Category: Student Research Poster
Poster Title: Development and usability testing of a data visualisation platform for an African trauma data registry
Presenters: Bridget C Griffith, University of Minnesota School of Public Health
Advisers: Lee A. Wallis, University of Cape Town; Teri A Reynolds, University of Cape Town

Presenter Bio
Bridget Griffith is a first year PhD student in epidemiology at the University of Minnesota School of Public Health. Her research interests include infectious disease, global health, and acute and emergency care delivery. She completed her MPH in the Epidemiology of Microbial Diseases from Yale School of Public Health in 2012. Since completing her MPH, she has been living and working in Cape Town, South Africa. Her non-research related interests include rock climbing, knitting, and vegetarian cooking.

Abstract
Trauma is a significant contribution to the global burden of mortality, especially in sub-Saharan Africa. The methods for tracking, recording, and analysing the incidence and causes of trauma are underdeveloped. To address this, The African Federation for Emergency Medicine (AFEM) developed a trauma data registry to collect data in multiple sites in sub-Saharan Africa. To address the lack of analysis and publishing of trauma data, we created a web-based trauma data visualization platform for use with the AFEM trauma registry data. This study involves a usability assessment of the AFEM Trauma Data Visualization Platform to determine the specific website features and analytical needs of African trauma researchers. This was done by surveying the individuals from healthcare facilities that are currently using the AFEM Trauma Data Form. Questionnaires were administered to gather information on the study population and their expectations for the platform and to assess the usability of the platform after it is introduced. The results of this study include qualitative information on the participants’ experiences and preferences for a data analysis platform and a quantitative evaluation of the AFEM Trauma Data Platform. Findings of these surveys will be incorporated into the tailoring of the platform’s design and function for African Healthcare providers. The results of this study may also be useful in the development of other technology-based tools for African Healthcare practitioners. Overall, this usability study will garner information on the specifications of a data analysis platform tailored for African healthcare professionals.
**Poster Title:** Providing Rural Healthcare in the Himalayas  
**Presenters:** Carly Dahl, Asish Abraham, University of Minnesota Medical School  
**Adviser:** Ravi Singh, Himalayan Health Exchange

**Presenter Bio**  
Carly Dahl is a 2nd year medical student and received her B.S. in Neuroscience at the University of Minnesota Twin Cities. During college, Dahl travelled to Tanzania, where she first discovered her passion for global health policy and development and her desire to pursue medicine. Dahl plans to work in OB/GYN and pursue her M.P.H. to continue working in global health policy. In her free time she enjoys traveling, running, and trying new foods.

**Presenter Bio #2**  
Asish Abraham is a 2nd year medical student at the University of Minnesota. He earned a B.S. in Neuroscience, a B.A. in Physiology and minored in Management at the University of Minnesota. Before medical school he worked in industry at Medtronic Inc. and 3M Company. In his free time he enjoys good food, traveling and learning about different languages, cultures, philosophies and history.

**Abstract**  
The Himalayan Health Exchange offers an opportunity for students to practice rural medicine in the Trans-Himalayan region of Northern India. Through this project, a team of students trekked 100 miles through remote villages that are isolated by poverty, altitude, weather, and a lack of infrastructure to provide basic healthcare. Our team treated 498 patients in 7 clinics throughout their stay in India. The main patient diagnoses included, in order of prevalence: Eye/Vision, Gastrointestinal, Neurological/Psychological, Ear/Nose/Throat, Dental, Dermatological, Cardiovascular/Respiratory, Urinary/Gynecological, and Well Checks.

The major challenge Ladhakis face in improving healthcare access are developmental. Many of the healthcare problems faced by the people are due to a lack of safe drinking water, adequate sanitation, and education. A lack of motorable roads and the mountainous terrain, along with general levels of poverty make it difficult for patients to receive adequate care. Ladhakis are both optimistic and apprehensive of the changes that development will bring to their culture and traditions.

The Himalayan Health Exchange Team for 2015 consisted of 22 Medical Students (from America, Australia, Denmark, Germany, New Zealand, Puerto Rico, United Kingdom), 5 Medical Residents, and 3 Physicians (Dermatologist, Internal Medicine and Family Medicine). The team trekked between clinic sites with a team of 45 mules and 10 staff members. Basic medications, medical tools (stethoscopes, ophthalmoscopes/otoscopes, blood pressure gages) and additional supplies for donation (vitamins, sunglasses) were brought. The Himalayan Health Exchange was able to successfully provide acute care and well checks for this population while providing a unique learning experience for students. Our findings emphasize the need for permanent and sustainable care in the Trans-Himalayan region. Our services were limited in the lack of follow up care and the lack of ability to treat chronic conditions. Preventative care through greater accessibility to healthcare is critical for these communities.
Presenter Bio
Currently a physician at Boynton Health Service at the U of MN, Dr. Carol Nelson became interested in Global Health through her volunteer work with Rural Health Care Initiative in Sierra Leone. She is a graduate of Washington University School of Medicine, Internal Medicine Residency at Barnes Hospital, St. Louis, and Family Medicine Residency in Springfield, Illinois. In July/August 2015, Dr. Nelson assisted in training 33 traditional birth attendants in Tikonko Chiefdom, Sierra Leone.

Abstract
Background: Traditional Birth Attendants (TBAs) play an important role in maternal health care in rural Sierra Leone, a resource-poor country in west Africa with a very high maternal mortality rate. One in 23 women in Sierra Leone die related to pregnancy or childbirth. Yet, the TBAs have received little or no formal training for their work with pregnant women.

Method: In the summer of 2015, a collaborative team from Rural Health Care Initiative (RHCI), a nonprofit organization from Minnesota, and Midwives on Missions of Service (MOMS), a California nonprofit organization, traveled to Sierra Leone and taught a 3.5 week training course for 33 TBAs to become Community Health Workers. The TBAs were from villages in the Tikonko Chiefdom, Bo District, Southern Province. The course was structured to teach illiterate, non-English speaking women and consisted of 21 lesson modules such as nutrition, prenatal and post-natal care, labor and delivery, newborn care, family planning and birth spacing and empowerment of women to be change agents in their communities. A bilingual English-Mende speaking nurse was the interpreter. Special sessions on "Helping Babies Breathe" and "Essential Care for Every Newborn" were included for a select group of participants.

