



## Short report

## Utilizing community health worker data for program management and evaluation: Systems for data quality assessments and baseline results from Rwanda

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## ABSTRACT

Community health workers (CHWs) have and continue to play a pivotal role in health services delivery in many resource-constrained environments. The data routinely generated through these programs are increasingly relied upon for providing information for program management, evaluation and quality assurance. However, there are few published results on the quality of CHW-generated data, and what information exists suggests quality is low. An ongoing challenge is the lack of routine systems for CHW data quality assessments (DQAs). In this paper, we describe a system developed for CHW DQAs and results of the first formal assessment in southern Kayonza, Rwanda, May–June 2011. We discuss considerations for other programs interested in adopting such systems. While the results identified gaps in the current data quality, the assessment also identified opportunities for strengthening the data to ensure suitable levels of quality for use in management and evaluation.

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## Introduction

Community health workers (CHWs) have been used to decentralize important health services for decades, including to help achieve “health for all” (Berman, Gwatkin, & Burger, 1987; WHO, 1978) and more recently to reduce child and maternal mortality (Bhutta, Darmstadt, Hasan, & Haws, 2005; Edward et al., 2007; Hafeez, Mohamud, Shiekh, Shah, & Jooma, 2011; Haines et al., 2007; Lehmann & Sanders, 2007; Prata et al., 2012; de Sousa, Tiedje, Recht, Bjelic, & Hamer, 2012; United Nations Statistics Division, 2012; WHO & Global Health Workforce Alliance, 2010; WHO/UNICEF, 2004a, b; Young, Wolfheim, Marsh, & Hammamy, 2012). The goals of such programs include increasing access to care by

removing barriers of distance and costs, identifying and treating illness earlier, and monitoring uptake of health programs.

In addition to improving access to health care, CHWs are collecting and reporting on a large volume and range of information on a routine basis. Currently, these data are used at all levels to monitor, manage and evaluate CHW programs. Further, the data provide information to guide health system priorities, identify gaps in service delivery, and detect any emerging health issues. Indeed, a well-functioning health information system, including the data collected during community-level service delivery, forms the backbone of an effective health system (WHO, 2007).

However, concerns exist around the quality of CHW data and as a result, the appropriateness of using them to guide program management and evaluation. Studies of facility-based health information systems carried out in sub-Saharan African countries have shown that data (both paper and electronic) can be of sub-optimal quality (Forster et al., 2008; Garrib et al., 2008; Makombe et al., 2008; Maokola et al., 2011; Mate, Bennett, Mphatswe, Barker, & Rollins, 2009; Mavimbe, Braa, & Bjune, 2005; Ndira,

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Rosenberger, & Wetter, 2008; Rowe et al., 2009). To date, very few studies have assessed the quality of and factors affecting data collected and reported by CHWs. A reliability study in Kisumu, Kenya found varying quality of CHW data depending on activity area; for example, latrine and antenatal care use were more reliable than immunization coverage indicators (Otieno, Kaseje, Ochieng, & Githae, 2012). Authors found accuracy in monthly reports to be <50% in the national Lady Health Workers program in Pakistan, attributed to weak supervision and inappropriate and numerous data collection instruments (Mahmood & Ayub, 2010). In another study in Ghana, misreporting was common, with health center staff shortages during community outreach being associated with under-reporting (Helleringer, Frimpong, Phillips, Avoonor-Williams, & Yeji, 2010). While tools exist to assess the quality of facility-based data (Aqil, Lippeveld, & Hozumi, 2009; The Global Fund, 2008), there is no such standardized, routine methodology for measuring CHW data quality either on its own or as part of a broader community-based health information system.

The Rwanda community health program was initiated in 1995 by the Ministry of Health (MoH) and now has 45,011 CHWs (MoH, 2008; Mugeni, 2012). In 2005, the MoH revised the CHW system to deliver a broader range of preventive and curative services, and is currently training different types of CHWs to carry out these activities. In each village, there is a maternal health CHW who monitors pregnant women and their newborns and at least two multi-disciplinary CHWs who carry out: 1) integrated community case management (iCCM) (a global strategy adapted by Rwanda) (MoH, 2011; Young et al., 2012); 2) malnutrition screening; and 3) other preventive and behavior change activities.

