

TECHNOLOGY AND INNOVATION

WARMI-SMS: Sending one text to improve two lives: using mobile technologies to improve maternal health in Peru

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Program/Project Purpose: WARMI-SMS is a study anchored in the Community-Based Participatory Research (CBPR) approach that aims to improve the prenatal care experiences among women in resource-poor communities in Lima, Peru. Working hand in hand with healthcare professionals in Carabayllo, a marginalized and socially excluded district in the northern part of Lima, WARMI-SMS explores how to design an effective, culturally-relevant text messaging system (SMS) to provide health information to expecting mothers.

Structure/Method/Design: Through our very own semi-structured interviews of pregnant women, their relatives and partners, community members, and healthcare professionals in Carabayllo, we attempted to identify barriers and facilitators for adequate prenatal care among this vulnerable population. The US-Peru research team developed questions related to housing and living conditions, economic factors, employment conditions, family/social support, educational factors, quality of health services, as well as individual health, nutrition, and prenatal care practices of expecting mothers. Questions regarding use of mobile devices and access to the Internet were also included. A total of 34 key informant interviews were conducted between the months of June and July 2015. The Institutional Review Board of the University of Massachusetts Medical School (UMMS) and the Peruvian National Institute of Health approved the study protocol (UMMS IRB # H00005827).

Outcome & Evaluation: Our qualitative analyses indicate that pregnant women in Carabayllo face several barriers to adequate prenatal care. Limited numbers of health care facilities and trained personnel, lack of family/social support, economic burdens, low literacy levels, lack of educational opportunities, extremely poor living conditions, and low nutrient intake lessen the chances of healthier pregnancies. Our poster presents preliminary results from this first assessment phase of the study.

Going Forward: The US-Peru team will be incorporating results from this first assessment phase into a set of text messages (SMS's) intended to bring critical health information to our target audience. The second phase of this study will include a series of focus groups among pregnant women to gather their preferences for messages format, content, frequency and other human factors aspects relevant to any socio-technical development.

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Improving the safety of pediatric drug dosing with the SAFE-D Tape

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Program/Project Purpose: Pediatric drug dosing is a complicated process, requiring weighing the patient and multiple, sometimes complicated, calculations. In high resource settings this process is error-prone and potentially unsafe. In low resource settings there are added obstacles to correct dosing including less educated providers, higher numbers of patients seen by each provider and, at times, limited access to a calibrated scale.

We propose development of a new height-based tool called the SAFE-D Tape (short for Safe and Fast Estimation of Dosages Tape) to simplify drug dosing, hence improving patient safety by reducing errors in low resource settings. A simple, height-based tool called the Broselow Tape has been successful in reducing medication errors and provider stress in pediatric resuscitations by removing the required calculations. It is so helpful that it can be found in most US emergency departments and ambulances. It is a highly effective tool in high resource settings, but low resource settings have key differences that limit the utility of this tool there. The SAFE-D Tape is designed with similar principles but contextually appropriate modifications for low resource settings.

Structure/Method/Design: In low resource settings, aggressive resuscitation measures, which the Broselow Tape focuses on, are often not in the scope of practice. The SAFE-D Tape is being designed to simplify dosages for clinically relevant medications such as antibiotics, anti-malarial and anti-parasitic medications. Our new tape will use anthropometric measurements more representative of the target populations than the Broselow Tape, which was developed using measurements from American children. Additionally, low and low-middle income countries have higher rates of malnutrition, thus the SAFE-D Tape has one side for adequately nourished children and another for malnourished children with different measurements and pharmacokinetic considerations.

Outcome/Evaluation: Primary outcome measure is reduction in dosage related errors compared to techniques currently being used in low resource pediatric treatment centers. We also need to demonstrate providers can use the tool correctly with minimal training.

Going Forward: If this is determined to be an effective tool in improving safety we need to determine a low cost method of distribution and education on using the tool.

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