Results: Thirty of the 33 TBAs passed the final examination and received certification as Community Health Workers. The course, approved by the Paramount Chief and District Medical Officer, was well received by the TBAs and the community. Over 200 people attended the final celebration ceremony. Future plans include continuing education for the TBAs, data collection to assess the long-term results of the training and offering the course in other areas of Sierra Leone.

Summary: TBAs who are uneducated can be successfully trained to become Community Health Workers in their communities.
Funding: The two collaborating nonprofit organizations (RHCI and MOMS) funded the project through fundraising events, individual donations and support from faith communities.
Category: Student Research Poster
Poster Title: Implementation and initial outcomes of a comprehensive diabetes program for indigenous patients in rural Guatemala
Presenter: David Flood, Medical School
Adviser: Peter Rohloff, MD, PhD, Harvard Medical School

Presenter Bio
David Flood, MD, MSc, is a staff physician with the Guatemalan NGO Wuqu’ Kawoq | Maya Health Alliance and resident physician in Medicine-Pediatrics at the University of Minnesota. He received his medical degree from Harvard Medical School and an MSc in international health policy from the London School of Economics. He has worked on health projects in Latin America since 2008.

Abstract
Background
Guatemala is a prototypical lower-middle-income country facing a rising burden of chronic, non-communicable diseases like diabetes. In rural, indigenous communities in Guatemala, adult type II diabetes prevalence rates likely meet or exceed rates in the U.S., yet quality diabetes medical care is unavailable. Since 2007, the non-governmental organization Wuqu’ Kawoq has developed diabetes programming for indigenous diabetes patients in four rural Guatemalan communities.

Methods
First, in implementing the clinical diabetes program, an iterative and collaborative approach was used. Feedback was regularly sought out and incorporated from patients, families, suppliers, community members, and staff. There was flexibility on many programmatic elements, but the model was ideologically grounded in offering free care, utilizing bilingual and indigenous (Mayan language and Spanish) nurses as front-line providers, and connecting patients with public health facilities for referral services.

Second, to assess outcomes, a chart review was conducted of all active adult type II patients (n=150) enrolled in the program. Sociodemographic variables included age, gender, language preference, years with diabetes, and education. Clinical variables included hemoglobin A1C, systolic and diastolic blood pressure, creatinine, BMI, and medication prescriptions. Diabetes quality control indicators validated for use in low-resource settings were calculated using descriptive statistics.

Results
In terms of programmatic developments, there were delivery innovations across multiple modalities: application of clinical guidelines, screening for common diabetes complications, data management systems, drug and supplies procurement, diagnostic testing, coordination of complex care, and patient education.

In the chart review, the average patient age was 54.9 (± 4.1) years, 85% were female, 76% expressed preference for a Mayan language, and the median years of education was 2 years. In terms of clinical outcomes, the average hemoglobin A1C was 8.9% (± 2.1) with 43% under A1C 8.0%. Average systolic blood pressure was 120.1 (± 16.3) and creatinine 0.94 (± 4.1).

Conclusion
Delivery innovations allow the implementation of comprehensive diabetes programming for indigenous patients in rural Guatemala. Preliminary clinical outcomes favorable in comparison with U.S. Latino populations were attained in this low-resource setting.
Global Health Day 2015 Abstracts Form

Category: Student Global Health Experience Reflective Posters
Poster Title: Initial Insights Into Patient Care in Vietnam
Presenter: Hanh Nguyen, College of Medicine, University of Minnesota

Presenter Bio
I am a third year medical student at the University of Minnesota. I am interested in global health and enjoy working with immigrants. Before my trip with Impact Health Vietnam, I worked with several organizations that served large numbers of immigrants such as Phillip Neighborhood Clinic, ISTOP, American Cancer Society, English Learning Centers, etc.

Abstract
I joined Impact Health Vietnam on a trip to Vietnam last month. The group's main goal was to improve health care services in Vietnam by providing assistance and trainings for medical practitioners. Most of our work was done in the provincial hospital Kien Giang General Hospital located in Rach Gia city, Kien Giang province. We also visited several district hospitals in Giong Rieng, Ha Tien and Phu Quoc. During my time there, I gained a better understanding of the health-care system in Vietnam as well as its strengths and weaknesses. One of the system’s strengths was their improvisational skills to provide care to more patients than what the hospitals were staffed and equipped to serve. Another strength was the active participation of the patients' families in patient care. The family members took on many of the nurses' responsibilities such as feeding, walking or taking the patients to the bathrooms, etc. This helped reduce the nurses' workload tremendously given that a nurse was usually responsible for an average of 10 patients per day. On the other hand, the system had its weaknesses. For example, a prominent problem in Vietnam was the unregulated prescription of antibiotics that has resulted in an alarming rise in antibiotic resistance. Secondly, the mechanical ventilation of the patients and the simultaneous use of norepinephrine and dobutamine to treat left ventricular dysfunction often unnecessarily prolonged, led to lengthened hospital stays and increased risk of nosocomial infection. Lastly, due to the lack of training equipment, the hospital staff was not adequately trained to perform high-quality CPR.
Abstract
According to the Pew Research Center, more than 8 of every 10 individuals worldwide identify with a religious group. Religion is one of the biggest common denominators among many people and an integral part of their self-identity. Religious and spiritual beliefs have been linked to improved health outcomes and mental resilience among healthcare patients. This association assumes great importance in the setting of humanitarian crises, as faith can be an important factor in the physical, mental and emotional recovery of affected individuals.

There have been arguments against the religious affiliation of humanitarian agencies. However, it would be myopic to state that all organizations should be secular, given the importance of religion in a believer’s life and personal identity.

This brings us to the question, which is better? A secular humanitarian organization or a religious humanitarian organization?

