

**Structure/Method/Design:** This fellowship addresses two interrelated, unmet needs in nursing education: post-graduate global health training for US-based APNs; and clinical, didactic and leadership support for nursing staff in low-resource settings. The one-year fellowship is based at Hinche Hospital in Haiti. Two NP fellows are selected annually from an applicant pool of NP graduates. Medical and nursing leadership in Haiti are engaged through our partner, Partners In Health. The NP Fellowship was invited by and designed in collaboration with Partners In Health. We are positioned to work as a true interprofessional partnership, as the model is based on the UCSF Global Health Hospitalist Fellowship program, which has been in place at Partners In Health's Hinche Hospital for two years and has shown successful outcomes.

**Outcomes & Evaluation:** The desired outcomes for this project are: a) an improvement in the NP fellows' efficacy in global health competencies; and b) an increase in clinical and leadership skills and job satisfaction by Haitian nurses. Collaborating with UCSF and Haitian physician colleagues, the NP fellows will contribute to interprofessional capacity building through clinical and management training with nursing leadership and staff in Hinche. Ongoing monitoring and quarterly evaluation criteria include qualitative data from Fellow and Haitian nurse interviews, surveys and clinical observation, as well as quantitative data from supplemental charting of clinical activities. **Going Forward:** As of the submission of this Abstract, the fellowship program has just been launched (September 2014). At conference time, we will share our successes, challenges and program modifications.

**Funding:** The project is funded for three years by a private donor. Using a robust monitoring and evaluation strategy, we will be prepared to apply for further funding when the initial grant period is complete.

Abstract #: 01ETC041

### Evidence-based scale-up of mSakhi community health worker mHealth system in Uttar Pradesh, India

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**Background:** India's accredited social health activists (ASHAs) receive 33 days of classroom training on maternal, newborn, and child health (MNCH) and have access to paper-based job aids. However, many ASHAs' knowledge, counseling skills, and ability to diagnose sick newborns are inadequate, and use of job aids for counseling and newborn danger sign assessment is ineffective. In one study, ASHAs misclassified 7 out of 8 infants as normal although investigators detected signs requiring home-based care. The Uttar Pradesh (UP) government expressed interest in using mHealth technology to improve ASHA performance. In 2012–2013, the IntraHealth International-led Manthan project assessed the feasibility and effectiveness of mSakhi, an mHealth application, to improve ASHAs' capacity in counseling, assessment, and identification of care or referral needs.

**Methods:** The Manthan project conducted two studies evaluating mSakhi functionalities. IntraHealth's institutional research review committee reviewed protocols and determined that the research adhered to human subjects protection requirements. The first study (Bahraich District) tested mSakhi feasibility and effectiveness as a self-learning and counseling tool with 86 ASHAs (46 experimental, 40 comparison). The second study (Jhansi District) evaluated mSakhi effectiveness for postnatal newborn care assessment and referral with 57 ASHAs (29 experimental, 28 comparison). ASHAs in

experimental arms used mobile phones preinstalled with mSakhi and received usage training; comparison ASHAs received training on paper-based tools. All ASHAs received routine monitoring and feedback. At baseline/endline, the studies assessed MNCH knowledge and observed counseling and assessment skills. Differences-in-differences were tested for significance using Z-scores.

**Findings:** ASHAs were more likely to use mSakhi (55%) than flip-books (22%) during home visits. Knowledge of key MNCH topics improved significantly ( $p < 0.001$ ) among ASHAs using mSakhi, who also demonstrated greater recall of at least six critical newborn conditions warranting referral. Counseling quality, measured as completeness of messages delivered (i.e., message given AND told about message importance AND tool used for reinforcement/illustration), improved significantly in the mSakhi group. ASHAs using mSakhi showed significantly better newborn assessment skills (weighing\*, measuring temperature\*, identifying breastfeeding difficulties\*\*\*, examining pustules\*\*, examining pus in umbilicus\*) (\* $p < 0.05$ , \*\* $p < 0.01$ , \*\*\* $p < 0.001$ ), and identified 10% of births as needing referral (versus 2.4% in the comparison arm).

