly established Johns Hopkins School of Hygiene and Public Health enabled him to understand the broad social and economic determinants of disease as well as its microscopic pathogenesis. At the Rockefeller Foundation, he spent his career advocating that the planning and development of health services be considered as part of community development involving health, welfare, economic, and social services.

Today’s Grant Scholars continue in his footsteps by partnering with a broad range of NGOs, ministries of health, non-health government agencies, and community health care facilities. In 2015-16, MPH students gained research skills, host country contacts, and hands-on experience in 9 developing countries in Africa, Asia, and South America. Their efforts helped to expand the reach and improve the quality of existing programs by conducting surveys and evaluations that determine the burden of disease, need for services, and future direction of prevention and treatment efforts. Their projects dealt with areas such as gender-based violence, resuscitation capacity and response in hospitals, and testing the efficacy of interactive video-based instruction to learn basic surgical skills in low-income countries.

The field experiences made possible by the J. B. Grant Scholars program are an essential component of the Johns Hopkins MPH degree. By ensuring students have the opportunity to apply their knowledge and skills in real-world settings, the Grant Scholars program lays the foundation for tomorrow’s public health professionals to make the best possible impact on global health.

# Table of Contents

## MIDDLE EAST and AFRICA

<b>*Emily Hylton</b> Designing a Protocol for Responding to GBV in the Al Hassan Industrial Zone, Jordan .....	4
<b>Yuanting Zha</b> Assessment of Resuscitation Capacity at Teaching Hospitals in Nigeria.....	6
<b>*Chidinma Anakwenze</b> Characterization of Radiotherapy Practice and Barriers to Radiotherapy Access at the University College Hospital, Ibadan, Nigeria .....	8
<b>Elizabeth Toure</b> Ground-Truthing Remotely-Sensed Climate Data in Southern Zambia for Validating Malaria Transmission Models.....	10

## ASIA

<b>Hasan Merali</b> Developing a Comprehensive Neonatal Health Care Program for Home Deliveries in Remote Fishing Villages on the Tonle Sap Lake, Cambodia .....	12
<b>Eugenia Lee and Sagar Chawla</b> Surgical Needs Assessment in Post-Earthquake Nepal.....	14
<b>Michelle Sun</b> A Novel Point-of-Care Test of Chlamydia Trachomatis Antibodies for Trachoma Surveillance in Nepal .....	16
<b>*Joshua Posen, *Marcelo Cerullo, Albert Lwin, David Kidd</b> Efficacy of Interactive Video-Based Instruction on Learning Basic Surgical Skills at University of Medicine 1, Yangon, Myanmar.....	18
<b>*Kahay Mar (K.M) Aung</b> Child, Early and Forced Marriage Project, Kachin Development Group, Myanmar .....	20

## SOUTH AMERICA

<b>*Emily Blynn</b> Participatory Assessment of Readiness for Sustainability and Scale of an mHealth Project in Nicaragua .....	22
<b>Leah Seifu</b> Effects of El Niño on the growth and nutrition of newborns in northern coastal Peru .....	24
<b>*Teresa DeAtley</b> Compliance with Single Pack Presentation Law in Uruguay.....	26

*Front Cover:* Sagar Chawla with Nepali colleagues in Kathmandu, Nepal.

*Back Cover, top:* Leah Seifu (second from left) and team members in Piura, Peru.

*Back Cover, center:* Elizabeth Toure collects temperature and humidity data in southern Zambia to improve malaria-fighting efforts.

\*Indicates recipient of John Black Grant MPH Field Experience Grant

## Middle East

\*Emily Hylton

Title: Designing a Protocol for Responding to GBV in the Al Hassan Industrial Zone

Faculty Mentor: Courtland Robinson

Location: Jordan

I travelled to Jordan for two weeks in January 2016 to develop a context-appropriate protocol for responding to cases of GBV (Gender-Based Violence) against migrant garment workers in the Al Hassan Industrial Zone in Ramtha, Jordan and to train staff at the Al Hassan Workers' Center to use this protocol. As the former Project Manager for the Al Hassan Workers' Center, I had worked with the staff in the past to respond to sexual assault and intimate partner violence cases. This project was important to me because it provided the opportunity to develop a standardized, evidence-informed system for providing survivor-centered response.



Before arriving, I reviewed existing protocols and literature about the effectiveness of different strategies for responding to cases of GBV. Upon arrival, I conducted key informant interviews with stakeholders and Workers' Center staff to better understand the policy context that foreign-born survivors of GBV navigate. Interviewees included Garment Union representatives, police, local medical providers, forensic doctors, the Family Protection Department, and staff at the Al Hassan Workers' Center.

Inadequate medical care is the primary challenge for providing empowering, survivor-centered response services for migrant workers who have experienced GBV. Barriers to effective health care include heavy restrictions on access to Emergency Contraception, mandatory reporting to police of violence-caused injuries in all Emergency Departments, and lack of national protocols regarding post-exposure prophylaxis. Having studied which clinical interventions are needed for survivors of GBV, I then had to tell staff at the Workers' Center that they could not provide

many of those interventions because of policy constraints. This was immensely difficult. However, primary supports that the Al Hassan Workers' Center can provide include psychological first aid, case management, safety planning, offering information on health choices, and referral to health and legal services. While national changes are needed to improve health outcomes for GBV-survivors in Jordan, the Al Hassan Workers' Center can provide migrant workers with services that empower survivors to make their own health and legal choices within the current policy context.

