

Program/Project Purpose: Nigeria's maternal mortality ratio is the tenth highest in the world, with an estimated 630 maternal deaths per 100,000 live births (WHO 2010). The Nigerian government is implementing a maternal and child health conditional cash transfer (CCT) scheme, paying women to attend ANC, skilled delivery and immunization to address high mortality. Currently the government is using a cash/paper based system to track and pay clients, requiring large costly overhead and heightening potential corruption. The current system limits the ability to scale CCT to the 1,250 site goal. From 2014 - 2015, Pathfinder International and the Nigeria government are piloting mobile technology and mobile money to improve the efficiency of the CCT program, in order to learn lessons for national scale.

Structure/Method/Design: Pathfinder developed and piloted a mobile phone application to register and track CCT clients and a web dashboard for government staff to view and approve payments via mobile money. This pilot project is in 5 sites near Abuja, Nigeria. Pilot sites were selected by the government and women in low income brackets qualify to receive CCT payments. Mobile network operators (MNOs) and Banks were engaged to support implementation of mCCT. Government staff, health workers, MNOs and Banks are engaged in a national MCCT working group guiding the design of this project. Pilot evaluation will inform the development of a costed business model to scale up and sustain the mCCT program.

Outcomes & Evaluation: Currently, 5 sites are using the mobile application, government staff are trained on the dashboard, and over 300 women have been registered in mCCT. Clients are given free SIM cards to receive appointment reminders, mCCT payments and give feedback on the quality of services received. A BUSPH Doctor of Public Health (DrPH) student will conduct a pilot evaluation in early 2015. Research methods include: 1) interviews with clients, health workers, government and other experts and 2) review and use of data from ongoing research in Nigeria examining the impact of introducing mobile applications on the quality of ANC services in Nigeria and two cost effectiveness studies looking at the impact on health outcomes and efficiencies gained by introducing mobile money. A scale up framework will be developed based on results.

Going Forward: Ongoing challenges include delayed signing the MOU with the government and bank for mobile money implementation. Mobile money payments have not yet been made to clients, but expected to start in December 2014. Pilot project evaluation results expected in

Funding: UN Foundation.

Abstract #: 02ITIS017

Evaluations of complex global health initiatives: evidence on the need for case-based research

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Background: Seminal evaluations have repeatedly exposed challenges in getting evidence on what works, why, and under what conditions. More evaluation studies are using case-based mixed methods in response. The Institute of Medicine convened a workshop in January 2014 to explore the experiences of complex global health program evaluations and consider lessons learned. Here we analyze the workshop proceedings to identify key messages, and identify steps to improve the science of case-based evaluation methods.

Methods: Our findings are based on participant observations and analysis of major themes, identified by coding the workshop proceedings in NVivo. These were grounded by our experiences with two of the core

evaluation examples of the workshop and participation in other case-based, mixed-methods evaluations of global health interventions.

Findings: All evaluations presented or discussed at the IOM workshop used case-based mixed methods, either solely or as a part of overall study design. There was a strong emphasis on the need for causal theories of change for all program purposes: design, implementation, performance improvement, and evaluation. Consensus on the need for deeper understanding of implementation context was supplemented by calls for differentiating between: contextual "constants" which cannot be influenced; contextual factors which can; and contextual factors that directly support observed changes. Importantly, controlling for contextual complexity using RCT or QED designs may remove the very things that should be identified as important mechanisms for change. Near universal use of multiple methods for capturing the how and why of intervention implementation success explained the predominance of case-based approaches for evaluating complex global health initiatives.

Interpretation: We propose three feasible methodological steps to improve quality and utility of case-based evaluations. 1) Evaluators should assess implementation and contextual variability directly, not just control it, distinguishing among contributors, supporting factors, and pre-conditions to program success or failure. 2) Evaluators should use purposive case selection as an explicit strategy to improve the transferability of findings to other implementation situations. 3) Evaluators need to balance context-specific (within-case) implementation detail with context-neutral (cross-case) patterns of successes, failures, and solutions to problems. To make progress in global health post-2015, we need to successfully operate complex interventions at scale, in varying implementation situations, and consistently over time. Currently we rarely gain systematic insight on how implementers were able to achieve success, or not; what problems were addressed successfully, or not; or how situational variability affected successes and challenges. This information is crucial if we are to increase the likelihood of success, scale, and sustainability for global health interventions that are known to work, but somehow do not when implemented at scale or in new settings. Well-designed, theory-grounded, case-based, multi-methods evaluation studies that assess context show a way forward for evaluations to provide this necessary information.

Funding: none.

Abstract #: 02ITIS018

Telesurgery presence in low and middle income settings: A systematic review

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Background: Telehealth, the application of telecommunications to healthcare, is a rapidly growing and diversifying field. It is well known that telecardiology and telepsychiatry are some of the fastest growing subsets of telehealth. This boom is revolutionizing how medical care is being delivered in low and middle-income settings. However, it is relatively unknown the role telesurgery currently plays in LMICs. A more thorough understanding is necessary of telesurgery's position in LMICs in order to illustrate how it can be expanded to improve care.

Methods: A systematic literature review was conducted using PubMed, EMBASE, The Cochrane Library, CINAHL, WHOLIS and 5 regional databases, to identify journal articles published from 2004 to October 15th 2014 which described the use of telehealth or telesurgery in general. The resulting literature was categorized based upon World Bank July 2014 definitions of low, low-middle, and high-middle income countries; high-income countries were excluded. Article references were searched for additional relevant sources. Data

collected when available included specific surgical field, category of technology used, intent of technology used, effectiveness (e.g. patient outcomes when applied to patient-care, or test-scores when used for education), patient satisfaction, and costs.

