Maintaining knowledge and technical skills among illiterate frontline community health workers (HHPs) delivering integrated Community Case Management (iCCM) in South Sudan

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Abstract:

Improving and maintaining the clinical skills of frontline health workers over time is critical for strengthening health systems, as well as for the accomplishment of universal health coverage. A three-pronged supportive supervision model was implemented among 15 illiterate frontline community health workers in the rural Kuac South community of Gogrial West, Warrap State, South Sudan for seven months of 2013. Key components of the supportive supervision model were the inclusion of a central supervisor and field supervisor, a weekly follow-up visit, utilization of a checklist with defined basic skills, and competencies for acquisition by CHWs. This case study shows that close supportive supervision immediately after training activities might be a key step to consider in assuring skill and competency acquisition among illiterate CHWs in developing countries where community case management approaches are currently being considered or implemented.

Introduction:

Improving and maintaining the clinical skills of frontline health workers over time is critical for strengthening health systems, as well as for the accomplishment of universal health coverage. Supervision is widely recognized as a key support for improving health worker performance (WHO, 2006; Bosch-Capblanch and Garner, 2008). As millions of dollars are invested in task-shifting strategies — a grand part of it in Integrated Community Case Management (iCCM)[1] — in developing countries to augment essential health coverage, it becomes particularly relevant to understand supervision models and their strengths and limitations. During the primary health care movement of the 1970s, supervision approaches had a top-down approach focusing mostly on the system's requirements for the health provider and less on the health provider's own needs (Marquez & Kean, 2002). Additionally, they aimed at linking the remote health worker to the formal health system as well as strengthening their limited health competencies (Clements et al, 2007). Recently, supervision models in the health sector, albeit with the main focus on the facility-based professional rather than community-based resources, have been replaced by a more horizontal supervision approach known as supportive or facilitative supervision. Currently, there is a dearth of literature on supervision approaches, especially when referring to frontline health workers based at the community level. This study was embedded in a United States Agency for International Development centrally- funded Child Health and Survival Grant Program project, currently being implemented by World Vision in Gogrial East and Gogrial West Counties in the state of Warrap, South Sudan.

[1] iCCM is a strategy to deliver health care services for diarrhea, pneumonia, and malaria by community resources

Methodology:

The objectives of this study were to describe and assess a supervision operational model for frontline community-based health workers implementing an iCCM approach and operating in a fragile state context. The information collected aims to assist the implementation process of a community-based supervision model to support skill acquisition and performance maintenance among frontline health workers during implementation of an iCCM approach which includes health interventions for the newborn. Information was prospectively collected from an ongoing monitoring system, and included monthly virtual meetings, monthly supervision field reports, and data collection from a supervision checklist and individual community health workers (CHW) registration forms. Data was collected during March-September of 2013. For the analysis of information, a timeline of key events and a narrative summary of the supervision model were first produced. Second, quantitative results on supervision over time from monthly meeting reports, supervision checklists, and supervision individual reports were summarized with tables and graphs.

The supervision results are presented here as a case study. The trial was conducted during iCCM-related activity implementation in the rural Kuac South community - supported by the Magai Primary Health Care Unit (PCHU) - in the county of Gogrial West, Warrap State, South Sudan. During the trial, the cadre of CHWs had one field supervisor (hired by the project) and one central supervisor (an MPH, hired by the project), all led by the principal investigator (an MD). The population for this case-study included 15 Home Health Providers (HHPs), the frontline volunteer community health workers — and hereafter referred to as CHWs — in South Sudan, one field supervisor and one central supervisor, all trained on a World Vision's iCCM tool, training approach, and its respective supervision model. All HHPs were female and illiterate, and chosen by their communities to participate in the project.

Intervention:

Community-Based Supervision Model Description: World Vision US (WVUS), in collaboration with World Vision South Sudan and the Government of South Sudan Ministry of Health (MOH), is piloting an innovative supervision model focused on community resources, within an iCCM implementation program. WVUS' community-based supportive supervision model (see Table 1) has been adapted from a "clinical" supervision approach based on a three-function interactive model in which supervisor and supervisee are jointly responsible for completing formative (increasing skills and knowledge), normative (enhancing accountability and quality assurance) and restorative (facilitating collegial and supportive relationships) supervision (Proctor, 1987; Jones, 1996; Cutliffe & Proctor, 1998).

Table 1: Components of a three-function interactive model

	Field supervisor	Central supervisor
Formative	Weekly visits: coach each CHW when problem areas are identified. Continuing education topics at monthly	Training period

	meeting (e.g. vaccination).	
Normative	Weekly visits: test components of the algorithm, check recording forms and condition of medication/ equipment.	Review of weekly reports with immediate feedback.
Restorative	Weekly visits: report positive feedback from community and health facility. Monthly meetings.	Weekly teleconference, sharing of information, on-site support. Joint identification of solutions to problems in practice.