Five Workers' Center staff members reviewed the protocol and three received training on survivor-centered advocacy and service provision. Training participants were actively engaged and several became emotional when sharing experiences of having to care for survivors in the past without knowing how to best support them. A union leader asked for my materials afterwards so that she can give the presentation in Arabic for female Jordanian garment workers. In response to the training and accordance with the protocol, the Al Hassan Workers' Center has opened an advocacy office where center staff can meet privately and confidentially with GBV survivors.

## Africa

### Yuanting Zha

*Title: Assessment of Resuscitation Capacity at Teaching Hospitals in Nigeria*

*Faculty Mentor: John Sampson*

*Location: Nigeria*

Recently, the World Health Assembly passed several resolutions calling for the strengthening of emergency, surgical and anesthesia care systems, improving patient access, and acceptance of these services as a component of universal health coverage. Crucial to the delivery and expansion of surgical care is the presence of functional intensive care units with resuscitative capabilities, should patients experience medical or post-operative complications. However, minimal research has been conducted on the state of resuscitative services in low and middle income countries (LMICs).

Strides have been taken to improve training of local personnel in the technical skills required to resuscitate a patient in Nigeria. However, we believe that the focus must be broadened beyond merely training personnel. Other factors, such as the presence of proper equipment and standardized protocols, must be examined. Without proper infrastructure and health care implementation, the trained personnel cannot care for patients. Therefore, we sought to better understand how cardiopulmonary resuscitation (CPR) is provided in Nigerian hospitals in order to identify major barriers and areas for targeted improvement initiatives.



*PACU at University of Calabar Teaching Hospital*

As part of my MPH practicum, I helped design and conduct an initial survey to assess resuscitation capacity and response in tertiary hospitals throughout Nigeria. I collaborated with Hopkins faculty member Dr. John Sampson, as well as with Dr. Moji Ariyo of Emory University and Babcock Teaching Hospital in Nigeria, and several other Nigerian physicians to create our assessment tool. We wanted to develop a tool that would assess multiple factors related to provision of CPR including building infrastructure, equipment, training, protocols, and management. We targeted tertiary teaching hospitals throughout the country as these facilities are the most likely to encounter patients requiring CPR.

In January 2016, I traveled to Nigeria to pilot test our tool and conduct initial assessments at 4 Nigerian hospitals. There, I was based at Babcock University in Ogun State, where I met with Dr. Ariyo and Olabiyi, a Nigerian medical student. From there, the three of us traveled to 3 additional facilities: University of Calabar Teaching Hospital (South Southern Nigeria), Garki Hospital (Federal Capital Territory in central Nigeria), and Seventh Day Adventist Hospital (South-Western Nigeria). I was able to observe not only the various hospital settings, but also a range of landscape and cultures including Yoruba and Igbo.

We conducted our survey by interviewing key informants, including consultants and residents, and nurses, and visited the surgical wards and intensive care units. While each hospital



Olabiya, Dr. Ariyo, and myself at Babcock University

identified its own unique challenges, inadequate personnel, training and materials were common issues mentioned. Hospitals and healthcare personnel were cognizant of the need for improving acute resuscitative care.

From our initial assessment, we were able to convert our survey into an electronic format, which has been disseminated to the remaining two dozen tertiary hospitals throughout the country. While data collection is still ongoing, preliminary data show

that out of 14 hospitals surveyed, only 1 has a functional code team system in place, and 85%

do not keep records or require review of resuscitation events. Such hospital level changes can be made at very little financial cost to improve provision of patient care. Our findings will be reported to individual hospitals and to the Nigerian Association of Anesthetists, with whom we will be partnering to establish future capacity building initiatives.

Through this project, I was able to apply knowledge obtained in my coursework as well as gain skills on the ground regarding measurement methods, survey design and implementation, and data management and analysis. It also proved to be a learning experience in cultural competency and adaptation to the local environment. While we had included local stakeholders in the initial design of the project and survey tool, we quickly realized that many of the questions did not translate well or did not apply to all the hospitals we encountered. The Nigerian hospital layout is quite different from that of the US. Hospitals, are usually comprised



The team with registrars at the University of Calabar Teaching Hospital

of multiple buildings, each with various departments, thus requiring a trip outside to transfer patients between wards. Even between different Nigerian hospitals, the layouts differed. Fieldwork has taught me important lessons, like how flexibility and communication are integral to the practice of public health. This practicum project has been an invaluable experience, and I'm grateful that I was able to participate thanks to the MPH Field Experience Award.

**\*Chidinma Anakwenze**

*Title: Characterization of Radiotherapy Practice and Barriers to Radiotherapy Access at the University College Hospital*

*Faculty Mentors: Brandi Page and Bruce Trock*

*Location: Ibadan, Nigeria*



Every day at University of Ibadan in Ibadan, University College Hospital (UCH) in Oyo State, Nigeria was a challenge. On a daily basis, I learned something new about how patients were dying from curable cancers, how providers were pooling funds to help their patients cover the cost of medical supplies, or how patients did not have access to radiotherapy that could cure their cancers. Prior to my travel, I knew that Nigeria had a history of political corruption, but I did not understand the depth of it, nor did I realize how deeply the corruption affected patients at federal hospitals. From my literature search, I understood that out of all the countries in the world, Nigeria has the greatest gap between radiotherapy machine availability and need. What I did not understand was how much this gap was underestimated. It is reported that Nigeria has one radiotherapy machine per 19.4 million people, compared to the one machine per 250,000 in high-income countries. However, with frequent and

prolonged machine breakdown across radiotherapy centers, only two to three machines are working at any given time.

