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Feasibility Study of the Implementation of Integrated Community Case Management (iCCM) in Bondo: Leveraging Existing Systems

Midline Assessment Report

December 2014

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Abbreviations

ACT	Artemisinin Combination Therapy
AL	Artemether/Lumefantrine
BCC	Behavior Change and Communication
CHC	Community Health Committee
CHEW	Community Health Extension Worker
CHS	Community Health Strategy
CHV	Community Health Volunteer
CHW	Community Health Worker
CU	Community Unit
DHMT	District Health Management Team
iCCM	Integrated Community Case Management
ITN	Insecticide-Treated Net
KII	Key Informant Interview
KNBS	Kenya National Bureau of Statistics
MCHIP	Maternal and Child Health Integrated Program
MCSP	Maternal and Child Survival Program
MDG	Millennium Development Goal
MOH	Ministry of Health
MUAC	Mid Upper Arm Circumference
ORS	Oral Rehydration Salts
RA	Research Assistant
RDT	Rapid Diagnostic Test
REDCap	Research Electronic Data Capture
SCHMT	Sub County Health Management Team
U5MR	Under-5 Mortality Rate

Executive Summary

Introduction: Bondo is one of six Sub Counties of Siaya County, located in the Western region of Kenya. It has one of the highest infant mortality rates in Kenya, at 110 infants per 1,000 live births, and an under-5 mortality rate (U5MR) of 208 per 1,000 live births, which is thrice the national U5MR of 74/1,000 (Kenya National Bureau of Statistics [KNBS] and ICF Macro 2010). Despite several strategies and policy initiatives aimed at improving health indicators especially for children under-5, there is still limited access to and use of health services in some rural areas that are underserved by health facilities.

This situation provided the impetus for advocating for the implementation of integrated Community Case Management (iCCM) as a way to address these health disparities. The iCCM feasibility study in Bondo was designed in 2013 to test whether Community Health Volunteers (CHVs) can deliver an iCCM package building on the existing community health strategy platform, thereby increasing coverage and quality of services at community and facility level and thus reducing child morbidity and mortality. In Kenya, the iCCM package includes CHVs treating diarrhea with Oral Rehydration Salts (ORS) and zinc, diagnosing malaria with Rapid Diagnostic Test (RDT) and treating with Artemisinin Combination Therapy (ACT), and referring children with suspected pneumonia (fast breathing based on the respiratory rate) or malnutrition (based on Mid Upper Arm Circumference [MUAC] reading) as well as ill newborns. Accordingly, iCCM cases include any under-5 child presenting with fever, diarrhea, cough and/or difficult breathing, or malnutrition as well as newborns.

Methods: The iCCM study is being implemented in eight Community Units (CUs) in the hard-to-reach areas of Bondo through a quasi-experimental design, using four CUs as the intervention group and another four CUs as the comparison group. Each CU has a link health facility (see Chapter 2 for details). In the intervention group, CHVs are trained on iCCM, provided with iCCM commodities to manage fever and diarrhea at home, and trained to carry out behavior change and communication (BCC) activities. They are paid a monthly stipend of $23. CHVs in the comparison group are provided with only BCC training to support health promotion activities and referral of all iCCM cases, defined for this study as fever, diarrhea, cough (difficult breathing), malnutrition, and ill newborns, to health facilities. They are also paid a monthly stipend of $23. CHVs in the intervention group are required to refer to their link health facilities iCCM cases that they are unable to treat according to the iCCM guidelines (Ministry of Health [MOH] 2013).

The implementation duration is 18 months and includes assessments at baseline (done in October 2013), midline (July 2014), and endline (planned for May/June 2015). To track the progress and fidelity of implementation, a midline assessment was conducted. This assessment collected program data, primarily from intervention group health facilities, conducted case observations including validation of classification and treatment decisions by an iCCM trainer as gold standard or validator, and perspectives of community members. Data were collected from health facilities, iCCM community program records, community-facility referrals, and key informants. Key informants interviewed included Sub County Health Management Team (SCHMT) members, Community Health Committee (CHC) members, religious leaders and local chiefs. Only referral data were collected from the comparison group CUs.

Results: Overall, the introduction of iCCM in the intervention group resulted in over a 100% increase in the iCCM cases managed from 2013 to 2014 (Jan-Jun): iCCM cases managed either at the health facility or at community level in 2014 doubled compared to cases managed in health facilities only in 2013, before iCCM

was introduced (increase from 2,367 to 4,868 cases). There was also a 12% reduction in iCCM cases managed at health facility level (compared to baseline).

Routine program monitoring data showed that a total of 2,789 iCCM cases were presented to CHVs, of which 670 (24%) were referred to link health facilities for various reasons. However, the proportion of successful referrals—iCCM cases that were referred from the community and ascertained to have been received at the health facility—was relatively low at 33% in the intervention group during the first six months of implementation, though it was 1.5 times more than in the comparison group (22%). Poor documentation of referrals at the health facilities and caregiver-related factors could explain the observed low successful referral rates.

In terms of performance, CHVs demonstrated skills to follow correctly the iCCM algorithm, from the identification of signs to the classification of illness and deciding whether to treat at home or refer to the health facility. The greatest improvement was in the ability of CHVs to examine or "look" for signs of illness (average of 3% at baseline vs. 74% at midline). Regarding the decision to treat or refer after identification of danger sign(s), there was a marked reduction in inappropriate actions taken (67% baseline vs. 13% midline), with the validator agreeing with the CHV's decision to refer most of the time. At the same time, the CHVs' ability to recognize when danger signs were not present improved, as evidenced by validator agreement (77% baseline vs. 98% at midline). These differences in changes from baseline to midline in the examination and classification of sick children were statistically significant, $p < 0.05$. However, there are some skills and other areas that the mentors have to continually impart to the CHVs. These include correctly counting number of breaths per minute, drawing of blood when performing RDT, timing RDT tests, and documentation.

The key informants reported various benefits of iCCM in Bondo, such as improved access to health services, improved health behaviors at individual and community level, community empowerment, and increased trust of the CHVs by the community. However, the stakeholders also highlighted some key challenges for implementation of iCCM in Bondo, such as lack of clarity on the role of the SCHMT (formally referred to as the District Health Management Team or DHMT before devolution in 2010) during the transition of authority from national government to counties, lack of training on iCCM for CHCs who are tasked with supervising CHVs, and lack of acceptance of iCCM by certain religious sects in the communities.

Recommendations

For Immediate Consideration (Next Six Months until End of Research)

A. SCHMT

1. Continue to build the capacity of CHVs to sustain the quality of services they provide.
2. Improve the capacity of community health extension workers (CHEWs) to collect, analyze, and use program data.
3. Strengthen support mechanisms to ensure that iCCM services will continue after the end of the study, including ensuring adequate drugs and supplies and supportive supervision of CHVs.
4. Investigate and address the low compliance with referral, as most of the iCCM cases referred by the CHVs are not reaching the health facilities for management.
5. Sensitize CHCs on their role in iCCM implementation, including how they link or support CHVs.

6. Include iCCM in Sub County plans to ensure that all aspects of implementation supported by the Maternal and Child Health Integrated Program (MCHIP) are addressed, (for example, timely payment of lunch allowances to supervisors and CHV mentors, monthly review of program data, and action on any gaps identified).
7. Bring together all the key stakeholders (SCHMT, religious leaders, chiefs, and CHCs) with the aim of clarifying their roles in the implementation of iCCM and sharing their experiences. This will strengthen their involvement and participation in the iCCM implementation.

B. Research team

1. Conduct an audit of all the equipment given to CHVs in order to establish which items are functional and what else needs to be provided to ensure the smooth implementation of the iCCM strategy.
2. Strengthen the structures that bring CHCs and CHVs together to harmonize their roles.
3. Provide continuous supportive supervision and mentorship to community health personnel, particularly to CHVs who are slow in learning, for effective delivery of iCCM implementation.
4. Encourage and support CHV follow-up of referred cases so that CHVs can document outcomes and possible reasons for lack of compliance.
5. Investigate low compliance with referral by iCCM condition; work with the SCHMT to find solutions to barriers and to support CHVs to follow up referred cases so that CHVs can document outcomes and possible reasons for lack of compliance.
6. Document more clearly cases related to malnutrition and ill newborns managed by CHVs.
7. Develop and share exit strategy; support the SCHMT to develop an iCCM scale-up plan.

For More Medium- to Long-Term Consideration (including Endline Assessment and Scale-Up)

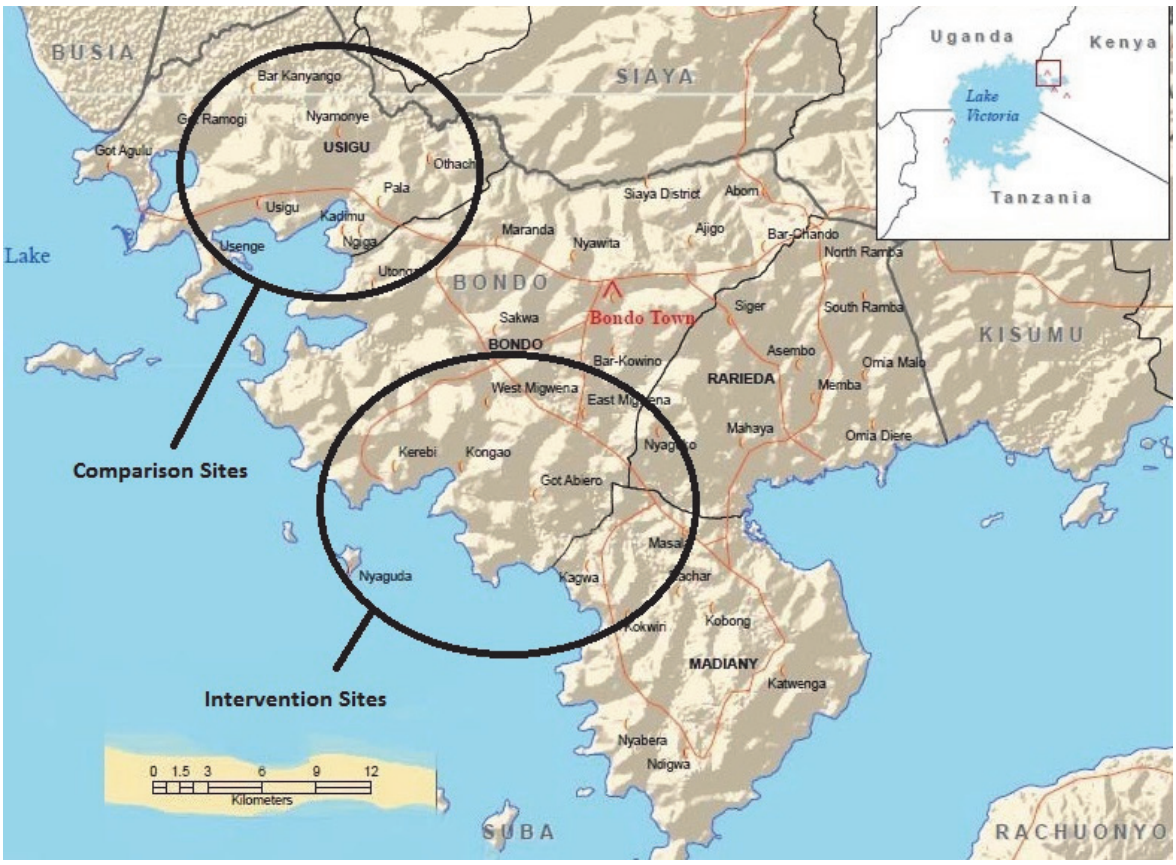
1. Include questions in the endline assessment aimed at assessing why the implementation worked well in some aspects and the challenges faced—this will provide valuable information for iCCM scale-up.
2. Explore innovative ways to continuously motivate CHVs. An example is supporting CHVs to start income-generating activities instead of depending on the monthly stipend.

Chapter One: Introduction

Background

Bondo is one of six Sub Counties of Siaya County, located in the Western region of Kenya. It has a population of 157,522, with a total area of 1,084 km^2, of which 500 km^2 are in Lake Victoria, the second-largest freshwater lake in the world. Bondo borders Budalangi Sub County to the west, Alengo Usonga Sub County to the north, Mbita Sub County to the south and Rariada Sub County to the east. There are six inhabited islands that are part of Bondo Sub County (Figure 1). The Sub County has 34 health facilities, comprising one hospital, seven health centers, and 26 dispensaries. The government owns and manages the hospital, six health centers, and 18 dispensaries; the others are owned and managed by private-sector or faith-based organizations.

Figure 1: Map of Bondo Sub County



Bondo Sub County has one of the highest infant mortality rates in Kenya, at 110 infants per 1,000 live births, and a U5MR of 208 per 1,000 live births, which is thrice the national U5MR of 74/1,000 (KNBS and ICF Macro 2010). High burden of disease, high levels of poverty, and underdevelopment have led to the declining health status of the population in Bondo (KNBS and ICF Macro 2010). Despite several strategies and policy initiatives—the MOH's *Reproductive Health Policy* (2007); Ahmed, Mitchell, and Hedt's "National Implementation of Integrated Management of Childhood Illness (IMCI): Policy Constraints and Strategies" (2010); and the MOH's *Kenya Health Policy 2014–2030* (2014)—all of which are aimed at improving health

indicators especially for children under-5, there is still limited access to and use of health services in some rural areas that are underserved by health facilities.
This situation provided the impetus for advocating for the implementation of integrated community case management (iCCM) as a way to address these health disparities. Overall iCCM interventions for children under-5 address major childhood diseases like malaria, pneumonia, and diarrhea, which are the leading causes of deaths among these children.

The term iCCM in the Kenya context refers to an integrated approach for assessing and classifying signs and symptoms of malaria, pneumonia, diarrhea, and malnutrition among children under-5, including assessment of the newborn, and providing home-based treatment or referral where indicated. Implementation of iCCM involves CHVs managing the cases that they were trained and are authorized to treat at the community level, and referring to the designated link health facility those iCCM cases that are categorized as having "danger signs" or non-iCCM conditions.

iCCM Cases

- Fever
- Diarrhea
- Cough and/or difficult breathing
- Malnutrition
- Ill newborns

Generally, the iCCM approach also includes health promotion and preventive activities such as sleeping under a mosquito net and hand washing. This care is provided by volunteers in the community who are trained by health workers on the iCCM approach (Wharton-Smith, Counihan, and Strachan 2014). The Community Health Strategy (CHS), which was developed and has been implemented by the MOH since 2006, presents a great opportunity to effectively utilize community health volunteers (CHVs) to provide services at the household level. The CHS package of services includes a community-based information system; promoting community dialogue based on this information from the system; health promotion including maternal, newborn, and child health and family planning, nutrition, malaria, and prevention of mother-to-child transmission of HIV; simple curative care (e.g., managing diarrhea, malaria, and acute respiratory infections) at the household level; and improving access to and utilization of health services (MOH 2006; Mueller, Kurowski, and Mills 2005). The mission of the CHS is for the community to become the means of social transformation for development at the community level by establishing equitable, effective, and efficient community health services in community health units all over Kenya (MOH 2006).

