

Background: Streptococcus pneumoniae infection is associated with high morbidity and mortality in low income countries. In Nepal, there is a high lung disease burden and incidence of pneumonia due to multiple factors including indoor air pollution, dust exposure, recurrent infections, and cigarette smoking. Despite the ready availability of effective pneumococcal vaccines (PNV), vaccine coverage rates remain suboptimal globally, especially in low income countries. Quality Improvement (QI) principles could be applied to improve compliance, but it is a virtually new concept in Nepal. This very first QI study for Patan Hospital in Kathmandu, Nepal sought to measure the baseline pneumococcal vaccination rate of qualifying adult patients discharged from the medical wards and assess reasons for non-vaccination.

Methods: QI interventions were instituted to improve PNV rate, and measure change and the effectiveness of QI methods in producing the desired outcomes using the Model for Improvement, Plan-Do-Study-Act methodology. All patients included in this study were adults discharged from the medical wards at Patan Hospital from June-August 2014. Institutional review board approval was received. Patient eligibility included: unvaccinated, no allergy to vaccine components, and a qualifying diagnosis according to U.S. CDC/U.K. recommendations for PNV. Baseline data compiled by nurses at discharge included a form asking if qualifying patients had received a prior PNV. QI interventions were then implemented including healthcare provider education, a standing order for nurses to vaccinate eligible patients at discharge, and a new medical record form indicating whether the PNV was administered and reasons if not vaccinated. Fisher's exact test was used to compare baseline and post-intervention groups.

Findings: Baseline data showed 2 out of 81 (2%) eligible patients reported a prior PNV; 68 (84%) unvaccinated patients responded that they were not asked or were unaware of the PNV. After QI interventions, the PNV rate significantly increased to 42% (23/56, $p < 0.001$). The leading reason for non-vaccination was cost (20%, 11/56). Only 5 (9%) unvaccinated patients were not asked or were unaware of the PNV, a significant improvement in that process outcome from baseline ($p < 0.001$).

Interpretation: QI measures were effective in increasing PNV rates at Patan Hospital despite healthcare providers' limited familiarity with QI methods. QI techniques may be replicable and scalable in other efforts to improve quality in resource-limited settings without great cost. This study would be strengthened with a continuous Model for Improvement cycle, including further interventions and analyses to reach target of $>60\%$ vaccination rate. The reasons for non-vaccination identified in this study will be used to guide further QI interventions. Hospital system challenges in maintaining higher vaccination rates long term and keeping accurate records for each patient are current challenges.

Funding: Dr. Elaine Kohler Summer Academy of Global Health Research at the Medical College of Wisconsin.

Abstract #: 011TIS005

Sampling patient demographics and treatment modalities using the iPad application "EMcounter" in Mazabuka, Zambia

A. Bridges, E. Watters, C. Zink, A. Muck, K. King, K. Purdy; University of Texas, San Antonio School of Medicine, San Antonio, TX/US

Background: The city of Mazabuka, population 200,000, is nestled deep in the country of Zambia. Access to healthcare is poor, with two computed tomography scanners and one medical resonance imaging machine to serve the entire country of 13 million people. Three medical students traveled to Mazabuka to obtain chief complaint,

diagnostic and treatment data from patients in the Outpatient Department of Mazabuka District Hospital (MDH) in order to create a database of the patient population with the development of an Emergency Medicine training curriculum as the end goal.

Methods: The study was conducted entirely in the city of Mazabuka, Zambia at MDH. Deidentified patient data were collected in real-time using the iPad app "EMCounter", which allows data to be uploaded using internet connections to a secure data cloud. Data were collected from 877 patients during daytime hours. Attempts were made to capture data from every patient being seen in the Outpatient Department during those hours. Because all data lacked identifying features, written consent was not obtained from each patient; however, verbal consent was obtained prior to any photographic documentation.

Findings: Data collected showed that the majority of patients complained of gastrointestinal, musculoskeletal, or respiratory illnesses, accounting for over half of the total complaints in the Outpatient Department. Medications utilized tended to be supportive in nature, with NSAIDs, vitamin supplements, and Tylenol being the most commonly prescribed medications. Imaging, often difficult and expensive to obtain, was utilized sparingly; 77% of patients received no imaging. Nearly 75% of patients were discharged after initial assessment in the ED. Only 62 of the 877 patients were admitted.

