



EVALUATION

MATERNAL AND CHILD HEALTH TRANSFORMATION PROJECT IN WARRAP STATE, SOUTH SUDAN

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ACRONYMS

AMTSL	active management of the third stage of labor	KPC	knowledge, practices, coverage (survey)
ANC	antenatal care	LLIN	long lasting insecticide treated net
BEmOC	basic emergency obstetric care	MaCHT	Maternal and Child Health Transformation (Project)
CCM	community case management	MCHW	maternal and child health worker
CEmOC	comprehensive emergency obstetric care	MNC	maternal and neonatal care
CHD	county health department	MNCH	maternal, neonatal and child health
CHW	community health worker	MOH	Ministry of Health
DIP	detailed implementation plan	MTE	midterm evaluation
DPT	diphtheria, pertussis and tetanus (vaccine)	NGO	nongovernmental organization
EmOC	emergency obstetric care	OFDA	Office of Foreign Disaster Assistance
ERRAP	emergency recovery and response assistance program	OR	operations research
EPI	expanded program on immunization	ORS	oral rehydration salt
GOSS	Government of South Sudan	PHCC	primary health care center
HBLSS	home-based life-saving skills	PHCU	primary health care unit
HFMC	health facility management committee	SMOH	State Ministry of Health
HHP	home health promoter	SO	strategic objective
IFA	iron folic acid	USAID	United States Agency for International Development
IMCI	integrated management of childhood illness	WHO	World Health Organization
IR	intermediate result	WV	World Vision



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EXECUTIVE SUMMARY

MATERNAL AND CHILD HEALTH TRANSFORMATION PROJECT IN WARRAP STATE, SOUTH SUDAN

This project was funded by the U.S. Agency for International Development through the Child Survival and Health Grants Program.

December 2014

Evaluation Purpose and Evaluation Questions

This evaluation of the Maternal and Child Health Transformation (MaCHT) project was conducted to measure the achievement and impact of the project's stated goals and objectives; provide information on mechanisms used during implementation of the various interventions; assess the contribution that the project made on strengthening health system components in the area of influence; and to provide evidence to inform decisions for future programming. The four evaluation questions were: (1) To what extent did the project accomplish and/or contribute to the (goals/objectives) stated in the DIP? (2) What were the key strategies and factors, including management issues, that contributed to what worked or did not work? (3) Which elements of the project have been or are likely to be sustained or expanded (e.g., through institutionalization or policies)? (4) Are Community Health Workers (HHPs) trained on iCCM Plus able or not to deliver health services according to iCCM Plus protocol?

Project Background

World Vision implemented the Maternal and Child Health Transformation (MaCHT) Project in South Sudan from September 2010 to September 2014. This was a great time of transition for South Sudan as it became a newly independent country in July of 2011. Health indicators in South Sudan are among the worst in the world, with maternal mortality ratios of 2,054 per 100,000 live births, and an infant

mortality rate of 68 per 1,000 live births. The goal of MaCHT was to reduce maternal, neonatal, infant, and child mortality in Gogrial East and West counties of Warrap State. Strategic objectives were to:

- Increase use of high-impact, low-cost, and feasible interventions to improve maternal, neonatal, infant, and child health outcomes;
- Strengthen capacity of the health system to deliver essential services; and
- Build and strengthen local and national partnerships to sustain improvements in maternal, neonatal, infant, and child health.

The implementation of this project was affected by the effects of at least three major contextual issues – infrastructure, political/social instability and human resource capacity. South Sudan is a “newborn” country and will have existed as a country for less than five years. After a long period of war with Sudan, this newly independent country has faced numerous challenges, including gaps in health infrastructure to meet the needs of the influx of people from Sudan to South Sudan, and relief efforts taking priority over development efforts.

MaCHT utilized five technical interventions and corresponding levels of effort were: Maternal and newborn care (MNC) (30%), malaria (20%), pneumonia (20%), control of diarrheal disease (CDD) (20%), and immunization (10%). The project sought to utilize high-impact, low-cost, and feasible interventions to improve maternal, neonatal, infant, and child health outcomes at the household/community level through the training of Home Health Promoters, a newly approved cadre of Community Health Worker in South Sudan, supported by the health facility management committees (HFMCs) and Mother Leader Groups (MLGs). Additionally the project sought to strengthen the capacity of the health system through investment in the increased human resource capacity and improvement at health facility level; to pilot test and conduct operational research on the effectiveness of the HHP and their ability to deliver CCM at the household level; to strengthen MoH policy and work through community structures and local NGOs to develop and build new strategic partnerships; and to maintain MNCH activities and advocacy efforts at village, county and state levels.

The partners for the MaCHT project included national and state Ministries of Health, county health departments, village and boma health management committees, and the Gogrial East Women’s Association. WVSD provides technical support to the MaCHT project in the form of M and E support administrative support and financial management support. The regional office in Warrap contains the headquarters of the MaCHT project. The regional office also employs over 300 persons to implement food, water and sanitation projects.

Evaluation Design, Methods, and Limitations

The overall evaluation used a mixed-methods approach using quantitative and qualitative data.

Quantitative Methods: The quantitative assessments for this evaluation were carried out by World Vision staff and the results were incorporated as part of this final evaluation. The results of operations research projects provide one component of the quantitative evaluation. A final KPC survey was also conducted and findings were compared with results from a baseline survey; with households with children under two years of age as the unit of analysis, and data disaggregation by gender and location. Participants were selected using a two-stage random selection (two-stage 30 cluster sampling). Structured questionnaires, already developed during the baseline data collection phase, were applied to selected participants. Enumerators and supervisors were trained and deployed to do the data collection in each county.

The final population-based survey was led by World Vision US staff and implemented by World Vision South Sudan in August 2014. Databases and analysis reporting was shared with this external evaluator at the beginning phase of the final evaluation period.

Qualitative methods: In-depth qualitative interviews and focus group discussions were conducted with stakeholders, including project staff, MOH, local NGOs and community-based organizations, district health teams, community- and facility-based health workers, community members, community leaders, and mothers. An intervention area was also visited where interviews with HHPs and mothers with children under two were engaged in focus group discussions about the effects of the project.

Secondary Data: The final evaluator reviewed project reports (e.g., detailed implementation plan; annual reports; mid-term evaluation; baseline and endline KPC survey; monitoring reports) to assess the quality of quantitative and qualitative data and make assessments of project results in relation to the project design and targets set.

Limitations The endline survey was limited by several factors, including the distance to villages, difficult terrain, vehicle availability, and early nightfall. Due to the questionnaire's length, it was difficult for some respondents to complete and difficult to ensure accuracy of entered data. Additionally, as the data for household practices was based on mother's responses and not observation, over-reporting of recommended practices cannot be ruled out. The qualitative survey was limited by the number of beneficiaries and volunteers that could be interviewed for the project. Impediments to this process included weather, long travel times, and limited number of days for the on-site qualitative evaluation process. One key informant from the state MoH was unable to keep the scheduled appointment and could not reschedule during the period of qualitative interviews.

Findings

Program Result 1: Increase use of high-impact low-cost and feasible interventions for better maternal, neonatal, and child health outcomes

Increases were noted in antenatal visits, prenatal tetanus toxoid vaccinations, active management of third stage of labor, skilled attendance at birth, iron supplementation, knowledge of neonatal and postpartum danger signs, treatment of malaria, and insecticide-treated bed net use. Over 100 women were trained as home health promoters to deliver these interventions and provide education. Four midwives were also trained.

Program Result 2: Strengthen capacity of the health system to deliver essential health services

The project supported basic infection control at the PHCU level by supplying delivery kits. Training of health facility personnel on HBLSS and iCCM was done in ten health facilities to improve technical capacity. There was no evidence to suggest that managerial capacity or improved infrastructure and supplies were consistently achieved by the MaCHT project. Contextual factors related to the governmental functions did not provide a framework on which MaCHT could support these systems. Additionally MaCHT project management factors such as drug procurement, availability of transportation, and profound staff turnover limited the project's ability to create a mechanism by which governmental structures could have been strengthened to a point where sustainable gains were made. However, it was noted that the project led to and increased community awareness about the need for

maternal care and supported the government's efforts to reduce maternal and infant mortality in Gogrial East and West counties.

Program Result 3: Build and strengthen local and national partnerships to sustain improvements in maternal, neonatal, infant and child health

Most projects focusing on community structures were at the level of HHPs. The overall effort was devoted to increasing HHP capacity to deliver high impact essential interventions and to strengthen operational linkages with PHCU. Thus, an evidence-based medical action plan (iCCM plus algorithms) plus its educational curriculum and teaching methodology, supported by clinical and teaching equipment, was developed and/or adapted for use in the context of rural Warrap state. Community-based transport committees were organized and linked to the eight health facilities (seven PHCU and one PHCC). Likewise within community included in the project geographical area, mother-groups were organized around maternal and child health. Communications with the national MOH have been limited. An improved communication plan needs to be implemented.

Conclusions

MaCHT was found to be largely successful in achieving many of its major goals. Over 100 home health promoters (HHPs) were trained for the project and were found in operations research to be very effective in improving knowledge, assessment of mothers and children, and initiating treatment for malaria and diarrhea. The successful training of HHPs and the dissemination of the operations research results pertaining to their effectiveness has garnered interest from across the health system and suggests that the project has repositioned the maternal, neonatal and child health agenda. The MaCHT project increased the awareness and motivation for the MOH at the state and local level to refocus its efforts on maternal and child health projects in the area.

Recommendations

Several recommendations can be made based on the results of this evaluation, including: improving partnerships and communication with the national and state MoH to build capacity and implement strategies; further examining the impact of the iCCM-plus model in the project area; integrating MaCHT resources and activities into the new Health Pooled Funds project; addressing supply chain and infrastructure shortcomings; and filling gaps in staff shortages, turnover, and capacity.

EVALUATION PURPOSE AND EVALUATION QUESTIONS

EVALUATION PURPOSE

This evaluation of the Maternal and Child Health Transformation (MaCHT) project was conducted to measure the achievement and impact of the project's stated goals and objectives; provide information on mechanisms used during implementation of the various interventions; assess the contribution that the project made on strengthening health system components in the area of influence; and to provide evidence to inform decisions for future programming.

EVALUATION QUESTIONS

1. To what extent did the project accomplish and/or contribute to the (goals/objectives) stated in the DIP?

- What is the quality of evidence for project results?
- How were results achieved? If the project improved coverage of high-impact interventions simultaneously, what types of integration enabled this? Specifically, refer to project strategies and approaches and construct a logic model describing inputs, process/activities, outputs, and outcomes. Describe the extent to which the project was implemented as planned, any changes to the planned implementation, and why those changes were made.

2. What were the key strategies and factors, including management issues, that contributed to what worked or did not work?

- What were the contextual factors such as socioeconomic factors, gender, demographic factors, environmental characteristics, baseline health conditions, health services characteristics, and so forth that affected implementation and outcomes?
- What capacities were built, and how?
- Were gender considerations incorporated into the project at the design phase or midway through the project? If so, how? Are there any specific gender-related outcomes? Are there any unintended consequences (positive and negative) related to gender?

3. Which elements of the project have been or are likely to be sustained or expanded (e.g., through institutionalization or policies)?

- Analyze the elements of scaling-up and types of scaling-up that have occurred or could likely occur (dissemination and advocacy, organizational process, costs and/resource mobilization, monitoring and evaluation using the ExpandNet resource for reference).‡
- Analyze the costs and resources associated with implementation relevant for replication or expansion, as well as estimated cost per beneficiary.

4. Are Community Health Workers (HHPs) trained on iCCM Plus, able or not to deliver health services according to iCCM Plus protocol?

PROJECT BACKGROUND

GEOGRAPHY AND DEMOGRAPHICS

World Vision implemented the Maternal and Child Health Transformation (MaCHT) Project in Gogrial East and West counties of Warrap state, South Sudan from September 2010 to September 2014. This was a great time of transition for South Sudan as it became a newly independent country in July of 2011. Health indicators in South Sudan are among the worst in the world, with maternal mortality ratios of 2054 per 100,000 live births, and an infant mortality rate of 68 per 1,000 live births. The MaCHT transformation project was implemented in one of the most rural areas of South Sudan, in an area that was not directly affected by the ongoing civil war. Gogrial East and Gogrial are separated by the Jur River, which has no bridge and is prone to flooding during the rainy season that can last up to five months. In addition to the vast logistical, technical, social, and political hurdles to development, post-conflict South Sudan also has seen a high influx of returnees, particularly in Warrap state, overburdening the strained health system further. The main objective of the MaCHT project was to use high-impact interventions to improve health, and build capacity and partnerships.

Table 2: Estimated Beneficiary Numbers

Beneficiary Pop.	Gogrial East	Gogrial West	Total
# Payams	2	2	4
# Bomas	7	8	15
Total Population	55,630	93,269	148,899
Infants 0 – 11 m	2,225	3,731	5,956
Children 12 – 23 m	2,003	3,358	5,361
Children 24-59 m	7,454	12,498	19,952
Women of Reproductive Age	10,519	16,091	26,610

Warrap is located in the northern part of the country and is one of ten states, and is home to an estimated 1.7 million people, mostly ethnic agro-pastoral communities of the Twic Dinka tribe. The state is located in flood plains with a long rainy season, and outbreaks of acute watery diarrhea, malaria, and measles are common, besides malaria being endemic in the region.

Within Warrap state, the project covers four out of nine payams, the basic administrative units, across Gogrial East and Gogrial West counties. The four payams have 15 bomas, or clusters of villages. The total end-of-project population is estimated to be 148,899. The project’s beneficiary numbers are listed in Table 2.

World Vision South Sudan is implementing 43 different projects across South Sudan and is currently responding to a Level 3 global emergency – a national crisis affecting over one million people. For World Vision, this is the largest and highest response category. The need for this type of response was declared Dec 15th 2013 and continued at least through the time of the final evaluation interviews. During this current crisis, there was armed conflict in the capital city, leading to the evacuation of non-nationals and closure of the WV office. The office was reopened in early January 2014 to respond to the crisis of internally displaced persons. Some World Vision offices suffered loss of vehicles, food and other supplies to an estimated 1.2 million dollars.

HEALTH SYSTEMS AND SERVICES

In the areas of health, much of the human capital is provided by non-nationals. The human capital needs cannot be filled by the current population of South Sudanese. Educational and capacity building projects have not created enough human capacity to fulfill all of the leadership roles necessary to implement the infrastructure needed to deliver a full range of comprehensive health care. Infrastructure needs are great, especially in roads, health facilities, nurses, midwives and doctors. Health facilities require major upgrades, supervisory and quality assurance mechanisms.

The national Ministry of Health (MoH) leads the delivery of health services, which are decentralized to the State Ministries of Health (SMoH), County Health Departments (CHDs), and health committees at the payam and boma levels. The National Health Policy (2007-2011) details the roles of each level in the health system, in order to provide free primary health care for all. Health services are delivered through hospitals (at national, state, and county levels), Primary Health Care Centers (PHCC), and Primary Health Care Units (PHCUs). Each PHCC is designed to provide basic emergency obstetric (BEmOC) services for 25,000 people and is staffed by midwives and community midwives. PHCUs are outposts of PHCCs and provide basic preventive and curative services to about 15,000 people. In bomas, Home Health Promoters (HHP) provide promotion care and mobilize communities, supervised by Maternal and Child Health Workers (MCHW) and Community Health Workers (CHWs). HHPs are selected by communities and are often trained by NGO-led programs. CHWs and MCHWs are located in the PHCUs in the project area, and are appointed after nine months of training. National and international non-governmental organizations run most of the PHCCs and PHCUs around the country and provide over 80% of all health services in the country.

The implementation of this project was affected by the effects of at least three major contextual issues – infrastructure, political/social instability and human resource capacity. South Sudan is a “newborn” country and will have existed as a country for less than five years. After a long period of war with Sudan, this newly independent country has faced numerous challenges, including gaps in health infrastructure to meet the needs of the influx of people from Sudan to South Sudan, and relief efforts taking priority over development efforts.

The governmental health infrastructure contains gaps that are stressed by a large population of people in very rural areas. Maternal and child health indicators place South Sudan as the highest rate of maternal mortality. The recent influx of people leaving Khartoum and other areas of Sudan to resume residence in South Sudan had strained the already weak health care infrastructure. Many of the inhabitants of capital and from Sudan were originally from the southern part. Many moved to the south to vote in the referendum for independence resulting in an increased need for health services in South Sudan. An internal civil war based on political/tribal conflict has resulted in approximately 1.5 million internally displaced people in South Sudan and surrounding areas. Massive relief efforts are underway to prevent wide scale starvation and epidemic disease. These priority relief efforts compete for both financial and human resources with development activities – of which the currently evaluated project is a part. Current relief projects are infrastructure rich, and take priority over development efforts. When these resources are pooled, relief efforts may take advantage of available development resources.

The project’s target area has two PHCCs, both with community midwives and one providing basic emergency obstetric services, and seven PHCUs offering basic prevention and promotion services. HHPs, to provide case management for non-severe pneumonia, malaria, diarrhea, and referrals for more severe conditions, had not been recruited prior to the start of the MaCHT project.

The baseline knowledge, practices and coverage (KPC) survey carried out in 2011 provides insights into the extent of utilization of health services in the project area: 6.4% mothers of children aged 0 to 23 months from the project area had had 4 antenatal care (ANC) visits during their previous pregnancy, 9% of them had slept under a bed net for most of their pregnancy. 98.3% had given birth in the home and 11.7% had skilled attendance at birth. 28% of children aged 0 to 23 months who had fever were taken to a facility for treatment and 5% of those who had diarrhea were given oral rehydration solution (ORS). DPT 1-3 dropout rate was nearly 75%, and measles vaccination coverage was 39%.

In many of the project areas, the ability of a woman to give birth with a skilled attendant is not possible. Health facilities in the area are either primary health care units or primary health care centers. There

are 8 health facilities in the project area, and seven are health care units staffed by solely by paid community health workers-nurses or physicians are not working in these units. In the context of South Sudan, a community health worker is the first level provider. This person is not a nurse, and would not be considered a skilled attendant in the usually accepted definition. These facilities are not open on the weekends or at night.

TECHNICAL INTERVENTION AND APPROACH

MaCHT's five technical interventions and corresponding levels of effort were: maternal and newborn care (MNC) (30%), malaria (20%), pneumonia (20%), control of diarrheal disease (CDD) (20%), and immunization (10%). These were chosen based on an analysis of the epidemiological situation to fill existing gaps and priorities in MNCH in the target population.

MNC: Improved coverage of ANC, TT2 vaccination, use of skilled attendance at birth/facility births, active management of third stage of labor (AMTSL) and essential care of the newborn

Malaria: Increased use of long lasting insecticide treated nets (LLINs) by pregnant women and children under five, more prompt care seeking for fever, treatment per MOH protocol, and use of intermitted preventive treatment in pregnancy (IPTp)

Pneumonia: Increased knowledge of signs of severe illness, more prompt care seeking for fast/difficult breathing, and treatment per MOH protocol.

Diarrhea: Increased use of hand washing with soap, point-of-use water treatment, cleanliness of household and surroundings, and use of ORS and home available solutions for diarrhea

Immunizations: Improved coverage of all essential vaccinations and vitamin A supplementation for children per MOH protocol.

MaCHT worked at primarily at household, community, and peripheral facility levels. In household and communities, it used a behavior change communication approach to initiate dialogue, clarify misconceptions, and promote adoption of key behaviors in households. This is delivered through regular and repeated household visits and group discussions aimed at pregnant women, mothers of young children, and household decision-makers, and education sessions aimed at entire communities. It also mobilized communities to participate in special events to improve coverage of these interventions. The primary vehicles for carrying out these interventions are the HHPs who are selected by community elders and were then trained in the project's interventions. Several HHPs were working as TBAs in their communities before they were selected.

The project used the home-based life-saving skills (HBLSS) curriculum and the community case management (CCM) approach to train HHPs to mobilize families to prepare for birth, assisting home births by providing a cleaner birth environment, recognize danger signs and urgently refer to a facility, and provide essential care to the newborn, and to identify and treat non-severe pneumonia, diarrhea and malaria in children per MOH protocol and refer those with serious illness.

MaCHT also mobilized leaders at the boma and payam levels to organize communities around health issues and promote utilization of essential services such as LLINs, immunizations, and ANC.

MaCHT did not support routine procurement or direct service delivery, but attempted to facilitate access to and utilization of MNCH-related preventive and treatment services. It organized refresher training for PHCU staff in MNCH focus areas and coordinated with SMOH and other partners with an

aim to ensure availability of drugs at PHCUs. MaCHT has provided PHCUs in its target area with bicycles which CHWs use to visit HHPs in communities

MaCHT staff planned visits HHPs in their respective areas at least once every 2 months but the proportion of planned visits that staff are able to complete has varied widely from month to month

The project sought to improve community ownership of peripheral health services by developing and strengthening Health Facility Management Committees (HFMCs) and facilitate linkages of HHPs to PHCUs.

The operations research component of the project aimed to study the feasibility and impact of delivering an integrated package of community case management and newborn care at the community level. It combined the CCM approach and the newborn care component of HBLSS and studies its delivery through HHPs.

The project oriented boma leaders in MNCH interventions and has supported them in recruiting HHPs and to organize community meetings and sanitation drives at regular intervals. It worked with local women's organizations to engage them in community interventions.

MaCHT project functioned under the overall coordination and leadership of SMOH, and aligned its interventions behind the Ministry's strategic priorities.

MaCHT worked in a complementary approach with the other WV projects in Warrap state which. WV South Sudan has been supporting service delivery and logistics in PHCCs and PHCUs in the state for several years before MaCHT began. The Emergency Recovery and Response Assistance Project (ERRAP), funded by the Office of Foreign Disaster Assistance (OFDA) supported construction of PHCUs and PHCCs and transported supplies to these facilities and for outreach campaigns in the two counties where MaCHT operates, until June 2012. The WFP-funded nutrition project works with MaCHT staff and with HHPs to identify beneficiaries for supplementary feeding and works with PHCU staff to ensure their timely immunization. WV is a sub-recipient of a Global Fund grant for malaria, which distributes LLINs in the two target counties.

PROJECT PARTNERS

Five key partners were integral to MaCHT project implementation and success:

- (1) South Sudan's Ministry of Health, core partner who provided policies and guidelines for national-level health services implementation;
- (2) Warrap State's Ministry of Health, who oversees health policies and activities implemented at the state level, and with whom project activity implementation was coordinated;
- (3) Gogrial East & West County Health Departments, who oversee the delivery of primary health care services and served as the primary service delivery partner of the project;
- (4) Village and Boma Health Management Committees, which were the key links between the communities, health facilities, and project. Their roles were related to key mobilization and feedback mechanisms between the project and the beneficiaries. These committees include village, Payam and Boma leaders.
- (5) Gogrial East Women's Association based in Gogrial East County, a local group of organized women who have an MOU with the WVSS-MaCHT Project to mobilize community members, especially women of reproductive age, children under five, and males, on maternal, newborn, and child health activities, and early seeking of health care for better health. They also mobilize the communities on hygiene promotion activities.

OPERATIONS RESEARCH

The operational research embedded within the project intended to provide evidence on the operational feasibility of integrating newborn interventions into an Integrated Community Case Management model. The protocol for this study was revised in 2012, and included two phases: qualitative and quantitative. Included in the protocol an action plan was presented and approved by major stakeholders. The qualitative/formative phase of the study focused on developing integrated training materials, determine an effective method of training for illiterate community health workers, identify roles of CHWs, understand barriers, develop a selection criteria, and develop a supervision approach tailored to the context in South Sudan. The formative phase was implemented as described below.

Formative Activity	Dates
Literature review	August – September 2012
HHP guideline development	
Integrated training material preparation	
Development of training approach	
Pilot implementation	October 2012 – February 2013
Final production of materials	March 2013
Intervention implementation	April 2013 – September 2014

During this time no major diversions from the action plan were experienced. During study implementation, the supervision model took more relevance than previously thought, and became an additional major focus of the study. A literature review was done around supervision issues, and based on this exercise a supervision model for illiterate CHWs was developed and tested during the OR process. During first and second quarter of 2013, a baseline assessment of all variables included in the protocol to assess health outcomes was completed; with a subsequently endline done in the last quarter of 2014. The endline survey had to be temporarily cancelled in the middle of data collection due to security issues related to the ongoing political instability in the country. There was no evidence for concern of any effect on data quality. The operational research study was implemented according to schedule, with minimal variations, and according to cost estimates. One factor to highlight is that OR activities do not have to follow the project time line and, based on this experience, they can be accomplished in a shorter period of time. Research and documentation capacity both at field level and headquarters level has been notably improved, to the point of publication at peer-reviewed journal of one article related to this research, as well as several oral and poster presentations at various international conferences.

RESULTS FRAMEWORK

The goal of the MaCHT project is to reduce maternal, neonatal, infant, and child mortality in Gogrial East and West counties of Warrap state. This goal was to be achieved through three strategic objectives (SOs), focusing on interventions at the household, health service, and community/local organization level respectively, and three intermediate results (IRs) under each SO:

SO1: Increase use of high-impact low-cost and feasible interventions for better maternal, neonatal, infant and child health outcomes

- IR 1.1: Improved knowledge and practice of key interventions at household and community level
- IR 1.2: Improved quality of delivery of key interventions
- IR 1.3: Improved access to critical MNCH services

SO2: Strengthen capacity of the health system to deliver essential health services

- IR 2.1: Improved technical and managerial capacity of health staff at peripheral health facilities
- IR 2.2: Improved infrastructure and supplies in peripheral health facilities
- IR 2.3: Strengthened MOH policy and strategy supported by evidence-based operations research

SO3: Build and strengthen local and national partnerships to sustain improvements in maternal, neonatal, infant and child health

- IR 3.1: Strengthened community structures and leadership
- IR 3.2: Strengthened organizational capacity of local NGOs
- IR 3.3: Repositioned maternal, neonatal, and child health agenda at county and state levels

EVALUATION METHODS AND LIMITATIONS

METHODS

This final qualitative evaluation took place in September 2014, during the rainy season in South Sudan. The design of the evaluation was determined in discussions with World Vision staff both in the US and in South Sudan. The evaluation timeline and objectives were shared with project stakeholders and implementing partners for comment before the evaluation commenced. World Vision facilitated the sharing and feedback.

The evaluation uses a mixed-methods approach, using primary quantitative data collected through knowledge, practice, and coverage (KPC) surveys carried out at baseline and endline, as well as qualitative data collected during the evaluation from interviews and focus groups. It assessed improvements in outcomes as well as the sufficiency and effectiveness of the project's strategy and processes to reach its targets and contextual factors that have influenced progress.

Quantitative Research

The final KPC/OR survey was performed in September 2014 among 510 mothers of children under two. A sample of 510 women were interviewed and outcomes were compared to both the KPC baseline survey conducted in 2011 and the operations research baseline survey from 2012.

The surveys were carried out by World Vision staff and the results were incorporated as part of the final evaluation. The selection of participants was done using a two-stage random selection (two-stage 30 cluster sampling). Within each selected cluster, households and respondents (mothers of children aged 0-23 months) were randomly selected and only one respondent was selected from a household, to avoid overrepresentation.

Structured questionnaires, already developed during the baseline data collection phase, were applied to selected participants. Eight enumerators and four supervisors were trained and deployed to do the data collection in each county. Data collection management and follow-up supervision was in place during data collection to minimize errors during data collection. Questionnaires were checked for completeness and consistency in the "identification" section when they arrived at the place of data entry. Any inconsistencies on any questionnaire observed during data entry were recorded and the feedback was given to the concerned enumerator and supervisor on a daily basis. Lessons applicable to all enumerators were also shared to them before they left for the field.

All collected data was coded and entered into Excel. Data were checked for inaccuracies and inconsistencies, and then entered into SPSS Statistical Analysis software. Data analysis was conducted in two steps. The first step consisted of the production of descriptive statistics for each variable included in the survey. The second included the calculation of p values (using Mantel-Haenszel two-tailed tests), confidence intervals, and odds ratios.

Databases and analysis reporting was shared with an external evaluator at the beginning phase of the final evaluation period.

Qualitative Research

Project staff at both the national and regional offices were interviewed, and focus group discussions among community member beneficiaries and volunteers of the project were conducted. Information was extracted from the interviews and compiled by the evaluator. Direct quotes are placed in quotation marks, otherwise the narrative is paraphrased from the content of the interview.

Two focus groups were conducted, one with mothers of children under two years of age and one with HHPs. Both of these were conducted in the program intervention area where operations research was done. Focus group questions explored the effects of the project, and identified barriers and obstacles to project success. Interviews were conducted with 14 stakeholders, who were selected based on their involvement with the project.

Secondary Data

The final evaluator reviewed project reports (e.g., detailed implementation plan; annual reports; mid-term evaluation; baseline and endline KPC survey; monitoring reports) to assess the quality of quantitative and qualitative data and make assessments of project results in relation to the project design and targets set.

LIMITATIONS

Generally, it is believed that the survey was conducted successfully though there were challenges and lessons learned. The major ones are presented below.

Logistics

- Some villages were far in distance and sometimes the travel became difficult in muddy. In those remote areas, darkness fell before enumerators could finish the survey in those places. The Jur River floods during the rainy season, resulting in project staff using a rowboat to transport themselves and their motorcycle across the river to carry out activities in other project zones.
- There were logistical challenges especially with regards to vehicle availability from the regional project vehicle pool, which saw one vehicle being allocated to Gogrial West County while one had to be hired for Gogrial East County.
- Limitations of the study are mostly related to its quasi-experimental design, as well as the impediment of collection of information from certain geographical areas affected by flooding, with obvious effect on magnitude of the outcomes.
- The logistical and financial challenges presented by the very poor roads and frequently flooding river and the very high wear and tear on vehicles, the high cost of vehicle repair, the high need of the use of vehicles for a large number of WV projects in the area

Staff

- the difficulty in retaining staff to live and work in this remote and difficult region all contribute to some significant limitations faced by the MaCHT project
- The project staff are all housed in a small compound that is approximately 5 miles on the project offices. This WV camp has a limited availability of electricity, and the remote nature of the project site and the very limited availability of services limits the ability of professionals to commit to long-term work unless their families live in the area, or they are looking only for short-term work

Survey Process and Results

- The questionnaire during endline was too long. In some cases respondents lost their patience and complained about it.
- Data entry was conducted using Excel. As the template was in tabular format with more than 250 columns long, data entry times were lengthy and tedious increasing the possibility of data entry errors.
- The representativeness of the sample is limited as many villages were excluded due to inaccessibility. Background information regarding the homogeneity (or lack thereof) of the villages in the area would be necessary to determine to what extent the sample could be representative.
- Data for household practices were based on mother's responses and not observation. Over-reporting of recommended practices cannot be excluded.

The logistical and financial challenges presented by the very poor roads and frequently flooding river and the very high wear and tear on vehicles, the high cost of vehicle repair, the high need of the use of vehicles for a large number of WV projects in the area, and the difficulty in retaining staff to live and work in this remote and difficult region all contribute to some significant limitations faced by the MaCHT project,

The MaCHT Project was implemented through integration with a number of other WV projects in the area.

FINDINGS, CONCLUSIONS, AND RECOMMENDATIONS

FINDINGS

This section provides a discussion of the evaluation findings in terms of progress towards objectives and end-of-project targets. It draws on both qualitative (interviews, focus groups) and quantitative (surveys, records) sources and is organized by strategic objectives. A table of quantitative results can be found in Annex I and additional qualitative data from interviews and focus groups can be found in Annex VIII

Program Result 1: Increase use of high-impact low-cost and feasible interventions for better maternal, neonatal, and child health outcomes

IR 1.1 Improved knowledge and practice of key interventions at household and community level

The percentage of mothers with a child less than two who had four or more antenatal visits increased from 12% to 29%, exceeding the EOP target of 25%. In the same group those who received at least two tetanus toxoid vaccinations before the birth of their youngest child increased from 26% to 64% (EOP target 60%). The same group of women indicated that active management of third stage of labor (AMTSL) was provided to 6% of women at baseline and 11% at the final, failing to meet the 75% target. AMTSL has three components, and the numbers reported only include women who received all three components. There was some increase in knowledge of neonatal danger signs, from 58% to 77%, meeting the EOP target of 75%. Knowledge of postpartum danger signs increased from 32% to 73% (EOP target 75%). The treatment of malaria increased from 5% to 30% (EOP target 55%) as did bed net use, which increased from 33% to 40% who use the net all or most of the time during their past pregnancies. The percentage of mothers who owned a bed net increased from 25% to 62%, and the percentage of children who had slept under an insecticide treated bed net the previous night rose from 50% to 57%.

Knowledge related to post-partum and newborn danger signs increased substantially. The largest effect was observed in the postpartum area (41 percent point increase from baseline to endline). No effect was observed in the pregnancy related danger signs.

Care-seeking behavior for fever and acute respiratory infection (ARI) increased significantly during the life of the project beyond the 20 percent point increases in both practices; likewise the use of liquids, whether ORS or home solutions, increased by 49 percent points in the management of diarrhea cases. Treatment of water at the point of use increased as well by 40 percent points, exceeding the 15% EOP target. The percentage of mothers of children age 0-23 months who live in households with soap or detergent at the place for hand washing increased from 12% to 16%, not meeting the 20% EOP target.

IR 1.2 Improved quality of delivery of key interventions

The key intervention in this project was the training of HHPs, a cadre of volunteers supported by the SMOH. One hundred have been trained and are universally women. There have been no men trained as HHPs. Although being a traditional birth attendant is not a prerequisite, it appears as though most HHPs

are also TBAs. The home-based lifesaving skills course was implemented in the project. The trainer of trainers for this program were trained in Rwanda, including MOH staff.

Operations research was conducted onto evidence-based and distinctive community-based health care strategies and approaches to increase service coverage at the community level. Operations research and selected villages had improved results most likely due to the concentrated interventions and capacity built.

IR.1.3 Improved access to critical MNCH services

Antenatal care access was improved significantly in all three indicators used to measure this component. Iron supplementation increased over 30 percent points. Skilled attendance at birth increased from 12% to 17% (EOP target 15%). Notably, essential newborn care as measured by three components (thermal care, immediate breastfeeding and clean cord care) feasible for delivery at community level, when provided as package increased by 16 percent points. Provision of treatment for fever with antimalarial medication increased by 25 percent points. Other components not included in the package of services but measured during the study, did not experience any change such as contraceptive use; and other interventions not included experienced an expected negative impact due to the political environment in the country, hence immunization coverage experienced serious declines in coverage as measured with measles vaccination (17 percent point decline) and DPT 1 vaccination (26 percent point decline).

Program Result 2: Strengthen capacity of the health system to deliver essential health services

IR 2.1 Improved technical and managerial capacity of health staff at peripheral health facilities

The MaCTH project supported five community-selected candidates for a two-year midwifery training. They recently finished their final exams and will go to work for the Warrap State MOH, helping to fill gaps in the primary health care centers and facilities, which do not provide midwives. Additionally, during the four-year period, the project supported basic infection control at the PHCU level by supplying delivery kits. Training of health facility personnel on HBLSS and iCCM was done in ten health facilities to improve technical capacity. The health staff from all health facilities within the covered area of the project participated in the piloting of the supervision model with further participation during the implementation of it.

Ideally, the PHCC should have a clinical officer and a midwife and the CHW. At the unit level, there should be a nurse supported by CHWs. It was noted that very few South Sudanese people are trained. They are sending midwives for training, but noted that prior to the project, “they do not come back. You can recruit staff but when deployed, they don’t have a place to live and they don’t have a supporting environment.”

IR 2.2 Improved infrastructure and supplies in peripheral health facilities

There was no evidence to suggest that managerial capacity or improved infrastructure and supplies were consistently achieved by the MaCHT project. Contextual factors related to the governmental functions did not provide a framework on which MaCHT could support these systems. Additionally MaCHT project management factors such as drug procurement, availability of transportation, and profound staff turnover limited the project’s ability to create a mechanism by which governmental structures could have been strengthened to a point where sustainable gains were made.

World Vision in Warrap is working with a new project called Health Pooled Funds, which has the goal of reducing maternal mortality by improving primary health care. It is funded by Canada, Denmark, the EU, and AusAID. It aims to improve health facilities and link them with communities in the area. Informed by the community-based activities of MaCHT, one of the major activities of the project is to establish a functioning operating room and to get supplies and training to the facilities. At present Kwajok hospital is not able to perform cesarean sections, with the nearest capable facility approximately 2-3 hours way. The WHO has hired a consultant Obstetrician/Gynecologist and has given him the facilitation to refurbish and equip the hospital to perform cesarean sections. The operative theater is set up but the hospital management has not approved the plan to start and sustain surgery, delayed in part due to cost sharing issues. The hospital support program is another part of the Health Pooled Funds, and will support the hospital at each level.

When asked about the influence of the MaCHT project, interviewees noted the project led to and increased community awareness about the need for maternal care. They understand the operations research was done that showed the community can be empowered, and this found the need for Emergency Obstetric Care (EMOC) which is not currently available. The MaCHT project has paved the way for the hospital improvement project. Running the project for four years, the community will associate WV with maternal care. Knowing that WV is supporting the hospital project, the acceptance rate will be high as they have already seen the work.

IR 2.3 Strengthened MOH policy and strategy supported by evidence-based operations research

The MaCHT project in Warrap State supported the government's efforts to reduce maternal, neonatal, infant, and child mortality in Gogrial East and West counties. In addition, WV conducted operations research (OR) to test whether the HHPs can effectively deliver an integrated package of child and newborn care services to improve health outcomes. Given that the HHPs are the only health workers that most families will ever see for their myriad of health issues, the project developed an integrated package of the basic child and newborn care services for HHPs to deliver in the households. World Vision US in collaboration with World Vision South Sudan adapted a package of health interventions from WHO's IMCI, the American Academy of Pediatrics' Helping Babies Breathe (HBB), and the American College of Nurses-Midwives' Home Based Life Saving Skills (HBLSS). The integrated package, Community Case Management Plus (iCCM Plus) package, provided guidance to HHPs (CHWs) in the identification of children in need of treatment and/or referral, and living in hard-to-reach geographical areas. The iCCM-Plus package included identification of illness and basic procedures for the most prevalent diseases among children 0 to 59 months of age living in Warrap state: newborn asphyxia, newborn sepsis, pneumonia, malaria, and diarrhea.

Study results included 1,021 mothers of children under two included in the survey (pre=511; post=510). Overall institutional delivery increased by eight times (OR=7.6; CI 4.1-14.1; P value 0.0000000001), during the 13 month period of project implementation. Home delivery decreased in the area of project implementation by 14 percent points (OR= 0.13; CI 0.07-0.24; P value 0.0000000001). The majority of children were delivered at home (84%, n=477). The overall coverage of early postnatal care (as measured by postnatal care within two-days of birth regardless of delivery location) increased by 28 percent points (OR=4.1; CI 3.09-5.5; P value <0.0000000000) during project implementation activities. The prevalence of newborns receiving all recommended elements of essential newborn care in the surveyed area increased by four percent points, from 1% to 5%. Of all six elements of essential newborn care all experienced percent points' increments, and all but one were statistically significant (wrapping the newborn immediately after birth). The stronger changes were seen in two elements: delaying bath beyond six hours after birth, and immediate breastfeeding. The weakest element was cord cutting with a

sterile (new or boiled) instrument. Our findings suggest that delivery of iCCM-plus newborn interventions may help facilitate substantial gains in coverage of essential interventions for maternal and newborn health.

Program Result 3: Build and strengthen local and national partnerships to sustain improvements in maternal, neonatal, infant and child health

IR 3.1 Strengthened community structures and leadership

Most projects focusing on community structures were at the level of HHPs. The overall effort was devoted to increasing HHP capacity to deliver high impact essential interventions and to strengthen operational linkages with PHCU. Thus, an evidence-based medical action plan (iCCM plus algorithms) plus its educational curriculum and teaching methodology, supported by clinical and teaching equipment, was developed and/or adapted for use in the context of rural Warrap state.

IR 3.2 Strengthened organizational capacity of local NGOs

Community-based transport committees were organized and linked to the eight health facilities (seven PHCU and one PHCC). Likewise within community included in the project geographical area, mother-groups were organized around maternal and child health.

IR 3.3 Repositioned maternal, neonatal, and child health agenda at county and state levels

Any findings or results for this IR?

Communications with the national MOH have been limited. An improved communication plan needs to be implemented.

CONCLUSIONS

Through quantitative and qualitative evaluation techniques, this project was found to be largely successful in achieving many of its major goals. Over 100 home health promoters (HHPs) were trained for the project and were found in operations research to be very effective in improving knowledge, assessment of mothers and children, and initiating treatment for malaria and diarrhea. Where the operations research projects documented large positive changes, some of those same indicators were improved in the larger project area. This is not surprising as project implementation was faced with multiple challenges, including civil unrest in other parts of the country that led to evacuation of project staff from the project area and at the national office. The large relief efforts that were implemented in response to the civil conflict to care for a large number of displaced persons also shifted some of the shared resources to these more urgent issues. These challenges are in addition to the baseline challenges of integrating with a national health system that is newly started and is in the process of building capacity at all levels. Lessons from the project have already informed national and local MOH policy considerations, as a new round of funding will build capacity so that a local health facility will be able to perform cesarean sections routinely.