Perfection in Plurality.

Dr. Howard Moskowitz, an experimental psychologist was hired by company Prego to determine the composition of the perfect pasta sauce for its customers. His breakthrough discovery was that there is no perfect pasta sauce; rather there were perfect pasta sauces, catering to the variability in consumer preferences.

Humans and environmental factors introduce variability in every humanitarian crisis. There will be some situations in which Faith based humanitarian organization, owing to their unique characteristics, will be more effective, gain more trust and serve more efficiently than secular NGOs and there will be other situations where the reverse will hold true. Then again there will be complex humanitarian crises which can be managed by both secular and religious organizations working in concert.

Hence the discussion should not be centered on “Is a religious NGO better than a secular NGO?”, rather; the discussion should try to answer the question “In which situation is a religious humanitarian organization better than a secular organization?”

Detailed research should be conducted to identify the types of humanitarian organizations that would best suited for efforts in various situations. This approach makes the best use of the unique characteristics of each individual organization and will be more effective than a “one size fits all” approach.
**Category:** Student Research Poster  
**Poster Title:** Serosurveillance of brucellosis in cattle, sheep, and goats in Karamoja, Uganda  
**Presenter:** Jessica Evanson, Center for Animal Health and Food Safety - University of Minnesota  
**Advisers:** Jason Johnson, Lincoln Memorial University; Larissa Minicucci, University of Minnesota

**Presenter Bio**
Jessica Evanson is a veterinary public health and preventive medicine resident at the Center for Animal Health and Food Safety – University of Minnesota. She worked as a Public Health Veterinarian with the Food Safety Inspection Service – USDA for one and a half years before deciding to join the residency for further training in public health. She is currently completing her MPH and hopes to pursue a career in food safety.

**Abstract**
The primary objective of this community-based, cross-sectional study is to determine the prevalence of brucellosis in cattle, sheep, and goats in the Napak District of Karamoja, Uganda. The secondary objective is to determine if abortion is a reliable indicator of *Brucella* in these species. Health histories and blood samples were collected from 311 cattle, 76 sheep, and 38 goats. Serum was screened for *Brucella sp.* with the Rose Bengal Plate Agglutination test (RBT), using *B. abortus* antigen. Results showed an overall mean prevalence of brucellosis to be 6.82%. Results by species showed brucellosis prevalence in cattle was 6.75%, in goats was 7.89%, and in sheep was 6.66%. There was a significant association between history of abortion and seropositivity in the cattle population (OR 12.13). This association should drive education aimed to increase awareness among herdsmen to take additional protective measures around animals with a history of abortion. These findings show brucellosis is present in the Karamoja region and should be considered as a differential diagnosis when clinical signs such as abortion are observed in herds. The local communities should be made aware that this does present a zoonotic risk to people who are in contact with affected animals or untreated products from those animals.
Category: Faculty Poster (Not part of the student Competition)
Poster Title: Knowledge about hepatitis B transmission risks among health professionals in Tanzania
Presenters:
Jose D Debes. University of Minnesota, Minneapolis
Johnstone Kayandabila, Arusha Lutheran Medical Centre, Tanzania
Hope Pogemiller, University of Minnesota, Minneapolis

Presenter Bio
Jose D Debes, MD, MS graduated from Medical School at Universidad Nacional de Cordoba in Argentina. After medical school he completed a Masters in Molecular Biology at the Mayo Graduate School in Rochester, MN. He later did his residency in Internal Medicine and Fellowship in Gastroenterology and Hepatology both at the University of Minnesota in Minneapolis, MN.

Presenter Bio #2
Hope Pogemiller, MD MPH is an internal medicine/pediatric hospitalist and assistant professor and global health faculty in the University of Minnesota's Department of Medicine. She has developed an online medical interpreter training module for refugee settings and has worked in Benin as a Peace Corps Volunteer, Tanzania as a Global Health Chief Resident, Haiti and with the IOM in Uganda as a resident, and Sierra Leone as an In-Country Clinical Lead for the ZMAPP Study.

Abstract
Introduction: It is well known that hospital workers are at increased risk for contracting hepatitis B virus (HBV). This risk is increased in settings of high HBV seroprevalence, such as sub-Saharan Africa. Despite this, it is unclear whether health-care providers in developing countries are aware of the transmission risks and adhere to universal precaution strategies. In this study we aimed to evaluate the knowledge and understanding of HBV among health-care workers in hospitals in Tanzania.

Methods: We provided a HBV survey to staff in 2 hospitals in northern Tanzania. The survey consisted of nine multiple-choice questions that inquired about understanding of HBV serostatus, vaccination and risks of transmission of HBV. The survey was written in English and Swahili (the local language) and distributed among medical and nonmedical staff (laboratory technicians, students, etc). Multivariate analyses were performed using Fishers exact test and Chi-square.

Results: We received voluntary participation from 114 subjects in our survey. The mean age of the participants was 33 y/o, 67% were females, and 61% responded to the survey in English. Ninety one percent of subjects had no knowledge of their HBV surface antigen status, and 89% indicated they never received a vaccine for HBV, with lack of knowledge about the vaccine being the most common reason (34%). Seventy percent of participants knew about HBV complications and 60% responded correctly inquiries about transmission routes. There was a significant difference in knowledge of HBV serostatus and vaccination between participants with a medical background (consultants, interns, etc) and others, p=0.01 and p=0.001 respectively. However, only 33% of consultants knew about their HBV serostatus or were vaccinated for it. There was no significant difference between knowing HBV transmission route or in-hospital risk and whether the survey was answered in English or local language, or hospital position of the responder.