The CHS strategy establishes and operationalizes two cadres within the health system: CHVs and community health extension workers (CHEWs). The CHEWs supervise the CHVs and serve as the link between the CHV and the health facility; CHEWs are a mixed cadre of nurses, public health technicians, and other health professionals. Although CHVs are lay community members offering their services without remuneration in their communities, they have been successfully mobilized by national ministries of health globally as key agents to deliver primary health care ever since the 1978 Alma Ata Conference (Campbell and Scott 2011). However, by the early 1990s, enthusiasm for CHV programs had diminished, in part because of the challenge of sustainability, linked to poor retention and motivation of volunteers (Bhattacharyya et al. 2001; Chandler et al. 2009).

In Kenya, a CHV is responsible for about 100 households within his or her designated community health unit. The CHV's primary responsibilities are to provide health education, collect health data at the household level, and initiate and encourage early care seeking outside the home for sick mothers, newborns, children under-5, and other household members.

The Maternal and Child Health Integrated Program (MCHIP), funded by the United States Agency for International Development, worked in Kenya in collaboration with the MOH to address the barriers to accessing and using evidence-based Maternal, Newborn, and Child Health interventions from pre-pregnancy to age five years between 2008 and 2013. MCHIP was designed to achieve impact at scale by maximizing the contributions of each level of the health system from the community to the national level. In Bondo district, MCHIP has supported the establishment of a well-organized community health structure consisting of 26 functional CUs, 363 CHVs, and 52 CHEWs (MOH 2010).

Kenya developed "A National Framework and Plan of Action for Implementation of Integrated Community Case Management (iCCM) in Kenya: 2012–2017" (also known as the iCCM Roadmap; MOH unpublished), which has defined a new package of services targeting sick children under-5. This package includes malaria management with rapid diagnostic tests (RDTs) and artemisinin combination therapy (ACT), diarrhea management with oral rehydration therapy and Zinc, assessment for pneumonia with respiratory timer and referral for suspected pneumonia based on respiratory count, assessment of malnutrition with mid upper arm circumference (MUAC) tape and referral, as well as assessment of the newborn with a checklist and referral (MOH, unpublished). The roadmap has not been formally launched by the government of Kenya.

Problem Statement and Rationale

Kenya is not on track to achieving the Millennium Development Goal (MDG) 4 target of reducing infant and child mortality rates by two-thirds by 2015 compared to the 1990 levels. The leading causes of child morbidity and mortality in Kenya are diarrhea, pneumonia and malaria. Health facilities trends for pneumonia in children between 1997 and 2008 remained static before and after Hib vaccine introduction (Ayieko et al. 2012). There have been some gains made in malaria prevention through consistent efforts on long lasting insecticide-treated net (ITN) distribution (Fegan et al. 2007).

County-level and Sub County–level health data are still not widely available as the devolution of administrative structures started in 2011 and thus "province-level" data are still used for planning. Although in Nyanza province 77% of households owned at least one ITN, only 60.9% of children under-5 slept under an ITN the night before the survey (Division of Malaria Control, Ministry of Public Health and Sanitation; KNBS; and ICF Macro 2011). Fever still remains a major reason for presenting at health facilities in Siaya County (by extension Bondo Sub County) among children under-5. Therefore in order to make an impact on child health and achieve MDG 4, Kenya must increase access to and use of effective interventions especially in the areas which have poor child health indicators like Bondo. The community strategy seems an appropriate vehicle to achieve the objective.

Data from home-based surveys in Bondo suggest that health facility data from the District Health Information System may be underestimating the burden of disease in the community due to the poor health-seeking behavior for common childhood illnesses such as diarrhea (Ayieko et al. 2012; Ministry of Public Health and Sanitation 2012). Although in 2013 Kenya made policy changes to allow elements of the iCCM strategy (case management of diarrhea, malaria and referral for suspected pneumonia and malnutrition) to be implemented, there is an urgent need to pilot-test the approach in different geophysical areas of Kenya - an agrarian district, a nomadic district, and an urban slum – in order to inform policy change and national scale-up. With the exception of a few pilot studies, curative services for these iCCM conditions was not being done at community level. The Division of Community Health Services approved Bondo as an agrarian site where

feasibility of iCCM can be studied**.** The iCCM feasibility study in Bondo was designed to test whether CHVs can deliver an iCCM package building on the existing community health strategy platform thereby increase coverage and quality of services to reduce child morbidity and mortality (Kabue et al. 2014). In this study, iCCM cases include children under-5 with fever, cough and/or difficult breathing, diarrhea, malnutrition, and ill newborns.

Aim and Objectives

Aim of iCCM study: To establish whether the addition of the iCCM technical module to the existing CHV platform in Bondo district improves coverage and quality of curative services for childhood illnesses at community and facility level.

Specific objective:

1. To assess the progress made in iCCM implementation in Bondo after adding the iCCM module to the current CHV platform. The assessment compared trends in cases from pre-intervention (Jan-June 2013) and intervention period (Jan-June 2014).
2. To evaluate the perspectives of community leaders and gatekeepers on the successes and challenges in the implementation of iCCM in Bondo between January and June 2014

The iCCM study in Bondo district is being implemented in eight CUs; 4 CUs as intervention group and another 4 CUs as the comparison group. Table 1 shows a summary of the intervention packages in the two groups.

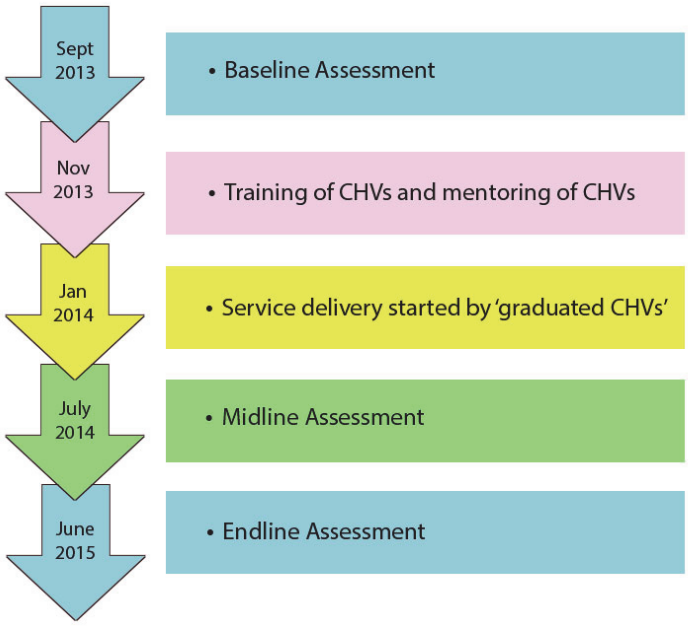
Table 1: Support Provided in Intervention and Comparison Areas

Service package	Intervention CUs (Experimental)	Comparison CUs (Usual care)
Provide BCC training and tools (e.g. gum boots, torch, and bags) to all CHVs	X	X
Provide basic monthly stipend to CHVs	X	X
Support monthly meeting between CHEWs/CHVs/CHCs (e.g. to distribute M&E tools and transport reimbursement)	X	X
Provide basic CHVs kit[1]: ITNs, Vitamin A, deworming tablets, condoms, torch, registers and health promotion materials.		X
Provide basic CHVs kit *PLUS* iCCM commodities- ORS, zinc, RDTs, ACTs	X	
Train CHVs in iCCM	X	
Provide iCCM training to CHEWs in the hard-to-reach areas	X	

Abbreviations: ACT, artemisinin combination therapy; BCC, behavior change and communication; CHC, community health committee; CHEW, community health extension worker; CHV, community health volunteer; CU, Community Unit; iCCM, integrated community case management; ITN, insecticide-treated net; M&E, monitoring and evaluation; ORS, Oral Rehydration Salts; RDT, rapid diagnostic test.

1. Basic CHV kit is defined by the CHS although contents depend on availability of these commodities at source.

Figure 2: Study Implementation Timeline



Abbreviation: CHV, community health volunteer.

The study implementation duration is 18 months and includes baseline, midline and endline assessments as shown in Figure 2. To track the progress and fidelity of implementation, a midline assessment was conducted in July 2014. The midline assessment was also done to document the contribution of MCHIP to development of iCCM in Kenya and this report is part of the end of project documentation. The endline assessment will be conducted in June 2015.

Midline Assessment Questions

Question 1: What are the trends of iCCM cases managed at the health facilities in the period of Jan-June 2013 compared to Jan-June 2014?

Question 2: What are the trends of iCCM cases managed by community health volunteers from Jan to June 2014?

Question 3: At community level, which iCCM conditions are referred to the link health facilities?

Question 4: Have the CHVs acquired the competencies to correctly manage iCCM cases at community level?

Question 5: What are the perceptions of key stakeholders of the iCCM implementation strategy?

Chapter Two: Methodological Approach

The midline assessment focused primarily on the intervention area where iCCM is being implemented. However, iCCM cases referral data were collected from the comparison group in order to assess the changes in referral patterns between the two areas. The midline assessment utilized a cross-sectional design.

The four intervention CUs comprise four link health facilities and CUs namely Nyaguda link to Nyaguda dispensary; Got Abiero link to Ouya dispensary; West Migwena link to Mabinju dispensary and East Migwena link to Anyuongi dispensary in Bondo Sub County. The comparison CUs also comprise four link health facilities and four CUs namely Usenge link to Usenge and Nyenye dispensaries; Nyamonye link to Ogam dispensary; Bar Kanyango link to Ulungo dispensary and Othach link to Othach dispensary. The unit of analysis were the iCCM cases reported by the health facilities as referred to the facilities by the community health workers for further management, or immunization at the facilities.

Sampling and Data Sources

Health Facility sources of data collection were

1. MOH 204A, which is the morbidity/treatment register for all children under-5;
2. MOH 100, which captures the community referrals forms that CHVs use to refer the children to the health facilities; and
3. MOH 510, which is the "permanent register" for documenting immunization and other sick child visits at the health facility.

Qualitative data were collected from key informants who had been involved in iCCM in intervention sites using the same interview guides from the baseline assessment.

A census of under-5 health records from January 2013 to June 2014 in all the four health facilities and CUs in the intervention group was collected during the midline assessment. Health records were abstracted from the MOH 201A, MOH 100 and MOH 510 registers.

Routine programmatic data of managing iCCM cases at community level by CHVs were collected and then summarized per CU (Appendix 2) to document the work done by all CHVs in the intervention CUs for the months of January 2013 to June 2014. Data were also collected from the sick child recording forms (the "treatment and tracking register") that are completed by CHVs as they manage iCCM cases. In addition, data on clinical case assessment through observation of CHVs at two time-points (baseline and midline) were analyzed. Individual key informant interviews (KIIs) were also done with key stakeholders. The KII respondents were purposively selected from among stake holders who influence the iCCM implementation and the sample included 3 SCHMT members, 3 Chiefs, 16 CHC members and 8 religious leaders. Thirty KIIs in all were conducted during the midline assessment.

Selection of the Research Assistants (RAs) and Training

Experienced data collectors who had participated in the baseline assessment were recruited. In addition, the in-charges of the four link health facilities in the intervention area were also recruited as research assistants. To maintain objectivity, these last RAs were switched such that none collected data from his/her own health facility. All the data collectors were trained for two days on basic research ethics and the data collection tools to be used. The data abstraction tool was pretested during the training and corrections made where necessary.

The KII guides used during the baseline assessment were used during the midline assessment. KII were conducted by the research assistants who had been trained by the study principal investigator, three co-investigators, two program staff members, and a consultant hired to lead the midline assessment.

Field Data Collection

Data collection took six days. All data collectors reviewed completed questionnaires for accuracy and completeness before handing them over to one of the co-investigators (a Jhpiego Monitoring and Evaluation Officer) at the end of each day. The research team (including the consultant and RAs) and the co-investigators met to review completed questionnaire and to discuss and address challenges faced during data collection. The consultant reviewed all questionnaires to ensure consistency and completeness. At the end of data collection, all the data collected were packed in cartons and handed over to the Jhpiego Monitoring and Evaluation Officer who transported them to the Jhpiego-Kenya head office in Nairobi for data entry.

Data Management

Study data were managed using REDCap electronic data capture tools hosted at Jhpiego. REDCap (Research Electronic Data Capture) is a secure, web-based application designed to support data capture for research studies. It provides an intuitive interface for validated data entry, audit trails for tracking data manipulation and export procedures, automated export procedures for seamless data downloads to common statistical packages, and procedures for importing data from external sources. REDCap software was hosted on secure Jhpiego password-protected servers. Face validity and logic checks were performed on the quantitative data via frequency distributions and cross-tabulations. Any missing data or inconsistencies were verified using the paper questionnaires. Access to study data was limited to the research team who processed the quantitative and qualitative data.

Data Analysis

Descriptive statistics and bivariate analyses were performed to elucidate differences. A one-sample test of proportions was used to define changes in the CHVs' competence to carry out proper diagnosis before and after receiving training. Data were analyzed using Stata version 13 (StataCorp 2013). Microsoft Excel was used to prepare tables and figures which were later exported to Microsoft Word for inclusion in the report. The findings are presented in tables, figures, and text narratives.

Chapter Three: Results

The findings of the midline assessment are presented under five subsections; these are: (1) Health facility data—all iCCM cases presenting at the intervention link health facilities (fever, diarrhea, suspected pneumonia, malnutrition and ill newborn) before intervention (January - June 2013) and during the implementation period, (January-June 2014); (2) Routine iCCM study programmatic data (January-June 2014); (3) Referral data of iCCM cases from the community to link health facilities in both intervention and comparison groups (January-June 2014); (4) CHV skills competency assessment (intervention group only); and (5) Key informant interview findings. Table 2 summarizes the various data sources and number of records analyzed from each category.

