

their experiences. These journal entries were analyzed utilizing a grounded-theory approach to identify major themes and determine the short-term effects of the trip. Content was additionally analyzed for the positive or negative tone with which students described their experiences. To evaluate long-term effects, participants will complete a survey derived from the salient themes of the journal entries.

**Findings:** All participants completed a total of 35 unique journal entries with 667 out of 958 sentences coded (70% coverage). Analysis revealed ten major themes, which we grouped into 3 broad categories: (1) knowledge, (2) attitudes, (3) perceptions. In a majority of the entries (89%), participants reported learning about a breadth of topics including border politics, Native American health, and rural healthcare. 43% of entries described experiences that would impact the participants' future medical career decisions, and 37% noted experiences that improved their clinical knowledge and skills such as patient education and communication. The participants' reflections also revealed more abstract benefits such as becoming aware of privilege within society (40%) and the importance of studying an individual's motivations when evaluating his/her actions (51%).

**Interpretation:** This study suggests that, participation in short-term service learning trips (<1 week) has a significant impact on medical students' educational development and on how they envision themselves as medical professionals and their role in society. Analysis of survey results will clarify the enduring impact of this experience on the student participant's medical education.

**Source of Funding:** None.

**Abstract #:** 1.025\_HHR

### The Right Diagnosis: The Role of Pathology in Health System Strengthening

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**Background:** The drive to Universal Health Care coverage, and the need for strengthening health systems, has led to the examination of the role of core elements of the system such as surgery and radiology. Until recently, pathology (which, along with radiology, is key to correct diagnosis and treatment), has been relatively neglected within the global health framework.

Resource-constrained governments and patients paying out-of-pocket have tended to underestimate the importance of laboratory testing. International donors have looked to point-of-care tests as a way to overcome the difficult task of strengthening national laboratory networks.

Without strong pathology systems, however, there is the danger of development of multi-drug resistance, inaccurate tissue diagnosis and delays in identifying new emerging epidemics. Diagnosis and treatment of cancer and other non-communicable diseases is compromised.

**Methods:** We utilize survey data from regional associations of pathology to describe the current situation in different regions.

We conduct an expert survey of existing literature, and combine this with previously unpublished economic data from selected institutions. We synthesize these data to provide a comprehensive picture of the current situation of pathology in low and middle-income countries.

**Findings:** Key factors needed to strengthen pathology systems in low and middle income countries including the accreditation, education and training systems, payment for service and the balance between the public and private sectors. The organization of pathology systems is important, with advantages and disadvantages of different modalities ranging from point-of-care testing, to "lab-in-a-box" approaches, and a tiered networked system. We make estimates of the costs required to strengthen systems as well as describe the benefits.

**Interpretation:** Strengthening pathology systems is an essential underpinning of a quality Universal Health Care system. There are lessons in how to do this in an effective and cost-effective way.

**Source of Funding:** Funding for writing meetings came from the National Cancer Institute.

**Abstract #:** 1.026\_HHR

### Did an Innovative Approach to Technical Assistance by Nurse Mentors improve PMTCT Standard of Practice among Community Health Extension Workers at Primary Health Care Centres in Ebonyi Nigeria?

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**Program/Project Purpose:** Globally, Nigeria accounts for 30% of childhood HIV infections. Mother-to-child transmission remains the major route of acquisition of new infections among children. Decentralization and task shifting to primary health centres (PHCs) and community health extension workers (CHEWs) has been used to scale effort aimed at prevention of mother-to-child transmission of HIV (PMTCT). To be effective, the capacity of CHEWs to provide standard of practice in PMTCT needs to be enhanced. We engaged and trained Nurses as Nurse Mentors to provide PMTCT technical assistance to CHEWs at PHCs and evaluated the effectiveness of this intervention on PMTCT standard of practice.

**Structure/Method/Design:** From January through March, 2014, we used a 50 question checklist adopted from the National PMTCT guideline to conduct a baseline evaluation of CHEWs implementation of the PMTCT standard of practice during antenatal, labour/delivery and up to 18 months postnatal period across 59 PHCs in Ebonyi state. A score of >70% score was considered standard while a score <70% was considered substandard. Following baseline evaluation, we implemented a 14-month (April 2014 to June 2015) intervention comprising of quarterly TA visit by Nurse Mentors

to each of the PHCs and a post intervention evaluation was done from July– September 2015. Percentages and t-test was used for analysis.