When I decided to undertake this project, my intention was to use structured questionnaires to characterize the patient perceived barriers to care amongst patients who were actively receiving radiation treatment for cancer. However, this was not possible—after arriving in Nigeria, I learned that the radiotherapy machine at UCH had been broken since April 2015, for a total of nine months. Initially there was no funding to repair it, and the engineers were also inadequately trained to do the repair. Eventually, the spare parts needed to repair the machine were ordered, but had been detained in Lagos for weeks, yet another symptom of Nigeria’s deeply rooted corruption. Although I could not interview patients currently under radiation treatment, I could speak to patients who were receiving palliative chemotherapy, rather than curative radiotherapy, and patients who had previously undergone radiation treatment and were at the hospital for a follow-up visit.

I found that during the nine months without radiotherapy at UCH, patients who were referred to UCH for radiation, even those who traveled over eight hours to receive care at UCH, were



redirected to other centers. Some who were redirected to other public hospitals had returned to UCH, because the other centers had such high patient volumes that they were told to schedule an appointment for the following month. Other options were to seek treatment at a private hospital in Lagos (which some patients simply could not afford), or to receive chemotherapy while waiting for the radiotherapy machine to be repaired. In cancer, this delay can equate to tumor growth, higher morbidity, and most unfortunately, higher mortality.

The patient questionnaire part of my project was significantly affected by the broken radiotherapy machine. I was only able to interview one to six patients a day (n=50) which was not enough to meet my targeted sample size of 150. A functioning radiotherapy machine would have treated 30-90 patients a day, thereby increasing the patient pool from which I sampled. The lack of a functioning machine did not affect the second part of my project, which involved semi-structured key informant interviews with the radiotherapy staff. These interviews were structured so that I could learn about the process of radiotherapy delivery in an underserved country. I found that with such high patient volumes, the staff often worked from 8AM to 9PM. Furthermore, the high patient volumes led to frequent machine break down, and oftentimes for prolonged periods of time. Patients also experienced treatment interruptions due to power failures or health worker strikes after months of no pay.

Despite these overwhelming resource limitations, I was struck by the kindness and generosity of the hospital staff and medical students who all worked hard to provide excellent patient care, maximize the little resources they had, and make financial contributions to help patients get treatment.

Africa

**Elizabeth Toure**

*Title: Ground-Truthing Remotely-Sensed Climate Data in Southern Zambia for Validating Malaria Transmission Models*

*Faculty Mentor: Clive Shiff*

*Location: Macha, Zambia*



I travelled to Macha, Zambia at the beginning of January 2016 in order to collect data related to my Capstone project and to learn about the epidemiological methods used by the Macha Research Trust to control malaria in the region. The main objective was to validate remotely-sensed environmental data which is critical to new research on malaria transmission and mosquito feeding patterns. The Macha Research Trust (MRT) in collaboration with the Johns Hopkins Malaria Research Institute (JHMRI) have a number of projects assessing how environmental variables affect malaria transmission, the most recent of which look at how satellite data on temperature, rainfall, vegetation and humidity can be used for predicting focal malaria transmission.

*Background*

Macha is a small village located in the Choma District in the Southern Province of Zambia and home to the Macha Mission Hospital and the Macha Research Trust – a full scale laboratory committed to research on malaria, diarrhea and other endemic diseases. MRT has been collecting the number of RDT-positive malaria cases reported weekly by the 14 surrounding health clinics since 2008. This vast repository of data makes it an ideal site to study the epidemiology of malaria. This region has experienced declining malaria incidence in the past few years, and the transmission is now low enough to consider moving past malaria control and towards malaria elimination. However, there are still some health centers that report significantly higher incidence than others, and this is what prompted us to investigate how microclimates in certain areas may be sustaining malaria transmission throughout the rainy and dry seasons.

*Project Activities*

The primary goal of my field visit to MRT was to set up two temperature and humidity data loggers near the rural health center with the highest malaria transmission in the region. The site, Chitongo, is a small village with a population of approximately 21,500 and situated about 50 km northeast of Macha. Chitongo lies in the Kafue flood plain at a much lower elevation

than its surrounding villages, making it a more ideal environment for mosquito breeding and feeding. Despite the propensity for this site to have malaria outbreaks, no studies on the environment in this area have been undertaken. We wanted to determine therefore what the environmental profile at this site looks like compared to other villages and to validate ground-level data on temperature and humidity against remotely-sensed data.

I brought two new data loggers capable of measuring and storing hourly humidity, dew point and temperature for up to a year. After creating a rainproof shield for the loggers, the MRT GIS specialist, Jailos Lubinda, and I pilot-tested them at Macha overnight to ensure that they recorded data correctly. We also worked together to download the data logger software and test the pilot data in the software. The following day we took the one hour road trip out to Chitongo and with the help of the environmental health technician at the Chitongo Health Center, we identified two households in the Health Center's catchment area that could guarantee the security of our loggers – one of our main concerns. The first logger was placed about 1m above ground under the canopy of a large bush near a river not far from the first household. The second logger was placed about 1.5m above ground hanging from a tree branch in the yard of the second household. We chose these locations as they represent areas that are optimal for mosquito foraging. The loggers were placed about 2.5km from each other and both within a 2.5km radius of the Chitongo Health Center. GPS coordinates of each logger were taken so that the appropriate satellite data could later be downloaded. The loggers will be kept in place for up to a year in order to get sufficient data that will later be used as a means of ground-truthing data retrieved via satellite.