Qualitative results strongly suggest that the MaCHT project increased the awareness and motivation for the MOH at the state and local level to refocus its efforts on maternal and child health projects in the area. The Health Pooled Fund project, supported by multiple donors, is actively pursuing the improvement of the Kwajok hospital as a direct effect of program activities. The successful training of HHPs and the dissemination of the operations research results pertaining to their effectiveness has garnered interest from across the health system and suggests that the project has repositioned the maternal, neonatal and child health agenda.

The results of focused operations research, the improvement in KPC indicators and qualitative focus group discussions with mothers and interviews with project and government key informants clearly indicate that the quality of MCH education was improved in the project area. The procurement and distribution of drugs for the treatment of malaria and antibiotics for ARI, and other supplies was not improved by the project and will require new approaches and accountability from CHWs to be effective. The strengthening of the health care system was reliant on some factors beyond the control of the project.

Home Health Promoters

There is significant qualitative evidence that the HHPs were effective in increasing knowledge of pregnancy, newborn and child health issues, and that HHPs when trained in HBLSS and IMCI, can be effective change agents in communities. HHPs gained a significant amount of information from their HBLLs and ICCM training. The information discussed in the focus groups mainly involved post-partum hemorrhage and malaria, and the general impression is that the training and supervision were useful to community members, as well as contributed to an overall sense of improved outcomes in the particular village. None of the HHPs had any malaria drugs at the time. This is a breakdown at several levels. This is a multifaceted problem and has its roots both in the health centers and at the MaCHT systems. Besides the sporadic availability of drugs, the HHPs consider themselves professionals, and would like to have rubber boots, flashlights, and more than one uniform.

MaCHT Influence on Area Projects

The final evaluation findings demonstrated the increased use of high-impact, low-cost interventions for improvements in maternal and child health in the project area, suggesting that community-based strategies (a combination of HBLSS and CCM) might have an important impact in affecting maternal and infant mortality. Overall substantial increments were seen in the areas of prenatal care (four or more ANC visits, coverage of tetanus vaccination and iron supplementation coverage); and care during

delivery and postpartum (skilled birth attendance coverage, and active management of third stage of labor). Moreover, the integration of CCM into the curriculum expanded the continuum of care into the newborn period, especially in expanding access to essential newborn care, as well as providing access to management of diseases such as diarrhea, pneumonia, and malaria. The most important aspect of this research is the demonstration of the feasibility of application of these two community-based methods in rural settings by community resources with low literacy skills, specially taking into account the current and past social instability of South Sudan. The epidemiological important measure of coverage with and access to high impact and low cost interventions that include the continuum of care from pregnancy through delivery, newborn, and infant periods showed important increments demonstrating its operational feasibility. The results also showed limited impact on selected indicators, especially those highly correlated with a dysfunctional supply management system and a fragile state status, such as those dependent on biologicals, which is the case of vaccines.

Staff Concerns

This project was implemented during a time of great transition South Sudan, and the context issues of civil war, intense relief efforts, remote location with infrastructure a very small supply of locally available professional staff and high costs all led to try staff turnover and inability to carry out fully all aspects of the project, and limited the ability to supervise and provide refresher training. The current staff is very enthusiastic and interested in improving health outcomes, and the new project manager that was hired in May 2014 is as enthusiastic and capable, but unfortunately at the time of the evaluation only two months remained in the project.

One key informant interview was held at the Ministry of Health. Although the Ministry representative was not familiar with the particular activities of the project, the conversation generated great interest and concern for continuation of the activities. It was discussed that the concept of HHPs was introduced by JSI and developed as an expanded training for traditional birth attendants. TBA training has been phased out and HHPs, as multi-purpose community workers, are the replacement. The HHP is selected by the community and can understand malaria as well as treat at the community level and refer severe cases. The HHP needs to know about HIV, AIDS, TB, and the environment and hygiene. The government has 80 counties and 3 agencies – MCHIP, World Bank and DFID. The project has created demand, but is not complete and concerns were raised about sustainability. Discussions have begun with the health pool fund to continue the activities. There are communication problems with the MOH as the MaCHT project was not entered into the current project matrix.

RECOMMENDATIONS

Although the MaCHT project has ended, several recommendations for future programs are presented below, based directly from the experiences of MaCHT.

Partnerships

- WV must continue to work with the national and state level MoH to build the capacity to design and implement a policy and implementation strategy at national level to ensure quality and sustained community level services at the most rural levels of care.
- Improve communication systems with government structures, especially the central Ministry of Health is a critical and ongoing measure that must be regularly performed to ensure full knowledge of WV portfolio in South Sudan.

Operations Research

- WV and the state MoH should examine further the impact of the iCCM-plus model in the project area in a more robust manner so that widespread adoption is based on evidence on a larger scale.

Health Pooled Funds

- The Integration of MaCTH program resources and activities, especially the training and supply of HHPs, and health center improvements should be incorporated into the new project “Health Pooled Funds” in Warrap State.

Supply Chain and Infrastructure

- Correction of the chronic drug shortages and supply chain disruptions require that a new implementation strategy be designed to strengthen the supply chain system at World Vision South Sudan office.
- The problems with project implantation resulting from lack of vehicles and vehicle maintenance and repair requires and assessment and redesign of the current transportation system within WVSS office in Warrap State
- Attention should be paid identifying the logistical needs of HHPS to facilitate their ability to complete their work.

Staffing and Capacity

- The work of MaCHT has informed the new Health Pooled Fund project, which is just starting and aims to improve health facilities. The deficiencies in the government provided health facilities are well known and South Sudan does not have the personnel to staff them at the level needed. Ex pat physicians and midwives are needed to create the programs and infrastructure for South Sudan in this very rural area.
- The rapid staff turnover and difficult working and living conditions in the project area, require that WV conduct a working condition assessment of South Sudan staff who are currently placed in Warrap State so that changes can be immediately made to improve retention.

*U.S. Agency for International Development
1300 Pennsylvania Avenue NW
Washington, DC 20523*

EVALUATION ANNEXES

MATERNAL AND CHILD HEALTH TRANSFORMATION PROJECT IN WARRAP STATE, SOUTH SUDAN

Cooperative Agreement Number AID-OAA-A-10-00037

December 2014

ANNEXES

- I.** List of Publications and Presentations Related to the Project
- II.** Project Management Evaluation
- III.** Work Plan Table
- IV.** Rapid CATCH Table
- V.** Final KPC Report
- VI.** CHW Training Matrix
- VII.** Evaluation Scope of Work
- VIII.** Evaluation Methods and Limitations
- IX.** Data Collection Instruments
- X.** Information Sources
- XI.** Disclosure of Any Conflicts of Interest
- XII.** Statement of Differences
- XIII.** Evaluation Team Members, Roles, and Their Titles
- XIV.** Final Operations Research Report
- XV.** Operations Research Brief
- XVI.** Stakeholder Debrief PowerPoint Presentation
- XVII.** Project Data Form
- XVIII.** Qualitative Survey Findings
- XIX.** Project Implementation Photos

Peer-Reviewed Publication

Rosales, A.C., Hedrick, J.A., Cherian, D.T., Moore, E.C., Brown, K.M., Walumbe, E., 2014, 'Essential new-born care in rural settings: The case of Warrap State in South Sudan', African Evaluation Journal. 2(1), Art. #80

December 2014

International Conference Presentations

American Public Health Association Annual Conference | New Orleans, LA

November 2014

Essential New-born Care in Rural Setting: The Case of Warrap State in South Sudan

Monday, November 17, 2014: 11:18 AM - 11:30 AM

Alfonso Rosales, MD, MPH-TM, World Vision US, Washington, DC

**Amref Health Africa International Conference
Nairobi, Kenya**

November 2014

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

Alfonso Rosales, MD, MPH-TM; Juli Hedrick, MPH, Kuol Kuol Amet, Elizabeth Walumbe, Grace Dunbar, MPH; Rose Achan, RN; Katelyn Lowery, MPH; Dennis Cherian, BHMS, MS, MHA.

**7th AfrEA Conference – Evaluation for Development
Yaoundé, Cameroon**

March 2014

A Population Based Survey to Evaluate Essential Newborn Care in Rural Settings: The Case of Warrap State in South Sudan

Alfonso Rosales

CORE Group Spring Meeting | Baltimore, MD

April 2013

Integrating Newborn Interventions into Community Case Management in Rural South Sudan: iCCM Plus

Alfonso Rosales MD, MPH-TM; Juli Hedrick MPH; Jahera Otieno MPH; Dennis Cherian MD, MPH

Essential Newborn Care in Rural Settings: The Case of Warrap State in South Sudan

WorldVision US / South Sudan
Alfonso Rosales, MD, MPH
November 17, 2014



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Background

- Maternal and Child Health Transformation (MaCHT) project [SOUTHERN SUDAN MAP BY COUNTY/STATE](#)
- Gogrial East and Gogrial West counties, Warrap State, South Sudan



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Background

- Total reach of 148,000 from the ethnic agro-pastoral Twic Dinka tribe
- Decades of conflict have left South Sudan with very little infrastructure and the highest maternal mortality ratio in the world (2,054 per 100,000 live births).



Interventions



- Trained and supervised 100 HHPs
- Trained 4 midwives
- Mobilized community leaders
- Strengthened Health Facility Management Committees



Methodology

- Quasi-experimental OR
- Community-based surveys on knowledge, beliefs, and behaviors
- Mothers of children 0-24 months
- Baseline, Aug. 2013, n=511
- Endline, Aug. 2014, n=510



Six Key Indicators

1. Immediate infant drying
2. Immediate infant wrapping
3. Delayed infant bathing (6+ hours)
4. Immediate breastfeeding (within 1 hour)
5. Sterile cord cutting
6. Antiseptic applied to cord



Results

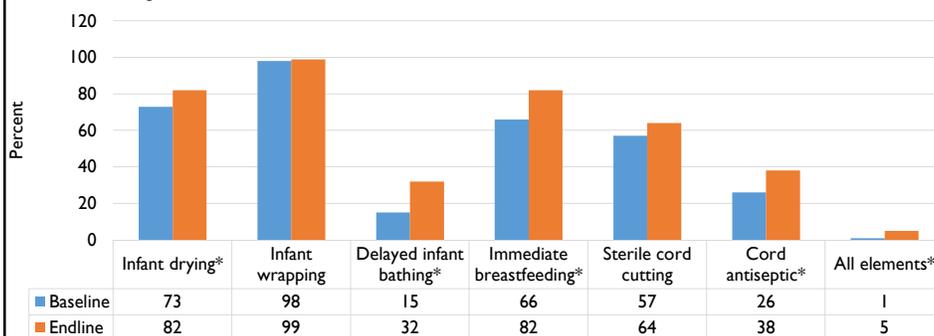
Table 1: Endline Child Demographics, Warrap State, South Sudan, 2013 & 2014

Child's Age	<1 month %		1-11 months %		12-23 months %		24≤ months	
	Baseline	Endline	Baseline	Endline	Baseline	Endline	Baseline	Endline
	6% (30)	4% (21)	64% (325)	50% (257)	29% (150)	44% (222)	1% (6)	2% (10)
Child's Sex	Male				Female			
	Baseline		Endline		Baseline		Endline	
	55% (280/511)		55% (278/510)		46% (231/511)		45% (232/510)	



Results

Figure 1: Essential Newborn Care Coverage Among Newborns, Warrap State, South Sudan, 2013 & 2014



* Significant increase



Challenges

- Distances between villages
- Unable to cross river during rainy season
- Inadequate vehicle access
- Survey tediously long
- Numbers are self-reported and not based on observation



Conclusions

1. Coverage of essential newborn care interventions in rural areas of South Sudan is extremely poor and almost non-existent
2. Delivery of newborn interventions may help facilitate substantial gains in coverage of essential interventions for maternal and newborn health



Essential Newborn Care in Rural Settings: The Case of Warrap State in South Sudan

Thank you!



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

Authors: Alfonso Rosales, MD, MPH-TM¹; Juli Hedrick, MPH¹; Kuol Kuol Amet²; Elizabeth Walumbe²; Grace Dunbar, MPH¹; Rose Achan, RN²; Katelyn Lowery, MPH¹; Dennis Cherian, BHMS, MS, MHA¹.
Affiliations: ¹World Vision United States; ²World Vision South Sudan

Background

Improving and maintaining the clinical skills of frontline health workers over time is critical for strengthening health systems. Supervision is widely recognized as a key to improving health worker performance.

The greatest barrier to health care in South Sudan is the lack of skilled human resources. Given the anticipated time it will take to increase due capacity within the formal health system, there is an urgent need for rapid deployment of community-based health services with proven competencies to deliver essential health care.

Capacity building strategies, including training and supervision, need to be adapted to local context to ensure skill transference and maintenance over time, thereby improving coverage and competence of community health workers in Warrap State of South Sudan.

- Warrap State:**
- One of poorest states in South Sudan with 64% of the population living below the poverty line
 - Literacy rate of the 15-24 age group is significantly lower in Warrap state (27%) than nationally (40%)
 - Aid agencies provide more than 85% of health care



Methods

A descriptive case study design was used. Information was prospectively collected through an ongoing monitoring system during iCCM-related activity implementation. Sources of information included monthly virtual meetings, monthly supervision field reports, and data from a supervision checklist and individual community health worker (CHW) registration forms.

The population for this case study included 15 frontline volunteer CHWs, one field supervisor, and one central supervisor, all trained on iCCM tools, training approach, and its respective supervision model.

Procedure

- In the trial intervention area, the supervision model was implemented to support CHWs after iCCM training. It included:
1. 1-day workshop to train a project supervisor and district MOH staff (as observers) on the supervision model and to establish a central supervisor (supervisor of supervisors)
 2. A reproducible supervision check-list
 3. Supervisor's tabulation form
 4. Reporting structure

Community-Based Supervision Model

World Vision(WV) and the Government of South Sudan Ministry of Health (MOH) piloted an innovative supervision model focused on community resources. WV community-based supportive supervision model has been adapted from a clinical supervision approach based on a three-function interactive model.

Components of three-function interactive model

	Field supervisor	Central supervisor
Formative (increasing skills and knowledge)	Weekly visits during three-month training period: coach each CHW when problem areas are identified	Three-month training period Suspended after training period
Normative (enhancing accountability and quality assurance)	Weekly visits during three-month training period: test components of the algorithm, check recording forms and condition of medication/equipment	Review of weekly reports with immediate feedback Suspended after training period
Restorative (facilitating collegial and supportive relationships)	Weekly visits during three-month training period: report positive feedback from community and health facility	Weekly teleconference, sharing of information, on-site support Joint identification of solutions to problems in practice Suspended after training period

Results

The level of competence was measured during supervision visits, during which a competency was randomly chosen, followed by demonstration/observation and compliance of standards of practice. Compliance assessment was done in two steps:

1. Determine whether the CHW had competency in delivering the selected health service
2. Assess whether the service/tool was delivered with or without difficulty

Competency tested	3-month result			7-month result		
	Excellent	Some difficulty	Unable	Excellent	Some difficulty	Unable
Flipchart/algorithm	8%	91%	1%	31%	69%	0%
Recording form	8%	92%	0%	32%	68%	0%
Referral form	8%	91%	1%	31%	69%	0%
Correct medication	8%	90%	2%	31%	69%	0%



Conclusion

- Results suggest that a supervision process to measure and maintain in iCCM-related clinical skill performance by CHWs is an important element of program design, especially for community-based approaches where treatment with drugs is included and rapid deployment of CHWs is critical.
- Overall, results indicate that integrating weekly supervision for a three-month period immediately following a one-week training for iCCM, as demonstrated by this trial, ensures the transference and maintenance of competencies and skills to CHWs needed to provide health services related to the iCCM strategy.

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Essential New-born Care in Rural Settings: The Case of Warrap State in South Sudan

World Vision US and World Vision South Sudan

World Vision

Background

Project: Mother and Child Health Transformation (MaCHT), USAID-funded Child Survival and Health Grants Program 2010-2014

Location: Gogrial East and Gogrial West counties, Warrap State, South Sudan

Total Population: 148,000 people of the ethnic agro-pastoral Twic Dinka tribe.

Barriers: decades of conflict, poor infrastructure, and vast logistical, social and political hurdles

Maternal Mortality Ratio: 2,054 per 100,000 live births: the highest in the world.*

- 1 qualified midwife per 30,000 people *



*Source, UNDP, 2014



Methodology

Key Focus: To confirm the fragile and weak status of the coverage of essential new-born services and the state of health care delivery in Warrap state, South Sudan



Design: A quasi-experimental, community-based, repeated cross-sectional study was designed to determine current beliefs and behaviours around various infant and child health indicators. A two-stage stratified and weighted random sampling was done. During the first stage, 30 bomas were randomly selected according to population weight. The second stage involved the random selection of 17 households from each boma.



Results



Table 1: Baseline Child Demographics, Warrap State, South Sudan, 2013

Child's Age	<1 month	1-12 months	12-24 months
	%	%	%
	34	350	127
	7%	68%	25%
Child's Sex	Male		Female
	%		%
	280		231
	54.8%		46.2%

Figure 1. Percentual variation of essential newborn care coverage among newborns, Warrap state, South Sudan, 2013

Service	Percentage
BF Imme	~70%
Cord antiseptic	~40%
Cord razor	~60%
Not bathed	~2%
Wrap Imme	100%

Results

World Vision

Table 2: Proportion of mothers who would take infant versus child to care for specific illness, Warrap State, South Sudan, 2013

	Neonatal	Post-neo	Total
Convulsions	72% (28)	28% (11)	2% (39)
Not eating	42% (152)	58% (206)	21% (358)
Lethargic, weak, irritable	12% (6)	88% (44)	3% (50)
Fever	50% (354)	50% (359)	41% (713)
Fast or difficult breathing/ cough	63% (179)	37% (103)	16% (282)
Vomiting	13% (32)	87% (218)	14% (250)
Diarrhea	33% (16)	67% (32)	3% (48)

Indicator	Description/definition	WV Baseline
Percentage of newborns who started breastfeeding within one hour	# of newborns who were put to the breast within one hour of being born/ Total # of breastfed babies	68% (345/466)
Proportion of neonates visited by a trained worker within three days of birth	# of neonates visited by a trained worker within three days of birth/ Total # of neonates visited by anyone	11% (16/147)
Proportion of newborns with delivery attended at home	# of infants who were delivered at home/ Total # of infants	96% (491/511)
% of mothers whose newborn was not bathed in the first 6 hours after birth	# of infants who were not bathed in the first 6 hours after birth/ Total # of infants	1% (3/511)



Conclusion

World Vision

Our findings suggest that coverage of essential new-born care interventions in rural areas of South Sudan is extremely poor and almost non-existent. Moreover, less than half of mothers would recognize a danger sign among newborns.

As documented by other studies, rapid reductions in new-born mortality in excess of 50% can be achieved by an integrated high-coverage program of universal outreach and family-community care, plus universal facility-based clinical services. Given the classification of South Sudan as a country with high new-born mortality rate, and the findings of this report as to the low coverage of essential newborn care as well as low maternal knowledge of danger signs, one logical first step in addressing this urgent problem would be to promote a phased approach to address new-born needs. This approach would focus first on outreach and family-community based services to effectively ensure access of basic services to poor and rural populations, while professional clinical care is strengthened and made more equitable. These family-community services would include new-born interventions within the integrated community case management approach of the Government of South Sudan.



Integrating Newborn Interventions into Community Case Management in rural South Sudan: iCCM Plus

Alfonso Rosales MD, MPH-TM; Juli Hedrick MPH; Jahera Otieno MPH; Dennis Cherian MD, MPH

CORE Spring Meeting, April 2013
Baltimore, MD

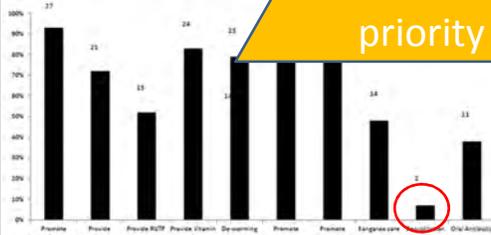


About 40% of deaths in children younger than 5 years occurred in the neonatal period, most often because of preterm birth complications (14%), intrapartum related complications (9%), and neonatal sepsis or meningitis (5%).

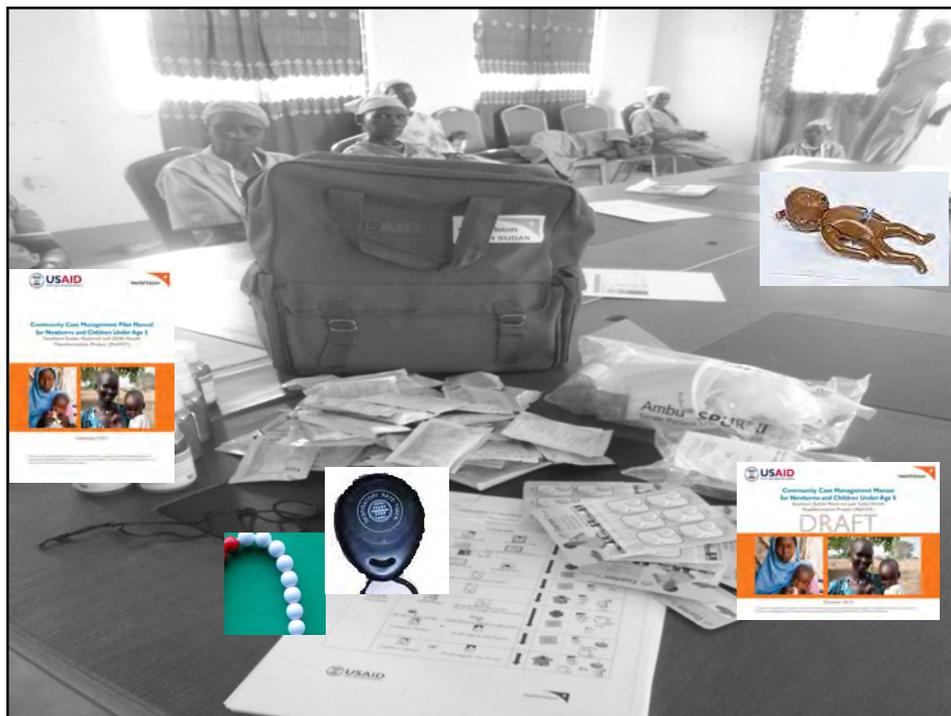
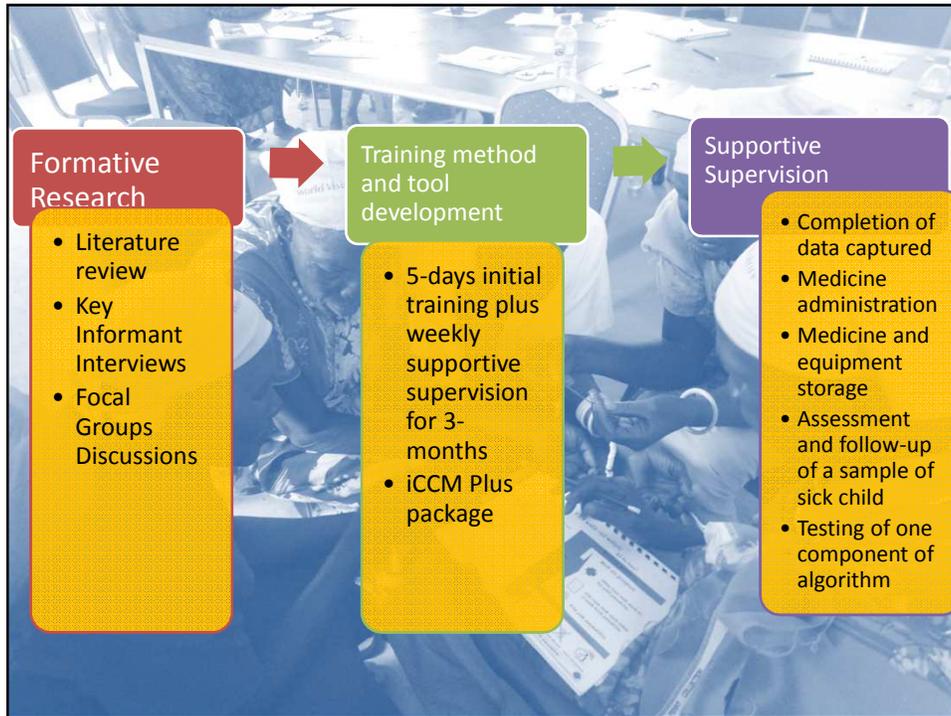
22% of WHO recommendation

iCCM Plus is a priority

Figure 4: UNICEF country offices reporting activities related to community case management for malaria and/or pneumonia in sub-Saharan Africa 2010



of Health Worker in
highest U5MR = 5.2 per



Newborn Care

Look/Ask

- Is the baby newly born?
- Is the baby crying?



If the baby is not crying or breathing well after drying, you will need to help the baby to breathe within the first minute. Go to "Helping a Newborn Breathe"

If YES to these signs

What To Do?



- Dry the baby with a clean cloth and check to see if his mouth and nose are clear.



- Place baby on the mother's abdomen and cover with a dry cloth, including the head.



- Dab the umbilical cord, including the base of the cord, with 4% chlorhexidine



- Initiate breastfeeding



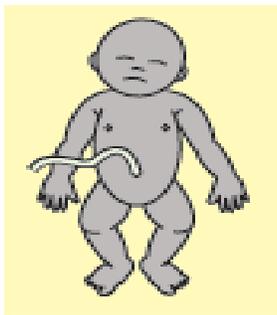
- Eye care- apply tetracycline eye ointment within 1 hour

Information and images on this and following pages adapted from Helping Babies Breathe, American Academy of Pediatrics, 2010.

Helping a Newborn Breathe

Look/Ask

- Is the baby newly born?
- Is the baby NOT crying?



- This baby needs help to breathe.

If YES to ANY Sign



- Within one minute,
- Keep the baby warm
 - Position the head



- Aspirate (clean) the mouth and nose
- Stimulate breathing by rubbing the back



If baby is still not breathing well:

- Ventilate with bag mask
- Give 40 breaths per minute
- Observe once per minute for crying or breathing

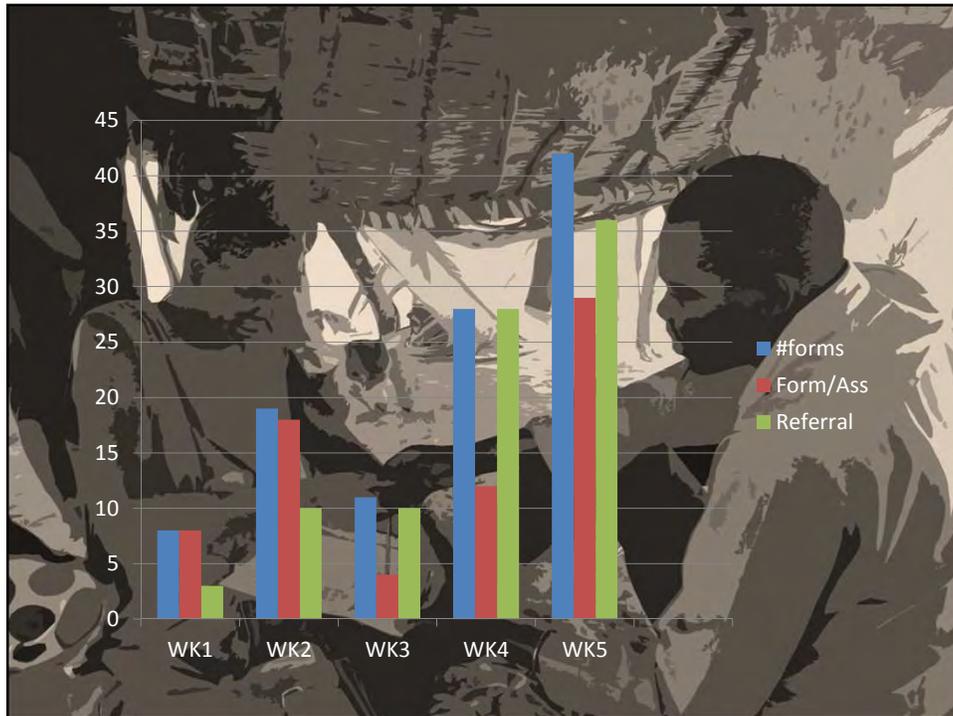


Continue until newborn is breathing well or declare as stillbirth if there is no breathing within 10 minutes. All newborns needing help to breathe need **urgent referral to a hospital or health center** after they are breathing normally.

Group variable	Percentage Change
Identification of Danger Signs	+52
Management Danger Signs	+11
Identification Respiratory Signs	+13
Identification of Fast Breathing	+153
Management of Cough	+33
Accurate Counting of Respiratory Frequency	+34
Identification of Severe Dehydration Signs	+74
Identification of Mild Dehydration	+13
Home Treatment of Diarrhea	+81
Identification of Fever Danger Signs	+74
Identification of Signs for Referral	+13
Identification of drug treatment for fever	+47
Newborn resuscitation (bag&mask)	+91

Preliminary assumption: based on these results CCM-related content of the iCCM Plus tool seems to be appropriate in the training of illiterate community-based staff with no health background





	Wk1	WK2	WK3	WK4	WK5	total
# forms	8	19	11	28	42	108
GDS	2	3	0	7	2	14
Spneu	5	6	3	11	18	43
Nspneu	1	0	1	1	1	4
Sdehy	0	2	0	5	4	11
Nsdehy	1	0	0	1	0	2
Diarrhe	0	5	3	4	4	16
Smalar	0	3	4	12	12	31
NBGDS	0	1	0	0	0	1
NBD	0	1	0	0	0	1
Referral	3	10	10	28	36	87
Forms w/assist	8	18	4	12	29	71

Preliminary conclusions

- Supervision approach seems to be working
 - 100% referral forms @PHCU
 - Increased referral of ARI
 - HHP's controlling stocks of drugs and equipment
 - Progressively fewer need on form assistance
 - Weekly Skype discussion vital
- Challenges
 - Transportation
 - Due to distance weekly supervision non-feasible
 - Administrative issues
 - Referral forms need to be simplified
 - Language barriers



World Vision South Sudan (WVSS), at the time of this evaluation, is implementing 43 different projects across South Sudan, and currently is responding to a Level 3 global emergency – a national crisis affecting over one million people. For World Vision, this is the largest and most response category. The need for this type of response was declared Dec 15th 2013 and continued at least through the time of the final evaluation interviews. During this current crisis, there was armed conflict in the capital city, leading to the evacuation non-nationals and closure of the WV office. The office was reopened in early January 2014 to respond to the crisis of internally displaced persons. Some World Vision offices suffered loss of vehicles, food and other supplies to an estimated 1.2 million dollar loss.

There are 17,000 internally displaced people in Juba, and around 400,000 in the camps- but the overall estimate is 4 million displaced people. A main thrust of the WVSS efforts are relief food and non-food items –implemented partly through the WASH project.

The development activities in the other more stable areas are losing funding as the funding moves towards the relief efforts. It is being anticipated that in October of 2014 the dry season will commence and conflict may reemerge. WVSS is preparing for possible famine and hopes to prevent a major food pipeline break which may occur as the only means of transporting food is through airlift which has capacity limits. WV is a major food distributor for the world food program.

The MaCHT project area is split by the Jur River which was flooded at the time of the final evaluation. Due to the limited time available for the project evaluation, and the fact that the river is flooded, the eastern region could not be visited. The river, it's flooding and the lack of a bridge is one of the main constraints to the full project implementation.

The implementation of this project was also affected by the effects of at least 3 major contextual issues – infrastructure, political and social instability and human resource capacity. South Sudan is a “newborn” country and will have existed as a country for less than 5 years. After a long period of war with Sudan, this newly independent country has faced numerous challenges. The governmental health infrastructure contains gaps that are stressed by a large population of people in very rural areas. Maternal and child health indicators place South Sudan as the country with highest rate of maternal mortality. The recent influx of people leaving Khartoum and other areas of Sudan to resume residence in South Sudan had strained the already weak health care infrastructure. Many of the inhabitants of capital and areas now known as Sudan were originally from the southern part. Many moved to the south to vote in the referendum for independence resulting in an increased need for health services in South Sudan. An internal civil war based on political/tribal conflict has resulted in approximately 1.5 million internally displaced people in south Sudan and surrounding areas. Massive relief efforts are underway to prevent wide scale starvation and epidemic disease. These priority relief efforts compete for both financial and human resources with development activities – of which the currently evaluated project is a part. Current relief projects are infrastructure rich, and take priority over development efforts. When these resources are pooled, relief efforts may take advantage of available development resources. In the areas of health, much of the human capital is provided by non- nationals. The human capital needs cannot be filled by the current population of South Sudanese. Educational and Capacity building projects have not created enough human capacity to fulfill all of the leadership roles necessary to implement the infrastructure needed to deliver a full range of comprehensive health care. Infrastructure needs are great, especially in roads, health facilities, nurses, midwives and doctors. Health facilities require major upgrades, supervisory and quality assurance mechanisms.

The regional office in Warrap contains the headquarters of the MaCHT project. The regional office employs over 300 persons to implement food, water and sanitation projects, along with implementing health pooled funds for maternal and child health projects in the area. Political instability and limited manpower also result in high costs that were not anticipated by the program planners. These conditions all led to high staff turnover and inability to carry out fully all aspects of the project and limited the ability to supervise and provide refresher training.

ANNEX III - MaCHT Workplan

Activities	Personnel Responsible	Year 1				Year 2	Year 3	Year 4
		Q1	Q2	Q3	Q4			
SO 1: Increase use of high impact low cost and feasible interventions for better maternal, neonatal, infant and child health outcomes								
IR 1.1: Improved knowledge and practice of key interventions at the household and community level								
Maternal and Newborn Health								
Mobilize providers and communities for outreach sessions for ANC, PNC and immunization	MaCHT, HFMC							
Conduct PHCU/C assessment for needed materials, equipment for delivery, early newborn care	MaCHT, HFMC							
Train providers at PHCU/C in assessment and diagnosis skills of pregnant women and newborns, and management and in basic elements of emergency obstetric and newborn care	MaCHT, HFMC							
HHPs trained on MNCH, TTC and HBLSS	MaCHT, HHP							
TBAs trained on Birth preparedness and HBLSS	MaCHT, TBA							
MLGs trained on ANC, PPC, newborn care and IYCF and as advocates for key maternal/newborn messages and practices	MaCHT, MLG							
BOMA Centers developed as Learning Centers for MNC messages and practices	MaCHT, BLDC							
Support households and communities in the development of emergency preparedness plans for pregnant women and newborns	MaCHT, MLG							
HHPs provide ANC, PNC, HTSP at HH level through TTC	MaCHT, HHP							
GEWA organize women members to support MNCH practices	MaCHT, GEWA							
Support distribution safe delivery kits, LLIN and condoms during outreach services and health facility	MaCHT, HFMC							
Sensitization with spouse/male on ANC	MaCHT, MLG, HFMC							
Advocate for improved PMTCT, HTSP/Family Planning services	MaCHT, HFMC							
Work with HFMC and CHD on building transport systems for transporting pregnant women to access skilled care for delivery	MaCHT, HFMC							
Train mother leaders as advocates, counselors and peer supporters for key maternal newborn messages and practices	MaCHT, MLG							
Advocacy for improved MNCH services through SMOH	MaCHT, MOH							
Mobilize HFMCs to establish pilot Maternal Waiting homes	MaCHT, HFMC							
Empower and train TBAs to support HHPs to support MNC behavior change activities	MaCHT, TBA, HHP							
Target and train Men, community leaders, chief, faith leaders on MNC messages and practices	MaCHT,							
Engage community/church leaders to facilitate mobilization of MLG – Bomas (PD mother)	MaCHT, GEWA, MLG							
Community dialogue through MLGs and BLDC on MNCH issues	MaCHT, MLG							
Malaria								
In partnership with Global Fund/PSI, assess level of LLIN coverage, procurement and distribution of LLINs	HFMC/MaCHT							
Training and mobilization of CHWs, HHPs, women's groups in Household hang up and BCC activities	MaCHT							
Outreach sessions, community mobilization/education and counseling at household for IPTp	HHP, MLG, MaCHT							
BOMA demonstration areas on malaria prevention/cleaning and environment	MaCHT, GEWA, MLG							
Train HHPs/CHWs in CCM for uncomplicated and facilitated referral.	MaCHT							
Support PHCUs on CCM supplies (including ACT)	MaCHT							
HHPs and MLGs educate care givers on need for prompt referral and treatment for fever (within 24 hours)	MaCHT, CHW							
Collaborate with the National Malaria Control Program office, CCM and RBM Partnership	MaCHT							
Pneumonia								
HHP trained in CCM, including treatment and referral, for uncomplicated pneumonia	MaCHT							
Household counseling and community education on timely recognition and treatment from HHP	HHPs/MaCHT							
HHP/MLGs to mobilize and encourage household to seek timely treatment for ARIs	HHPs, GEWA							
Supplies and equipment for CCM (ie stop watches)	MaCHT							
Diarrhea								
HHPs assess and promote hand washing, POU water treatment, hygiene and sanitation at home and village levels	HHPs, CHW							
Boma demonstrations on household sanitation and hygiene including pit latrine Promote Safe Food preparation, ORS	HHPs, MLG							
Promote PHCU and PHCC community ORS corners	HHPs, CHW							
MLGs promotion of breastfeeding during illness for infants with diarrhea, and additional fluids for children over 6 months	MLG, HHP							
Immunization								
Partner with other INGOs/partners who have resources for Immunization	MaCHT							
Train PHCU staff as EPI managers using WHO/AFRO mid-level manager training modules	MaCHT							
Support routine & outreach programs for EPI	HFMC, MaCHT							
Identify and train community immunization champions	MaCHT							
Advocate and Participate in State and County health departments on microplans for EPI	MaCHT, MOH							
Mobilize HFMCs, communities and HHPs for NIDs	MaCHT, MHFMC							
HHP Village and Household registers track immunization of children and community	HHP, CHW, MaCHT,							
Train HHPs on EPI Monitoring and Surveillance	MaCHT							
IR 1.2: Improved quality of delivery of key interventions								
Development of HHP standardized supervisory checklists	MaCHT, HFMC, CHW							
Review and strengthen Job aids	MaCHT							
Provision for HHP performance feedback by communities	HFMC, CHW							
Regular Meetings with PHCU staff to review quality of care	MaCHT							
Conducting Bi-annual LQAS	MaCHT, MOH							
IR 1.3: Improved access to critical MNCH services								
Train HHP/TBA in HBLSS	HFMC, CHW							
Train HHP in CCM								
Support men and women's groups in accessing MNCH services at the Facility	HFMC, CHW							
Develop MNCH referral and emergency guidelines	MaCHT							
Procurement system for essential drugs and supplies (Iron, folic, IPT) enhanced through WV GIK program and other partners	MaCHT							
PHCC/U staff trained in assessment and diagnostic skills for pregnant women and newborns(ANC, basic EmOC and Post-partum care, newborn care)	MaCHT							
Support and facilitate for expanded outreach services	MaCHT							
Conduct Gender Analysis	MaCHT, MOH							
SO 2: Strengthen capacity of the health system to deliver essential health services								
IR 2.1: Improved technical and managerial capacity of health staff at peripheral health facilities								
Identify and Train 10 Community Midwives	MaCHT/MOH							
Provide basic infection control supplies, delivery kits, ANC cards and register books for PHCUs	MaCHT, MOH							

Advocate for CHD and SMOH to refill health worker vacancies at HF level	MaCHT/MOH								
Provide refresher training to PHCU/PHCC health staff	MaCHT/MOH/ HFMC								
Promoting upgraded waste management system	MaCHT,MOH, HFMC								
Provide training on leadership and supportive supervision, planning (CHD and SMOH)	MaCHT, HFMC								
Promoting upgraded waste management system									
IR 2.2: Improved infrastructure and supplies at PHCUs									
Local and national advocacy for rehab and construction of new PHCUs and equipment	MaCHT, HFMC, MOH								
Local logistical support for procurement /supply chain	MaCHT, HFMC, MOH								
Support for GIK, transportation, logistical management through partner involvement	MaCHT, HFMC, MOH								
Map availability of current facilities and confirm working and ensure maintenance	MaCHT								
Advocate for improved communication links for emergency, outbreaks, stockouts, reporting	MaCHT, HFMC, MOH								
IR 2.3: Strengthened MOH policy and strategy supported by evidence-based operations research									
Advocate for national review of national protocols and guidelines	MaCHT, OR tech								
Stakeholders engagement and policy dialogues	MaCHT, OR tech								
Develop OR protocol with MOH and partners	MaCHT, MOH								
Advocate with MOH for using OR findings to shape policy on HHPs and for scaling up	MaCHT, MOH								
SO 3: Build and strengthen local and national partnerships to sustain MNCH improvements									
IR 3.1: Strengthened community structures and leadership									
Training HFMC on leadership, planning, management of health services	MaCHT								
Work with HFMC to identify candidates to be trained as HHPs	MaCHT, HFMC								
Coordination meetings between the HFMC and HWS, HHPs, TBAs	MaCHT, HFMC								
Coordination meetings with HF, Payams, Boma s, chiefs, administrators	HFMC, MaCHT								
Train Communities in WV Citizen Voice and Action methodology	HFMC, MaCHT								
Empower Communities to advocate for health	MaCHT, MOH								
Provide performance-based incentives for HHPs	MaCHT, HFMC								
IR 3.2: Strengthened organizational capacity of local NGOs									
Mapping/Capacity assessment of LNGOs through OCB self assessment	MaCHT								
Training NGOs on management, finance, fundraising, implementation	MaCHT								
On-going monitoring, mentoring, and capacity building	MaCHT								
Sensitizing LNGOs on capacity for peace	MaCHT								
IR 3.3: Repositioned maternal, neonatal and child health agenda at county and state levels									
Participate in Warrab State Health Cluster Coordination Meetings	MaCHT, HFMC								
Participate in Warrab State Nutrition Cluster	MaCHT, SMOH								
Participate in micro-planning for EPI and other activities at State Level	MaCHT, SMOH								
Support/Participate in National Level Reproductive Health working group	MaCHT, GOSS MOH								
Start-up and Evaluation activities (Monitoring is ongoing)									
Start-up workshop	WVUS								
Baseline survey Qualitative assessment/KPC Survey	WVUS, MaCHT								
Health Facility Assessment	WVUS, MaCHT								
DIP development	WVUS, MaCHT								
Midterm assessment and evaluation	WVUS, MaCHT								
Final assessment and evaluation	WVUS, MaCHT								

