capacity of clinical and non-clinical staff in its Centers of Excellence (COEs) in Romania, Botswana, Lesotho, Swaziland, Malawi, Uganda, and Tanzania. Each COE has pharmacy professionals who play a critical role in patient care. The BIPAI-PN is a community of pharmacy professionals from the COEs that enables opportunities to build capacity, improve operational and clinical pharmacy practice, and share best pharmacy practices. COE pharmacy professionals have identified continuing professional development (CPD) as a top priority and unmet need. The BIPAI-PN thereby developed a CPD program, in which pharmacy professionals can learn and collaborate by creating connections across organizational and geographical boundaries.

Structure/Method/Design: The BIPAI-PN conducted a needs-assessment to characterize the pharmacy practice within each COE, identify educational and training needs, and assess the type of engagement desired within the BIPAI-PN. Based on the assessment, a pilot curriculum was developed focusing on three core components: supply chain management, clinical pharmacy practice, and pharmacy management and policy. The curriculum consists of 17 pre-recorded learning modules and 10 corresponding live, web-based learning components designed to promote exchange of information and develop practice skills (e.g. facilitated discussion, case studies, journal club). In addition, there are five elective modules that participants may choose based on their needs and interests. The curriculum was developed by U.S.-based pharmacists specialized in HIV, global health, and pediatrics with input and review of COE pharmacy professionals. The curriculum will begin November 2016 and run through September 2017.

Outcome & Evaluation: Quantitative outcomes will include curriculum activity tracking (e.g. number of participants, modules, and live learning components), participant pre- and post-test scores, and curriculum completion rates. Qualitative outcomes will be measured by surveying participants about individual learning modules and interactive components and also about their overall professional development.

Going Forward: This CPD program will serve as the basis for growth of the BIPAI-PN, and it will enhance the knowledge and skills of pharmacy professionals at the COEs as they continue to serve children.

Abstract #: *2.014_HHR*

Health System Predictors of Access to Maternal Health Medicines in Low and Middle Income Countries

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Background: An approximate 800 women die every day from pregnancy related complications like postpartum hemorrhage (PPH) and pre-eclampsia and eclampsia. These complications can be prevented by appropriate use of essential maternal health medicines — which are not readily available in low and middle income countries. Researchers attribute these to gaps in structure and functions of multiple health system building blocks. But little is known about the relative impact of each building block on access to essential maternal health medicines. The main objective of this study was to determine the relative impact of select health systems building blocks (herein referred to as health system factors) on access to these medicines in low and middle income countries.

Methods: We carried out a quantitative cross-sectional analysis of data from 37 USAID Maternal and Child Health Integration Program (MCHIP) survey reports published in 2011 -2012. These reports summarized country-wide assessments of access to essential medicines for maternal health in 37 countries. We used the fishbone (Ishikawa) diagram as analytic framework to determine the relationship between access (measured by availability, affordability and accessibility) and health system factors in six levels: government/regulatory, pharmaceutical supply, health facility, health resources, health financing, data reporting.

Findings: High access to essential medicines for maternal health were significantly associated with health system factors at the government/regulatory and health professional level. A majority of countries had these medicines listed in their essential medicines lists. However, for many countries, standard treatment guidelines were not available, updated, or standardized. Lack of demand by health professionals at the health facility level and a lack of in-service training in the use of these medicines also predicted poor access even though awareness of the medicines was generally high among health professionals.

Interpretation: Findings from this study highlights the complexities that underlie making essential medicines for maternal health available and accessible. The fishbone diagram is a useful theoretical framework for illustrating the complexity of translating research findings into practice and describing predictors of access to essential medicines for maternal health across countries. Strong predictors identified should enable policy makers and stakeholders prioritize, develop and implement tailored interventions to improve availability, affordability and accessibility of these life—saving maternal health medicines in LMICs.

Abstract #: *2.015_HHR*

Status of Primary Health Workforce in a Nigerian State: Findings from Enrollment into a Digital Health Workforce Registry

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Program/Project Purpose: Classified alongside 57 countries by the WHO as experiencing a health workforce(HW) crisis, Nigeria's health system dysfunction is aggravated by mal-distributed and lopsided skill mix of available personnel. For effective health system planning, comprehensive and accurate data on the distribution, mix and migration dynamics of HW is required. An integrated human resources information system (iHRIS) is a valuable digital repository that eases the collection, maintenance and analysis of HW data. To improve HW management, the Institute of Human Virology Nigeria, an NGO that supports states to provide quality HIV services, assisted Nasarawa state to enroll primary health care (PHC) employees into the iHRIS-based state HW registry.