Conclusions: Our study shows a surprisingly low knowledge of HBV serostatus and vaccination status among hospital workers in Tanzania. Studies are needed in other parts of sub-Saharan Africa to further understand this gap in knowledge, and HBV awareness programs should be promoted.
Category: Student Global Health Experience Reflective Poster
Poster Title: Socially responsible short-term international medical volunteerism: Master’s of Nursing Public Health/Mental Health Experience in Honduras
Presenters: Julius, B., Petcoff, M., Rudd, K., UMN School of Nursing
Advisers: Marti Kubik, UMN School of Nursing

Presenter’s Bios

Brianna Julius is a UMN School of Nursing student. From the Twin Cities, she received her undergraduate degree in biological sciences from the University of Minnesota. Having worked in labs at the University of Minnesota and volunteering with pediatric patients at the Masonic Children’s Hospital, she plans to pursue a career in pediatric nursing.

Matt Petcoff is a UMN School of Nursing and School of Public Health student. Originally from Rice Lake, Minnesota, he received his Bachelor of Arts degree from Macalester College in Geography and African Studies in 2008. He is pursuing a Master of Public Health degree in Epidemiology and a Master of Nursing degree from the School of Public Health. Matt plans to pursue a career in obstetrical nursing.

Kelsey Rudd is a UMN School of Nursing student. She’s from Eau Claire, Wisconsin and attended the University of Wisconsin in Madison, Wisconsin where she completed a bachelor’s degree in Botany. Kelsey worked for AmeriCorps and then in a University of Wisconsin botany lab before coming back to school for a new career in nursing. Kelsey plans to pursue a career in adult/gerontological nursing.

Abstract

Background/Significance: As a practicum experience in the School of Nursing population-focused health course, Master’s of Nursing students traveled to a remote, rural region of Honduras in August 2015 to work with the non-governmental organization (NGO), Shoulder to Shoulder to provide screening and education programs. Global partnerships for service learning can be significant and mutually beneficial. Students can improve cross-cultural understanding and learn how health systems in low resource countries engage local communities while providing a temporary expansion of screening and education services that promote regional health.

Methods/Interventions: Students engaged in several activities during their 12-day stay. School health screenings (N=304) targeted 9 to 22 year olds in two village schools and focused on diet, physical activity, emotional and sexual health, and substance use. Height, weight and blood pressures were also assessed. Small group work (N=81) with high school students facilitated decision-making skills and discussions about healthy relationships. Adult blood pressure screenings (N=158) were held in a school, weekend market, and during visits to clinics and homes in remote areas. Health education sessions featuring similar topics were held for parents at a local school, rural elders in home and clinic settings, and for community health workers and volunteers (N=26), who also received hands-on instruction about stress management techniques.

Reflection: Three guiding ethical principles of short-term international medical volunteerism are service, sustainability, and professionalism. The principles of service and sustainability were demonstrated by partnerships with local healthcare systems to provide screening and referrals to the nearest health clinic. Education to reduce chronic diseases, such as hypertension and diabetes, was provided to groups. Health volunteers could further disseminate the information to members of their respective communities. Professionalism was demonstrated by our respect for autonomy, privacy, dignity, and
confidentiality and our commitment to social justice by creating a sustainable short-term trip to improve community health.

Conclusion: Using three guiding ethical principles of short-term international medical volunteerism, we reflect on our experiences in Honduras. Short-term medical volunteerism ought to be regarded with a critical eye. The work must be valuable not only to students, but also to the communities served.
Poster Title: Use of a Modified Delphi Survey Technique to Identify Risks of Global Wildlife Trade to the US Food Supply

Presenter: Karen M. Lopez, DVM, MPH, College of Veterinary Medicine, Center for Animal Health and Food Safety
Adviser: Dominic Travis, DVM, MS, College of Veterinary Medicine, Department of Veterinary Population Medicine

Presenter Bio
After three years of small animal emergency practice, Dr. Karen Lopez is excited to be pursuing her passion of working in public health as a Veterinary Public Health and Preventive Medicine Resident. She has a dual DVM/MPH from Cornell University/UMN and a BA from Johns Hopkins University. Professional interests include infectious disease epidemiology, recreational water safety, chronic disease prevention, and public health interventions for wildlife conservation. Karen loves Indian food, birds, and open water swimming.

Abstract
Wildlife species, including mammals, reptiles, birds and fish, are widely traded across the world for a variety of purposes such as food, zoo exhibits, study/research, medicines, and as companion animals/pets. To understand risks and potential threats to US food production systems from global trade in wildlife, we utilized an iterative Delphi method for problem formulation, risk and threat pathway assessment. For Delphi iterations I and II - two surveys were conducted among subject matter experts and stakeholders from public, private and academic sectors involved in wildlife trade, national security, animal agriculture, food production, and food safety. Delphi I consisted of an open-ended questionnaire, and Delphi II a list of options for perceived risk ranking using a modified Likert scale. This yielded a prioritized summary of perceived threats, diseases/pathways/species/interactions of concern, market vulnerabilities, and consequences. The third Delphi iteration comprised a stakeholder meeting with two primary objectives: 1) to solicit feedback on the survey results from iterations I and II, and 2) to prioritize disease and pathway ranking criteria. For disease – agents that are highly infectious and spread rapidly causing high rates of morbidity and mortality in food animals were identified as highest priority. For species – those taxa known as high risk carriers of zoonotic diseases, such as ectoparasites, exotic poultry and swine were identified as highest priority. For pathways – those that allow importation of live, disease susceptible animals, with little regulatory oversight are identified as highest priority. For consequences – food as a source of zoonotic disease transfer impacting human health was indicated as the highest of priorities. With this stakeholder input, species-disease-pathway combinations perceived to be of greatest concern can be selected for focused research during year two of grant funding. This project was funded through Food Protection and Defense Institute by the Department of Homeland Security Science and Technology Directorate’s Office of University Programs through Award Number 2010-ST-061-FD0001.
Category: Student Research Poster
Poster Title: Fishy business: Economically motivated adulteration of fish in Minnesota retail markets
Presenter: Karen M. Lopez, DVM, MPH, College of Veterinary Medicine, Center for Animal Health and Food Safety
Adviser: Nicholas Phelps, MS, PhD, College of Veterinary Medicine, Department of Veterinary Population Medicine

Presenter Bio
After three years of small animal emergency practice, Dr. Karen Lopez is excited to be pursuing her passion of working in public health as a Veterinary Public Health and Preventive Medicine Resident. She has a dual DVM/MPH from Cornell University/UMN and a BA from Johns Hopkins University. Professional interests include infectious disease epidemiology, recreational water safety, chronic disease prevention, and public health interventions for wildlife conservation. Karen loves Indian food, birds, and open water swimming.

