Background: At this year's WHO World Health Assembly, a resolution was passed to include essential surgical care as an integral component of universal health coverage. The current notion is that surgical care provision is too expensive, and that providing essential surgical care in resource-limited settings is an insurmountable obstacle. In Haiti, inguinal hernias present a significant surgical burden: total years of life lost (YLL) in the pediatric population due to hernia complications in 2013 were 824 years. The purpose of this case series was to examine the cost and outcomes of inguinal hernia repair, the most common elective pediatric surgical procedure, in a resource-limited setting. The hypothesis is that surgical care provision can be done in a safe and low cost manner in a resource-limited setting.

Methods: A case series was conducted of pediatric patients presenting to outpatient clinic for elective inguinal hernia repair. Surgical procedures were carried out at a newly built tertiary hospital in Central Plateau, Haiti. A pediatric surgeon performed all surgical procedures with the assistance of surgical residents. We determined the cost of intervention and postoperative outcomes, namely complication and mortality rates. Cost was calculated in US dollars and included cost of OR time, expendable supplies, and pre-operative and post-operative clinic visits.

Results: A total of 17 patients presented for 19 elective inguinal hernia repairs from August 18 to September 22, 2015. Average age at presentation was 6.2 years, and 82% were male. All procedures were ambulatory with morbidity and mortality rates of 0%. The total cost of intervention was $110.03.

Conclusions: We conclude that performing elective inguinal hernia repairs is safe and inexpensive in a resource-limited setting. As inguinal hernias represent a significant burden in the pediatric population, essential pediatric surgical care should be a priority for national health programs in resource-limited settings.

Abstract #: *2.003_NEP*

Negative mental status analysis based on SinaWeibo in college students

Xiaohui Liang[1], Yanan Chen[1], Dongjing Liu[2], Hao Tan[2], Donghong Ji[2]; [1]Global Health Institute, School of Public Health, Wuhan University, China, [2]School of Computer Science, Wuhan University, China

Background: Mental health for the undergraduates in China has long been a serious social problem. Traditional methods to the census for the problem is via questionnaires, which is limited in the statistical size. In this study, we use the contents of SinaWeibo, a popular Chinese microblog platform with tens of thousands of college students in mainland China, to investigate the negative mental status for the college students in China.

Methods: 500,000 college students' SinaWeibo accounts in the platform were used. Their contents from January 2014 to Aug 2014 were crawled. An emotional energy level, which was developed by a psychologist David R Hawkins, was taken as the basis to divide the student's emotion into three parts—positive, negative and neutral status. An ontology-based semantic analysis method was used to analyze the microblog data. In addition, some specific words, including: *suicide, death* and so on, were selected to identify some extremely depressed cases.

Findings: The result shows that 64.38% of Sina microblog data reflects positive or neutral mental status, and the ratios of negative psychological status is 35.62%. In the negative group, the proportion of male and female is 42.3% to 57.7%.It seems that female students are more likely to get into depressed modes. The ratio of the content publication time (daytime *vs.* night) is 18.4% to 81.6%. Regarding the reasons for negative mental status, we found that the top five influence factors are: employment; affection; education; friendship and economy. Although the extreme SinaWeibo contents are only 5,276, these cases deserve special attention.

Interpretation: The analysis shows that about one third of the college students have negative mental status in China. Results suggests that the social media, e.g., SinaWeibo, may be an effective approach to investigate the mental health. It is worthy of exploration for managing mental health in global health field.

Funding: The Natural Science Funding of Hubei Provision (2013CFB292).

Abstract #: *2.004_NEP*

Healthy garden and healthy mind

K. Lin; Rutgers Robert Wood Johnson Medical School, New Brunswick, NJ, USA

Background: A creative intervention could integrate mental health into primary care services for those who suffer illnesses from food insecure, poor diet and inconsistent access. This stipend pilot program engaged clients of soup kitchen to work in the community garden, may promote future program in New Brunswick, New Jersey.

Methods: The project ran from July to October 2015. 13 participants were recruited through HIPHOP-Promise Clinic and Elijah's Promise Soup Kitchen. Pregnant women, illness preventing outdoor activities and suicidal clients were excluded. Participants gave written informed consent and worked in Shiloh Community Garden 3 hours per session, twice a week for 15 weeks. Health assessments (weight, height, BMI, waist circumferences, blood pressure, PHQ-9 depression scales) were done pre-, midpoint and post-gardening by medical team (RWJ Medical School) using observational method. Landscape team (Rutgers University Landscape Architecture department) built garden beds and collect sketchbook reflections. Gardening team (Elijah's Promise and Community Garden Coalition & Food Alliance) provided instructions on basic gardening and beehives skills. 3 female and 6 male adult participants completed project. The sketching or written reflection of each gardening session has become effective intervention for individuals, and team building vehicle. This project provided social interaction and friendship. Rutgers IRB approved the study Pro20150001770.

Findings: 9 of 13 participants completed project, demonstrated 100% improvement on PHQ-9, and 50% showed improvement on blood pressure, BMI and waist circumferences. 171 written/drawing reflections were therapeutic for them.

Interpretation: Extremely hot weather in July and early frost in October limited the harvest. The transient homeless clients migrated away and lost access to public transportation.

Annals of Global Health, VOL. 82, NO. 3, 2016
May–June 2016: 532–574

Most clients depended on weekly wages, which was impossible under the grant system, therefore could not complete the project. This project helps to re-discover confidence, talent, respect, and responsibility, which contribute to mental health.

Creative learning and support can impact positively on physical, mental, and social health outcomes. It's possible to collaborate university and community to shape future programming and scholarship in population health.

