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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.

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Abstract #: *2.005_NEP*

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

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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.

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Abstract #: *2.006_NEP*

The degradation of pharmaceutical oxytocin samples in Nepal and Vietnam

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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.

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