

has been affected with over 500,000 cases of Chikungunya – which is more than half of the overall outbreak and 5% of the country's population. While Dengue hasn't spiked since 2007, the virus remains endemic affecting 6,035 people in 2014 on the island. While infections with these viruses are rarely fatal, the most concerning issue to the Dominican Republic is the economic and health services burden, especially since 20–30% of cases can have long-term sequelae.

**Objective:** The purpose of the current study is to assess the knowledge, attitudes, risk factors and prevention practices for Chikungunya and Dengue viruses in the communities of Paraiso and Los Mina in the Dominican Republic.

**Methods:** Of 289 eligible patients seen in clinic, 75 agreed to participate in this survey (26%). In June 2015, Participants were recruited from a school-based clinic in Paraiso, a marginal urban barrio on the Northwest edge of Santo Domingo, and from a local nonprofit health center in Los Mina, a densely populated urban barrio in the eastern part of the city. All participants gave verbal informed consent before participation. A 48 question survey was administered to patients during a medical outreach clinic in a community school or non-profit clinic. Pregnant women and people under the age of 18 were excluded. Quantitative analyses were performed using Microsoft Excel (Version 14.4.7, 2011). This research study was approved by the VCU IRB under protocol HM20004706.

**Findings:** Eighty-four percent of participants (63/75) identified Dengue as a mosquito borne illness while 65.3% (49/75) identified Chikungunya as such. Fever was the most commonly identified symptom associated with both diseases. Ninety-five percent of participants engage in practices to prevent mosquito bites at home. Among prevention techniques for both viruses, 77% used a bed net and 72% sprayed repellent around the home and 92% prevent standing water around the home. Almost 30% stated they could not afford bug spray to use on their own body and clothes. The government has attempted to take an active role in prevention as 75% of houses have been sprayed.

#### Interpretation:

1. Despite both viruses being prevalent locally, people were less knowledgeable about Chikungunya
2. People who were knowledgeable about Dengue were more likely to deploy mosquito prevention precautions than those who were knowledgeable about Chikungunya
3. Bed nets are the most frequently used method of mosquito prevention but are still infrequently utilized by a majority of individuals
4. These findings will inform future dengue and chikungunya prevention efforts in the studied communities

**Funding:** None.

**Abstract #:** 2.014\_PLA

#### Assessment of blood lead levels and associated risk factors among children in Ulaanbaatar, Mongolia

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**Background:** Despite dramatic declines of children's blood lead levels (BLLs) worldwide, significant exposure remains, particularly in developing countries due to their rapid environmental changes. The objectives of this study were to determine blood lead levels of children living in Ulaanbaatar, Mongolia and to identify potential risk factors influencing their BLLs with a lifestyle and residential environment questionnaire.

**Methods:** Four (School #16, 23, 43, or 79) were selected based on their geographical location within Ulaanbaatar so that different regions of the city could be assessed. A total of 153 school children aged 6–8 years old were tested in February and March of 2014. For BLL measurement, capillary blood was tested using the LeadCare II, and the children's parents were requested to fill out a structured questionnaire to identify demographical, socio-economical, environmental and behavioral risk factors for lead exposure.

**Findings:** The geometric mean BLL was 5.3 µg/dL (95% CI: 4.9 – 5.7 µg/dL) and 54.5% of the children had blood lead levels >5 µg/dL (the U.S. Center for Disease Control's current safety reference level). Factors that were significant ( $p < 0.05$ ) predictors of BLL in a multiple linear regression model were sex, age, father's education level, and father's job type.

**Interpretation:** The BLL from this study in 2014 shows a 60% decrease since a prior 2005 study, likely due to the ban on leaded gasoline in the country. However, academic performance was significantly influenced by BLL, indicating that actions still need to be taken to reduce lead exposure in Ulaanbaatar.

**Findings:** This work was supported by Avison International Research Grant of the Yonsei University Health System, Korea [grant # 20140404], the Mongolian Science and Technology Fund of the Ministry of Education and Science, Mongolia [grant # 05312013], and by educational activities funded by a DE43 grant from the Fogarty International Center and National Institute of Environmental Health Sciences, National Institutes of Health, USA [grant # D43ES022862].

The Authors declare that there is no conflict of interest.

**Abstract #:** 2.015\_PLA

#### Development of a sustainable academic and clinical medical mission: Honduras

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**Background:** Medical mission activity has become an active part of the Global Health Programs at many academic institutions. Commonly these programs involve annual trips to indigenous locations within the United States and around the world. Each one of these medical missions requires extensive resources and staffing and come at a high monetary and time cost. Medical missions by nature are brief and ensuring long term health and educational benefit to the community served can be difficult. The University

of Toledo Medical Center (UTMC) sought to develop a *sustainable* mission that could improve educational and clinical value to both the local community and academic institution.

