

Areas (EAs) were selected to represent the national population. Seventy four Districts and Kampala Capital City Authority were represented. At the District level, we used Moran's I index to determine the spatial autocorrelation of the following study variables: unmet surgical need (a prevalence proportion), Hub Distance (distance from EA to surgical center), Area of Coverage (geographic catchment area of each surgical center), and Tertiary Facility Transport (average household time traveled to tertiary facility). We then used Local Indicators of Spatial Association (LISA) to identify any significant clustering of these study variables among the Districts.

Results: The survey enumerated 4,248 individuals. The prevalence proportion of unmet surgical need was estimated for each EA and varied from 2.0 to 45.0%. Of the 4 Regions, prevalence was highest in the Northern and Western Regions. Moran's I bivariable analysis indicated a positive correlation between unmet surgical need and Hub Distance ($I = 0.09$, $p = 0.03$), as well as between unmet surgical need and Area of Coverage ($I = 0.11$, $p = 0.02$). This association was consistent nationally. The LISA analysis showed a high degree of clustering among sets of Districts in the North (Gulu, Lamwo, Lira, Pader) and Southwest Sub-Regions (Kihuhura, Mbarara, Ntungamo).

Discussion: This study demonstrates that there is a statistically significant association between distance to surgical center and unmet surgical need. If investment in surgical care must be prioritized to specific Districts, we have identified the North and Southwest Sub-Regions as higher priority areas.

Abstract #: 2.079_NEP

Optimizing surgical care delivery in Uganda to address untreated abdominal surgical conditions

E.K. Butler¹, T.M. Tran², A.T. Fuller^{2,3}, S. Luboga⁴, M.M. Haglund^{5,5}, F. Makumbi⁶, M. Galukande⁷, J.G. Chipman⁸; ¹Department of Surgery, University of Washington, Seattle, WA, USA, ²Duke University Global Health Institute, Durham, NC, USA, ³Duke University School of Medicine, Durham, NC, USA, ⁴Department of Anatomy, Makerere University, Kampala, Uganda, ⁵Division of Neurosurgery, Duke University, Durham, NC, USA, ⁶Makerere University School of Public Health, Kampala, Uganda, ⁷Department of Surgery, Makerere University, Kampala, Uganda, ⁸Department of Surgery, University of Minnesota, Minneapolis, MN, USA

Background: Surgical disease is of increasing priority for the global health agenda. The first step in improving surgical care delivery in low- and middle-income countries is to fully describe the burden attributable to surgically-treatable conditions. Hospital-based data excludes individuals who are unable to access care. The aim of this study was to define the burden of abdominal surgical disease in Uganda via household survey to inform the Ministry of Health in directing efforts to improve surgical care.

Methods: Enumerators sampled 4,248 individuals in 2,315 households across 105 randomly selected clusters stratified by 10 geographic sub-regions throughout Uganda. Using the Surgeons Overseas Assessment of Need (SOSAS) survey, each head-of-household answered demographic and household death questions and two randomly selected individuals answered questions to elicit surgical conditions in each anatomic area. All individuals reporting

an abdominal condition were included in this analysis. Descriptive analysis was performed to determine prevalence of each type of abdominal condition. Chi square and t-tests determined variables contributing to presence of an untreated abdominal condition.

Results: Of the 4,248 individuals interviewed, 841 (19.8%) reported having a surgical condition at some point in their life, 461 of which (10.6%) had 1 or more untreated conditions at the time of the survey. Of reported conditions, 18.3% of lifetime (154/841) and 14.2% (75/528) of untreated were abdominal conditions. Mean age of those with abdominal conditions was 35.2 ± 20.1 years and 65.3% were female. There was no association between age and whether a condition was treated. Men were more likely to have an untreated abdominal condition than women (male 59.6%, female 44.9%, $p=0.01$). The most frequent types of conditions were obstructed labor (23.4%), abdominal masses (21.4%), abdominal pain (16.9%), and hernias (14.3%). Obstructed labor was more likely to be treated (80.6%), than abdominal masses (33.3%), abdominal pain (30.8%), and hernias (45.5%) ($p<0.001$).

Conclusions: Abdominal conditions make up a significant proportion of the surgical need in Uganda. Although obstructed labor is the most common surgical condition, it is more likely to be treated than abdominal masses, abdominal pain, and hernias. World Health Organization efforts have focused on reducing maternal and child mortality, particularly by increasing access to Cesarean section. It is evident, that these efforts have been successful, however, other abdominal surgical conditions remain largely untreated.

Abstract #: 2.080_NEP

Mongolian Women's Experiences of Mental Health During Pregnancy and After Childbirth

J. Trop¹, M. Withers¹, M. Bayalag², J. Rinchin²; ¹University of Southern California, Los Angeles, CA, USA, ²National Centre for Maternal and Child Health, Ulaanbaatar, Mongolia

Background: Postpartum depression (PPD) is defined as depression occurring during pregnancy or within 4-6 weeks after childbirth. Understanding the culture-specific and individual aspects of PPD is critical in promoting the health of mothers, children, and families. Little information exists, however, on the ways in which PPD manifests in the Mongolian cultural context. This project aims to explore how postpartum Mongolian women experience PPD and how patients and health care providers understand, identify and treat PPD.

Methods: We conducted 3 interviews and 3 focus group discussions (FGDs) with health care providers at the Mongolian National Centre for Maternal and Child Health (N=16) in order to explore the following domains in the context of PPD: 1) awareness and views about etiology 2) clinical experience and the impact on the patient 3) lay perspectives 4) recognition, treatment, and availability of services. Transcripts of the interviews and FGDs were transcribed and analyzed for emergent themes.