Abstract
Economically motivated adulteration (EMA) or food fraud involving seafood (often called “fish fraud”) is of significant global concern. EMA results in the loss of supply chain transparency and security, diminishes consumer confidence, manipulates economic markets, increases public health threats, and undermines sustainability efforts. Fish fraud has been documented widely in the US and Europe, and additional reports have been made in Central and South America, Australia, New Zealand, Canada, South Africa, Iran, Turkey, Taiwan, Hong Kong, and the Philippines. As a case study to improve the understanding of EMA of fish products, a comprehensive assessment of fish fraud in Minnesota (MN) was conducted. This was achieved by 1) obtaining and documenting consumer-level supply chain information for walleye, halibut, tuna, and salmon at retail outlets in MN; 2) determining the prevalence of mislabeling of these fish species in the MN retail market with respect to species or production methods; and 3) performing a qualitative assessment of regulatory, retail, and consumer knowledge and opinions of fish fraud in MN retail markets. In total, 311 samples from 101 retail locations were collected and tested for species authenticity using PCR and COI gene sequencing. For the 295 samples where quality results were obtained, accuracy rates for species authenticity were as follows: walleye 98%, salmon 93%, halibut 86%, and tuna 83%. The levels of substitution identified in this survey were similar to surveys done by FDA; however, inconsistent with similar efforts led by other groups such as Oceana. Availability of information on the supply chains for the sampled fish was found to be sparse, highlighting the need for increased transparency in the seafood supply chain. Interviewed stakeholders indicated a growing awareness of seafood species substitution, that EMA of fish is perceived to be an economic rather than food safety concern, and that increasing oversight of product accuracy is needed. The findings of this project will help inform evidence-based policy-making and protect the health of consumers. This project was funded through Food Protection and Defense Institute by the Department of Homeland Security Science and Technology Directorate’s Office of University Programs through Award Number 2010-ST-061-FD0001.
Category: Student Research Poster  
Poster Title: Protection from cerebral malaria in mice by cytokine-stimulated NK cells  
Presenter: Kristina Burrack, Center for Immunology  
Advisers: Sara E. Hamilton, Center for Immunology; Stephen C. Jameson, Center for Immunology

**Presenter Bio**
Kristina received her PhD in Immunology from the University of Colorado Denver, Anschutz Medical Campus. For her dissertation research she investigated the pathogenesis of chikungunya virus (CHIKV) and Ross River virus by utilizing mouse models and analyzing blood samples from CHIKV-infected patients. In Steve Jameson's lab at the U of MN she is focusing on investigating the pathogenesis of cerebral malaria utilizing the mouse model with the plan of expanding to more clinically-based research.

**Abstract**

**Background:** Cerebral malaria (CM) is one of the most lethal complications of Plasmodium falciparum malaria, responsible for a large fraction of the nearly one million malaria-related deaths annually. Concerns about resistance to anti-malarial drugs has increased the search for adjunctive therapies for CM.

**Methods:** Infection of susceptible mouse strains such as C57BL/6 with Plasmodium berghei ANKA (PbA) induces a fatal neurological syndrome from 6-10 days post-infection (dpi) that recapitulates many aspects of the human CM disease. We tested treatment of C57BL/6 mice with interleukin (IL)-15 complexes (IL-15C; IL-15 cytokine bound to an IL-15Rα-Fc fusion protein), which induces expansion of CD8 T cells and natural killer (NK) cells.

**Findings:** We found that treatment of C57BL/6 mice with IL-15C, either prophylactic or therapeutic treatment, prevented the development of PbA-induced CM. Intriguingly, we observed that IL-15C-treated NK cells were essential for protection against CM. Furthermore, adoptive transfer of NK cells treated with IL-15C was sufficient to prevent CM induction, indicating that this NK cell population dominantly protects against this fatal disease. Rescue from CM was not associated with reduced parasitemia at 5 dpi, suggesting that the effects of IL-15C are not simply a consequence of improved parasite control. Instead, we found that IL-15C-stimulated NK cells alter the pathologic T cell response in the brain at 6 dpi, resulting in protection from CM.

**Interpretation:** These findings identify an intriguing new function for IL-15C-stimulated NK cells in controlling the inflammatory response to blood stage malaria infection. A mechanistic understanding of CM pathogenesis and the process of cytokine complex perturbation will provide an important foundation for the identification of new therapeutic targets and aid in the development of innovative strategies for effectively treating severe malaria.
Presenters’ Bio
Ryan, Tram, and Chris are all 4th year dental students. Each are interested in public dentistry and recently traveled to Thailand for the Global Health Institute – Thailand where they attended the three week conference.

Abstract
Global Health Institute – Thailand is a three-week conference collaborated between University of Minnesota and Chiang Mai University where students learn the importance of public health concepts and the concept of One Health. During the three weeks, students obtained new skills in leadership, attended a public health research conference, and took courses geared towards veterinary public health. While each of the authors is currently pursuing a career in dentistry, they have all expressed interest in public health and were able to draw parallels between veterinary and dental public health topics. For dental students to attend a veterinary conference in Thailand, the students had many eye opening experiences. This poster highlights some of those experiences both culturally and professionally.
Category: Student Research Poster
Poster Title: The Odzi Project: Developing an Employee Health Protocol in a rural Zimbabwe Hospital
Presenter: Liz Medina Alm, M.D., M.P.H. Candidate, School of Public Health, Division of Environmental Health Sciences
Adviser: Jeffrey Mandel, M.D., M.P.H., Associate Professor, School of Public Health, Division of Environmental Health Sciences

Presenter Bio
Liz Medina Alm is a resident in the HealthPartners-University of Minnesota Occupational Medicine Residency. She received her B.A. in Minority Health Care, her M.D. and is completing her M.P.H. – all from the University of Minnesota. Dr. Alm has interests in toxicology, emergency preparedness, global health and preventative medicine. As a breast cancer survivor she remains dedicated to personal fitness. She enjoys participating in sports, cultural and church activities with her husband and five small children.

