Feinberg’s 2013 Global Health Day

Presenter Abstracts

Co-sponsored by FSM’s Center for Global Health, FSM’s Student Committee for Global Health
September 13, 2013

Dear guests, students, faculty, and administrators,

Good evening. We would like to offer a warm welcome to each of you and thank all of our guests for attending Feinberg’s 2013 Global Health Day to learn more about the diverse global health projects and programs in which Feinberg students have participated over the last year.

The Center for Global Health offers its sincere congratulations to all of the presenters tonight, who have worked diligently to prepare for this event. They have each made a significant decision to incorporate global health into their medical education and careers in a meaningful way and this event is an opportunity to share their global health projects with the Northwestern community. The motivation for Feinberg’s Global Health Day in part comes from the unprecedented interconnectedness of our time, which is rapidly transforming our institutions and communities as well as our health care systems. Prior beliefs and ideas about international health and global disease burdens are changing and the field of global health is growing partly due to high interest from medical trainees, clinicians, and researchers, but primarily due to pressing public health issues. These include important questions relating to health equity and access to care both at home in Chicago as well as abroad. Many of the posters you will see tonight deal with these challenging issues.

FSM’s Student Committee on Global Health has played an integral role in planning the event and by encouraging their peers to present and attend. I would like to extend particular thanks to student committee members Amy Rogers, Lily Saadat, Tyler Maiers, and Ellie Ryan for their contributions. The Center is proud that this is a student-sponsored and supported initiative.

Please enjoy the poster session and continue reading to learn more about projects from FSM presenters.

Sincerely,

Robert L. Murphy, MD, Director, Center for Global Health
Daniel Young, MPA, Deputy Director, Global Health Education
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Abstract 1. HIV Care as a Model for Integrated Non-Communicable Disease Management in Dar es Salaam, Tanzania

Claudia Leung

Background: The “dual burden of disease” is a term often used to describe the health conditions in low- and middle-income countries (LMIC). As many of these countries begin to make gains against the burden of infectious diseases, they have also become increasingly vulnerable to the risk factors associated with non-communicable diseases (NCDs). Tobacco use, physical inactivity, and malnutrition parallel a rising incidence of cardiovascular disease, cancer, chronic respiratory disease, and diabetes, the four major contributors to the global burden of NCD. Although today, Sub-Saharan Africa remains the only region in the world in which the burden of infectious diseases still outnumber that of NCDs, the World Health Organization (WHO) projects that in the next decade, these countries will experience the largest increase in deaths due to NCDs.

The burden of infectious diseases in LMIC has also led to the development of new systems of care delivery in these resource-limited areas. As treatment for HIV becomes more available and the life expectancy of patients living with HIV continues to rise, the management of this “infectious” disease has shifted towards a long-term “chronic” disease paradigm. In Dar es Salaam, Tanzania, HIV Care and Treatment Clinics (CTCs) have essentially become one of the country’s first large scale chronic disease initiatives, demonstrating themes of multidisciplinary teamwork, health education, and intentional follow up, all factors that are also important for long term NCD management. This existing framework of HIV care has the potential to guide the integration of NCD and HIV care in resource-limited settings.

Objective: The goal of this research is to quantify the status of NCD care in the CTCs, assess the resources available for NCD diagnosis and prevention, and evaluate the feasibility of incorporating the management of NCDs into current HIV-based systems of care.

Methods: We included fourteen CTCs from the three districts of Dar es Salaam, Tanzania, in an assets-based evaluation using a survey adapted from Partners in Health. A quantitative analysis was used to report the services and resources available for NCD care at each site.

Results: Our findings showed that every site, regardless of district, size, or patient/staff ratio, offered comprehensive HIV services. 67% of the sites offered nutritional services, and all had health education sessions at least once per week. In contrast, gaps in NCD service provision included a lack of specialist care, healthcare worker training, and functioning equipment for the assessment of NCD risk factors. When asked to identify challenges to NCD management, every site acknowledged that gaps exist in NCD care, with the lack of functioning equipment, specialist care, and healthcare worker training in NCD management cited as primary causes in more than 50% of the sites.