**Interpretation:** The results indicate that the mSakhi mHealth application is more user-friendly and effective than paper-based job aids for ASHA activities including self-learning, counseling, assessment, and diagnosis. The design of the two studies did not permit measurement of community-level effects, but the findings make a case for implementing and evaluating mSakhi at scale. Given the evidence of mSakhi effectiveness in improving ASHA performance, the UP government is scaling up mSakhi in five of 75 districts (12,000 ASHAs) to inform statewide scale-up.

**Funding:** The Bill & Melinda Gates Foundation.

Abstract #: 01ETC042

### Outcomes of the NIH Fogarty international clinical research program: Early alumni publications

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**Program/Project Purpose:** In order to train global health researchers, between 2004 and 2012, the NIH Fogarty International Clinical Research Scholars and Fellows (FICRS-F) Program offered one-year mentored clinical research training experiences in low- and middle-income countries (LMICs) for competitively selected doctoral Scholars (n=413) and postdoctoral Fellows (n=105) in health-related professions from the US (n=256) and LMICs (n=280). Some trainees (n=18) were supported as both Scholars and Fellows (thus, total n=536).

**Structure/Method/Design:** We evaluated publications data from Fogarty International Center's CareerTrac database (a minimum estimate of the true number), entered through 15 October 2013 from alumni self-reports and CVs, and Internet and PubMed searches. We used linear regression to explore factors associated with numbers of publications.

**Outcomes & Evaluation:** Trainee research topics were 68% in infectious (47% HIV/AIDS), 18% in non-communicable, and 15% in infection-related non-communicable diseases ("combined"). Non-communicable and combined disease topics increased from 17% in 2004-2007 to 40% in 2008-2011. At least 10% of projects focused on each of these: basic science, health behavior, health care systems, pulmonary diseases, parasitology, sexually transmitted infections, tuberculosis, maternal and/or child health, and cancer. Of 1617 papers in PubMed, FICRS-F alumni were first author of 501 (31%).

The median (IQR) journal impact factor was 3 (1.94-7), and publications were cited 8 (3-19) times, even though many were published so recently that there have been few citation opportunities to date. Alumni who were postdoctoral Fellows ( $p < 0.001$ ), from LMICs ( $p < 0.001$ ), and were supported in earlier Program years ( $p=0.003$ ) had higher publication outputs, compared to doctoral Scholars, Americans, and later Program trainees. Other demographic factors (e.g., sex), duration of support (1 vs. 2 years), and research topics (e.g., infectious vs. non-communicable diseases) had little association with publication output except for trainees with research topics involving children, who had on average fewer publications ( $p=0.003$ ).

**Going Forward:** The concentrated, mentored clinical research training in global health settings provided by the FICRS-F Program produced significant research productivity from its alumni. Program output grows each year, as alumni develop mature research careers and continue to publish. Publications of doctoral Scholars are likely to increase as they complete additional training and enter career positions. In 2012, FICRS-F was decentralized among 20 institutions in five consortia (Fogarty Global Health Program for Fellows and Scholars), emphasizing postdoctoral trainees from the US. Our results, particularly the finding that LMIC citizens had higher publication numbers than did US trainees, may inform the future evolution of the Program.

**Funding:** NIH Fogarty International Center and 15 other NIH institutes and centers.

**Abstract #:** 01ETC043

### Providing pharmacy services in developing countries

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**Program/Project Purpose:** Current medical information is a crucial need of all hospitals, including those located in developing countries. Mayo Clinic has been delivering highly sought-after medical education including specific objectives and endpoint measurements to our colleagues at St Luke Hospital in Port Au Prince, Haiti since the earthquake four years ago. A full medical team isn't always available to travel down as often as needed to provide medical education therefore our pharmacists travel down independent of a medical team to provide nursing, pharmacist, and physician lectures centered on new guidelines, appropriate medication usage and administration, and review of journal articles. Mayo Clinic currently provides the only pharmacy-driven underserved global health initiative in the world.