MaCHT South Sudan Final Evaluation | Annex IV: Rapid CATCH Table

Indicator	Activities	Baseline Value	Endline Value	P Value
SO 1: Increase use of high-impact low-cost and feasible interventions for better maternal, neonatal, and child health outcomes				
Maternal and Newborn Care				
Antenatal Visits: Percentage of mothers of children age 0-23 months who report having had four or more antenatal visits when pregnant with their youngest child	<ul style="list-style-type: none"> Mobilize providers and communities for outreach sessions for ANC, PNC and immunization Conduct PHCU/C assessment for needed materials, equipment for delivery, early newborn care Train providers at PHCU/C in assessment and diagnosis skills of pregnant women and newborns, and management and in basic elements of emergency obstetric and newborn care HHPs trained on MNCH, TTC and HBLSS TBAs trained on Birth preparedness and HBLSS MLGs trained on ANC, PPC, newborn care and IYCF and as advocates for key maternal/newborn messages and practices BOMA Centers developed as Learning Centers for MNC messages and practices Support households and communities in the development of emergency preparedness plans for pregnant women and newborns HHPs provide ANC, PNC, HTSP at HH level through TTC GEWA organize women members to support MNCH practices 	12% (37/298)	29% (146/510)	0.000001
Tetanus Vaccination: Percentage of mothers with children age 0-23 months who received at least two tetanus toxoid vaccinations before the birth of their youngest child		26% (76/298)	64% (324/510)	<0.0000000000
Iron Supplements: Percentage of mothers of children aged 0-23 months who received/bought iron supplements while pregnant with their youngest child		30% (90/298)	61% (312/509)	<0.0000000000
Knowledge of Danger Signs during Pregnancy: Percentage of mothers of children age 0-23 months who know at least 2 known danger signs during pregnancy that indicate need for treatment		79% (235/298)	75% (383/510)	0.0008
Skilled Birth Attendance: Percentage of children age 0-23 months whose births were attended by skilled personnel (doctor, nurse, midwife, other with midwifery skills)		12% (35/298)	17% (86/510)	0.04
Active Management of Third Stage of Labor: Percentage of mothers of children age 0-23 months who received AMTSL after the birth of their youngest child		6% (17/298)	11% (58/510)	0.007
Knowledge of Post-Partum Danger Signs: Percentage of mothers of children age 0-23 months who know at least two known danger signs during the post-partum period		94% (279/298)	73% (372/510)	<0.0000000000
Knowledge of Neonatal Danger Signs: Percentage of mothers of children age 0-23 months who know at least two known danger signs in the newborn		81% (240/298)	77% (393/510)	
Essential Newborn Care: Percentage of children age 0-23 who received all three elements of essential newborn care: thermal protection immediately after birth, clean cord care, and immediate and exclusive breastfeeding.		26% (77/298)	17% (85/510)	

MaCHT South Sudan Final Evaluation | Annex IV: Rapid CATCH Table

Indicator	Activities	Baseline Value	Endline Value	P Value
Prophylactic Eye Care: Percentage of mothers of children age 0-23 months who report appropriate preventive eye care for their youngest child within one hour of birth	<ul style="list-style-type: none"> Support distribution safe delivery kits, LLIN and condoms during outreach services and health facility 	8% (24/298)	15% (75/510)	
Post-Natal Check: Percentage of children age 0-23 who received a post-natal visit from an appropriate trained health worker within two days after the birth of the youngest child	<ul style="list-style-type: none"> Sensitization with spouse/male on ANC Advocate for improved PMTCT, HTSP/Family Planning services 	15% (44/298)	15% (78/510)	
Contraceptive Use: Percentage of mothers of children age 0-23 months who are using a modern contraceptive method	<ul style="list-style-type: none"> Work with HFMC and CHD on building transport systems for transporting pregnant women to access skilled care for delivery Train mother leaders as advocates, counselors and peer supporters for key maternal newborn messages and practices Advocacy for improved MNCH services through SMOH Mobilize HFMCs to establish pilot Maternal Waiting homes Empower and train TBAs to support HHPs to support MNC behavior change activities Target and train Men, community leaders, chief, faith leaders on MNC messages and practices Engage community/church leaders to facilitate mobilization of MLG – Bomas (PD mother) Community dialogue through MLGs and BLDCon MNCH issues 	0.3% (1/298)	0% (0/510)	
Malaria Prevention and Treatment				
Treatment of Fever in Malarious Zones: Percentage of children age 0-23 months with a febrile episode during the last two weeks who were treated with an effective anti-malarial drug within 24 hours (same or next day) after the fever began	<ul style="list-style-type: none"> In partnership with Global Fund/PSI, assess level of LLIN coverage, procurement and distribution of LLINs 	5% (9/187)	30% (120/406)	<0.000000000

MaCHT South Sudan Final Evaluation | Annex IV: Rapid CATCH Table

Indicator	Activities	Baseline Value	Endline Value	P Value
Care Seeking for fever in Malarious Zones: Percentage of children age 0-23 months with a febrile episode during the last two weeks who were taken to a qualified health provider (hospital, health center, health post, NGO/PVO clinic, or other health facility) as a first visit or a second visit (after visiting a non-qualified individual such a family member or traditional healer)	<ul style="list-style-type: none"> • Training and mobilization of CHWs, HHPs, women’s groups in Household hang up and BCC activities • Outreach sessions, community mobilization/education and counseling at household for IPTp • BOMA demonstration areas on malaria prevention/cleaning and environment • Train HHPs/CHWs in CCM for uncomplicated and facilitated referral. • Support PHCUs on CCM supplies (including ACT) • HHPs and MLGs educate care givers on need for prompt referral and treatment for fever (within 24 hours) • Collaborate with the National Malaria Control Program office, CCM and RBM Partnership 	30% (56/187)	52% (212/406)	0.000001
IPTp: Percentage of mothers of children age 0-23 months who took two doses of SP/Fansidar to prevent malaria when pregnant with their youngest child		12% (36/298)	52% (264/510)	<0.0000000000
Bed net usage in pregnancy: Percentage of mothers of children age 0-23 months who report having slept under a bed net all or most of the time during their past pregnancy		33% (99/298)	40% (205/510)	0.000005
Child Bed net Usage: Percentage of children age 0-23 months who slept under an insecticide-treated bed net (in malaria risk areas, where bed net use is effective) the previous night.		50% (148/298)	57% (288/510)	0.06
ITN Ownership: Percentage of mothers of children age 0-23 months who report possession of at least one insecticide treated bed net		25% (74/298)	62% (315/507)	<0.0000000000
Acute Respiratory Illness				
Appropriate Care Seeking for ARI: Percentage of children age 0-23 months with chest-related cough and fast and/ or difficult breathing in the last two weeks who were taken to an appropriate health provider (hospital, health center, health post, NGO/PVO clinic, or other health facility)	<ul style="list-style-type: none"> • HHP trained in CCM, including treatment and referral, for uncomplicated pneumonia • Household counseling and community education on timely recognition and treatment from HHP • HHP/MLGs to mobilize and encourage household to seek timely treatment for ARIs • Supplies and equipment for CCM (i.e. stop watches) 	37% (43/115)	64% (170/265)	0.000002
ORT use: Percentage of children age 0-23 months with diarrhea in the last two weeks who received oral rehydration solution (ORS) and/or recommended home fluids.	<ul style="list-style-type: none"> • HHPs assess and promote hand washing , POU water treatment, hygiene and sanitation at home and village levels 	25% (31/124)	74% (172/234)	<0.0000000000

MaCHT South Sudan Final Evaluation | Annex IV: Rapid CATCH Table

Indicator	Activities	Baseline Value	Endline Value	P Value
Point of Use (POU): Percentage of households of children age 0-23 months that treat water in any way	<ul style="list-style-type: none"> Boma demonstrations on household sanitation and hygiene including pit latrine Promote Safe Food preparation, ORS Promote PHCU and PHCC community ORS corners MLGs promotion of breastfeeding during illness for infants with diarrhea, and additional fluids for children over 6 months 	8% (23/298)	46% (233/510)	<0.000000000
Appropriate Hand washing Practices: Percentage of mothers of children age 0-23 months who live in households with soap or detergent at the place for hand washing		12% (36/298)	16% (82/510)	0.12
Vaccinations and Vitamin A				
Measles Vaccination: Percentage of children age 12-23 months who received a measles vaccination	<ul style="list-style-type: none"> Partner with other INGOs/partners who have resources for Immunization Train PHCU staff as EPI managers using WHO/AFRO mid-level manager training modules Support routine & outreach programs for EPI Advocate and Participate in State and County health departments on microplans for EPI Mobilize HFMCs, communities and HHPs for NIDs HHP Village and Household registers track immunization of children and community Train HHPs on EPI Monitoring and Surveillance 	39% (54/140)	22% (113/510)	
DPT1 Vaccination: Percentage of children aged 12-23 months who received DTP1 according to the vaccination card or mother's recall by the time of the survey		46% (64/140)	20% (104/510)	
DPT3 Vaccination: Percentage of children aged 12-23 months who received DTP3 according to the vaccination card or mother's recall by the time of the survey		2% (3/140)	3% (14/510)	
Vitamin A: Percentage of children age 6-23 months who received a dose of Vitamin A card verified (received any time before the survey) or mother's recall(received in the past six months)		25% (52/208)	53% (205/387)	<0.000000000
SO 2: Strengthen capacity of the health system to deliver essential health services				
IR 2.1: Improved technical and managerial capacity of health staff at peripheral health facilities				
# of students identified and trained in community midwifery program	<ul style="list-style-type: none"> Identify and Train 10 Community Midwives Provide basic infection control supplies, delivery kits, ANC cards and register books for PHCUs 	0	5	
# of health facilities that filled key vacant positions		0	8	

MaCHT South Sudan Final Evaluation | Annex IV: Rapid CATCH Table

Indicator	Activities	Baseline Value	Endline Value	P Value
# of supportive supervision visit to all facilities	<ul style="list-style-type: none"> • Advocate for CHD and SMOH to refill health worker vacancies at HF level • Provide refresher training to PHCU/PHCC health staff • Promoting upgraded waste management system • Provide training on leadership and supportive supervision, planning (CHD and SMOH) • Promoting upgraded waste management system 	0	72	
# of facility staff participating quarterly refresher training		0	25	
% PHCUs and PHCCs that have micro plans for the outreach clinics for the coming month		0	0	
IR 2.2: Improved infrastructure and supplies in peripheral health facilities				
# of PHCUs and PHCCs that did not have a stock out of vaccines and supplies in the past 3 months	<ul style="list-style-type: none"> • Local and national advocacy for rehab and construction of new PHCUs and equipment • Local logistical support for procurement /supply chain • Support for GIK, transportation, logistical management through partner involvement • Map availability of current facilities and confirm working and ensure maintenance • Advocate for improved communication links for emergency, outbreaks, stock outs, reporting 	0	8 HFs equipped	
# of PHC managers that received supply chain management training		0	10	
# of HFMCs mobilized for PHCU/PHCC improvement		0	8	
IR 2.3: Strengthened MOH policy and strategy supported by evidence-based operations research				
# events held and material produced on MaCHT's OR (update or findings)	<ul style="list-style-type: none"> • Advocate for national review of national protocols and guidelines • Stakeholders engagement and policy dialogues • Develop OR protocol with MOH and partners • Advocate with MOH for using OR findings to shape policy on HHPs and for scaling up 	0	5	
# meetings with MOH to share findings from OR and to advocate for inclusion in policy		0	4	
# meetings held with collaborating agencies (Makerere University, JHU SPH CORE group) to provide and obtain feedback on OR		0	6	
SO 3: Build and strengthen local and national partnerships to sustain MNCH improvements				
IR 3.1: Strengthened community structures and leadership				

MaCHT South Sudan Final Evaluation | Annex IV: Rapid CATCH Table

Indicator	Activities	Baseline Value	Endline Value	P Value
# HFMCs that met regularly with their health facilities in the past quarter		0	80 (10 out of 13 members from the eight supported Health facilities target villages attended monthly meetings with HF staffs, HHPs, MLGs and MaCHT & CHD teams.	
IR 3.2: Strengthened organizational capacity of local NGOs				
# NGOs trained in organizational development	<ul style="list-style-type: none"> • Mapping/Capacity assessment of LNGOs through OCB self-assessment • Training NGOs on management, finance, fundraising, implementation • On-going monitoring, mentoring, and capacity building • Sensitizing LNGOs on capacity for peace 	0	2	
# NGOs assessed using the self-assessment tool		2	2	
# Meetings of MaCHT team with partner NGOs		2	24 (GEWA & later THESO)	
IR 3.3: Repositioned maternal, neonatal and child health agenda at county and state levels				
# Meetings of MaCHT management with MOH/CCD at county level	<ul style="list-style-type: none"> • Participate in Warrap State Health Cluster Coordination Meetings • Participate in Warrap State Nutrition Cluster • Participate in micro-planning for EPI and other activities at State Level • Support/Participate in National Level Reproductive Health working group 	2	4 held and attended during FY 2013 & FY 2014 as most planned for meetings would be cancelled due to other commitments of the County Commissioner	
# Joint supervisory visits in target locations with CHD personnel		0	32 this FY 14 where 8 health facilities were visited once every quarter	
# of meetings help with partners (UNICEF , SMOH , CHD) on EPI logistics		0	16 (National Immunization Days (NIDS) done for Polio and campaigns held for Measles four times every year for the past 4 years.	

ENDLINE REPORT

**KNOWLEDGE, PRACTICES, AND
COVERAGE SURVEY**

SEPTEMBER 2014

Maternal and Child Health Transformation (MaCHT) Project

WARRAP STATE, REPUBLIC OF SOUTH SUDAN

WORLD VISION SOUTH SUDAN

In partnership with the Ministry of Health

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Alfonso Rosales, on behalf of the KPC survey team

LIST OF ACRONYMS

ACT	artemesinin combination therapy
AMTSL	active management of the third stage of labor
ARI	acute respiratory illness
BCG	Bacille Calmette Guerin
CATCH	Core Assessment Tool on Child Health
CCM	community case management
CDD	control of diarrheal disease
CHW	community health worker
CL	confidence limits
CSTS	child survival technical support
DPT	diphtheria, pertussis, tetanus
EmONC	emergency obstetric and neonatal care
EOP	end of project
EPI	Expanded Program on Immunization
HHP	home health promoter
IPTp	intermittent preventive treatment in pregnancy
KPC	knowledge, practices and coverage
LLIN	long lasting insecticide treated net
MaCHT	Maternal and Child Health Transformation (Project)
MLG	mother leader group
MNC	maternal and neonatal care
MOH	Ministry of Health
OPV	oral polio vaccine
ORS	oral rehydration solution
PHCC	primary health care center
PHCU	primary health care unit
PI	Performance Index
POU	point of use
SHHS	Sudan Household Health Survey
TBA	traditional birth attendant
TT	tetanus toxoid
UNICEF	United Nations Children’s Fund
USAID	United States Agency for International Development
WHO	World Health Organization
WV	World Vision

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EXECUTIVE SUMMARY

Project Location: The Maternal and Child Health Transformation (MaCHT) Project, funded by USAID and implemented by World Vision South Sudan, is located in Gogrial East and Gogrial West counties of Warrap state in South Sudan's Bahr el Ghazal region. The project reaches 133,045 people living in four *payams* in these two counties.

Project Goals and Objectives: The goal of the MaCHT project is to reduce maternal, neonatal, infant and child mortality in Gogrial East and West counties. Strategic objectives are to: 1. Increase use of high impact low cost and feasible interventions for better maternal, neonatal, infant and child health outcomes, 2. Strengthen capacity of the health system to deliver essential health services and, 3. Build and strengthen local and national partnerships to sustain improvements in maternal, neonatal, infant and child health. Technical interventions Maternal, Newborn Care (MNC) (30%), malaria (20%), pneumonia (20%), Control of Diarrheal Disease (CDD) (20%) and immunization (10%) were chosen based on an analysis of the epidemiological situation.

Objectives of the Survey: The objective of this survey is to document the endline levels of knowledge and practices of mothers of young children, and the coverage of certain health services, compared to baseline levels.

Methods: A two-stage cluster sampling design was used. Total sample included was of 510 through a 30x17 two stage cluster sampling (30 clusters and 17 HHs per cluster) methodology.

Results:

Maternal and Newborn care: Antenatal coverage and related preventive components such as iron supplementation and TT vaccination significantly increased. Lower but significant positive change was observed on skill birth attendance coverage and components of active management of the third stage of labor. Moderate and significant change was observed in the coverage of newborns with essential care components.

Children under 5 health care: Significant and large impact was observed in the prevention and treatment of malaria, treatment of diarrhea, and treatment of acute respiratory infection cases. Treatment of water point-of-use as a preventative action for diarrhea showed a large impact, whereas hand-washing showed a non-significant low change.

Immunizations and Vitamin A: Ownership of vaccination cards increased, nonetheless, all biologicals coverage (measles/DPT) decreased substantially over the life of the project. Vitamin A coverage increased significantly.

Conclusion: Overall this evaluation measured 26 variables. Eleven of these variables (42 percent) showed positive changes of 20 or more percent points; two (8 percent) showed positive changes between 10 and 19 percent points; and seven (27 percent) showed positive changes of less than 10 percent points. Only 6 variables (23 percent) did not show positive changes (no change or negative change). Results provide evidence of the positive impact on health coverage and status in the population of pregnant women and children under five years of age by delivering essential health services through community structures.

I. BACKGROUND

The objectives of this KPC Survey were to document the endline levels of knowledge and practices of mothers of young children, and the coverage of certain health services in the project area, with reference to maternal and child health – at the start of the project.

The South Sudan Maternal and Child Health Transformation (MaCHT) project was designed to improved health coverage of high-impact evidenced-based interventions amongst the population of children under five residing in Gogrial East and Gogrial West districts of Warrap State in South Sudan. Following a protracted war for independence, health indicators for South Sudan are alarming, especially for women, children and other vulnerable populations. In addition to having the worst reported maternal mortality rate in the world, numbers may be even more sobering than thought given that the majority of women give birth with no skilled support and away from health facilities¹. The under-five mortality rate stands at 121 (per 1,000 live births)² with children bearing the greatest burden of a population where more than 50% live below the poverty line. In December 2012, South Sudan was added to the list of Least Developed Countries by the United Nations³ and has one of the lowest Human

Development Index scores at 0.379.⁴ Health service delivery is a daunting task mired by chronic health staff shortages, poorly equipped health facilities and inclement weather (long period of flooding) that constrains health-seeking behavior for months at a time. MaCHT, which began in September 2010, was a 4-year project funded by the United States Agency for International Development (USAID). The project aimed to reduce maternal, neonatal, infant, and child mortality through achievement of three main strategic objectives. Increased use at household and community level of high-impact and low-cost interventions would be achieved through improved knowledge, quality of health services, and improved access among users. Strengthened capacity of district health teams to deliver essential health services would be achieved through improved staff capacity, improved infrastructures, and an enabling policy environment. Finally, the sustainability of changes in health would be achieved through empowered community structures and leadership, organizational capacity of civil society, and positioning of a health agenda at county and state level.

Table 1

Beneficiary Pop.	Gogrial East	Gogrial West	Total
# Payams	2	3	5
# Bomas	7	8	15
Total Population	80,454	52, 591	133,04
Infants 0 – 11 m	2,103	3,218	5,321
Children 12 – 23 m	2,103	3,218	5,321
Children 0 – 59 m	10,519	16,091	26,610
Women 15-49 yrs.	10,519	16,091	26,610

MaCHT was implemented by a partnership of World Vision US, World Vision South Sudan, and the South Sudan Ministry of Health (MOH) at national, state (Warrap), and district (Gogrial East and Gogrial West) levels. World Vision US as the recipient agency responsible for the overall management of the program and technical support. World Vision South Sudan, was primarily responsible for the on-the-

¹ Women's Security in South Sudan: Threats in the Home, 2012, Small Arms Survey

² State of the World's Children, 2013, UNICEF

³ United Nations Conference on Trade and Development, <http://unctad.org/en/pages/newsdetails.aspx?OriginalVersionID=382>

⁴ 2013 Human Development Report, UNDP

ground implementation of project implementation. MoH district and state levels were responsible for service provision at the primary level, and strengthening linkages with community structures. The MoH central level was responsible for overseeing and coordination of project activities. World Vision US provided support to overall monitoring and evaluation functions within the project.

The target population of MaCTH was over 26,000 children under five and women of reproductive age living in Gogrial East and Gogrial West districts of Warrap State. See Table I.

The levels of intervention are:

At the primary healthcare facility and provider level: MaCTH builds and instituted local capacity to improve quality of health services with special focus on most prevalent disease among children under five (diarrhea, pneumonia, and malaria) as well as identification and referral of obstetric emergencies. Specific activities included midwifery training, Primary Health Care Unit (PHCU) staff training, and supply chain improvement.

At the community level: MaCTH empowered communities to align with the national community health strategy, which integrated to the health system the utilization of community structures (home health providers) for the delivery of essential health services to the population of children under 5 years of age. Specific activities included training community health workers (HHPs) on home-based lifesaving skills and integrated Community Case Management (iCCM).

At the household level: MaCTH promotes healthy behaviors and improved health outcomes.

To ensure documentation of project strategy and its impact, as well as to identify lessons learned, MaCTH developed a performance management plan. Included in this plan is the implementation of baseline and endline measurement of a set of indicators to be used during the overall evaluation of the project. This report, *Endline Knowledge, Practice and Coverage (KPC) survey*, presents data for Gogrial East and West districts.

2. METHODS

Study Population and Procedure: The MaCHT project activity implementation ended by the end of September 2014. As part of the project final evaluation and also the ongoing Operations Research, a household survey was conducted in Gogrial West and Gogrial East counties of the Warrap state where the project has been operational. This report summarizes the sampling and data collection process.

2.1 SAMPLING AND SAMPLE SIZE

We utilized a two-stage cluster sampling design. Total sample included was of 510 through a 30x17 two stage cluster sampling (30 clusters and 17 HHs per cluster) methodology. Villages were considered as clusters and 15 villages were selected using systematic random sampling from each county. As it was rainy season, some villages were inaccessible. Thus such villages were excluded from the sampling frame during the sampling process. (Sampling frame is attached at the end of this document)

Table 2: Number of villages per county

Villages	Gogrial East County	Gogrial West County	Total
Total # of villages	117	78	195
# of inaccessible villages	19	26	46
# of villages in the sampling frame	98	52	150
# of clusters (villages) selected	15	15	30

2.2 SURVEY QUESTIONNAIRE

The survey questionnaire was developed from the appropriate modules of KPC 2000+ of the Child Survival Technical Support (CSTS) Project and from the Rapid CATCH questionnaire, and covered indicators pertaining the MaCHT's intervention areas as well as additional indicators related to Rapid CATCH and those of interest. During the project starting process, the technical team decided to execute two baseline surveys. One survey focused on project-specific variables and another focused on operational research variables. The survey questionnaire during baseline included 66 variables (questions) focused on project-specific indicators, whereas the OR questionnaire included 56 variables. For the Endline population survey, the technical team decided to merge both questionnaires into one. Thus, endline questionnaire included a total of 82 questions. (See table 3)

Table 3: Number of questions by purpose

OR Only	KPC Only	Both OR and KPC*	Total
16	26	40	82

* One question (Q41) is additional question for both KPC and OR.

It was designed in English, translated to Dinka and pre-tested for clarity and comprehension by the local community and then back translated to English. The MaCHT project staff as well as WV US (HQ) staff and

the Survey trainer were involved in drafting and refining the questionnaire. In its final version, the questionnaire retained the English version of each question, as English is commonly spoken and understood in the target population.

2.3 DATA COLLECTION

The data collection was conducted during August, 2014 in the two counties. Eight enumerators and four supervisors were trained and deployed to do the data collection in each county. Data collection management and follow-up was in place during field activities to minimize errors during data collection. Questionnaires were checked for completeness and consistency in the identification section when they arrived at the place of data entry. Any inconsistencies on any questionnaire observed during data entry were recorded on format and the feedback was given to the concerned enumerator and supervisor on daily basis. Lessons applicable to all enumerators were also shared to them before they left for field.

Within each selected cluster, households and respondents (mothers of children aged 0-23 months) were randomly selected and only one respondent was selected from a household, to avoid overrepresentation.

2.4 DATA ENTRY AND ANALYSIS

The data entry template was designed on Microsoft Excel based on the questionnaire used for the survey. Data entry for Gogrial West county was conducted at the Warrap WV Zonal Office mainly with two Data Encoders recruited for this purpose. Two other Data Encoders entered Data for four clusters in Gogrial East County (Luonyaker) WVSS Office. Due to time limit, the remaining eleven clusters' data was done by one of the project staff for that county.

Data Analysis: All collected data were coded and entered into Excel. Data were checked for inaccuracies and inconsistencies, and then entered into SPSS Statistical Analysis software. Data analysis was conducted in two steps. The first step consisted of the production of descriptive statistics for each variable included in the survey. The second included the calculation of p values, confidence intervals, and odds ratios.

3. RESULTS

Results from this endline KPC survey, conducted in August 2014, are described in the following sections and are compared with the baseline results gathered in February 2011. Where applicable, the results are also compared to the baseline operations research survey results from February 2012.

Indicator	Activities	Baseline Value	Endline Value	P Value
SO 1: Increase use of high-impact low-cost and feasible interventions for better maternal, neonatal, and child health outcomes				
Maternal and Newborn Care				
Antenatal Visits: Percentage of mothers of children age 0-23 months who report having had four or more antenatal visits when pregnant with their youngest child	<ul style="list-style-type: none"> Mobilize providers and communities for outreach sessions for ANC, PNC and immunization Conduct PHCU/C assessment for needed materials, equipment for delivery, early newborn care 	12% (37/298)	29% (146/510)	0.000001
Tetanus Vaccination: Percentage of mothers with children age 0-23 months who received at least two tetanus toxoid vaccinations before the birth of their youngest child	<ul style="list-style-type: none"> Train providers at PHCU/C in assessment and diagnosis skills of pregnant women and newborns, and management and in basic elements of emergency obstetric and newborn care 	26% (76/298)	64% (324/510)	<0.0000000000
Iron Supplements: Percentage of mothers of children aged 0-23 months who received/bought iron supplements while pregnant with their youngest child	<ul style="list-style-type: none"> HHPs trained on MNCH, TTC and HBLSS TBAs trained on Birth preparedness and HBLSS 	30% (90/298)	61% (312/509)	<0.0000000000
Knowledge of Danger Signs during Pregnancy: Percentage of mothers of children age 0-23 months who know at least 2 known danger signs during pregnancy that indicate need for treatment	<ul style="list-style-type: none"> MLGs trained on ANC, PPC, newborn care and IYCF and as advocates for key maternal/newborn messages and practices 	80% (235/298)	75% (383/510)	
Skilled Birth Attendance: Percentage of children age 0-23 months whose births were attended by skilled personnel (doctor, nurse, midwife, other with midwifery skills)	<ul style="list-style-type: none"> BOMA Centers developed as Learning Centers for MNC messages and practices Support households and communities in the development of emergency preparedness plans for pregnant women and newborns 	12% (35/298)	17% (86/510)	0.04
Active Management of Third Stage of Labor: Percentage of mothers of children age 0-23 months who received AMTSL after the birth of their youngest child	<ul style="list-style-type: none"> HHPs provide ANC, PNC, HTSP at HH level through TTC 	6% (17/298)	11% (58/510)	0.007
Knowledge of Post-Partum Danger Signs: Percentage of mothers of children age 0-23 months who know at least two known danger signs during the post-partum period	<ul style="list-style-type: none"> GEWA organize women members to support MNCH practices Support distribution safe delivery kits, LLIN and condoms during outreach services and health facility 	94% (279/298)	73% (372/510)	
Knowledge of Neonatal Danger Signs: Percentage of mothers of children age 0-23 months who know at least two known danger signs in the newborn	<ul style="list-style-type: none"> Sensitization with spouse/male on ANC Advocate for improved PMTCT, HTSP/Family Planning services 	81% (240/298)	77% (393/510)	
Essential Newborn Care: Percentage of children age 0-23 who	<ul style="list-style-type: none"> Work with HFMC and CHD on 	26% (77/298)	17% (85/510)	

received all three elements of essential newborn care: thermal protection immediately after birth, clean cord care, and immediate and exclusive breastfeeding.	building transport systems for transporting pregnant women to access skilled care for delivery			
Prophylactic Eye Care: Percentage of mothers of children age 0-23 months who report appropriate preventive eye care for their youngest child within one hour of birth	<ul style="list-style-type: none"> • Train mother leaders as advocates, counselors and peer supporters for key maternal newborn messages and practices • Advocacy for improved MNCH services through SMOH • Mobilize HFMCs to establish pilot Maternal Waiting homes 	8% (24/298)	15% (75/510)	
Post-Natal Check: Percentage of children age 0-23 who received a post-natal visit from an appropriate trained health worker within two days after the birth of the youngest child	<ul style="list-style-type: none"> • Empower and train TBAs to support HHPs to support MNC behavior change activities • Target and train Men, community leaders, chief, faith leaders on MNC messages and practices 	15% (44/298)	15% (78/510)	
Contraceptive Use: Percentage of mothers of children age 0-23 months who are using a modern contraceptive method	<ul style="list-style-type: none"> • Engage community/church leaders to facilitate mobilization of MLG – Bomas (PD mother) • Community dialogue through MLGs and BLDC on MNCH issues 	0.3% (1/298)	0% (0/510)	
Malaria Prevention and Treatment				
Treatment of Fever in Malarious Zones: Percentage of children age 0-23 months with a febrile episode during the last two weeks who were treated with an effective anti-malarial drug within 24 hours (same or next day) after the fever began	<ul style="list-style-type: none"> • In partnership with Global Fund/PSI, assess level of LLIN coverage, procurement and distribution of LLINs • Training and mobilization of CHWs, HHPs, women's groups in Household hang up and BCC activities 	5% (9/187)	30% (120/406)	<0.000000000
Care Seeking for fever in Malarious Zones: Percentage of children age 0-23 months with a febrile episode during the last two weeks who were taken to a qualified health provider (hospital, health center, health post, NGO/PVO clinic, or other health facility) as a first visit or a second visit (after visiting a non-qualified individual such a family member or traditional healer)	<ul style="list-style-type: none"> • Outreach sessions, community mobilization/education and counseling at household for IPTp • BOMA demonstration areas on malaria prevention/cleaning and environment • Train HHPs/CHWs in CCM for uncomplicated and facilitated referral. 	30% (56/187)	52% (212/406)	0.000001
IPTp: Percentage of mothers of children age 0-23 months who took two doses of SP/Fansidar to prevent malaria when pregnant with their youngest child	<ul style="list-style-type: none"> • Support PHCUs on CCM supplies (including ACT) • HHPs and MLGs educate care givers on need for prompt referral and treatment for fever (within 24 hours) 	12% (36/298)	52% (264/510)	<0.000000000
Bed net usage in pregnancy: Percentage of mothers of children age 0-23 months who report having slept under a bed net all or most of the time during their past pregnancy	<ul style="list-style-type: none"> • Collaborate with the National Malaria Control Program office, CCM and RBM Partnership 	33% (99/298)	40% (205/510)	0.000005
Child Bed net Usage: Percentage of children age 0-23 months who slept under an insecticide-treated bed net (in malaria risk areas, where bed net use is effective) the previous night.		50% (148/298)	57% (288/510)	0.06
ITN Ownership: Percentage of mothers of children age 0-23		25% (74/298)	62% (315/507)	<0.000000000

months who report possession of at least one insecticide treated bed net				
ARI				
Appropriate Care Seeking for ARI: Percentage of children age 0-23 months with chest-related cough and fast and/ or difficult breathing in the last two weeks who were taken to an appropriate health provider (hospital, health center, health post, NGO/PVO clinic, or other health facility)	<ul style="list-style-type: none"> HHP trained in CCM, including treatment and referral, for uncomplicated pneumonia Household counseling and community education on timely recognition and treatment from HHP HHP/MLGs to mobilize and encourage household to seek timely treatment for ARIs Supplies and equipment for CCM e.g. stop watches) 	37% (43/115)	64% (170/265)	0.000002
Diarrhea, Water, and Sanitation				
ORT use: Percentage of children age 0-23 months with diarrhea in the last two weeks who received oral rehydration solution (ORS) and/or recommended home fluids.	<ul style="list-style-type: none"> HHPs assess and promote hand washing, POU water treatment, hygiene and sanitation at home and village levels Boma demonstrations on household sanitation and hygiene including pit latrine Promote Safe Food preparation, ORS Promote PHCU and PHCC community ORS corners MLGs promotion of breastfeeding during illness for infants with diarrhea, and additional fluids for children over 6 months 	25% (31/124)	74% (172/234)	<0.0000000000
Point of Use (POU): Percentage of households of children age 0-23 months that treat water in any way		8% (23/298)	46% (233/510)	<0.0000000000
Appropriate Hand washing Practices: Percentage of mothers of children age 0-23 months who live in households with soap or detergent at the place for hand washing		12% (36/298)	16% (82/510)	0.12
Vaccinations and Vitamin A				
Measles Vaccination: Percentage of children age 12-23 months who received a measles vaccination	<ul style="list-style-type: none"> Partner with other INGOs/partners who have resources for immunization Train PHCU staff as EPI managers using WHO/AFRO mid-level manager training modules Support routine & outreach programs for EPI Advocate and Participate in State and County health departments on microplans for EPI Mobilize HFMCs, communities and HHPs for NIDs HHP Village and Household registers track immunization of children and community Train HHPs on EPI Monitoring and Surveillance 	39% (54/140)	22% (113/510)	
DTP1 Vaccination: Percentage of children aged 12-23 months who received DTP1 according to the vaccination card or mother's recall by the time of the survey		46% (64/140)	20% (104/510)	
DTP3 Vaccination: Percentage of children aged 12-23 months who received DTP3 according to the vaccination card or mother's recall by the time of the survey		2% (3/140)	3% (14/510)	
Vitamin A: Percentage of children age 6-23 months who received a dose of Vitamin A card verified (received any time before the survey) or mother's recall(received in the past six months)		25% (52/208)	53% (205/387)	<0.0000000000

4. DISCUSSION

4.1 RESPONDENT BACKGROUND CHARACTERISTICS

Age and Sex Distribution of Children: Male and female children made up 55% and 45% of the survey sample, respectively, compared with 50% each at baseline. Of all children, 54% were 0-11 months of age, 44% were 12-23 months, and 2% were 24 months old or older. At baseline, 53% of children were 0-11 months old and 47% were 12-23 months old.

Mothers' Characteristics: The mean age of mothers sampled at endline and baseline was 28 years, with the youngest being 16 years old and the oldest being 45 years old. Eight percent of mothers reported having never attended school, compared to 18.5% at baseline, and 90% of children had their biological father living in the same household, compared to 72% at baseline.

4.2 MATERNAL CARE

Nearly a third of mothers surveyed (29%) reported having the recommended four or more antenatal checks while pregnant with their youngest child, compared with only 12% at baseline. Antenatal care was received from qualified providers 60% of the time at endline and 92% of the time at baseline, due to an increase in use of community care providers. At least two tetanus toxoid vaccinations were received before the birth of their youngest child by 64% of mothers surveyed, a significant increase from 26% at baseline. Iron supplements were received or purchased by 61% of mothers, compared to only 30% at baseline. Seventy-five percent of mothers were able to indicate at least two danger signs during pregnancy that indicate need for treatment, a non-significant change from 79% at baseline.

Skilled Birth Attendants: Skilled personnel (doctor, nurse, midwife, or other medical staff with midwifery training) attended 17% of births reported in the endline survey; 12% were reported at baseline.

Active Management of Third Stage of Labor: Active management of third stage of labor involves three components: an injection to prevent excess bleeding, the birth attendant placing pressure on the mother's abdomen while pulling on the umbilical cord, and massage of the abdomen following delivery of the placenta. At endline 11% of mothers reported having received all three of these components, compared to 6% at baseline.

Knowledge of danger signs during pregnancy and post-partum: The percentage of mothers surveyed at endline who were able to name at least two post-partum danger signs that would require them to seek immediate medical attention was 73%, compared to 32% at baseline.

Contraception: Use of modern contraceptive methods were not reported by any mothers surveyed at baseline, while 87% reported using abstinence to avoid additional pregnancies. At baseline, one mother (0.3% of the sample) reported using a modern contraceptive method.

4.3 NEWBORN CARE

Knowledge of neonatal danger signs: The percentage of mothers surveyed at endline who were able to name at least two neonatal danger signs was 77%, compared to 81% at baseline. As the target communities have high maternal and neonatal mortality rates, it is likely that the high level of knowledge of danger signs is experiential.

Essential Newborn Care: The three elements of essential newborn care are: thermal protection immediately after birth (immediately wiping and wrapping), clean cord care (cord cut with a sterile instrument and application of antiseptic), and immediate and exclusive breastfeeding initiated within one

hour after birth. All elements were reported to have been received by 17% of mothers during the endline survey and 0.7% of mothers during the baseline survey. Delaying the newborn's first bath until at least six hours after birth is also considered part of essential newborn care. However, newborn bathing was not addressed in the baseline KPC survey and therefore was excluded from the analysis for endline as well. Including delayed bath in the essential newborn care indicator in the baseline results reduces the percentage of newborns receiving all elements to 5%.

Prophylactic Eye Care: At endline, eye drops were administered to 15% of newborns within one hour of birth, compared to 8% at baseline.

Post-Natal Check: Post-natal checks by a trained health worker were received within two days of birth by 15% of newborns reported during both the baseline and endline surveys.

4.4 MALARIA

4.4a Prevention

Prevention of Malaria in Pregnancy: Of mothers surveyed at endline, 52% reported taking at least two doses of SP/Fansidar while pregnant with their youngest child, compared to 12% at baseline, a 333% increase. Forty percent of mothers at endline reported sleeping under a bed net all or most of the time during their past pregnancy, compared to 33% at baseline.

Bednet usage and Ownership: Ownership of at least one insecticide-treated bed net was reported by 62% of mothers included in the endline survey, a significant increase from the 25% reported at baseline. Fifty-seven percent of children were reported to have slept under a bed net the previous night, compared to 50% at baseline.

4.4b Treatment

Treatment of Fever in Malarious Zones: At endline, 406 children (80%) were reported to have had a febrile episode during the last two weeks. Thirty percent of them were treated with an effective anti-malarial drug. At baseline, 187 children (63%) were reported as having experienced fever in the last two weeks and 5% of them received effective anti-malarial medication.

Care Seeking for Fever in Malarious Zones: At endline, 52% of children who experienced fever within two weeks of the survey were taken to a qualified health provider as either a first or second visit. This is an increase from 30% at baseline.

4.5 RESPIRATORY ILLNESSES

At endline, 265 children (52%) were reported to have experienced a chest-related cough and/or difficult breathing in the two weeks prior to the survey. Sixty-four percent of them were taken to an appropriate health provider for care, compared to only 37% at baseline. Fifty-two percent were taken for care within two days of onset of symptoms, compared to only 19% at baseline, a 174% increase.

4.6 DIARRHEAL ILLNESS

4.6a Prevention

Treating drinking water in any way was reported by 46% of households surveyed at endline, compared to 8% of households at baseline.

Soap or detergent was present at the place for hand washing in 16% of households at endline, compared to 12% of households included in the baseline survey.

4.6b Treatment

At endline, 234 children (56%) were reported to have experienced diarrhea in the two weeks prior to the survey, 74% of whom received oral rehydration solution (ORS) and/or recommended home fluids. At baseline, 24% of the 124 children (42%) who had diarrhea received ORS.

4.7 IMMUNIZATIONS AND VITAMIN A SUPPLEMENTATION

Measles vaccinations were reported in 22% and 39% of children age 12-23 months for endline and baseline, respectively, reflecting a 77% decrease. DPT1 vaccinations were reported in 20% and 46% of children age 12-23 months for endline and baseline, respectively, a 130% decrease. DPT3 vaccinations were reported in 3% and 2% of children age 12-23 months for endline and baseline, respectively. Vaccination cards were owned for 38% of children at endline compared to 13% at baseline, but data record from these cards was incomplete. Using data from the cards or from mother's recall, 24% of children ages 12-23 months had at least one BCG, OPV, DPT, and measles vaccine at endline, compared to 12% at baseline, but few had the complete series of all vaccines. These findings reflect the impact on the government health system that the prevalent political crisis has had on basic services all throughout South Sudan. Likewise, reinforces, when compared to the delivery of essential health services through community structures, the value and importance of supporting community based interventions in complex emergencies and/or fragile state circumstances.