Table 2: Summary of Data Analyzed by Source and Category

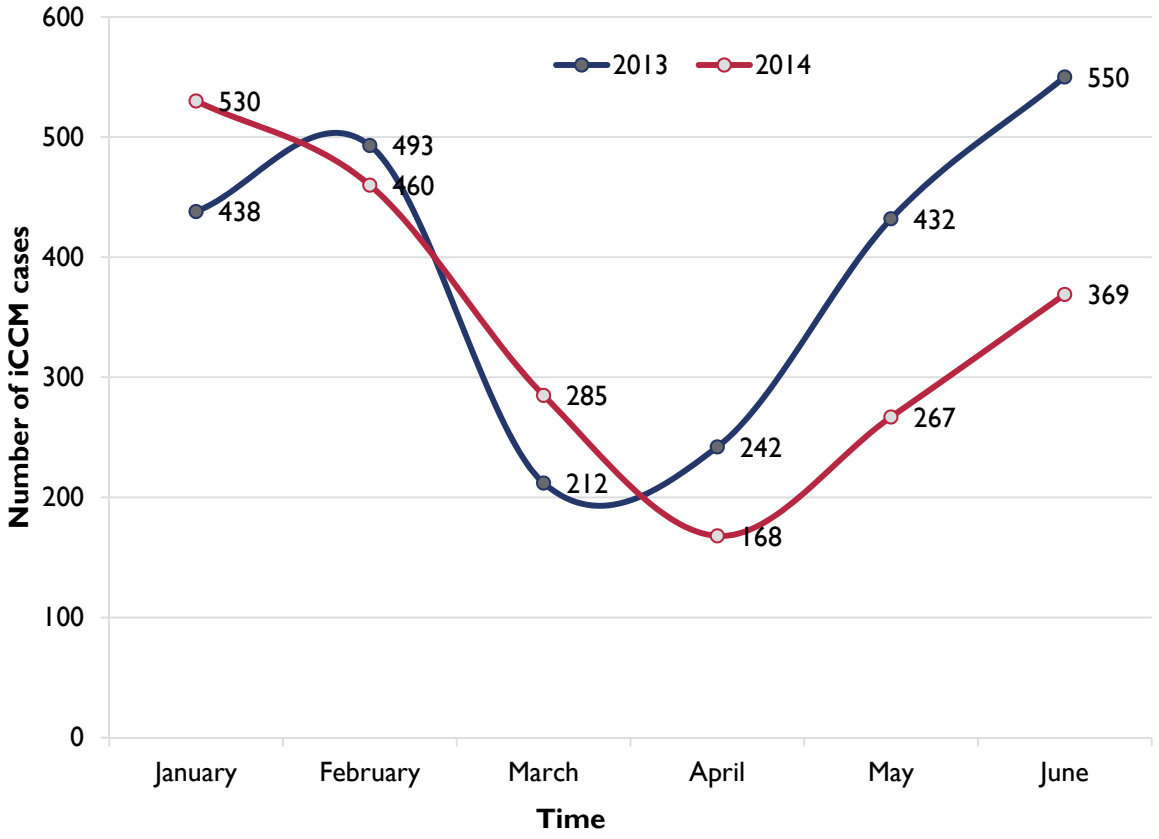
Category of data analyzed	Jan–June 2013	Jan–June 2014	Jan–June 2013	Jan–June 2014	Data Source
Quantitative data	Intervention Group		Comparison Group		
Link Health Facilities					
Total iCCM Cases	2,367	2,079	N/A	N/A	MOH 201A, MOH 100 MOH 510
iCCM Programmatic Data					
iCCM cases managed in the community	0	2,789	N/A	N/A	CHV iCCM treatment and tracking register
iCCM cases referred from community to link Health Facilities	Pre-iCCM intervention	670	Pre-iCCM study	1,372	MOH 100 (CHV Referral form)
Referrals Received at Link Health Facilities					
iCCM conditions	Pre-iCCM intervention	220	N/A	N/A	MOH 100
Number of CHVs Skills Competency Assessments Done					
	115 (58 CHVs)	106 (55 CHVs)	N/A	N/A	iCCM Team research reports
Qualitative – KIIs		Number			
SCHMT members	--	3			KII survey tools
CHC members	--	16	N/A	N/A	
Chiefs	--	3	N/A	N/A	
Religious leaders	--	8	N/A	N/A	

Abbreviations: CHC, community health committee; CHV, community health volunteer; iCCM, integrated community case management; KII, key informant interview; MOH, Ministry of Health; N/A, not applicable; SCHMT, Sub County Health Management Team.

iCCM Cases Management at the Link Health Facilities

A total of 2,367 and 2,079 iCCM cases were managed at the four link health facilities in the intervention during the periods January to June 2013 and a similar period in 2014 respectively. This represents a 12% reduction in overall burden of iCCM cases managed at health facility level. Figure 3 shows that the decline was more pronounced during the months of April-June despite the seasonal upward trend in disease burden during that period. Children aged 24-59 months accounted for most to the reduction in cases managed at the health facilities.

Figure 3: Trends in Number of All iCCM Cases Managed at the Intervention Group Health Facilities from January to June, 2013 and 2014

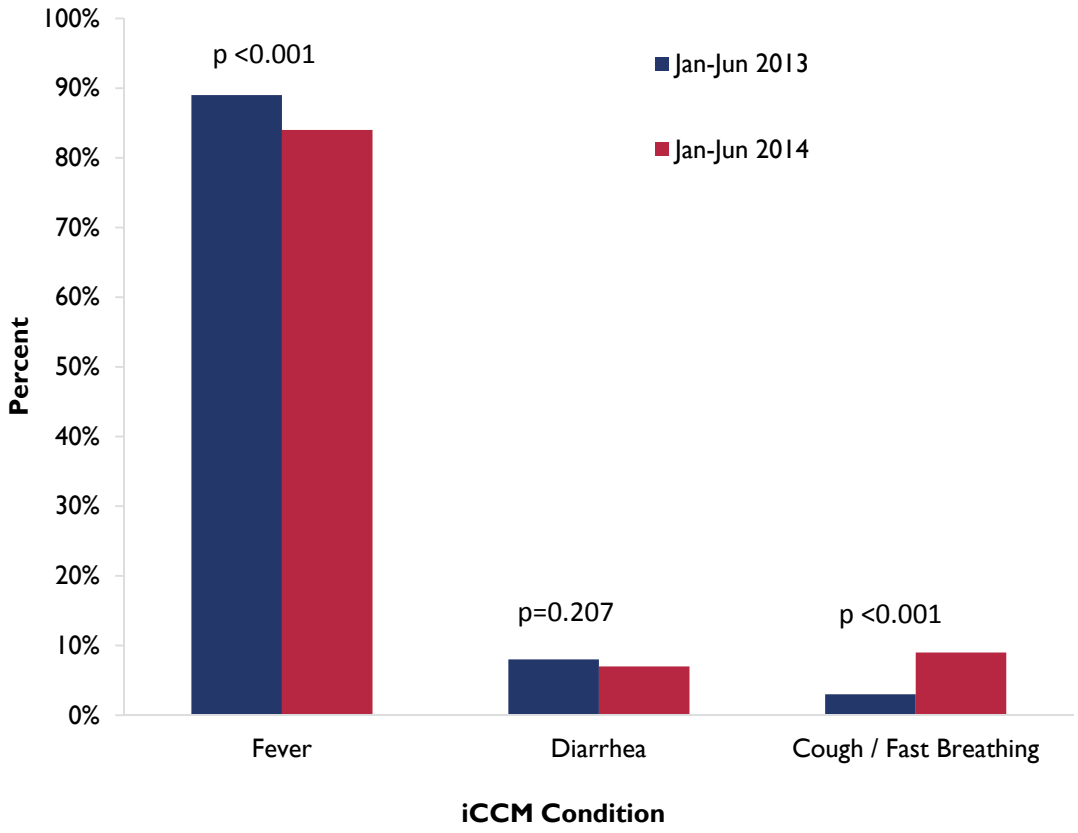


Abbreviation: iCCM, integrated community case management.

Trends in iCCM Cases/Conditions Managed at the Link Health Facilities

Fever cases contributed to the highest burden of iCCM conditions managed at the health facilities during the periods Jan-Jun 2013 and Jan-June 2014 respectively. The **decrease** in proportion of fever cases (89%; n=2,103/2,367 cases vs. 84%; n=1,749/2,079 cases), and **increase** in proportion of cough/ fast breathing cases (3%; n=78 cases vs. 9%; n=177 cases) managed in 2013 compared to 2014, was statistically significant ($p < 0.001$) as shown in Figure 4. However, the proportion diarrhea cases remained stable (8% in 2013 and 7% in 2014), as shown in Figure 4. Severe malnutrition and ill newborns were very few, 19 and 17 cases reported respectively. Further analysis of the two conditions was not done as they were among the referrals to the link health facilities.

Figure 4: Changes in Proportion of Fever, Diarrhea, and Cough / Fast Breathing Cases (Intervention Group) Seen at Link Facility from January to June, 2013 and 2014

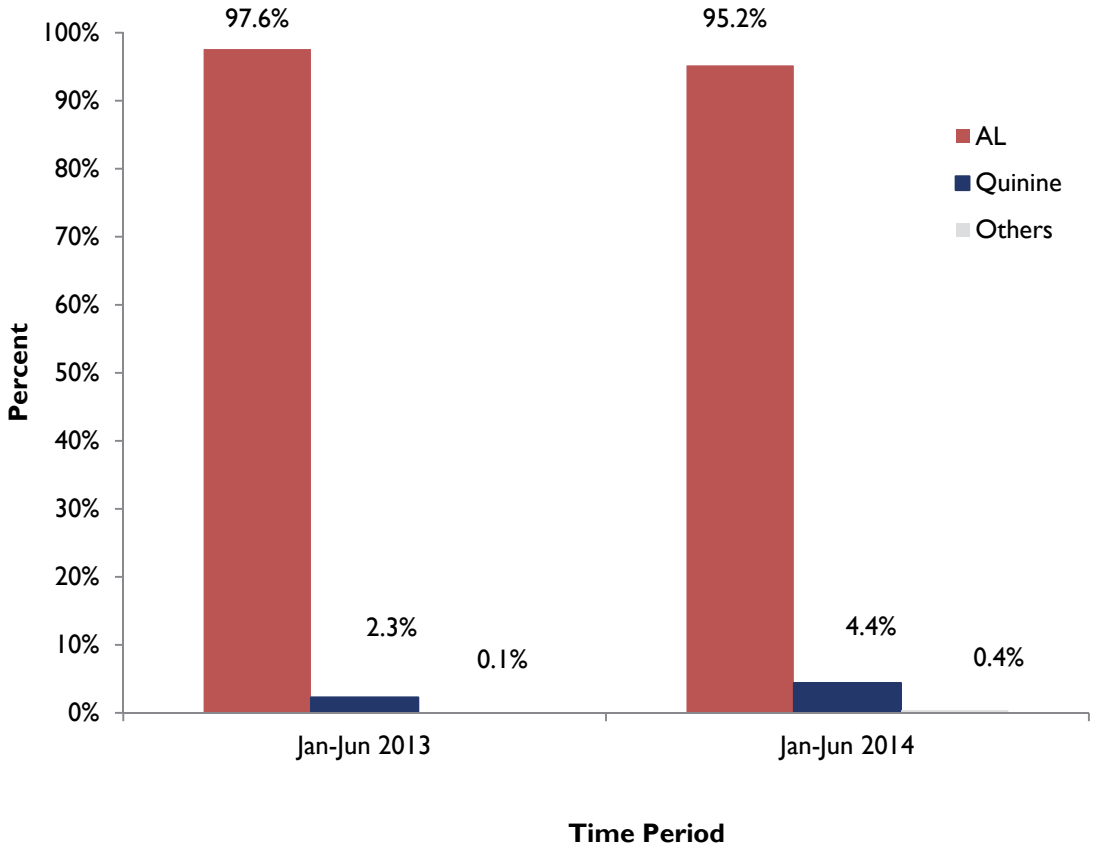


Abbreviation: iCCM, integrated community case management.

Management of Fever Cases at Intervention Group Link Health Facilities

At the link health facilities, malaria was confirmed though RDT for children presenting with fever. Management of RDT positive cases was done primarily using artemether/lumefantrine (AL) as per the national guidelines. The proportion of cases documented as Malaria—as per the register—in 2013 and 2014, and managed with AL remained high at (2,054/2,117) 97% and (1,617/1,700) 95% respectively as shown in Figure 5. The remaining cases were managed with quinine and other antimalarials. The indication for the use of quinine was documented, though the cases were few at 54 and 76 in 2013 and 2014 respectively.

Figure 5: Management of RDT-Positive Fever Cases at the Health Facility (Intervention Group) from January to June, 2013 and 2014

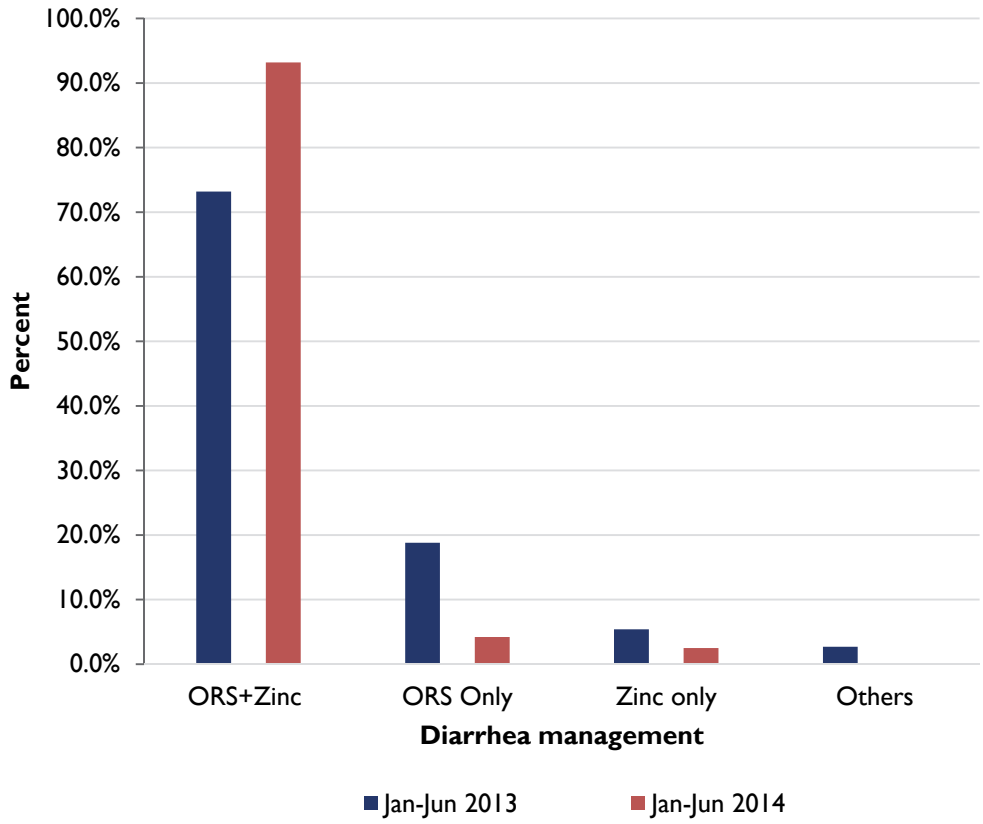


Abbreviations: AL, artemether/lumefantrine; RDT, rapid diagnostic test.

Management of Diarrhea Cases at Link Health Facility—Intervention Group

There was a decrease in the absolute number of diarrhea cases from 186 in 2013 to 153 in 2014. However, the proportion of diarrhea cases managed using ORS + Zinc increased by 20 percentage points from 73%; n=136 in 2013 to 93%; n=142 in 2014, while at the same time the use of ORS only in the management of diarrhea decreased fourfold (from (19%[n=36] to 4%[n=6]) during the same period as shown in Figure 6.

Figure 6: Management of Diarrhea Cases at the Health Facility (Intervention Group) from January to June, 2013 and 2014



Abbreviation: ORS, Oral Rehydration Salts.