One week later, we returned to Chitongo to check on the loggers and to download one week's worth of data. On our second trip we were informed by the health center that there was an outbreak of malaria that had developed over the past week, underscoring the need to better understand the reasons for sustained transmission at this site.

In addition to preparing and setting up the data loggers, I also had the opportunity to participate in a number of other activities at MRT including helping the GIS specialist with data analysis, mapping the monthly malaria incidence at the health centers, downloading and extracting data from satellite images, attending lab meetings, participating in field visits to other health centers in the region, and assisting the field team with their reactive case detection. The day I spent with the field team was very interesting and informative as I got to see firsthand how GIS tools can aid epidemiological surveillance in real time. The field team uses maps generated by the GIS specialist to go into the field to screen and treat individuals in all households within a certain radius of every positive malaria case that presents at the Macha Mission Hospital and surrounding clinics.

### *Conclusion*

During my two weeks at MRT I was able to learn how GIS applications and field epidemiology complement each other to better predict and prevent malaria transmission in southern Zambia. The data loggers set up in Chitongo will provide useful information about Chitongo's local climate and will also serve as a ground-truthing mechanism to determine the validity of remotely-sensed data in this region.

Asia

### Hasan Merali

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

*Faculty Mentor: Luke Mullany*

*Location: Cambodia*



#### *Activities Completed*

Throughout the Tonle Sap Lake, Cambodia are dozens of floating villages that are isolated from the rest of the country. The majority of births occur at home and we sought to develop a comprehensive newborn care program for village midwives. Working with the NGO, The Lake Clinic - Cambodia, we 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 my practicum was completing the course taught by Dr. Luke Mullany, *Issues in the Reduction of Maternal and Neonatal Mortality*. During my coursework, I had a chance to read the literature on effective interventions to reduce neonatal mortality, and apply this knowledge in our final group project. While enrolled in this course, I also worked with my practicum preceptors to create a list of the most important interventions to be included in our training module, as well as a list of all the items for the enhanced birth kit.

During the Winter Intersession, I traveled to Cambodia to work with The Lake Clinic. While in Cambodia, I worked with the Health Promotion Specialist (who has been leading the Helping Babies Breathe training we are building off of) to both create and translate the educational module, and put together the enhanced birth kit from local suppliers. By the end of my time there, we were successfully able to create the entire kit and training module, and started to train the midwives we work with in the floating villages.

#### *Impact Assessment*

We used best evidence data to select practices and items that are proven to reduce neonatal mortality. Our 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. In addition to educating the village midwives, we also provided information to pregnant women at their antenatal visits about these practices so that they can be better prepared for what will happen when they give birth. Finally, we implemented a monitoring system to track the use of the birth kits, and a feedback system from the village midwives to our staff. The implementation of this project will have an enormous impact on reducing neonatal mortality in the villages we serve.

### *Self-Reflection*

Through formal coursework, mentorship, and field experience, I was able to learn about effective methods to reduce neonatal mortality and then implement our work in a resource-limited setting. My coursework allowed me to go into great depth in the neonatal literature and learn about all of the interventions I could apply in Cambodia. This project enhanced my MPH experience by allowing me to build on my previous work in Cambodia and expand our programs related to newborn health. This is a region to which I have dedicated much time and effort to since 2011 and I plan to continue to work there in the future.

Asia

**Eugenia Lee and Sagar Chawla**

*Title: Surgical Needs Assessment in Post-Earthquake Nepal*

*Faculty Mentor: Adam Kushner*

*Location: Kathmandu, Nepal*



Much of our work in Nepal was done prior to our arrival, where we developed an electronic version of a country-wide population-based surgical needs assessment. We also spent months drafting and revising an IRB for submission to the Nepal Health Research Council (NHRC) for our project. My colleague, Sagar Chawla, had already been in Kathmandu for a few weeks prior to my arrival, and had been visiting the NHRC to check on the progress of our IRB. He also visited the Ministry of Health and Population to obtain a list of district hospitals throughout Nepal. I realized quickly that our inability to speak Nepali made us heavily dependent on our Nepali counterparts. For example, the list of hospitals that the Ministry had given us was written in Nepali, and there were limited English-speaking staff in the Nepali hospitals. The medical students of Kathmandu Medical College and Manipal College of Medical Sciences were enthusiastic to learn about the project and served as mediators. As we were discussing the electronic survey and data collection, they made an interesting point that the Nepali people were used to having surveys, but that they may be less trusting of interviewers who are looking into their mobile devices as opposed to pieces of paper. The students concluded that it would be helpful to bring a blank piece of paper with them in addition to their mobile phones. Training Nepali medical students on using a mobile survey tool came with small yet humorous challenges in communication. The students would shake their head in agreement, but I found myself intrinsically translating that into disagreement even though I had read the “cultural sensitivity” section of my travel guide: “Nepal- Lonely Planet”. For example, I asked everyone if they had a smart phone which was answered with unanimous headshakes, and my first

reaction was “Oh no, how can no one have a smart phone?” which was followed by “Wait, headshake means yes. Everyone has a smart phone! Great!” We interacted the most with a group of four interns at the Kathmandu Medical College as we were planning the project and troubleshooting issues with the budget, transportation, and implications of the border blockade that was currently happening. We also had the opportunity to share meals and celebrate birthdays with their families. While we did not obtain the IRB approval for the population-based survey until the day we left Nepal, we were able to train and empower the Nepali interns and medical students to conduct a successful country-wide survey of surgical needs. We were also able to collect information about surgical capacity of district hospitals in Nepal, and to pilot a mobile survey tool in Nepal.