Vitamin A supplementation was reported in 53% of children during the endline survey, a significant increase from the 25% reported during the baseline survey.

5. CONCLUSION, LESSONS, AND LIMITATIONS

5.1 CONCLUSION

Overall this evaluation measured 26 variables. Eleven of this variables (42 percent) showed positive change of 20 or more percent points; two (8 percent) showed positive change between 10 and 19 percent points; and seven (27 percent) showed positive change of less than 10 percent points. Only 6 variables (23 percent) did not show positive change (no change or negative change). The highest impact was observed in the areas of antenatal care, malaria prevention and treatment, Diarrhea and pneumonia treatment, as well as essential newborn care coverage; which correlates with 90 percent of allocated efforts and funds. Conversely, immunization coverage showed the highest negative change over the course of project implementation. Results provide evidence of the positive impact on health coverage and status in the population of pregnant women and children under five years of age by delivering essential health services through community structures. Likewise, provides evidence on the potential positive effect of delivering essential newborn care to decrease newborn mortality in high risk settings of fragile states such as South Sudan.

5.2 LESSONS

The following lessons were drawn from the process and they are believed to improve quality of a survey if considered in future surveys.

- Appropriate timing (season) should be taken into consideration to avoid challenges related to weather conditions

- Questionnaires should be as brief and as focused as possible to minimize respondent/enumerator fatigue. If the questionnaire needs to be long, then it requires highly skilled enumerators.
- Data entry template for such long questionnaire should be designed using appropriate data entry software packages for quality and efficiency of data entry work.

5.3 LIMITATIONS

Logistics: The distance to some villages combined with difficult, muddy roads during the rainy season at times resulted in it getting dark before the enumerators finished surveying in those places. There were logistical challenges especially with regards to vehicles, which saw one vehicle being allocated to Gogrial West County while one had to be hired for Gogrial East County.

Sampling: The sample size used for this survey is not the same as the one used for KPC during baseline. The representativeness of the sample is to some extent questionable as many villages were excluded due to limited accessibility. It requires some background information regarding the homogeneity (or lack thereof) of the villages in the area to conclude to what extent the sample could be representative.

Survey: Small differences in question wording existed between the baseline and endline KPC surveys that may have compromised comparability. Additional questions were included in the endline survey that were not included in the baseline survey, resulting in no baseline for comparison. The questionnaire was perceived as too long by some respondents, who lost their patience and complained about it.

Entry and analysis: Data entry was conducted using Excel. As the template was in tabular format with more than 250 columns long, the data entry speed was very slow and the possibility of compromising data quality is relatively higher. Inconsistencies in the format of dates entries may have resulted in some dates being interpreted incorrectly. Some dates of birth, in addition, were entered as 2014 for months that had not yet occurred. These were presumed to have been meant as 2013 and were reentered as such.

APPENDIX I. ADDITIONAL INDICATORS

Indicator	Baseline KPC n=298	Endline KPC n=510
Background and Respondent Characteristics		
1a. Percentage boys in the sample	50% (148/298)	55% (278/510)
1b. Percentage girls in the sample	50% (150/298)	45% (232/510)
2a. Percentage children aged 0-11 months	53% (158/298)	54% (278/510)
2b. Percentage children aged 12-23 months	47% (140/298)	44% (222/510)
2c. Percentage children aged 24≤ months	0% (0/298)	2% (10/510)
3. Mean age of mothers of children age 0-23 months	28 years	28 years
4. Percentage of mothers of children age 0-23 months who have ever attended school	18.5% (55/298)	8% (41/510)
6. Percentage of children age 0-23 months whose biological father lives with the child	72% (214/298)	90% (457/510)
Maternal and Newborn Care		
7. Percentage of mothers of children age 0-23 months who received antenatal care from qualified providers	92% (146/158)	60% (305/510)
Reported Episodes of Illness		
8. Percentage of mothers of children age 0-23 months who reported an episode of diarrhea in their youngest child within the 2 weeks preceding the survey	42% (124/298)	56% (234/510)
9. Percentage of mothers of children age 0-23 months who reported an episode of fever in their youngest child within the 2 weeks preceding the survey	63% (187/298)	80% (406/510)
10. Percentage of mothers of children age 0-23 months who reported an episode of cough and fast/difficult breathing in their youngest child within the 2 weeks preceding the survey	39% (115/298)	52% (265/510)
Immunization		

Indicator	Baseline KPC n=298	Endline KPC n=510
11. Possession of vaccination card for children age 0-23 months	13% (40/298)	38% (194/510)
12. DPT1 to DPT3 dropout rate	73%	87% (90/104)
13. Immunization coverage based on vaccination card: Percentage of children age 12-23 months who have received BCG, DPT3, and measles based on vaccination card any time before the survey	8% (3/40)	24% (56/232)
14. All Essential Vaccines: Percentage of children aged 12-23 months who received at least one BCG, OPV3, DPT3 and measles vaccines according to the vaccination card or mother's recall by the time of the survey	12% (17/140)	24% (55/232)
CCM: Care Seeking		
15. Percentage of children age 0-23 months with chest-related cough and fast and/ or difficult breathing in the last two weeks who were taken for care within 2 days of onset of symptoms	19% (22/115)	52% (137/265)

Table 1. CHW Trainings

Project Area (Name of District or Community)	Type of CHW	Official Government CHW or Grantee-Developed Cadre	Paid or Volunteer	Number of People Trained Over Life of Project		Focus of Training
				Male	Female	
Gogrial East and West Counties	HHPs, TBAs, nurses	Government	Volunteer	Total 114		HBLSS for Maternal/Newborn and EmOc)
Gogrial East and West Counties	HHPs, CHWs	Government	Volunteer	Total 85		Timed targeted counseling (TTC)
Gogrial East and West Counties	HHPs, CHWs, nurses	Government	Volunteer	Total 95		Community case management/c-IMCI: Malaria, ARI, DD
Gogrial East and West Counties	HHPs, CHWs	Government	Volunteer	Total 85		Orientation and Training of the project, MNCH key messages; identifying and developing positive deviants and BCC, social mobilization in health, community mapping.

Table 2. Other Health Trainings

	Group(s) Trained	Focus of Training	Facilitator	Days per Training	Trainees per Session	Number Trained Per Year				Number Trained Over Life of Project
						Yr 1.	Yr 2.	Yr 3.	Yr 4.	
1	WVSS, GoSS, Training institute	Integrated Training of Trainers (TTC, HBLSS)	WV	10 days	12	12	12	0	0	24
2	WVSS, GoSS, Training institute	Integrated Training of Trainers (CCM)	WV	5 days	12	12	12	0	0	24
3	Mother Leaders	Training of the project, MNCH key messages; identifying and developing positive deviants and BCC, social mobilization in health, community mapping,	WVSS	5days	50	150	0	0	0	150
4	Mother Leaders+ Community	Orientation and Training of the project, MNCH key messages; identifying and developing positive deviants and BCC, social mobilization in health, community mapping,	WVSS	3days	50	50	50	50	0	150
5	Community Midwives school	Midwifery training	MOH/ AMREF	18 months	10	0	10	0	0	10
6	HFMC	Sensitization and orientation of the project, awareness of key MNCH messages, Sensitization on Operations Research study, Provider roles, strengthening referrals, monitoring and evaluation, improving access and health facility services, advocacy	WVSS	3 days	130	130	0	0	0	130
7	HFMC	Management and coordination of MCHN technical interventions, PHC Oversight and supervisory skills; Monitoring skills: baseline, health facility surveys, and in Operations Research	WVSS	3 days	130	130	130 (refresh)	130 (refresh)	130 refresh	130
8	Local NGOs	Strengthening Organizational Capacity	WVSS	3 days	25	25	25	25	0	75
9	PHCU/PHCC, CHD, Facility teams.	HMIS; Monitoring and Evaluation, Data Management, Registers, tools, data analysis.	WVSS	5 day	25	25	0	25 refresh	0	25

MaCHT South Sudan Final Evaluation | Annex VI: CHW Training Matrix

	Group(s) Trained	Focus of Training	Facilitator	Days per Training	Trainees per Session	Number Trained Per Year				Number Trained Over Life of Project
10	PHCU/PHCC. Cold Chain Management: CHD, PHC managers	Forecasting, requisitioning, logistics management: drug procurement, storage, and distribution	WVSS	3 days	10	10	0	0	0	10
11	PHCC. EPI vaccinators, supervisors.	EPI; TOT. Universal precautions, cold chain management	WVSS	5 days	37	37	0	37(refresher)	0	37
12	Council of Traditional Authority Leaders and Boma leadership	Sensitization and orientation to project Operations Research	WVSS	1 day	50	50	50	0	0	100
13	County. CHD	County Health Management – PHC oversight, working with HFMCs, strategic planning	WVSS	1 day	10	10	10	10	10	40

Terms of Reference for
Final Evaluator External Consultant for the
Maternal and Child Health Transformation Project
in Warrap State, South Sudan

June - July 2014

I. Introduction

World Vision will hire an independent consultant to conduct a final performance evaluation (FE) for the Maternal and Child Health Transformation project funded by USAID's Child Survival and Health Grants Program (CSHGP) (AID-OAA-A-10-003, October 1st 2010 – September 30th 2014) in Gogrial East and West Counties, Warrap State. USAID's CSHGP supports community-oriented projects implemented by U.S. private voluntary organizations (PVOs) and nongovernmental organizations (NGOs) and their local partners. The purpose of this program is to contribute to sustained improvements in child survival and health outcomes by supporting the innovations of PVOs/NGOs and their in-country partners in reaching vulnerable populations. This document describes the Final Evaluator's SOW for the Maternal and Child Health Transformation Project FE in Warrap State, South Sudan.

II. Background

World Vision (WV) is a Christian humanitarian organization dedicated to working with children, families, and their communities worldwide to reach their full potential by tackling the causes of poverty and injustice globally since 1950. World Vision started working in Sudan since 1972 in Northern Sudan followed by Southern Sudan in 1989 and is working to improve children's lives through child-focused development. WVSS works with communities and children through a range of programs that promote change and improve their well-being.

World Vision is implementing a USAID funded four-year grant: the Maternal and Child Health Transformation (MaCHT) project in Gogrial East and West Counties of Warrap State, reaching a total population of 133,045, of which an estimated 26,610 are children under five years of age and 26,610 are women of reproductive age. Warrap is located in the Northern Bahr el Ghazal region, a geographic focus area for USAID.

The project goal is to reduce maternal, neonatal, infant and child mortality in Gogrial East and West counties.

The strategic objectives are to:

1. Increase use of high impact low cost and feasible interventions for better maternal, neonatal, infant and child health outcomes;
2. Strengthen capacity of the health system to deliver essential health services; and
3. Build and strengthen local and national partnerships to sustain improvements in maternal, neonatal, infant and child health. The technical interventions involved in the project are Maternal, Newborn Care (MNC) (30%), malaria (20%), pneumonia (20%), Control of Diarrheal Disease (CDD) (20%) and immunization (10%).

III. Project Population

Beneficiaries*	Total	
Total Population	132,551	
Total Neonates	5,302	
Infants aged 0-11 Months	5,302	
Children aged <5 years	26,510	
Woman of Reproductive Age (15-49 years)	33,138	
Total Beneficiaries	58,322	
Expected Pregnancies	5,302	
Community Health Workers of Volunteers (CHWs), Disaggregated by Sex	100 (All females)	
Health Facilities (Hospital to Sub Health Post)	10	7*
Community-Based Structures (e.g. Village Development Committees [VDCs])	Health Facility Management committees-8 committees. Gogrial East Women Association (#1) Mother Leaders group (#1)	

Source: MaCTH health information system * additional health facilities with ad-hoc interaction/support

IV. Partners

National Ministry of Health –Republic of South Sudan. The MOH is the core partner as overseer of the country’s health services and systems that WVSS, through the MaCHT, Project works with to implement the project. They also provide policies and guidelines for health services implementation at national level.

Warrap State MOH. The project coordinates activity implementation with the state; they oversee health policy and activities implementation at the state level. State MoH conduct state level coordination of all implementing partners and the county health department.

County Health Departments (Gogrial East & West counties). They oversee the delivery of primary health care services. They are the primary service delivery partner of the project.

Village and Boma Health Management Committee. These were the key links between the communities, health facilities, and the project. Their roles are related to key mobilization, feedback mechanisms between the project and the beneficiaries. These committees include village, Payam and Boma leaders.

Gogrial East Women Association based in Gogrial East County. This is a local group of organized women who have an MOU with the WVSS-MaCHT Project to mobilize community members, especially women of reproductive age, their under-fives and males, on maternal, newborn and child health activities, and early seeking of health care for better health. They also mobilize the communities on hygiene promotion activities.

V. Key Activities

These are mainly in five specific areas with apportioned level of efforts.

- Maternal & Child Health (30%)
- Malaria prevention & management (20%)
- Pneumonia prevention & management (20%)
- Diarrhea prevention & management (20%)
- Immunizations (10%)

VI. Purpose of the Evaluation

The purpose of the final evaluation of the Maternal and Child Health Transformation (MaCHT) project is to measure impact on the achievement of the goals and objectives stated on the Detailed Implementation Plan (DIP); provide information on mechanisms used during implementation of the various interventions; assess the contribution that the project made on strengthening health system components in the area of influence, and to provide evidence to inform decision for future programming, as well as costing information on selected delivery mechanisms.

The FE provides an opportunity for all project stakeholders to take stock of accomplishments to date and to listen to the beneficiaries at all levels, including mothers and caregivers, other community members and opinion leaders, health workers, health system administrators, local partners, other organizations, and donors. The FE Report will be used by the following audiences as a source of evidence to help inform decisions about future program designs and policies:

- In-country partners at national, regional, and local levels (e.g., MOH and other relevant ministries, district health team, local organizations, communities in project areas).
- USAID (CSHGP, Global Health Bureau, USAID Missions), and other CSHGP grantees.
- The international global health community. The FE report will be posted for public use at <http://www.mchipngo.net> and the USAID Development Experience Clearinghouse at <https://dec.usaid.gov>.

VII. Methodology

The overall evaluation uses a mixed-methods approach using quantitative and qualitative data. The written design of the evaluation must be further defined and specified by the final evaluator (e.g., number of key informant interviews, focus groups discussions, observations, and locations) and must be shared with project stakeholders and implementing partners for comment before the evaluation commences. World Vision will facilitate this sharing and feedback.

Quantitative Research

The quantitative method is based on comparable Pretest-Posttest design; with households with children under 5 years of age as unit of analysis, and data disaggregation by gender and location. The selection of participants will be done using a two-stage random selection (two-stage 30 cluster sampling). Structured questionnaires, already developed during baseline data collection phase, will be applied to selected participants. Data collected will be empty into validated database programs and analyzed via cross-tabulation approaches. The final population based survey will be led by World Vision US staff and implemented by World Vision South Sudan during the period of June-July 2014. Databases and analysis report will be shared with external evaluator at the beginning phase of the final evaluation period.

Qualitative Research

In-depth qualitative interviews or focus group discussions may be conducted with stakeholders, including project staff, MOH, local NGOs and community-based organizations, district health teams, community- and facility-based health workers, community members, community leaders, and mothers (exit interviews). If possible, the assessment will also include observations of activities supported by the project. This will involve site visits to one or more implementation areas. It is recommended that the final evaluator randomly select communities to visit from a list provided by World Vision. However, purposive sampling may be warranted in addition to explore certain areas in more depth to investigate particular results (e.g., high or low performance or unexpected results).

Secondary Data

The final evaluator will review project reports (e.g., Detailed Implementation Plan; annual reports; Mid Term Evaluation knowledge, practice, and coverage baseline; and final survey and any monitoring reports) to assess the quality of quantitative and qualitative data and make assessments of project results in relation to the project design and targets set.

Limitations

The evaluation report must include a discussion of the methodological limitations of the evaluation.

Additional guidance on reporting format is provided in the CSHGP Guidelines for Final Evaluations, specifically in the Final Evaluation Report Template included therein.

VII. Evaluation Questions

The final evaluator and the evaluation team will use existing data collected or compiled during the life of the project, as well as additional data collected during the evaluation to answer the following questions:

1. To what extent did the project accomplish and/or contribute to the results (goals/objectives) stated in the DIP?
 - What is the quality of evidence for project results?
 - How were results achieved? If the project improved coverage of high-impact interventions simultaneously, what types of integration enabled this? Specifically, refer to project strategies and approaches and construct a logic model describing inputs, process/activities, outputs, and outcomes. Describe the extent to which the project was implemented as planned, any changes to the planned implementation, and why those changes were made.
2. What were the key strategies and factors, including management issues, that contributed to what worked or did not work?
 - What were the contextual factors such as socioeconomic factors, gender, demographic factors, environmental characteristics, baseline health conditions, health services characteristics, and so forth that affected implementation and outcomes?
 - What capacities were built, and how?
 - Were gender considerations incorporated into the project at the design phase or midway through the project? If so, how? Are there any specific gender-related outcomes? Are there any unintended consequences (positive and negative) related to gender?
3. Which elements of the project have been or are likely to be sustained or expanded (e.g., through institutionalization or policies)?

- Analyze the elements of scaling-up and types of scaling-up that have occurred or could likely occur (dissemination and advocacy, organizational process, costs and/resource mobilization, monitoring and evaluation using the ExpandNet resource for reference).
- Analyze the costs and resources associated with implementation relevant for replication or expansion, as well as estimated cost per beneficiary.

4. Are Community Health Workers (HHPs) trained on iCCM Plus, able or not to deliver health services according to iCCM Plus protocol?

IX. Final Evaluator Characteristics and Expected Timeline

The consultant will serve as the evaluation team leader and is welcome to propose additional evaluation team members to round out the evaluation team's skill set in order to ensure adequate representation of evaluation, technical, geographic, cultural and language skills. Team members, their affiliations, and disclosure of conflicts of interest must be listed in an annex to the evaluation report. The consultant will coordinate closely with the World Vision team regarding tool finalization, evaluation methodology, timeline, and draft report finalization. World Vision US contact person for the final evaluation will be the Maternal and Child Health Senior Advisor.

Requirements:

The consultant must be approved by USAID CSHGP and should meet the following minimum requirements:

- Proven expertise and leadership in
 - integrated community-oriented reproductive, maternal, newborn, and child health projects
 - conducting evaluations (baseline, endline) using mixed methods
- Experience with design, collection, and analysis using applied research methods in a program implementation context
- Familiarity with public health system in South Sudan
- Demonstrated ability to communicate with and lead a team of stakeholders, staff, and national experts in participatory evaluation
- Familiarity with USAID programming
- Skill or familiarity with cost analysis methods for program assessments
- Excellent analytical and writing skills (English)
- Signed statement explaining any conflict of interest**

Key Tasks of the Evaluation Team Leader

- Review project documents and resources to understand the project
- Develop and/or Refine the evaluation terms of reference, objectives and key questions based on the CSHGP guidelines in coordination with World Vision US and World Vision South Sudan team and its partners
- Develop the field evaluation schedule and assessment tools
- Train enumerators and team members on objective and process of the evaluation including evaluation tools
- Lead the team to complete the collection, analysis, and synthesis of supplemental information regarding the program performance
- Interpret both quantitative and qualitative results and draw conclusions, lessons learned, and recommendations regarding project outcome
- Lead an in-country debriefing meeting with key stakeholders, with a PowerPoint slideshow deliverable, no longer than 20 slides (with USAID/Washington, DC, participation remotely, as able)

- Prepare draft report in line with the CSHGP guidelines and submit to CSHGP and World Vision simultaneously on or before September 1

Timeline:

Proposed Itinerary – Dates will be finalized with consultant and World Vision

ACTIVITIES	May	June	July	August	Sept	Oct	Nov	Dec
Coordination meetings	X							
Evaluation SoW	X							
SoW submission	X							
Consultant	X	X						
OR report	X	X						
KPC survey	X	X						
Project documents		X						
Evaluation preparation	X	X	X					
Travel dates			X					
Field work			X					
Data analysis			X	X				
Report writing				X				
First draft					X			
Final report								X

X. Final Evaluation Report

The FE report should follow the outline in USAID CSHGP’s Guidelines for Final Evaluations. A draft and final report, written by the final evaluator, must be submitted directly to the CSHGP. Draft and final reports should be submitted according to the submission instructions as indicated in the USAID final evaluation 2013 guidelines.

XI. Budget

Items	Qty	Rate	Days	Total
Consultant	1	400	25	10,000
Travel (US/SS)	3	2000		6,000
Travel (Juba-Kua)	4	400		1,600
Accommodation	4	100	10	4,000
KPC survey	1			8,000
Transportation	3 cars	127	5	3,400
Other				1,000
Total				34,000 USD

XII. Deliverables

At the conclusion of the consultancy period, the consultant is expected to complete the following deliverables:

- Lead an in-country **debriefing meeting** with key stakeholders (and remote participation by USAID/Washington, DC) with a PowerPoint presentation no longer than 20 slides for distribution.
- Prepare a **draft report** in line with the CSHGP guidelines and submit to CSHGP and World Vision simultaneously on or before September 1. Prepare and submit **the final report**, which is due at the USAID CSHGP GH/HIDN/NUT office on or before 90 days after the end of the project.

METHODS

This final qualitative evaluation took place in August 2014, during the rainy season in South Sudan. The design of the evaluation was determined in discussions with World Vision staff both in the US and in South Sudan. The evaluation timeline and objectives were shared with project stakeholders and implementing partners for comment before the evaluation commenced. World Vision facilitated the sharing and feedback.

The evaluation uses a mixed-methods approach, using primary quantitative data collected through knowledge, practice, and coverage (KPC) surveys carried out at baseline and endline, as well as qualitative data collected during the evaluation from interviews and focus groups. It assessed improvements in outcomes as well as the sufficiency and effectiveness of the project's strategy and processes to reach its targets and contextual factors that have influenced progress.

Quantitative Research

The final KPC/OR survey was performed in September 2014 among 510 mothers of children under two. A sample of 510 women were interviewed and outcomes were compared to both the KPC baseline survey conducted in 2011 and the operations research baseline survey from 2012.

The surveys were carried out by World Vision staff and the results were incorporated as part of the final evaluation. The selection of participants was done using a two-stage random selection (two-stage 30 cluster sampling). Within each selected cluster, households and respondents (mothers of children aged 0-23 months) were randomly selected and only one respondent was selected from a household, to avoid overrepresentation.

Structured questionnaires, already developed during the baseline data collection phase, were applied to selected participants. Eight enumerators and four supervisors were trained and deployed to do the data collection in each county. Data collection management and follow-up supervision was in place during data collection to minimize errors during data collection. Questionnaires were checked for completeness and consistency in the "identification" section when they arrived at the place of data entry. Any inconsistencies on any questionnaire observed during data entry were recorded and the feedback was given to the concerned enumerator and supervisor on a daily basis. Lessons applicable to all enumerators were also shared to them before they left for the field.

All collected data was coded and entered into Excel. Data were checked for inaccuracies and inconsistencies, and then entered into SPSS Statistical Analysis software. Data analysis was conducted in two steps. The first step consisted of the production of descriptive statistics for each variable included in the survey. The second included the calculation of p values (using Mantel-Haenszel two-tailed tests), confidence intervals, and odds ratios.

Databases and analysis reporting was shared with an external evaluator at the beginning phase of the final evaluation period.

Qualitative Research

Project staff at both the national and regional offices were interviewed, and focus group discussions among community member beneficiaries and volunteers of the project were conducted. Information was extracted from the interviews and compiled by the evaluator. Direct quotes are placed in quotation marks, otherwise the narrative is paraphrased from the content of the interview.

Two focus groups were conducted, one with mothers of children under two years of age and one with HHPs. Both of these were conducted in the program intervention area where operations research was done. Focus group questions explored the effects of the project, and identified barriers and obstacles to project success. Interviews were conducted with stakeholders, who were selected based on availability.

Interviews were conducted with

Secondary Data

The final evaluator reviewed project reports (e.g., detailed implementation plan; annual reports; mid-term evaluation; baseline and endline KPC survey; monitoring reports) to assess the quality of quantitative and qualitative data and make assessments of project results in relation to the project design and targets set.

LIMITATIONS

Generally, it is believed that the survey was conducted successfully though there were challenges and lessons learned. The major ones are presented below.

Logistics

- Some villages were far in distance and sometimes the travel became difficult in muddy. In those remote areas, darkness fell before enumerators could finish the survey in those places. The Jur River floods during the rainy season, resulting in project staff using a rowboat to transport themselves and their motorcycle across the river to carry out activities in other project zones.
- There were logistical challenges especially with regards to vehicle availability from the regional project vehicle pool, which saw one vehicle being allocated to Gogrial West County while one had to be hired for Gogrial East County.
- Limitations of the study are mostly related to its quasi-experimental design, as well as the impediment of collection of information from certain geographical areas affected by flooding, with obvious effect on magnitude of the outcomes.
- The logistical and financial challenges presented by the very poor roads and frequently flooding river and the very high wear and tear on vehicles, the high cost of vehicle repair, the high need of the use of vehicles for a large number of WV projects in the area
- The Qualitative assessment was limited by the time available by the external reviewer to visit project sites due to weather and an acute GI illness of the reviewer. With the flooded river and time constraints, the eastern part of the project could not be visited.
- Logistical delays in reaching the sites for focus groups limited the amount of time that could be spent with each group as the participants were anxious to get home before dark

Staff

- The difficulty in retaining staff to live and work in this remote and difficult region all contribute to some significant limitations faced by the MaCHT project. This was also seen in the qualitative component of the evaluation as most of the staff were new to their jobs, and were still learning their responsibilities even as the project was ending. High staff turnover is an issues at both the national and zonal regions that impacted the project and the ability to evaluate.

- The project staff in Warrap State are all housed in a small compound that is approximately 5 miles on the project offices. This WV camp has a limited availability of electricity, and the remote nature of the project site and the very limited availability of services limits the ability of professionals to commit to long-term work unless their families live in the area, or they are looking only for short-term work

Survey Process and Results

- The questionnaire during endline was too long. In some cases respondents lost their patience and complained about it.
- Data entry was conducted using Excel. As the template was in tabular format with more than 250 columns long, data entry times were lengthy and tedious increasing the possibility of data entry errors.
- The representativeness of the sample is limited as many villages were excluded due to inaccessibility. Background information regarding the homogeneity (or lack thereof) of the villages in the area would be necessary to determine to what extent the sample could be representative.
- Data for household practices were based on mother's responses and not observation. Over-reporting of recommended practices cannot be excluded.

The logistical and financial challenges presented by the very poor roads and frequently flooding river and the very high wear and tear on vehicles, the high cost of vehicle repair, the high need of the use of vehicles for a large number of WV projects in the area, and the difficulty in retaining staff to live and work in this remote and difficult region all contribute to some significant limitations faced by the MaCHT project.

Focus Group Questions

1. The focus group was an open discussion, but started with a question about what the women had learned from the HHP.
2. What did the HHP teach you about the delivery?
3. What is the difference between delivering at home verses the health facility?
4. A focus group with 12 HHPs in the same village and the woman who had provided their training was also conducted. The first question was about HBLSS: What did HBLSS teach you that you did not already know?
5. What message would you like me to take back?
6. What do you need to do your job?
7. Do you currently have access to malaria drugs that you could use to treat a child today?

Sample Key Informant Interview Questions

Key informant interviews were guided by any of the following questions, and others that followed from answers.

1. What is your role in/relationship to the MaCHT project?
2. Provide a general description of your job/role in the project.
3. What have been the major accomplishments of the MaCHT project?
4. What are the main challenges you face in implementing your role?
5. What are the challenges with procurement of and providing the necessary drugs to community health centers?
6. What are the major limitations to project implementation?
7. How has the implementation of the MaCHT project affected health in the region?
8. How has the implementation of the MaCHT project influenced other programs in the area, and the development of new programs?
9. How has the MaCHT project integrated with the local and national government priorities and activities?
10. What are the main lessons learned from the MaCHT project?
11. What could have been done differently?
12. What other comments do you have about the MaCHT project?

MaCHT OPERATIONAL RESEARCH and KPC – Final Survey

Ask the mother if she has a child under 24 months who lives with her. If yes, proceed with interview; if no, thank the mother and end the interview.

Identification		
Cluster Number		
Household Number		
Record Number		
Payam Name		
Boma Name		
Village Name		
Name of Supervisor		
Age of the Mother (Run man meth)		
Data Entered By		Date: ___/___/___ day/month/year
Operational Research	Yes	No

	1	2	3	Final Visit	
Interview date	___/___/___ day/month/year	___/___/___ day/month/year	___/___/___ day/month/year	<i>For Supervisor</i>	
Name of Interviewer				Day	
				Month	
Result Code*				Year	
				Result Code	
<p>*Result Codes:</p> <p>Completed.....1</p> <p>Respondent not at home.....2</p> <p>Postponed.....3</p> <p>Refused.....4</p> <p>Other.....5 (Specify)</p>					

Consent Page

Consent Page

Leek

Ci yi bak . Hen acol(rin)_____ku henalui Kek World Vision(Akut pinyhom).Ok alui Survey (Ting ting Ka joor wek) ku yin abuk leec te met yin yi cin thin . yin awiec ba yin thiec pial guopdu ku jol apial guop e manhdun thin kor la run Ka rou .

Wel ka abi World Vision kony ku bi kang pial guop bei ku aci ke ken wic yook bi pial guop miith juakic .Ku abi yuul thin nyiot looi bi jal thok .Kuat ke ba lek ok abuk ngic lon yen kene yic .

Mat mat du thin wel kayic acin ke bi yiek yin thin .ku yin aleu ba kuany bak wel ci dhuk nhiim wela ba ke dhuk nhiim yuul thin wen ic ._____

Ku angothku ke kun ca luel ka aril yic apeei.

Ci leu Ba rot mat thin Ke thiec ku yic ?

Thany raan giik koc thok _____Niin. _____ -
Raan thiec aci gam bi thiec thok(1) Raan thiec thok aci jai bi ci thiec thok (2)
Aci thok

Hello. My name is _____, and I am working with **WORLD VISION INTERNATIONAL**. We are conducting a survey and would appreciate your participation. I would like to ask you about your health and the health of your youngest child under the age of two. This information will help WORLD VISION INTERNATIONAL to plan health services and assess whether it is meeting its goals to improve children's health. The survey usually takes _____ minutes to complete. Whatever information you provide will be kept strictly confidential.

Participation in this survey is voluntary and you can choose not to answer any individual question or all of the questions. You can stop the survey at any time. However, we hope that you will participate in this survey since your views are important.

Will you participate in this survey?

At this time, do you want to ask me anything about the survey?

Signature of interviewer: _____ Date: _____

RESPONDENT AGREES TO BE INTERVIEWED 1



RESPONDENT DOES NOT AGREE TO BE INTERVIEWED 2



Mother Finger Print

No.	Questions and Filters	Coding Categories	Skip
5	<p><i>Lee tedet eyin lui thin a her ba weu yook ?</i></p> <p>Do you work outside of the home?</p> <p>IF YES, What kind of work do you do?</p>	<p>Key ye looi koc cin(cuec) HANDICRAFTS.....A</p> <p>Tem tem HARVESTING.....B</p> <p>Hoc miith wei SELLING FOODS.....C</p> <p>Raan hoc wei duk an ic SHOP KEEPER/STREET VENDOR.....D</p> <p>Raan lui pan ra an det SERVANT/HOUSEHOLD WORKER.....E</p> <p>Raan dom weu SALARIED WORKER.....F</p> <p>KOK OTHER _____Y</p> <p>Tek thok (SPECIFY)</p>	→7
6	<p>Ye nga dong kek meth , te ci yin jal baai ?</p> <p>Who takes care of (NAME) when you are away from home?</p> <p>PROBE FOR THE TYPE(S) OF PERSON(S) AND RECORD ALL MENTIONED.</p>	<p>Man e meth MOTHER (RESPONDENT).....A</p> <p>Mony baay HUSBAND/PARTNER.....B</p> <p>Miith dit OLDER CHILDREN.....C</p> <p>Koc kok ruai kek yin OTHER RELATIVES _____D Tek thok (SPECIFY)</p> <p>Kok akeu /pa math ku NEIGHBORS/FRIENDS.....E</p> <p>Ting lui baai MAID.....F</p> <p>Pan abun miith kor NURSERY SCHOOL.....G</p> <p>Kok OTHER _____Y Tek thok (SPECIFY)</p>	

No.	Questions and Filters	Coding Categories	Skip
Maternal and Newborn Care			
No.	Questions and Filters	Coding Categories	Skip
7	Who provided you with health care advice during your pregnancy with (NAME)? PROBE FOR THE TYPE(S) OF PERSON(S) AND RECORD ALL MENTIONED.	DOCTOR.....A NURSE.....B TRAINED MIDWIFE.....C OTHER HEALTH STAFF WITH MIDWIFERY SKILLS.....D TRAINED TRADITIONAL BIRTH ATTENDANT.....E TRAINED COMMUNITY HEALTH WORKER.....F TRADITIONAL BIRTH ATTENDANT.....G HOME HEALTH PROVIDER.....H RELATIVE/FRIEND.....I OTHER ADULT _____ J (SPECIFY) NO ONE.....Z	
8	<i>War yen liec yin e man hdun , ya arak de ci yin kuony diar liec yook?</i> During your pregnancy with (Name), how many times did you receive antenatal care?	yuul TIMES <input type="text"/> <input type="text"/> Akuic DON'T KNOW.....98	
9	Where was (NAME) born?	HOSPITAL.....1 HEALTH CENTER.....2 HEALTH POST.....3 NGO/PVO CENTER.....4 PRIVATE CLINIC.....5 OTHER HEALTH FACILITY.....6 RESPONDENT'S HOME7 OTHER HOME _____ 97 (SPECIFY) OTHER _____ 98 (SPECIFY)	
10	<i>War liec yin e menhdun , yi ci toom kok bi menh du tiet guop wei e nyor (rieny) te dhieth yen?</i> During your pregnancy with (Name) did you receive an injection in the arm to prevent the baby from getting tetanus (convulsions) after birth?	YES.....1 NO.....2 DON'T KNOW.....98	→ 12 → 12
11	<i>Ya rak da ci yin toom kok wal nyor (rieny) war liec yin e menh dun?</i> While pregnant with (name), how many times did you receive tetanus injection?	Tok ONE.....1 Rou TWO.....2 Diak wela juec ke THREE OR MORE.....3 Akuic DON'T KNOW.....98	

No.	Questions and Filters	Coding Categories	Skip
17	<p><i>Tor meth ci tem ngo?</i> What instrument was used to cut the cord?</p>	Mus yam NEW RAZOR BLADE.....1 Mus yam ku aci siap NEW AND BOILED RAZOR BLADE.....2 Mus ci kang muot USED RAZOR BLADE.....3 Mus ci siap ku aci kang muot USED AND BOILED RAZOR BLADE4 Magath yam NEW SCISSORS.....5 Magath yam ku aci siap thok NEW AND BOILED SCISSORS.....6 Magath yam ci kang luoi USED SCISSORS.....7 Magath ci siap ku aci kang luoi USED AND BOILED SCISSORS.....8 pal KNIFE.....9 Paac[acimieth bel] SORGHUM STEM.....10 kok OTHER _____ 97 Tek thok (SPECIFY) akuic DON'T KNOW.....98	
18	<p><i>Lek kene ci tau toric war ci yen tem?</i> Was anything placed on the umbilical cord either before or after it was cut?</p>	YIC YES.....1 Aliu NO.....2 Akuic DON'T KNOW.....98	→ 20 → 20
19	<p><i>Ye ngo ci tau toric ?</i> What was placed on the cut cord?</p>	COW DUNG.....1 ANY TYPE OF OIL.....2 ANTISEPTIC.....3 ASH.....4 OTHER _____ 97 (SPECIFY)	
20	<p><i>War ci meth [rin] jaal dhieth ku lap akec guo ben bei,ci meth wuny kou tuok nyinic?</i> Was (NAME) dried (wiped) immediately after birth before the placenta was delivered?</p>	YIC YES.....1 Aliu NO.....2 Akuic DON'T KNOW.....98	
21	<p>How long after birth was (NAME) bath?</p>	Immediately.....1 Three hours.....2 Six hours.....3 Next day.....4 DON'T KNNOW.....98	

No.	Questions and Filters	Coding Categories	Skip
22	<p><i>War ci meth [rin] jaal dhieth ku lap akec guo ben bei, ci meth kum alath wela matania nyinic?</i></p> <p>Was (NAME) wrapped in a warm cloth or blanket immediately after birth before the placenta was delivered?</p>	<p>YIC YES.....1 Aliu NO.....2 Akuic DON'T KNOW.....98</p>	
23	<p><i>Ci menhdu kang thuet?</i></p> <p>Did you ever breastfeed (NAME)?</p>	<p>YIC YES.....1 Aliu NO.....2</p>	→ 26
24	<p><i>Wen ci yin meth dhieth , ye te yin de ci looi ba jal thuet?</i></p> <p>How Long after birth did you first put (NAME) to the breast?</p> <p><i>Na kor saa tok ke get pinyic apath[00] Na kor tene saa[24] ke get saat akol wela niin akol</i></p> <p>IF LESS THAN 1 HOUR RECORD 00 HRS IF LESS THAN 24 HRS RECORD THE HOURS HERWISE RECORD DAYS</p>	<p>IMMEDIATE.....0... <input type="text"/> <input type="text"/></p> <p>HOURS.....1 .. <input type="text"/> <input type="text"/></p> <p>DAYS.....2.... <input type="text"/> <input type="text"/></p> <p>DON'T REMEMBER.....98</p>	
25	<p>How old was (NAME) when any food or other than breast milk was first in his or her mouth?</p>	<p>DAYS.....1.... <input type="text"/> <input type="text"/></p> <p>MONTHS2..... <input type="text"/> <input type="text"/></p> <p>DON'T REMEMBER.....98</p>	
26	<p><i>Nyinic te wen ci meth dhieth ku lap akec guo ben bei ye ci toom bi riem ci kuer apei?</i></p> <p>Immediately after (NAME) was born, before the placenta was delivered, did you receive an injection to prevent you from bleeding too much?</p>	<p>yic YES.....1 aliu NO.....2 akuic DON'T KNOW/Don't remember98</p>	
27	<p><i>Ci raan gem yi dhelic /duutic ke miit tor ku bi kony ben lap bei?</i></p> <p>Did the birth attendant hold your abdomen when pulling on the cord to help the placenta to come out?</p>	<p>YIC YES.....1 Aliu NO.....2 Akuic DON'T KNOW.....98</p>	
28	<p><i>Nyinic te wen ci lap ben bei , lee raan ca adhieth rupic wela cok piny bi gel ba ci kuer apei?</i></p> <p>Immediately after the Placenta was delivered, did someone massage/ Rub your abdomen?</p>	<p>YIC YES.....1 Aliu NO.....2 Akuic DON'T KNOW.....98</p>	
29	<p>In the first hour after delivery, was (NAME) given eye ointment or drops in his/her eyes?</p>	<p>YIC YES.....1 Aliu NO.....2 Akuic DON'T KNOW.....98</p>	