Data on the management of cough and fast breathing were not consistently documented and thus not presented.

iCCM Programmatic Data

iCCM Cases Managed by CHVs from Jan-Jun 2014

As mentioned above, implementation of iCCM involves CHVs managing cases they are capable of handling at the community level, and referring to the designated link health facility those iCCM cases that are either categorized as having "danger signs" or non-iCCM conditions. The iCCM study programmatic monitoring data collected in the intervention CUs from January 2014 to June 2014 showed that a total of 2,789 iCCM cases presented to CHVs. Of these, 670 out of the 2,789 cases (24%) were referred to link health facilities for various reasons.

About half of the cases managed by CHVs were due to fever 1,549/2,789 (55%) which was considerably lower than then proportion of fever/malaria cases managed at the health facilities, 1,749/2,079 cases (84%). Table 3 shows a summary of the breakdown of the fever cases managed by CHVs by duration and RDT results of fever cases < 7 days.

Table 3: Cascade of Fever Cases Managed by CHVs Jan–Jun 2014

Category	Number of cases	Proportion/Explanation
All cases of Fever	1,549	100%
Fever <7 days Fever <7 days RDT done	1,544 1,524	99.7% of TOTAL fevers cases 98.7% of fevers cases <7 days tested with RDT
• Positive RDT	1,251	82.1% of fevers less than 7 days where RDT was done
• Negative RDT	273	17.9% of fevers less than 7days where RDT was done
Fever > 7 days	5	0.3 % of TOTAL fevers

Abbreviations: CHV, community health volunteer; RDT, rapid diagnostic test.

Of the 538 cases of children with diarrhea, without blood in the stools and of a duration less than 14 days who presented to the CHVs, 93% were managed at home; the few that were referred were due to co-presentation with either fever or cough with fast breathing. There were 858 cases of cough (some presenting with fever), of which 13.2% were cough with fast breathing and were referred to the link health facilities.

Overall, the introduction of iCCM in the hard-to-reach areas resulted in a significant rise in the total number of ill children under-5 managed either at the health facility or community level, with the community level accounting for over half of total cases. In 2013 prior to introduction of iCCM, a total of 2,367 children with fever, diarrhea, cough or a combination of these signs were managed at the four link health facilities in the intervention sites between January and June. However in 2014 during a similar period, a combined total of 4,868 iCCM cases were managed, thus more than double the number for the previous year (2,079 – health facilities; and 2,787 – community).

Fever accounted for the greatest burden of disease. The number fever cases managed by CHVs at community level continued to rise from January to June 2014, while the cases managed at the link health facilities decreased from January to April, with a slight increase in May and June. However, the overall combined cases of fever managed in both health facility and community level **increased** by 37% from 689 in January to 942 in June 2014 (Figure 7). Most of the cases were fever <7 days, and the CHVs treated them with AL **after** performing RDT. In contrast, diarrhea cases (predominantly <14 days) generally decreased during the same period in both the health facilities and community levels with bloody diarrhea remaining very low at two or less per month (Figures 8 and 9). It's common to have variations by month in caseloads of fever and diarrhea in line with changing seasons.

Figure 7: Trends in Fever Cases Managed at Link Health Facilities Jan–Jun 2014 (n=1,749) Compared to Cases Managed by CHVs (n=1,549)

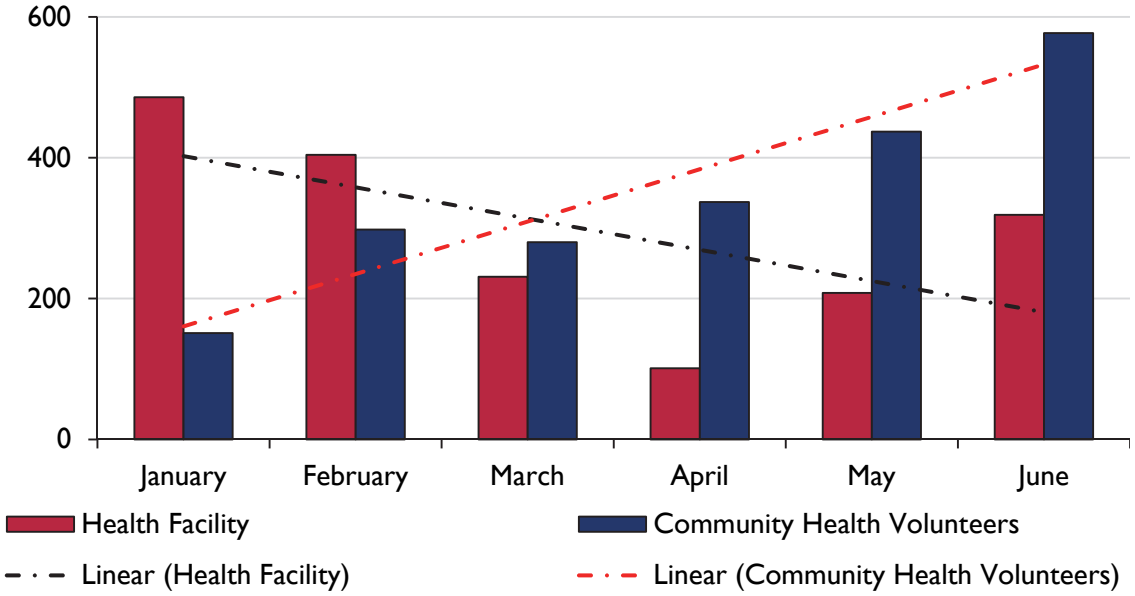


Figure 8: Trends in Diarrhea Cases Managed at Link Health Facilities Jan–Jun 2014 (n=153) Compared to Cases Managed by CHVs (n=499)

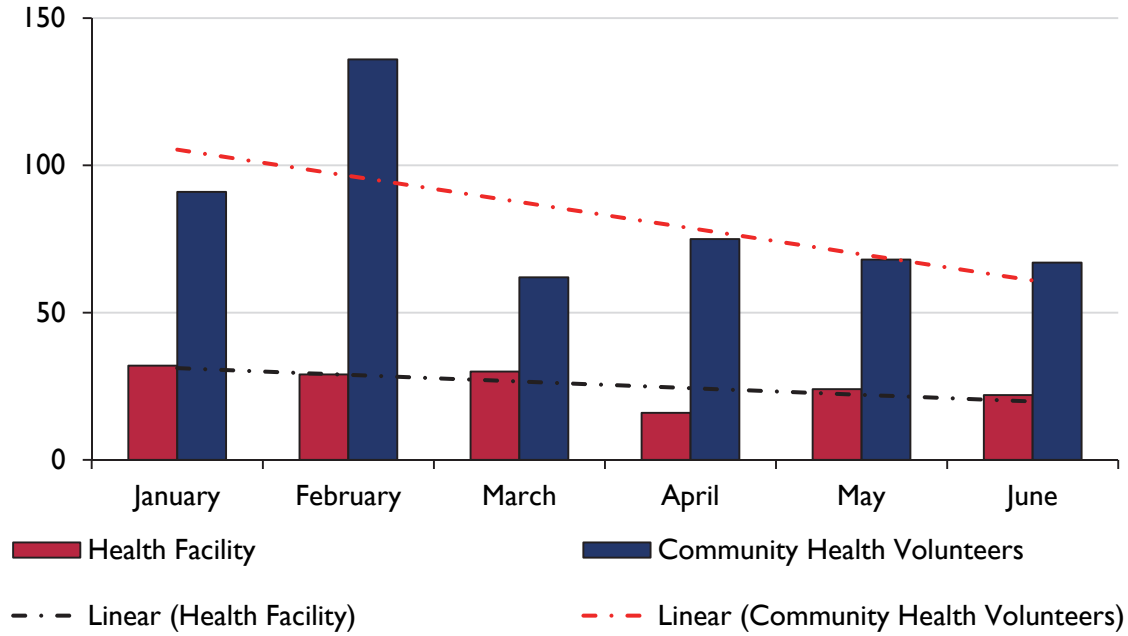
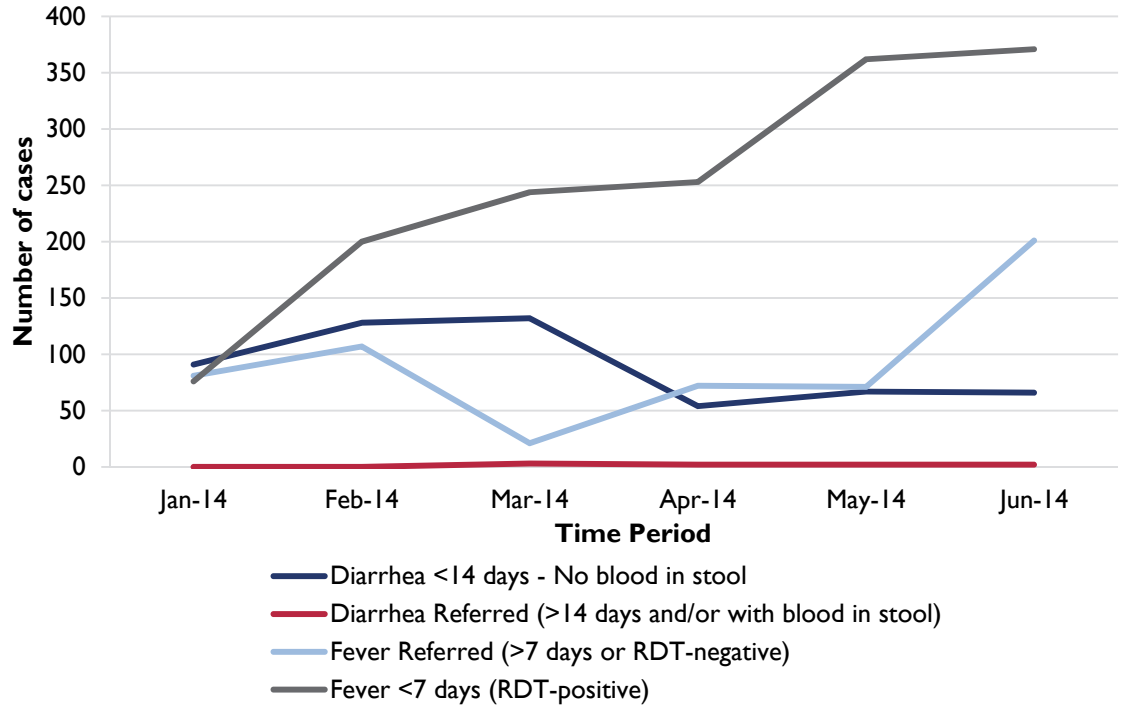


Figure 9: Trends in Fever and Diarrhea Cases Managed by CHVs Jan-Jun 2014

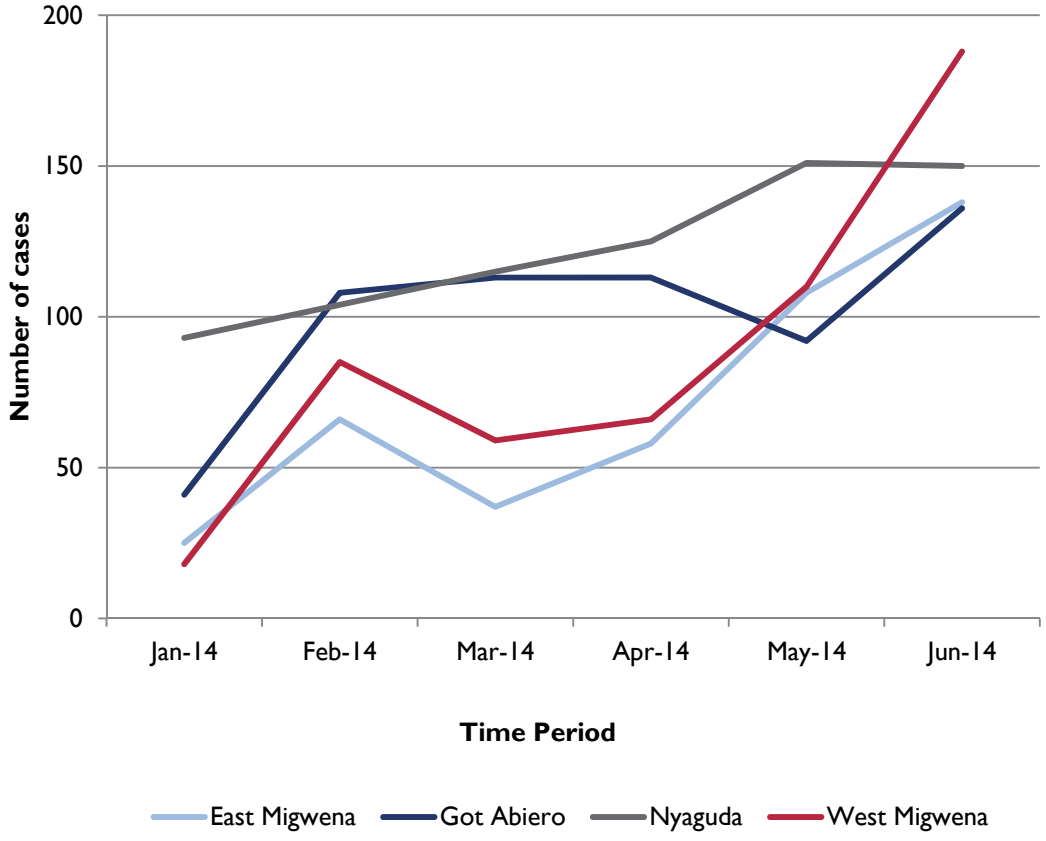


Abbreviation: RDT, rapid diagnostic test.

Trends in iCCM Cases by Community Unit

In each CU the CHVs combined were managing on average 25 iCCM cases per month early on during the introduction of the intervention (January 2014) with the exception of one CU (Nyaguda) where about 100 cases were managed in January 2014. By June 2014, the number of iCCM cases seen by CHVs in the four CUs had increased to an average of 140 cases per CU per month. Given that there were 54 CHVs in the four CUs during the six-month period, this translates to about 8-9 cases per CHV each month ((2,787/(54*8)). It is important to note that the number of CHVs commissioned to start providing iCCM increased gradually from December 2013 to March 2014 as more and more of them were certified competent to provide iCCM services. These cases include both those treated at home and referrals to link health facilities (see Figure 10).