Asia

**Michelle Sun**

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

*Faculty Mentor: Sheila West*

*Location: Kanchanpur, Nepal*

Trachoma has been the leading infectious cause of blindness, but as countries are nearing elimination, it is essential to develop robust methods to define elimination. My practicum involved field-testing a point-of-care 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. Studies have shown that negative antibody responses provide serologic evidence of trachoma elimination; however, the current gold standard test requires transportation of blood samples to the U.S. for analysis. The LFA is a simple strip test that can be utilized in the field for rapid results. It has the potential to make long-term monitoring for re-emergence and elimination more feasible, particularly in low-resource settings where trachoma has been most prevalent.

My project was part of a country-wide trachoma surveillance effort in Nepal and the first field test of the LFA. Prior to departure, I met with the LFA developer at the CDC, worked with the Hopkins team to develop a database for data entry, and prepared a manual of procedures for the field. In Nepal, I presented on the LFA at a day-long trachoma surveillance training course for ophthalmic technicians across Nepal, sponsored by our partners at the National Trachoma Program. Once in the field, I established LFA procedures and worked closely with the local laboratory technicians to incorporate the test into daily field operations so testing could continue after I left.

During early field-testing, I encountered several challenges that resulted in adaptations to the LFA, including the incorporation of a micropipette and dropper solution bottle to the LFA kit. When testing the device on Nepali children, I found that it was nearly impossible to get an adequate blood sample from a finger stick onto the LFA, which resulted in several trials of low-cost adaptations until we discovered micropipettes as a solution. In addition, the LFA results were found to be time-sensitive, but, after a few iterations, I was able to work with the team to develop a protocol for reading results. I had worked on the development of other LFAs as a biomedical engineer, and was able to bring to the project that experience, as well as my medical and public health background. I bridged the gap between the technology developed at the CDC and the surveillance work in Nepal by testing the LFA in the field and providing results and recommendations for further device development. Currently, we are completing processing of stored blood samples using the gold standard. Comparison of LFA readings, results of the gold standard test, and clinical grading will allow me to quantify the sensitivity, specificity, and reliability of the LFA test, and thus, play an important role in defining trachoma elimination evaluation strategies.

As a medical student interested in ophthalmology and epidemiology and biostatistics in public health, this project gave me the opportunity to meld my interests and participate in classic shoe-leather epidemiology in my field of interest. In Nepal, I experienced 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. After arriving in Kanchanpur, we had intense negotiations with the local department of health to garner the director's support and willingness to connect us with community health workers, who became key in helping us recruit households. I quickly learned that evaluation of this new surveillance tool required not only the skills I had gained in biostatistics and epidemiology, but also those I had acquired in my management, policy, and global health classes. My practicum uniquely bridged my biomedical engineering, public health, and medical interests in ophthalmology, allowing me to exercise my skills in a global context and giving me a window into how I can continue to work at the intersection of these seemingly disparate fields as an ophthalmologist in the future.

Asia

**\*Joshua Posen, \*Marcelo Cerullo, Albert Lwin, David Kidd**

*Title: Efficacy of Interactive Video-Based Instruction on Learning Basic Surgical Skills at University of Medicine 1, Yangon*

*Faculty Mentor: Kent Stevens*

*Location Yangon, Myanmar*

UM1 Sponsoring Faculty: Thein Lwin, Zaw Wai Soe, Kyi Kyi Thinn

UM1 Student Collaborators: Yee Mon Oo, Phyu Thin Naing, Kyaw Moe Hlaing

There is a growing body of literature on the efficacy and cost-effectiveness of self-directed interactive video-based instruction in high-income countries. However, little is known about the effectiveness of self-directed interactive video-based instruction in low-resource settings. As Myanmar emerges from half a century of military dictatorship and international isolation, our aim was to report on the self-directed interactive video-based instruction and traditional didactic instruction on teaching basic surgical skills to students at University of Medicine 1, Yangon, Myanmar (UM1).



Planning, preparation, and implementation of the project took place over the span of four weeks in Yangon, Myanmar, as the majority of the ground work still needed to be completed. We worked closely with our local medical student colleagues and assisted them in recruitment and preparations. Following their recommendations, a strategy was developed to reach out to the largest number of eligible participants while being mindful of limitations with internet and cellular/phone service. Recruitment for participants took place in the country utilizing email, social media, flyers and direct phone calls. An electronic sign-up was trialed and utilized. Nearly 200 participants signed up for 50 spots.

A total of 25 DVD players, 50 suturing kits, and 25 headphones were set up in two designated lecture rooms at Yangon General Hospital. Ten volunteers were recruited to help film the skills session. 50 surgery-naive students were enrolled and successfully completed the study. An additional training session was scheduled to teach students who signed up for the study, but were not enrolled.

The study team met with key individuals during the project period to build relationships and trust for future collaborative efforts. These individuals included the Rector of UM1 Dr. Zaw Wai Soe, the local PI Dr. Thein Lwin, and our faculty champion Dr. Kyi Kyi Thinn.

Two talks were also given at UM1 to promote sharing of knowledge. Dr. Kent Stevens gave a talk titled, "Initial Care of the Injured." We gave a panel discussion to answer questions about medical education, work/life balance, etc. The talks were well received with over 200 students and faculty in attendance.

