

Interpretation: As emergency medicine continues to develop in Colombia, more residency programs are expected to emerge with a focus on standardization of training across the country. Faculty development and sustainability of academic pursuits will be critically important. In the long-term, the specialty will need to move towards certifying board exams and professional development through a national EM organization.

Source of Funding: None.

Abstract #: 2.029_HHR

The PIERS on the Move mobile health application

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Program/Project Purpose: To develop a simple decision aid for triage and treatment of women with hypertensive disorders of pregnancy (HDP) in low-resourced settings that can be sustainably implemented through public/private partnership.

Structure/Method/Design: The PIERS on the Move app uses a simple graphical user interface to assist the health care worker user with triage and treatment decisions based on validated clinical risk assessment models that identify women with a suspected hypertensive disorder of pregnancy at greatest risk of developing severe adverse maternal complications, such as eclamptic seizures or antepartum haemorrhage, within 48 hours.

Outcome & Evaluation: From 2012 - present, this app has been evaluated for usability and feasibility for large-scale implementation at primary health care level in a large multicounty cluster RCT, the Community Level Interventions for Pre-eclampsia trial (NCT01911494). During the pilot trial phase 8370 women were cared for using the app and 302 triage or treatment decisions were made. The definitive trial phase is expected to conclude in December 2017 and will establish impact of task-shifting antenatal care to community based health workers using the PIERS on the Move app on combined maternal and perinatal mortality or severe morbidity.

Going Forward: As the CLIP trial concludes, significant additional work will be required to ensure sustainability of the program through integrate into a health system. In order to transition from the context of a clinical trial to a sustainable scale-up, we have established an industry partner to design a commercial product based on our app. Through the CLIP trial process evaluation, we will identify the policy maker and end-user needs and requirements for designing a sustainable product. This will likely include expansion of the scope of the app beyond the HDP, depending on the local health system needs. A quick and effective method of iteratively testing and refining updates to the application in response to these policymaker and end-user needs will be required to maintain certainty of effectiveness as we transition from health services research to scale.

Source of Funding: Saving Lives at Birth (Grand Challenges Canada); Bill and Melinda Gates Foundation.

Abstract #: 2.030_HHR

Assessing the Impact of Standardized Educational Curriculum Modules on Medical Interns' Preparedness for Independent Practice in Botswana

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Program/Project Purpose: Currently, there is no standardized internship educational curriculum in Botswana. Medical school graduates participate in one year of internship training, after which they are assigned to practice independently as medical doctors. Challenges to training in this setting include variability in medical school backgrounds of interns and in clinical resources and supervision across eight internship sites. This project seeks to address these issues through the implementation of standardized educational curriculum modules at internship sites across Botswana.

Structure/Method/Design: Following a needs assessment using structured interviews of 14 medical interns, we developed a process for generating over 100 content-hours of curriculum materials in internal medicine. The curriculum content was developed by physicians with experience working in the Botswana healthcare context and peer-reviewed by five "lead editors." An implementation pilot currently underway is nested within a national prospective cohort study of medical interns, using pilot-site interns as the intervention group and interns at other sites as the control group.

Outcome & Evaluation: Evaluation of the curriculum is being conducted using the W.K. Kellogg Foundation Outcomes Logic Model. Basic outputs include the curriculum format/content and intern satisfaction, as assessed by questionnaire at the completion of training. Outcome and impact assessment will utilize paired questionnaires before and after the internship year to measure the degree of change within individuals at intervention and control sites with regard to the following: medical reasoning domain scores on a structured knowledge assessment, self-assessed preparedness scores across 32 clinical practice domains, self-rated confidence scores across 14 clinical skills domains. Baseline data for 53 participants (98% of incoming interns) were collected in August 2016 and paired follow-up data will be collected in August 2017. Interim data regarding outputs (curriculum details) and outcomes (baseline knowledge and skills scores) will be reported.

Going Forward: The internal medicine curriculum package is being piloted from August 2016 through August 2017. After a final editorial revision, the curriculum will be disseminated nationally in August 2017. If successful, curriculum initiatives in obstetrics and gynecology, surgery, and pediatrics will follow and will lead to the

implementation of a full national standardized educational curriculum for medical interns by 2020.