Interpretation: To the best of the authors' knowledge, an assessment of this scale has never been attempted at MDH. Of the final diagnoses, 32% were infectious in nature, a high percentage which warrants further investigation. Additionally, most diagnoses were made with little laboratory data and a heavy reliance on the history and physical exam. Finally, treatments were often either supportive in nature or for the acute problem; management of chronic issues was poor due to the relative difficulty to obtain medications for daily use. These findings demonstrate that the physical exam, public health, and the acute treatment of medical issues are important components to the development of an Emergency Medicine residency training program based in this region. Strengths of the study include the size of the study. Weaknesses include the lack of nighttime data, lack of specificity in diagnosis, and language barriers impeding collection of complete data.

Funding: Funding was granted through the University of Texas at San Antonio School of Medicine's Emergency Department and the Center for Medical Humanities and Ethics.

Abstract #: 011TIS006

Launching an interactive cancer projects map: A collaborative approach to global cancer research and program development

A. Chisti¹, M. Gupta², I. Rosenberg³, J. Wang⁴, J. Craycroft⁵, D. Gutierrez⁶, A. Bhatt⁷, F. Huang⁸; ¹University of Hawaii, Honolulu, HI/US, ²Broad Institute, Cambridge, MA/US, ³Connance, Inc., Cambridge, MA/US, ⁴Partners in Health, Cambridge, MA/US, ⁵Dana-Farber Cancer Institute, Boston, MA/US, ⁶AppCenter, Inc., Cambridge, MA/US, ⁷Stanford University, Stanford, CA/US, ⁸Harvard Medical School, Cambridge, MA/US

Program/Project Purpose: Globally, 70% of cancer deaths occur in low- and middle-income countries, but these countries receive only 5% of the resources expended by institutions and individuals for cancer care. Outreach efforts of institutions and individuals working to address cancer inequalities in these countries suffer due to a lack of collaboration among on-site groups and difficulty in accessing available resources regarding ongoing projects. In many cases, this leads to duplication of efforts and waste of resources. Information about

outreach efforts in the global cancer care community is dispersed in the databases of the individual groups pursuing the projects, and thus, it is not easily accessible to the cancer care community at large. In order to address the need for a centralized, updated, and easily accessed repository of information about existing cancer-related projects worldwide, we developed the Global Cancer Projects Map (GCPM). The GCPM is a user friendly, comprehensive, online display of cancer research projects and outreach programs on an interactive world map. The platform was developed as collaboration between the Global Oncology, Inc. (GO), and the National Cancer Institute's Center for Global Health (CGH).

Structure/Method/Design: The GCPM is designed for the ease of use by public health professionals, researchers, medical personnel, and trainees. The users can search for collaborators and projects by cancer types and countries, visualize information pertinent to each project on an interactive world map, and initiate contact with on-site project managers. Details of a project include investigator and on-site collaborators' institutional and governmental affiliations, cancer type studied, and the institution funding the project. The users can also overlay heatmaps of epidemiological measures that provide a representation of burden of cancer by country and cancer type. These disease- and country-specific measures include disability adjusted life years, mortality, incidence and prevalence rates, and Human Development Index.

Outcomes & Evaluation: The map is being tested to improve usability, which includes navigation, intuitiveness, and accessibility. The website will be available to the public in March of 2015. Feedback from the public, usage data such as number of hits and amount of time spent on the website will be collected and analyzed. Analysis of this data will help identify additional issues that need to be addressed and generate ideas for future improvement.

Going Forward: The next version of the GCPM aims to include databases from key partner organizations that GO and the CGH have identified. The partner organizations are projected to include the Union for International Cancer Control and the American Society of Clinical Oncology. It is GCPM's goal to allow all collaborators around the world to submit their cancer-related projects to catalyze comprehensive and equitable sharing of cancer resources.

Funding: This project is funded by NCI Contract No. HHSN261200800001E.

