

Measuring CCM Implementation Strength

Report of Findings from a Pilot of Study
Catalytic Initiative Rapid Scale-Up program, Malawi

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Background

IIP-JHU has developed guidelines for documenting implementation and contextual factors for the independent evaluation of the Catalytic Initiative,¹ and the independent evaluation team (IET) including IIP-JHU and the National Statistics Office (NSO) has been using them to document the implementation of the CI-supported Rapid Scale-Up (RSU) program evaluation in Malawi. The IET initially developed a protocol based on these guidelines in conjunction with the district health management teams (DHMTs) and the Core Implementation team (including the MOH, UNICEF, WHO and others) for district-level documentation in 16 districts.²

Although the RSU program includes many interventions to address maternal, neonatal and child health, the focus of this exercise is integrated community case management (CCM) of common childhood illnesses provided by Health Surveillance Assistants (HSAs). Documentation of information related to the scale-up of the CCM strategy is essential. The IET will use these data as the basis for developing a score for measuring the intensity of CCM activities by district as part of a dose response analysis in the overall evaluation analysis.³ The IET is also implementing a novel method of rapidly measuring child mortality through community-level recording of births and deaths by the HSAs. The Rapid Mortality Monitoring project (RMM) is currently being piloted in two districts of Malawi. The IIP-JHU website provides additional information on the RMM project.⁴

The current documentation protocol includes data abstraction tools that organize information from various sources at the district level in a consistent fashion by district and over time. The IET has collaborated with the Health Management Information System (HMIS) Officers in the 16 districts to complete the tools quarterly. During the initial field mission, we found gaps in the information available through district-level documentation, especially for data related to HSA supervision and community-level supply stock-outs. We found that supervision information is available but not systematically recorded, and there is no information on community-level stock-outs at the district level.

Based on these the findings of the initial application of the documentation guidelines, we proposed to collect information on CCM supervision and drug stocks via direct telephone interviews with HSAs to complement information obtained through the district-level documentation. This report outlines the findings from piloting this method in one district.

Aim and objectives

The aim of the pilot study was to determine the feasibility of assessing supervision status and community-level drug stocks for the Health Surveillance Assistant (HSA) program through telephone interviewers with the HSAs. The specific objectives were:

- To determine non-response rates and the reasons for non-response;
- To assess respondent understanding of the questionnaire;

¹IIP-JHU website, Documentation. http://www.jhsph.edu/bin/o/c/Documentation_guidelines_v1.pdf

² Originally 10 intervention and 6 comparison districts, although partners have since then scaled up similar CCM programs in the 6 comparison districts.

³ Analysis plan currently under development

⁴ IIP-JHU website; RMM. <http://www.jhsph.edu/dept/ih/IIP/projects/rmm.html>

- To compare information about the HSA program at the district level with direct interviews;
- To assess the overall costs of the protocol.

Methods

We chose Balaka district as the site of the pilot study because it is an intervention-RMM district and the IET already has strong ties with the district through HSA recording of births/deaths as part of RMM. We contacted the MOH IMCI unit and other partners on the proposed activities and received feedback on the questionnaire and protocol. The IET traveled to Balaka in November 2010 to meet with the DHO, IMCI coordinator, HMIS officer and EHOs and provide orientation to the district staff. The DHMT approved the pilot activities and the EHO contacted HSAs through their supervisors to inform them of the telephone interviews. The IET developed a draft questionnaire based on the 2009 Malawi HSA Quality of Care survey.⁵ See Appendix 1.

The IET had prepared an initial HSA listing for RMM sampling in November 2009; it included HSA name, CCM training status, whether the HSA was running a Village Health clinic (VHC) and if they worked in a hard-to-reach area. As of October 2010, NSO has updated the listing and included the phone numbers of the HSAs. In the current listing, there are 277 HSAs, 161 working in a hard-to-reach area, 91 trained in CCM and 86 operating a village health clinic. Among those with CCM training, 83 are working in a HTR area, while eight are not. Annex table A1 shows the number of HSAs working, operating a VHC and trained in CCM for nine selected districts with available data.

