

INNOVATIVE APPROACHES AND TECHNOLOGIES

IN GLOBAL HEALTH

Midwives' perceptions of an innovative mHealth technology's impact on their work and job satisfaction

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Background: In 2013, Health Alliance International, in collaboration with the Timor-Leste Ministry of Health, implemented Liga Inan, a comprehensive pilot program to reduce maternal and neonatal mortality. The program's mHealth component is designed to increase one-way and two-way communication between midwives and mothers. The study objective is to understand midwives' experiences in adopting and using Liga Inan and its impact on workload and job satisfaction. Understanding the experience of midwives, who are charged with using the program's mHealth technology, is critical to effectiveness and scalability. Results also highlight potential health workforce considerations in designing and implementing mHealth programs.

Structure/Method/Design: The study used primarily qualitative methods: semi-structured interviews with available midwives using Liga Inan (17), facility observations (8), and program monitoring data, interpreted through content analysis. Quantitative data analysis used to assess workload and potential correlation between selected midwife characteristics and program use.

Results (Scientific Abstract)/Collaborative Partners (Programmatic Abstract): Preliminary analysis revealed midwives generally perceived decreased workload, due to efficiencies of using cell phones versus other methods of contact, and increased job satisfaction. Perceived increases in job satisfaction were a result of self-reported improvement in their ability to control care given, provide continuity of care, provide quality care, access professional support, and reach MOH targets. Access to transportation was perceived as the main challenge, which affected midwives' ability to assist mothers in delivering in facilities and in the home and was a source of significant frustration and dissatisfaction. Other key factors affecting perceived impact included mobile signal consistency, number of health care providers in the facility, period in program implementation and individual midwife characteristics.

Summary/Conclusion: Liga Inan increases midwives' access to communication and two-way information exchange—midwife—mother and midwife—midwife. This empowers midwives, which, in systems where health workers have little control, is critical to providing quality services and maintaining job satisfaction. While many mHealth programs focus on improving healthy behaviors or data collection, using mHealth to empower health workers in ways relevant to their context may promote sustainable health system improvement.

Validating a need for a teledermatology partnership in the Toledo District of southern Belize

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Background: Hillside Healthcare International (HHCI) is a US-based nonprofit organization dedicated to providing health care, education, and community outreach to the medically underserved of rural southern Belize. This region has a high incidence of cutaneous diseases and a paucity of dermatologists, necessitating dermatologic training and education for providers at HHCI. The purpose of this study is to characterize and quantify dermatologic disease presentation, patient characteristics, and disease management by HHCI providers. Additionally, this information assesses the need and provides a framework for a teledermatology partnership between the Medical College of Wisconsin (MCW) and HHCI.

Structure/Method/Design: A retrospective chart review of patient medical records at HHCI was completed from January to July 2013. Eligible patients were identified from the HHCI diagnosis database as having a dermatologic chief complaint or a diagnosis of a dermatologic disease. To narrow the field, the focus was patients with the diagnosis of "rash, unspecified" or "other dermatitis." Data was then analyzed to find the most common diagnoses and what was used, if anything, to treat them.

Results (Scientific Abstract)/Collaborative Partners (Programmatic Abstract): In collaboration with HHCI, this project was funded by the American Academy of Dermatology Skin Care for Developing Countries, the MCW Department of Emergency Medicine, and The Dr. Elaine Kohler Summer Academy of Global Health Research.

Summary/Conclusion: In this study, the most common diagnoses and treatments at HHCI were described. More than 1 out of every 10 patients within the 279 charts reviewed had a vague diagnosis of "dermatitis" or "unspecified rash." This data illustrates HHCI providers' strengths and areas for improvement in diagnosing dermatologic diseases. Furthermore, the data successfully highlights the utility of a teledermatology partnership as a modality to better characterize and treat challenging skin conditions. In addition, this program will be educational for providers and trainees in both Milwaukee and Belize.

Some challenges to the partnership include the teledermatology interface, which is a store and forward method lacking three-dimensional imaging. Additionally, challenges specific to telemedicine in rural Belize include unreliable and inadequate Internet service to transfer the information and images, limited time to complete background consult information, as well a method for securing HIPPA compliant information transfer. This partnership also relies on the participation of physicians working at HHCI and their comfort levels with dermatology, which varies with physician turnover.

Dengue fever prevention strategies through community participation and the innovative use of local resources in Northeast Thailand

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Background: A low-cost, multifaceted mosquito reduction project was implemented in a rural district of Sakon Nakhon Province in northeastern Thailand. A novel mosquito trap using local materials

was developed and incorporated into a comprehensive educational program to reduce dengue fever.

Structure/Method/Design: The project consisted of education and instruction about mosquito reduction strategies including the elimination of unnecessary standing water, identification of mosquito larvae in water, the development of an educational brochure, and the construction of a simple mosquito larvae trap. Techniques for trapping mosquitoes and larvae were researched and with the assistance of Thai villagers, a simple design for building a mosquito trap from local bamboo was developed.