Figure 10: Trends of iCCM Cases Managed by CHVs in the Four Intervention CUs



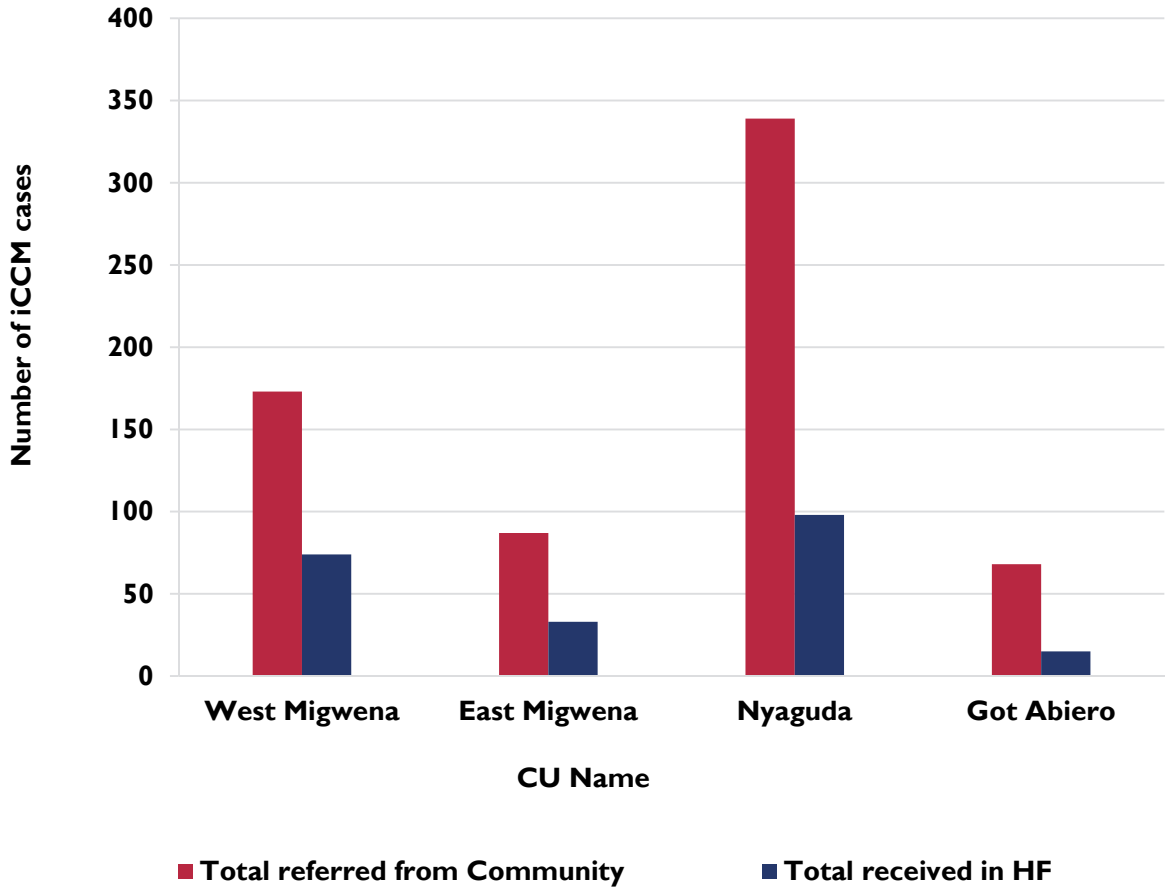
Abbreviations: CHV, community health volunteer; CU, Community Unit; iCCM, integrated community case management.

Referral of iCCM Cases from Community to Link Health Facilities

Overall, a quarter of the iCCM cases presented to CHVs (670/2,789 or 24% of cases) in the four intervention CUs were referred to the respective link health facilities according to the documentation at the health facilities. The overall successful referral rate- iCCM cases that were referred from the community and ascertained to have been received at the health facility- during the six months was 33% (220/670). The main reasons for referral were RDT negative fever of duration <7 days, and cough with fast breathing. The proportions of successful referrals varied by CU; 43% for West Migwena; 38% for East Migwena; 29% for Nyaguda; and 22% for Got Abiero as shown in Figures 11 and 12.

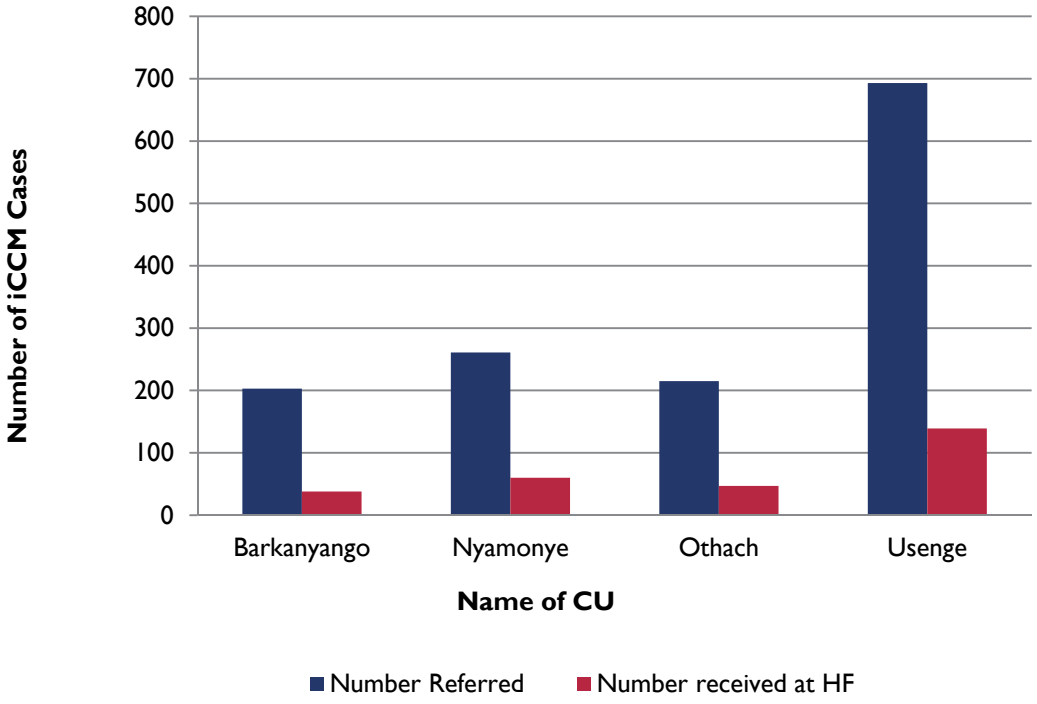
In the comparison group, there were nearly two times more referrals (1,372 cases) made by the CHVs during the same period with an overall successful referral level of 22% (320/1,372). Although the difference in level of successful referral between the intervention and comparison group was only 11 percentage points, this difference was statistically significant ($p < 0.001$). Figure 13 shows the breakdown of successful referrals for each CU in the comparison group.

Figure 11: Successful Referral of iCCM Cases by CHVs to Link Health Facilities, Intervention CUs



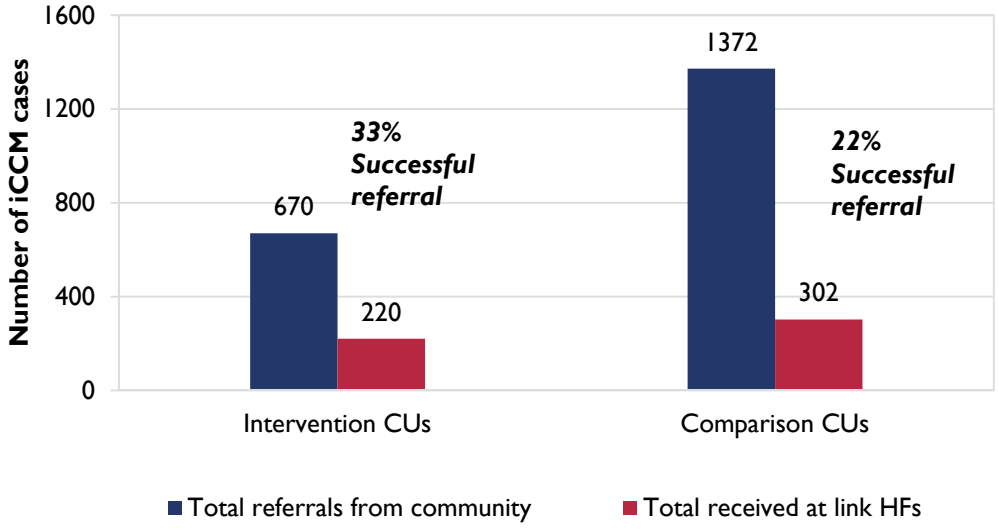
Abbreviations: CHV, community health volunteer; CU, Community Unit; HF, health facility; iCCM, integrated community case management.

Figure 12: Successful Referral of iCCM Cases by CHVs to Link Health Facilities, Comparison CUs



Abbreviations: CHV, community health volunteer; CU, Community Unit; HF, health facility; iCCM, integrated community case management.

Figure 13: Successful Referral of iCCM Cases by CHVs to Link Health Facilities, Intervention and Comparison CUs



Abbreviations: CHV, community health volunteer; CU, Community Unit; HF, health facility; iCCM, integrated community case management.

CHV Skill and Competency Assessments in the Intervention Group

Skills and competencies of the CHVs were assessed and compared to the baseline assessment which was done prior to iCCM training. This included their ability to ask the care giver the history of the illness, assessment/ examination of the child and classify the condition appropriately, and if indicated performing an RDT test. Finally, the CHVs' ability to make the correct management decision was evaluated by the assessor or gold standard who is a trained iCCM trainer.

Overall, the skills and competencies of the CHVs had improved tremendously from baseline to midline in all aspects assessed especially their ability to identify signs of iCCM conditions that are new, like fast breathing and chest in-drawing.

Table 4 shows that while the ability to "ask" the appropriate questions remained high from baseline to midline at about 90% accuracy; no significant change was noted. However, there was great improvement in the ability to examine or "look" for signs of illness (average of 3% at baseline vs. 74% at midline). Regarding the decision to treat or refer after identification of danger sign(s), there was marked reduction in inappropriate action taken from baseline to midline (67% vs. 13%), with the validator agreeing with the CHV's decision to refer. At the same time, the CHVs ability to recognize when danger signs were not present improved as evidenced by validator's agreement (77% baseline vs. 98% at midline). These differences in changes from baseline to midline in the examination and classification of sick children were statistically significant, $p < 0.05$.

Performing RDT is a skill that CHVs acquired after the baseline assessment. The CHVs had been assessed on this skill during mentorship prior to being commissioned in December 2013 and 81% had been certified as being able to perform RDT correctly. Although there was a slight drop in observed RDT competency to 73% during midline, this difference was not statistically significant ($p=0.157$).

Table 4: Changes in CHVs' Skills and Competencies from Baseline to Midline Assessment

CHV Competency Assessment: Baseline vs. Midline Assessment

Category of Assessment	Baseline n=115		Midline n=106		
	Yes	%	Yes	%	P-value[1]\
CHVs Asking for Symptoms					
CHV asked if child had cough	102	89%	98	92%	0.341
CHV asked if child had diarrhea	86	75%	89	84%	0.930
CHV asked if child had fever	110	96%	103	97%	0.547
Average		87%		91%	0.344
CHV looking for signs of illness					
Chest in-drawing	3	3%	75	71%	***0.001***
Fast breathing by counting breaths in 1 minute	0	0%	61	56%	***0.001***
Unusually sleepy or lethargic or unconscious child	4	3%	72	68%	***0.001***
Malnutrition using the MUAC tape color code	11	9%	95	90%	***0.001***
Malnutrition using the thumbs to press and demonstrate swelling of both feet	2	2%	88	83%	***0.001***
Average		3%		74%	***0.001***
Decision to refer or treat child					
CHV classify the child as having any danger sign and thus for urgent referral	15		9		
Validator agrees with the CHV classification and decision of child having any danger sign and thus for urgent referral	2/15	13%	6/9	67%	***0.001***
CHV classify the child as having no danger, thus for home treatment and advice to caregiver	13		84		
Validator agrees with the CHV classification and decision of child having no danger sign and thus for home treatment and advice to caregiver	10/13	77%	82/84	98%	***0.001***

Abbreviations: CHV, community health volunteer; MUAC, mid upper arm circumference.

1. P-value for "Two-sample test of proportions"

Qualitative Findings

Perceptions of Key Informants on iCCM

This section presents the perspectives of different stakeholders regarding the implementation of iCCM. A total of 3 SCHMT members, 16 Community health committees (CHCs) team members, 8 religious leaders and 3 local administrators (Chiefs) in the iCCM intervention area were interviewed on the role they play in the implementation of iCCM; the benefits and challenges associated with iCCM in the community. The findings are summarized in two broad categories; SCHMT and Community perspectives.

a. Sub County Health Management Team

- There was consensus among SCHMT members that review meetings were held regularly between SCHMT, CHEWs, and health facilities in-charges to discuss implementation of iCCM. Data were reviewed during these meetings.
- It was evident that supportive supervision, case observation and mentorship visits were done by the SCHMT to the CUs implementing iCCM as well as to their link health facilities.
- The SCHMT, in collaboration with support MCHIP staff provided, supported the implementation of iCCM through training of the CHVs and CHEWS; ensured adequate supplies of RDT kits, ORS, and Zinc at the link health facilities; and provided respiratory timers and MUAC tapes.

"It is useful, it has brought services closer to the people, improved referrals on timely manner to reduce deaths, equipped the CHVs with the knowledge to know the danger signs, reduced work load for the officers in the health facilities, availed testing services at the community level, treatment is readily available at the household level, early diagnosis and management of malaria through the use of RDTs, effective prescription by the CHVs and early detection of malaria."

–Bondo SCHMT Member

- The SCHMT members outlined the major challenges experienced during the implementation of iCCM which included the following; stock outs of drugs (e.g. AL); delays in acquisition of respiratory timers and thermometers; shortage of materials such as waste disposal buckets; devolution of the governance structures; and too many responsibilities given to CHVs at the community level (many competing tasks).

b. CHC members, chiefs, and religious leaders

- The community leaders were unanimous that implementation of iCCM had promoted adoption of healthy practices affecting children under-5 in the community which were important in the prevention of malaria, diarrhea, malnutrition, and other disease conditions that affect these children.
- Additionally, implementation of iCCM had improved access to health care services as caregivers do not have to incur costs associated with treatment of their children (e.g. transport and health-facility-related).
- There was a general consensus that iCCM had resulted in a reduction of the workload in the health facility as most of the children were now being managed at the community level by CHVs.
- Has made a difference in CHVs within the community such that the CHVs are more organized and presentable than before.

"CHVs respond to emergencies at household levels thus reducing, severe cases of illnesses because they are treated on time, reduced work in the health facility since most of the children are attended to at community level reduced child mortality and improved immunization status of children under-5."

– A CHC Member

- Generally, the community leaders felt that community members had been empowered about their role in health matters through community education and participation, especially during the dialogue days and chief's *barazas* (which are village council meetings).

> *"Communities have been empowered to extent that they go to the health facilities to report that they have not been visited."*
>
> —A CHC Member

- Religious leaders observed that members of the community trust the CHVs even more now; caregivers opted to first consult (call) CHV to attend to a sick child rather than go to the health facility immediately to seek help.
- Religious leaders affirmed that the implementation of iCCM had resulted in reduction of numbers of severe cases of malaria, diarrhea, and infants deaths.