Findings: All providers were aware of PPD, though none reported having had substantial experience working with PPD patients. Views regarding etiology ranged from unplanned pregnancy and breast-feeding difficulty to volatile emotions and family conflict,

which all providers mentioned as central to PPD's etiology. When asked about symptoms, most providers focused on more observable symptoms such as crying, whereas fewer providers mentioned less observable symptoms such as anxiety. Though providers had different ideas about how women seek help for PPD, they all believed that the best way to recognize and treat PPD is to talk with women and learn about their lives.

Interpretation: Results suggest that providers have limited knowledge of PPD and minimal experience working with PPD patients. In addition, there appears to be no unified system in place for identifying and treating PPD. Thus, PPD may go unnoticed, and many women experiencing PPD may not recognize or seek help for their condition. Hence, a need exists for the following: a system to identify and treat PPD, more research about how Mongolian women experience PPD, and education of patients and providers about its etiology, symptoms, and treatment.

Funding: Dhablania and Kim Family Global Medicine Fellowship.

Abstract #: 2.081_NEP

Causes for and Percentage of Maternal Mortalities in Otuzco, Peru: A Comparison to National and Urban Statistics

Elly Untermeyer¹, Kay Daniels²; ¹Stanford University Undergraduate, ²Dept. of Obstetrics and Gynecology, Stanford University School of Medicine

Background: Women are over 3 times more likely to die in childbirth in Peru compared to the United States. Peru has had considerable success in diminishing maternal mortality rate (MMR, defined as the annual number of female deaths per 100,000 live births); nonetheless, poor, rural populations remain underserved medically. This study is designed to compare the MMR in urban areas to the rural mountain town of Otuzco, Peru.

Methods: The data for this study was collected from the Elpidio Berovides Hospital in Otuzco, which serves the local population as well as outlying villages. Records were reviewed on all hospital-based deliveries between 2010 and 2013. Comparison data on national averages was obtained from the National Institute of Health of Peru. This study was approved by Stanford IRB.

Analysis: The primary outcome was comparison of the MMR between the national average and the Otuzco average. The secondary outcome was analysis of causes of maternal mortality in Otuzco.

Findings: From 2010 through 2013, the average MMR for Otuzco (577.3) was almost 5 times higher than the national average in Peru (115.5). 38% of deaths in Otuzco were caused by hemorrhage, 29% pregnancy induced hypertension, 9% infections related to pregnancy, and 24% respiratory failure and preexisting conditions.

Interpretation: The Otuzco MMR remained significantly elevated above the national average during the years 2010–2013. Through discussions with health care providers in Elpidio Berovides Hospital, it was proposed that the elevated MMR was due to low levels of funding and inability to access updated equipment. This elevated rate is particularly concerning given that the national Peruvian MMR has greatly decreased over the past decade, while the MMR in Otuzco has remained unacceptably high. A limitation of this study was that the number of women giving birth at home is

unknown; however, a strength is the comprehensive data of the hospital records. The stated WHO Millennium Development Goal for Peru was to decrease the national MMR to 50 by 2015, but in order to achieve this more attention must be given to women in rural areas.

Funding: Stanford Undergraduate Advising and Research.

Abstract #: 2.082_NEP

Knowledge, opinions, and experiences concerning clinical and genetic testing: Voices of research participants in Puerto Rico

C.M. Vélez Vega, C. Murphy, A. Figueroa; University of Puerto Rico, Medical Sciences Campus, Global and Territorial Health Research Network, Timothy Dye University of Rochester, Global and Territorial Health Research Network José Pérez-Ramos, Scott McIntosh, Global and Territorial Health Research Network

Introduction: Genetic research is increasingly common throughout the world, although the degree to which attitudes of communities, researchers, and clinicians align is often unclear. The purpose of this study was to examine reasons for acceptance or refusal to allow genetic testing among a group of participants of the Puerto Rico Testsite for Examining Contamination Threats (PROTECT) research project that follows a cohort of pregnant women and their exposure to environmental agents, and includes genetic testing. Data from the PROTECT study show there are concerns about allowing genotyping for both the primary and future studies. The reasons for allowing and denying testing are not known, but enhanced understanding may provide valuable insight on how to inform individuals about the importance of genomic testing and to address community concerns that may represent barriers.

Methods: Five focus groups were conducted in Community Health Center Facilities and PROTECT study sites. A total of 36 individuals participated in the focus groups. The focus groups were digitally recorded (audio), and selectively transcribed. The transcribed text was analyzed for content pertaining to the categories that arising from the initial analysis to identify common themes and divergence among participants and groups.

Results: Most participants were familiar with the idea of genetic testing because of their experience with PROTECT. "Biorepositories" as a concept was unfamiliar, except for private banks for umbilical cord storage. Most participants identified their experience in research involving biological samples as positive, and stated they would currently consent to donating biological samples for the primary research request. While consent for future research beyond the primary research would be considered, women indicated that they would require that they be consulted before initiating a new study using their samples. Most participants were very interested in knowing the results of the research and how it relates to preterm birth.

Conclusions: There is a distinct need for information that is clear and understandable for potential participants in order to facilitate informed consent in genomic research. Information obtained in the process provides a basis for technology-driven approaches to inform and educate individuals about the benefits of genomic testing.

Abstract #: 2.083_NEP