The trap was based on lethal ovitraps, which research suggests effectively reduce mosquito populations. During the initial phase of the project, traps were distributed throughout subdistrict Srivichai: the local government office, health clinic, schools, and houses of village chiefs. After several periods of observation and mosquito larvae counting, interest in the project grew and a larger project was organized. During this time, the author applied for and was awarded funding from the government of Thailand. A brochure was created in both English and Thai that explained dengue fever, mosquito reduction strategies, and how to build the mosquito trap. Once interest in the program gained momentum, trainings were conducted with Village Health Volunteers (VHVs) in each of the 16 communities in Srivichai Subdistrict. VHVs are villagers who receive a small stipend in exchange for participating in health trainings and disseminating health information to their village. During the first round of trainings, approximately 4 hours were spent in each village building mosquito traps with VHVs and teaching them about other mosquito reduction strategies. During the second round of trainings the VHVs taught other villagers how to build the traps and educated on mosquito-reduction strategies.

Results (Scientific Abstract)/Collaborative Partners (Programmatic Abstract): The project was completed in collaboration with the staff of the Non Udom Health Promotion Hospital.

Summary/Conclusion: The project was completed over the course of 6 months. The total number of participants (including the VHVs) was approximately 440, and approximately 2300 traps were constructed.

Recommendations include 1) continuing trap construction until each household has at least five traps, 2) testing new pesticides such as BTI, a bacteria that is effective in mosquito reduction, 3) encouraging the use of larvae eating fish in standing water that cannot be eliminated. Challenges for the project included scheduling during the rice planting season, language (although the project was conducted in Thailand, most VHVs only spoke Lao), and lack of motivation among VHVs in certain villages.

Outreach and portable ultrasound—A novel method of improving antenatal turnout, maternal health, and preventing mother to child transmission of HIV in rural Uganda

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Background: Uganda currently has the 20th highest rate of maternal mortality in the world due to a large portion of its rural communities being isolated due to mountainous topography, a lack of adequate access to health care, a population that seeks treatment predominantly from traditional healers and is mistrustful of modern medicine.

Structure/Method/Design: A Canadian medical and dental not-for-profit corporation engaged in a partnership with a Ugandan

not-for-profit nongovernmental community development organization to develop a structured maternal health camp (sMHC). The four-pronged approach of elimination of mother-to-child transmission (MTCT) of HIV was followed in the design of the sMHC. The clinic centered on providing expectant mothers in rural Uganda with a free obstetric ultrasound (OBU) using portable ultrasound technology. Patients rotated through registration, pre-test counseling, testing for HIV and syphilis, family planning, intermittent preventative therapy for malaria, provision of iron and folate supplements, OBU and, for the women identified as being high risk by triage, dental and/or medical services.

Results (Scientific Abstract)/Collaborative Partners (Programmatic Abstract): In 1 day, 45 pregnant women rotated through the clinic. Each woman received an OBU along with standard antenatal care. In total, 10 women identified themselves as being HIV+ at registration. An additional two women were diagnosed as being HIV+ during the health camp. All HIV+ women received counseling and were started on antiretroviral medications. Only seven women had ever previously had an OBU, and all 45 women verbally identified that the reason for attending the antenatal health camp was to receive a free OBU. All 45 women verbally identified that they would return to seek health care from a medical provider in the future.

Summary/Conclusion: By creating an sMHC centered around a free OBU, women who rely almost exclusively on traditional healers were successfully encouraged to seek medical care during pregnancy. These women all received invaluable prenatal care including screening for HIV, syphilis, and malaria in addition to an OBU along with medical and dental services. Barriers to health and education were broken down through community partnership and innovative health care strategies.

By providing a stimulus for pregnant women to seek out health care providers, OBU may help to eliminate MTCT of HIV, improve the health of both mother and child, and build trust and understanding between the rural Ugandan population and the national health care system. This strategy is easily up scalable and implementable across a wide range of rural landscapes. Further studies to confirm this approach on a larger scale are needed.

A randomized controlled trial to determine the efficacy of portable ultrasound in increasing antenatal care attendance is currently being designed and awaiting approval from an ethics review board to be launched in February 2014.

Dispatching community-based first responders via text message in violent areas of the Western Cape Province, South Africa

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Background: The Western Cape province of South Africa lacks resources to provide timely prehospital emergency care for its citizens. Ambulances can take hours to respond to critical emergencies, and community members report that people often die waiting for ambulance care. To alleviate this problem, the provincial government relies on 3000+ community-based emergency first aid responders (EFARs) to assist with emergencies. EFARs, however, are often unaware of local incidents; and they asked for a way the provincial EMS could alert them to local medical emergencies.

Structure/Method/Design: Under the supervision of EFARs in the townships of Manenberg and Lavender Hill, we designed and tested a software program that text messages EFARs the locations of medical