Conclusions: Based on our findings, gaps in NCD care do exist in the HIV CTCs in Dar es Salaam, and are attributable to both a lack of resources as well as trained personnel. However, a framework of comprehensive HIV care, including nutrition counseling and health education, already exists at many of these sites. This foundation of longitudinal care has the potential to guide the integration of NCD care into HIV care and treatment clinics in both Dar es Salaam and other resource-limited areas.
Abstract 2. Sustainable Global Health Outreach with a Focus on Chronic Care of Patients with Diabetes

Yudith Diaz

The management of diabetes, a disease which requires lifelong care, presents a challenge for health systems and patients throughout the world. The prevalence of this illness has been rising steadily and the World Health Organization (WHO) predicts that diabetes will be the 7th leading cause of death in 2030. Diabetes is a disease characterized by inadequate metabolism of glucose which leads to dysregulation of blood glycemic levels which, if allowed to rise or decrease enough, can be immediately life threatening. Diabetic patients are at increased risk for cardiovascular and renal disease, neuropathy, retinopathy and other complications. It is imperative for diabetics to achieve steady glycemic control and to manage cholesterol blood pressure appropriately in order to maximize their health. Access to proper care, medication and supplies, education and adequate nutrition is essential to the wellbeing of these patients. In many developing countries these needs go unmet. This would be the case for several small underserved villages located in rural Bolivia if not for the establishment of the Centro Medico Humberto Parra.

The Centro Medico Humberto Parra (CMHP) is a primary care clinic which serves patients coming from 12 nearby villages. The clinic sees a large number of diabetic patients, most of who are poorly controlled according to evidence based goals established by the American Diabetes Association. The clinic employs local physicians and nurses and has an in house laboratory and pharmacy. With the support of volunteer physicians, nurses and students, they also provide patient education and dietary counseling and thus serve as a model of coordinated care provision in a resource limited setting. In order to facilitate access to care in between visits the clinic employs and trains a health care promoter within each village to monitor blood glucose, blood pressure and other parameters as well as to act as a liaison between the patients and the clinic. As the clinic staff expressed a need for patient education and low health literacy materials this project focused on the preparation of educational flyers, individual patient counseling with a focus on blood glucose control through lifestyle management. Health promoter training included this information as well as symptoms of hyper and hypoglycemia, diabetic foot care and injection site hygiene. The session also involved a discussion of common barriers to medication adherence and lifestyle modifications as well as a role-play session where health promoters were able to practice motivational counseling.

The WHO has reports that in 2004, 449 Disability Adjusted Life Years (DALYs) were related to diabetes in Bolivia. There is an unmet need for epidemiological research focused on exploring how this disease specifically affects rural communities such as those served by the CMHP, and how their provision of coordinated care and patient education affects patient outcomes. This clinic and its patient population also represent a great opportunity for further implementation of the type of health infrastructure that we know influences outcomes, particularly for patients with chronic illnesses such as diabetes.
Abstract 3. GeneXpert Implementation for diagnosing TB in HIV patients in Jos, Nigeria

Brian Poole

Introduction: In resource-limited settings such as Jos, Nigeria, effective tuberculosis (TB) treatment and management is an ongoing problem, especially in patients with HIV co-infection. Smear microscopy has been the standard for TB diagnosis in resource-limited settings; however, it has a low sensitivity ranging from 25-68.9%\(^{(1, 2)}\) for TB diagnosis in HIV patients. Cepheid's GeneXpert uses nucleic acid amplification to test for TB and rifampicin resistance simultaneously and provides results in 2 hours. It has been shown to have much higher sensitivity of 84-97.8\(^{(1, 3)}\) than smear microscopy for detecting TB in HIV patients and the added benefit of detecting rifampicin resistance. There is growing concern about the spread of multi-drug-resistant tuberculosis (MDR-TB) in high TB burden countries like Nigeria.