In the trial intervention area, the supervision model was implemented to support CHWs after iCCM training. The supervision model included: (1) a one-day workshop in February of 2013 to train project-hired supervisors and district MOH staff (as observers) on the supervision model and establish a central supervisor (supervisor of supervisors); (2) a reproducible supervision check-list; (3) supervisor's tabulation form; and (4) reporting structure. All components were implemented together, and all were designed/adapted at WVUS headquarters and pre-tested at field level with subsequently modification based on input from field staff and district MOH personnel. At the moment of intervention design and implementation no government guidelines for supervision of CHWs existed. The structure of the supervision model was based on the development of a community health worker task-flow, and includes the appointment of a single supervisor at field level to whom supervisees are accountable (currently the ratio is 1:15) and establishment of a central supervisor based at headquarters level. The supervision checklist included quantifiable measures of performance (the original checklist included 26 variables, but was modified in the first week of implementation to 22 measurable variables, with one additional variable added in the eighth week). The tool focuses on four main competency components: correct use of the registration form; correct identification and classification of disease (according to an IMCI-modified algorithm); correct treatment of sick children according to classification (including medicine administration and referral); correct use and storage of tools and medical supplies (flip-chart, breath counter, bag and mask resuscitator, and aspirator). Frequency of supervision to field workers for the first three month period (Phase 1) after the iCCM 5-day training was weekly, including a weekly supervision report submitted to the central supervisor and a weekly phone call (via Skype^{TM}). From the period June to September (Phase 2), the approach moved to a frequency of bi-weekly field supervisory visits to each CHW, bi-weekly field supervision collection of information, monthly field report, and cessation of central supervision activity.

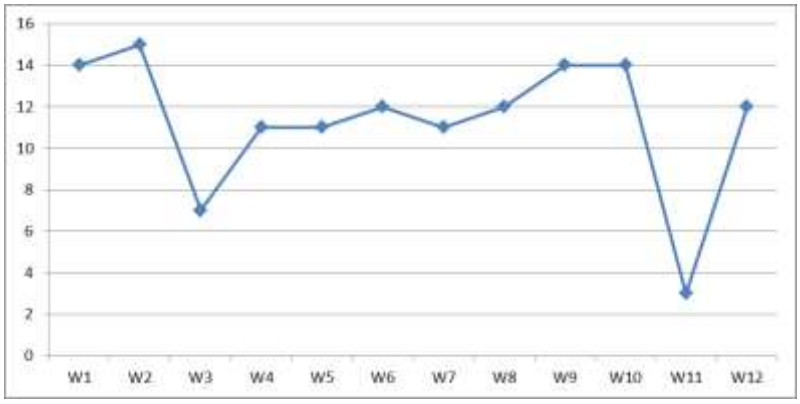
Results:

During the 28 weeks of supportive supervision, there were a total of 174 visits: 136 visits during Phase 1 to 15 CHWs and 38 visits during Phase 2 to 13 CHWs .[2] During the first three

[2] Two CHWs, due to inability to manage the clinical algorithm after 12 weeks, were discontinued from the program.

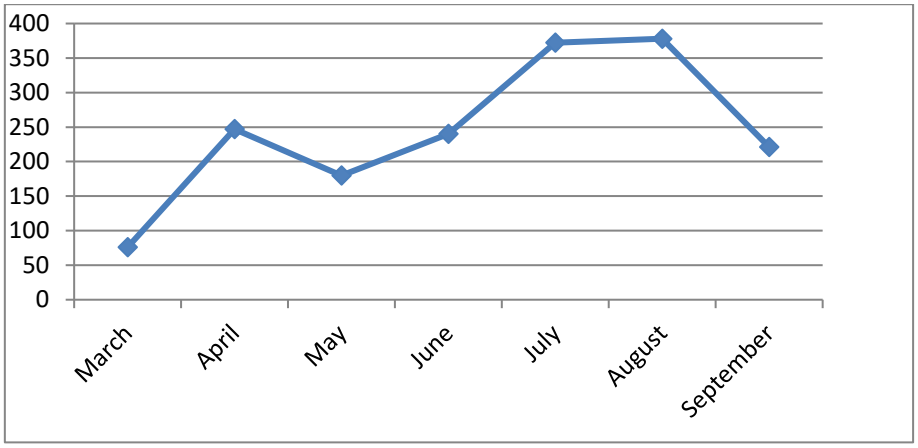
months (weekly supervision), there was a mean average of 11.3 visits per week and a median of 12 visits per week. The least number of visits was three during Week 11, and the highest was 15 visits during Week 2 (see Figure 1). The most documented cause for a failed visit related to the absence of CHW from her home. Transportation-related limitations were reported as well during Week 3 (7 visits) and Week 11 (3 visits).