**Structure/Method/Design:** A needs assessment of several Haitian medical facilities determined core lecture topics were of highest priority. Verification of educational and interpersonal skills desired was evaluated for each interested pharmacist. Preparation encompassed briefing each team on the objectives and goals of the mission along with editing and translating educational presentations. Specific core lecture topics were agreed upon with our Haitian health care colleagues at which point we began to present to Haitian pharmacists, physicians, and nurses on the health care topics of greatest priority.

**Outcomes & Evaluation:** In the past four years 10 pharmacists have traveled on 17 trips to educate in Haiti. A total of 81 lectures have been given thus far. Over 300 health care members have been influenced including: physicians, nurses, pharmacists, and ancillary hospital staff who have participated in the lectures. The lectures raised awareness on new therapies, guidelines, and medication usage; subsequently allowing them to better care for their patients.

**Going Forward:** Pharmacists have the means to provide highly effective core topic lectures to a broad range of health care staff. We

serve a unique role in providing education in developing countries by collaborating with a full medical team or as a separate entity; providing a vital part of the medical education necessary for growth and sustainability. Core topic lectures are still to be given but there have been barriers to providing the remaining 37 lectures such as: reliable technology to provide distance-based lectures and safety concerns for traveling to Port-Au-Prince, Haiti in the recent months. Future goals include expanding services to additional developing countries as well as engaging more pharmacists in participating in underserved global health.

**Funding:** None.

**Abstract #:** 01ETC044

### The global health initiative and ACCESS Uganda partnership program: Developing health seminars for community health workers and evaluating nutritional knowledge and education practices in rural Uganda

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**Program/Project Purpose:** The Global Health Initiative (GHI) is a University of British Columbia (UBC) student-led group that seeks to enhance global health education and provide a multicultural perspective on health and healthcare to medical students. GHI began collaborating in 2010 with the African Community Center for Social Sustainability (ACCESS), a community-based organization dedicated to supporting the local community through medical care, community-based education, and economic empowerment. Each year, UBC sends a team to Nakaseke, Uganda with the aim of creating an opportunity for students and individuals working in the community to exchange knowledge, skills, and cultural values.

**Structure/Method/Design:** The UBC GHI team, in collaboration with ACCESS, developed a series of health seminars. The project's main goal is building and delivering a curriculum that is relevant, culturally sensitive, and sustainable. As part of the GHI ACCESS project, UBC students train Community Health Workers (CHWs) to teach seminars in the local community. GHI ACCESS elected to work directly with CHWs as these individuals often act as the primary resource for healthcare in rural communities. In light of the large number of malnourished children in the Nakaseke District, ACCESS members identified a need to investigate the issue. In 2013, UBC GHI explored early childhood nutritional practices by conducting focus groups and piloting a nutritional seminar for the CHWs to teach in the community. Our team returned in 2014 to conduct further training, evaluate the CHW's progress, assess their current teaching practices, and determine how these could be adapted for a sustainable education program.

**Outcomes & Evaluation:** In 2014, each CHW participated in a survey and focus group to assess nutritional knowledge, quantify the CHWs ability to disseminate the knowledge, and discuss successes and barriers to teaching childhood nutrition in the community. 82% of the 22 participants who attended the seminar in 2013 shared this knowledge in the Nakaseke community. CHWs estimate that the knowledge has reached hundreds of community members. Furthermore, 100% of the CHWs believe sharing information through seminars was effective and that people attending nutritional seminars are changing their nutritional practices.

**Going Forward:** The CHWs identified a number of barriers to teaching nutrition including the cost of food needed for demonstration