mHealth in Myanmar: Community-based Participatory Design of a Population Health Surveillance Data Collection Application

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Background: Myanmar's Chin state is one of the country's least developed regions and has the highest poverty rate (73%).[1] The Chin people face multiple cultural, structural, and institutional barriers to accessing adequate healthcare. Health and Hope Myanmar (HHM) and Health and Hope UK (HHUK), our community partners in this work, are the only providers of healthcare services to the ethnic minority regions of the Chin. HHM strives to improve health and wellness in the Chin state.[2] However, a current barrier to understanding health needs and implementing new programs involves a lack of actionable population-level health surveillance data. Fortunately, Myanmar is one of the fastest growing mobile markets in the world with smart phone usage and mobile coverage expanding. [3] Currently HHM's population surveillance is done by using paper forms, which have inaccuracies and can be somewhat unreliable. Our goal is to work collaboratively with HHM to create mobile technology-based surveillance forms to improve data collection methods and increase accuracy. More accurate surveillance data will help HHM understand the state's greatest health concerns, then implement and evaluate programs to address related issues.
Objective: To design, develop and evaluate the feasibility of mobile phone-based mobile application to collect population surveillance data of patients in Myanmar's Chin state.
Methods:
We are conducting a workflow analysis of existing paper-based data collection forms by interviewing the key stakeholders from HHUK and HHM, including the midwives, Traditional Birth Attendants (TBAs) and Community Health Workers (CHWs). These interviews are carried out over multiple teleconference sessions and are currently in progress. We are using CommCare, an open-source platform designed by Dimagi, specifically for data collection in low-resource settings, to facilitate design of the mobile phone-based application (Figure 1). In parallel with our interviews, we are iteratively creating prototype designs of the data collection tools. We are employing a user-centered, participatory design approach that actively elicits feedback from the stakeholders in the design process to help ensure the design meets their requirements and is usable in the specific context.[4]
Results: Our discussions with stakeholders to date have revealed the importance of considering cognitive processes, workflow requirements, tasks of the end-users (local TBAs and CHWs). Our final product will involve a mobile health-based application for population health surveillance data collection

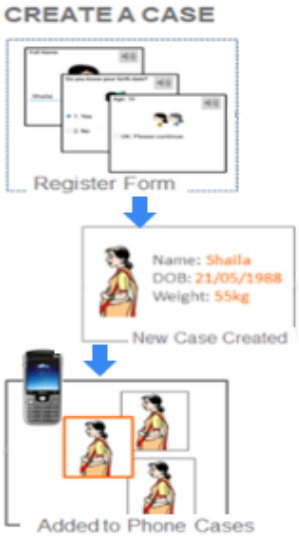

Figure 1. New patient cases added as phone cases

Conclusion Enacting community-based interventions first requires an understanding of the needs of a community. Our work represents a first-step to
working with HHM to aid them in improving health and wellness in Myanmar's Chin state. Results obtained from this study will inform future mHealth studies geared towards a community-based participatory approach in low-and-middle-income countries.
Acknowledgements: We would like to acknowledge the Anna-Maria and Stephen Kellen Foundation (PI-Masterson Creber) for providing pilot funding for this work.

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