> *"Death rates have reduced, the CHVs are sent to the villages where they sensitize people on health issues. Due to early treatment of children by CHVs, they are not dying as much as before and we know this based on records of births. Deaths used to be as many as 4 per month in sub-location but, now down to 1 in a quarter and morbidities due to malaria and diarrhea reduced, mothers are educated on how to feed children hence reduced rate of malnutrition."*
>
> – A Chief

Although there were many positive things that the community leaders reported about the implementation of iCCM, it was not without challenges. Some of the major challenges reported are as follows:

- Some caregivers frustrated the efforts of the CHVs as they had not fully accepted their role in the management of sick children under-5. Some community members involved their religious faith to deny CHVs access to their homes.
- CHVs were expected to serve large areas of the community (many households), and yet they were not provided with the means to facilitate this such as bicycles.
- Inadequate motivation of CHVs was a major challenge. This manifested through poor remuneration (small monthly stipend), lack of air time to call or communicate with caregivers and health facility/ CHEW, and dangers of traveling at night to provide care.
- There was potential for abuse of the privilege of managing the children under-5 by CHVs as some were tempted to ask for payment from caregivers – this was reported and the concerned CHVs withdrawn from the team.
- Some chiefs reported that there were cases when some CHVs did not visit the homesteads as required, but instead reported that they had visited these households.
- There were cases of CHV provided services in areas beyond their jurisdiction and thus potential for conflict in the community. However, this was addressed through a meeting with SCHMT whereby CUs and their link facilities were discussed and agreed on.
- The CHCs members felt "left out" as they were neither trained on iCCM nor given any stipend to support iCCM implementation in their areas of jurisdiction.

"How do you supervise those who have more skills than you and well remunerated?"

– One CHC Wondered

- Some of the caregivers asked the CHVs to treat children who are over 5 years though CHVs have not been trained and this is outside the scope of iCCM.
- There were caregivers who preferred going to buy drugs over the counter for sick children as they are not aware of the dangers of self-prescription and ignoring referrals.

Chapter Four: Discussion on Key Findings

The midline assessment was conducted six months into the implementation of the study to gauge the progress made and guide the implementation of the remaining duration of the study. Moreover, there was an anticipated change in the funding mechanism for the study from MCHIP to Maternal and Child Survival Program (MCSP) starting October 2014 and hence the midline assessment was timely. The discussion in this section will follow the format of answering the midline assessment research questions.

Trends in Health Facility and Community in iCCM

It was evident that introduction of iCCM in the hard-to-reach areas resulted in an increase in the iCCM cases managed from 2013 to 2014 (Jan-Jun): iCCM cases managed either at the health facility or at community level in 2014 doubled compared to cases managed in health facilities only in 2013, before iCCM was introduced. This indicates an improvement in overall access to care for children under-5 at the community level since more than half of the cases were managed by CHVs. The community leaders alluded to increased access to health services for children under-5. It's possible that the "additional" cases managed in 2014 were either those who would previously be taken to "alternative places" such as traditional healers or "auto-medicated by buying medicines at local outlets, or they would not have received health care at all.

It is not surprising that fever accounted for the highest burden of disease with Bondo being in a malaria hyper-endemic zone. Although there was a rapid increase in fever cases between April and June in both years, one possible explanation is the seasonal increase of malaria cases which normally begin around April each year. Regarding the decision to treat or refer after identification of a general danger sign(s), there was marked reduction in inappropriate action being taken from baseline to midline (67% vs. 13%), with the validator/gold standard agreeing with the CHV's decision to refer most of the time.

Types of iCCM Cases Managed by CHVs at the Community Level

In this study, the CHVs were trained, mentored, and supervised continuously through the leadership of the SCHMT, supported by the research team, ensuring that they acquired the necessary competencies to deliver services in their communities. The results of the midline assessment show that CHVs are managing iCCM cases in the community well and referring to health facilities children with danger signs. The vast majority of the fever cases are being identified early (<7 days), tested using RDTs, and managed appropriately with AL. The CHVs have shown ability to follow correctly the iCCM algorithm from the identification of symptoms and signs to, classification of illness, and making the decision to treat at home or refer to the health facility. Additionally, the CHVs are able to identify suspected pneumonia by following the algorithm and referring these cases in a timely manner. Regarding management of diarrhea, the use of ORS and Zinc to manages these cases has become the standard way of managing diarrhea at community level – very few (diarrhea >14 days and bloody diarrhea) cases are referred to the health facilities. There was inadequate information available on severe malnutrition (red MUAC tape measurement) and ill newborns to make any meaningful conclusions during the midline assessment due to the small number of cases, 19 and 17 respectively. These were referred to the appropriate link health facilities.

The volume and value of the iCCM work done by the CHVs has been corroborated by the monthly reports submitted monthly by the CHVs as well as the community leaders who stated that since the introduction of iCCM, more children are receiving timely treatment mostly at community level – taking services closer to the people.

Trends in Community-to-Facility Referrals

Successfully tracking patient referrals is a challenging task for health managers, yet it has the potential to provide very valuable information that can inform program designs. Complex interplay of factors including individual and community health seeking behaviors / practices as well as health system factors affect compliance with referral advice. At midline, it was evident that the successful referral rate of 33% during the first six months of the study was lower than what was expected, although it is better than the 22% in the comparison CUs. This is particularly concerning given that one of the two main reasons for referral was suspected pneumonia, which if left untreated in a timely manner could have severe consequences. Some possible explanations for this low compliance are; 1) the CHVs might not be "confident" in the early phase of iCCM implementation, or criteria for referral is not a measure of the true severity of the condition and thus the conditions might have "resolved" before the caregiver took the child to the health facility; 2) caregivers might have decided to find alternative methods of dealing with the illness, such as purchasing medications from local outlets; 3) caregiver lacked resources to take the child to the health facility; and 4) poor documentation / record keeping at the health facilities such that successful referrals that could not be traced. In order to better understand the underlying causes of this low successful referral, the team will investigate underlying causes including documentation of referrals and CHVs follow up visits to sick children and factors influencing care givers' response to referral advice. Further analysis of factors will be done during the remaining implementation period and appropriate remedial actions taken.

CHV Competency

Based on the findings, most CHVs can correctly manage iCCM cases. Of the 106 CHVs case management observations done during the midline, 90% of CHVs were found to be "asking" the right questions in the process of identifying fever, diarrhea and cough (with an without fast breathing) cases. This ability coupled with the findings that about three quarters of CHVs were found by the assessors to be competent in "looking" or examining the children appropriately; classifying the danger signs appropriately; making the right decisions to refer or not; and performing RDT correctly when indicated, illustrates that the trained and supervised CHVs were competent to deliver iCCM. They have demonstrated significant improvement in their competency levels to correctly manage iCCM cases given that some of these skills were first introduced to them during the training in December 2013.

However, there are some skills and other areas that the mentors have to continue to impart on the CHVs. These include correctly counting number of breaths per minute; drawing of blood when performing RDT; timing RDT tests; and documentation. This calls for a structured mentorship process, led by the CHEWs who work closely with the CHVs (one-on-one mentoring) and serve as important links between community and health facility.

SCHMT and Community Perceptions of the iCCM Implementation in Bondo

The success of iCCM implementation depends on the acceptability and supports of the approach by various stakeholders who influence implementation, perceptions and care seeking behaviors of caregivers. These stakeholders interviewed during the midline assessment (SCHMT member, CHC members, religious leaders and local chiefs) had very favorable things to say about the value of iCCM in Bondo. They mentioned improved "access to health services", "improved" health behaviors at individual and community level, "community empowerment", and increased "trust" of the CHVs by the community. All these stakeholders

play important and vital roles in the success of iCCM especially in community mobilization and overseeing the activities of the CHVs.

However, there are key challenges that threaten the implementation of iCCM in Bondo that the stakeholders highlighted, which should be addressed. These include; 1) the changing roles and responsibilities of the SCHMT being "unclear" during the transition of authority from national government to counties; 2) CHCs' concerns that their involvement in iCCM was "minimal" as they were not trained in iCCM and don't receive any "compensation for supervising the CHVs"; 3) some religious sects in the communities don't accept provision of modern health care services at their homes thus impeding full coverage of all households in the intervention areas; 4) high workload on the CHVs as more responsibilities are piled upon them; and 5) geographically vast areas (and number of households) that CHVs are expected to cover. These and many other challenges will be investigated thoroughly, including collecting additional qualitative data, and where possible remedial action taken bearing in mind the sustainability of iCCM post-research period when implemented at scale. Moving forward, expanding iCCM implementation should exploit the overall positive perception of the benefits of iCCM, recognize and use these leaders and groups in problem solving.

Chapter Five: Conclusion and Recommendations

Overall, there is evidence from the midline assessment that there are tangible benefits of implementing iCCM in Bondo. So far the available evidence suggests that it is feasible to implement iCCM, leveraging the existing community health strategy platform. However, its expansion / scale up should be accompanied by capacity building of the SCHMT to do provide supplies, manage the information system and assure regular and frequent supervision. In addition, link facilities and community structures have to be sensitized and their roles clarified in the support of implementation. Seven conclusions can be drawn accompanied with "actionable" recommendations – they are described in this section.

Conclusions

Conclusion 1: Human Resources Capacity Issues (CHVs, CHEWs, and SCHMT)

The competencies of frontline health personnel at the community level (CHVs and CHEWs) have been built to implement iCCM in Bondo. The SCHMT is playing its role well in providing overall oversight in the implementation of iCCM in Bondo.

Conclusion 2: Management of iCCM Cases at Community and Health Facility Levels

There was increased access to timely iCCM services in the underserved communities in Bondo Sub County with a majority of the cases being managed at the community level.

Conclusion 3: Community-Health Facility Linkages

The linkage structures between the households, CUs and health facilities have been strengthened and service providers at each level are linked to provide continuous health services.

Conclusion 4: Supervision of CHVs by CHEWs

Supportive supervision of the CHVs was provided by the SCHMT and CHEWS (technical) and by the community (CHCs) for social mobilization. However, some of the CHV have low education levels and may require extra time of supportive supervision to meet the set standards. The ability to continue this support and capacity building will determine the success of iCCM. Without this continued support, the quality of care provided by CHVs might deteriorate.

Conclusion 5: Role of the SCHMT in the Implementation of iCCM in Bondo

The SCHMT's responsibility in iCCM implementation during the devolution process should be clarified. The SCHMT has created an enabling environment for the implementation of iCCM in Bondo.

Conclusion 6: Role of CHCs and Other Community Leaders in the Implementation of iCCM in Bondo

Whereas the role of CHCs includes the supervision and governing of the CHVs and CUs respectively, CHCs have not been effectively oriented to the strategy to be able to effectively carry out their mandate effectively.

Conclusion 7: Documentation and Data Quality

The level of documentation at the health facilities was fair and the collection of routine programmatic data collection remains a challenge for SCHMT. There is a need to strengthen the data management systems at health facility and community levels in Bondo to ensure that high quality of data are collected and used to inform decision making about the iCCM and other programs. Initial implementation of iCCM is associated with a lot of documentation (at community and health facility levels) and requires continuous data collection, analysis and feedback into the process to address emerging challenges.

Recommendations

For Immediate Consideration (Next Six Months until End of Research)

a. SCHMT

1. Should continue to build the capacity of CHV to sustain the quality of services they provide
2. Should improve the capacity of CHEWs to carry out program's data collection, analysis and use in their CUs.
3. Should strengthen the support mechanisms to ensure that iCCM services will continue after the end of the study, including ensuring adequate drugs and supplies and supportive supervision of CHVs.
4. Should investigate and address the low compliance with referral as most of the iCCM cases referred by the CHVs are not reaching the health facilities for management.
5. Sensitize CHCs on their role, in iCCM implementation based on the new CHC guidelines including how they link or support CHVs.
6. Include iCCM in the Sub County plans to ensure that all aspects of implementation that were supported by MCHIP are addressed for example, timely payment of lunch allowances to supervisors and CHV mentors, monthly review of program data and acting on any gaps identified.
7. Bring together all the key stakeholders (SCHMT, religious leaders, chiefs and CHCs to) with as aim to clarify their roles in the implementation of iCCM and share their experiences. This will strengthened their involvement and participation in the iCCM implementation.

b. Research team

1. Conduct an audit of all the equipment given to CHVs in order to establish which one are functional, and what else needs to be provided to ensure the smooth implementation of the iCCM strategy
2. Strengthen the structures that bring CHC and CHVs together to harmonize their roles.
3. Provide continuous supportive supervision and mentorship to community health personnel for effective delivery of iCCM implementation particularly to CHVs who are slow in learning.

4. Encourage and support CHV follow up of referred cases so that they can document possible reasons for lack of compliance and outcomes.
5. Should investigate the low compliance with referral by iCCM condition and work with SCHMT to find solutions to the barriers and to support the CHV to do follow up of referred cases so that they can document possible reasons for lack of compliance and outcomes.
6. Document more clearly on cases related to malnutrition and ill newborns managed by CHVs
7. Develop and share exit strategy and support SCHMT to develop an iCCM scale-up plan.

For More Medium- to Long-Term Consideration (including Endline Assessment and "Scale-Up")

1. Include questions in the endline assessment aimed at assessing "why" the implementation worked well in some aspects and the challenges faced – this will provide valuable information for iCCM scale up.
2. Explore innovative ways to continuously motivate CHVs. An example is supporting CHVs to start income generating activities instead of depending on the monthly stipend.

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Appendix 1: Facility Data Tool

Health Facility: _____ Month: _____

Data Collector: _____ Year: _____

OPD [Outpatient Department] No.	Visit type; (New=1; Revisit=2)	Age*	Sex (M/F)	Sublocation	Duration of Illness*	Diagnosis: (Malaria=1; Diarrhoea=2; Pneumonia=3; Malnutrition=4;	Diagnosis; Other_ Specify	Nutrition: (Nutrition educ.=3; Nutrition Suppl.=4)	Malaria Treatment: AL/ACT=1; Quinine=2; Other=3 (Specify)	Diarrhoea Treatment: ORS only=1; Zinc only=2; ORS + Zinc=3; Other=4 (specify)	Other medication	Follow-up: Y/N	Referral: Y/N	Remarks

Appendix 2: Programmatic Data Tool

		Child information						SICK but NO Danger Sign									Referrals																Services			Outcomes				
Serial	Name of CHW	Total Males	Total Females	Total Number of Children (male and Females)	Total number of children who slept under mosquito net last night	Total number of child aged below 6 months EBF	Total children above 6 months vitamin A status upto date	Diarrhoea < 14 days and NO Blood in Stool	Diarrhoea < 14 days and NO Blood in Stool who received CORRECT MANAGEMENT from CHW	Fever or Hotness of the body	Fever < 7 days RDT Done	Fever < 7 days RDT +ve	Fever or Hotness of body for < 7 days who received CORRECT MANAGEMENT from CHW	Fast breathing	Yellow on MUAC	Children Yellow on MUAC who received CORRECT MANAGEMENT from the CHW	Cough for 14 days or more	Diarrhoea for 14 days or more	Diarrhoea for 14 days or more who received CORRECT MANAGEMENT from CHW	Blood in stool	Fever for 7 days or more (RDT+or -or not done)	Fever for 7 days or more (RDT+or -or not done) who received CORRECT MANAGEMENT from CHW	Convulsions	Not able to drink or feed at all	Vomits everything	Chest in-drawing	Unusually sleepy or unconscious	Fever with ANY DANGER SIGN excluding convulsions, not able to drink or eat, vomits everything, and unusually sleepy or unconscious who received CORRECT MANAGEMENT from the CHW	Red on MUAC	Children Red on MUAC who received CORRECT MANAGEMENT from the CHW	Swelling of both feet	Immunization required	Newborn danger signs present	Counselled	Treated within 24 hrs of illness onset	Referred	Referral compliance within 24 hours	Referral compliance more than 24hrs	Recovered	Died	Adverse Drug Reaction (ADR)
1																																						
2																																						
3																																						
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14																																						
15																																						
TOTALS		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Appendix 3: Community Based Referral Form