Figure 1. Frequency of supervision visits during Weeks 1-12, March-May 2013. Kuac South, South Sudan.



During the seven months of supportive supervision, there were a total of 1,714 children under age five visited by the 13 CHWs; a mean of 245 and a median of 240 child visits per month. The least number of children visited in a month was 76, during March, and the highest was 378 child visits during August. (See Figure 2)

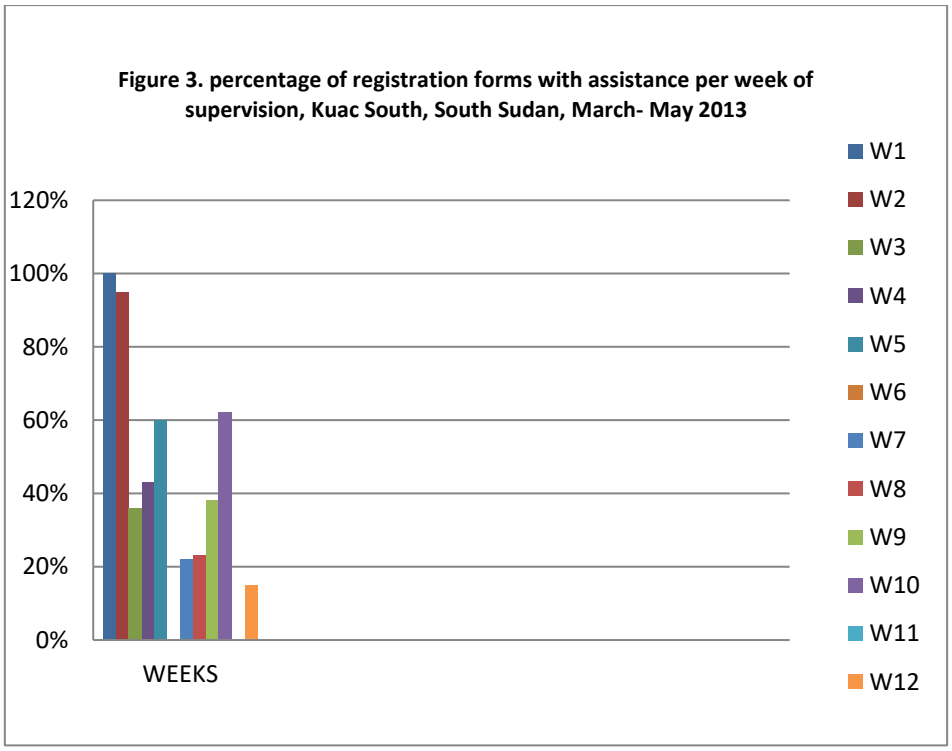
Figure 2. Frequency of children visited during a seven month period, March-September 2013. Kuac South, South Sudan.



Most (85 percent) of the children registered by the system were aged one month to 59 months. Among this age-group, cough or difficulty breathing (44 percent) was the most commonly classified disease, followed by urgently referred fever (43 percent), diarrhea with dehydration (4 percent), and general danger signs (3 percent). Among newborn children (ages 0 to 29 days) the most commonly classified disease was urgent referred fever (55 percent), followed by cough or difficulty breathing (37 percent). During the seven months, a

total of 264 children under 29 days of age were visited and registered; 73 percent of them during the period June-September.

The supervision system identified all registration forms requiring the supervisor's assistance to complete. During the seven month period, 269 forms (29 percent) required assistance from the field supervisor. 89 percent of registration forms needing assistance occurred during the first three months of supervision. During the three-month period, it was noted that assistance was most needed during the first five weeks (see Figure 3) of the supervision period, with a decrease in assistance needs beginning in Week 6.



During this period, sixty-four percent of registration forms were reported as completed (continued either to a point of urgent referral or the end of the form). Almost half of the CHWs were able to correctly use the registration form after the one-week training, and three quarters of them began using it correctly after Week 3. Between 20 and 25 percent of CHWs submitted incomplete registration forms after 12 weeks of supervision.

The supervision system matched classification of disease with treatment, including administration of drug/medicine. Overall, the system reported 6.6 percent of sick children with discrepancy between classification of illness and drug administration, as recorded in the registration form.