Abstract
Background: A literature review affirms that a well-designed, successfully implemented employee health protocol can protect workers from the unique hazards seen in the hospital setting. Unfortunately, there is very little published data on occupational health and safety in the hospital setting of developing countries.
Objective: To identify and assess the employee health needs at the Mount Olive Mission Hospital, a newly established hospital in rural Odzi, Zimbabwe. Secondarily, to use this information to design a custom employee health protocol for immediate implementation. Lastly, to set the framework and stimulus for the foundation of an Occupational Health Department at this hospital.
Methods: A needs and a risk assessment were performed to obtain qualitative data regarding hospital employee health issues and occupational health standards. The needs assessment was performed by interviewing hospital board members and workers about job tasks, access and fundamental knowledge of worksite health and safety. An on-site risk assessment was then performed to identify hazards, evaluate potential risks and assess possible barriers to employee health and safety at the Mount Olive Mission Hospital.
Results: The Mount Olive Mission Hospital had few formal employee health standards in place. The needs assessment revealed the paucity of criterions stems primarily from an under appreciation of the significant hospital hazards, in addition to the cohorts inexperience in establishing, implementing and enforcing standardized regulations. The risk assessment confirmed that the most basic hazards, with the greatest risks for harm should be addressed first. Yet, numerous barriers to the implementation of consistent health and safety policies were also discovered.
Conclusion: The assessment findings directed the creation of an employee health protocol. The implementation of this protocol as a control intervention can set the foundation for a hospital Occupational Health Department. However, this protocol is not inclusive of all hazards, it requires continual updating and should be used as guidance with prudence. This protocol is recommended for immediate implementation in the Mount Olive Mission Hospital, with the caveat that its utilization and efficacy needs to be tracked and reviewed regularly, so that appropriate protocol modifications can be made accordingly by way of a continual improvement process.
Category: Faculty Poster  
Poster Title: MAPathon for the Public Health Response to Ebola in West Africa  
Presenters: Madeleine J. Kerr PhD, RN, School of Nursing

Presenter Bio
Dr. Madeleine Kerr is an Associate Professor in the Population Health and Systems cooperative of the School of Nursing. Her expertise in public health nursing and health informatics has recently developed into a passion for public participatory geographic information science. In collaboration with U-Spatial she has developed geographic information systems applications for students to enter their community observation data. The resulting collaborative maps allow visualization of community strengths and challenges.

Abstract
Background: Geo-spatial science is emerging as an important public health informatics tool for tracking of disease outbreaks across time and place. In August of 2014, the World Health Organization declared the Ebola outbreak a public health emergency. The public health response to Ebola provided the impetus to engage students in leading a MAPathon in the School of Nursing on November 13, 2014. Through online mapping tools, participants would contribute geographic data to help fight the outbreak by guiding aid workers to affected areas, many of them remote.

Purpose: To assist with a global health crisis in real-time through an online mapping activity.

Method: This poster will describe the development and implementation of a collaborative online mapping activity to update area maps in Liberia. Faculty sought high quality satellite imagery to integrate into the OpenStreetMap platform. Once satellite imagery became available for Fishtown, Liberia, faculty wrote instructions for the mapping activity. Eight BSN student leaders piloted the instructions and received advanced preparation in mapping from U-Spatial. The MAPathon event in the School of Nursing consisted of a brief lecture, a 5-minute video and 45 minutes of independent mapping with assistance available from the 8 student leaders. Printed instructions were provided and several laptops were available to those participants who did not have their own devices. Continuing education units were available for RNs who completed the one-hour workshop. An evaluation was distributed online using a Google form.

Results: Samples of Fishtown maps before and after the MAPathon will be displayed. Evaluations were overwhelmingly positive. All participants felt they would continue to do mapping on their own, although 1/3 thought they would need additional information. The hands-on format of the MAPathon was effective as exemplified in this comment, “It was very helpful that the members of the team walked around and helped students with the mapping”.

Conclusions: Nursing students were able to collect geo-spatial data to contribute to the public health response to Ebola, thus serving as global citizens in real time during a crisis. The crisis mapping activity lives on as an alternate assignment in NURS 3115: Health Informatics and Information Technology.
Category: Research Poster
Poster Title: Osteosarcoma Treatment Disparities in Developing Countries may Influence the Rate of Observed Metastasis at Diagnosis
Presenter: Tracy A Marko, MiCaB

Biography
Tracy Marko is an MD/PhD student completing her PhD in Cancer Biology in the laboratory of David Largaespada, PhD. The focus of her research is uncovering risk factors for osteosarcoma metastasis and biological mechanisms of primary tumor dissemination. She aspires to be a pediatrician with a focus on improving global health.

Abstract
Background: Osteosarcoma is the most common primary malignant bone tumor in many countries, with metastatic disease responsible for most patient deaths. This study compares prevalence of metastatic osteosarcoma at diagnosis across nations to inform the critical questions of whether diagnostic delay or ancestry influences the rate of metastases development prior to diagnosis, and whether global disparities exist that may be remedied by medical intervention.

Methods: A literature search of the PubMed database was conducted to compare the prevalence of metastatic disease at the time of osteosarcoma diagnosis between nations and continents. The Surveillance, Epidemiology, and End Results (SEER) Program was also examined to evaluate the role of ancestry in osteosarcoma metastasis development in a single nation.

Findings: Our analysis found minimal variation in the prevalence of metastasis at osteosarcoma diagnosis by continent and age grouping, with a global pooled proportion of 18% (95% CI: 16%, 20%). No significant differences exist between black, white, and Hispanic individuals within the US population. There is a trend that patients with metastases present earlier to clinic from symptom onset. Importantly, less developed countries represented the upper range, with countries in Africa and Central America having the highest prevalence of metastasis at diagnosis.