No.	Questions and Filters	Coding Categories	Skip
30	<p><i>War nguot liec yin ee menh dun , yi ci yiek wel wela ca hoc wal [iron/syrup.]</i></p> <p>During your pregnancy with (Name), were you given or did you buy any tablet or syrup to build your blood level (iron tablets/syrup)?</p> <p>Nyuoath wel. SHOW TABLETS</p>	<p>YIC YES.....1</p> <p>Aliu NO.....2</p> <p>Akuic DON'T KNOW.....98</p>	<p>→ 32</p> <p>→ 32</p>
31	<p><i>Liec du ic eben , ye niin ka de ca nok ke yi dek wel</i></p> <p>During the whole pregnancy, for how many days did you take this tablets/syrup?</p> <p>IF THE ANSWER IS NOT NUMERIC, PROBE FOR APPROXIMATE NUMBER OF DAYS.</p>	<p>DAYS..... <input type="text"/> <input type="text"/> <input type="text"/></p> <p>DON'T KNOW.....98</p>	
32	<p>Liec ic , tik aleu bi la tueny tueny yook yen ku aleu bi rieng pan akiim. Arem rem yinde ca yook ba la pan akiim nyinic?</p> <p>During pregnancy, woman may encounter severe problems or illnesses and should go or be taken immediately to a health facility.</p> <p>What types of symptoms would cause you to seek immediate care at a health facility (right away)? Lee det? ASK: Anything else? Du ke kuen ke ba thiec tene raan baai. DO NOT READ RESPONSES. RECORD ALL THAT ARE MENTIONED.</p>	<p>Riem ee kuer muric VAGINAL BLEEDING..... A</p> <p>Ee wei apei. FAST/DIFFICULT BREATHING..... B</p> <p>juai FEVER C</p> <p>Areem yic/tiel apei. SEVERE ABDOMINAL PAIN..... D</p> <p>Ahaar nom/aduor nyin. HEADACHE/BLURRED VISION..... E</p> <p>Kon Kon guop /thong. CONVULSIONS..... F</p> <p>Tut aben bei muric ku anguac. FOUL SMELLING DISCHARGE/FLUID FROM VAGINA..... G</p> <p>Meth aci ben caath . BABY STOPS MOVING..... H</p> <p>Tut mingok a thiiu piny muric LEAKING BROWNISH/GREENISH FLUID FROM THE VAGINA..... I</p> <p>Kok OTHER Y</p> <p>Tek thok (SPECIFY)</p>	
33	<p>Akolde diar te ci kek dhieth aguop la tueny-tueny ril ,kang k ecol rieng pan akiim nyinic .</p> <p>Sometimes mothers after delivery have severe illnesses and should be taken immediately to a health facility.</p> <p>Arerm rem yin de ci rot looi tene yin ba la pan akiim nyinic ?</p> <p>What types of symptoms would cause you to go to a health facility right away? Lee det? ASK: Anything else? DO NOT READ RESPONSES. RECORD ALL THAT ARE MENTIONED.</p>	<p>Kuer riem apei muric EXCESSIVE VAGINAL BLEEDING..... A</p> <p>E wei apei FAST/DIFFICULT BREATHING..... B</p> <p>Juan dit HIGH FEVER..... C</p> <p>Areemic /tielic apei SEVERE ABDOMINAL PAIN..... D</p> <p>Ahaar nom/aduor nyin SEVERE HEADACHE/BLURRED VISION..... E</p> <p>Kon-kon guop/thong. CONVULSIONS/LOSS OF CONSCIOUSNESS..... F</p> <p>Tut a ben bei muric ku anguac. FOUL-SMELLING DISCHARGE FROM THE VAGINA..... G</p> <p>Ku arem anuei thook /diolic PAIN IN CALF..... H</p> <p>Jam weel ye nyuoath lon ci yen rot nok wela meth. Mother mental disturbance I</p> <p>Placenta not out with in one hour after birth J</p> <p>Kok OTHER Y</p> <p>(SPECIFY)</p> <p>Tek thok</p>	

No.	Questions and Filters	Coding Categories	Skip
34	<p>Ye ngo ye looi e men wela ye dhol nen ye yin rot tiit ba ci liec? Are you currently doing something or using any method to delay or avoid getting pregnant?</p>	<p>YIC YES.....1 Aliu NO.....2</p>	→ 36
35	<p>Ye dhol nen ye yin wela muonydu looi bi wek liec gel? Which method are you (or your husband/ partner) using?</p> <p>DO NOT READ RESPONSES. CODE ONLY ONE RESPONSE.</p> <p>IF MORE THAN ONE METHOD IS MENTIONED, ASK, <i>Ye ken ngo yake looi wek muonydu bak rot tiit liec?</i> What is your MAIN method that you (or your husband/ partner) use to delay or avoid getting pregnant?" <i>Na ye raan thiec luel ke ngot thuet ke ci nyuoth lon tiit yen rot e liec. Nimera [12].</i></p> <p>IF RESPONDENT MENTIONS BREASTFEEDING, CODE "15" FOR OTHER AND RECORD BREASTFEEDING.</p>	<p>Muol dhieth e tik FEMALE STERILIZATION.....1 Muol dhieth e moc MALE STERILIZATION.....2 Wal liec gel PILL.....3 Ke ye tau adhiethic bi liec gel IUD.....4 Weel ye tuom bi liec gel INJECTABLES.....5 Weel ye ke tau ring kokic IMPLANTS.....6 FEMALE CONDOM.....8 DIAPHRAGM.....9 Wal ye nhiac muric FOAM/JELLY.....10 Thuet-thuet LACTATIONAL AMEN. METHOD.....11 Niin ye riem ye nhom wel ku tik aleu bi meth yook niin ka yic STANDARD DAYS METHOD/ CYCLEBEADS.....12 RHYTHM METHOD (OTHER THAN STANDARD DAYS).....13 Miit bei WITHDRAWAL.....14 Abstinence15 kok OTHER.....97Tek thok] (SPECIFY)</p>	
36	<p>Akolde miith thii puoc dhieth peei tueng piir ic a la tueny-tueny ril k e col ba rieng pan akiim nyinic.</p> <p>Sometimes newborns, within the first month of life, have severe illnesses and should be taken immediately to a health facility.</p> <p>Arem rem yin de ke ci rot looi tene menh dun puoc dhieth ku ba rieng pan akiim ?</p> <p>What types of symptoms would cause you to take your newborn to a health facility right away?</p> <p>Lee det? ASK: Anything else?</p> <p>DO NOT READ RESPONSES. RECORD ALL THAT ARE MENTIONED.</p>	<p>Kon-kon /thong. CONVULSIONS.....A juai FEVER.....B Meth acie thuet apath/wela ye cem apath POOR SUCKLING OR FEEDING.....C E wei apei FAST/DIFFICULT BREATHING.....D Meth ee yook ke liir thuat. BABY FEELS COLD.....E Meth akor apei dit /ci lac dhieth. BABY TOO SMALL/ BORN TOO EARLY.....F Cin cielic ee maketh/COK /nyiin. YELLOW PALMS/SOLES/EYES.....G Aci butic /angum. SWOLLEN ABDOMEN.....H Acie ben jam/wela tek UNCONSCIOUS.....I Tor ee yic malual /nyin ku guop e ben. PUS OR REDNESS OF THE UMBILICAL STUMP, EYES OR SKIN.....J kok OTHER.....Y Tek thok (SPECIFY)</p>	
Vitamin A Supplementation/ Child Immunizations			

No.	Questions and Filters	Coding Categories	Skip
37	Did (NAME) receive a vitamin A dose within the last 6 months?	YIC YES.....1 Aliu NO.....2 Akuic DON'T KNOW.....98	
38	Did (NAME) ever receive any vaccinations, including vaccinations given during immunization campaigns?	YIC YES.....1 Aliu NO.....2 Akuic DON'T KNOW.....98	→44 →44
39	Loor athor ci menh du kang muoc thok/ wal tuom ku aci gat piny thin Do you have a card or child health booklet where(NAME'S) vaccinations are written down? Ca leu ba ting ? IF YES: May I see it please?	Yic ,aci raan koc thiec thok ting YES, SEEN BY INTERVIEWER.....1 Tou wela liu/yic akec ting YES, NOT SEEN.....2 Acin athor. NO CARD.....3	→ 43 → 43
40	Ca leu ba wel reer athoric gat piny ? May I copy the information from the card? (1) COPY DATES OF ALL VACCINATIONS FROM THE CARD. (2) WRITE '44' IN DAY/MONTH/YEAR COLUMNS IF CARD SHOWS THAT VACCINATION WAS GIVEN BUT NO DATE RECORDED.	Date of Immunization	
		DAY MONTH YEAR	
A	BCG BCG		
B	POLIO 0 (POLIO GIVEN AT BIRTH OR BEFORE 6 WEEKS) OPV0		
C	POLIO 1 OPV1		
D	POLIO 2 OPV2		
E	POLIO 3 OPV3		
F	DTP 1 DTP1		
G	DTP 2 DTP2		
H	DTP 3 DTP3		
M	Measles Measles		
N	Vitamin A		
41	Has (NAME) received any vaccinations that are not recorded on this card, including vaccinations given during immunization campaigns?	YIC YES.....1 Aliu NO.....2 Akuic DON'T KNOW.....98	
42	Lek hen da lon ci menh du kang muoc thok wela toom wel ka? Please tell me if (NAME) received any of the following vaccinations ² .	WRITE '66' IN THE CORRESPONDING DAY/MONTH/YEAR COLUMNS OF Q25 IF THE MOTHER REPORTS THAT THE CHILD HAS RECEIVED THE VACCINE IN QUESTIONS 30A-30J	
A	BCG/wel hol ee tuom kookic ku ke piar looi ic A BCG vaccination against tuberculosis, that is, an injection in the arm or shoulder that usually causes a scar? ³	YIC YES.....1 Aliu NO.....2 Akuic DON'T KNOW.....98	

No.	Questions and Filters	Coding Categories	Skip
B	Wal ruai ee nhac miith thok ci men? Polio vaccine, that is, drops like these, in the mouth?	YIC YES.....1 Aliu NO.....2 Akuic DON'T KNOW.....98	→42E →42E
C	Niin thiar ku nguan war ci bak wela niin kok ,ee yen muoc meth thok thin tueng wal ruai? When was the first polio vaccine received? [In the first two weeks after birth or later?]	Niin thiar ku nguan dhieth cok cien . FIRST TWO WEEKS AFTER BIRTH.....1 La ther. LATER.....2 akuic DON'T KNOW.....98	
D	Ya arak de yen ci wel ruai kuen yuul ku ba ke jal yiek meth? How many times was the polio vaccine received?	kuen yuul NUMBER OF TIMES..... <input type="text"/> akuic DON'T KNOW.....98	
E	DPT -wal ye tuom koc hom akol cit akol tong war yik yin wal ruai . DPT vaccination, that is, an injection given in the thigh, sometimes at the same time as polio drops?	YIC YES.....1 Aliu NO.....2 Akuic DON'T KNOW.....98	→42G →42G
F	Arak de? How many times?	NUMBER OF TIMES..... <input type="text"/> DON'T KNOW.....98	
G	Hepatitis B vaccine?	YIC YES.....1 Aliu NO.....2 Akuic DON'T KNOW.....98	→42J →42J
H	How many times?	NUMBER OF TIMES..... <input type="text"/> DON'T KNOW.....98	
J	Ci manhdu kang tom kok weel kung-kung? Did (NAME) ever receive an injection in the arm to prevent Measles?	YIC YES.....1 Aliu NO.....2 Akuic DON'T KNOW.....98	
ARI/Pneumonia			
43	Ci meth guop kang la bec ye yen hol niin thiar ku nguan war ci bak? Has (Name) had an illness with a cough that comes from the chest at any time in the last two weeks?	YIC YES.....1 Aliu NO.....2 Akuic DON'T KNOW.....98	→ 53 → 53
44	War ci meth tuany tueny hol, ye wei yic riel wela ye wei apei? When (Name) had an illness with a cough, did he/she have trouble breathing or breathe faster than usual with short, fast breaths?	YIC YES.....1 Aliu NO.....2 Akuic DON'T KNOW.....98	→ 53 → 53

No.	Questions and Filters	Coding Categories	Skip
45	<p>Ca meth hath pan akiim wela le raan ca lek war ci yen bec hol ku ye wei apei?</p> <p>Did you seek advice or treatment for the cough/fast breathing?</p>	<p>YIC YES.....1 Aliu NO.....2</p>	→ 53
46	<p>Ye nga kene yiik meth dooc?</p> <p>Who gave you advice or treatment? Le raan det? Anyone else? Gat ke piny e ben RECORD ALL MENTIONED.</p>	<p>DOCTOR.....A NURSE.....B MIDWIFE.....C HOME HEALTH PROMOTER.....Y</p>	
47	<p><i>Ye nen yen ngic yin yen lon ci meth tuany tueny hol ku ye hol ku jol la wic dooc?</i></p> <p>How long after you noticed (NAME's) cough and fast breathing did you seek treatment?</p>	<p>Akolic SAME DAY.....0 nhiak NEXT DAY.....1 Niin ka rou TWO DAYS.....2 Niin ka diak wela juec ka THREE OR MORE DAYS.....3</p>	
48	<p><i>E tene tueng nen ci yin la thin ba la wic dooc wela bi yin la weet ?</i></p> <p>Where did you first go for advice or treatment?¹</p> <p><i>Na ye pan akiim yen ci yen la thin ke yi get rin te ci yen la thin.</i></p> <p>IF SOURCE IS HOSPITAL, HEALTH CENTER, OR CLINIC, WRITE THE NAME OF THE PLACE.</p> <p>_____</p> <p>(NAME OF PLACE) Rin te ci yen la thin.</p>	<p><u>HEALTH FACILITY</u> HOSPITAL.....1 HEALTH CENTER.....2 HEALTH POST.....3 NGO/PVO CENTER.....4 PRIVATE CLINIC.....5 OTHER HEALTH FACILITY.....6 <u>OTHER SOURCE</u> FIELD/HOME HEALTH PROMOTER.....7 TRADITIONAL PRACTITIONER.....8 SHOP.....9 PHARMACY.....10 COMMUNITY DISTRIBUTORS.....11 FRIEND/RELATIVE.....12 OTHER _____ 97 (SPECIFY)</p>	

No.	Questions and Filters	Coding Categories	Skip
49	Who decided that you should go there for (NAME'S) illness? PROBE: Anyone else? RECORD ALL MENTIONED.	RESPONDENT.....A HUSBAND/PARTNER.....B RESPONDENT'S MOTHER.....C MOTHER-IN-LAW.....D FRIENDS/NEIGHBORSE OTHER _____ Y (SPECIFY)	
50	Did you go anywhere else for advice or treatment for (NAME'S) cough and fast/difficult breathing?	YES.....1 NO.....2	→ 53
51	Where did you go next for advice or treatment? ¹ IF SOURCE IS A HEALTH FACILITY, WRITE THE NAME OF THE PLACE. _____ (NAME OF PLACE)	<u>HEALTH FACILITY</u> HOSPITAL.....1 HEALTH CENTER.....2 HEALTH POST.....3 NGO/PVO CENTER.....4 PRIVATE CLINIC.....5 OTHER HEALTH FACILITY.....6 <u>OTHER SOURCE</u> FIELD/HOME HEALTH PROMOTER.....7 TRADITIONAL PRACTITIONER.....8 SHOP.....9 PHARMACY.....10 COMMUNITY DISTRIBUTORS.....11 FRIEND/RELATIVE.....12 OTHER _____ 97 (SPECIFY)	
52	Which medicines were given to (NAME)? ¹ RECORD ALL MENTIONED.	NOTHING.....A ASPIRIN.....B PANADOL.....C AMOXICILLIN.....D ERYTHROMYCIN.....E AZITHROMYCIN.....F OTHER _____ 97 (SPECIFY) DON'T KNOW.....98	

No.	Questions and Filters	Coding Categories	Skip
Control of Diarrhea			
53	<p><i>Niin thiar ku nguan war ci bak , manh dun la tuany yac ?</i></p> <p>Has (Name) had diarrhea in the last two weeks?</p>	<p>YIC YES.....1</p> <p>Aliu NO.....2</p> <p>Akuic DON'T KNOW.....98</p>	<p>→ 58</p> <p>→ 58</p>
54	<p>Was s/he given any of the following to drink at any time since s/he started having diarrhea:</p> <p>READ CHOICES ALOUD:</p> <p>A fluid made from a special packet called (local name for ORS packet)? A pre-packaged ORS liquid? A government-recommended homemade fluid?</p> <p>SHOW LOCALLY AVAILABLE ORS PACKAGE OR PICTURE.</p>	<p style="text-align: right;">YES NO DONT KNOW</p> <p>A. FLUID FROM ORS PACKET..... 1 2 98</p> <p>B. ORS LIQUID.....1 2 98</p> <p>C. HOMEMADE FLUID.....1 2 98</p>	
55	<p>Where did you go first for advice or treatment?¹</p> <p>IF SOURCE IS A HEALTH FACILITY, WRITE THE NAME OF THE PLACE.</p> <p>_____</p> <p>(NAME OF PLACE)</p>	<p><u>HEALTH FACILITY</u></p> <p>HOSPITAL.....1</p> <p>HEALTH CENTER.....2</p> <p>HEALTH POST.....3</p> <p>NGO/PVO CENTER.....4</p> <p>PRIVATE CLINIC.....5</p> <p>OTHER HEALTH FACILITY.....6</p> <p><u>OTHER SOURCE</u></p> <p>FIELD/HOME HEALTH PROMOTER.....7</p> <p>TRADITIONAL PRACTITIONER.....8</p> <p>SHOP.....9</p> <p>PHARMACY.....10</p> <p>COMMUNITY DISTRIBUTORS.....11</p> <p>FRIEND/RELATIVE.....12</p> <p>OTHER _____ 97</p> <p>(SPECIFY)</p>	
56	<p>At any time during the illness did (Name) take any drugs for the diarrhea?</p>	<p>YIC YES.....1</p> <p>Aliu NO.....2</p> <p>Akuic DON'T KNOW.....98</p>	<p>→ 58</p>

No.	Questions and Filters	Coding Categories	Skip
57	Which medicines were given to (NAME)? ¹ ASK TO SEE DRUG(S) IF TYPE OF DRUG IS NOT KNOWN. IF TYPE OF DRUG IS STILL NOT DETERMINED, SHOW TYPICAL ANTIMALARIAL DRUGS TO RESPONDENT RECORD ALL MENTIONED.	NOTHING.....A ANTIDIARREIC.....B ANTIBIOTIC.....C OTHER.....97 (SPECIFY) DON'T KNOW.....98	
Water and Sanitation			
58	Do you treat your water in any way to make it safe for drinking?	YES.....1 NO.....2	→ 60
59	Na ye yic , ye ngo yake yath piu yic piath bi ke dek ? If yes, what do you usually do to the water to make it safer to drink? ONLY CHECK MORE THAN ONE RESPONSE IF SEVERAL METHODS ARE USUALLY USED TOGETHER, FOR EXAMPLE, CLOTH FILTRATION AND CHLORINE.	Col ajp; door piny LET IT STAND AND SETTLE/SEDIMENTATION.....A Thiic piu yic Alath /mathic STRAIN FILTERIT THROUGH CLOTH/PIPE.....B Tuoc (cop) BOIL.....C Tau wal thin (chlorine) Aquatab /water guardD Mathic e piu WATER FILTER (CERAMIC, SAND, COMPOSITE).....E Wal ye piu tau Akolic ku bi tuoc PUT In THE SUN.....F Kok OTHER.....Y Akuic DON'T KNOW.....9	
60	Leu ba nyus th lien to ye wek we cin look thin ku yengo yen wek we cim look ? Can you show me where you usually wash your hands and what you use to wash hands? ASK TO SEE AND OBSERVE	Along thin(Thiok kek pakana INSIDE/NEAR TOILET FACILITY.....1 Te ye koc thac thin INSIDE/NEAR KITCHEN/COOKING PLACE.....2 Kmat te Hath ye Hnn ELSEWHERE IN YARD.....3 Aher domie OUTSIDE YARD.....4 Acin te yi hath thin NO SPECIFIC PLACE AT ALL5 Aci liu ba tiing NO PERMISSION TO SEE.....6	→ 62 → 62
61	OBSERVATION ONLY: IS THERE SOAP OR DETERGENT OR LOCALLY USED CLEANSING AGENT? THIS ITEM SHOULD BE EITHER IN PLACE OR BROUGHT BY THE INTERVIEWEE WITHIN ONE MINUTE. IF THE ITEM IS NOT PRESENT WITHIN ONE MINUTE CHECK NONE, EVEN IF BROUGHT OUT LATER	Tha bun SOAP.....1 DETERGENT.....2 Geth ASH.....3 Tiok /liet MUD/SAND.....4 Acin NONE.....5 kok OTHER.....6	
Malaria			
ITN			

62	Pan dun le yic abimithici (han their)ye wek niin thin ? Does your household have any mosquito nets that can be used while sleeping?	YIC YES.....1 Aliu NO.....2	→ 67
63	Ye hon dhier ka de kek reer baai etene ? How many mosquito nets does your household have? IF 7 OR MORE NETS, RECORD '7'.	Gat piny hon d hier ko dee NUMBER OF NETS <input type="text"/>	
64	OBSERVE NETS IN THE HOUSEHOLD WRITE DOWN NAMES OF THE BRAND NAMES A _____ B _____ C _____ D _____ E. Other /no name _____		
65	Ye peei ka de ther war yook yin hon dhier ? How many months ago were these nets obtained? IF LESS THAN 1 MONTH AGO, RECORD '00'. IF ANSWER IS "12 MONTHS" OR "1 YEAR", PROBE TO DETERMINE IF NET WAS OBTAINED EXACTLY 12 MONTHS AGO OR EARLIER OR LATER.	MONTHS <input type="text"/> <input type="text"/> MORE THAN 2 YEARS AGO.....95 DON'T KNOW.....98	
66	Ye nga niin hon dhier ic wen akou ? Who slept under a bed net last night? Kong det , le raan det ? PROBE: Anyone else? IF ANYONE OTHER THAN THE CHILD IS MENTIONED, RECORD OTHER.	Acin raan NO ONE.....0 Riin meth CHILD (NAME).....1 Kok OTHER2	
67	Akol de miith aye tuany ku awic ke bi kek wiel dooc , ye ngo ye nyuoth lon ci meth tuany bi wiec dooc ? Sometimes children get sick and need to receive care or treatment for illnesses. What are the signs of illness that would indicate your child needs treatment? RECORD ALL MENTIONED.	Lac cath piol wela ci pioth LOOKS UNWELL OR NOT PLAYING NORMALLY.....A Ace mith wela dek NOT EATING OR DRINKING.....B Ace caath mel mnol LETHARGIC OR DIFFICULT TO WAKE.....C Duan dit thin HIGH FEVER.....D Ye mei apei FAST OR DIFFICULT BREATHING.....E Ye ngok akal akol VOMITS EVERYTHINGF Ye rieny /thng CONVULSIONS.....G Kok OTHER _____ W Tek thok (SPECIFY) Kok OTHER _____ X Tek thok (SPECIFY) Kok OTHER _____ Y Tek thok (SPECIFY) Akuic DON'T KNOW.....9	

68	Niin thiar ku nguan war ci bak ,(meth) la guop juai ? Has (Name) been ill with fever at any time in the last 2 weeks? DEMONSTRATE FEVER	YIC YES.....1 Aliu NO.....2 Akuic DON'T KNOW.....98	
69	Wen ci ye tuany juai ca wiec dooc? Did you seek advice or treatment for the fever?	YIC YES.....1 Aliu NO.....2	→ 75
70	Ye tene nou ci yin la thin tuny ba la wiec dooc ? Where did you first go for advice or treatment? IF SOURCE IS HOSPITAL, HEALTH CENTER, OR CLINIC, WRITE THE NAME OF THE PLACE. _____ Rin te wen reer yin thin (NAME OF PLACE)	<u>HEALTH FACILITY</u> <i>Kak pial guop</i> HOSPITAL.....1 HEALTH CENTER.....2 HEALTH POST.....3 NGO/PVO CENTER.....4 PRIVATE CLINIC.....5 OTHER HEALTH FACILITY.....6 <u>OTHER SOURCE</u> FIELD/HOME HEALTH PROMOTER.....7 TRADITIONAL PRACTITIONER.....8 SHOP.....9 PHARMACY.....10 COMMUNITY DISTRIBUTORS.....11 FRIEND/RELATIVE.....12 OTHER _____ 97 (SPECIFY)	
71	Ye nga cie tak yin lor ba meth la wiec dooc Who decided that you should go there for (NAME'S) illness? PROBE: Anyone else? RECORD ALL MENTIONED.	RESPONDENT.....A HUSBAND/PARTNER.....B RESPONDENT'S MOTHER.....C MOTHER-IN-LAW.....D FRIENDS/NEIGHBORS.....E OTHER _____ Y (SPECIFY)	
72	Did you go anywhere else for advice or treatment for (NAME'S) fever?	YIC YES.....1 Aliu NO.....2	→ 75

73	<p>Where did you go next for advice or treatment?¹</p> <p>IF SOURCE IS A HEALTH FACILITY, WRITE THE NAME OF THE PLACE.</p> <p>_____</p> <p>(NAME OF PLACE)</p>	<p><u>HEALTH FACILITY</u></p> <p>HOSPITAL.....1</p> <p>HEALTH CENTER.....2</p> <p>HEALTH POST.....3</p> <p>NGO/PVO CENTER.....4</p> <p>PRIVATE CLINIC.....5</p> <p>OTHER HEALTH FACILITY.....6</p> <p><u>OTHER SOURCE</u></p> <p>FIELD/HOME HEALTH PROMOTER.....7</p> <p>TRADITIONAL PRACTITIONER.....8</p> <p>SHOP.....9</p> <p>PHARMACY.....10</p> <p>COMMUNITY DISTRIBUTORS.....11</p> <p>FRIEND/RELATIVE.....12</p> <p>OTHER _____ 97</p> <p>(SPECIFY)</p>	
74	<p>War tueng ci juai rot jok , ye niin kade kek ci (meth) nok ba jal la wiel dooc?</p> <p>How many days after the fever began did you first seek treatment for (Name)?</p>	<p>AKol det</p> <p>SAME DAY.....0</p> <p>Nhiok</p> <p>NEXT DAY.....1</p> <p>Niin ke ron wela diak</p> <p>TWO OR MORE DAYS.....2</p>	
75	<p>War tuany (rin meth) la wel juai ci dek ?</p> <p>At any time during the fvever did (Name) take any drugs ?</p>	<p>YIC</p> <p>YES.....1</p> <p>Aliu</p> <p>NO.....2</p> <p>Akuic</p> <p>DON'T KNOW.....98</p>	<p>→ 78</p> <p>→ 78</p>

76	<p>Ye weel k ango kek ci dek le weel kok ?</p> <p>What drugs did (Name) take? Any other drugs? RECORD ALL MENTIONED.</p> <p>ASK TO SEE DRUG(S) IF TYPE OF DRUG IS NOT KNOWN. IF TYPE OF DRUG IS STILL NOT DETERMINED, SHOW TYPICAL ANTIMALARIAL DRUGS TO RESPONDENT **COUNTRY SPECIFIC BASED ON NATIONAL MALARIAL PROTOCOL.</p>	<p><u>ANTI-MALARIAL</u> SP/FANSIDAR.....A CHLOROQUINE.....B ARTESUNATE + AMODIAQUINE (AS+AQ).....C QUININE.....D ACT.....E</p> <p><u>OTHER DRUGS</u> ASPRIN.....F PARACETAMOL.....G OTHER _____ Y (SPECIFY) DON'T KNOW.....98</p>	
77	<p>War ci juai rot jok (rin math) ye niin kade ci nok ku jol gam weel ?</p> <p>How long after the fever started did (NAME) start taking the medicine?</p>	<p>Akol de SAME DAY.....0 Uhiak NEXT DAY.....1 Niin ke roy , ic wela te ci juai thook 2 DAYS AFTER THE FEVER.....2 Niin ke diak ie te juai thook 3 DAYS AFTER THE FEVER.....3 Niin ken guan wela te ci juai thook 4 OR MORE DAYS AFTER THE FEVER.....4 akuic DON'T KNOW.....9</p>	
78	<p>War liec yin (rin meth) la walk e ca dek bik yi tiet guop wei malaria ?</p> <p>When you were pregnant with (NAME), did you take any drugs in order to prevent you from getting malaria?</p>	<p>YIC YES.....1 Aliu NO.....2 Akuic DON'T KNOW.....98</p>	<p>→ 81 → 81</p>
79	<p>Ye wal ngo ca dek bi gel guop wei malaria ?</p> <p>Which drugs did you take to prevent malaria? RECORD ALL METNIONED. IF TYPE OF DRUG IS NOT DETERMINED, SHOW TYPICAL ANTIMALARIAL DRUGS TO RESPONDENT.</p>	<p><u>ANTI-MALARIAL</u> SP/FANSIDAR.....A CHLOROQUINE.....B ARTESUNATE + AMODIAQUINE (AS+AQ).....C QUININE.....D ACT.....E</p> <p><u>OTHER DRUGS</u> ASPRIN.....F PARACETAMOL.....G OTHER _____ Y (SPECIFY) DON'T KNOW.....98</p>	<p>→ 81 → 81</p>

80	<p>Arak de kek ci yin wal col sp/fansidar dek liec duic eben ?</p> <p>How many times did you take SP/Fansidar during this pregnancy?</p>	<p>TIMES <table border="1" style="display: inline-table; vertical-align: middle;"><tr><td style="width: 20px; height: 20px;"></td><td style="width: 20px; height: 20px;"></td></tr></table></p> <p>DON'T KNOW.....98</p>			
81	<p>War liec yin (rin) yi ye niin hon dhier ?</p> <p>When you were pregnant with NAME, did you sleep under a bednet?</p>	<p>YIC YES.....1 Aliu NO.....2 Akuic DON'T KNOW.....98</p>	<p>→ END</p> <p>→ END</p>		
82	<p>Ye niin hon dhier Akol kol , Akol de wela ci ye lac niin hon dhier ic ?</p> <p>Did you sleep under the net all the time, most of the time, some of the time, or rarely?</p>	<p>Yul e bene ALL OF THE TIME.....1 Yul thok ben MOST OF THE TIME.....2 Yul det yic SOME OF THE TIME.....3 Acin yuul RARELY.....4</p>			

Thank the mother for the interview.

Documents Reviewed

- Project Proposal
- Project Detailed Implementation plan
- Project annual and midterm evaluation reports
- USAID and Ministry of Health background documents
- Final KPC survey and OR reports
- Home Based Life Saving Skills Training Manual

Focus Group Participants

- 12 Home health promoters who were trained by the project and their supervisor
- 9 female beneficiaries of the project with their infants less than 2 years of age

Key Informant Interview Participants

At the World Vision National Office

- The Executive director of World Vision- South Sudan
- The Monitoring and Evaluation Director
- The Finance Director
- The Logistics director
- The Security Director
- The Past Zonal Director for Warrup State

At the World Vision Zonal Office

- A physician and midwife from the Health Pooled Fund.
- An OBGYN from the WHO who is helping to establish operating room capability at the district hospital
- The Acting Zonal Director
- The Security Director
- The Finance Director
- McCHT project director
- MaCHT Warrup project staff – in a group interview setting

Government Officials

- Warrup State Acting Director General of the State Ministry of Health

Disclosure of Real or Potential Conflict of Interest for USAID Evaluations

Instructions:

Evaluations of USAID projects will be undertaken so that they are not subject to the perception or reality of biased measurement or reporting due to conflict of interest.¹ For external evaluations, all evaluation team members will provide a signed statement attesting to a lack of conflict of interest or describing an existing conflict of interest relative to the project being evaluated.²

Evaluators of USAID projects have a responsibility to maintain independence so that opinions, conclusions, judgments, and recommendations will be impartial and will be viewed as impartial by third parties. Evaluators and evaluation team members are to disclose all relevant facts regarding real or potential conflicts of interest that could lead reasonable third parties with knowledge of the relevant facts and circumstances to conclude that the evaluator or evaluation team member is not able to maintain independence and, thus, is not capable of exercising objective and impartial judgment on all issues associated with conducting and reporting the work. Operating Unit leadership, in close consultation with the Contracting Officer, will determine whether the real or potential conflict of interest is one that should disqualify an individual from the evaluation team or require recusal by that individual from evaluating certain aspects of the project(s).

In addition, if evaluation team members gain access to proprietary information of other companies in the process of conducting the evaluation, then they must agree with the other companies to protect their information from unauthorized use or disclosure for as long as it remains proprietary and refrain from using the information for any purpose other than that for which it was furnished.³

Real or potential conflicts of interest may include, but are not limited to:

1. Immediate family or close family member who is an employee of the USAID operating unit managing the project(s) being evaluated or the implementing organization(s) whose project(s) are being evaluated.
2. Financial interest that is direct, or is significant/material though indirect, in the implementing organization(s) whose projects are being evaluated or in the outcome of the evaluation.
3. Current or previous direct or significant/material though indirect experience with the project(s) being evaluated, including involvement in the project design or previous iterations of the project.
4. Current or previous work experience or seeking employment with the USAID operating unit managing the evaluation or the implementing organization(s) whose project(s) are being evaluated.
5. Current or previous work experience with an organization that may be seen as an industry competitor with the implementing organization(s) whose project(s) are being evaluated.
6. Preconceived ideas toward individuals, groups, organizations, or objectives of the particular projects and organizations being evaluated that could bias the evaluation.

¹ USAID Evaluation Policy (p. 8); USAID Contract Information Bulletin 99-17; and Federal Acquisition Regulations (FAR) Part 9.5, Organizational Conflicts of Interest, and Subpart 3.10, Contractor Code of Business Ethics and Conduct.

² USAID Evaluation Policy (p. 11)

³ FAR 9.505-4(b)

Disclosure of Conflict of Interest for USAID Evaluation Team Members

Name	Frank J Anderson
Title	Associate Professor
Organization	University of Michigan
Evaluation Position?	<input checked="" type="checkbox"/> Team Leader <input type="checkbox"/> Team member
Evaluation Award Number (contract or other instrument)	AID-OAA-A-10-00037
USAID Project(s) Evaluated (Include project name(s), implementer name(s) and award number(s), if applicable)	MaCHT Mother and Child Health Transformation Project in Warrap State, South Sudan. World Vision Cooperative Agreement number AID-OAA-A-10-00037
I have real or potential conflicts of interest to disclose.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
If yes answered above, I disclose the following facts: <i>Real or potential conflicts of interest may include, but are not limited to:</i> <ol style="list-style-type: none"> 1. Close family member who is an employee of the USAID operating unit managing the project(s) being evaluated or the implementing organization(s) whose project(s) are being evaluated. 2. Financial interest that is direct, or is significant though indirect, in the implementing organization(s) whose projects are being evaluated or in the outcome of the evaluation. 3. Current or previous direct or significant though indirect experience with the project(s) being evaluated, including involvement in the project design or previous iterations of the project. 4. Current or previous work experience or seeking employment with the USAID operating unit managing the evaluation or the implementing organization(s) whose project(s) are being evaluated. 5. Current or previous work experience with an organization that may be seen as an industry competitor with the implementing organization(s) whose project(s) are being evaluated. 6. Preconceived ideas toward individuals, groups, organizations, or objectives of the particular projects and organizations being evaluated that could bias the evaluation. 	

I certify (1) that I have completed this disclosure form fully and to the best of my ability and (2) that I will update this disclosure form promptly if relevant circumstances change. If I gain access to proprietary information of other companies, then I agree to protect their information from unauthorized use or disclosure for as long as it remains proprietary and refrain from using the information for any purpose other than that for which it was furnished.

Signature	
Date	Aug 1 st , 2014

World Vision US does not wish to state any differences with the final evaluation report. We find that the report is comprehensive and constructive.

MaCHT South Sudan Final Evaluation | Annex XIII: Evaluation Team Members, Roles, and Their Titles

	Team Member	Organization	Title	Role
1.	Frank Anderson	Consultant	Independent Consultant	Evaluation Team Leader
2.	Alfonso Rosales	World Vision US	Senior Technical Advisor for Maternal and Child Health	OR Principal Investigator
3.	Elizabeth Walumbe	World Vision South Sudan	Child Survival (MaCHT) Project Manager	Child Survival (MaCHT) Project Manager
4.	Peter Ate Ate	World Vision South Sudan	Social Mobilizer	Team member
5.	Laurent Mwami	World Vision South Sudan	Zonal Finance Officer	Team member
6.	Mareug Achoi Mareng	World Vision South Sudan	Relief Officer	Team member
7.	Beulah Jayakumar	World Vision South Sudan	Survey Trainer	Survey Trainer
8.	Peter Mayen Kuol	World Vision South Sudan	Data Enumerator	Data Enumerator
9.	Taban Malok Domkooc	World Vision South Sudan	Data Enumerator	Data Enumerator
10.	Mou Mou Adiu Mou	World Vision South Sudan	Data Enumerator	Data Enumerator
11.	Lual Akook Agak	World Vision South Sudan	Data Enumerator	Data Enumerator
12.	Kur John Garang	World Vision South Sudan	Data Enumerator	Data Enumerator
13.	Monychol Kulong Madut	World Vision South Sudan	Data Enumerator	Data Enumerator
14.	Simon Kur Akol	World Vision South Sudan	Data Enumerator	Data Enumerator
15.	Michael Maloch Mawien	World Vision South Sudan	Data Enumerator	Data Enumerator
16.	Mathiang Mayar Mathiang	World Vision South Sudan	Data Enumerator	Data Enumerator
17.	Majok Dut Manyiel	World Vision South Sudan	Data Enumerator	Data Enumerator
18.	Deng Piol Majok	World Vision South Sudan	Data Enumerator	Data Enumerator
19.	John Thong Majok	World Vision South Sudan	Data Enumerator	Data Enumerator
20.	Kiirthon Awet Dhal	World Vision South Sudan	Data Enumerator	Data Enumerator
21.	William Bak Madut	World Vision South Sudan	Data Entry Clerk	Data Entry Clerk

MaCHT South Sudan Final Evaluation | Annex XIII: Evaluation Team Members, Roles, and Their Titles

	Team Member	Organization	Title	Role
22.	Charles Chan Ngong	World Vision South Sudan	Data Entry Clerk	Data Entry Clerk
23.	Angelo Wek Deng	World Vision South Sudan	Data Entry Clerk	Data Entry Clerk
24.	Ajang Makuer Madut	World Vision South Sudan	Data Entry Clerk	Data Entry Clerk
25.	Kelley Brown	World Vision US	Program Research Analyst	Data Analysis

Impacts of Supervising Community Health Workers in South Sudan to Deliver Integrated Community Case Management Services for Newborns and Children

Authors: Alfonso Rosales, MD, MPH-TM*; Juli Hedrick, MPH*; Dennis Cherian, BHMS, MS, MHA*; Kuol Kuol Amet**; Elizabeth Walumbe, RN, MPH**; Grace Dunbar, MPH*; Elizabeth Foulkes, MPH*; Rose Achan, RN**; Katelyn Lowery, MPH*

Author Affiliations: *World Vision United States; **World Vision South Sudan

Abstract

Improving and maintaining the clinical skills of frontline health workers over time is critical for strengthening health systems and providing adequate care to mothers, newborns, and children—supervision is widely recognized as a key to improving health worker performance. In Warrap state, South Sudan, where the greatest barrier to health care is the lack of skilled human resources, a 13-month operations research study was undertaken to describe and assess a supervision model for illiterate community health workers (CHWs). Fifteen CHWs were trained, supervised, and studied to assess correct use of newborn and child health record forms; identification and classification of disease; treatment of sick children; referral to health facilities; and use and storage of tools and medical supplies. CHWs were visited weekly by a field supervisor for three months and then monthly for the remaining 10 months. After the supervision period, 87 percent of CHWs were accredited as competent to deliver Integrated Community Case Management plus essential newborn care services, with competency rated as excellent for 30 percent, 95 percent of registration forms completed; 7 percent of sick children showed discrepancy between classification of illness and drug administration, and all drugs were accounted for with complete stocks. Over the full project of supportive supervision, there were a total of 2,552 children under age 5 visited by the CHWs, with a mean of 196 and a median of 162 child visits per month. The overall referral rate to primary health care unit (PHCU) found was 73 percent, with 92 percent effective referral rate. Results suggest that a supervision process to measure and maintain clinical skill performance by CHWs is an important element of program design, especially among community-based approaches where treatment with drugs is included.

1 Introduction

1.1 Global Problem

Improving and maintaining the clinical skills of frontline health workers over time is critical for strengthening health systems and providing adequate care to mothers, newborns, and children. Supervision is widely recognized as key to improving health worker performance (WHO, 2006; Bosch-Capblanch and Garner, 2008). As millions of dollars are invested in community health workers (CHWs) to bring health coverage to underserved populations, it becomes important to understand the strengths and limitations of supervising these frontline health workers to build capacity and ensure quality care is provided.

During the primary health care movement of the 1970s, supervision approaches were top down, focusing mostly on the system's information requirements 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 an approach termed supportive supervision, which focuses on provider needs and support to solve provider problems. Supportive supervision has been

defined by Cliger, Gergen, and Perry (2008) as “a process of guiding, monitoring, and coaching workers to promote compliance with standards of practice and assure the delivering of quality care service. The supervisory process permits supervisors and supervisees the opportunity to work as a team to meet common goals and objectives.”

Currently, there is a dearth of literature on supervision approaches, especially when referring to frontline health workers based at the community level. The inadequate number of skilled health personnel in developing countries, and the urgent need to cover vulnerable populations with essential health services through the utilization of community-based services, makes the documentation of lessons learned a vital contribution to continual efforts for improved newborn healthcare.

1.2 Area Problem

The greatest barrier to health care in South Sudan is the lack of skilled human resources. Warrap state, with 64 percent of its population living below the poverty line, is one of the poorest states in South Sudan. Furthermore, the literacy rate of the 15-24 age group is significantly lower in Warrap state than the national rates of South Sudan (27 percent in Warrap versus 40 percent nationally). More than nine out of 10 of its population lives in rural areas, with a population density of only 21 people per square kilometer. Currently, humanitarian agencies provide more than 85 percent of all health care in the state.

Given the anticipated time it will take to adequately increase capacity within the formal health system in Warrap state, there is an urgent need for rapid deployment of community-based health services with proven competencies to deliver essential health care to children under 5, including newborns. Capacity building strategies like training and supervision need to be adapted, based on local context, to ensure skill-related transference and maintenance over time, thereby improving coverage and competence of CHWs.

1.3 Study Objective

The objectives of this study are to describe and assess a supervision model for illiterate CHWs providing care to mothers, newborns, and children in Warrap state, South Sudan.