We stratified the HSAs into two groups: (1) HSAs with no CCM training and (2) HSAs with CCM training. Fifteen percent of HSAs in the first group (n=28) were randomly selected for interview on deployment and status of CCM training to verify the listing. Fifty percent of the second group (n=46) were interviewed on supervision status and drug stocks. We used Microsoft Excel to select a simple random sample of 74 HSAs, without replacement.

Research assistants from NSO attempted to contact the 74 HSAs at the mobile phone number listed by the district. The research team made four attempts to contact each sampled HSA; if they were unable to reach the HSA, the team contacted the district and asked them for telephone number updates. HSAs not able to be reached via an updated number were scheduled for a face-to-face (personal) interview at the health center. The assistant Environment Health Officer (AEHO) at Balaka district coordinated the personal interviews; we provided per diems for lunch as an incentive. Health center staff invited the HSAs to the health center on a predetermined day to meet with NSO staff to conduct the interview. We used the same interview instrument for both the telephone and personal interviews. Data collection activities took place from March – April 2011.

The completed questionnaires underwent double-data entry and reconciliation in CSPro. We used STATA 11 for all analyses.

⁵ IIP-JHU website. QoC forms

Results

1. Summary of telephone and Personal Interviews

Table 1 below presents a summary of telephone and personal interview responses. Three of the sampled HSAs were no longer working as an HSA or transferred to another district. Replacements were sampled for two of the HSAs, but the third HAS could not be replaced due to logistical reasons. We interviewed 73 HSAs.

Sixty-seven percent of the HSAs were available for telephone interview. Thirty-three percent were not accessible by telephone (after four attempts on different days and times). Many of the HSAs had changed their telephone number since the original listing that took place four months before data collection. Even with updating the listing at the district health office, a third of the HSAs were still inaccessible. All of the HSAs not accessible by telephone were out-of-network.

Annex table A2 shows a breakdown of the logistics and cost of conducting the telephone and personal interviews.

Table 1. Description of sample

	Sampling strata*		Total
	CCM-trained HSAs	HSAs not trained in CCM	
Sampled	50%	15%	27%
Total in district	91	186	277
Transferred or no longer working as HSA	0%	4%**	4%
Interviewed by telephone	60%	79%	67%
Personal interview at health facility	40%	21%	33%
Reported receiving CCM training	89%	32%	67%
Reported working in a HTRA	98%	57%	82%
Reporting receiving the initial drug box to operate a VHC.	89%	0%	55%
Total interviewed	45	29	73

*CCM training according to district listing; ** Replacements selected for 2 HSAs

2. Verifying the district HSA listing

In order to validate the district listing of those HSAs deployed, trained in CCM, working in a “hard-to-reach” area (HTRA) and operating a village health clinic (VHC), we compared the interview responses with the district listing. There were no marked differences relative to the district listing.

Among the 29 HSAs who had not received training according to the listing, nine reported having been trained. According to the district listing, 45 had been trained in CCM; however, five of those HSAs reported that they had not been trained. Hence, there was 19% disagreement with the district listing. The number of HSAs working in a HTRA matched the listing (n=60) and 40 operated a VHC at the time of the survey, compared to 46 in the listing. Because there was a four-month period between the listing

and the data collection activity, some of these differences may reflect actual changes rather than inaccuracies in the district listing.

3. Characteristics of HSAs

The survey investigated the characteristics of HSAs working in the district. These include age, gender, highest level of education, years worked as HSA and whether they were currently working in their assigned community. We looked at the characteristics by interview method (telephone vs. personal interview) to determine if there was any difference in those HSA who were available by mobile telephone. Table 2a below presents the findings.

Table 2a: HSA Characteristics by interview method (n=49 HSAs interviewed by phone and 24 interviewed in person).