The World Health Organization (WHO) recently recommended that GeneXpert be used to screen all patients suspected of TB in resource-limited settings. However, even at the reduced rate of $9.80 USD per GeneXpert cartridge, the cost and the infrastructure necessary to effectively utilize GeneXpert remain a challenge.

In early 2013, the AIDS Prevention Initiative Nigeria (APIN) Center at Jos University Teaching Hospital (JUTH) installed a GeneXpert with a grant from the Centers for Disease Control (CDC). We began a project in June 2013 to look at the use of GeneXpert in resource-limited settings, to assess the predictive value of current WHO stratification guidelines of people at risk for MDR-TB, and to develop an algorithm for incorporating GeneXpert into TB diagnosis for HIV patients in resource-limited settings.

Research Question: What is the prevalence of MDR-TB in Jos, Nigeria? How does this compare to the prevalence that has been reported elsewhere in Nigeria? Are there additional factors beyond the WHO guidelines that are predictive of MDR-TB?

Methods: Since the GeneXpert was installed in early 2013, all patients at APIN JUTH suspected of having TB are being tested with both GeneXpert and smear microscopy. We began this project in June 2013 with a plan to enroll a convenience sample of 500 HIV-infected patients suspected of having TB at an outpatient clinic visit. We collect data on demographics, prior TB infection, and risk factors for MDR-TB from each patient. Additional data on HIV disease and treatment are extracted from the APIN electronic medical record. Each patient provides two sputum samples, one for smear microscopy testing and another for GeneXpert testing. 117 patients were tested with GeneXpert prior to the start of our project. As a preliminary assessment, we collected the results of their GeneXpert and smear microscopy tests and compared them to assess the ability of GeneXpert versus smear microscopy to detect TB.

Results: (Detail what you observed as problems/issues with implementation of GeneXpert in this setting) We found that implementation of the GeneXpert has been challenging for several reasons. The supply of cartridges to the clinic is highly unreliable resulting in frequent periods of a week or longer where GeneXpert is not operational. The constant power required by GeneXpert given the frequent power outages in Jos required the installation of a costly inverter system to power GeneXpert. The clinic staff do not utilize the quicker results from GeneXpert to initiate earlier treatment except in the case of detected rifampicin resistance. GeneXpert reports
TB levels as very low, low, medium, high, or very high. Some clinic staff interpret different levels as a positive result. The APIN clinic is expected to relocate to the JUTH permanent site in the next few years, 12 km away from the city, which will make it more difficult for patients to attend the clinic. The civil unrest in recent years has also greatly impacted many patients who relocated and have been lost to follow-up or who lost their ability to come to clinic appointments as a result of the fighting.

Of the 117 patients tested using GeneXpert prior to our project start, 28 tested positive for TB with GeneXpert, 1 of those positive with GeneXpert had rifampicin resistance, and 16 were positive with smear microscopy. Of note, there were no microscopy results on record for 9 of the patients who tested positive with GeneXpert. Our overall project examining MDR-TB prevalence and predictors is ongoing with completion of enrollment expected by January 2014.

**Conclusion:** The ongoing nature of the project and lack of data make it too early to draw many conclusions. However it appears from our preliminary analysis that GeneXpert has the potential to increase TB detection by as much as 75% (28 vs. 16). It can provide much earlier diagnosis of TB and MDR-TB. Given that MDR-TB treatment in Nigeria requires hospitalization for IV antibiotics for up to 6 months in a distant hospital, the earlier detection of this may greatly improve management of MDR-TB. The clinic should utilize the faster turnaround on GeneXpert results to initiate earlier treatment by being proactive in contacting patients with positive results and having them return sooner to begin treatment. They also need to make sure that everyone is properly trained and using the same standards in interpreting GeneXpert results. The future of the funding for GeneXpert in Jos is also uncertain. The Nigerian government has not committed to funding the machine though it has been asserted that the ability of GeneXpert to provide early diagnosis would make adoption of it less costly than current methods.(2)
Abstract 4. AOSC: Provider Perspectives on Male Circumcision Policy In Uganda