**Process/Procedure:** The Department of Emergency Medicine at UTMC has partnered with Salud Total, a small health clinic in La Ceiba, Honduras. Salud Total is staffed by a general practitioner, nurse and ancillary staff. As part of the partnership, UTMC has been organizing mission trips on a quarterly basis. During a mission visit, the clinical volume swells to over 100 patients a day. UTMC has three primary areas of focus in staffing the clinic; general and surgical care, specialty care and education. Staff and senior ED residents are responsible for seeing general medical complaints and performing small surgical procedures. Specialists, such as cardiologists and obstetricians see a subset of the clinical volume needing specialty care. Education is provided in the form of bedside clinical teaching and materials distributed to staff and patients. Through this approach, we have enhanced clinical capabilities, increased the knowledge and skill set of the local practitioner as well as provided education to the patient and local community.

**Results/Program:** The Department of Emergency Medicine at UTMC has developed a *sustainable* educational and clinical mission program. This mission has provided clinical services to an underserved population, providing specialty medical care that otherwise was unavailable to these patients. Returning every 3 to 4 months allows the mission team to follow-up on treatment or procedures initiated on prior visits. It also provides the opportunity to advance clinical care through ongoing teaching and education. Future expansion involves incorporation of telemedicine to provide real-time support for this clinic population and medical staff.

**Funding:** Cedar Creek Church, Toledo, OH, USA.

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### Microarray analysis of *Escherichia Coli* isolates from canine and feline urinary tract infections indicate the potential for zoonotic and anthrozoönotic transmission

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**Background:** *Escherichia coli* strains exist within the host organism as either commensal flora, where they account for the majority of non-pathogenic enteric flora, or pathogenic organisms, that have been shown to cause either intestinal or extraintestinal infections. The boundary between commensal and pathogen is overcome by host vulnerability and expression of virulence factors by the *E. coli* strains. The special-pathogenicity hypothesis states that a high level of intrinsic virulence is more likely to assure uropathogenicity than the presence of an organism in high numbers. Extraintestinal pathogenic *E. coli* (ExPEC), contain a subset of uropathogenic (UPEC) strains that possess virulence factors to enhance disease in the urinary tract. It is not known how frequently organisms categorized at UPEC and/or ExPEC cause UTIs in companion animals, as compared to

less virulent opportunistic strains. Further differentiation of human UPEC isolates has shown that they belong to phylogenetic group B2 and to a lesser extent phylogenetic group D

**Methods:** This study determined the pathotype of 60 well-characterized *E. coli* isolates, associated with UTI of dogs and cats, using a comprehensive oligonucleotide microarray.

**Findings:** Twelve isolates were characterized as ExPEC (20%), 14 as UPEC (23%), and 2 as MNEC (3%). However, 7 were “non-classifiable” (12%), and 25 had no pathotype association (42%) which means that *E. coli* strains that did not have significant pathogenic potential were isolated significantly more often than strains that were associated with a specific pathotype. This was somewhat unexpected, as it does not correlate with the special pathogenicity hypothesis. However, 32 isolates belonged to phylogenetic group B2 (53%), and 15 to group D (25%). Given that the B2 pathotype has been previously associated with food animals the presence of B2 pathotype isolates from dogs and cats should not necessarily have been unexpected.

**Interpretation:** Isolates that belong to pathotype B2 may be zoonotic or anthrozoönotic and may cross between species and cause UTI in both humans and animals in close contact. Clarifying the relationship between pathotypes of animal and human isolates may provide useful information to understand and transmission of *E. coli* between and amongst different species.

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### 2.018\_PLA Malnutrition among disadvantaged women in Bangladesh

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**Program/Project Purpose:** Malnutrition among women is a serious problem – in Bangladesh as in many developing countries. Protein-energy malnutrition, iron deficiency anaemia, iodine deficiency disorders and vitamin A deficiency are common. This study reported the nutritional status of a sample of 577 women surveyed in two sites, one rural and one urban in Bangladesh. The rural villages are located Jamalpur district; the urban site is a slum in Uttara, Dhaka. People live in these areas are considered as socially and economically disadvantaged. The duration of the project is January 2011 to August 2013.

**Structure/Method/Design:** The objective of this study was to identify the nature of the malnutrition among women and to identify the underlying factors influence women’s nutritional status. Some policy suggestions were made to reduce malnutrition among disadvantaged women in the context of resource poor economies like Bangladesh.

A face-to-face survey comprised of 37 questions on women’s anthropometric measures, daily food intake (24-hours diet recall), demographic characteristics (age, education), family economic status (income and assets owned), regular hygiene and sanitation behaviour. While the locations were selected as per convenience, a systematic randomization technique was followed to select houses for the interview. 20 trained surveyors conducted interviews. Statistical analysis was conducted to identify the nature of the malnutrition.