	Telephone	Personal interview	Total
Gender (%)			
<i>Male</i>	55%	67%	59%
<i>Female</i>	45%	33%	41%
Chi²			p>0.1
Age (%)			
<i>18-30</i>	47%	33%	42%
<i>31-40</i>	41%	45%	43%
<i>41-50</i>	6%	17%	10%
<i>51-60</i>	6%	4%	6%
Chi²			p>0.1
Education (%)			
<i>Primary</i>	4%	0%	3%
<i>Form 2</i>	29%	50%	36%
<i>Form 4 MSC</i>	65%	46%	59%
<i>Diploma</i>	2%	4%	3%
Chi²			p>0.1
Years Working as HSA (%)			
<i>0-1</i>	2%	0%	1%
<i>2-5</i>	69%	54%	64%
<i>6-10</i>	2%	0%	1%
<i>>10</i>	27%	46%	33%
Chi²			p>0.1
HSA Currently working in assigned community* (%)	88	-	-

* Only reported for those HSAs interviewed by telephone (n=49)

The results from the pilot survey shows that the sample included more male HSAs (59%) than female HSAs (41%). Forty-two percent of the HSAs interviewed are under 30 years of age. In terms of educational background, the findings show that the majority have the Malawi School Certificate of Education (MSCE) as their highest educational qualification. Most HSAs received their initial eight-week

training course in the previous five years (65%) or over ten years ago (33%). A large proportion of HSAs in Balaka were trained in 2007 (47%). During the telephone interviews, most of the HSAs (88%) reported that they were currently in their assigned community. This question was not applicable during the personal interviews, since the HSAs had to leave their assigned communities to travel to the health center. We employed chi-squared testing to determine if any of the differences were statistically significant; we found no significant associations. Although no statistically significant differences were found, there is evidence that younger, female HSAs with higher education tended to be more available by telephone for the interview.

Table 2b shows the HSA characteristics by CCM training as reported by the HSA. A higher proportion of male HSAs have been trained in CCM (65%) and there is evidence that HSAs under 30 years of age are more likely not to have received CCM training (50%) although neither of these differences were found to be significant. No significant differences in CCM training were found in the education or HSA work experience. HSAs (interviewed by telephone) who reported currently residing in their assigned community were significantly more likely to have received CCM training ($p=0.03$).

Table 2b: HSA Characteristics by CCM training as reported by HSA (n=49 reported trained in CCM and 24 not trained in CCM).

	CCM-trained HSAs	HSAs not trained in CCM	Total
Gender (%)			
Male	65%	46%	59%
Female	35%	54%	41%
Chi²			p>0.1
Age (%)			
18-30	39%	50%	43%
31-40	49%	29%	43%
41-50	8%	13%	10%
51-60	4%	8%	5%
Chi²			p>0.1
Education (%)			
Primary	0%	8%	3%
Form 2	37%	33%	36%
Form 4 MSC	61%	54%	59%
Diploma	2%	4%	3%
Chi²			p>0.1
Years Working as HSA (%)			
0-1	0%	4%	1%
2-5	67%	58%	64%
6-10	0%	4%	1%
>10	33%	33%	33%
Chi²			p>0.1
HSA Currently working in	96%	76%	88%

assigned community* (%)

*Chi*²

P=0.03

* Only reported for those HSAs interviewed by telephone (n=49)

4. HSA training and equipping for community case management

One of the key areas in the investigation was to assess the capacity of HSAs in terms of training and equipment in implementing the activities of the project. Table 3a and b present results of the findings in this area.

Table 3a: HSA training and equipping for community case management (n=49 HSAs who had been trained in CCM)

Number of years trained in CCM:	
<i>0-1 years</i>	55%
<i>2-3 years</i>	41%
<i>Unknown</i>	4%
HSA who ever received drug kit	74%
HSA treated sick children in previous 3 months	71%
HSA treated sick children in previous 7 days	67%

Of those HSAs trained in CCM, most received their training in the past year (55%). Seventy-four percent reported receiving the initial drug kit and most have treated sick children in the previous seven days (67%).

In the sample of reportedly untrained HSAs, we did find that four (5%) HSAs reported receiving an initial CCM drug kit and three (4%) of those HSAs reported treating sick children in the previous seven days.