Hillary Lane

Male medical circumcision (MMC) may reduce transmission of HIV by up to 70%. Uganda’s Ministry of Health adopted a MMC policy in 2010, but identified barriers to implementation, including lack of trained staff and funding. The World Health Organization (WHO) and Joint United Nations Programme on HIV/AIDS (UNAIDS) also have programs promoting MMC in Uganda. How these policies are viewed by medical providers, the challenges they have faced implementing the policy, and the strategies they have used to overcome those challenges, have not been studied. To explore the logistical challenges of implementing an international and national health policy from the perspective of healthcare providers, I designed a study asking providers to identify challenges they have faced and strategies they have found useful in overcoming those challenges. Since provider knowledge and attitudes about MMC may have influenced the success of implementation, this study would also evaluate providers’ awareness of the policy and views on the role of MMC in public health.

This study is designed to be performed at district hospitals in Uganda that provide primary care, HIV care, or MMC. Potential sites include Kayunga and Kumi District hospitals. Participants will be asked to indicate the degree to which they agree with statements about MMC and MMC policy using a 5-point Likert scale. They will also be given the opportunity to answer optional free response questions. Data will be analyzed by calculating median responses and percentiles for scaled questions; open response questions will be analyzed qualitatively to identify patterns in provider comments. This will allow researchers to identify challenges and strategies that could be used to improve implementation of MMC or other health policies at other locations within Uganda and worldwide.

By eliciting information from providers, this study may identify strategies that could be used to improve implementation of MMC or other health policies at other locations within Uganda and worldwide.
Abstract 5. Global Health Investment Strategies

Ariella Pratzer

Introduction: Various investment models currently exist for the funding and delivery of foreign aid specifically dedicated to improving global health. As countries look to increase the impact of their investments, ongoing analysis and evaluation of the successes and failures of these models, upon which funding decisions can be based, is called for. The Government of Israel (GOI) is looking to launch a global health investment initiative that will effectively operate as a government-backed venture capital fund, investing in research and development projects by Israeli companies and start-ups targeted at improving global health.

Aim: To develop and track measurable outcomes of funded projects such that the success of the GOI’s investment model can be gauged and refined to increase its effectiveness

Methods: This initiative is being developed and operated by the Office of the Chief Scientist (OCS) in the Ministry of Economy. Methods include:

- Identification of short and long term metrics that can be used as indicators of success for each company
- Creation and population of database to track metrics
- Analysis to determine whether and how initiative can be improved upon to increase impact and effectiveness

Discussion: The GOI investment strategy is based on the philosophy of “integrated innovation”, which involves the coordinated application of technological, social, and business innovation. This model has been developed, refined, and endorsed by many, including The Gates Foundation and Grand Challenges Canada (GCC) – the Canadian government’s global health initiative. Evaluation of this initiative will enable the GOI to maximize its impact on global health, and to be as effective as possible with its available budget. The database and analytical tool that result from this project may also be used by GCC and other global health investors who work in close partnership with the GOI to evaluate their own investments.

Next Steps: The exact funding and launch date of the initiative are still being finalized, but expected launch is within the next year. The OCS intends to provide Stage I funding for 20 projects, 4 of which will later be awarded additional Stage II funding. Specific metrics will be collected for each project in addition to several universal metrics, such as sales, refills, and target disease/population. The evaluation database will be built to incorporate additional metrics for each funded project.
Abstract 6. An Investigation of Fingerstick Blood Collection for HIV Viral Load Testing