Section A: Patient/ Clients data

Date:	Time client referred:
Name of the patient:	Age:
Sex:	
Name of community unit:	
Name of the link facility:	

Section B: Reasons for referral

Main problem:
Treatment given:
Health facility patient referred to:
Comments:

Section C: Data of CHW [community health worker] referring the patient

Name:	Mobile no.:
Village:	Sub location:
Location:	Name of the community unit:

Section D: Receiving officer

Date:	Time:
Name of the Officer:	
Profession:	
Name of the health facility:	
Action taken:	

Section E: Counter referral

Name of CHW:	Mobile no.	
Name of community unit:		
Name of link facility:		
Call made by referring officer:	Yes	No

Section F: Instructions for patient

_____

_____

_____

Official Rubber stamp and Signature

Appendix 4: Case Observation Tool

TOOL 2B: CHW SICK CHILD OBSERVATION CHECKLIST
Integrated Community Case Management Study

Questionnaire Serial No: _____ **Study ID: _____**

Date of Observation (dd/mm/yyyy) _____/_____/_____

(This tool should be completed by an iCCM/IMCI [Integrated Management of Childhood Illness] trained observer, and validation done at the same time. The expert observer should circle the most appropriate response for each item; sections B - H)

Section A: Community Health Worker Identification Details

Items	Details
Health Facility Name	
Health Facility Code	
CHW Code	
Community Unit Name	
Expert Observer's Name	
Interview Start Time :	Interview End Time:

Section B: Assessing Communication Skills of the CHW

No	Questions and Filters	Response & Coding	Skip
CHW Communication Skills for Welcoming Clients			
	Did the CHW welcome the client with a "GREETING"?	YES.....1 NO.....0	
	Did the CHW ask the "Name of the child" ?	YES.....1 NO.....0	
	Did the CHW ask the caregiver to "sit comfortably before proceeding with asking about the Child's illness"?	YES.....1 NO.....0	
	Does the CHW ASK the caregiver "for what reason the child is being brought to him/her.?	YES.....1 NO.....0	
	Does the CHW ASK the caregiver "for what reason the child is being brought to him/her.?	YES.....1 NO.....0	
	Does the CHW ASK about the following? (Code Yes…1 and No….2) Age of child in Months and or Years? Yes/No Relationship to Caregiver? Yes / No Whether caregiver has the child's MOTHER CHILD HEALTH (MCH) BOOKLET?	 YES.....1 NO.....0 YES.....1 NO.....0 YES.....1 NO.....0	
	Does the CHW DOCUMENT (write down) these details in Qn 5 above in the SICK CHILD RECORDING FORM? (Validate by checking documentation in recording form, and Circle 1 if Yes or 0 if response is No) Name of Child? Age of child in Months and or Years? Relationship to Caregiver? Whether caregiver has the child's Mother Child Booklet/Card?	 YES.....1 NO.....0 YES.....1 NO.....0 YES.....1 NO.....0 YES.....1 NO.....0	

Section C: Identifying Child's Problems- Asking The Child's Problems

No.	Questions and Filters	Response & Coding	Skip
Identifying Child's Problems & Using The Sick Child Recording Form (Asking & Looking)			
	What reason does the caretaker give the CHW for bringing the child to seek care? (Circle all that apply)	Diarrhea (3 or more loose stool in 24 hours)..... 1 Diarrhea (3 or more loose stool in 24 hours) and Vomiting..... 2 Fever (Hotness of the body) or malaria..... 3 (Fever) Hotness of the body and Vomiting..... 4 Hotness of the body (Fever) & (3 or more loose stool in 24 hours) and Vomiting..... 5 Cough and difficulty in breathing or pneumonia..... 6 Cough and fast breathing..... 7 Others (Specify)..... 8	
	Does the CHW ASK the care giver about the presence of any of the following GENERAL DANGER SIGNS in the sick child (Circle either 1 for Yes or 0 for No) If child has had or is having a Convulsion in this illness? If child is having difficulty in drinking fluids or feeding/breastfeeding? If child is not able to drink or feed anything? If child is vomiting everything? If child is lethargic or unusually sleepy or unconscious?	YES..... 1 NO..... 0 YES..... 1 NO..... 0 YES..... 1 NO..... 0 YES..... 1 NO..... 0 YES..... 1 NO..... 0	
	Does the CHW ask about the presence of COUGH? (Circle 1, if YES or 0, if response is NO)	YES..... 1 NO..... 0	Go To 10 Go To 12
	If Yes to Qn 9 and caregiver confirms presence of cough above, does the CHW ask about the DURATION of Cough?. If YES, GO to Qn 11, if NO, GO TO Qn 12	YES..... 1 → NO..... 0 →	Go To 11 Go To 12
	If YES to Qn 10, Does CHW ask about the duration of the cough as follows? (Circle the correct response)	Cough for <14days..... 1 Cough for >14days..... 2 Asks, but not in this format of greater than or less than 14 days..... 3	
	Does the CHW ask about diarrhoea or Loose stools -3 or more loose stool in 24hours (Diarrhea)?	YES..... 1 → NO..... 2 →	Go To 13 Go To 15

Section C: Identifying Child's Problems- Asking The Child's Problems

No.	Questions and Filters	Response & Coding	Skip
	If caregiver confirms presence of diarrhea, Does the CHW ASK about the DURATION of the diarrhea illness?	YES.....1 ⟶ NO.....2	Go To 14
	If YES to Qn 13, does CHW ask about duration of Diarrhea (3 or more loose stool in 24 hours) in terms of number of days as follows? (Circle all which apply, Yes-1 , No-2 or Not applicable-9) Diarrhea for less than 14 days Diarrhea for greater than 14 days Asks, but not in this format of greater than or less than 14days	YES .....1 NO.....2 N/A.....9 YES .....1 NO.....2 N/A.....9 YES .....1 NO.....2 N/A.....9	
	If YES, to Qn 12, Does CHW ask about presence of Blood in diarrhea? (Circle 1, if response is YES , and 0 if response is NO)	YES.....1 NO.....0	
	Does the CHW ASK about Hotness of the Body (FEVER)? (Circle 1, if response is YES , or 0 if response is NO)	YES.....1 ⟶ NO.....0 ⟶	Go To 17–19 Go To 20
	If the Caregiver says there is fever, Does the CHW ASK about the DURATION of FEVER (Hotness of the body)?	YES.....1 ⟶ NO.....0 ⟶	Go to 18 Go to 27
	Does the CHW ask about the Duration of fever as being " <u>for the last 7days or for more than 7 days</u>"? (Circle 1, if response is <u>Yes</u> , 2, if response is YES, but Does not ask in any of the stated formats and if response is <u>No</u> or 0, if not asked at all)	YES.....1 YES, but NOT in the stated format.....2 NO.....0	
	If Yes to question 17, Does the CHW perform an RDT Test on the Child (Name)? (Circle 1, if response is <u>Yes</u>, or 0 if response is No, or not applicable if there child has no fever)	YES .....1 NO .....0 Not Applicable.....9	
	THE OBSERVER MUST VALIDATE OR QUALIFY THAT THE TECHNIQUE OF BLOOD SAMPLE COLLECTION AND RDT TESTING IS CORRECT. (Note that: the angle of blood collection from finger is for the test is 45 degrees to the finger, the sample is buffered using buffer solution and the test is read after 15 minutes)		
	Does the CHW WIPE the FINGER using a STERILE SWAB or CLEAN Cotton swab with spirit before pricking?	YES .....1 NO .....0 Not applicable.....9	
	Does the CHW Collect blood using the capillary tube at an angle of 45 degrees?	YES .....1 NO .....0 Not applicable.....9	
	Does the CHW put the buffer solution drops on to the test cassette?	YES .....1 NO .....0 Not applicable.....9	

Section C: Identifying Child's Problems- Asking The Child's Problems

No.	Questions and Filters	Response & Coding	Skip
	Does the CHW TIME the duration taken for the test before reading the test results? (Recommended time is 15 minutes)	YES .....1 NO .....0 Not applicable.....9	
	If the CHW PERFORMS an RDT test in Qn 19, Does he or she READ the results of the RDT test? (Circle 1, if response is Yes , and 0 if response is NO)	YES .....1 ⟶ NO.....0 ⟶ Not ABLE to read results.....2 Not applicable.....9	Go To 19 Go To 20
	Does the Assessor AGREE with the CHW on the RESULT of the RDT test? (Assessor waits for 15 minutes after the start of the test then asks the CHW to read this, and he/she VALIDATES the result)	YES, Test read CORRECTLY.....1 NO, Test read INCORRECTLY.....0 Not applicable.....9	
	Does the CHW ask about OTHER Problems the child has? (Circle the one which applies)	YES .....1 NO 0	

Section D: Identifying Child's Problems- Looking for Signs of Illness (Assess and Classify)

No.	Questions and Filters	Response & Coding	Skip
	Does the CHW LOOK for the following signs of childhood illness? Chest indrawing Fast breathing by counting breaths in 1 minute (Yes means that breathing rate count is correct as validated by observer) Unusually sleepy child (lethargic) or unconscious. Malnutrition Using the MUAC tape color code Malnutrition by using the thumbs to press and demonstrate swelling of both feet	 YES.....1 NO.....0 YES.....1 NO.....0 YES.....1 NO.....0 YES.....1 NO.....0 YES.....1 NO.....0	

Section E: Validation of CHW's Assessment and Classification

No.	Questions and Filters	Response & Coding	Skip
Note to expert observer: In the sick child recording form, CHWs are taught to TICK a sign or symptom that is present and to CIRCLE one which is not present).			
	Does the CHW ASSESS the 3 main symptoms, i.e. Diarrhea, Hotness of the Body and 'cough and difficulty in breathing' CORRECTLY? Assesses ALL THREE main symptoms CORRECTLY Assesses only TWO main symptoms CORRECTLY Assesses ONE main symptom CORRECTLY None of them assessed	YES..... I NO.....0 YES..... I NO.....0 YES..... I NO.....0 YES..... I NO.....0	
	Are all the 5 *assessments tasks* completed for the main symptoms? (Completes the technique up to decision) (ASK, LOOK, RECORD, CLASSIFY, TREAT and/or REFER) Cough …….. Diarrhea……. Malaria.……..	YES..... I NO.....0 YES..... I NO.....0 YES..... I NO.....0	
	Does the CHW Assess and classify (child Name) as either: having a general danger sign or Not having general danger sign (s)?	YES.....1 NO.....0	
	Does the CHW Assess and Classify the Child (Name) as having all or some of the GENERAL DANGER SIGNS? (Circle the response that is right. Refer to column of the sick child recording form written 'ANY Danger Sign?' and document all TICKED in the recording form) All danger signs 10 danger signs 9 danger signs 8 danger signs 7 danger signs 6 danger signs 5 danger signs 4 danger signs 3 danger signs 2 danger signs 1 danger signs 0-NO Danger sign	.....1 .....2 .....3 .....4 .....5 .....6 .....7 .....8 .....9 .....10 .....11 .....12 13	
	Did the CHW correctly LOOK (Assess) for these symptoms: (Does not go to the extent of treatment or referral as in Qn 29 above). Fever? Diarrhea? Cough and difficulty in breathing?	YES..... I NO.....0 YES..... I NO.....0 YES..... I NO.....0	
	Did the CHW CORRECTLY LOOK (ASSESS) for the signs of Malnutrition? (Using a MUAC tape to look for color codes and checking for swelling of both feet using both his or her thumbs)	No.....0 Yes (ALL, 2 Signs.....1 YES, One (1) Sign.....2	

Section F: Decision to Refer or Treat the Child

No.	Questions and Filters	Response & Coding	Skip
	Does the CHW classify the child (Name) subsequent to asking and looking for signs of common illnesses – As having "ANY DANGER SIGN and thus for URGENT referral" ? (Filing in danger sign without any tick in decision box is a 'no response') (Filling decision box without any danger sign ticked is also a no response)	YES.....1 → NO.....0 → No Response.....2 →	Go to 35 Go to 36 Go to 36
	(Assessor's Validation question) If Yes to Qn 35, Does the Validator agree with the CHW CLASSIFICATION and DECISION of child having "ANY DANGER SIGN and thus for URGENT referral"?	YES, I agree.....1 → No, I don't agree..0 N/A.....9	Go to 38
	Does the CHW CLASSIFY the Child (Name) subsequent to Asking and Looking at the Child's (Name) signs of common illnesses –As having "NO DANGER , thus for HOME TREATMENT and ADVICE to caregiver "?	YES.....1 → NO.....0 No response.....2	Go to 37
	(Assessor's Validation question) Does the Validator agree with the CHW CLASSIFICATION and DECISION of child having "NO DANGER SIGN and thus for HOME TREATMENT and ADVICE to caregiver"?	YES.....1 → NO.....0 N/A.....9	Go to 41
	If Yes to Qn 35, Did the CHW recommend the Child for Referral? (CHW should tick and explain to the caregiver the need for referral-use the tick)	YES.....1 → NO.....0	Go To 39
	Has the CHW Referral note been written and presented to the Child's (Name) caregiver? (Assessor to verify if Referral Note has been written)	YES.....1 → NO.....0	Go To 40
	If Child (Name) is recommended for Referral, to where is the child (Name) referred to? (Circle that which applies from the list below)	Public Health Facility GOK [Government of Kenya] Hospital.....1 Health centre.....2 Dispensary.....3 Outreach Site.....4 Community Health Extension Worker.....5 Another CHW.....6 Others Public.....7 Private Medical Facility: Private clinic.....8 Private Hospital.....9 Pharmacy.....11 Private Outreach clinic.....12 Private Faith based Hospital..13 Other, specify.....14	

Section G: Checking Competence in Treatment Administered By CHW

No.	Questions and Filters	Response & Coding	Skip
	If Yes to Qn 37, what management/treatment does the CHW recommend and administer?	Immediate referral for Cough and Fast breathing (Pneumonia)..... 1 ORS and Zinc for diarrhea of less than 14 days..... 2 ORS Alone for diarrhea of less than 14 days ..... 3 Zinc Alone for diarrhea of less than 14 days ..... 5 Artemisinin Combination Therapy (ACT) for fever of less than 7days in a malaria area (Malaria)? ..... 6 Immediate referral for severe malnutrition based on RED on MUAC tape..... 7 No treatment given..... 8 No response..... 9	

Section H: Validation of Treatment/Management Given to Sick Child By CHW

No.	Questions and Filters	Response & Coding	Skip
	Is the treatment given in Qn. 41 above for DIARRHEA correct? (Circle 1, if response is YES , and 0 if response is NO)-(Question applies if classification is Diarrhea with NO DANGER SIGN)	Yes.....1 No.....0 No Response.....2	
	Is the treatment given in Qn. 41 above for Hotness of the Body (Fever/Malaria) correct? (Circle 1, if response is Yes , or 0 if response is No) - (Question applies if classification is FEVER with NO DANGER SIGN)	Yes.....1 No.....0 No response.....2	
	(Validator checks for appropriate drug dosage for age; one can use package inserts for recommended dosages) If Yes to Qn 41, Is the DOSAGE for the treatment given by the CHW for the classified illness CORRECT FOR THE AGE of the child? (Circle one response for each question) A. Treatment for Malaria (using ACT) correct for AGE? B. Treatment for diarrhea (using Zinc tablets) correct for AGE? C. Treatment for diarrhea (using ORS sachets) correct for AGE?	YES .....1 NO.....0 N/A.....9 YES .....1 NO.....0 N/A.....9 YES .....1 NO.....0 N/A.....9	
	Does the Assessor agree with the treatment given by the CHW for the classification in question 44? (Assessor to verify this by checking the sick child recording form)	YES- (I agree) .....1 NO (I don't agree.....0 Not Applicable.....9	
	Does the CHW give the Caretaker COUNSELLING INFORMATION on home care.? (Extra feeds/breastfeeding, Extra fluids, Take full dosage of drugs and When to return advice)	YES.....1 NO.....0	

Any other comments/ Observations

_____
_____
_____
_____
_____
_____
_____
_____

Thank the Caregiver for agreeing to participate in the observation session and release them.