Abstract #: 01ITIS007

Innovations in improving access to contraceptives

C. Cissé¹, L. Hasselback², B. Gueye³, S. Kanoute Ndour³, O. Ndao³; ¹IntraHealth International, Chapel Hill, NC/US, ²IntraHealth International, Dakar, Senegal, ³IntraHealth Senegal, Dakar, Senegal

Program/Project Purpose: In 2010, Senegal's contraceptive prevalence rate (CPR) was just 12.3%, and unmet need for family planning (FP) was 29% among married women. With nearly 80% of public service delivery points (SDPs) experiencing regular contraceptive product stockouts, the supply chain was identified as a major barrier to the Senegalese government's goal of achieving a 27% CPR by 2015. To improve FP access and use, IntraHealth International piloted the Informed Push Model (IPM) in the regions of Dakar, Thiès, and Kaolack. After six months of implementation, the IPM pilot successfully reduced FP stockouts to less than 2%. IntraHealth now is expanding IPM nationally.

Structure/Method/Design: IPM's goal is to boost contraceptive consumption and, therefore, CPR by reducing product stockouts and increasing FP access. Currently, IPM is implemented in nine out of 14 regions covering 55 districts and 958 SDPs. Expansion into the 5 remaining regions (21 districts and 319 SDPs) will be completed by

the end of project year two. The project collaborates with Senegal's Ministry of Health and Social Action (MSAS) and National Pharmacy (PNA) as well as the United Nations Population Fund, US Agency for International Development, and other international and local organizations. The PNA is assisting operations in all regions and is leading IPM implementation in the St. Louis region to identify performance gaps and build local sustainability. Project stakeholders, identified through coordination mechanisms such as the ministry's contraceptive security committee, continually analyze the model's capacity for financial sustainability and assess local capacity for ongoing distribution and political buy-in. Moreover, IPM is now integrated into Senegal's National FP Action Plan and the PNA's annual strategic plan. The model will fully transition to the PNA in 2016. The ministry has secured funding to continue IPM post-2016, committing a portion of the proceeds from IPM's cost-recovery system to pay for ongoing implementation.

Outcomes & Evaluation: Since 2013, IPM has reduced stockouts globally to 10% or less for a full range of contraceptive products. In comparison, pre-project stockout levels of Depo-Provera were 43% in Pikine district and 26% in Kaolack district. Over the four-month period between April and July 2014, overall demand for Depo-Provera and oral contraceptives increased by 11% and 14%, respectively. Likewise, when observing facility level stockouts related to specific IPM interventions such as FP product quantification, transportation, and financial flows these stockouts were reduced to less than 0.5%. Moreover, IPM has made significant inroads to improve the availability of FP consumption data. Under IPM, for the first time, consumption data is now fully available.

Going Forward: IPM is investigating how to integrate other pharmaceutical products into SDP-level FP distribution systems to increase the model's sustainability.

Funding: Bill & Melinda Gates Foundation and Merck for Mothers.

Abstract #: 01ITIS008

Adapting global health professional virtual communities to the domestic landscape: Reflections and lessons learned

M. Connelly, A.C. Beals, A. VanDerlip, R. Weintraub; *Global Health Delivery Project at Harvard University, Boston, MA/US*

Program/Project Purpose: Since 2007, GHDonline.org hosts a platform of professional virtual communities (PVCs) for thousands of health care implementers around the world to connect, share, and discuss delivery challenges, focusing primarily on low-resource settings. In 2013, we expanded the platform for US-based health care professionals working with underserved populations. We aim to reach a geographically diverse group of 10,000 US health care professionals and increase their understanding and use of evidence-based resources. We hope to develop a greater understanding of their needs and challenges as well.

Structure/Method/Design: These new communities feature population health, quality and safety, costs of care, and delivery innovations. GHDonline will also host regular virtual Expert Panels (week-long, asynchronous online conferences). Expert moderators will lead and organize the activities. They will identify contributors through networking, research, and targeted outreach. As a grassroots effort, the GHDonline communities grow through word-of-mouth, as members and moderators invite colleagues to contribute to community discussions. While core funding comes from grants and foundations, we rely on an array of active volunteer contributors to nurture the communities and help them become self-sustaining.