2 Methods

2.1 Study Design

This study¹ uses a descriptive case study design. Multiple methods were used to conduct this assessment, including a review of literature, in-depth interviews, direct observations of a cohort of CHWs, and data analysis from supervision check-lists. The population for this case study included 15 home health providers, who are the frontline volunteer CHWs in South Sudan; one field supervisor; and one central supervisor. All 15 CHWs undergo a five-day training on service delivery of integrated community case management (iCCM-Plus²) tools. CHW supervisors also participated during the five-day iCCM plus training methodology and a one-day training on the supervision approach and use of supervision tools and reporting mechanisms. All CHWs were female, illiterate, and chosen by their communities to participate in the project. Although 15 CHWs were originally enrolled, the program yielded

¹ This study was embedded in a four-year USAID Child Survival and Health Grant Program project (CSHGP), implemented by World Vision (WV) in South Sudan.

² iCCM curriculum addresses diarrhea, pneumonia, and malaria in children. iCCM-Plus includes an additional component on newborn care. iCCM-Plus is the training received by the 15 CHWs in this OR project.

results for 13 CHWs because two individuals were unable to complete the training requirements.

Participants were informed that the information collected during the supervision visits would be used to inform a final project report. Data was collected from March 2013 to March 2014.

A literature review, including nine peer-reviewed publications and six institutional reports,³ examined the selection, training, and supervision of CHWs. Key themes emerged, notably that: 1) CHWs should be selected by their community rather than recruited (UNICEF, 2004), 2) culturally appropriate approaches to training, including the use of storytelling, should be utilized (USDHHS, 1998), and 3) supervision is “among the weakest links in CHW programs,” (Lehmann and Sanders, 2007). The design of the intervention took into consideration key themes from the literature review, including the selection process of CHWs, design of the project training and tools, and a focus on supervision.

Six in-depth interviews and 20 focus group discussions held with mothers of children under 2, community leaders, CHWs, Maternal and Child Health Transformation project (MaCHT) staff, Ministry of Health officials, and other stakeholders during the OR preparatory phase informed the design of the training schedule and documents, with particular attention to language and literacy barriers. Project and Primary Health Care Unit (PHCU) staff were sensitized to the project and corresponding materials prior to CHW training.

2.2 Project Training Tools

Project tools, translated into the local language, used pictures and symbols to “cue” illiterate CHWs. An 11-page non-consumable flipchart (Annex I & II), used front to back, was designed to help CHWs systematically assess children for signs of illness (danger signs, iCCM, illness, and, when appropriate, newborn care) and deliver the appropriate response: home treatment, referral to the health facility, or urgent referral to a health facility. The flipchart was based on the WHO’s Integrated Management of Childhood Illness (IMCI) algorithms (WHO, 2006), which are decision-making trees for detection of newborns with problems at routine home visits and referral of children and infants with severe problems to a higher level facility and those with simple conditions for treatment at the primary care level.

A corresponding newborn or child health recording form (Annex III & IV), with pictures to circle for findings and responses, was kept by the CHW for supervision purposes, while a corresponding referral form (Annex V) facilitated communication between CHWs and health facilities regarding signs observed and responses taken.

2.3 Community-Based Supervision Model

World Vision United States (WVUS), in collaboration with World Vision South Sudan and the Government of South Sudan Ministry of Health (MOH), piloted an innovative supervision model focused on community resources within an iCCM-Plus implementation program. The WVUS community-based supportive supervision model (see Table 1) was adapted from a clinical supervision approach based on a three-function interactive model in which the supervisor and supervisee are jointly responsible for completing supervision of formative (increasing skills and knowledge), normative (enhancing accountability and quality assurance) and restorative (facilitating collegial and supportive relationships) activities (Proctor, 1987; Jones, 1996; Cutcliffe & Proctor, 1998).

³ WHO (4), USDHHS (1), UNICEF (1)

The three-function supervision model used for this 12-month program illustrates the roles of both field supervisor and central supervisor for all components of the supervision: formative, normative, and restorative.

Formative supervision aimed to improve instruction, skills development, and knowledge retention. During formative supervision, the central supervisor was present throughout the training period and the field supervisor managed weekly visits. The weekly visits during this stage comprised of individual coaching with each CHW as specific problem areas arose and were identified. Additionally, the field supervisors directed monthly meetings that included continuing education for CHWs.

Normative supervision addressed skills and equipment management by continuing to engage both the central and field supervisor to ensure that “the supervisee’s work is professional and ethical, operating within whatever codes, laws and organizational norms apply” (Proctor, 1987). Weekly visits by the field supervisor included coaching and reinforcement of technical tasks. The coaching involved identifying any problems in service delivery the CHW had during the previous week and jointly looking for a solution. The field supervisor tested CHW knowledge and practices by selecting a component of the flipchart for the CHW to competently explain, reviewing the CHW’s records and forms for accuracy, and checking the medications and equipment used by each CHW. Normative supervision on the central supervisor’s part entailed reviewing weekly reports submitted by the field supervisor and providing immediate feedback.

Restorative supervision aimed to support, reduce burnout, and improve satisfaction among CHWs. This component accounted for the positive feedback from the community and health facility via the field supervisor during weekly visits and monthly meetings. Additionally, the central supervisor was responsible for weekly teleconferences, dissemination of information, on-site support, and the collaborative assessments of problems in practice. At the end of the three-month training period, supervision visits were held on a monthly basis using similar approaches and tools, and discontinuing the role of central supervision.

	Field supervisor	Central supervisor
Formative	Weekly visits during three-month training period: coach each CHW when problem areas are identified. Continuing education topics at monthly meeting (e.g. vaccination)	Three-month training period
	Monthly visits after training period	Suspended after training period
Normative	Weekly visits during three-month training period: test components of the algorithm, check recording forms and condition of medication/equipment.	Review of weekly reports with immediate feedback.
	Monthly visits after training period	Suspended after training period
Restorative	Weekly visits during three-month training period: report positive feedback from community and health facility.	Weekly teleconference, sharing of information, on-site support. Joint identification of solutions to problems in practice.
	Monthly meetings.	Suspended after training period

Table 1: Components of a three-function interactive model used during the Operational Research intervention component of MaCHT

2.4 Procedure

In the trial intervention area, the supervision model was implemented to support CHWs after iCCM-Plus training. The supervision model included: 1) a one-day workshop in February 2013 to train a project-hired supervisor 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) the supervisor's tabulation form; and 4) the reporting structure. All components were implemented together, and all were designed or adapted at WVUS headquarters and pre-tested at the field level with subsequent modification based on input from field staff and district MOH personnel.

During the intervention design and implementation phase, no government guidelines for the supervision of CHWs existed. The supervision model structure was based on the development of a CHWs task-flow, and includes the appointment of a single supervisor at field level to whom supervisees are accountable (15 CHWs to 1 supervisor) and establishment of a central supervisor based at headquarters level.

Supervision of field workers for the first three-month training period of the five-day iCCM-Plus training included weekly supervision visits and reports submitted to the central supervisor, and weekly phone calls. From June 2013 to March 2014, the approach moved to a frequency of monthly field supervisory visits to each CHW, monthly field supervision collection of information, monthly field reports, and cessation of central supervision activity.

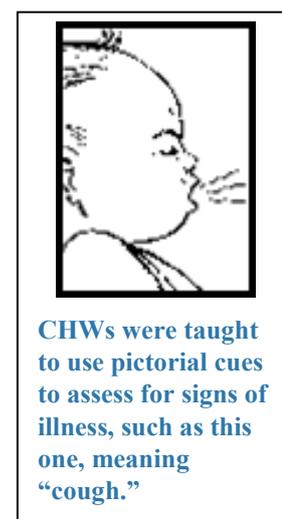
2.5 Intervention Training

The five-day iCCM-Plus training began with an individual verbal pre-assessment of CCM knowledge, after which the algorithms for classification of and response to general danger signs, pneumonia, diarrhea, and malaria were presented. Teaching each section involved five components: 1) sharing personal experiences, 2) using the pictorial flipcharts to illustrate each symptom, 3) group discussions, 4) viewing UNICEF/WHO videos for each symptom, and 5) explaining the recording and referral forms.

After each disease management topic, a field practicum was performed in a nearby village, with four CHWs and one supervisor traveling as a group. A significant amount of time was spent on the skill of using counting beads and a one-minute timer (WHO/UNICEF) to assess breathing rate. Although this training method was time-intensive, within five or six attempts, the women were able to successfully use this method. At the conclusion of the CCM portion of the training, a post-assessment was conducted and compared to the pre-assessment results.

The remaining sections (breastfeeding, immunizations and vitamin A, essential newborn care, newborn resuscitation, and newborn general danger signs) were excluded in the field practicum. These were included in additional interactive classroom trainings that included several hands-on practice sessions with aspirators and bag-valve mask resuscitators on newborn simulators.

Training culminated in a station-based test of five skills: completing the recording and referral forms, demonstration of management of fever, cough, and diarrhea according to iCCM-Plus training, and newborn resuscitation. Each CHW was assessed at each station, and only those CHWs who demonstrated understanding in all five (n=9) received a field kit with



forms, drugs, and equipment. The field supervisor continued to work weekly with the six CHWs who did not initially successfully complete the test. Three of the six were able to successfully complete the test within seven weeks of the training. By the end of the three-month period two CHWs were not able to demonstrate iCCM-Plus-related competencies, and therefore both were discontinued from the program.

Important to note is that all tools for this training were based on a picture-cueing system. All of the CHW participants were illiterate, necessitating hands-on and pictorial training methods. Illiteracy still proved to be a factor regarding difficulty with or ability to hold the paper in the correct direction, turn pages in the flipchart, and control a pencil to make circles around pictures. The CHWs were not at ease holding several paper items in their hands, and transitioning from turning a flipchart page to marking the form was a new skill. These very basic challenges slowed the training pace considerably, but were balanced by the amount of practical knowledge known by the CHWs from previous training and experience.

Training achieved 100 percent attendance by the CHWs. During the first supervision week, the central field supervisor accompanied the field supervisor in visiting each home health provider and completing the supervision checklist.

2.6 Weekly Supervision Checklist

The weekly supervision checklist (Annex VI) included quantifiable measures of performance to assess CHW practices and case load. 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: consistent and complete use of the registration form (seven questions); correct identification and classification of disease, according to an IMCI-modified algorithm (four questions); correct treatment of sick children according to classification, including medicine administration and referral (nine questions); and correct use and storage of tools and medical supplies, such as flip-chart, breath counter, bag and mask resuscitator, and aspirator (six questions).

2.7 Data Collection and Analysis

Information was prospectively collected through an ongoing monitoring system carried out by the field supervisor. Sources of information included monthly virtual meetings, monthly supervision field reports, and data collection from a supervision checklist and individual CHW child or newborn health recording forms. Data collected between March 2013 and March 2014 through monthly meeting reports, supervision checklists, and supervision individual reports were summarized.

3 Results

3.1 Three-function Supervision of CHWs

First phase supervision (March-May 2013): During the first 12 weeks of supportive weekly supervision, there were a total of 136 supervisory visits to 15 CHWs.⁴ During this period there was a mean of 11.3 supervision visits per week and a median of 12 supervision visits per week. The smallest number of supervision visits was three during Week 11, and the highest was 15 visits during Week 2 (see Figure 1). The most documented cause for failing to visit was due to the absence of CHW from her home. Transportation-related limitations were

⁴ Two CHWs, due to inability to manage the clinical algorithm after 12 weeks, were discontinued from the program.

reported as well during Week 3 (seven visits) and Week 11 (three visits). After the supervision period, only 13 out of 15 CHWs (87 percent) were accredited as competent to deliver iCCM-Plus services. Two (13 percent) were discontinued from the program. Most CHWs (60 percent, n=9) acquired competency level to deliver services by the end of the first week, with an additional three CHWs acquiring competency by week 7. One CHW was considered competent by the end of the three-month period.

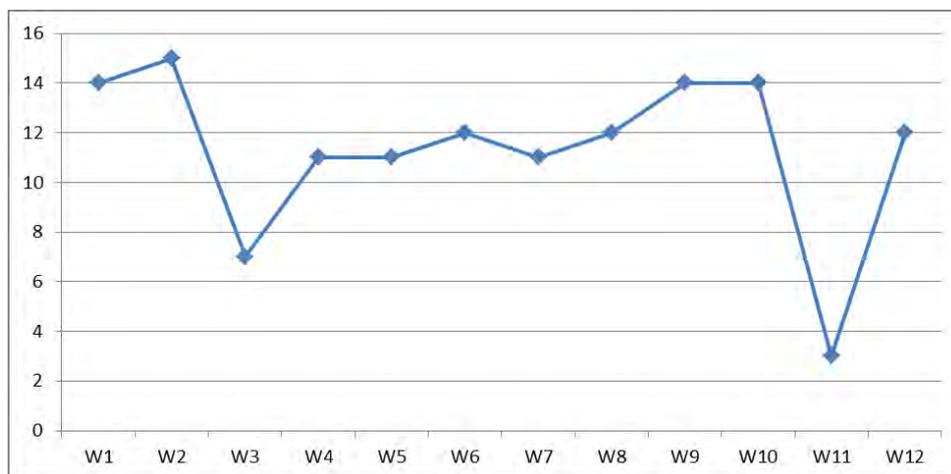


Figure 1. Frequency of supervision visits during weeks 1-12, March-May 2013. Kuac South, South Sudan

The supervision system identified all child or newborn health recording forms that needed assistance from the supervisor. Overall, during the 12-week period, 66 percent (n=204) of registration forms needed assistance from the supervisor. During the three-month period, it was noted that assistance was most needed during the first five weeks (see graph) of the supervision period, experiencing a decrease in assistance needs for week 6 and on. During the reporting period there were two abrupt decreases (week 6 and 11) on needed assistance. During week 6, there was an apparent outbreak of whooping cough, and all CHWs were required by the district to focus on the disease. During week 11, a serious transport limitation event occurred that precluded supervision visits.

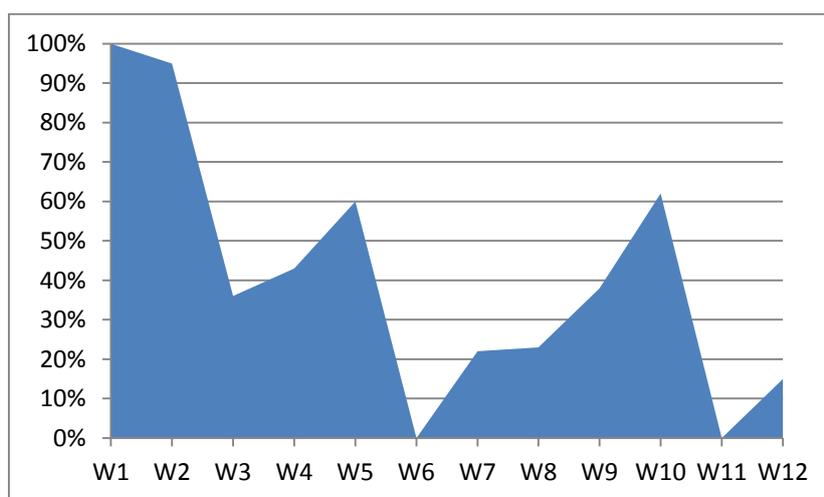


Figure 2. Percentage of registration forms with assistance per week of supervision, Kuac South, South Sudan, March 2013 - May 2013.

Eighty percent (n=249) of registration forms were reported as completed (continued either to a point of urgent referral or the end of the form) during the first three-month period of supervision. Almost half of CHWs were able to correctly use the registration form right after the one-week training, and three quarters of them began using it correctly after week 3. From June 2013 to March 2014, the completion rate of registration forms was 95 percent (range 78-100 percent).

Supervisor ratio. The optimal supervisor to supervisee ratio found during this study was 1:10, especially during the first three-month period following the five-day training. The trial utilized a ratio of 1:15, yet the supervisor in the field was only able to achieve an average supervision visit rate of 11.3 per week. The optimal ratio of 1:10 is based upon this average number of actual supervisory visits conducted weekly in the field. There were several issues based on population density, such as the distance between CHWs and poor road conditions that made travel difficult and did not allowed the targeted 1:15 ratio to be feasible for this project.

Drug/medicine administration. The supervision system matched classification of disease with treatment, including administration of drug/medicine as provided by each CHW (both services—classification of disease and drug administration—provided by each individual CHW). Overall, the system reported during this first 12 weeks 1.2 percent of sick children with discrepancy between classification of illness and drug administration, as recorded in the registration form. During the 13-month period, the system reported 6.6 percent of sick children with discrepancy between classification of illness and drug administration, as recorded in the registration form.

Medicine and equipment storage conditions. During supervision visits, medical stock and supply was monitored according to records by matching drugs dispensed according to registration forms and quantity of drug presented by CHW at the moment of supervision, as well as equipment reported usage and current stock. Condition and storage of medicine and equipment was monitored and recorded during the supervision visit. During the 13 months of supervision activities (March 2013 to March 2014), all drugs were accounted for with complete stocks. During the life of the project, there were no stock-outs reported or found during supervision visits. All drugs and equipment were found to be well stored and protected from sunlight.

Testing of one component (randomly selected) of algorithm. During each supervision visit, each CHW underwent formal evaluation with immediate feedback of a randomly selected module of the algorithm (flipchart). The formal evaluation included demonstrated understanding of flipchart/algorithm; demonstrated correct completion of corresponding portion of registration form; demonstrated correct completion of corresponding portion of referral form; and demonstrated correct medication/drug administration for the section tested. Each formal evaluation classified management of the algorithm on three possible levels: *yes, with excellence*; *yes, with some difficulty*; and *no, unable to demonstrate*. The level of competence was measured during supervision visits, during which a competency was randomly chosen, followed by demonstration/observation and compliance of standards of practice. Compliance assessment was done in two steps. The first step determined whether the CHW had competency in delivering the selected health service. If service was delivered, then the second step would assess whether service was delivered with or without difficulty. During the three-month weekly supervision period, 8 percent of CHWs (n=1) did demonstrate excellence in the management of the flipchart/algorithm, recording form, referral form, and drug administration; all of these variables increased to 31 and 32 percent in the

following four months of the supervision period. The great majority (see Table 2) achieved the marks “demonstrated understanding with some difficulty” in each of these categories. By the end of seven months, approximately 30 percent completed the competency tested with excellence, with almost 70 percent of CHWs completing the administered test with some difficulty.

Competency tested	3-month result			7-month result		
	Excellent	Some difficulty	Unable	Excellent	Some difficulty	Unable
Flipchart/algorithm	8%	91%	1%	31%	69%	0%
Recording form	8%	92%	0%	32%	68%	0%
Referral form	8%	91%	1%	31%	69%	0%
Correct medication	8%	90%	2%	31%	69%	0%

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

3.2 CHW Healthcare Provider Capacity

Over the course of the full 13 months of supportive supervision, there were a total of 2,552 children under age 5 visited by the 13 CHWs; a mean of 196 and a median of 162 child visits per month. The smallest number of children visited in a month was 76 during March 2013, and the highest was 378 child visits during August 2013 (see Figure 3). The time period in which the highest number of children attended (49 percent of total children attended during July-November period) correlates with the seasonal floods during 2012, as well as with the seasonal peak for malaria cases in South Sudan.

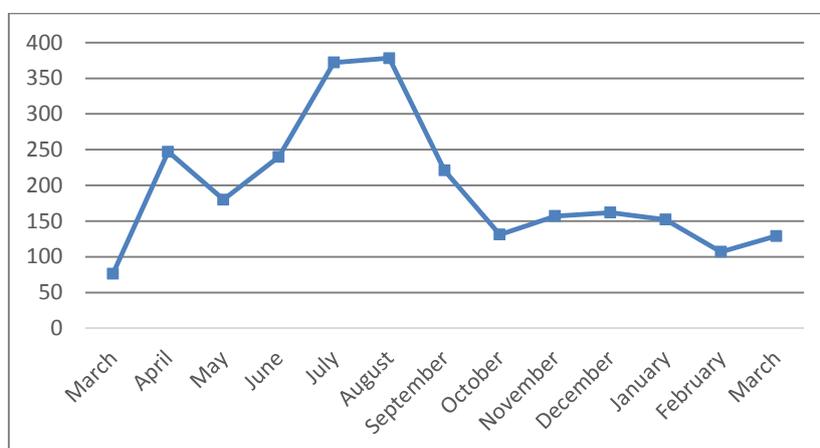


Figure 3. Frequency of children visited during a thirteen-month period, March 2013- March 2014, Kuac South, South Sudan.

Most (82 percent, n= 2082) of the children registered by the system were aged 1 month to 59 months. Among this age group, cough or difficulty breathing (41 percent) was the most commonly classified disease, followed by urgently referred fever (39 percent), diarrhea with dehydration (5 percent), and general danger signs (2 percent). Among newborn children (aged 0-29 days), the majority were classified as healthy newborns (65 percent), though the most commonly classified disease was urgently referred fever (15 percent/44 percent of morbidity), followed by cough or difficulty breathing (12 percent/34 percent of morbidity). During the 13 months, a total of 470 newborns were visited and registered; 52 percent of them during the period May-August.

Of particular note, the question “How can you tell if a child has fast breathing?” was answered by almost all as “You can tell by looking” during the pre-test, and “Count the breaths for one minute” on the post-test.

Taking into account the total population of children under 5 covered (2,552 children) and an average of 236 working days per year, the CHWs saw an average of 10.8 children under the age of 5 per day. With 13 CHWs, this averages to each seeing 0.831 children under the age of 5 per day and an Average Total Population Coverage Capacity (ATPCC)⁵ per CHW (OR MaCHT South Sudan) of 98.1 children under 5 years of age per year.

Furthermore, the South Sudan experience showed that the coverage capacity, which a community-based health system in Warrap State has, is of approximately 100 children under 5 years of age per year per CHW. Each CHW is investing approximately 2 hours per week (16.6 minutes per day) for a total of 65 hours per year.

3.3 Referral

During the three-month period of pilot testing the iCCM-Plus supervision model, 51 percent (258/503) of children identified were referred to the PHCU. The effective referral rate (children referred who actually reached the health facility) found was 70.4 percent, as determined by collected referral forms. The overall trial referral rate during the 13-month period reached was 73 percent (1854/2552), with a 92 percent (1712/1854) effective referral rate.

4 Discussion

Results suggest that a supportive supervision process integrated into a training methodology for the transfer and maintenance of skills and competencies related to CCM-related clinical skill performance by CHWs is an important element of program design, especially among community-based approaches where treatment with drugs is included. Findings during the trial clearly identify supportive supervision, especially during the immediate period after training, as a key step to ensure skill and competency acquisition, and not only as a management process to oversee a check on a person’s work.

Overall, results indicate that integrating weekly supervision for a three-month period and monthly thereafter into a one-week training for iCCM-Plus, as demonstrated by this trial, ensures the transfer of competencies and skills to CHWs needed to provide health services related to the CCM strategy, especially when including newborn-related care. All related clinical skills progressively increased their competency over time with one-third of participating CHWs achieving excellent management of the skill by month seven.

One aspect demonstrated during the trial was the importance of establishing an effective supervisor-supervisee ratio based on contextual variables such as population density, transport availability, and roads. In addition, the population coverage capacity per CHW that this type of program has may be different even within the same region and/or country.

Most past studies focused on supervision have focused on clinical staff of formal health systems, mostly neglecting testing supervision approaches for community-based programs. To our knowledge, this is the first attempt to design, assess and document a supervision model for community approaches using the three-function interactive model. The present report focused on competency and skill outcomes during a 13-month period, thus outcomes

⁵ Calculation of the population coverage capacity is adapted from the WHO formula used to calculate population coverage capacity for health centers.

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 design is needed.

4.1 Study Limitations

The main limitations found during the implementation of this type of supervision were 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). Additional limitations were related to the fragile state context currently affecting South Sudan—notably, high turn-over of project staff, and restrictions of movement of project staff and goods. Due to the small sample included in the trial, extrapolations external to the area of project influence are not feasible.

5 Implications and Recommendations

This study report shows that close, supportive supervision immediately after training activities might be a key step to consider in ensuring skill and competency acquisition among illiterate CHWs in developing countries in a fragile state situation where CCM approaches are currently being considered or implemented. While this is primarily a descriptive study of a CHW supervision model, future studies should focus on assessing the competency, coverage and effectiveness of illiterate CHWs with supportive supervision compared to a control group to increase internal validity of the conclusions. If volunteer CHWs can provide quality care and improved access to care in developing countries in a highly cost-effective manner as supported by evidence-based research, their place in health care system structures can be formally established.

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7 Annexes

- I.** CCM Pilot Manual Flipchart – English
- II.** CCM Pilot Manual Flipchart – Dinka
- III.** Newborn Health Recording Form (0-28 days)
- IV.** Child Health Recording Form (29 days to 5 years)
- V.** Referral and Urgent Referral Form to Hospital or Health Center
- VI.** Weekly Checklist for OR Supervisors
- VII.** CHW Training Timetable
- VIII.** CHW Skills Certification Test
- IX.** List of Equipment and Drugs for HHPs



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Community Case Management Pilot Manual for Newborns and Children Under Age 5

Southern Sudan Maternal and Child Health Transformation Project (MaCHT)



October 2012

This manual is made possible by the generous support of the American people through the United States Agency for International Development (USAID). The contents are the responsibility of World Vision and do not necessarily reflect the views of USAID or the United States Government.

World Vision is a Christian humanitarian organization dedicated to working with children, families, and their communities worldwide to reach their full potential by tackling the causes of poverty and injustice. World Vision serves all people, regardless of religion, race, ethnicity, or gender.

General Danger Signs

Look/Ask



- Not able to drink or breastfeed?



- Vomits everything?



- Convulsions?



- Very sleepy or unconscious?

What to Do

Urgently Refer to Hospital or Health Center

This child has a severe problem.



Advise the caretaker to take the child to the hospital right away.



Write a referral note for the caretaker to take to the hospital.



Calm the caretaker's fears and help her resolve any problems.



Advise the caretaker to keep the child warm and to continue offering liquids if the child is awake.



If
YES
to
ANY
of
these

General Danger Signs

ASK: IS THE CHILD ABLE TO DRINK OR BREASTFEED?

- A child has the sign “not able to drink or breastfeed” if the child is not able to suck or swallow when offered a drink (clean water) or breast milk.
- When you ask the mother if the child is able to drink, make sure that she understands the question. If she says that the child is not able to drink or breastfeed, ask her to describe what happens when she offers the child something to drink. For example, is the child able to take fluids into his mouth and swallow it? If you are not sure about the mother’s answer, ask her to offer the child a drink of clean water or breast milk. Look to see if the child is swallowing the water or breast milk.

ASK: DOES THE CHILD VOMIT EVERYTHING?

- A child has the sign “vomits everything” if the child is not able to retain what he/she has eaten or drunk. For this sign, what goes into the child’s mouth must come back out of the child’s mouth. For this sign to be positive, the answer needs to be every time; if the child is able to retain something, then this sign is absent.
- If in doubt, offer the awake child something to drink and observe what happens thereafter. If the child vomits everything immediately, then this sign is present. If the child doesn’t vomit immediately, then this sign is absent.

ASK: HAS THE CHILD HAD FITS OR CONVULSIONS?

- During a convulsion, the child has trembling movements of the entire body. The child’s arms and legs stiffen because the muscles are contracting. The child may lose consciousness or not be able to respond to spoken directions.
- Ask the mother if the child has had convulsions during this current illness. Use words the mother understands, or give an example that the mother may know as convulsions such as “fits” or “spasms.”

LOOK: TO SEE IF THE CHILD IS VERY SLEEPY OR UNCONSCIOUS?

- A very sleepy child is not awake and alert when she should be. The child is drowsy and does not show interest in what is happening around him. Often the very sleepy child does not look at his mother or watch your face when you talk. The child may stare blankly or without any facial expression appearing to not notice what is going on around him.
- An unconscious child cannot be awakened. He does not respond when he is touched, shaken or spoken to.
- Ask the mother if the child seems unusually sleepy or if she cannot wake the child. Look to see if the child awakens when you or the mother talks to the child, gently shakes the child or claps hands near the child.

THE 4 STEPS IN REFERRING A CHILD TO A HOSPITAL:

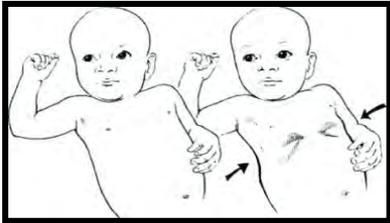
1. Explain to the mother or caretaker the need for referral. If you suspect that she does not want to take the child, find out why.
2. Calm the mother’s fears and help her resolve any problem.
3. Write a referral note for the mother to take with her to the hospital. Tell her to give it to the health worker there.
Write: The name and age of the child
The date and time of referral
General danger sign detected
Treatment that you have given
Your name and the name of the municipality
4. Give the mother any supplies and instructions needed to care for her child on the way to the hospital. Advise her to keep the child warm and to give the awake child breast milk or liquids.

Cough or Difficult Breathing

Look/Ask



- Count number of breaths per minute.



- Fast breathing?
- Chest indrawing



- A strange sound in the chest?

Fast Breathing is:

Newborn to 2 months: 60 breaths or more per minute

2 to 12 months: 50 breaths or more per minute

12 months to 5 years: 40 breaths or more per minute

What to Do?

Urgently Refer to Hospital or Health Center

If **YES** to **ANY** Sign

Child has pneumonia



Advise the caretaker to take the child to a hospital right away.



Write a referral note for the caretaker to take to the hospital.



Give first dose of amoxicillin

Home Care: Child has a common cold

If **NO**



Increase fluids



Do not give medicine



Visit again in 2 days

If coughing more than 1 month

Refer to Hospital or Health Center



Cough or Difficult Breathing

LOOK: COUNT THE BREATHS IN ONE MINUTE

- Count the breaths the child takes in one minute. The child must be quiet and calm when you look and listen to his breathing. If the child is frightened, crying or angry, you will not be able to obtain an accurate count of the child's breaths. Tell the mother you are going to count her child's breathing. If the child is sleeping, do not wake the child.
- To count the numbers of breaths in one minute, use the timer and the counting beads in your kit. Look for breathing movement anywhere on the child's chest or abdomen. Set the timer, and move one bead each time the child breathes OUT. When the timer rings, count the beads you moved. If you think the child has fast breathing, measure again. If the counting beads and timer are not available, use a watch with a second hand or a digital watch and count the breaths. It may be helpful if an assistant keeps the time while you count the child's breaths.

LOOK: FOR CHEST INDRAWING

- Look for chest indrawing when the child breathes IN. Look at the lower (the lowest-last rib, where the chest meets the abdomen) chest wall. The child has chest indrawing if the lower chest wall goes IN when the child breathes IN. Chest indrawing occurs when the effort the child needs to breathe in is much greater than normal. In normal breathing the whole chest wall and the abdomen move OUT when the child breathes IN. When chest indrawing is present, the lower chest goes IN when the child breathes IN.
- If you only see chest indrawing when the child is crying or feeding, the child does not have chest indrawing.

For chest indrawing to be present, it must be clearly visible and present all the time.

LOOK: AND LISTEN FOR STRANGE SOUNDS

- If you hear strange and harsh sounds when the child is breathing IN, this could mean that the child's air tube is being obstructed. This may be due to an inflammation. Air may be reaching the lungs in small quantities. This can be a life-threatening situation. If you hear the strange sound only when the child is crying, this is not considered a strange sound. A strange sound is only considered if you hear the sound all the time and when the child is calm and breathing IN.
- **Amoxicillin: If the child is referred to a hospital or health facility, give him the first double dose of amoxicillin.**

	2 months – 1 year	1 – 5 years
Amoxicillin 250mg	½ tablet 3 times per day 5 days	1 tablet 3 times per day 5 days

DANGER SIGNS AND MALARIA

- If child is in a high malarial area, it is assumed that the child has malaria in addition to pneumonia. Do not give amoxicillin. Refer urgently to a hospital or health center.

THE COMMON COLD

- If the child does NOT have fast breathing, does NOT have chest indrawing, and does NOT have strange sounds, then the child has no signs of pneumonia or severe disease. This child does not need an antibiotic. Instead, give the mother advice about good HOME CARE. This child may have a common cold, which normally improves in one to two weeks. This child needs food, extra fluids, and rest.

Diarrhea with Severe Dehydration

Look/Ask



- Very sleepy or unconscious?



- Not able to drink or breastfeed?



- Sunken eyes?
- No tears when crying?



- The skin pinch goes back slowly ?
- Blood in the stool?

What to Do

Urgently Refer to Hospital or Health Center

If YES to ANY Sign

Child has diarrhea with severe dehydration



Advise the caretaker to take the child to a hospital or health center right now.



Write a referral note for the caretaker to take to the hospital.



Advise the caretaker to keep the child warm and to continue offering liquids if the child is awake.



Diarrhoea with Severe Dehydration

ASK: IS THE CHILD ABLE TO DRINK OR BREASTFEED?

- A child has the sign “not able to drink or breastfeed” if the child is not able to suck or swallow when offered a drink (clean water) or breast milk.
- When you ask the mother if the child is able to drink, make sure that she understands the question. If she says that the child is not able to drink or breastfeed, ask her to describe what happens when she offers the child something to drink. For example, is the child able to take fluids into his mouth and swallow it? If you are not sure about the mother’s answer, ask her to offer the child a drink of clean water or breast milk. Look to see if the child is swallowing the water or breast milk.

LOOK: TO SEE IF THE CHILD IS VERY SLEEPY OR UNCONSCIOUS?

- A very sleepy child is not awake and alert when she should be. The child is drowsy and does not show interest in what is happening around him. Often the very sleepy child does not look at his mother or watch your face when you talk. The child may stare blankly or without any facial expression appearing to not notice what is going on around him.
- An unconscious child cannot be awakened. He does not respond when he is touched, shaken or spoken to.
- Ask the mother if the child seems unusually sleepy or if she cannot wake the child. Look to see if the child awakens when you or the mother talks to the child, gently shakes the child or claps hands near the child.

LOOK: FOR SUNKEN EYES AND DRY TEARS

- The eyes of a child who is dehydrated may look sunken. Decide if you think the eyes are sunken, then ask the mother if she thinks her child’s eyes look unusual. Her opinion will help you confirm that the child’s eyes are sunken. A dehydrated child will cry without wet tears.

LOOK: PINCH THE SKIN OF THE ABDOMEN

- Ask the mother to place the child on a flat surface, so that the child is flat on his back with his arms at his side (not over his head) and his legs straight. Or, ask the mother to hold the child so he is lying flat in her lap.
- Locate the area on the child’s abdomen halfway between the umbilicus and the side of the abdomen. To do the skin pinch, use your thumb and first finger. Do not use your fingertips because this will cause pain. Place your hand so that when you pinch the skin, the fold of skin will be in a line up and down of the child’s body and not across the child’s body. Firmly pick up all of the layers of skin and the tissue under them. Pinch the skin for one second and then release it. When you release the skin, look to see if the skin pinch goes back:
 - Slowly: **the skinfold remains raised for one second or more**
 - Immediately: **the skinfold goes back immediately**
- If the skin stays up for even a brief time after you release it, decide that the skin pinch goes back slowly.

Diarrhoea With and Without Dehydration

Look/Ask



- Restless and irritable?

AND



- Drinks eagerly, thirsty?

What to Do

Refer to Hospital or Health Center 

If YES to BOTH Signs



Teach caretaker to mix ORS.



Advise caretaker to continue breastfeeding and to give ORS.



If the child takes other food, give him ORS and foods that are easily digested.

Home Care: Child has diarrhea without dehydration

If NO to ONE or BOTH signs



Fluids



ORS

Zn

Zinc



Feeding



Fast Referral if child worsens



Counsel caretaker on hygiene behaviors



Visit in 2 Days

Diarrhoea With and Without Dehydration

LOOK: Is the child restless and irritable?

- If an infant or child is calm when breastfeeding but again restless and irritable when he stops breastfeeding, he has the sign “restless and irritable.” Many children are upset just because they are in the clinic. Usually these children can be consoled and calmed. They do not have the sign “restless and irritable.”

Rules of Home Care Treatment

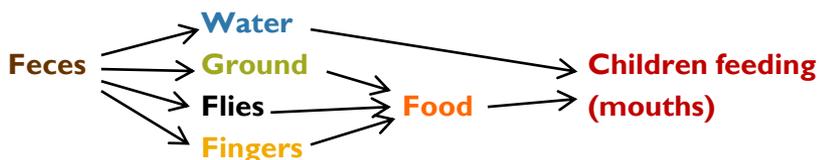
- Give extra fluids
- Continue feeding
- Know when to go to a hospital or health center
- Promote proper hygiene behaviors

Discuss proper hygiene behaviors with the caretaker

- Feces Disposal
- Hand-washing

Children and adults should wash hands with clean water and soap after defecating (or cleaning a child) and before handling food. It is helpful to have a hand washing station close to the latrine and another close to the area where food is prepared.

This chart shows how the germs that cause diarrhea are transferred.



How to make Oral Rehydrating Solution (ORS)

- Wash your hands with soap and clean water
- Take a litre container, and clean it. (A soda bottle is approximately 1 litre.)
- Put a litre of water into the container.
- Add two pinches of salt (using three fingers to make a “pinch”)
- Add a handful of sugar (use 4 fingers)
- Stir the water with a clean spoon so that there is no remaining sediment.
- Taste the prepared solution. Correctly prepared solution tastes like tears.
- If possible, squeeze an orange into the solution.
- The solution can be left at room temperature for up to 6 hours. However, if the solution has been left at room temperature for longer than this, it should be discarded and new home-based ORS should be prepared.

How to give home-based Oral Rehydration Solution

If the child is:

- under 2 years of age, give a teaspoonful every 1-2 minutes.
- 2 years or older, give frequent sips from a cup.

If the child vomits, wait 10 minutes. then give the solution more slowly (for example, a spoonful every 2-3 minutes). Keep giving the solution until diarrhea stops.

Zinc A child with diarrhoea should also be given zinc according to the following schedule:

	2 to 6 months	6 months to 5 years
Zinc tablet	½ tablet once per day for 10 days	1 tablet once per day for 10 days



Malaria

Does the child feel hot now?

Any child under 5 years of age with a fever without obvious cause is assumed to have malaria.

Has the child felt hot within the last 3 days?

If Child has malaria:



Does the child have a cough with fast breathing?



Count number of breaths per minute.

Fast Breathing is:

Newborn to 2 months: 60 breaths or more per minute

2 to 12 months: 50 breaths or more per minute

12 months to 5 years: 40 breaths or more per minute

Urgently Refer to Hospital or Health Center

If YES to this sign

Child has malaria with pneumonia



Advise the caretaker to take the child to a hospital or health center right now.



Write a referral note for the caretaker to take to the hospital.



Give first dose of antimalarial and paracetamol.

Refer to Hospital or Health Center



If NO to this sign



Give first dose of antimalarial. Give the other 2 doses to the caretaker.

Make a home visit in 2 days.



Home Treatment of Uncomplicated Malaria

If child is newborn to age 59 days, refer to hospital or health center

Give instructions to the caretaker:

Do not take more medication than advised.

Some people think that taking more of a medication than advised will heal the body faster. This is not correct and can be very dangerous! Instead of helping to heal the body, it hurts the body. If a person decides to take a lot more medication than prescribed, it could, in some cases, cause death.

Do not save the remainder of the medication.

A caretaker might think that once her child is feeling better, the child doesn't need the medication. She may decide that since she doesn't have a lot of money, she will save the remainder of the medication for another time that someone in the family is sick. The truth is that even though the child may look better, the sickness still lives in the body. The full amount of medication needs to be given to the child to kill off the sickness. If the medication is stopped early, the sickness will come back even stronger and the medication may no longer work. This means that the caretaker will have to buy stronger, more expensive medication.

Take the medications at the correct time.

It is important to take medications at the correct time. Some medicines should only be taken once a day. Others need to be taken more often. If you have a watch or clock, you can write down the appropriate times to take a medication. If they do not have a watch or clock, you can describe what part of the day the medication is to be taken.

If child has malaria with cough and fast breathing, give first dose of AS+AQ and urgently refer to hospital.

Treat with a combination of Artesunate and Amodiaquine

for 3 days. Give the first dose to the child, and give the caretaker the other two doses. Keep children the first 30 minutes for observation. If they do not vomit they can go home. If they vomit the tablets, repeat the full dose.



Artesunate (AS) + Amodiaquine (AQ)

Take with fluid

Age	2 - 11 months 25mgAS + 67.5mgAQ	1-5 years 50mgAS + 135mg AQ
Weight	4.5-8 kg	9-17 kg
Day 1	1 tablet	1 tablet
Day 2	1 tablet	1 tablet
Day 3	1 tablet	1 tablet

Reduce the temperature by tepid sponging and paracetamol. Most of the time 3 doses of paracetamol are enough.

Paracetamol 120 mg	1 tablet if needed	2 tablets if needed
Paracetamol 500 mg		½ tablet if needed

Assessing Breastfeeding

Look/Ask

- Does the child breastfeed?



- Will the child be given an urgent referral for another problem?



Stop assessment and urgently refer to hospital or health center

Continue to assess

- Has the infant breastfed in the past 1 hour?
- If not, ask the mother to put the baby to the breast.
- Observe the breastfeeding for 4 minutes.

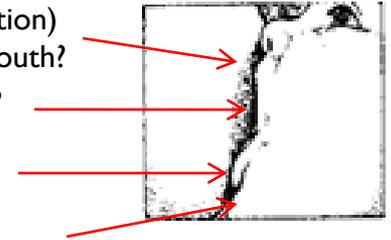


Look/What To Do

- Is the baby able to attach?