Appendix 5: Key Informant Guide—SCHMT

Introduction

"Good morning/afternoon/evening. My name is _____. I am from MCHIP together with the Ministry of Health (Division of Child & Adolescent Health) we are conducting an evaluation of the iCCM implementation research in Bondo District. Please note that the information you provide is going to be treated with due confidentiality and will not be attributed to you or identify you in any way. If you have any questions regarding the evaluation, you can ask me now. Your taking part is voluntary; there are no consequences for not taking part. Please ask me to explain anything you may not understand. I will also ask you to sign it, and I will leave you a copy of this form. "

Purpose for the Evaluation

You are being asked to take part in the evaluation to help us understand your experiences with the iCCM strategy in Bondo District. We would like to invite you to take part because your taking part and that of others will help us evaluate the process of iCCM implementation.

Your part in the Evaluation

What we want to do is find out about your experiences with the iCCM strategy and your role in the project.

Confidentiality

If you agree to participate, I will ask you some questions. We will protect the information about you and your part in this evaluation to the best of our ability. You will not be named in any reports.

Your rights

You may end your participation at any time. If you choose to take part, you can change your mind at any time and withdraw.

Today's date: ____ /_____ /____ Interviewer code_____
Day / Month / Year

Designation of the respondent _____

Question 1: SCHMT support CHWs and CHEWs in the implementation of the iCCM strategy in Bondo

Indicator / Key areas	Response	Code
1. Did the DHMT [District Health Management Team] hold review meetings with the CHEWs and health facility in charges?	Yes	1
	No	2 (skip to no.5)
2. How frequently did the DHMT hold review meetings with the CHEWs and health facility in charges?	Monthly	1
	Every two months	2
	3 monthly (Quarterly)	3
	>3 months apart	4
	Never held review meetings	5
3. Did the DHMT review data from iCCM sites and discuss action points with the CHEWs and health facility in charges?	Yes	1
	No	2(skip to no.6)
4. What data did the DHMT review from the iCCM sites?	Commodity data	1
	Medical supplies data	2
	Patient referral data	3
	CHEW supervisory report data	4
	Under 5 morbidity data from iCCM sites	5
	Under 5 mortality data from iCCM sites	6
	Other data, specify	7
	Never reviewed data	8
5. Why didn't the DHMT hold review meetings with the CHEWs and health facility in charges?	Lack of time	**1**
	Lack of financial resources	**2**
	Not within the mandate of the DHMT to hold such review meetings	**3**
	Other, specify	**4**
6. Why didn't the DHMT review data from iCCM sites and discuss action points with the CHEWs and health facility in charges?	Lack of time	**1**
	Lack of financial resources	**2**
	Not within the mandate of the DHMT to hold such review meetings	**3**
	Other, specify	**4**
7. Did the DHMT carry our any supportive supervision / observation/ mentorship visits to the iCCM targeted sites / CU?	Yes	1
	No	2 (skip to no.9)
8. What did the DHMT observe/supervise / mentor on while in the iCCM targeted sites / CU?	CHEWs mentoring CHWs	1
	CHW Registers & Tools	2
	CHW usage of commodities eg. RDT and medicines eg. ORS	3
	CHC response to CHW implementing iCCM	4
	Infection control (disposal of sharps)	5
	Other, specify	6

Indicator / Key areas	Response	Code
9. Why didn't the DHMT carry our any supportive supervision / observation/ mentorship visits to the iCCM targeted sites / CU?	Lack of time	1
	Lack of financial resources	2
	Not within the mandate of the DHMT to hold such review meetings	3
	Other, specify	4

Question 2: How did iCCM strategy support specific health services in Bondo District in the following areas? (Probe: Malaria, Diarrhoea, Pneumonia, Malnutrition, Neonatal Illnesses).

Service area	Responses on specific support on health services
a. Malaria	
b. Diarrhea	
c. Pneumonia	
d. Malnutrition	
e. Neonatal	

Question 3: Is the iCCM strategy a useful and important strategy for community case management of childhood illness? If yes please elaborate with specific examples

_____
_____
_____
_____
_____

Question 4: What challenges did DHMT face in supporting the CHEWs to implement the iCCM strategy in Bondo?

_____
_____
_____
_____
_____

Question 5: What challenges did DHMT face in supporting the CHWs to implement the iCCM strategy in Bondo?

_____
_____
_____
_____
_____

Question 6: Do you (DHMT) have any recommendations to improve iCCM implementation in Bondo?

Question 7: How has iCCM strategy strengthen the following areas:

Commodity Management:

Administrative support and supportive supervision:

Collaboration and partnership in Bondo:

Question 8: Any other comments?

Wrap-up: review all the activities, what has been the shared/learned, the issues raised. Thank participant(s) for her/his time and input and say that all information will be used to improve iCCM implantation in the region and in other regions in Kenya

Appendix 6: Key Informant Guide—CHC

Introduction

"Good morning/afternoon/evening. My name is _____. I am from MCHIP together with the Ministry of Health (Division of Child & Adolescent Health) we are conducting an evaluation of the iCCM implementation research in Bondo District. Please note that the information you provide is going to be treated with due confidentiality and will not be attributed to you or identify you in any way. If you have any questions regarding the evaluation, you can ask me now. Your taking part is voluntary; there are no consequences for not taking part. Please ask me to explain anything you may not understand. I will also ask you to sign it, and I will leave you a copy of this form. "

Purpose for the Evaluation

You are being asked to take part in the evaluation to help us understand your experiences with the iCCM strategy in Bondo District. We would like to invite you to take part because you're taking part and that of others will help us evaluate the process of iCCM implementation.

Your part in the Evaluation

What we want to do is find out about your experiences with the iCCM strategy and your role in the project.

Confidentiality

If you agree to participate, I will ask you some questions. We will protect the information about you and your part in this evaluation to the best of our ability. You will not be named in any reports.

Your rights

You may end your participation at any time. If you choose to take part, you can change your mind at any time and withdraw.

Today's date: ____ /_____ /____ Interviewer code_____
Day / Month / Year

Designation of the respondent _____

Question 1: What specific management did the iCCM strategy deliver in the following Malaria, Diarrhea, Pneumonia, Malnutrition, and Neonatal Illnesses for children under 5s?

Service area	Responses on what iCCM specifically delivered in the villages that CHC supported
a. Malaria	
b. Diarrhea	
c. Pneumonia	
d. Malnutrition	
e. Neonatal	

Question 2: CHC support for CHWs in the implementation of the iCCM strategy in Bondo

Indicator / Key areas	Response	Code
1. Did the CHC hold review meetings with the CHWs and CHEWs?	Yes	1
	No	2 (skip to no.3)
2. How frequently did the CHC hold review meetings with the CHWs and CHEWs?	Monthly	1
	Every two months	2
	3 monthly (Quarterly)	3
	>3 monthly	4
	Never	5
3. Did the CHC review data from iCCM sites and discuss action points with the CHW/CHEWs?	Yes	1
	No	2 (skip to no.5)
4. What data did the CHC review from the iCCM sites with the CHWs/CHEW?	CHEW supervisory report data	1
	Under 5 data on Malaria, Diarrhea and Malnutrition from iCCM sites	2
	Data on referrals for Pneumonia and Neonatal illness	3
	Other data	4
	Never reviewed data	5
5. Why didn't the CHC hold review meetings with the CHEWs and health facility in charges?	Lack of time	1
	Lack of financial resources	2
	Not within the mandate of the CHC to hold such review meetings	3
	Other	4
6. Did the participate in any dialogue day iCCM targeted CUs?	Yes	1
	No	2

Question 3: Has the iCCM strategy been an important strategy for care of sick children under 5yrs? If yes, please elaborate with specific examples

Question 4: What challenges did CHC face in supporting the implementation of iCCM in the villages that you support in Bondo?

Question 5: What challenges did CHC face in supporting the CHWs to implement the iCCM strategy in Bondo?

Question 6: Do you (CHC) have any recommendations to improve iCCM implementation in Bondo

Question 7: Any other comments?

Wrap-up: review all the activities, what has been the shared/learned, the issues raised. Thank participant(s) for her/his time and input and say that all information will be used to improve iCCM implantation in the region and in other regions in Kenya

Appendix 7: Key Informant Guide—Chiefs

Introduction

"Good morning/afternoon/evening. My name is _____. I am from MCHIP together with the Ministry of Health (Division of Child & Adolescent Health) we are conducting an evaluation of the iCCM implementation research in Bondo District. Please note that the information you provide is going to be treated with due confidentiality and will not be attributed to you or identify you in any way. If you have any questions regarding the evaluation, you can ask me now. Your taking part is voluntary; there are no consequences for not taking part. Please ask me to explain anything you may not understand. I will also ask you to sign it, and I will leave you a copy of this form. "

Purpose for the Evaluation

You are being asked to take part in the evaluation to help us understand your experiences with the iCCM strategy in Bondo District. We would like to invite you to take part because you're taking part and that of others will help us evaluate the process of iCCM implementation.

Your part in the Evaluation

What we want to do is find out about your experiences with the iCCM strategy and your role in the project.

Confidentiality

If you agree to participate, I will ask you some questions. We will protect the information about you and your part in this evaluation to the best of our ability. You will not be named in any reports.

Your rights

You may end your participation at any time. If you choose to take part, you can change your mind at any time and withdraw.

Today's date: ____ /_____ /____ Interviewer code_____
Day / Month / Year

Designation of the respondent _____

Question 1: What specific management did the iCCM strategy deliver in the following Malaria, Diarrhea, Pneumonia, Malnutrition, and Neonatal Illnesses for children under 5s in the village that you serve as Chief?

Service area	Responses on what iCCM specifically delivered in the villages that CHC supported
a. Malaria	
b. Diarrhea	
c. Pneumonia	
d. Malnutrition	
e. Neonatal	

Question 2: Chief role in the implementation of the iCCM strategy in Bondo

Indicator / Key areas	Response	Code
1. Did the Administration play any role in the implementation of iCCM in Bondo district?	Yes	1
	No	2 (skip to no.3)
2. What specific role did the administration play?	Mobilization of the community	1
	Providing a forum (chief's barazas) for information sharing about iCCM to the community	2
	Resource to transport patient's referred from the community to Health facility	3
	Settling of disputes between CHWs and community members	4
	Other	5
3. Did the administration participate in any community dialogue day in the iCCM targeted CUs?	**Yes**	**1**
	No	**2**
4. Why didn't the administration participate in any community dialogue day in the iCCM targeted CU ?	**Lack of time**	**1**
	Lack of financial resources	**2**
	Not within the mandate of the CHC to hold such review meetings	**3**
	Other	**4**
5. What was the administration's role during the community dialogue days?	**Provision of security**	**1**
	Re enforce health seeking behavior that will improve health	**2**
	No role	**3**
	Other	**4**

Question 3: Has the implementation of iCCM in your village improved the health outcomes of under 5 children in your village? Please elaborate (interviewer to probe for reasons and explanations)

Question 4: What challenges have you faced in a bid to support iCCM implementation in your village?

Question 5: What challenges have you faced with the CHWs implementing iCCM in the villages that you support in Bondo?

Question 6: Has the iCCM strategy been well received by the people in your village? Please elaborate (interviewer to probe for reasons and explanations)

Question 7: Do you have any recommendations to improve iCCM implementation in Bondo

Question 8: Any other comments?

Wrap-up: review all the activities, what has been the shared/learned, the issues raised. Thank participant(s) for her/his time and input and say that all information will be used to improve iCCM implantation in the region and in other regions in Kenya

Appendix 8: Key Informant Guide—Religious Leaders

Introduction

"Good morning/afternoon/evening. My name is _____. I am from MCHIP together with the Ministry of Health (Division of Child & Adolescent Health) we are conducting an evaluation of the iCCM implementation research in Bondo District. Please note that the information you provide is going to be treated with due confidentiality and will not be attributed to you or identify you in any way. If you have any questions regarding the evaluation, you can ask me now. Your taking part is voluntary; there are no consequences for not taking part. Please ask me to explain anything you may not understand. I will also ask you to sign it, and I will leave you a copy of this form."

Purpose for the Evaluation

You are being asked to take part in the evaluation to help us understand your experiences with the iCCM strategy in Bondo District. We would like to invite you to take part because you're taking part and that of others will help us evaluate the process of iCCM implementation.

Your part in the Evaluation

What we want to do is find out about your experiences with the iCCM strategy and your role in the project.

Confidentiality

If you agree to participate, I will ask you some questions. We will protect the information about you and your part in this evaluation to the best of our ability. You will not be named in any reports.

Your rights

You may end your participation at any time. If you choose to take part, you can change your mind at any time and withdraw.

Today's date: ____ /_____ /____ Interviewer code_____
Day / Month / Year

Designation of the respondent _____

Question 1: General knowledge of iCCM package and leader's perception and satisfaction of the intervention

Indicator / Key areas	Response	Code
What specific management did iCCM strategy deliver in Malaria, Diarrhea, Pneumonia, Malnutrition, and Neonatal Illnesses for children under 5s in this community?	Testing and treatment of malaria	1
	Treatment of diarrhea	2
	Treatment of malnutrition	3
	Referral of children with pneumonia	4
	Referral of newborns	5
	I don't know	6

Question 2: Do you feel that the implementation of iCCM has improved the health outcomes of under 5 years in your village? Please elaborate why (interviewer to probe for reasons and explanations)

Question 3: Has the iCCM strategy been well received by the people in your village? Please elaborate how and why (interviewer to probe for reasons and explanations)

Question 4: What challenges do you think the CHWs face in implementing iCCM in your villages?

Question 5: Do you have any recommendations to improve iCCM implementation in Bondo

Question 6: Any other comments?

Wrap-up: review all the activities, what has been the shared/learned, the issues raised. Thank participant(s) for her/his time and input and say that all information will be used to improve iCCM implantation in the region and in other regions in Kenya.