Tyler Maiers

Introduction: Viral load (VL) quantification is an important tool in both identifying HIV-positive patients with newly-developed drug resistance to first-line antiretrovirals and patients with poor adherence to treatment. Testing in resource-limited settings may require sampling by fingerstick due to shortages in skilled phlebotomists and the expense of venipuncture supplies. The Northwestern Global Health Foundation is developing a point-of-care (POC) instrument and VL nucleic acid test (NAT). It was determined that a minimum of 150 μl of blood is required for a limit of quantification of 1,000 copies/ml of plasma. If this volume can be obtained by fingerstick instead of venipuncture, the test could potentially become available in many clinics. The primary objectives of this study included measurement of the following: (1) proportion of collection attempts that obtained 150 μL capillary blood, (2) number of puncture sites required, (3) study nurse compliance with fingerstick protocol, (4) study nurse comparison of fingerstick vs. venipuncture, and (5) patient comparison of fingerstick vs. venipuncture.

Methods: Patients were recruited by the study nurse as they queued in the blood room. Patients were asked if they had a preference for fingerstick, venipuncture, or no preference both before and after receiving a fingerstick. The study nurse was blinded with respect to the fingerstick and blood collection protocol. The fingerstick and blood collection protocol included: (1) Two gloves worn by nurse, (2), Patient sitting, (3) Fingers warmed in advance by any method, (4) Puncture site disinfected with alcohol pad, (5) First drop of blood wiped away, (6) Hand positioned palm down, (7) Collection device held above skin; scraping avoided, (8) Gentle pressure applied; strong milking avoided, and (9) Pressure applied after collection. Each step of the fingerstick protocol was observed, and their completion or omission was recorded on a protocol template for every patient. A verbal questionnaire was administered to each patient following blood collection. Upon completion of the study, the study nurse was asked if she had a preference for fingerstick, venipuncture, or no preference.

Results: Ninety-eight percent of collection attempts were successful and 86% required only one fingerstick to successfully collect 150 μL blood. Study nurse compliance to the fingerstick protocol was significantly less than 100% for several steps: two gloves worn by nurse (0%), first drop of blood wiped away (4.5%), fingers warmed in advance (7%), and hand positioned below elbow (55.5%). Following blood collection, 69% of patients preferred fingerstick over venipuncture, 16% preferred venipuncture over fingerstick, and 15% had no preference for either method. The study nurse indicated no preference for either method.

Conclusion: The findings from this study support the feasibility of collecting 150 μL capillary blood via fingerstick for POC HIV viral load testing in resource-limited settings. Omissions in many steps of the fingerstick protocol suggest that maintenance training, detailed written instructions for reference, and convenient placement of fingerstick materials may facilitate improved compliance. A patient-centered approach to viral load testing will include a transition from venipuncture to fingersticks for blood collection.
Abstract 7. Experiences in healthcare access and resource disparities in India

Jason Dominick Chodakowski, Amy Abramowitz, KJ Hansmann, Katie McDonald and David Christopher Brooks

Despite progress in improving access to healthcare, India suffers from numerous healthcare inequalities based on geography, wealth, education, gender, and caste. In order to broaden our public health knowledge about these disparities, as well as increase cultural competency and develop our existing clinical skills through service learning, we participated in a four-week clinical shadowing experience across Northwest India. We rotated in a variety of different settings, from tiny villages like Patti tucked away in the foothills of the Himalayas to the bustling city of Delhi, in both public and private healthcare sectors. During our time in the clinics, on the wards, and in the field we were able to witness healthcare disparities as they are manifested between rural and urban regions, between private and public sectors, and between different socioeconomic groups within the same districts.

Among the most evident sources of healthcare inequality was the suboptimal and inequitable resource allocation to the 69% of India’s population that lives in poor, rural regions. Despite there being more than twice as many people living in rural regions, urban regions receive twice as many hospital beds. Moreover, the resources available in rural villages such as Patti were suboptimal, with many areas we went to relying on traditional herbal remedies and limited medicines supplied by a small clinic staffed by a single heroic healthcare worker and a pharmacist. They are often the only source of care for numerous villages many miles away, and patients face deferred treatment and considerable loss of earnings as a result of their travel time.