Overall, the trip was a success. Reflecting upon our experiences, we were impressed by the show of support and interest in the project by the medical students at UM1. It was clear that the deficit in surgical training was not due to a lack of interest, but primarily due to a lack of personnel and resources. As the country develops, we hope to continue working with our local collaborators towards building a healthier Myanmar.

Asia

**\*K. M. Aung**

*Title: Child, Early and Forced Marriage Project, Kachin Development Group*

*Faculty Mentor:*

*Location: Myitkyina, Kachin State, Myanmar*

*Purpose and objectives:* To assist in project evaluation by meeting with Kachin Development Group (KDG) staff and the JHU team and to assist in group analysis of focus group discussion results done by KDG staff. KDG staff and the Johns Hopkins team reviewed the project activities carried out by the KDG team working on the Child, Early and Forced Marriage Project, supported by the Women's Refugee Commission (WRC). We then documented project results in relation to the project objectives, as well as output and outcome indicators that were originally proposed. We also documented KDG staff perspectives on accomplishments, challenges and next steps.

*Summary*

KDG has been working in 4 camps for internally displaced people (IDPs) in Kachin. There are approximately 18,000 – 20,000 population in 4 IDP camps and approximately 15,000 population excluding Laiza. KDG discovered 60 cases of early marriage among 15,000 people in 3 camps.

KDG has conducted outreach activities, awareness raising activities, training sessions for adolescents, and focus group discussions with community, mothers, fathers and adolescent married girls.

During discussion, staff frequently mentioned pregnancy as a cause of child marriage. They found out that a majority of the 60 cases of early marriage were due to pregnancy. Staff also cited the effectiveness of providing youth spaces and youth activities in the camps. Before implementation of community outreach activities and awareness sessions, the majority of people in the community did not have knowledge of physical and mental changes during adolescence and they did not take the problems of adolescents seriously. The KDG staff perceived the community outreach activities and awareness sessions to be effective, and staff mentioned that community perspectives on child and early marriage seem to have been changed after those activities. After attending the group sessions, the community realized the long term consequences of early marriage.

Regarding discrimination by neighbors, adolescent married girls stated that KDG staff visits sometimes made neighbors aware of their early marriage and resulted in criticism. But only one case told the staff not to visit her, since her husband did not want her to meet with KDG staff.

When asked about suggestions for future activities to increase effectiveness, all staff strongly emphasized the need for more capacity building for staff. They felt that there is a gap for adolescents aged 13-14 years, since current materials-in-use are not targeted for that age group, who cannot read both Kachin and Burmese. Materials that contain pictures will be useful for that age group. Moreover, activities that target young adolescents with strategies such as games and group activities will be better. Staff also suggested creating a training manual for parents and vocational training in the camp for adolescents who drop out of school. Overall,

staff felt that the pace of the project is really fast and they did not get enough time for preparation and orientation.

Concerning barriers in providing services, staff mainly mentioned time constraints, transportation difficulties, and cultural norms. Time constraints and transportation difficulties result in less participation in focus group discussion. Sometimes it is time-consuming for staff as they have to wait for all participants to join the focus group discussion. There are many cultural norms related to early marriage in Kachin. If a marriage is approved by parents and the church, the community did not consider it an early marriage even though they were married underage. Moreover, the age of the girl is given less attention than the age of the boy. The children born after premarital sex are also considered illegitimate and are not valued in their society. It is quite difficult to change those cultural beliefs, but staff think they need to be changed.

More collaboration is needed between implementing partners, the community, and religious leaders. During discussion with parents, there were a lot of misperceptions regarding adolescent marriage. Parents believe that sex education should not be given to adolescents as it can lead them to engage in early sexual behavior. They strongly opposed giving health education about condoms to adolescents. Staff realized that activities focusing on adolescents alone will not be as effective as activities focusing on parents, adolescents, teachers, religious leaders and the community. Staff found out that mothers are more motivated and involved in group discussion as opposed to fathers. Some mothers themselves were survivors of early marriage and they have already experienced the consequences of early marriage, so mothers did not want them to happen to their daughters and sons. They even asked for more community outreach and awareness activities to prevent child, early, and forced marriage.

Early marriage does not seem to be common in Kachin. Living in rural areas, living in camp settings, and dropping out from school all seem to play a role in early marriage according to the focus group discussion with different groups. Staff also think that there can be hidden cases of early marriage in the community due to the stigma against pregnancy after premarital sex.

Staff proposed more awareness sessions for the parents, camp committee and more advocacy meetings with stakeholders. They asserted that active participation from adolescents, parents and communities is needed to prevent early marriage. There should be more group activities, role play and sharing of experiences by peers in addition to training and awareness sessions. Overall current activities have the impact on the community but it will be more effective if they have more time. Another important issue brought up during the meeting is community exhaustion. Sometimes the community suffered organizations fatigue. Especially in area like Kachin state, many organizations came in and did assessment by asking questions in the community and sometimes they never showed up again. This results in organizations fatigue. Staff indicated that to avoid this, community should be well informed about project activities and they should be well explained before doing any assessment and activities.

In summary, current community and outreach activities seem to be effective to some extent. But due to the limited time frame, some activities like a life-skills curriculum are still pending. Follow up meetings for remaining activities should be conducted. More capacity building for staff and more technical support for difficult cases will help to get better outcomes.