Table 4b shows that for those HSAs who had treated sick children in the previous seven days, the average number of children treated was 30 per week. Further, the HSAs reported having conducted an average of two village health clinics in a week. HSAs were also asked an open-ended question: how does your community know about village health clinics? Annex table A3 shows the responses and the number of times each response was mentioned. Most HSAs either inform the village leaders (chief or religious leader) who, in turn, hold an orientation meeting or some HSAs will convene a meeting with villagers themselves. Other HSAs mentioned informing volunteers from various village health committees or announcing through an awareness campaign or during the under-five clinics.

Table 4b: Village Health Clinic Summary (n=35 HSAs treating children in previous 7 days)

	Mean	Median	IQR
Average Number of children treated in previous 7 days	30	1	1
Average number of VHC held in previous 7 days	2	1	1

5. HSA drug and supply stock outs

HSAs who reported receiving the initial drug kit and treated sick children in the previous three months were interviewed on CCM drug stocks and supplies. Cotrimoxazole supply was high with 84% of the interviewed HSAs reporting that they currently had the drug and 82% with continuous stocks throughout the previous three months (table 5a). Since both configurations of Lumefantrine/Arthemether (LA) (1x6 and 2x6) could be used to treat children, we combined them into one category. Fifty-three percent of the HSAs reported currently having LA and 40% reported a continuous supply over the last three months. ORS availability was much lower with only 32% of the HSA currently stocked and 11% with 3-month continuous stocks. Paracetamol and antibiotic eye ointment stocks at the village health clinic level were also low. We collected information on zinc stocks; however, since the zinc component has not been scaled-up we decided to exclude it from the analysis. Only 5% of the HSAs reported having current stocks of all CCM drugs (excluding zinc), and 8% of the HSAs reported that they currently did not have any drugs. None of the HSA reported a continuous stock of all drugs in the previous three months.

Table 5a: Proportion of interviewed HSAs who have the CCM drugs currently and a continuous supply in the past three months (n=38 HSAs who received the initial drug kit and report treating sick children in the previous 3 months).

	Current drug stocks	Continuous supply in previous 3m
Interviewed HSA's drug kit contains:		
ORS	32%	11%
LA (1x6 or 2x6)	53%	40%
Paracetamol	34%	18%
Antibiotic eye ointment	16%	8%
Cotrimoxazole	84%	82%
All drugs*	5%	0%
No drugs	8%	-

*Excluding zinc

The HSAs were asked which of the CCM-related supplies they currently owned (table 5b). Almost all the HSAs reported having their sick child recording form, the sick child register and MUAC tape. However, only 58% of the interviewed HSA reported having a timing device.

Table 5b: Proportion of interviewed HSAs who currently have CCM supplies (n=38 HSAs who received the initial drug kit and report treating sick children in the previous 3 months).

Interviewed HSA currently have supplies:	
Timing device	58%
MUAC Tape	97%
Sick child recording form	95%
Sick child register	100%

6. Supervision

HSAs who have received their initial drug kit and have treated sick children in the previous three months were asked about CCM supervision status (table 6). We define supervision as visits to the HSA in their community and mentoring the HSA receives when they travel to the health center. Twenty-nine percent of the interviewed HSAs received any supervisory visits in the previous three months at their assigned community. Most of those visits included some CCM supervision. However, 34% reported receiving CCM supervision or mentoring at the health center. In total, 53% of the interviewed HSAs received some form of CCM supervision in the previous three months.

Eleven (26%) HSAs reported receiving CCM supervision at their community. Most were visited by an EHO (4/11), followed by a community nurse (3/11). The remaining HSAs received a visit on CCM from a medical assistant, IMCI coordinator, pharmacy technician, clinical nurse or doctor. Thirteen (34%) of the HSAs reported receiving CCM supervision at the health center. Most of them were mentored by the health center in-charge (9/13) but other HSAs mentioned the EHO, assistant EHO, community health nurse, nurse medical assistant and fellow HSAs.