Across both rural and urban areas, healthcare services are tilted towards the private sector, with public facilities accounting for decreasing proportion of healthcare consumption. Our experiences in the government hospitals in Delhi and Dehradun revealed first-hand how the availability of doctors, exuberant wait times, and absence of diagnostic equipment are key reasons for the shift towards private institutions like the Landour Hospital, where we spent a week rotating through the wards. However, because the cost at private institutions can be 2-9 times higher than public ones, issues of affordability only exacerbate the healthcare disparities between economic classes.

Specific groups have historically had more difficulty getting access to care in both urban and rural areas. During our time in Delhi, we were able to visit outreach organizations working to provide preventive and responsive healthcare to some of the populations who have faced prejudice and misunderstanding from healthcare providers in India in the past, including IV drug users, sex workers and the LGBT community. Community outreach groups are implementing creative solutions to counter these disparities including recruiting peer educators to raise health awareness and establishing community drop-in centers to increase availability of care. We spoke with participants in peer educator programs who reported an increased understanding of how HIV is spread and how they can protect themselves from it. This type of community-based care could also be used to improve access to people across India.
Abstract 8. Reproductive Health in Quito, Ecuador

Alexandra Albanese and Lilly Liu

Ecuador’s unique political and social climate surrounding sexual and reproductive healthcare makes the country a fascinating case study in public health. Alex and Lilly spent a month in Quito, Ecuador learning about women’s health issues firsthand through Child Family Health International’s Reproductive Health Program.

Although Ecuador passed the Free Maternity Law in 1998, which guarantees free contraception access to all women of reproductive age and free maternity care to all pregnant women, the country still suffers from teenage pregnancy rates as high as 30 percent. Many teenage girls get pregnant and have their first child as early as 13 to 14 years old. In fact, the largest maternity hospital in Quito, El Hospital Gineco-Obstétrico Isidro Ayora, maintains a 30-bed adolescent clinic where teenage mothers recover after giving birth. The clinic is full almost every day.

Doctors work to combat this problem by encouraging teenage mothers to receive long-term methods of birth control, such as the birth control implant, which is a plastic device inserted into a woman’s arm. Women are able to receive this without any type of co-pay or discussion of finances because of the 1998 law. However, resistance to contraceptive methods remains a problem and doctors often do not spend time educating their patients regarding these methods. For example, when a teenage mother who had just given birth stated that she did not want to receive the birth control implant, the doctor criticized her harshly for being irresponsible and essentially coerced her into receiving the implant anyway.

Several barriers explain the culture surrounding resistance to contraception. Ninety-five percent of Ecuador’s residents identify as Catholic, and church teachings do not support the use of contraception. Additionally, the prevalent machismo culture in Ecuador dictates that young women be naïve and submissive regarding sexual health. Because of this, knowledge about ways to prevent pregnancy is low.

The Ecuadorian government has taken steps in recent years to educate young people about sexual health through a variety programs, despite resistance from socially conservative groups in the country. This education is key to changing the culture around contraception and sexual health, and is being accomplished in several ways. CFHI partners with Copprende, a non-profit organization that sends volunteers to schools throughout Quito to lead workshops on sexual health and contraception. Additionally, physicians must be more willing to talk with their patients about contraception and why it is important, rather than using their authority to convince young women to use it. In this way, patients can begin to take ownership of their sexual health, which will ultimately lead to better decision-making regarding the delay of sexual debut. If a comprehensive effort can be made to change the culture surrounding teenage sexual health and pregnancy, public health officials in Ecuador can eventually hope to see a measurable decline in teen pregnancy rates over the next few years.
Abstract 9. Progress and Pitfalls: Injectable Contraceptives Among Cape Town's Urban Poor

Michelle Javier

Injectable contraceptives are the leading method of contraceptives for South African women ages 15-49. Thirty-three percent of all women who use contraceptives choose an injectable progestin-only formulation, either Depo-Provera or Nuristerate. Although South Africa is a front-runner in decreasing fertility rates in sub-Saharan countries, much improvement is needed in the access and administration of contraceptives in poor urban areas of Cape Town, South Africa. An historic view at the trends in fertility rate coupled with my observations in urban health centers and mobile clinics shed light to the benefits and barriers of contraceptive use in Western Cape.