During supervision visits, medical stock and supply was monitored through records by matching drugs dispensed according to registration forms and the quantity of drugs presented by CHW at the moment of supervision. Condition and storage of medicine and equipment was monitored and recorded during the supervision visit. During the first seven months of supervision activities, all drugs (100 percent) were accounted for with complete stocks. All drugs and equipment were found to be appropriately stored and protected from sunlight.

During each supervision visit, each CHW underwent formal evaluation with immediate feedback of a randomly selected module of the algorithm (corresponding to a page in the pictorial flipchart). The formal evaluation included a demonstrated understanding of flipchart page/algorithm; demonstrated correct completion of the corresponding portion of the registration form; and demonstrated correct medication/drug administration for the section tested. Each formal evaluation classified management of the algorithm in three possible levels: yes, with excellence; yes, with some difficulty; and no, unable to demonstrate. During the three month supervision period, eight percent of CHWs did demonstrate excellence in the management of the flipchart/algorithm, recording form, referral form, and drug administration; all these variables increased to 31 and 32 percent in the following four months of supervision period. The great majority (see Table 2.) achieved demonstrated understanding with some difficulty in each of these categories.

Table 2. Competency testing results of 15 home health providers, Kuac South, South Sudan, March-September 2013.

Competency tested	**Excellent**		**Some difficulty**		**unable**	
	3-month	7-month	3-month	7-month	3-month	7-month
Flipchart/algorithm	8%	31%	91%	69%	1%	-
Recording form	8%	32%	92%	68%	-	-
Referral form	8%	31%	91%	69%	1%	-
Correct medication	8%	31%	90%	69%	2%	-

During the three-month period of pilot testing the iCCM supervision model, 87 percent (375/429) of children identified were referred to the primary health care unit (PHCU). The effective referral rate (children referred who actually reached the health facility) found was 62 percent (231/375) during this first three months. From month four to seven, 81 percent (754/933) of children identified were referred, with an effective referral rate of 30 percent (225/754).

Discussion:

Our results suggest that a supervision process to measure and maintain CCM-related clinical skill performance by CHWs is an important element of program design, especially among community-based approaches where treatment with drug is included. Findings clearly identify supportive supervision, especially during the immediate period after training, as a key step to assure skill and competency acquisition, and not only as a management process to oversee a check on a person's work. Among illiterate CHWs, the first six weeks of close follow up proved to be crucial in supporting the acquisition of skills such as management of registration and reporting forms, correct disease identification, and treatment. Key components of the supportive supervision model were the inclusion of a central supervisor and field supervisor, a weekly follow-up visit, utilization of a checklist with defined basic skills, and competencies for acquisition by CHWs. Most past studies focused on supervision have neglected community approaches; nonetheless overall findings have suggested that supervision can improve performance. To our knowledge this is the first intent to design a

supervision model for community approaches using the three-function interactive model. The present report focused on competency and skill outcomes during a three-month period, thus outcomes related to motivation and sustainability have not been included. The study design, observational-adequacy type, intended to demonstrate feasibility and functionality at the community level, thus further study support from a plausibility type of designs is needed.

Limitations:

The main limitations found during the implementation of this type of supervision related to resources (fuel, transportation, communication at field level), geographic and environmental challenges (river, distance, rainy season), and institutional limitations (unclear lines of communication between field and headquarters).

Conclusion:

This study report shows that close supportive supervision immediately after training activities might be a key step to consider in assuring skill and competency acquisition among illiterate CHWs in developing countries where community case management approaches are currently being considered or implemented.

References:

Bosch-Capblanch X, Garner P. 2008, Primary health care supervision in Developing countries. Tropical Medicine and International Health 13:369-83.

Clemens CJ, Streefland PH, Malau C. 2007. Supervision in primary health care – Can it be carried out effectively in developing countries? *Curr Drug Saf*. 2(1):19-23

Cutcliffe J, Proctor B. 1998. An alternative training approach to clinical supervision: 1. *British Journal of Nursing*. 7:280-285.

Jones A. 1996. Clinical Supervision: a framework for practice. *The International Journal of Psychiatric Nursing Research*. 3, 1, 290-307

Marquez L, Kean L. 2002. Making Supervision Supportive and Sustainable: New approaches to old problems, Maximizing Access and Quality initiative, MAQ paper No 4, USAID, Washington DC, 2002

Proctor B. 1987. Supervision: a co-operative exercise in accountability. Enabling and Ensuring: Supervision in practice. MM and PM Leicester, National Youth Bureau and the Council for Education and Training in Youth and Community work.

World Health Organization, 2006. The World Health Report 2006: Working together for health. Geneva: World Health Organization, p.75.