Source of Funding: We thank the Botswana-Harvard Partnership and University of Botswana for their support.

Abstract #: 2.031_HHR

Building Interprofessional Global Health Infrastructure at a University and Health System: Navigating Challenges and Scaling Successes

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Program/Project Purpose: To describe the challenges faced and progress made over the past seven years to formalize an interprofessional global health initiative at Thomas Jefferson University. For over seven years, faculty and students have built the initial infrastructure of the Global Health Initiatives Committee (GHIC) across six colleges. Our goals are to: 1) develop a global health identity 2) educate and engage students, residents, fellows, faculty, and staff in medical and public health issues that transcend national boundaries 3) promote health equity and embrace diversity 4) create a focused initiative that incorporates global health concepts into education, research and the delivery of health care and community health initiatives.

Structure/Method/Design: Since 2009, GHIC has promoted a culture of global health through consistent and varied mechanisms of engagement. We have cultivated champions within university leadership. Surveys were administered in 2010 and 2015 to assess student interest in and perceptions of how global health will impact their careers. Four proposals were submitted aimed at acquiring funding to coordinate global health communication, education, research and service infrastructure. Each proposed different mechanisms for implementation and levels of funding.

Outcome & Evaluation: Two student surveys indicated an increase in the importance of global health and in the percentage of students who will pursue global health careers. The core group of faculty and students has:

- engaged in 30+ scholarly initiatives, posters and presentations
- delivered 20+ seminars promoting global health at the university
- organized 10 student-led forums
- published 7 peer reviewed articles and 4 publications
- developed a series of modules for the interactive Curriculum Experience (iCE) Platform & App

The six colleges have over 35 different relationships with organizations in 35 countries. The medical college houses 10 distinct global health-related programs. In 2016, the university hired an Associate Provost for Global Health.

Going Forward: GHIC is committed to developing a focused, funded initiative to provide the university with a structured global health identity that fosters interprofessional innovation and enables students, residents, and fellows to incorporate global health into

education, research, community health initiatives, and the delivery of health care.

Source of Funding: None.

Abstract #: 2.032_HHR

International Cancer Expert Corps: Sustainable Mentorship and Transformational Technology for Cancer Disparities Worldwide

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Background: Cancer is a rising global problem, especially in developing countries where over 70% of newly diagnosed cancers occur, and in geographically-isolated indigenous populations in developed countries. While addressing all aspects of cancer care, radiotherapy is a critical ICEC focus. Unfortunately, radiation technology in challenging settings, if any, is often mediocre or too complicated for the existing infrastructure. It often utilizes Cobalt-60 which lacks the sophistication for advanced radiation therapy and is of concern for its potential use by terrorist organizations. These problems and the need for over 5,000 linear accelerators in underserved regions provide an opportunity to address both security of radiological material and cancer care.

Methods: ICEC is implementing a sustainable systems solution to this problem consisting of an exceptional workforce, technological innovation and local/regional investment providing a unique model of medically-related mentorship and education. Using newer telemedicine/telecommunications technology, ICEC has the capability to leverage intellectual resources and innovative technologies by partnering with in-country healthcare professionals to improve access to, and the quality of, cancer care services in these underserved regions that often present challenging environments.

ICEC, working with government agencies and non-government organizations, has changed the anti-terrorism focus to “Treatment, not Terror”, emphasizing the critical importance of first addressing societal problems. In the first-of-its-kind conference, ICEC, working with the European Organization for Nuclear Research (CERN), the International Atomic Energy Agency (IAEA) and the US Department of Energy, is addressing this issue by bringing together multinational expertise in Geneva in November 2016. The conference aims to develop design characteristics for a high-quality linear accelerator for challenging environments. The conference also will review physical infrastructure challenges, opportunities for sustainable training of personnel in developing countries to insure safe and effective use of new technologies and actions to insure that the recommendations of the conference are implemented.

Findings: To be reported after workshop in November 2016.

Interpretation: In summary, ICEC’s network of leading international healthcare professionals is uniquely positioned to expand cancer care capacity and stimulate development of cancer treatment technology to provide cancer care at global standards in developing countries.

Source of Funding: None.

Abstract #: 2.033_HHR