HSAs were then asked about the specific activities, related to CCM, that were completed during the supervisory visits in the community or the mentoring sessions at the health center. Forty percent of the HSAs interviewed on supervision received supervision with reinforcement of CCM clinical practices. This was defined as (1) direct observation of sick child care at the community or health center; (2) CCM mentoring meetings at the health center; or (3) demonstration of how to care for a sick child at the health center.

Table 6: HSA supervision status (n=38 HSAs who received the initial drug kit and report treating sick children in the previous 3 months).

HSAs supervised at their post	29%
CCM supervision	
<i>At post</i>	26%
<i>At health center</i>	34%
<i>Total</i>	53%
Supervision with reinforcement of clinical practice*	40%

*Observation of case management, practicing case scenarios or mentoring at a health facility

Conclusions

Generally, we found this method to be feasible and relatively inexpensive compared with visits to the HSAs for direct interviews. Thirty-three percent of the sampled HSAs could not be reached on their mobile phone. Based on recommendations from the Balaka district health officials, the HSAs were called into the health center to meet with NSO staff to conduct the interviews. This may not be feasible for all districts and there are alternatives. Working with the districts, we could identify days that most HSAs will travel to the health center either to collect supplies, paychecks or for monthly meetings. The interviewers could plan to attempt the calls during that period, assuming that the health center is in network range; otherwise, personal interviews could be conducted. Even if the HSAs have to be summoned to the health center just for the purpose of the interview, this interview may be carried out by phone using the health center's phone, instead of sending field workers for face-to-face interviews.

We also found that many HSAs changed their telephone number for various reasons from the time the listing was conducted to when the interviews began (four months). The implication for future work is that there should be a mechanism to update the HSA listing continuously. Additionally, this was a RMM district and many of the HSAs had been given mobile phones through the RMM and other projects. A lower proportion of HSAs working in other districts may have mobile phones. Otherwise, the district listing was up-to-date with the number of HSAs deployed, trained, working in a "Hard-to-Reach" area and operating a village clinic relatively consistent with the pilot findings.

We did find some differences in the background characteristics of those HSAs contacted by phone versus direct interviews. This suggests that HSAs out-of-network might have a different work environment from those that are in-network, and future applications of the method should ensure that the sample includes appropriate representation by these HSAs. Most of the HSAs interviewed by phone (88%) reported that they were currently posted in their assigned community. However, there is no way to verify the validity of the HSAs' reports on the day of the telephone call. This is important to consider because the HSA must be at the correct posting to identify and treat sick children. The proportion of time the HSAs actually spend in their assigned community is uncertain given other responsibilities such as trainings and monthly meetings at the health center, and implementing partners have expressed concern about this as a possible threat to CCM effectiveness.

About 41% of the HSAs in the sample reported that they had been trained in CCM over two years ago. CCM refresher trainings will begin soon and any subsequent rounds of interviews should include questions about refresher trainings. Most of the CCM-trained HSAs have received their initial drug-kit and are actively treating children. However, it would be interesting to explore why some of the CCM-trained HSAs are not treating sick children, even though they report that they have received their drug kit. Also notable is that four HSAs reported receiving their drug kit and three of this group report they are treating children without having completing the CCM training. Most HSAs are holding about two village health clinics per week and treating on average 30 sick children during that week, showing that utilization of the clinics is still high in Balaka district.

Levels and continuity of drug stocks reported by the sampled HSAs were lower than expected. Cotrimoxazole stocks are high, possibly because cotrimoxazole is loose tablets packed in a very large bottle whereas LA and ORS are packaged in individual blister packs and sachets and therefore require more frequent stocking⁶. Almost all of the HSAs that have been actively treating children in the past

⁶ Callaghan J. Evaluating the scale-up of community case management in Malawi: Health systems supports, health worker attitudes, and equity of service provision [Dissertation]. Baltimore, MD: Johns Hopkins University Bloomberg School of Public

three months reported the presence of CCM forms, registers and MUAC tapes; however about 40% did not have a timing device. It is possible that HSAs may use a wall clock or cell phone clock for timing respirations rather than a formal timing device; this and other reasons for the low levels of timing devices should be investigated given that some means of determining the passage of time is needed to correctly assess pneumonia in sick children.

