clinical characteristics and outcomes were retrospectively collected for all patients that presented to MRRH with a neurosurgical condition between January 2012 to September 2015.

Findings: During the study period, 1854 patients presented to MRRH with a neurosurgical condition. Over 50% of patients were between 19 and 40 years old and the majority of were males (76.10%). The overall median length of stay was 5 days (IQR:2.50-10.00). The majority of admissions were due to trauma (87%), with almost 60% due to road traffic incidents (RTIs). The overall mortality rate was 12.75%, with a 9.72% mortality rate for patients who underwent a neurosurgical procedure, and 13.68% mortality rate for patients who did not undergo a neurosurgical procedure. A multivariable logistic regression model revealed that age, ICU admission and admission GCS have a strong positive correlation with mortality while getting a diagnostic image and surgical treatment were negatively correlated with mortality.

Interpretation: Neurosurgical conditions, especially traumatic brain injury, represent a huge disease burden in Uganda, yet neurosurgical capacity is lacking. Currently, the ratio of neurosurgeons in Uganda is 0.02 per 100,000 people. Establishing training programs in order to expand the surgical workforce, improve surgical capacity, and ultimately improve outcomes is a necessary step to meet the demand for neurosurgery given the current burden of disease. In addition, targeted injury prevention programs are needed to reduce the overall burden of neurosurgical trauma.

Source of Funding: Funding was provided by the Duke Global Health Institute and Duke University Division of Global Neurosurgery and Neuroscience.

Abstract #: *1.003_HHR*

Emergently Accessing a Higher Level of Care: Referral System Strengthening Efforts to Improve Maternal and Child Health in Cambodia

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Program/Project Purpose: Despite advances in BEmONC and CEmONC services in Cambodia, referral of women and children suffering from emergencies is often significantly delayed due to systemic barriers. These shortfalls disproportionately impact poor and rural patients.

In 2014, Stanford Emergency Medicine International partnered with University Research Co. in the 5-year, USAID funded Quality Health Services Project to improve maternal and child health outcomes in nine Cambodian provinces.

Working closely with the Ministry of Health (MOH), gaps in the current referral system were identified and capacity building interventions were crafted to address them. Implementation and follow up was also done in conjunction with government partners to maximize uptake and long term sustainability.

Structure/Method/Design: Recognition of sick patients: A simple, Cambodia specific triage system was effected at referral hospitals to help providers rapidly identify and prioritize sick patients. Emergency care and referral guidelines were also distributed to hospital providers to assist them in recognizing critical patients and administering evidence based treatments.

Enhanced communication: A standardized, MOH approved, referral slip was implemented to communicate clinical data between treating providers at each level of care. Provincial referral hotlines were established at all referral hospitals, streamlining the referral process and facilitating real time communication between providers at referring health centers or hospitals and higher level receiving hospitals. An ambulance Patient Care Report form was also created to relay ambulance care information.

Education, quality improvement and feedback: Utilizing a quality improvement approach, quarterly education and feedback forums were established, assembling providers from each level of the referral system to analyze referral data, discuss difficult cases, provide feedback and address systems challenges. Prehospital care training was also given to previously untrained ambulance providers to enhance their transports care skills.

Outcome & Evaluation: Impact metrics related to these efforts are 1) the number of complicated deliveries referred to a higher level of care and 2) the number of newborn complications referred to a higher level of care.

Going Forward: Gains are being made, however progress has been gradual. Incorporating proposed changes into institutional culture has been a challenge. Thus, project partners are restructuring reinforcement strategies to better align with provider values and facility goals.

Source of Funding: USAID.

Abstract #: *1.004_HHR*

Social Media and disease surveillance in Nigeria – the Role of WhatsApp

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Program/Project Purpose: Disease surveillance requires multiple avenues for data collection, information dissemination and connecting people to experts (Forster, 2012). Nigeria currently maintains a paper based surveillance system with vertically transmitted facility-based reports (FMOH, 2005). There are limited ways for the public to learn about trending disease outbreaks and the information is not readily available. University of Maryland Baltimore, Nigerian program implemented a CDC funded Strengthening Emergency Response Systems (SERS) project aimed at strengthening existing reporting surveillance systems. To address inefficiencies in the system we introduced the concept of a Connect Center that integrated people, information technology and social media to improve access to critical disease surveillance information.