Interpretation: Barriers to accessing medical care may discourage individuals from seeking medical attention in developing countries unless symptoms are severe. Similar to the observation of patients presenting earlier to clinic with metastatic disease, if only individuals with more severe symptoms present to clinic, the prevalence of metastatic disease at diagnosis will be artificially inflated.

Significance: Although delay in diagnosis does not affect the rate of metastasis at diagnosis, 80% of patients will develop metastatic disease if not treated with chemotherapy. Preventing the development of osteosarcoma dissemination is significant because the 5-year survival rate drops from 80% to 30%. Therefore, it is an important initiative to identify individuals with primary osteosarcoma and increase rates of treatment completion in developing countries to decrease the observed disparities in metastatic osteosarcoma.

Funding: Zach Sobiech Osteosarcoma Fund, Minneapolis, MN. NIH MSTP T32-GM008244.
Abstract

Background/Purpose
The worldwide prevalence of intimate partner violence (IPV) ranges from 15 to 71% and is a significant problem in Latin America. Adolescents experiencing dating violence are at greater risk for being victims or perpetrators of IPV later in life. Primary prevention efforts focused on learning healthy behaviors and interpersonal skills are needed. Research supports school based interventions to reduce dating violence. In August 2015, as part of a public health practicum, masters of nursing students from the University of Minnesota partnered with Shoulder to Shoulder in rural Honduras, where IPV is a concern. Honduras, one of the poorest countries in Latin America, is largely rural. Young people make up over 40% of the total population.

Methods
The Wheels of Power and Control and Equality, used with IPV work in the US, informed development of an interactive Healthy Relationship Wheel consisting of four sections, with two scenarios that included a friend/romantic partner walking together in a public place or being with a group of friends. For each scenario, small groups discussed how they would want the friend/romantic partner to speak to them or behave toward them.

Implementation
The “wheel” activity was implemented in the classroom in two high schools, located in two rural villages, and engaged male and female students, 14-21 years old (Total = 58). Small groups of 4-6 high school students worked on a section of the wheel, with facilitation by two nursing students and a translator. Each group elected a classmate to present their findings to the class.

Results
Across groups and scenarios, the adolescents identified common themes that included being trustworthy, active listening, showing attentiveness, being courteous, seeking consent to show affection and preferring use of respectful language. They felt actions and words should match.

Implications/Conclusions
This primary prevention activity facilitated discussion among adolescents about healthy relationships, including self-respect and respect for others, using familiar language and real-life scenarios. The Healthy
Relationship Wheel may be an effective tool to teach adolescents in rural communities in countries such as Honduras alternatives to dominant beliefs about the acceptability of interpersonal violence.
Presenter Bio
Rose Olson is a second year medical student at the University of Minnesota. She interned summer of 2015 with the Department of Reproductive Health and Research at the World Health Organization in Geneva, Switzerland. She graduated from Creighton University in May 2013 with degree in sociology, and spent the next year working as a legal advocate at a domestic violence agency.

Abstract
Virginity testing, also referred to as hymen examination, two-finger testing, or per vaginal examination, is the examination of the hymen and/or vagina to assess if the examinee has had or has been habituated to sexual intercourse, chiefly as a means to assess an unmarried female’s morality, honor, dignity, or worth. Goals of this study were to review published articles on virginity testing relating to its medical relevance, the adverse effects on the examinee, and its medical education. Seventeen of 1241 identified articles were included in this review. The study found that virginity examination is not clinically useful, is likely to cause physical, psychological, and social trauma to the examinee, and there is an outstanding need for updated medical curriculum and practice on virginity testing.
Category: Student Class Project or Global Health Topic
Poster Title: Development of a Texting Based Educational Incentive Platform to Address Maternal Health Education in Kampala, Uganda: Lessons Learned from an Inter-Professional Education Experience

Presenters:
Sonja Ausen-Anifrani, School of Public Health
Katelyn Pastick, College of Biological Sciences

Advisers:
Fred Rose, Acara Program Director, Institute on the Environment
Cheryl Robertson, School of Nursing

Presenter Bio
Sonja Ausen-Anifrani is pursuing a Master’s of Public Health, Maternal and Child Health. She is currently the Associate Director at Wisdom Ways Center for Spirituality. She has a significant background in both local and national refugee resettlement work and international experience in the region of East Africa. She also has significant experience in managing, reviewing, and writing grants and hopes to use her degree in the areas of global and maternal health.

Presenter Bio #2
Katelyn Pastick graduated from the University of Minnesota in 2015 with a B.S. in Genetics, Cell Biology, and Development and minors in Spanish and Public Health. Interested in international health, Katelyn has experience working with Minnesota refugee and immigrant populations, as well as international experience in Mexico, Kenya, and Uganda. Katelyn is currently working at Mulago Hospital in Uganda, assisting with HIV-related cryptococcal meningitis research. She will apply to medical schools next June.

Abstract
Background: With a maternal mortality rate of 360 maternal deaths per every 100,000 live births, maternal mortality in Uganda remains a challenge. In the course NURS 5800: “Sustainable Development in Africa: Entrepreneurial Solutions with Ugandan Communities,” an interdisciplinary team of students designed a product within the confines of a sustainable business model as a strategy to address this need. An integral goal of the course was to foster inter-professional work. In Spring 2015, a team of students from fields of genetics, nursing, business, and public health proposed the creation of a texting based informational and interactive platform for pregnant mothers in Uganda to increase pregnancy and maternal health knowledge.

Methods: Students collaborated with course instructors and mentors from Makerere University. Students gave presentations and developed a business proposal. Methodologies within this proposal included: research on maternal mortality in Uganda; proposed solution; value proposition; theory of change model; evidenced based support for educational texting and incentive programs; budget and funding strategy; evaluation plan; and pilot implementation. The final presentation was given to three judges: Mac Farnham, DVM, Assistant Professor, UMN College of Veterinary Medicine; Huy Phan, Program Director, American Refugee Committee; and Amy Pekol, Ph.D, Evaluation and Research, USAID One Health Workforce project.