Funding: Rutgers-New Brunswick Programs for Community http://community.rutgers.edu/grants/2015-2016-grant-recipients.

Abstract #: *2.005_NEP*

Novel global health fellowship model for anesthesia, obstetrics & gynecology and surgery

M.S. Lipnick[1,2], E. Ayebale[3], F. Lester[1,2], M. Autry[1,2], S. Shamasunder[1,2], P.V. Le[1,2]; [1]The University of California San Francisco, San Francisco, CA, USA, [2]UCSF Global Health Sciences, [3]Makerere University College of Health Sciences, Kampala, Uganda

Program/Project Purpose: Surgical disease represents an expanding global health crisis that requires attention from multiple disciplines, including obstetrics and gynecology, anesthesia, and surgery. Surgical diseases have been relatively neglected by the global health community and consequently public health training opportunities in these areas are lacking. The Health, Equity, Action, and Leadership (HEAL) Initiative has created a novel fellowship model for providing surgical, obstetric, and anesthesia practitioners with the skills and knowledge needed for impactful careers in global health.

Structure/Method/Design: Guiding principles for the HEAL fellowship model include: local health professional capacity building; fellows must deeply understand the local context (at domestic and international sites) and have both clinical and non-clinical skills to improve care; and, relationships between individuals and institutions must be reciprocal, long-term and equitable. UCSF-appointed fellows are paired with fellows from collaborating international or domestic project sites. All fellows complete a month-long HEAL Bootcamp at UCSF, unique curriculum in Global Health Delivery, and all are given the opportunity to earn an MPH from the University of California Berkeley School of Public Health or do advanced training in Quality Improvement and Implementation Sciences. During the two-year program, fellows rotate between underserved domestic and international sites. The anesthesia pathway also provides advanced clinical training in regional, trauma and obstetric anesthesia at San Francisco General Hospital.

Outcome/Evaluation: The inaugural 2015 HEAL Initiative class accepted 22 fellows from diverse backgrounds (internal medicine, family medicine, pediatrics, social work, dentistry, physician's assistants, and hospital managers). Application numbers for the 2016-18 HEAL cohort are even larger. After initial support and success from the medicine-based specialties, HEAL is gaining institution-wide support from nearly all disciplines and schools.

Going Forward: As anticipated, recruitment of specialists has been more challenging than for non-specialty disciplines. We are currently evaluating reasons for this observation and developing strategies to overcome this challenge. Further expansion of this model to other institutions, as well as additional underserved sites both domestically and internationally remain a priority.

Funding: Philanthropic support to establish the HEAL Initiative curriculum generously provided by the Frank and Eva Buck Foundation, the Abelson Trust, and an anonymous donor.

Abstract #: *2.006_NEP*

The degradation of pharmaceutical oxytocin samples in Nepal and Vietnam

M. Liu[1,2], I. Gungordu[2], N. Lee[2], H.H. Wu[3], A.I. Shemirani[2], K. Murphy[1], M. Zaman[2]; [1]Stanford University School of Medicine, Stanford, CA, [2]Boston University, Boston, MA, [3]University of Pennsylvania School of Medicine, Philadelphia, PA

Background: Oxytocin, an injectable uterotonic, is considered by the World Health Organization to be the treatment of choice for postpartum hemorrhage, the leading direct cause of maternal death in many poor countries. Unfortunately, reports have identified substandard oxytocin in many countries. We suspect that heat degradation is the cause and aim to further characterize the degradation of pharmaceutical samples of oxytocin in developing settings.

Methods: Oxytocin samples were purchased from pharmacies in urban cities across Nepal and Vietnam. Samples were analyzed at Boston University via HPLC using an Agilent 1100 HPLC-DAD (210nm detection) with an Agilent Zorbax Eclipse XDB-C18 4.6x150mm 5µ Column (1ml/min flow rate). Mobile phases were (A) 0.1% TFA and (B) 100% Acetonitrile with the following gradient elution: 0-2min (20%B)/2-8min (20->50%B)/8-10min (50%B)/10-12min (50-20%B)/12-15min (20%B). LC-MS was conducted using an Agilent LC/MSD VL (+ESI) with 0.1% formic acid in (A) water and (B) acetonitrile (same column and run method).

Findings: 42 samples of oxytocin from 35 pharmacies were obtained. These samples represented 26 unique lots from 10 manufacturers. None were expired. The average concentration was 5.139±0.428IU/mL (range 3.792-6.128, median 5.212). 13/42 samples did not contain the advertised 5IU/mL concentration. To assess oxytocin's degradation profile, standard oxytocin (100IU/mL) was heated at 100C and analyzed via LC-MS at 0, 1, 12, and 24 hours. Degradation peaks at 976amu were noted as early as 1hr with complete degradation at 24hr. Heated pharmaceutical samples showed noticeable decrease in oxytocin concentration, but no degradation peaks were identifiable. Heated pharmaceutical samples with chlorobutanol, a stabilizing agent, showed a reduced degradation rate by 39.7%.

Interpretation: Although we were able to characterize the degradation profile of standard oxytocin at high concentrations, we were not able to identify degradation peaks in pharmaceutical samples. We hypothesize that degradation products were being formed, but the concentrations were too low to be detected. Chlorobutanol was identified as an effective heat stabilizing agent. Stricter controls regarding the manufacturing, storage, and distribution of oxytocin need to be enforced to ensure high-quality oxytocin is available for preventing and treating maternal mortality and morbidity in developing countries.

Funding: None.

Abstract #: *2.007_NEP*