Findings: The review resulted in data for 2 LIC, 4 LMIC, and 8 HMIC countries in 21 articles. The most common surgical field was endocrine surgery, followed by orthopedics. Generally, videoconferencing (62%) was the most common technology used, and teleconsultation (38%) was the most common use of technology. Generally, utilizing telehealth in surgery was effective, satisfying to the patient, and economical with no difference noted where calculated although significance was questionable.

Interpretation: Telesurgery exists in many permutations in LMICs. However, there is little evidence in the medical literature illustrating its use other than in high-income settings. Issues such as infrastructure, overstressed workforce, or scalability were just a few of the issues that are relevant, which are ignored by the present literature. Further research is required to evaluate these areas in addition to relevant usage, technologies, and outcomes of telesurgery, especially in low and middle-income settings.

Funding: No funding was received for this study.

Abstract #: 02ITIS019

Scaling up WelTel: an evidence-based, patient-centred mHealth intervention

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Program/Project Purpose: WelTel is an interactive text messaging mobile health (mHealth) program involving weekly check-ins with patients, and follow-up through voice communication when needed. We previously demonstrated the effectiveness of the WelTel intervention in improving HIV outcomes in a landmark randomized clinical trial conducted in Kenya. As part of this program, we are building on our previous work to scale up and conduct a comprehensive evaluation of the WelTel intervention in several government clinics where it is being implemented in Canada and Kenya. The aim is to determine the feasibility, cost-effectiveness and sustainability of the WelTel intervention for improving Human Immunodeficiency Virus (HIV), tuberculosis (TB), Maternal Neonatal and Child Health (MNCH) and asthma patient outcomes. This project is expected to run until January 2017.

Structure/Method/Design: In Kenya, the intervention is being scaled up in the Northern Arid Lands region, where the need for mHealth services is greatest. In Canada, we are focussing on marginalized communities suffering from HIV and TB, where interventions to improve patient engagement are needed. We will use the published Consolidated Framework for Implementation Research (CFIR) to conduct a comprehensive evaluation of the program across all the implementation sites. To encourage viability and sustainability, we are working closely with government and institutional authorities, as well as other implementation partners to develop and harmonize mHealth policies and standards. To enhance economic sustainability, we have developed a hybrid business model (consisting of a not-for-profit arm to operate in Kenya and other low-income settings, and a for-profit arm to operate in Canada and other high-income settings).

Outcomes & Evaluation: So far, we have successfully implemented the program in 7 HIV clinics in Kenya. Based on user feedback, we have developed a robust and user-friendly patient engagement mHealth technological platform, which works well, even in remote settings. We are currently conducting a comprehensive evaluation of quantitative and qualitative patient and health system outcomes. Initial feedback suggests that the majority of health providers, patients and decision-makers highly value the intervention, particularly its

capacity for keeping vulnerable patients connected to the health care system, and allowing effective remote patient follow up and triage.

Going Forward: We are working closely with health authorities and regulators to develop consistent mHealth policies and standards, as these are required to guide implementation. Based on the feedback we have received from our stakeholders, we are exploring ways to furth

Funding: Grand Challenges Canada, CDC.

Abstract #: 02ITIS020

mMOM - Improving maternal and child health for ethnic minority people in mountainous region of Thai Nguyen province of Vietnam through integration of mHealth in HMIS and user-provider interaction

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Program/Project Purpose: Context: Vietnam is likely to achieve MDG on maternal and child health (MCH) but MCH indicators for ethnic minority people and people living in mountainous regions are far lag behind. Education, access to health care knowledge and services, remoteness from health care services were found as the main reasons. Period: 3 years between 2014 and 2016. Rationale: It is expected that mobile phones can help to mitigate barriers to MCH services of the ethnic minorities and people living in mountainous region and facilitate interaction between them and health workers for better health outcomes. Aim: To develop, pilot and learn about feasibility of a low cost mHealth behavior-change-communication (BCC) model as a part of the existing health management information system (HMIS) in the province for better MCH outcomes in mountainous region.

Structure/Method/Design: The goal is to improve health of pregnant women and the newborns in mountainous regions. Participants and Stakeholders: Institute of Population, Health and Development (PHAD) and Thai Nguyen Provincial Health Department (TNHD) are co-managers; district and commune health departments are implementers of the project; pregnant women and new mothers are the beneficiaries. VEH Medical Investment and Communication (VEH) develop the software. VEH, Simon Fraser University (SFU), Centre for Addiction and Mental Health (CAMH), and consultants from Hanoi Medical University (HMU) and School of Public Health (HSPH) provide technical advisories and capacity building trainings. Capacity Building/Sustainability: TNHD is a co-manager of the project and own project resources after its completion for further use and scaling-up. Staffs of district and commune health centers are implementers of the project; they received various capacity building trainings for full ownership and management of the intervention.

Outcomes & Evaluation: To date, the mHealth BCC and HMIS-integrated model was developed and used. Assessment survey was completed and used to refine the project activities. Data collection for pre- and post-intervention surveys is progressing. Capacity building trainings were completed; graduate students from HMU, HSPH, SFU and University of Toronto have been engaged to the project. Ministry of Health provided MCH materials to the project. Monitoring & Evaluation Results: TNHD and local health workers show great supports and positive feedbacks to the piloting model; they found that it helped to reduce their work load and meet the expected goals of the MOH on MCH. Participating women are very satisfied with the intervention.