## South America

### **\*Emily Blynn**

*Title: Participatory Assessment of Readiness for Sustainability and Scale of an mHealth Project in Nicaragua*

*Faculty Mentor: Alain Labrique*

*Location: Managua, Nicaragua*

In recent years, mobile phones have become ubiquitous in low- and middle-income countries, and many have recognized their potential to improve health outcomes. ChatSalud, an mHealth project in Nicaragua, leverages mobile technology to disseminate family planning and reproductive health information in youth populations, with the aims of reducing adolescent pregnancy, sexually transmitting infections, and domestic violence.

Lauren Spigel and Nishant Kishore formulated the idea for ChatSalud as Peace Corps Volunteers in Nicaragua. Leveraging the pervasiveness of mobile phones in the youth population, they set out to create a service that would provide youth with ready access to reliable information about contraception, sexual health, and STIs. Over the next three years, ChatSalud was piloted to gauge acceptability in the target population and improve the message content, leading to an official launch in their first major city in fall 2015. Now that ChatSalud is successfully providing information to many Nicaraguan youth daily, the project is able to turn some attention to longer-term goals, including the eventual transition of whole ownership to a local entity.

There are countless mHealth projects worldwide, but many struggle to scale and ensure sustainability through the successful transfer of responsibility to local entities. The MAPS Toolkit, developed by WHO in conjunction with the Johns Hopkins Global mHealth Initiative and the UN Foundation, is an assessment tool that helps organizations self-evaluate in six key areas, or “axes of scale” that influence sustainability and scalability of mHealth programs. These areas are: Groundwork, Partnerships, Financial health, Technology & architecture, Operations, and Monitoring & evaluation. Through the support of the MPH Field Experience Fund Award, Emily Blynn traveled to Nicaragua in January 2016 to perform the MAPS Assessment with ChatSalud.

Because ChatSalud is in the early stages of implementation, the MAPS assessment provided the project with a unique opportunity to build a strong foundation from the beginning. Although the toolkit was published only recently, as its use continues to increase, ChatSalud will be able to compare its scores to other similar projects to help gauge their progress. The toolkit also provides a quantifiable framework to analyze the project’s processes and should be re-implemented periodically to track improvement as the project grows and progresses.

The MAPS evaluation and resulting recommendations for ChatSalud were performed over two weeks in a participatory manner. Ricardo Amador, the local ChatSalud coordinator, was the primary respondent. Once the key respondent completed the survey, a meeting was held with the co-founders to gather their insights into the project’s perceived strengths and areas for improvement in each axis. At the conclusion of the project, a meeting was held with the ChatSalud project team within the Centro de Investigaciones y Estudios de la Salud (CIES), the school of public health in Managua that houses the project, to review and discuss the results.

Although it is still in its pilot phase, the results of the MAPS assessment demonstrated that ChatSalud has taken several important steps toward building for sustainability and scale from the beginning. The project's strengths include a clear mandate based on a solid evidence base, several supportive partnerships, appropriate hardware and software capabilities, and a functional monitoring and evaluation plan. Until now the project's efforts have been focused on launching the product, so it is understandable that longer-term goals are not well-defined. However, now that the service is functioning, the team can set concrete goals for scale and develop a plan for sustainability, which will favorably impact their financial health and operations areas. Once the project team and their partners decide on their vision for the future, there is little doubt that ChatSalud will improve in all the Axes of Scale and will continue to provide necessary health information to youth across Nicaragua.

## South America

### Leah Seifu

*Title: Effects of El Niño on the growth and nutrition of newborns in northern coastal Peru*

*Faculty Mentor: Robert Gilman*

*Location: Piura, Peru*



I am so incredibly thankful to have had the opportunity to live and work in Peru this past January. I joined Dr. Bob Gilman's research team to study the effects of El Niño on the growth and nutrition of newborns in the northern coast of Peru. This study was based off of earlier findings that retrospectively showed stunting and impaired cognitive development in children living on the coast of Peru after the El Niño in 1997/1998. With the current study, we were studying these effects prospectively, comparing infant cohorts born before and after the 2015/2016 El Niño.

I spent my first few days getting settled in the capital city of Lima, Peru, where I was able to meet several of the research team members. There, we went over my role on the project: helping the project coordinators in the coastal city of Piura (the primary project site) with their recruitment efforts, and conducting focus groups with mothers of infants there.

I then moved to Piura for the remainder of my time in Peru. There, I lived in a house with the other team members who had come from the United States. This house was being rented by the research team, and the living room was being used as our research project office and lab. Every morning, we met in the office with the two project coordinators and one Peruvian medical student volunteering with the team. We went over the plan for the day and reviewed any issues that had come up the day before. Our task was to recruit infants for the pre-El Niño cohort from the communities of Bajo Piura, as El Niño had not affected this region yet. This was no easy task – these communities were located in the poor, rural parts of the Piura region, where most of the neighborhoods had no official street names or house numbers. Many of the families did not have phones or easy ways to reach them.

We then went as a team to the community we were working in for the day. Each time we started working with a new community, we went to the health center of that community and



asked the nurses there to help guide us. They often gave us a list of the infants in the region, and allowed us to use space in the health center to conduct our interviews. We then went out into the community, going door-to-door to find the infants. With each infant, we conducted a questionnaire with the mother asking about housing conditions, socioeconomic status, health, and nutrition. We also took anthropomorphic measurements of the infant, including height, weight, head circumference, mid-upper arm circumference, and hemoglobin. Additionally, we collected stool samples from each infant.

On a few of the afternoons, I went with one of the Peruvian project coordinators to conduct focus groups with mothers in the community we had been working in for the day. We were gathering information about the mothers' perceptions of health care access, nutrition of their children, infectious disease burden, and concerns about El Niño. These focus groups were meant to guide the future focus groups that we will carry out in a few months, during El Niño. Before the focus groups, I went over the focus group training that I had previously received with the project coordinator. He then moderated each focus group, while I took notes and audio recorded each session.