About half of the sampled HSAs reported that they had received CCM supervision in the previous three months. Many of the HSAs who did not report a supervisory visit in their community reported that they received “mentoring” at the health center. Most of the CCM supervision that occurred was reported to involve reinforcement of clinical practices.

Table A2 shows the costs associated with this activity. Excluding data processing, support staff salaries and overhead, the telephone interviews were less expensive (\$20 per interview) than the personal interviews (\$27.50 per interview). The cost of the data collection portion of this pilot with both telephone and personal interviews was \$1639. If we had been able to interview out-of-network HSAs while they were at the health center, the costs of the data collection portion of the pilot would have decreased to \$1460.

It should be noted that Balaka district is only about one hour by care from the NSO headquarters in Zomba city. It can take up to 10 hours to travel to some districts in Malawi from Zomba city, and the costs of telephone interviews would be much less expensive compared to personal interviews in those more remote districts.

Limitations and Recommendations

There are some important limitations to consider when reviewing the results reported here. The first is that this was a pilot. The primary objective was to test the feasibility and cost of alternative methods, *not* to draw conclusions about the performance of the CCM project in Balaka district. We interviewed only a stratified sample of HSAs and the results have not been adjusted to reflect the population.

Another important limitation to this work is that we did not conduct a validation exercise. It would be helpful to validate these data through direct visits to the HSA in their assigned community, particularly to verify current drug stocks and whether the HSA is actually working in in the community to which they are posted. The expense of scaling-up this activity to all districts in Malawi necessitates a validation exercise.

As data collection and analysis progressed, we also found some issues with the interview tools. The response categories for activities conducted during supervision should be streamlined and clarified so that we can identify more specifically what constitutes reinforcement of clinical practices. Questions should also be added to determine whether the HSAs have participated in the refresher trainings that are being carried out by RSU implementing partners.

Overall, we found this method to be a useful and relatively inexpensive complement to the information collected through routine documentation with DHMTs. Interviewing the HSAs directly on supervision and drug stocks will provide valuable information on the CCM program at the community level, close to the children it aims to reach. Further work is needed to validate this and other potential methods of

documenting CCM implementation against a gold standard based on unannounced visits by trained researchers to HSAs in their assigned communities.

Appendix 1: Interview tool – available from IIP-JHU upon request

Annex:

Table A1 – HSA program status as of 4th QT, 2009-2010 annual cycle for selected districts with available data

	No. HSAs working	No. HSAs operating a VHC	No. HSAs trained in CCM
Mzimba	379	24	24
Kasungu	553	96	96
Dowa	477		0
Salima	320	52	52
Mangochi	563	62	62
Chiradzulu	248	31	0
Mwanza	82	61	41
Phalombe	263	51	0
Chikwawa	362	64	64

Note: Data abstracted from HMIS records through documentation activities related to the evaluation.

Table A2: Summary of interview logistics and cost

Telephone interviews

Telephone interviews	
Time to complete telephone interviews	~ 2 weeks
Staff costs (2 research assistants * 2 weeks)	\$397
Supply costs (phone cards)	\$530
Total	\$979
Personal Interviews (Note: did not include staff salaries for 2 days since it would be nominal)	
Number of health centres visited	4
Time to complete personal interviews (Staff Hours, and travel)	2 days
Fuel cost	\$133
Allowance (2 Research Assistants * 2 days)	\$397
Allowance (1 driver* 2 days)	\$80
AEHO Lunch Allowance	\$50
Total	\$660
Data Processing	
Data entry clerk	\$232
Data Processing & management	\$265
Support staff costs (3 weeks)	\$767
Overhead (8%)	\$228
Total cost of completing pilot survey for 70 HSA	\$3074

Table A3: Summary of open ended response: How do people in the community know about VHCs

Response:	No. times mentioned
Communicated to the Chief/religious leader who in turn inform their people	18
HSAs hold meetings with community members	16
Announced during under-five clinic	4
Volunteers through the “village clinic committee”, “hospital committee” or “drug committee” inform people.	3
Awareness campaign	2