Results: The following lessons were learned:
- Texting platforms utilize a ubiquitous, financially viable tool within Uganda to address a significant problem: maternal health education.
• Research reveals an increase in antenatal visits for women enrolled in text engagement platforms and demonstrates participants’ satisfaction and increased knowledge.
• Research reveals that members of text educational services are more likely to engage when incentives are offered.

**Conclusion:** This technology presents an opportunity to use local resources and to provide critical information to women during pregnancy and has potential to decrease maternal deaths by increasing knowledge among women and timely access to care.
Category: Student Research Poster
Poster Title: Improved diagnostics of *Mycobacterium tuberculosis* complex infections in Minnesota white-tailed deer
Presenter: Sylvia Wanzala, College of Veterinary Medicine
Advisers:
Michelle Carstensen\(^2\), Ray Waters\(^3\), Srinand Sreevatsan\(^1\)
\(^1\)Veterinary Population Medicine, University of Minnesota, Saint Paul, MN, USA, \(^2\)Department of Natural Resources, Greater Minneapolis-Saint Paul Area, MN, USA, \(^3\)National Animal Disease Center, USDA, Ames, IA, USA.

**Presenter Bio**
Dr. Wanzala is an infectious disease veterinarian with great interest in disease pathogenesis and zoonotic disease dynamics. She has had formal training in public health and molecular biology. A keen advocate of One Health, she combines her laboratory expertise in *Mycobacterium tuberculosis* complex organisms (MTCs) and the intricate interactions at the human-animal interface to help address challenging health issues. She has previously worked on a Fogarty NIH grant on PZA resistant MTCs in Uganda and is furthering this to her PhD program in infectious diseases at the College of Veterinary Medicine, University of Minnesota.

**Abstract**
Testing for mycobacterial diseases is costly, time-consuming and burdensome. Zoonotic bovine tuberculosis (BTB), caused by *Mycobacterium bovis* (*M. bovis*), is a major concern in low and middle-income countries with significant implications for human and animal health. Outbreaks in low-disease prevalence regions like the United States lead to significant economic losses. We applied 3 mycobacterial specific biomarkers (MB1895c, MB2515c, and Pks5) that have been validated in cattle, primates and white-tailed deer (*Odocoileus virginianus*), using indirect ELISA. Yearling white tailed deer fawns were experimentally infected with *M. bovis* at the National Animal Disease Center (NADC) and blood serum samples were collected at day 0 (Pre-infection), Day-19, Day-48 and Day-60 post-infection. At each time point, samples from four animals were collected. Samples from contemporaneous controls were also tested for the biomarkers. Results show that *M. bovis* specific biomarkers can detect BTB infection as early as 48 days post-infection in experimentally infected deer. Validation of the results was performed using deer sera collected by the Minnesota Department of Natural Resources from 2007-2010 through targeted BTB disease surveillance efforts. In total, 384 samples were tested for the presence of the biomarkers. We determined signal to noise ratios for each biomarker and found that the overall BTB prevalence per year using biomarkers suggests that BTB in deer declined after 2009 but is possibly persistent at low levels as subclinical disease. New methods of testing for tuberculosis are an important factor in disease control and elimination. Biomarker based diagnostics offer an alternative way to quickly test for TB in *Mycobacterium tuberculosis* complex (MTC) infection in animals and humans.
Poster Title: Global Health at Home: Cultural Competency in Refugee Healthcare

Presenters:
Brooke Dugdale, Medical School
Tess Baril, Medical School

Presenter Bio
Brooke Dugdale is a M.D. candidate in her third year of study at the University of Minnesota’s Medical School. She has had international healthcare experiences in India, where she aided in providing pediatric, pre-natal and obstetric care, and in Ecuador where she completed an internship in Public Health and Emergency Medicine. Prior to medical school, she taught and supported immigrant students and their families in a Minneapolis high school.

Presenter Bio #2
Tess Baril is a M.D. candidate in her third year at the University of Minnesota’s Medical School. She has worked with the Interprofessional Street Outreach Program and the Phillips Neighborhood Clinic during her first two years of medical school. Additionally, she is currently participating in UCAM, a longitudinal family medicine clerkship that focuses on primary care for urban populations.

Abstract – max 350 words
According to figures tracked by the Minnesota Department of Health over the last thirty years, Minnesota has resettled 99,725 refugees from around the world. Many Minnesotans may not even realize that our state is home to some of the largest communities of Hmong, Somali and Liberian people residing outside of their home country. While the increasing diversity of residents in our state carries many benefits, there are also many ways in which we must develop in order to best meet the needs of new Minnesotans.

As medical students with a passion for global health, we sought to learn more about Minnesota’s refugee populations and their unique needs. The medical school extends diligent effort into increasing our cultural competency as future providers, but we felt that by informing ourselves, building a meaningful community partnership and then sharing this knowledge with our peers, we had the ability to continue building upon that foundation.

We were fortunate enough to connect with Fartun Weli, executive director of Isuroon, a non-profit organization created to work on issues of health disparity among immigrant and refugee populations. Isuroon provides health education, disseminates bilingual educational materials and works in advocacy especially regarding women’s reproductive issues.

The strong relationship we’ve developed over the last two years with Isuroon is meaningful and has fostered a level of trust between us, enabling greater cooperation in working towards our mutual goals. With Isuroon, we successfully developed a series of lectures open to academic health center students to engage future healthcare providers with Somali history, increase cross-cultural understanding and aid in communication. This lecture series addressed:
- The history of the Somali civil war and resulting immigration to MN
- Developing Relationships across Cultures in the Clinic
- Female Genital Cutting: Cultural origin and practice within the Somali Community
- Female Genital Cutting: Part 2 – Pre-natal Care and Women’s Wellness Exams
Reflecting on this experience, the lectures are a positive step towards exposing health professional students to cultural competency in medicine, and in demonstrating its relation to providing exceptional clinical care.