Overall, my experience in Peru was incredible. On a theoretical level, this project was the perfect combination of so many of my interests: early child health, nutrition and food security, environmental health, and global health. It was great for me to get the chance to see a project like this in action, and know that my work there was contributing to a mission that I am passionate about: improving child health in a vulnerable population. On a more practical level, this was my first time participating in field research in an international setting. The experience of going door-to-door in the poor communities of Bajo Piura was eye-opening, difficult, informative – and fun! I had such a great time meeting the families we worked with and getting to know the other members of the research team. Most of the families that we met were genuinely warm and welcoming, and did not mind us coming to their door to conduct research. The cultural exchange was also interesting – most of them had never seen someone who looked like me, an Ethiopian American girl with dark skin and curly hair, so I got a lot of questions about where I was from. The research team was also so kind to me, always taking time to explain things to me and making sure that I felt like I was learning from my experiences.

Although I had to leave Peru after only a few weeks so that I could come back to Baltimore and continue my MPH courses, I am so thankful that I had the chance to travel there and participate in this research project. I hope to return to Peru in a few months to continue working on the project, if possible. It is a four-year study and this is only the first year; so, I hope that the connections I have made in January will allow me to keep returning as often as I can.

## South America

### **\*Teresa DeAtley**

*Title:* Compliance with Single Pack Presentation Law in Uruguay

*Faculty Mentor:* Joanna Cohen

*Location:* Uruguay

#### *Introduction*

Funding provided through the MPH Field Experience Grant allowed me to pursue a pilot study under the direction of Dr. Joanna Cohen, to study the single pack presentation law in Montevideo, Uruguay. Uruguay is a middle income country in South America. The field work for this pilot study took place over one week in the city of Montevideo during the winter intersession. Uruguay is the only country in the world with a single pack presentation law. The single pack presentation law seeks to eliminate brand variants by limiting cigarette companies to one unique presentation of each tobacco brand. Brand variants are a marketing technique used by tobacco companies to target current and potential consumers. Within a cigarette brand, brand variants can vary based on differences such as color, size, flavor and other descriptors. The marketing of brand variants is problematic because it attracts youth to start smoking and supports existing users' behaviors by allowing individuals to find a product that meets their specific preferences.

#### *Context*

After Uruguay passed the single pack presentation law, Phillip Morris International sued the Uruguayan government in 2010. These legal disputes have not been resolved. Previous research indicates that the implementation of the single pack presentation law has led to a greater number of quit attempts and a reduction in consumption.

#### *Study Design*

The field study protocol and walking protocol was adapted from the JHSPH Institute for Global Tobacco Control's TPackSS study. The study sample consisted of 25 neighborhoods distributed across 5 income strata. Three individuals affiliated with the Tobacco Epidemic Research Center of Uruguay, (CIET), based in Montevideo were the study's in-country collaborators. Dr. Eduardo Bianco (president) and Dr. Dardo Curti (economist) at CIET, provided extra data and maps to assist with neighborhood selection and helped with hub and neighborhood selection. Data collection consisted of following a systematic walking protocol starting at the neighborhood hub by identifying 1 of 4 preselected vendor types. At each neighborhood vendor, we purchased any unique pack that was not already a part of our sample.

#### *Project Accomplishments*

The objectives of this study were two-fold. The primary objective of this project was to study the cigarette company's compliance with Uruguay's single pack presentation law by determining the variety of tobacco packs available to local retailers. A secondary objective was learning which brand variant tobacco companies have selected to sell within a restricted market. In addition to these larger objectives two project deliverables were produced. A product inventory, specifically a picture archive, of all distinct packs available for sale in Montevideo is available for public consumption on the JHSPH TPackSS website

([globaltobaccocontrol.org/tpackss](http://globaltobaccocontrol.org/tpackss)). Finally, the results of this study are being written up for dissemination in the form of a brief report for a peer reviewed journal. Data from this field experience has led to extended work by using the data for my capstone. In addition to the project deliverables, preliminary findings on the Uruguay data were presented in the 2016 Delta Omega Poster Competition in the category of Policy and Practice.

### *Reflection*

My time spent in Uruguay was truly a rewarding experience. Through this learning experience I felt that my cultural competency, project management and communication skills were markedly enhanced. While I am able to speak Spanish fluently I never managed data collection in an entirely different language in a location I never visited before. I owe a lot of my success to my study team in Montevideo, specifically co-data collector, Florencia Maldonado (medical student at University of Uruguay). Florencia and I spent many hours together driving throughout the city and collecting cigarette packs. Her support in the field and knowledge of the best routes and commercial areas was indispensable. During my time in Montevideo we covered the whole city visiting the 25 preselected neighborhoods and hubs and vendors within these hubs. Florencia and I quickly learned the best way to ask for new packs and learned the names of the most common brands. In addition to developing important research and professional development skills I was challenged to think on my feet. As with any data collection effort there are times when things don't go as planned. I was challenged to find solutions to problems that arose in the field. An example included reselecting a new hub if a preselected hub was not a viable option to start the walking protocol.



JOHNS HOPKINS  
BLOOMBERG SCHOOL  
*of* PUBLIC HEALTH

615 N. Wolfe St.  
Baltimore, MD 21205  
[www.jhsph.edu](http://www.jhsph.edu)