Structure/Method/Design: Between March and July 2016, a 5-member core team of IT-engineers and program staff was set up. Stakeholder sessions were held to reinforce advocacy, project goals and streamline data tools. Public IT administrators, quality control supervisors and data clerks were trained. Laptops and internet modems were provided and the existing paper records of HW per facility was entered into the iHRIS database.

Outcome & Evaluation: A total of 5376 records (3481 new and 1895 updated) representing staff of the state's 728 PHCs was entered into the registry. Preliminary analysis showed median age of 42.5 years and 49.6% of HW were female. Only 68.17% (3665/5376) of HW records had assigned cadres, with 39.7% of these as health attendants (HA) and 27.6% as community heath extension workers (CHEW). Laboratory personnel was 6.3%, clinicians (doctors, nurses and pharmacists) and records staff were 3.1% and 1.2% respectively. Only CHEWs and HA met national minimum staffing standards of 1 and 2 per PHC respectively. Incomplete, absent or misplaced fields in HW paper records were challenges.

Going Forward: HW data management using iHRIS in this resource limited setting was successful in terms of storage and generating quick trends. Poor data quality in source documents were major barriers. Future directions include routine updates of all records and the use of iHRIS data to guide decision on cadre, postings and numbers to be recruited. Policymakers have also opted to physically verify each digital entry and cross-referenced with payroll information.

Abstract #: *2.016_HHR*

Sustainable PEPFAR Funded In Service HIV Training Delivery Models: A Training Impact Evaluation from Nigeria

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Program/Project Purpose: PEPFAR has invested significant resources in strengthening the healthcare workforce in Nigeria. In-service training for health care workers is a key strategic approach to scaling up and sustaining health-related services in response to the HIV/AIDS epidemic. Center for Clinical CareClinical Research (CCCRN) in partnership with University of Maryland Baltimore implemented a CDC funded training award to build sustainable models for In service training delivery. Training hubs at tertiary health care academic facilities in 9 states were established. Instructional technique of faculty member was strengthened through Trainer of Trainers and HIV update workshops. There is limited post course evaluation data demonstrating effectiveness of health care worker trainings on job performance.

Structure/Method/Design: We conducted a level 3 Kirkpatrick post course training evaluation of a sample of 228 health care workers trained in Adult and Pediatric ART, PMTCT and TB/HIV at these training hubs between 2012 and 2015. A participatory evaluation team based approach was employed with evaluators from training hubs, state lead implementing partners and CCCRN. Data collection tools included checklists for on the job observation of key tasks and questionnaires. Quantitative Data was analyzed using Strata and Qualitative data was grouped into common themes.

Outcome & Evaluation: The healthcare workers were very cooperative with the evaluation process and keen to contribute towards improving training quality.The training received was found to be useful and applicable in all the program areas evaluated.Evaluators' observation revealed that 94% of respondents ordered appropriate tests and drugs for initiation and monitoring of HIV infected patients according to National Guidelines. In PMTCT under training usefulness 92% stated that they found it useful, in adult ART over 90% of respondents reported appropriate ART initiation had improved.

Going Forward: This study demonstrated that PEPFAR resources invested in training health care workers has demonstrable outcomes on their capacity to perform key HIV service delivery tasks at their work places. Post course level 3 training evaluation should be part of In service training evaluation strateges to identify areas for improvement and identify barriers to real work application. Resources should be allocated for this and further evaluation of return on investment of PEPFAR training funds on population level outcomes of specific HIV related health indicators.

Abstract #: *2.017_HHR*

Identifying the Needs and Barriers to Patient-Family Education to Design Educational Interventions that will Improve Neurosurgery Patient Outcomes in Mulago Hospital, Uganda

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Background: Family members are the primary caregivers for patients at Mulago National Referral Hospital (MNRH), Uganda. They take on responsibilities with little or no knowledge of the patient's illness, key and critical observations to report to hospital staff, and proper overall health management. This ultimately results in poor medication management, high infection rates, and longer hospital stays which negatively impact patients' health outcomes. The objective of this study was to evaluate the needs and barriers to patient-family education in the neurosurgical ward at MNRH.

Methods: A mixed methods approach was used to determine the needs and barriers that family-members face in caring for neurosurgical patients, and the challenges hospital staff encounter in educating family members, through interviews and surveys. The quantitative data collected demographic information about each participant. The qualitative data, guided by standardized interview questions, collected responses from family members and staff about their experiences in the ward. Surveys were collected from 10 staff