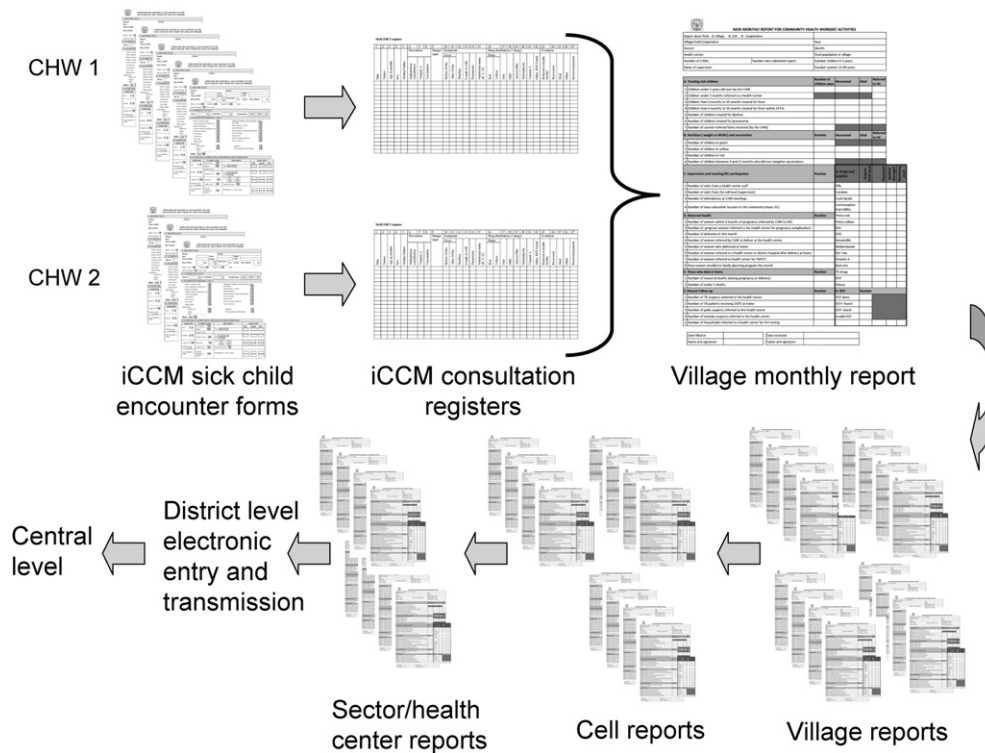
The MoH has established a standardized community health information system that makes CHW data available at the sub-national and national levels. For this paper, we focused on data collected and reported by multi-disciplinary CHWs for their iCCM activities (assessment, classification and treatment or referral of

diarrhea, pneumonia, malaria and malnutrition in children aged under five years). During each sick child visit, CHWs complete an encounter form (hereafter “form”) using an algorithm to guide them. Key data from each form are transferred to the iCCM consultation register (hereafter “register”) and the CHWs use the registers to generate the monthly, village-level report (hereafter “report”) (Electronic Supplementary Materials). The village reports are then aggregated – first at the cell level (a cluster of villages); then at the sector level (corresponding to the health center) after which they are sent to the district level, where the data are entered electronically and transmitted to the central level (Fig. 1).

As in other CHW programs, the MoH and partners use CHW-collected data for program management, evaluation and quality assurance of CHW activities. Additionally, some data are included in the national performance-based financing (PBF) system whereby the MoH makes quarterly payments into CHW cooperatives based on the quantity of certain activities reported and the timeliness and completeness of the reports. Because of the reliance on CHW data, maintaining quality data in the forms, registers and reports is of utmost importance. Below, we present details on the system developed for assessing CHW data quality and results from the first implementation. We discuss the strengths and limitations of the data quality assessment (DQA) system to facilitate adoption of such assessments for other CHW programs.

**Methods**

A DQA system was designed and field tested at the eight health centers (HC1-8) in southern Kayonza – one of three rural districts in which the organization Partners In Health (PIH) has worked since 2005 with the Government of Rwanda (GoR) to support their Health Sector Strategic Plan (GoR MoH, 2005, 2009, 2010). In southern Kayonza, PIH provides technical and financial support to



**Fig. 1.** Data flow for the iCCM program as part of Community Health Worker information system.

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