- Is there more areola (dark portion) above than below the baby's mouth?
- Is the baby's mouth wide open?
- Is the baby's bottom lip turned outward?
- Is the chin touching the breast?



- Show mother the correct way to position the baby when breastfeeding.
- Teach the mother how to correctly attach child to the breast.
- Let the mother demonstrate the way to correctly attach the child.

Assessing Breastfeeding

HOW TO RECOGNIZE PROPER POSITIONING

LOOK: CHIN TOUCHING BREAST

- The child needs to be facing the mother in order to get the maximum amount of breast in his/her mouth. The mother should face the child. The child should have his/her chin touching the breast of the mother while breastfeeding.

LOOK: MOUTH WIDE OPEN

- This is most important when the breasts of a woman are wide and less important with women with thin breasts. It is necessary for the child to have his/her mouth wide open before the child starts to suckle on the breast to ensure that the child will get the maximum amount of breast. The child does not get milk from suckling on the nipple, but from pushing on the chest behind the nipple.

LOOK: LOWER LIP TURNED OUTWARD

- If the lower lip is turned outward while attached to the mother's breast, then the greatest suction of the breast milk is achieved.

LOOK: MORE AREOLA ABOVE THAN BELOW THE MOUTH

- When looking at the child breastfeeding, look at the dark colored skin around the nipple. Note if more of the dark colored skin or areola is above or below the mouth. Good positioning is when more areola is above the child's mouth when compared to below the child's mouth. Some mothers may not have any of the areola showing when the child breastfeeds; this is okay.

LOOK: INFANT SUCKLING EFFECTIVELY

- A child is getting the most milk when he/she takes long and slow sucks on the mother's breast. This shows good positioning of the breastfeeding child. If the child suckles quickly, then the child is not getting enough milk and is trying to compensate by suckling more.

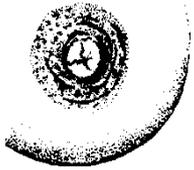
Teach the mother how to hold the baby when breastfeeding:

- When breastfeeding, it is important to hold the baby so it can suckle and swallow easily.
- The mother should also be in a relaxed, comfortable position so that her milk can flow well.
- Support the baby's head with your hand or arm.
- His/her head and body should be in a straight line.
- Wait until its mouth is opened wide.
- Bring the baby close to the breast and tickle its lower lip with the nipple
- Move the baby onto your breast
- The baby should have a big mouthful of the breast with the nipple deep inside its mouth.

Breast Problems

Ask/Look

Does the mother complain of:



- Dryness or cracking at or around the nipple?



- Swelling (engorgement) and/or pain of the breasts?

What To Do

Home Treatment

If
YES
to
any
sign,

- Teach the mother to treat the breast problem.
- Ask the mother to show you what you've taught.
- Plan a follow-up visit

Urgently Refer to a Hospital or Health Center

If
YES,

This mother has a serious problem.



Advise to go to the hospital



Write a referral note



- Is this the third time in a row the mother has complained of breast problems?

or

- Is there fever or severe pain?

Breast Problems

DRYNESS OR CRACKING OF NIPPLE

- While looking at each breast, ask the mother if she has noticed her breast becoming dry and painful. Note if there is any redness or irritation outside of the areola or dark skinned portion of the nipples. This may be due to incorrect positioning or improperly removing the baby from the breast.

Treatment of Sore or/and Cracked Nipples

- Do not pull breasts out of the baby's mouth. Let the baby feed as long as he wants. When he is done, he will let go of the breast himself. If you need to stop before the baby is ready, pull down on his chin or gently put the tip of a clean finger into his mouth.
- Sooth sore nipples with breast milk at the end of a feeding. When the baby has stopped feeding, squeeze out a few drops of milk and rub them on the sore places.
- **DO NOT** use soap or cream on your breasts. The body makes a natural oil that keeps the nipples clean and soft.
- Avoid rough or tight clothing
- If possible, leave breasts open to air and sun. This helps them heal.
- Continue to feed from both breasts. Start on the less sore breast and then switch to the more sore breast when the milk is flowing.
- If the pain is too great when the baby suckles, remove the milk by hand and feed the baby with a cup or spoon. The sore should heal in 2 days.

SWELLING OR PAIN OF THE BREAST(S)

- While looking at the breast for swelling, ask the mother if she feels pain because her breasts are so full when her baby starts to feed. This may be due to the baby not feeding at certain times such as the night.

Treatment for Pain or Swelling in Breast

- Feed the baby often, at least every 1 to 3 hours, and on both breasts.
- Sleep with baby nearby so you can breastfeed easily during the night.
- If the baby cannot suckle well, remove some milk by hand until the breast is soft enough. Let the baby try to attach to the breast and suckle again.
- After feeding, apply cool cloths or fresh cabbage leaves to the breasts.
- The swelling should go down in 3 days. Swelling of the breast that doesn't improve can become a larger problem.

Prevention Activities: Immunisations and Vitamin A

Look/Ask

Immunisations

- Ask to see the child's immunisation record.
- Go to the table below and find age of the child.
- Circle any vaccine that has not been given.

Birth	6 Weeks	10 Weeks	14 Weeks	9 months
OVP	OVP 1	OVP 2	OVP 3	Measles
BCG	DPT 1	DPT 2	DPT 3	

Vitamin A

Supplementation is every 6 months beginning at age:

- 3 months if the child is not breastfed
- 9 months if the child is breastfed

<6 Months	6-12 Months	>12 Months
50,000 IU ONLY if child is NOT breastfed	100,000 IU	200,000 IU

What To Do?

Refer to Hospital or Health Center 

If any vaccine for age is circled

Incomplete Immunisation(s)

Inform caretaker of

- Advantages of a fully immunised child
- Advantages of each kind of immunisation

Advise Caretaker

If NO vaccine for age is circled

Immunisations are up-to-date

- Advise caretaker on future immunisations

Advise Caretaker

If NO

Incomplete Vitamin A

- Inform caretakers of importance and advantages of vitamin A intake
- Inform caretaker of national schedule for vitamin A supplementation

Prevention Activities: Immunisations and Vitamin A

HOW TO DECIDE IF A CHILD NEEDS IMMUNISATION TODAY:

Ask the caretaker for the child's immunisation card. If she does not have a card, refer to a hospital or health center.

A table is provided on the child health record form. Go to the age of the child. Look at the vaccinations up to that age. Circle any vaccinations that have not been given.

- Compare the child's immunisation record with the recommended immunisation schedule
- If the child has an incomplete immunisation status, circle the missing vaccination on the health record form. Then refer the child to the nearest clinic with a referral form stating which vaccination(s) are missing.
- If the child has a complete immunisation status, please congratulate the caretaker and advise of future immunisations needed.

VITAMIN A:

Vitamin A promotes growth in children and reduces the severity of infectious illnesses, especially measles and chronic diarrhea. When there is not enough Vitamin A in the body to carry out the body's regular functions, it's called vitamin A deficiency.

Vitamin A deficiency causes poor growth, lowered resistance to infections, night blindness (local name), permanent blindness and death.

To prevent vitamin A deficiency, children need breast milk, eggs, yellow/orange fruits and vegetables, or dark green leafy vegetables.

Vitamin A supplementation (when given as capsules or syrup) for children between the ages of 3 months (if not breastfed) or 9 months (if breastfed) through 5 years reduces the chances of dying from measles, diarrhea, and the other diseases.

One high-dose supplement of vitamin A is sufficient to fully increase a child's store of vitamin A for a period of 6 months. This is why supplementation of vitamin A is recommended every 6 months.

Newborn Care

Look/Ask

Is the baby newly born?

Is the baby crying?



If the baby is not crying or breathing well after drying, you will need to help the baby to breathe within the first minute. Go to “Helping a Newborn Breathe”

If YES
to
these
signs

What To Do?



- Dry the baby with a clean cloth and check to see if his mouth and nose are clear.



- Place baby on the mother's abdomen and cover with a dry cloth, including the head.



- Dab the umbilical cord, including the base of the cord, with 4% chlorhexidine



- Initiate breastfeeding



- Eye care- apply tetracycline eye ointment within 1 hour

Newborn Care

It is important that the Home Health Provider communicate to all pregnant women that the safest place to deliver a baby is in a hospital or health facility.

PREPARE FOR THE BIRTH

Identify a helper and review an emergency plan

- Identify someone who can help you if the baby needs help to breathe. The emergency plan should include communication with and transportation to a health facility.

Wash hands

- Good hand washing prevents the spread of harmful germs to the baby. Anyone who may touch the baby must wash hands, including the mother. When available, use clean, running water and soap. Re-wash hands when necessary.

Prepare an area for ventilation, including a suction device and bag-mask, and check all equipment

- Prepare a dry, flat, warm, and safe space for the baby to receive ventilation if necessary. Check all supplies, and keep equipment clean. Test the bag and mask to be sure it is working correctly.

If needed, clear the mouth and then the nose with a clean suction device or wipe. Clear the mouth first to remove the largest amount of secretions before the baby gasps or cries. After cleaning the mouth, clean the nose with the suction device to clear the nose from secretions. When using bulb suction, squeeze the bulb before inserting the tip in the mouth and nose and release before withdrawing the bulb. Continue suctioning until secretions are cleared.

KEEPING THE BABY WARM:

- Dry the baby completely immediately after birth. Discard wet cloth.
- Place the baby, if possible, onto his/her mother's chest for skin-to-skin contact. Cover him/her with a dry cloth, including the head (or place a cap on the baby's head).
- Do not bathe the baby until at least 24 hours after delivery.

EYE CARE:

- Apply tetracycline eye ointment to the infant's eyes within one hour after delivery, according to national policy guidelines, to prevent infections that could produce blindness in the newborn.

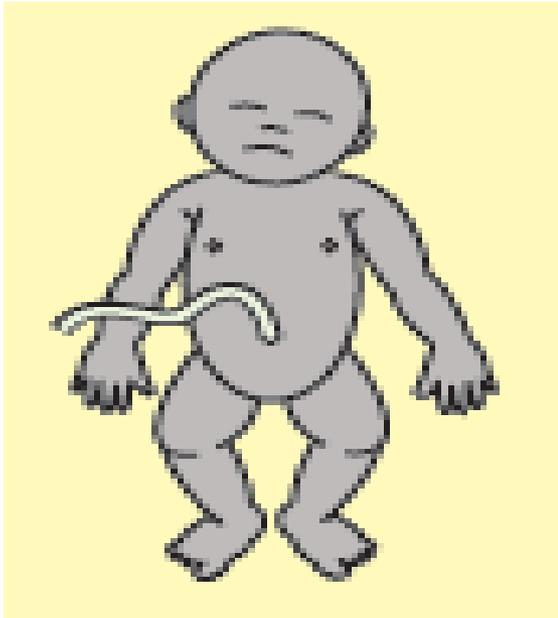
DAILY CORD CARE: DAILY FOR 10 DAYS

- Wash hands before manipulating the umbilical cord
- Gently dab the umbilical cord stump with a moistened cotton ball in 4% chlorhexidine
- Gently clean the base of the stump and the skin immediately around the base with a second chlorhexidine moistened cotton ball.

Helping a Newborn Breathe

Look/Ask

- Is the baby newly born?
- Is the baby NOT crying?



- This baby needs help to breathe.

If
YES
to
ANY
Sign

What To Do?

Within one minute,

- Keep the baby warm
- Position the head
- Aspirate (clean) the mouth and nose
- Stimulate breathing by rubbing the back



If baby is still not breathing well:

- Ventilate with bag mask
- Give 40 breaths per minute
- Observe once per minute for crying or breathing



Continue until newborn is breathing well **or** declare as stillbirth if there is no breathing within 10 minutes. All newborns needing help to breathe need **urgent referral to a hospital or health center** after they are breathing normally.

Helping a Newborn Breathe

It is important that the Home Health Provider communicate to all pregnant women that the safest place to deliver a baby is in a hospital or health facility.

Neonatal Asphyxia is a very serious condition in which the baby does not breathe at birth. This lack of oxygen can kill a baby or produce severe damage to the brain and other organs. When a baby suffers from a lack of oxygen for more than one minute, the baby could have mental retardation, deafness, blindness, and/or paralysis.

The First Minute: The normal time for a baby to start breathing after delivery is ONE MINUTE. About 1 in 10 babies needs help to breathe within the first minute.

KEEP THE BABY WARM

STIMULATE BREATHING.

Gently rub the back once or twice.

Drying, clearing the mouth and nose, and stimulating breathing should take less than 1 minute.

STAND AT THE BABY'S HEAD

You will need to control the position of the head and look for movements of the chest.

POSITION THE HEAD SLIGHTLY EXTENDED.

You will need to control the position of the head and look for movements of the chest. To keep the baby's neck extended place a folded cloth under shoulders to extend the neck.

POSITION THE MASK ON THE FACE.

The mask should cover the chin, mouth, and nose, but not the eyes. The mask should make a tight seal on the face so air will enter the baby's lungs. Open the mouth. Place the mask on mouth and nose.

MAKE A FIRM SEAL BETWEEN THE MASK AND THE FACE WHILE SQUEEZING THE BAG TO PRODUCE A MOVEMENT OF THE CHEST.

Hold the mask on the face with the thumb and index finger on top of the mask. Squeeze the bag to produce a movement of the chest, as if the baby were taking an easy breath. Make sure there is no leak between the mask and the baby's face.

GIVE 40 BREATHS PER MINUTE

Count "one, two, three....one, two, three...." If you squeeze the bag as you say "one," and release while you say "two, three," you will ventilate at a rate that helps air move into and out of the lungs well.

Newborn General Danger Signs

Look/Ask

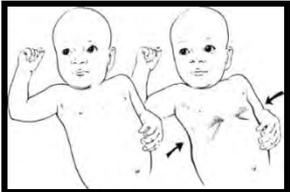
What To Do



- Not able to breastfeed?



- Convulsions?



- Difficulty breathing?
- Chest indrawing?
- Skin hot or cold?



- Only moves when touched?

Urgently Refer to Hospital



Advise the caretaker to take the child to the hospital right away.



Write a referral note for the caretaker to take to the hospital.



Calm the caretaker's fears and help her resolve any problems.



Advise the caretaker to keep the child warm and to continue offering liquids if the child is awake.

If
YES
to
ANY
Sign

Newborn General Danger Signs

See “General Danger Signs” for more descriptions

ASK: Is the newborn able to breastfeed?

- A child has the sign “not able to breastfeed” if the child is not able to suck or swallow when offered breast milk. Ask the mother to offer the baby breast milk. Look to see if the child is sucking or swallowing the breast milk.

ASK: Has the newborn had convulsions?

- During a convulsion, the baby has trembling movements of the entire body. The child may not be able to respond to voices. Ask the mother if the child has had convulsions, or use words she may know as “convulsions” such as “fits” or “spasms.”

LOOK: Is there chest indrawing?

- When chest indrawing is present, the lower chest goes IN when the child breathes IN. Look at the lower chest wall (the lowest-last rib, where chest meets the abdomen).
- **For chest indrawing to be present, it must be clearly visible and present all the time when the child is not crying**

LOOK: Is there fast breathing?

- To count the numbers of breaths in one minute, use the timer and the counting beads in your kit. Make sure the baby is not crying. Look for breathing movement anywhere on the child’s chest or abdomen. Set the timer, and move one bead each time the child breathes OUT. When the timer rings, count the beads you moved. If the breathing measures more than 60 breaths per minute, measure again. If these are not available, use a watch with a second hand or a digital watch and count the breaths. It may be helpful if an assistant keeps the time while you count the child’s breaths.

ASK and LOOK: Is the skin hot or cold?

- Feel the child’s abdomen (tummy/belly) with the palm of your hand. If abdomen is noticeably hot or cold, the child has a fever (if hot) or hypothermia (if cold). If you are unsure whether or not the child is hot or cold, ask the mother if the child is hot or cold. If the mother states that the child is hot or cold, child has an abnormal temperature.

ASK and LOOK: Is the baby very sleepy or unconscious?

- Ask the mother if the baby seems unusually sleepy or if she cannot wake the baby. Look to see if the baby awakens when the mother talks to the child, gently shakes the child or claps her hands near the child. A very sleepy child is not awake and alert when he/she should be. Often the very sleepy child does not look at his mother or watch your face when you talk. The child may stare blankly or without any facial expression appearing to not notice what is going on around him. An unconscious child cannot be awakened.



USAID
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World Vision®

Community Case Management Pilot Manual for Newborns and Children Under Age 5

Southern Sudan Maternal and Child Health Transformation Project (MaCHT)



October 2012

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World Vision is a Christian humanitarian organization dedicated to working with children, families, and their communities worldwide to reach their full potential by tackling the causes of poverty and injustice. World Vision serves all people, regardless of religion, race, ethnicity, or gender.

Kit riel tuaany nyuoth ebën

Tiṅ / thiëc



•Acie dek ku acie thuet?



•Ee keriëc ebën ṅok?



•Aye kädän riny?



•Anin apei wälä cï kädän thooṅ

Kë ba looi

Lac kook panakiim

Menh kën ala tueny ril apeï



Jääm raan muk meth bi lac yäth panakiim.



Gät raan muk meth athör ci meth kook panakiim



Jääm raan muk meth puou bi ci rioc ku kony dhol bi tuaany ṅuëën.



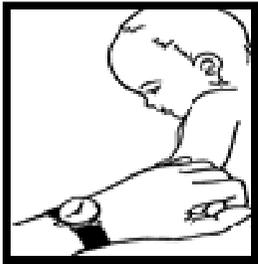
Jääm raan muk meth bi meth muk tä tuc ku letueng ke ye yiëk këdek ta le meth päac



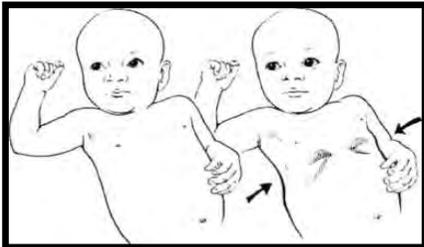
Na ye
käyith
kek
käkä

Ƴɔɔl wälä riel wëiyic

Tiŋ / thiëc



- Kuen aden wëi yuul tökic



- Wëi apei?
- Aye ruom puou thin.



- Aye piŋ ke ye puou la piuu

Kë ba looi?

Lɔc kɔɔk panakiim

Meth ala goutpuou



Jääm raan muk meth bi lac yäth panakiim.



Gät raan muk meth athör ci meth kɔɔk panakiim



Köŋ yiëk amokthiliin

Na le kën yic kit kä yiic.

Muök meth baai: meth ala guop juai

Na cie tëde



Juak kä yedek



duk yiik wal



neem nin karouic

Wëi apei ee ya:

Menh puöc dhiëk le menh lapëi karou:

ee wëi 60 yuul tökic

Pëi karou le pei thiarkurou (12)

Ee wëi thiedhiëc (50) yuul tökic

Na ci yiëk Ƴɔɔl pei ku abak

kɔɔk panakiim



Yany ril apɛi wic bi p̄iu th̄öl meth guop

Tiŋ / thiéc

Kë ba looi?



•Anin apɛi wälä c̄i th̄oŋ?



•Acie dek ku acie th̄uɛt



•Aci c̄öt nyin alɔŋthin (yot)

•Acie nyin ala p̄iu ta dhieu yen.



•Na mit d̄öl ke cie lac dhuk thin?

•Wëër e yic la riem?

lɔc kɔɔk panak̄iim

Ac̄i meth yiék yac riil wic bi p̄iu th̄öl ye guop



Jääm raan muk meth bi lac yäth panak̄iim



Gät raan muk meth athör c̄i meth kɔɔk panak̄iim



Jääm raan muk meth bi meth muk tätuc ku letueng ke ye yiék këdek ta meth päac.



Na le k̄en yic k̄it k̄ä yiic.

Yany cì più nyai wälä kî ke nyai

Tinj / thiéc

Kë ba looi?



- Meth acie laduk ku ee reer dhiau.

Ku



- Ee dek apeî ku ñuot nëkrou?

Kook panaküim

Na ye kë yïth kek kît kä kedhie



Piöoc raan muk meth ta ye ORS liäap thïn.



Jääm raan muk meth bi latueng kek thuëët meth ku ye yiek ORS.



Na ye meth mith müith kək kë yiek ORS ku müith lac jal yacic.

Muöök meth baai: Menh cì yac ðəm ku akî più nyai ye guop

Na cì tök atëde wälä kek kedhie kek kît kä



Kë yedek.



Yiék kë cam.



Lac meth kək ta cì tuaany riel apeî



wëët raan muk be guop atiit acuol



neem nin karouic



Malara

Ci meth tuöoc emën?

Kuat menh kerun kadhiëc dööt ku a ye ke kuc tuöoc a ye thoojic lon yen malara

Ye meth yök ketuc e nin diënj ke yiic?

Na la meth malara:



•Ye meth yool ku wëi apeï



•Kuen aden wëi yuul tökic

Wëi apeï e ya:

menh puoc dhiëek le menh la peï karou:

ee wëi 60 yuul tökic

Pei karou le pei thiarkurou: ee wëi 50 yuul tökic

Pei thiarkurou le run kadhiëc: ee wëi 40 yuul tökic

Lac yoth panakiim nynic ke cin gaau

Meth ala malara kek aguot puou



Jääm raan muk meth bi lac yäth panakiim



Gät raan muk meth athör ci meth kook panakiim



Köj yiëk wal malara ku wal atuoc parthimol

Na ye ke yieth kek kit ka

Kook meth panakiim



Na cik etëden kek kit kä



Köj yiëk wal malara ku yiek raan muk ye tä cit tënë liëkliëk karou bi ke la thääp baai.

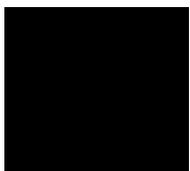
Lëk raan muk meth bi la dhuk nin karouic tä ki meth la pial.



Tä ye thuettthuet meth caath thin

Tij / thiéc

- *Ye meth thuet?*



- *Ka meth bi ben kook panakiim wët tueny dët?*



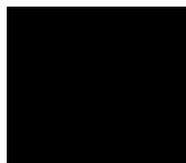
*Ka yi päl ciëeth meth ku
ləc kook panakiim*

*Ka ye latueng ke
ciëeth meth*

- *Ci meth thuet tha tōj ci bakic?*



- *Na kəc thuet ke lək man bi thuëët..*



- *Caath meth kė thuet tene yuul kaŋuan*

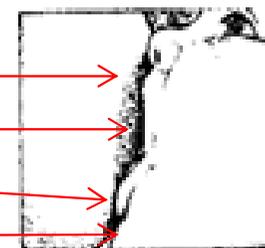


Tij /Kė ba looi?

- *Ya meth man kuak?*



- *Dit thin thok tene meth?*
- *Ci meth yethok aŋaam apei*
- *Ci meth thonŋden piny pet?*
- *Ci ayual meth thin goot?*

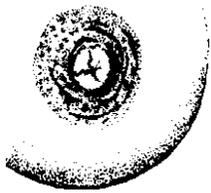


- *Nyuth man meth tä ye meth cök thin tä thuet yen.*
- *Pööc man meth tä puoth ye meth dam thinic thin.*
- *Cəl anyoth manmeth yen tä puoth ye meth dam
thinic thin.*

Tuɛny thin

Tiŋ / thiɛc

Ye tik jam rin:



- Rilwei ku yar thin thook



- Butbut thin ku a reem

Kë ba looi?

Döc baai

**Na ye
käka yith**

- Piöoc tik te ye tuɛny thin col aɲuɛn thin.
- Col aber tik yic yen kë cä piöoc yen.
- Guir tä bi yin ye ya nɛem thin



- Ci yic jal a diäk aken yen areem thin a tiŋ?

Wälä

- Ye tuöoc ku reem apeidit?

lɔc kɔɔk panakiiim

**Na ye
käka
yith**

Tiŋ a tuany apei:



Wëet bi la panakiiim.

Gät athör cin ye kɔɔk panakiiim

Të ye tuany gël thîn: matom ku Bitamin A

Tiŋ / thiëc

Matom

- Tiŋ athör matom meth.
- Caath run meth athör to piny ken yic.
- Gol wääl këc meth toom yic.

Birth	6 Weeks	10 Weeks	14 Weeks	9 months
OVP	OVP 1	OVP 2	OVP 3	Measles
BCG	DPT 1	DPT 2	DPT 3	

Bitamin A

- Të ye tuany gël thîn: matom ku Bitamin A
- Tiŋ athör matom meth.
- Caath run meth athör to piny ken yic.
- Gol wääl këc meth toom yic.
- Gëm Bitamin A tënë meth ee jok pëi ka detemyic (6).
- Na ci meth thuët ka gem pëi ka diakic yen Bitamin A.
- Na ye manth ci thuët ka gem Bitamin A eya pëi ka dhoŋuan

<6 Months	6-12 Months	>12 Months
50,000 IU ONLY if child is NOT breastfed	100,000 IU	200,000 IU

Kë ba looi?

Kook panakïim 

Na le wäl tuom ci goolic

Matom këc thäap.

Lëk raan amuök meth wët.

- Piath manth ci tuöm thöl.
- Piath kuat matom.

Jääm raan muk meth

Na cin wäl matom ci goolic

Matom ala tueŋ agut cimen.

- Lëk raan muk meth matom abi bën ben

Jääm raan muk meth

Na cie yic

Gem Bitamin A këc thäap

- Lëk raan muk meth rielic ku piath Bitamin A
- Lëk raan muk meth niin bi Bitamin A gem baaiic eben

Ŋiëc muök manth puɔc dhiëth

Tiŋ / thiëc

Puɔc meth dhiëëth?
Ye meth dhiau?



Na ci meth adhiau wälä cie ŋiëc wëi tä ci yen guop koth ka yi kony meth bi lac wëi nyinic

Lɔr tiŋ athör ye manth puɔc dhiëëth kony bi wëi

Na ye ke
yieth
kek
kitka



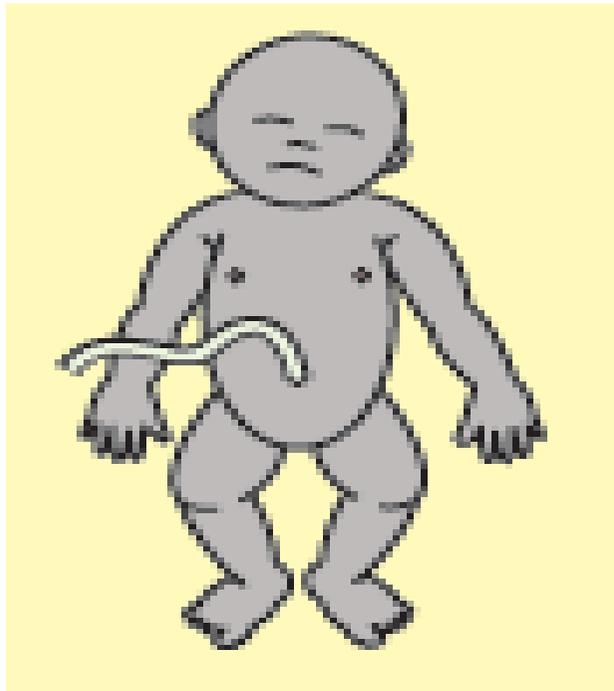
Kë ba looi?

- Wuny meth kou alanh path ku caath lɔn puoth yen wum ku thok.
- Täac meth man yac ku kum eben alanh ci thiaaŋ
- Dëër meth töör wal cɔl kolɔɔkthidiin 4%.
- Thuëët meth
- Muök meth nyin wal col tetarathaiklin wal nyin tha tööŋ puoc meth dhiëëth yic.

Kuony menh puoc dhiëeth bi wëi

Tinj / thiëc

- Puoc meth dhiëeth?
- Ci meth a dhiaau?



- **Menh awic bi kony bi wëi**



Na ye
kaka
yith

Kë ba looi?

Ŋɔ bā looi?



Yuul tökic.

- Tau meth të tuc.
- Cök meth nhompiny.
- Guir meth thok ku wum.
- Ye meth ruaar kɔu be kuony bi wëi.



Ventilation
bag-mask

Na ŋuot meth cie wëi apath:

- Ka kuuth yic bi la të wëi yen.
- Koth arak thiärɲuan yuultokic.
- Jɔl ben caath amath lɔn bi yen jɔk wëi wälä dhiëu.



Lɔ tuɛɲ kek kuth meth yic yet bi wëi apath wälä ba lëk kɔc lɔn ci meth dhiëeth ke ci thou të dööt yen yuul thiaar ke kë wëi.

Kuat menh ye dhiëeth ku kɔɲ kuony bi jäl wëi awic bi lac atuɔɔc panakiim cɔk alɔn e yen wëi apath.

Käk tueny menh puoc dhieeth nyuwoth lon ril yen.

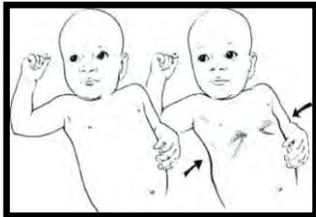
Tinj / thiéc



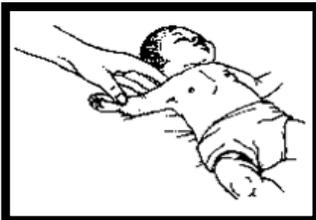
- Meth acin të ye yen thuet.



- Meth a ye kedaᅇ thöönᅇ.
- Wëi e yic riel.



- A ye ruom puou thin.



- Ee jal la nyonᅇ të ci ye goot.

Kë ba looi?

Lac kock panakiim



- *Jääm raan muk meth bi lac yäth panakiim.*



- *Gät raan muk meth athör ci meth kock panakiim.*



- *Wëët raan muk meth puou bi ci rioc ku kony dhal bi tuaany ᅇuëën.*



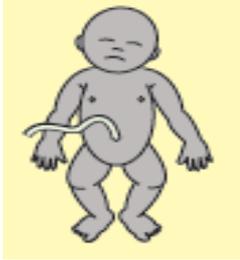
- *Jääm raan muk meth bi meth muk të tuc ku letueᅇ ke ye muöoc këdek te le meth päac.*

Na ye
kä yith
kek
käkä

NEWBORN HEALTH RECORDING FORM (0-28 DAYS)

Date: _____ Name of Child: _____

Age in Days: _____ Sex _____

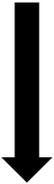
CHECK FOR PROBLEM	LOOK/ASK	NO 	YES 	ACTION
Newborn Care	<p>Is baby newly born and crying?</p> 	↓	→	 Dry baby  Keep Warm  Umbilical Care  Eye Care  Breastfeeding
	<p>Is baby newly born and NOT crying?</p> 	↓	→  	 Keep Warm Position Head  Clean airway Rub back  Ventilate if necessary
Check for Newborn General Danger Signs	 Not able to breastfeed  Convulsions  Skin hot or cold  Only moves when touched  Difficulty Breathing	↓	 	 Advise Caretaker  Continue liquids
Check for Cough or Difficult Breathing	   +  = _____ (over 60 is too fast)  Chest Indrawing  Strange Sounds?	↓	 	 Amoxicillin
	 Cough	↓		 

CHECK FOR PROBLEM	LOOK/ASK	NO 	YES 	ACTION
 Check for Diarrhoea	 Sunken eyes?  Skin goes back very slowly? (Pinch skin; longer than 2 seconds)  No tears when crying?  Have blood or worms in the stool?	↓	 	  ORS
	 Irritable or restless? +  Drinks eagerly, very thirsty?	↓		 
	 Irritable or restless? or  Drinks eagerly, very thirsty?	↓		  
 Check for Fever	 Does the child feel hot? Or Has the child felt hot in the last 3 days?  +  +  = _____	↓	 	 Paracetamol
	 Child feels hot, no fast breathing	↓		 Paracetamol
 Check for Breastfeeding Problems	 Does the child breastfeed?	↓		   
	  Does mother complain of problems with breasts? <ul style="list-style-type: none"> ▪ Is this the 3rd consecutive visit that the mother has had pain and/or cracking skin on the breasts? OR ▪ Does the mother have severe pain and/or fever? 	↓	  	 
 Check for Immunisations	Are the child's immunisations up to date?	→		

CHILD HEALTH RECORDING FORM (29 DAYS-5 YEARS)

Date: _____ Name of Child: _____

Age in Years: _____ Age in Months (if under 1 years old): _____ Sex: _____

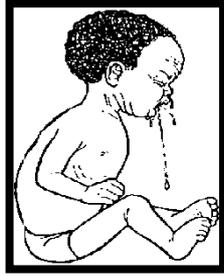
CHECK FOR PROBLEM	LOOK/ASK	NO 	YES 	ACTION
Check for General Danger Signs	<div style="display: flex; justify-content: space-around;"> <div style="text-align: center;">  Not able to drink </div> <div style="text-align: center;">  Vomits everything </div> </div> <div style="display: flex; justify-content: space-around; margin-top: 10px;"> <div style="text-align: center;">  Convulsions </div> <div style="text-align: center;">  Very sleepy or unconscious </div> </div>		 	 Advise Caretaker  Continue liquids
Check for Cough or Difficult Breathing	<div style="display: flex; justify-content: space-around;"> <div style="text-align: center;">  Chest Indrawing </div> <div style="text-align: center;">  Strange Sounds? </div> </div>		 	 Amoxicillin
	 Cough lasting more than 1 month			
	 Cough			 2 days
Check for Diarrhoea	<div style="display: flex; justify-content: space-around;"> <div style="text-align: center;">  Sunken eyes? </div> <div style="text-align: center;">  Skin goes back very slowly? (Pinch skin; longer than 2 seconds) </div> </div> <div style="display: flex; justify-content: space-around; margin-top: 10px;"> <div style="text-align: center;">  No tears when crying? </div> <div style="text-align: center;">  Have blood or worms in the stool? </div> </div>		 	 ORS Zn Zinc
	<div style="display: flex; justify-content: space-around;"> <div style="text-align: center;">  Irritable or restless? </div> <div style="text-align: center;">  Drinks eagerly, very thirsty? </div> </div>			 Feeding
	<div style="display: flex; justify-content: space-around;"> <div style="text-align: center;">  Irritable or restless? </div> <div style="text-align: center;"> or  Drinks eagerly, very thirsty? </div> </div>			 Zn

CHECK FOR PROBLEM	LOOK/ASK	NO 	YES 	ACTION
 Check for Fever	 Does the child feel hot? Or Has the child felt hot in the last 3 days?  +  = _____		 	 Paracetamol AS+AQ
	 Child feels hot, no fast breathing			 Paracetamol AS+AQ
 Check for Breastfeeding Problems	 Does the child breastfeed?			  
	  Does mother complain of problems with breasts?			 
	<ul style="list-style-type: none"> ▪ Is this the 3rd consecutive visit that the mother has had pain and/or cracking skin on the breasts? OR ▪ Does the mother have severe pain and/or fever? 		 	
 Check for Immunisations	Are the child's immunisations up to date?			
 Check for Vitamin A Supplementation	<ul style="list-style-type: none"> ▪ If the child is at least three months old and <u>is not</u> breastfed, or ▪ If the child is at least 9 months old and <u>is</u> breastfed, has he/she received vitamin A within the last 6 months? 			

Urgent Referral to Hospital or Health Center



Unable to drink or breastfeed



Vomits everything



Convulsions



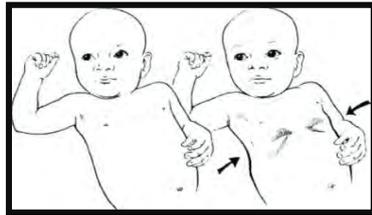
Very sleepy or unconscious



Resuscitation Performed



Fast breathing



Chest indrawing



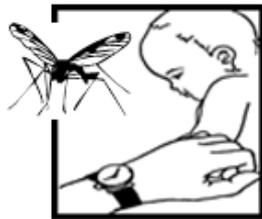
Strange sounds in the chest



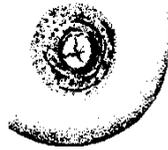
Sunken eyes/ Dehydration



Diarrhea/ Dehydration



Complicated Malaria



Cracked nipples



Painful breasts



Amoxicillin



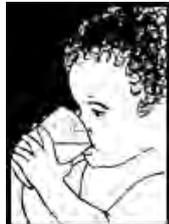
AS+AQ

First Dose Given

Referral to Hospital or Health Center



Irritable/restless



Some Dehydration



Cough lasting >1 month



Malaria



Immunization needed



First Dose Given

Referral to Hospital or Health Center

Date _____

Time _____

Name of child _____

Age _____

Reason/ Signs

Treatment given

HHP Name: _____

Village: _____

Weekly Checklist for OR Supervisors:

Name of Supervisor: _____ Date: _____

Name of HHP: _____ Is HHP Literate? Yes ___ No ___

Date of Last Supervision Visit: _____ If more than 1 week, note why: _____

Assessment Topic of last supervision visit: _____

Date of initial training: _____ Date of last refresher training _____

Completeness of data captured on registration forms

1. Number of registration forms collected since last supervision visit: _____
2. For how many cases did the HHP care for a child under age 5 and NOT complete a registration form? _____
3. According to registration forms, how many CHILD (29 days-5 years) cases included symptoms of:

	Urgent Referral	Non-urgent Referral	Home Care
General Danger Signs	a	b	c
Cough or Difficult Breathing	d	e	f
Diarrhea with or without Dehydration	g	h	i
Fever	j	k	l

4. According to the registration forms, how many NEWBORN (1-28 days) cases included symptoms of:

	Urgent Referral	Non-urgent Referral	Home Care
Newborn Asphyxia	a	b	c
General Danger Signs	d	e	f
Cough or Difficult Breathing	g	h	i
Diarrhea with or without Dehydration	j	k	l
Fever	m	n	o

5. With the HHP, review all registration forms collected by the HHP. If the HHP needs assistance in writing the top portion (date, child's name, age, and sex) of any form, do so, note the date, and initial.

Number of forms requiring assistance: _____

6. Check for completeness of each registration form. For how many forms did the HHP begin at the beginning of the form and continue the form until reaching a sign of urgent referral *or* reaching the end of the form? _____
7. Number of registration forms incomplete: _____
What is the main reason for incompleteness?
a. Difficulty with reading/writing b. No pen or pencil c. Did not understand protocol
d. Other (state): _____

Drug/medicine administration

8. For how many registration forms did the classification of the patient indicate drug/medicine administration? _____
9. In how many cases does the HHP report that the drug/medicine was administered? _____
10. Match the number of drugs administered according to the registration forms, with drugs in store.
- | | | |
|--|---|---|
| Are all drugs/medicines accounted for? | Y | N |
|--|---|---|

Medicines and equipment storage conditions

- | | | |
|---|---|---|
| 11. According to the records, is the stock of drugs complete? | Y | N |
| 12. Is the stock of equipment complete? | Y | N |
| 13. Are drugs/medicines stored in their original packaging? | Y | N |
| 14. Are all drugs/medicines stored away from direct sunlight? | Y | N |
| 15. Is unused neonatal bag-valve mask factory-sealed in packaging? | Y | N |
| 16. Is unused neonatal aspirator factory-sealed in packaging <i>OR</i> has used neonatal aspirator been boiled, dried, and placed in a clean bag? | Y | N |

Testing of one component (randomly selected) of algorithm

Prior to each weekly supervisory visit, one component of the algorithm will be randomly selected for testing. Ask the HHP to use the flipchart and registration form to demonstrate the algorithm for the selected section, including completion of the recording form, referral form, and administration of any medications. Allow the HHP to complete the algorithm before commenting, and then review.

Section tested: _____

17. Does the HHP demonstrate understanding of the flipchart algorithm?
- | | | |
|-------------------------|------------------------------|------------------------------|
| a. Yes, with excellence | b. Yes, with some difficulty | c. No, unable to demonstrate |
|-------------------------|------------------------------|------------------------------|
18. Does the HHP demonstrate correct completion of the corresponding portion of the recording form?
- | | | |
|-------------------------|------------------------------|------------------------------|
| a. Yes, with excellence | b. Yes, with some difficulty | c. No, unable to demonstrate |
|-------------------------|------------------------------|------------------------------|
19. Does the HHP demonstrate correct completion of the corresponding portion of the referral form?
- | | | |
|-------------------------|------------------------------|------------------------------|
| a. Yes, with excellence | b. Yes, with some difficulty | c. No, unable to demonstrate |
|-------------------------|------------------------------|------------------------------|
20. Does the HHP demonstrate correct medication/drug administration for the section tested?
- | | | |
|-------------------------|------------------------------|------------------------------|
| a. Yes, with excellence | b. Yes, with some difficulty | c. No, unable to demonstrate |
|-------------------------|------------------------------|------------------------------|

Assessment and follow up of a sample of sick children

Count the number of recording forms and ask the HHP to shuffle the forms. Pick a number between 1 and X and, using that form, ask the HHP to accompany you to visit that child and caregiver. If that caregiver is not available, randomly select another registration form and visit that child and caregiver. Continue until a caregiver can be found or until there are no more cases which can be visited

21. Was assessment visit completed? Y N

If yes, continue checklist.

a. If no, state reason and skip to question 22:

Using a new registration form, asks the caregiver to review the child’s case with you **as it was** on the day recorded on the HHP’s form. Complete the form. Ask the caregiver:

22. Were medications administered? Y N

a. (By your assessment, were medications required?) Y N

23. Was a referral form given? Y N

a. (By your assessment, was referral required?) Y N

24. Was the referral followed: Y N

a. If YES, write the name of the facility: _____

b. Was the child’s case attended at the facility? Y N

c. If NO, ask the caregiver, **“Why not?”** and record the answer.