During the apartheid era, trends of fertility in South Africa were largely unknown due to a lack of demographic data collection. Since then, researchers have been able to estimate the total fertility rate. According to these studies, the TFR is estimated to have dropped from 6.1 in the 1960s to 2.9 in 1998, a precipitous decline that is seen in only a handful of African countries. Many factors contributed to this drop, including apartheid regime measures to control non-white population growth such as the implementation of racially separate homelands or bantustans, resultant migrant labor that separated black men and women, and the establishment of the National Family Planning Programme. From these apartheid measures sprang the widespread use of contraceptives. The TFR for black women in the 1980s is estimated to be 4.6, one of the lowest among sub-Saharan countries at that time.

I visited local government-funded health centers and mobile clinics, observing the social factors that shape administration of and adherence to contraceptives in urban townships. Statistics from the Demographic and Health Survey were collected, highlighting the trends in fertility, use of contraceptives, and sources of contraceptives.

National statistics from the Demographic and Health Survey demonstrate that sixty-three percent of women currently use a method of contraception, with the most popular being progestin-only injections. Two types of injections are used, their benefits being efficacy and long-acting effects. Depo-Provera, a depot medroxyprogesterone acetate (DMPA), is administered intramuscularly every three months while Nuristerate, a norethisterone enantate, is administered every two months. Thirty-three percent of women who use contraceptives choose an injectable formulation, with older women preferentially choosing DMPA. Nuristerate is used twice as often in patients ages 15-24 than Depo-Provera, while the reverse is true in an older population. The public health sector administers a majority of the injectable contraceptives (51.7%) and 9% of women receive them from mobile vans exclusively.

The preferential use of a bi-monthly progestin-only formulation in adolescents results in an increased amount of clinic visits per year. This increased demand in patient care adds unnecessary strain on already struggling local health clinics. This combined with logistical barriers faced by the clinics can result in higher rates of missed doses.

During my shadowing in the mobile vans, strain on local health clinics was evident as vans visited townships only once per month. At times, townships would not be visited at all due to logistical difficulties encountered by the
clinic. Distance and the long wait at clinics were commonly faced hurdles. These logistical barriers results in a significant population of women that miss doses of medications, possibly resulting in unwanted pregnancies.

The popularity of injectable contraceptives is a strength of the country, resulting in a steadily declining fertility rate. However steps can be made to further increase the use of and adherence to injectable contraceptives. Emphasizing the use of a 3-monthly injection of DMPA and increasing the regularity of visiting medical vans to administer injectable contraceptives are two ways that can build upon the progress seen in fertility rates in South Africa.
Abstract 10. Innovative Method of Curricular Assessment for Partera Workshops in Puerto Escondido, Mexico

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Introduction: The Northwestern University Alliance for International Development (NU-AID) has collaborated with Child Family Health International (CFHI) since 2011 to bring Feinberg students to rural Mexico for professional development in the global health domain. Through a model of service-learning, students are given an opportunity to work alongside local healthcare providers in the local clinics and hospital to learn about the delivery of healthcare in Mexico in exchange for focused development and implementation of healthcare counseling focused on the needs of the community. In 2012, students developed this experience by teaming up with a local midwife, or ‘partera,’ to design, implement, and assess a completely student-driven recertification program for parteras throughout the region. This year, students embarked on a similar journey to develop the groundwork previously laid with particular emphasis on self-assessment.

Background: The Mexican healthcare system combines modern medical workers with local ancillary personnel to cater to patients across a broad geographic area, where access to care is often limited. Parteras, or traditional birth attendants, contribute to this system, providing basic obstetric care for women across the country. Parteras must participate in training programs every three years to maintain certification. The basic teaching categories were established by the Ministerio de Salud del estado de Oaxaca, and focus on healthy and high-risk pregnancies, prenatal care, healthy and high-risk births, care of a newborn, postpartum care, maternal nutrition, and family planning. This training is extremely important as the state of Oaxaca had a maternal death rate four times higher than most other states in Mexico, and it continues to be one of three states with the highest maternal death rates in Mexico.