Structure/Method/Design: We engaged and trained 8 customer care agents' to respond and provide feedback to the public on incidences or emergencies. In the event of a disease outbreak. They received weekly education on notifiable and non-communicable

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diseases (NCD) in Nigeria by project staff. The connect centre runs 24 hours daily using various avenues for communication - toll free voice calls, short message service (SMS), Facebook, website and WhatsApp. A non-functional disease surveillance website was revamped and updated weekly to allow for inquiries and education on public health diseases.

Outcome & Evaluation: Within 4 months, influx of inquiries was higher with whatsapp compared to other communication avenues ranging from 10 to 40 whatsapp chats daily. Facebook advertisement reached over 45,088 people and 2,103 persons were directed to the connect center website. Continuous education on all notifiable disease provided to the customer care agents improved the feedback process and the different escalation mechanisms (first, second and third line responders) used.

Going Forward: Our project revealed the use of WhatsApp by the public as a preferred communication mode to inquire about public health diseases. This innovative approach could be scaled up to other states in the country to strengthen disease surveillance.

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Abstract #: *1.005_HHR*

Cultivating the Next Generation of Health Care Providers in Sub-Saharan Africa: The Global Health Service Partnership – Update 2016

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Program/Project Purpose: Resource-constrained countries face the double burden of high morbidity/mortality and limited human resources for health (HRH). The critical shortage of HRH in 83 countries negatively impacts the provision of care and continued education of health professionals. To mitigate this urgent problem the Global Health Service Partnership (GHSP; Seed/Peace Corps/PEPFAR) places US nurse and physician educators at partner institutions in Malawi, Tanzania and Uganda. GHSP educators work in collaboration with country faculty to support educational capacity building and long-term health systems' strengthening.

Structure/Method/Design: To assess the impact of GHSP/country partnerships on teaching and training at partner sites, we collected output data and conducted qualitative interviews with GHSP educators (n=61), faculty (n=110), and students (n=234) during years 1-3 (2011-2014).

Outcome & Evaluation: From 2011–2014, 97 physician and nurse educators, placed at 15 academic institutions in Malawi, Tanzania and Uganda, taught 454 courses to 8,321 trainees and initiated 250+ projects. Educators reported 128,328 service-hours, with ~50% spent on classroom education, clinical teaching, and mentoring. The additional 50% was distributed among educational and clinical activities that supported institution-specific goals. Faculty and student interviews revealed that GHSP educators positively influenced student learning, citing the high quality of education provided, particularly related to clinical supervision and skills. Faculty observations noted the benefit of workload reduction, introduction of new teaching and evaluation methodologies, and modeling a student-centered approach to learning.

Going Forward: HRH shortages remain a chronic barrier to health security in resource-limited regions, compounded by the dire shortage of qualified health professionals faculty. GHSP is an innovative US/country partnership that embeds nurse/physician educators to make a multi-year investment in advancing a shared vision of excellence in African health professionals' education. Initial findings suggest that GHSP educators, in partnership with local faculty, achieved enhancements in the teaching and learning environment which, in turn, has implications for the quality of care delivered. Through authentic, meaningful, reciprocal partnership, developed and developing countries can work together toward the common goal of ensuring high quality health professions education that is responsive to local priorities and impacts individual and population health security.

Source of Funding: President's Emergency Plan for AIDS Relief, Covidien, Draper Richards Kaplan Foundation, Exxon Mobil Foundation, the Engelhard Foundation, FedEx Foundation, GE Foundation, and Pfizer Foundation.

Abstract #: *1.007_HHR*

Lean Development of Modern Medical Educators: A Cost-Effective and Practical Approach to Teacher and Curriculum Development for Global Partnerships

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Program/Project Purpose: In developing countries, there is a need for implementation of top-quality medical education programs. Existing medical teachers in these locales have clinical expertise, but may not be prepared to deliver modern high-quality medical curricula. This project aimed to streamline mentoring development of medical teachers in a limited resource environment, to prepare them to develop and deliver an up-to-date curriculum using contemporary instructional methods that emphasize active learning and problem solving (deemphasizing lectures and memorization).

Structure/Method/Design: Mentoring components: Mentors (University of Pittsburgh, USA) prepared an overall course plan and draft schedule. Teachers at a new medical school (Nazarbayev