A Communicative Landscape of Health Information Needs for Malaria Management in the Millennium Villages Project in Bonsaaso, Ghana

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Abstract: We performed a qualitative study (n=39) mapping the health information needs of stakeholders involved with malaria prevention and treatment in rural Ghana as part of a larger effort to develop integrated, scalable eHealth tools. Initial results can be categorized into four areas: health care delivery, data quality, technical problems and workforce-related problems. This comprehensive review of information challenges in one area identifies fertile ground for potential improvement using health information technology.

Introduction: Health Information Technology has the potential to improve health care in developing countries. Information tools that seamlessly integrate into the workflow of health care workers are essential to achieving this goal. In this paper we present a formative study to identify information gaps and needs of the different stakeholders involved in the prevention and treatment of malaria in rural Ghana. Our study maps the communication chains within the Millennium Villages Project (MVP) malaria program in Ghana with the following objectives: 1) To identify stakeholders that directly influence the halt and reduction of malaria incidence (boundary partners). 2) To identify the tasks related to their work and specifically to outline obstacles and challenges they face. 3) Assess the information needs for new potential eHealth support tools.

Methods: This is a qualitative methods study involving interviews with key informants and review of existing documents. We developed a semi-structured interview instrument. We conducted detailed interviews in the field with 36 persons and three others were performed via Skype. The interviews were conducted in English and Twi. The data were collected using hand-written notes and some photos were taken of registries, medications, clinics and health workers. All the interviews were recorded and transcribed into English. The transcripts were analyzed using a descriptive content analysis approach.

Results: We present initial findings based on a subset of 16 interviews with the remainder to follow. The current challenges were categorized into: health care delivery, data quality, technical problems and workforce-related problems. *Health Care Delivery* challenges included difficulty with managing prescriptions, trouble with misdiagnosis, and drug and testing kit shortages. Some workers reported communication issues due to language barriers with the patients and some patients did not attend the clinics when they were referred and were not followed up. *Data Quality* problems specific to this environment included: poor timeliness of reports due to work overload, and transportation problems in the community. Lengthy and complex manual completion allowed for miscalculations and errors in aggregated data. Data are incomplete, forms are often illegible, and errors are introduced when data are transferred from paper to electronic systems. *Technical Problems* included difficulties with connectivity to the server and to the cell phone network. *Workforce-related problems* stemmed from insufficient staff and poorly defined task assignments.

Discussion: This research is part of a larger study to develop new eHealth tools that can be integrated seamlessly into the workflow of MVP. Information needs are being analyzed from the perspective of the key informants that were interviewed and also through the contribution of the researchers. Future work includes validation of our findings with MVP staff in Ghana as well as determining priorities for improvement. A limitation of the study is that it only concerns one disease within one country, but it is relevant for the stakeholders in Ghana and could be replicated in other MVP countries.

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