Method: In order to evaluate the effect of training on the parteras’ confidence in obstetrics teaching categories, we developed confidence questions to be administered before and after each section. Each category included 2-4 questions and were given orally. Parteras marked responses on a numeric scale indicating their confidence.

Results: 32 parteras participated in the training surveys. Our results shown below demonstrate a general trend towards increased confidence in most content areas, with an overall increase in confidence following the training course.

Discussion: In a setting where formal education is a limiting factor, orally administered surveys can be used to measure confidence in illiterate and innumerate populations. Additionally, medical students can effectively improve the confidence of parteras (midwives) in basic obstetric knowledge and care.

Limitations: Our data collection was limited by our small sample size and our difficulty assessing women who are neither literate or numerate. We believe our orally administered scale effectively captured their position. We were only able to assess confidence, which may not reflect knowledge. Still, we believe confidence is an inherently important measure.
Future Directions: Further studies with better power are needed to validate survey methods, assess significance, and demonstrate the relationship between increased confidence and improved knowledge and patient care.
Abstract 11. Using BMI as a risk factor for Peripheral Arterial Disease in a Chinese cohort

Margaret Yu

Background: The rapid economic growth, coupled with the aging population, has contributed to the increase of cardiovascular disease in China. Cardiovascular diseases, which include stroke and coronary heart disease, cause one-third of all deaths in China and that number is expected to double by 2020. Ankle-brachial index (ABI) is used clinically to detect the presence of peripheral arterial disease (PAD), which is due to atherosclerotic occlusions in lower extremity arteries. Research has found that low ABI values (<0.9) are associated not only with cardiovascular risk factors, e.g., hypertension, along with coronary artery disease itself, but it is also independently associated with increased mortality from cardiovascular events. Therefore, it is an important clinical tool to help determine outcomes. Prior research demonstrates that when compared to Caucasians, the Chinese population tends to have a higher proportion of body fat for the same BMI. Body fat is a stronger risk factor for cardiovascular events than BMI. Thus, lower levels of BMI may have different implications for the Chinese population in terms of cardiovascular health. It is important to understand the relationship between BMI and ABI in the Chinese population.

Project Objective: To understand the relationship between BMI and ABI in a Chinese cohort of 1000 people.

Method: Existing data collected at Jiangxi Cardiovascular Research Institute (Jiangxi Provincial People’s Hospital) is utilized. The data from this research cohort were collected from 1000 hospitalized patients and outpatients from November 2006 to December 2007. BP-203 RPEII was used to measure ABI. Other variables, such as BMI and the presence of hypertension, were also collected from the patients. The data was discussed with the site preceptor and shadowing was conducted at this hospital to better understand how the data was collected. Multiple linear regression will be used to investigate the relation between BMI and ABI. The other variables that may affect this relationship include hypertension, diabetes mellitus, and smoking. Thus, the analysis will take these variables into account to understand the relationship between BMI and ABI in this cohort.

Results: Data analysis has not started on this project. It is expected that there will be a relationship between BMI and ABI: as BMI increases, ABI will decrease. Obesity is a risk factor for peripheral arterial disease (PAD). It is also suspected that lower levels of BMI (when compared to other populations) will be a risk factor for PAD in this Chinese cohort.

Discussion: The implications for the potential findings of this study are that because lower BMI levels (even ones that are within the normal range for other populations) might be a risk factor for PAD in the Chinese population, healthy diets and more physical activity should be even more emphasized in Chinese people, even those who do not fall in the overweight or obese BMI categories. In addition, this experience helped me gain a better understanding of how medicine, particularly cardiology, is practiced in this Nanchang hospital.