**Outcome & Evaluation:** At baseline, only 15% of CHEWs at the 59 PHCs had standard of practice with a score of >70% while 85% scored <70%. Post intervention, CHEWs who had standard of practice with score >70% increased to 75%. Nurse Mentors TA was significant at  $p < 0.001$  ( $t=16.7$ ,  $df= 58$ ).

**Going Forward:** Provision of technical assistance by Nurse Mentors is an effective approach to improve standard of practice for PMTCT service delivery by CHEWs working at PHCs.

**Source of Funding:** PEPFAR.

**Abstract #:** 1.027\_HHR

### **Epidemiology of Poisoning Patients Presenting to the Emergency Center of Princess Marina Hospital in Gaborone, Botswana**

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**Program/Project Purpose:** The burden of disease secondary to toxicologic insults in Africa is difficult to assess. No reliable epidemiological data exists due to poor documentation, scarce resources for reporting, and diagnostic challenges. Only 10 of 58 countries African countries have Poison Control Centers to direct care and compile epidemiologic data. Botswana currently does not have a poison control center. In fact, there is only one clinically trained toxicologist serving the entire country of over 2 million. Official estimates of toxicologic cases for Botswana are often extrapolated from other surrounding countries such as South Africa. Though variably reliable, the estimates are still a public health concern. The purpose of this project was to conduct a retrospective observational audit of medical toxicologic cases presenting to Princess Marina Hospital (PMH) in Gaborone, Botswana. No formal clinical toxicologic audit has ever been performed in this setting.

**Structure/Method/Design:** A database was created to record anonymous data on all patients with toxicologic insults presenting to the Emergency Department (ED) at PMH from January 1, 2016 to June 30, 2016. The deidentified variables extracted from patient files included age, date of presentation, sex, comorbidities, vital signs, treatment received, disposition, HIV status, and severity assessment using the Acute Physiologic and Chronic Health Evaluation II (APACHE II) and Poisons Severity Score (PSS).

**Outcome & Evaluation:** In total, toxicologic complaints comprised about 2% of patients presenting to the ED at PMH during this time period. The most common complaints were paraffin, paracetamol, ibuprofen poisonings, scorpion and snake bites. The percentage of female toxicology patients varied proportionately with age with 38% female from age 0-15 to 67% from age 16-55. The percentage of poisonings that were intentional also increased with age with 6% intentional between ages 0-15 to 83% between ages 16-55. The route of exposure was overwhelming

oral (86%) and about 60% of patients admitted to the hospital for further monitoring.

**Going Forward:** This descriptive study is important for directing the allocation of resources towards medical toxicology, prevention campaigns, patient and medical education, and clinical guideline development with the goal of ultimately improving patient outcomes in Botswana. This study is also important in furthering the field of clinical toxicology research.

**Source of Funding:** None.

**Abstract #:** 1.028\_HHR

### **Should Large Urban Centres Decide How Best to Use Health Care Services: Exploring Alternative Approaches to Estimating Inpatient Hospital Use Based on Need in Canada**

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**Background:** Needs-based approaches for assessing key healthcare policy issues must define how need should be measured and a standard level of healthcare resource use given need should be estimated. Different population choices can be used to establish this standard, though the implications of this choice on estimates historically has been ignored.

**Objectives:** A need-based approach is widely used to examine health equity issues. It estimates need-expected use based on a standard level of use given need. We assessed how need-expected inpatient hospital use differ depending on whether the standard was estimated for all Canadians, Canadian regions, or high income Canadians.

**Methods:** Data used was the 2009/2010 Canadian Community Health Survey. The measure of health care was self-reported inpatient hospital use. Using zero-inflated negative binomial regression, we modeled inpatient hospital use separately based on the choices of population, Canadians (counting each individual in the population equally), Canadian regions (counting each region in the population equally by giving equal weight), and high income Canadians (modeling among the above average income groups). We adjusted for demographic, health behaviour, health status, socioeconomic, and health care supply factors. We then estimated need-expected inpatient hospital use and compared the estimates across individuals and by income and province.

**Findings:** Overall, parameter estimates from the three models with different choices of population were similar. Choice of population resulted in small differences in the estimates of average need-expected hospital inpatient use by province or income group. Differences were larger in the income comparison than the provincial comparison. Differences in the estimates of average need-expected use were the most pronounced among the low income group. Across the provinces, differences due to choices of population were the smallest for Alberta and largest for Quebec. While choice of population did result in some small differences, how provinces rank in need did not alter.

**Interpretation:** Choice of population defining standard resource use given need is an important consideration if it alters winners