Comments: _____

25. Does the child require a follow-up visit by the HHP? Y N

If yes, ask the HHP to perform a follow-up visit using a new recording form.

26. With the HHP (away from the caregiver), compare your registration form with the HHP’s form.

Comments:

Community Case Management HHP Training Schedule

Needed daily:

For each student: pens or pencils, paper, copies of the recording and referral forms

For the trainers: newsprint, easel or tape, markers, enlarged version of the recording and referral forms

Time	Trainer	Day 1	Materials Needed
8.30-9:30		Welcome, Introductions Devotions (optional)	
9:30-10:00		Reflection: Health needs in the local community Chapter 2: Providing services at the community level	
10:00-10:30		Tea Break and Pre-Training Assessment (10 minutes per HHP, 5 facilitators)	
10.30-11.00		Chapter 3: Using communication skills Practicing communication skills through role playing	
11.00-11.30		Chapter 4: Using the guidelines	Flipcharts
11.30-1.00		Chapter 5: General Danger Signs Reflection, Definition, How to Recognize Skill Development: video and discussion	Video
1.00-2.00		Lunch break	
2.00-3.00		Review of General Danger Signs, cue cards Chapter 5: management of the recording form and preparation for field practicum	
3.00-5.00		Chapter 5: Field practicum	
5.00-5.30		Chapter 5: Discuss field practicum experiences (can be outside at WV compound)	
Homework		Memorize the danger signs in song or poem	
		Day 2	
8.30-8.45		Devotions (optional)	
8:45-9:00		Group activity: Share danger sign songs or poems with class	
9:00 -9.30		Chapter 6: Cough and Difficult Breathing	

		Reflection, Definition, How to Recognize	
9:30-10:00		Make strings of counting beads	String, Beads Timers
10:00-10:30		Tea Break	
10:30-12:00		Chapter 6: Skill Development: video and discussion Practice using counting beads and timer Chapter 6: management of the recording form and preparation for field practicum	
12:00-1:00		Field Practicum	
1:00-2:00		Lunch Break	
2:00-3:00		Chapter 7: Diarrhoea Reflection, Definition, How to Recognize, Home Treatment	ORS, cups, water
3:00-4:30		Chapter 7: Skill Development: video and discussion, management of the recording form and preparation for field practicum	Video
4:30-6:00		Field practicum	
		Day 3	
8:30-8:45		Devotions (optional)	
8:45-9:30		Chapter 8: Malaria Reflection, Definition, How To Recognize, Home Treatment	Antimalarial blister packs
9:30-10:00		Chapter 8: Skill Development: video and discussion, management of the recording form and preparation for field practicum	Video
10:00-10:30		Tea Break	
10:30-12:00		Field practicum and discussion	
1:00-2:00		Lunch break	
2:00-2:45		Chapter 9: Breastfeeding: Attachment Reflection, Definition, How to Assess	Visitor Dummy breast
2:45-4:00		Chapter 9: Breastfeeding Problems, Home Treatment Video and discussion, management of the recording form	Video
4:00-4:30		Chapters 10 and 11: Immunisation and Vitamin A status	Immunisation cards
4:30-5:00		Practice evaluation skills	Set up work stations

		Day 4	
8.30-8.45		Devotions (optional)	
8.45-9.30		Chapter 12: Essential Newborn Care Reflection, Definition	Aspirators Eye, Cord ointments
9.30-10.00		Video and discussion, skill development, materials, and management of the recording form	Cloth or towels Video HBB Kits
10.00-10.30		Tea Break	
10.30-12.00		Chapter 13: Newborn Asphyxia and Resuscitation Reflection, Definition, introduction to resuscitators	Resuscitators
12.00-1.00		Newborn resuscitation: practice	
1.00-2.00		Lunch break	
2.00-3.00		Newborn Resuscitation: practice and management of the recording form	
3.00-4.15		Chapter 14: Newborn Care: General Danger Signs Reflection, Definition, How to Recognize	
4.15-5.00		Video and discussion, management of the recording form	Video
		Day 5	
8.30-8.45		Devotions (optional)	
8.45-10.00		Revisit newborn asphyxia and resuscitation	
10.00-10.30		Tea Break	
10.30-12.00		Discussion: Question and answer period, review of the course, reflections from training or other experiences, discussion of supervision and refresher training	
12.00-1.00		Practice: Scenario cards – practice (individuals, pairs, or groups), work stations	
1.00-3.00		Testing	
3:00-3:30		Scoring	
3.30-5.00		Celebration and awarding of materials and certificates	

Note: Schedule may be altered slightly from previous timetable; however, descriptions and flow remains.

Day 1

Time	Subject	Materials
8.30-9.00	Devotions (attendance optional)	
9.00-9.15	Welcome, Introductions <i>Welcome the group, and thank them for participating. Introduce yourselves as trainers and tell the group several questions you'd like each to answer in their introductions. This may include their name, how long they have been working in a health role, and something fun such as their favorite color or food. The trainers should participate first; then ask each person to introduce themselves. Use the paper to draw a simple picture of each person using their favorite color or including something special about them.</i>	Newsprint, Markers
9.30-10.00	Reflection: Health needs in the community <i>This health training must be designed to meet the needs of the community as identified by the participants. Guide a discussion about the current health needs and barriers to meeting those needs, including community education, transportation, supplies, etc. Ask: What have you experience? Can you tell us a story about a time when there was a health need in your community that was met, or that was not met? Write or draw some of the health needs on a flipchart page.</i>	Discussion
	Chapter 2: Providing services at the community level <i>Ask participants what they can do, with training, to help children with health needs in the community. Discuss the difference between a community worker and a health facility worker, defining (in the participant's own words) the role of the community worker. Discuss the order in which information is gathered: first Danger Signs, then Main Symptoms, then Immunisation and vitamin A status. Then briefly discuss what to do if there are several problems to be treated. The key questions are "How much can this mother understand and remember?" "Can some information wait for a follow-up visit?" and "What advice is most important?"</i>	
10.00-10.30	Tea Break and Pre-Training Assessment <i>Each HHP will, with a facilitator, take a verbal pre-training assessment. This will use no more than 10 minutes of the break time.</i>	
10.30-11.00	Chapter 3: Using communication skills and partner activity <i>Read "A Sad Story" from page 8 of the facilitator's manual. Ask the participants to discuss the story. Page 8 has many suggestions for comments. Invite participants to gather in groups of 2-4 and to take turns practicing effective communication techniques. Using the scenario cards, one person can take the role of the caregiver of a sick child and another that of the health worker. For instance, if the scenario card has a picture of a child who has strange sounds in the chest, the health worker should prompt the caregiver to describe the child's symptoms. This is not a time for the health worker to give advice about referral or home treatment, but rather practice in eliciting as much information as possible from the caretaker. The trainers should check on each group, and see if they have learned the child's name, age, and information.</i>	

11.00-11.30 Using the guidelines

Health Forms

Distribute copies of the child health forms. **Ask** participants what they notice about the recording form. (Some possible answers: there are different sections for different problems, there are pictures and arrows, there are places to fill in data, etc.) Look together at each column, using the picture cues, and demonstrate how the form will be used. There will be opportunities for the HHPs to practice throughout the training.

11.30-1.00 Chapter 5: General Danger Signs: Reflection, Definition, How to Recognize Skill Development: video and discussion Video

Begin with the reflection questions in the facilitator's manual. Allow several participants to contribute stories and reflection. Proceed through the chapter, using the videos when appropriate. After watching, there can be discussion, and parts of the video re-watched for clarification. **Ask** participants to make up a song about the general danger signs to share with the group the next day.

1.00-2.00 Lunch

**2.00-3.00 Review of General Danger Signs, memorization of cue cards
Chapter 5: Management of the Recording Form and Preparation for Field Practicum**

Direct participants to the General Danger Signs portion of the recording form and discuss how to record the information (yes or no) and how to decide if referral is necessary. Using the referral form, show how a referral for a general danger sign would be recorded. Talk about the field trip and encourage each HHP to visit at least two children to assess for general danger signs.

3.00-5.00 Field practicum: assessing general danger signs

Travel to site. Ask participants to travel in pairs, and to find a mother who is willing to have her child under age 5 assessed. The objective of the field practicums is to see a number of WELL children so that sick children can more easily be identified. It is not expected that the participants will evaluate a child with a danger sign, but if one is seen, immediately alert the supervisor.

5.00-5.30 Discuss field experiences

This can be done wherever convenient: at the field site or the office. One of the facilitators should take notes of the debrief, and useful ideas or comments incorporated into future field practicums.

Day 2

8.30-8.45 Devotions (optional)

8.45-9.00 Group activity: Share danger sign songs or poems with class

Have a small prize for the best song, and perhaps a piece of candy or other treat for all participants.

**9.00-10.00, Chapter 6: Cough and Difficult Breathing: Reflection, Definition, Video
10.30-11.00 How to Recognize, Skill Development: video and discussion, Beads/String
management of the recording form**

Begin with the reflection questions in the facilitator's manual. Allow several participants to contribute stories and reflection. Proceed through the chapter, using the videos when appropriate. After watching,

there can be discussion, and parts of the video re-watched for clarification. During the tea break, make strings of counting beads in pairs to use in practice along with videos.

10.00-10.30 **Tea Break**

11.00-1.00 **Chapter 7: Diarrhoea: Reflection, Definition, How to Recognize, Home Treatment, Skill Development: video and discussion, management of the recording form** **ORS, cups water, video**

Begin with the reflection questions in the facilitator's manual. Allow several participants to contribute stories and reflection. Proceed through the chapter, using the videos when appropriate. After watching, there can be discussion, and parts of the video re-watched for clarification. Make ORS solution and taste.

1.00-2.00 **Lunch Break**

2:00-2:30 **Prepare for field practicum**

Using the flipcharts and the health recording forms, discuss possible scenarios that will be encountered on the field practicum. Be sure all are secure in what they are to do, and pair participants.

2:30-4:30 **Field practicum: assessing cough and difficult breathing and assessing diarrhoea.**

*Travel to site. Participants will assess for **general danger signs, cough and difficult breathing and diarrhoea** during this field trip. They should carry flipcharts and health recording forms. Ask participants to travel in pairs and to find a mother who is willing to have her child under age 5 assessed. The objective of the field practicum is to see a number of WELL children so that sick children can more easily be identified. It is not expected that the participants will evaluate a sick child, but if one is seen, immediately alert the supervisor.*

4:30-5:00 **Discuss field experiences**

This can be done wherever convenient: at the field site or the office. One of the facilitators should take notes of the debrief, and useful ideas or comments incorporated into future field practicums.

Day 3

8.30-8.45 **Devotions (optional)**

8.45-9.00 **Reflections/questions about days 1 and 2**

9.00-10.00 **Chapter 8: Malaria: Reflection, Definition, How To Recognize, Home Treatment, Skill Development: video and discussion, management of the recording form** **Antimalarials**
10.30-11.00 **Video**

Begin with the reflection questions in the facilitator's manual. Allow several participants to contribute stories and reflection. Proceed through the chapter, using the videos when appropriate. After watching, there can be discussion, and parts of the video re-watched for clarification.

10.00-10.30 **Tea Break**

11.00-1.00 **Chapter 9: Breastfeeding: Reflection, Definition, How to Assess Video and Discussion, Management of the Recording Form Breastfeeding Problems, Home Treatment, Management of** **Video Visitor dummy breast**

the Recording Form**doll**

Begin with the reflection questions in the facilitator's manual. Allow several participants to contribute stories and reflection. Proceed through the chapter, using the videos when appropriate. After watching, there can be discussion, and parts of the video re-watched for clarification. Greet the breastfeeding visitor, and watch correct positioning. Using the dummy breast, take turns practicing evaluating correct positioning. Spend time discussing the concerns on page 56 of the facilitator's manual.

1.00-2.00 Lunch Break**2.00-2.30 Chapters 10 and 11: Immunisation and vitamin A status Immunisation cards**

Begin with the reflection questions in the facilitator's manual. Allow several participants to contribute stories and reflection. Proceed through the chapter, using the videos when appropriate. After watching, there can be discussion, and parts of the video re-watched for clarification. Use the newsprint to draw pictures of vitamin A rich foods.

2.30-4.30 Field Practicum: Assessing Malaria, Breastfeeding, Immunisation And vitamin A status

*Travel to site. Participants will assess for **the entire health recording form** during this field trip. They should carry flipcharts and health recording forms. Ask participants to travel in pairs and to find a mother who is willing to have her child under age 5 assessed. The objective of the field practicums is to see a number of WELL children so that sick children can more easily be identified. It is not expected that the participants will evaluate a sick child, but if one is seen, immediately alert the supervisor.*

4.30-5.00 Discuss field experiences

This can be done wherever convenient: at the field site or the office. One of the facilitators should take notes of the debrief, and useful ideas or comments incorporated into future field practicums.

Day 4**8.30-8.45 Devotions (optional)****8.45-9.00 Reflections/questions on Days 1,2,3****9.00-10.00 Chapter 12: Essential Newborn Care: Reflection, Definition Video****10.30-11.00 Video and discussion, skill development, materials, and management of the recording form**

Begin with the reflection questions in the facilitator's manual. Allow several participants to contribute stories and reflection. Proceed through the chapter, using the videos when appropriate. After watching, there can be discussion, and parts of the video re-watched for clarification.

10.00-10.30 Tea break**10.30-1.00 Chapter 13: Newborn Asphyxia and Resuscitation HBB Kits Resuscitators**

Ask participants to gather in groups of 3 or 4 around a table with a HBB kit. Have each group assemble the baby in the kit, and then watch the video included on the powerpoint presentation. Proceed through the HBB manual, giving each participant ample time to achieve success with the aspirator. Have each

participant perform (individually) one correct minute of resuscitation, as this will be part of the evaluation.

1.00- 2.00 Lunch break

2.00-3.00 Newborn resuscitation: practice and management of the recording form

This is a second opportunity for each participant to use the resuscitation equipment and to review the correct procedure for newborn asphyxia emergencies. Again, have each participant perform (individually) one correct minute of resuscitation, as this will be part of the evaluation.

**3.00-5.00 Chapter 14: Newborn Care: General Danger Signs: Reflection, Definition, Video
How to Recognize, Video and discussion, management of the recording form**

Begin with the reflection questions in the facilitator's manual. Allow several participants to contribute stories and reflection. Proceed through the chapter, using the videos when appropriate. After watching, there can be discussion, and parts of the video re-watched for clarification. Emphasize the differences between newborn and child general danger signs, and review the differences on the recording forms.

Day 5

8.30-8.45 Devotions (optional)

8.45-9.00 Review of day 2

9.00-10.00 Revisit newborn asphyxia and resuscitation Resuscitators

This is yet another opportunity for each participant to use the resuscitation equipment and to review the correct procedure for newborn asphyxia emergencies. Because this is such a vital skill that will not often be needed in the field, it is important that each HHP feel (and be) completely competent. Assist those who are having difficulty, and be sure that all have sufficient practice time.

10.00-10.30 Tea Break

10.30-12.00 Practice algorithms, questions Referral sign cards

12.00-1.00 *lunch – earlier time*

1.00-2.00 Group 1: Evaluations (see "Evaluations document)

2.00-3.00 Group 2: Evaluations

3.00-4.00 Group 3: Evaluations

4.00-5.00 **Celebration and awarding of certificates, bags**

HHP Name _____

Date _____

Station #1 Completing the Recording and Referral Forms

Yes	Part	No	
			HHP selected the correct recording form for the child's age
			HHP completed the top portion of the form (the date and the child's name, age, and sex) using words or symbols in such a way that information can be accurately relayed to the supervisor during weekly visits
			HHP demonstrated accurate sequencing of the assessment by following the recording form from beginning to end.
			HHP chose the correct course of action based on signs and symptoms presented
			HHP accurately completed the referral form

Station #2 Cough and Difficult Breathing

Yes	Part	No	
			HHP selected the correct recording form for the child's age.
			HHP demonstrated ability to count breathing rate within 10% of target
			HHP accurately decided whether rate is "fast breathing" or not, depending on the age of the child, or erred to the side of false positive
			HHP demonstrated assessment of chest indrawing
			HHP demonstrated assessment of strange sounds in the chest
			HHP accurately determined level of assessment as red/urgent, yellow/non-urgent, or green/home care
			HHP accurately dispensed amoxicillin if indicated
			HHP accurately completed referral form, if indicated <i>or</i> HHP accurately gave home care instructions
			HHP accurately completed "cough and difficult breathing" section of recording form

Station #3 Diarrhoea and Dehydration

Yes	Part	No	
			HHP selected the correct recording form for the child's age.
			HHP accurately assessed for 6 diarrhoea and severe dehydration danger signs listed in the flipchart
			HHP accurately determined level of assessment as red/urgent, yellow/non-urgent, or green/home care
			HHP accurately stopped assessment at sign of urgent referral <i>or</i> HHP accurately assessed for 2 signs of diarrhoea with dehydration as listed in the flipchart: Restless and irritable; Drinks eagerly, thirsty <i>or</i> HHP accurately gave home care instructions
			HHP accurately completed "diarrhoea" section of recording form
			HHP accurately completed referral form, if indicated

Station #4 Malaria

Yes	Part	No	
			HHP selected the correct recording form for the child's age
			HHP demonstrated assessment of fever using back of hand on child's abdomen
			HHP demonstrated assessment for fever using verbal questioning of caregiver
			HHP correctly counted number of breaths per minute using video within 10% of target
			HHP correctly assessed if child has "fast breathing" as determined by age
			HHP accurately determined level of assessment as red/urgent or yellow/non-urgent
			HHP accurately dispensed paracetamol if indicated
			HHP accurately dispensed AS +AQ if indicated
			HHP accurately completed the "fever" section of recording form
			HHP accurately completed referral form, if indicated

Station #5 Newborn Resuscitation

Yes	Part	No	
			HHP selected the correct recording form for the child's age.
			HHP demonstrated preparation for a newborn breathing emergency
			HHP used the "Helping a Newborn Breathe" page in the flipchart and performed the correct actions
			HHP performed one minute of assisted ventilation with the bag and mask with reasonable accuracy
			HHP checked for breathing after one minute of assisted ventilation
			HHP verbally stated (with prompting) that s/he will continue until the newborn is breathing well or until 10 minutes have passed without successful resuscitation.

PASS

_____ **Station #1: Completing the Recording and Referral Forms**

_____ **Station #2: Cough and Difficult Breathing**

_____ **Station #3: Diarrhoea and Dehydration**

_____ **Station #4: Malaria**

_____ **Station #5: Newborn Resuscitation**

Re-takes:

Station # Date Evaluator

ANNEX IX List of Equipment and Drugs for HHPs

List of Equipment given to HHPs

1 Resuscitator
1 Aspirator
1 string of counting beads
1 1-minute timer
1 Flipchart
20 Child Health Recording Forms
3 Newborn Health Recording Forms
10 Referral Forms
1 bag
1 accordion-style plastic folder
pencils

List of drugs given to HHPs

Amoxicillin -250 mg

Antimalarial -25mg AS +37.5 mg AQ
50mg AS + 75 mg AQ

Chlorhexidine

ORS

Paracetamol
120 mg
500 mg

Tetracycline Eye Ointment

Zinc
20 mg



Impacts of Supervising Community Health Workers in South Sudan to Deliver Integrated Community Case Management Services for Newborns and Children

Supervising community health workers in rural South Sudan helped measure and maintain clinical skill performance and is an important element of effective program design.

The Challenge

Health indicators in South Sudan are among the worst in the world, with maternal mortality ratios of 2,054 per 100,000 live births, and an infant mortality rate of 68 per 1,000 live births. Improving and maintaining the clinical skills of frontline health workers over time is critical for strengthening health systems and providing adequate care to mothers, newborns, and children, and ongoing supportive supervision is widely recognized as a key to improving health worker performance. In Warrap State, South Sudan, where the greatest barrier to health care is the lack of skilled human resources, a 13-month operations research study was undertaken to describe and assess a supervision model for illiterate community health workers (CHWs).



A community health worker follows the pictorial algorithm to assess a child in her jurisdiction. Photo by Juli Hedrick, World Vision US.

Overall Program Strategy

Between September 2010 and September 2014 World Vision worked with the South Sudan and Warrap State Ministries of Health (MOH), county health departments, and village health management committees to improve maternal and child health outcomes by using high-impact, low-cost interventions, strengthening the capacity of the local health system, and building and strengthening local and national partnerships to sustain improvements in maternal and child health. Work toward these objectives was done in part by implementing a training and supervision strategy for CHWs delivering maternal and child health care in their communities. Training used a picture-based decision-tree algorithm, adapted from the World Health Organization, to assist CHWs in classifying symptoms, providing treatment, or referring mothers and children when appropriate. Supervision consisted of a three-function interactive approach in which the supervisor and CHW were jointly responsible for completing supervision of formative (increasing skills and knowledge), normative (enhancing accountability and quality assurance), and restorative (facilitating collegial and supportive relationships) activities.

Innovation Tested



Community health workers attend the iCCM-Plus training in March 2013. Photo by Juli Hedrick, World Vision US.

The main innovation of this operations research study was to implement the three-function supervision model for illiterate CHWs in Warrap State to reinforce their skills, knowledge, and competencies. The study assessed the efficacy of such a model as well as the ideal supervisor-to-CHW ratio for community-based work in South Sudan. The study provides insights into the importance of sufficient training and supervision of CHWs and suggests effective ways for limitations such as illiteracy to be mitigated.

World Vision hosted a one-day supervision workshop in February 2013 for the project supervisors (field supervisor and headquarters supervisor) as well as a five-day integrated community case management-Plus (iCCM-Plus)* training in March 2013 for the fifteen participating CHWs. The iCCM-Plus training began with an individual verbal pre-assessment of CCM knowledge, after which the algorithms for classification of and response to general danger signs, pneumonia, diarrhea, and malaria were presented. After each disease management topic, a field practicum was performed in a nearby village, with four CHWs and one supervisor traveling as a group. Training culminated in a station-based test of five skills: completing the recording and referral forms, demonstration of management of fever, cough, and diarrhea according to iCCM-Plus training, and newborn resuscitation.

Supervision of CHWs for the first three months following the iCCM-Plus training included weekly supervision visits and reports submitted to the central supervisor, and weekly Skype™ phone calls. For the following nine months, these activities took place monthly and central supervision ended.

The training, weekly visits, and monthly meetings made up the formative supervision function, aimed to improve instruction, skills development, and knowledge retention. Supervisors would individually coach CHWs as specific problem areas were identified. Normative supervision addressed skills and equipment management by continuing to engage both the central and field supervisor. The coaching involved identifying any problems in service delivery the CHW had during the previous week and jointly looking for a solution. The field supervisor tested CHW knowledge and practices by selecting a component of the flipchart for the CHW to competently explain, reviewing CHW's records and forms for accuracy, and checking the medications and equipment used by each CHW. Normative supervision on the central supervisor's part entailed reviewing weekly reports submitted by the field supervisor and providing immediate feedback. Restorative supervision aimed to support, reduce burnout, and improve satisfaction among CHWs. The field supervisor received positive feedback on this component from the community and health facility during weekly visits and monthly meetings. Additionally, the central supervisor was responsible for weekly teleconferences, dissemination of information, on-site support, and the collaborative assessments of problems in practice.

**iCCM curriculum addresses diarrhea, pneumonia, and malaria in children. iCCM-Plus includes an additional component on newborn care.*

Research Methodology

The study was conducted in rural Gogrial East and Gogrial West counties of Warrap State, South Sudan. Participating CHWs and supervisors were informed that the information collected during the supervision visits would be used to inform a final project report. Data was collected from March 2013 to March 2014.

Data assessed included pre- and post-training assessments, station-based CHW skills test results, training attendance, weekly supervision checklists (listing quantifiable measures of performance to assess CHW practices and case load), monthly virtual meetings, monthly supervision field reports, newborn and child health recording forms, and completed referral forms collected at the health facility.

The supervision checklist addressed four main competency components: consistent and complete use of the registration form; correct identification and classification of disease, according to the algorithm; correct treatment of sick children according to classification, including medicine administration and referral; and correct use and storage of tools and medical supplies, such as flip-chart, breath counter, bag and mask resuscitator, and aspirator.

To assess the coverage and efficacy of CHWs and CHW supervision, data was compiled on frequency of supervision visits, percentage of registration forms needing assistance, three-month and seven-month results from testing flipchart, recording form, referral form, and medication competencies, and frequency of children visited.

Key Findings

Over the period of study it was found that CHW skills and competencies increased over time with supportive supervision while the need for supervisor prompting and assistance decreased.

Almost half of CHWs were able to correctly use the registration form right after the one-week training, and three quarters began using it correctly after week three. Eighty percent (n=249) of registration forms were reported as completed (continued either to a point of urgent referral or the end of the form) during the first three-month period of supervision. From June 2013 to March 2014, the completion rate of registration forms was 95 percent. After the supervision period only 13 out of 15 CHWs (87 percent) were accredited as competent to deliver iCCM-Plus services, and the other two were discontinued from the program.

During the first 12 weeks of supportive weekly supervision, there were a total of 136 supervisory visits to 15 CHWs. During this period there was a mean of 11.3 supervision visits per week and a median of 12 supervision visits per week. The optimal supervisor to CHW ratio found during this study was 1:10, especially during the first three-month period following the five-day training. The trial utilized a ratio of 1:15, yet field supervisors on average were unable to visit all 15 due to CHW absences and transportation limitations.

Over the full study, there were a total of 2,552 children under age five visited by the 13 CHWs; a mean of 196 and a median of 162 child visits per month. All drugs were accounted for with complete stocks. During the life of the project there were no stock-outs reported or found during supervision visits.

During the three-month period of pilot testing the iCCM-Plus supervision model, 51 percent (258/503) 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 70.4 percent, as determined by collected referral forms. The overall trial referral rate during the 13-month period reached was 73 percent (1854/2552), with a 92 percent (1712/1854) effective referral rate.

Competency tested	3-month result			7-month result		
	Excellent	Some difficulty	Unable	Excellent	Some difficulty	Unable
Flipchart/algorithm	8%	91%	1%	31%	69%	0%
Recording form	8%	92%	0%	32%	68%	0%
Referral form	8%	91%	1%	31%	69%	0%
Correct medication	8%	90%	2%	31%	69%	0%

Table 1. Competency testing results of 15 home health providers, Kuac South, South Sudan, March-September 2013.

Conclusions

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 in a fragile-state situation where CCM approaches are currently being considered or implemented, and especially where treatment with drugs is included.

Findings during the trial 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 and check on a CHW's work. Overall, results indicate that integrating weekly supervision for a three-month period and monthly thereafter into a one-week training for iCCM-Plus, as demonstrated by this trial, assures the transfer of competencies and skills to CHWs needed to provide health services related to the CCM strategy, especially when including newborn-related care. All related clinical skills progressively increased their competency over time with one-third of participating CHWs achieving excellent management of the skill by month seven.

Recommendations

World Vision recommends that supportive supervision systems for CHWs be considered for scale-up in South Sudan with a 10:1 CHW to supervisor ratio. Future studies are needed to focus on assessing the competency, coverage, and effectiveness of illiterate CHWs with supportive supervision compared to a control group to increase internal validity of the conclusions. If volunteer CHWs can provide quality care and improved access to care in developing countries in a highly cost-effective manner as supported by evidence-based research, their place in health care system structures can be formally established.



The operations research field supervisor walks to a CHW's home for a supervisory visit. Photo by Juli Hedrick, World Vision US.

Use of Findings

The findings from this study have been shared in multiple fora, including international conferences and with a peer-reviewed journal publication pending. The technical advisor will share findings with the Ministry of Health and other stakeholders in South Sudan in January 2015. The findings have also been inserted into concepts for proposed projects within World Vision for further scale-up and refinement.

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FROM THE AMERICAN PEOPLE



FINAL EVALUATION DEBRIEFING

Maternal and Child Health Transformation (MaCHT) Project
Gogrial East and Gogrial West Counties, Warrap State, South Sudan
Cooperative Agreement: AID-OAA-A-10-00037
October 2010 – September 2014

Evaluated by Frank J. Anderson, External Consultant

PRESENTATION OVERVIEW

World Vision



- STRATEGIC OBJECTIVES
- MAIN ACTIVITIES
- OPERATIONS RESEARCH (OR)
- MAJOR FINDINGS
- LIMITATIONS
- CONCLUSIONS
- RECOMMENDATIONS



STRATEGIC OBJECTIVES



SO 1: Increase use of high impact, low cost, and feasible interventions for better maternal, neonatal, and child health (MNCH) outcomes

SO 2: Strengthen capacity of the health system to deliver essential health services

SO 3: Build and strengthen local and national partnerships to sustain MNCH improvements

STRATEGIC OBJECTIVES



SO 1: Increase use of high impact low cost and feasible interventions for better maternal, neonatal, and child health outcomes

IR 1.1: Improved knowledge and practice of key interventions at the household and community level (maternal and child health, malaria, pneumonia, diarrhea, immunizations)

IR 1.2: Improved quality of delivery of key interventions

IR 1.3: Improved access to critical maternal, neonatal, and child health services

STRATEGIC OBJECTIVES



SO 2: Strengthen capacity of the health system to deliver essential health services

IR 2.1: Improved technical and managerial capacity of health staff at peripheral health facilities

IR 2.2: Improved infrastructure and supplies in peripheral health facilities

IR 2.3: Strengthened Ministry of Health policy and strategy supported by evidence-based operations research

STRATEGIC OBJECTIVES



SO 3: Build and strengthen local and national partnerships to sustain maternal, neonatal, and child health improvements

IR 3.1: Strengthened community structures and leadership

IR 3.2: Strengthened organizational capacity of local non-governmental organizations

IR 3.3: Repositioned maternal, neonatal and child health agenda at county and state levels

MAIN ACTIVITIES

1. Home visits by community health workers (CHWs)
2. Mother Leader Groups
3. Supportive supervision
4. Community health worker training
5. Sponsor training of midwifery students
6. Advocate to increase health staff
7. Participate in working groups and coordination meetings



MAIN ACTIVITIES



IR 1.1: Improved knowledge and practice of key interventions at household and community level

1. Supportive supervision at all levels
2. Launch an aggressive three-pronged intervention plan that increases access to health information and preventive outreach services; improved continuum of care approach between the household and distant health facilities
3. Strengthen Community Case Management (CCM) of illness and emergency response to maternal and newborn conditions
4. Home visits by Home Health Promoters (HHPs), who provide integrated and timed health and nutrition messages according to the life cycle
5. HHPs, women leaders, and those with traditional birth attendant experience trained in Home-Based Life Saving Skills (HBLSS)*

MAIN ACTIVITIES



IR 1.1: Improved knowledge and practice of key interventions at household and community level

Mother Leader Groups

- Foster positive health and nutrition practices for mom, baby, and child
- Support the Home Health Promoters (HHPs) and primary health care unit (PCHU) outreach activities
- Support community midwives and HHPs

MAIN ACTIVITIES



IR 1.2: Improved quality of delivery of key interventions

- Supportive supervision at all levels
- Developed instructions for treatment and referral guidelines and pictorial job aids for recognizing and managing complications
- Community health workers supported by nurses will supervise Home Health Promoters in their household and targeted community counseling, CCM, and HBLSS activities.
- Standardized checklists

MAIN ACTIVITIES



IR 1.3: Improved access to critical MNCH services

1. Identify and recruit Home Health Promoters
2. Home visits
3. Community Case Management
4. Ensure continuous emergency transport support system
5. Boma outreach and Boma Learning and Demonstration Centers (BLDCs)
6. Cultural and gender influences

MAIN ACTIVITIES



IR 2.1: Improved technical and managerial capacity of health staff at peripheral health facilities

1. Sponsor eight students from project areas for the 18-month community midwifery training program.
2. Advocate with the County Health Departments (CHDs) and State MOH to identify health workers to fill existing vacancies and increase the staffing levels at PHCUs/ PHCCs.
3. Phased refresher training for primary health care staff
4. Promote a culture of high performance through performance-based incentives for Home Health Promoters.

MAIN ACTIVITIES



IR 2.3: Strengthened MOH policy and strategy supported by evidence-based operations research

1. Increase the MOH capacity to deliver accessible and quality primary health care on an equitable basis
2. Promote Home Health Promoters as a credible source for the most vulnerable and remote populations.

MAIN ACTIVITIES



IR 3.1: Strengthened community structures and leadership

1. Contribute to rebuilding community structures disrupted by conflict and population displacement by working with the Health Facility Management Committees (HFMC) to ensure gains made in health outcomes are sustained and mutual accountability is built.
2. Build upon WV's existing relationships with the HFMCs in the project area and provide leadership and management training enabling them to plan, implement, monitor, and coordinate health services.
3. Empower HFMCs to identify candidates to be trained as HHPs and support and supervise drug management and infrastructure of local health facilities.

MAIN ACTIVITIES



IR 3.2: Strengthened organizational capacity of local NGOs

- Capacitate five local NGOs, including Gogrial East Women's Association (GEWA), to support MNCH community-based activities in the long term.
- Identify and addresses capacity issues of the NGOs

MAIN ACTIVITIES



IR 3.3: Repositioned maternal, neonatal, and child health (MNCH) agenda at county and state levels

- Participate in the National Interagency Health Forum and national technical working groups
- Participate in coordination meetings to advocate for inclusion of MNCH interventions in strengthening NGO strategy and disseminate implementation plans, key findings, innovations, and tools relevant to MNCH
- Coordinate with Global Alliance for Vaccines and Immunizations' (GAVI) health system strengthening initiative for improving local Expanded Program on Immunization (EPI) logistics and participating in local EPI coordination. Leverage these associations to advocate for increased staffing levels at PHCUs/PHCCs
- Advocate with county and state officials to focus on investments in cold chain maintenance at peripheral levels

OPERATIONS RESEARCH



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

OPERATIONS RESEARCH

Three-pronged supportive supervision model

1. Supervisors

- Central and field supervisors

2. Follow-up

- Weekly visits for three months following training, with monthly visits after

3. Checklist

- Use of a checklist with defined basic skills and competencies



Kuol Kuol Amet, field supervisor, delivers a backpack of supplies to an HHP's home, March 2013.

OPERATIONS RESEARCH

Three supervisory functions

1. Formative

- Increase skills and knowledge

2. Normative

- Enhance accountability and quality assurance

3. Restorative

- Facilitate collegial and supportive relationships



OPERATIONS RESEARCH



Components of a three-function interactive model

	Field supervisor	Central supervisor
Formative	<p>Weekly visits during three-month training period: coach each CHW when problem areas are identified.</p> <p>Continuing education topics at monthly meeting (e.g. vaccination).</p> <p>Monthly visits after training period</p>	<p>Three-month training period</p> <p>Suspended after training period</p>
Normative	<p>Weekly visits during three-month training period: test components of the algorithm, check recording forms and condition of medication/ equipment.</p> <p>Monthly visits after training period</p>	<p>Review of weekly reports with immediate feedback.</p> <p>Suspended after training period</p>
Restorative	<p>Weekly visits during three-month training period: report positive feedback from community and health facility.</p> <p>Monthly meetings.</p>	<p>Weekly teleconference, sharing of information, on-site support. Joint identification of solutions to problems in practice.</p> <p>Suspended after training period</p>

OPERATIONS RESEARCH



Over the course of the full thirteen months of supportive supervision, there were a total of 2,552 children under age five visited by the 13 CHWs; a mean of 196 and a median of 162 child visits per month. The least number of children visited in a month was 76, during March 2013, and the highest was 378 child visits during August 2013. (See Figure 2)

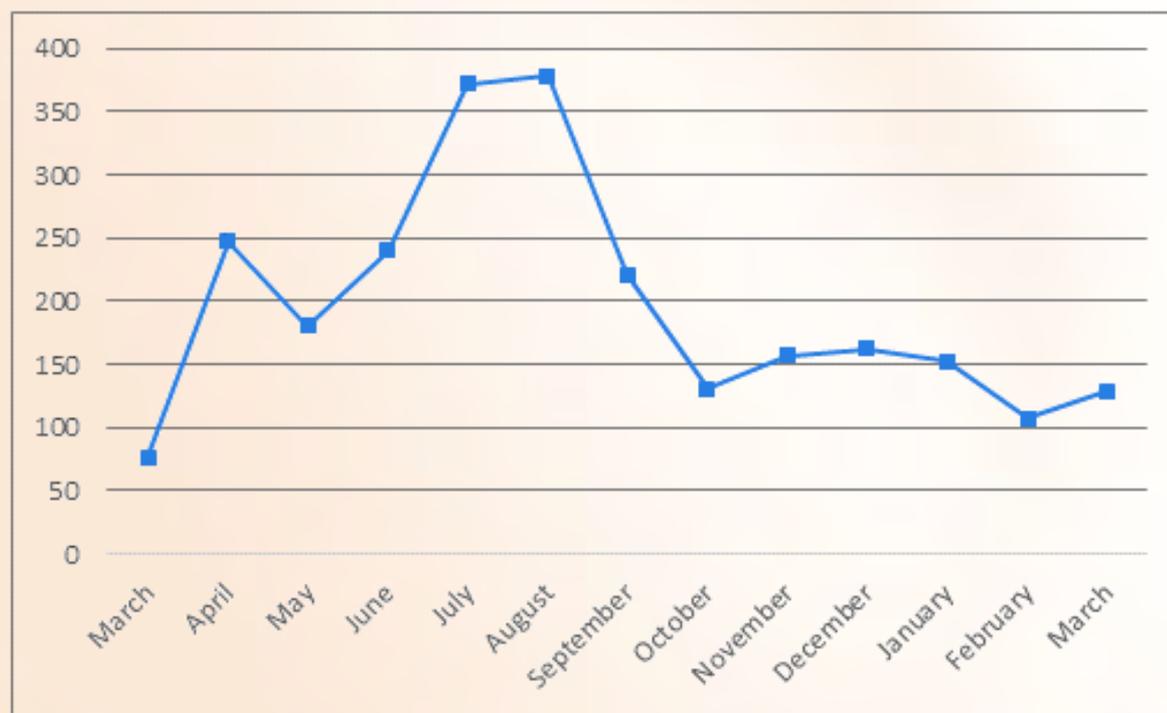


Figure 2. Frequency of children visited during a thirteen-month period, March 2013- March 2014. Kuac South, South Sudan.

OPERATIONS RESEARCH



Results

- Supervision can improve performance
- After 6-weeks of supportive supervision **87% of CHWs** increased practical skills and knowledge
- Optimal supervisor/CHW ratio: **1:10**
Optimal CHW/population ratio: **1:100**
- The **three-pronged supervision model** might be a key component to consider in assuring skill and competency acquisition among illiterate CHWs

MAJOR FINDINGS

Qualitative Assessment – Three Questions

1. To what extent did the project accomplish and/or contribute to the results as described in the detailed implementation plan?
2. What were the key strategies and factors, including management issues that contributed to what worked or what did not work?
3. Which elements of the project are likely to be sustained?

LIMITATIONS

- Poverty
- Civil instability
- Limited infrastructure
- Limited skills capacity
- Rural areas with poor roads
- Seasonal flooding, no bridge
- Only one vehicle
- Frequent staff and management turnover
- Inconsistent supply of drugs
- Unexpected costs



CONCLUSIONS



- MaCHT successfully initiated community-based health care services through HHPs, CHWs, and other community organizations
- MaCHT successfully worked with the State and County MOH to increase quality and access of services
- Some aspects of the project will continue through other WVSS projects as a result of MaCHT

RECOMMENDATIONS



- Partnerships with MOH
- Operations Research
- Health Pooled Fund project
- Supply Chain and Infrastructure
- Staffing and Capacity

THANK YOU! *Yin ca lec*



Child Survival and Health Grants Program Project Summary

Nov-25-2014

World Vision, Int'l. (Sudan)

General Project Information

Cooperative Agreement Number: AID-OAA-A-10-00037
WV Headquarters Technical Backstop:
WV Headquarters Technical Backstop Backup: Alfonso Rosales
Field Program Manager: Elizabeth Walumbe
Midterm Evaluator: Beulah Jayakumar
Final Evaluator: Frank Anderson
Headquarter Financial Contact: Alfonso Rosales
Project Dates: 10/1/2010 - 10/1/2014 (FY2010)
Project Type: Innovation
USAID Mission Contact: Basilica Modi
Project Web Site:

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Grant Funding Information

USAID Funding: \$1,749,937 **PVO Match:** \$721,849

General Project Description

World Vision, a 2010 Innovation category grantee, is implementing the *Mother and Child Health Transformation Project* (MaCHT) in Gogrial East and West counties of Warab state in the Northern Bahr el Ghazal region of South Sudan. The project goal is to reduce maternal, neonatal, and child (MNC) mortality by increasing the use of feasible, high-impact, low-cost interventions, strengthening the capacity of the health system to deliver essential health services, and building/strengthening local and national partnerships to sustain MNC health improvements.

Project Location

Latitude: 8.53	Longitude: 28.11
Project Location Types:	Rural
Levels of Intervention:	Health Post Level Home Community
Province(s):	Warrap State
District(s):	Gogrial East and West Counties
Sub-District(s):	--

Operations Research Information

OR Project Title:	Study effectiveness of frontline health workers in household delivery of an integrated CCM package
Cost of OR Activities:	\$100,000
Research Partner(s):	Johns Hopkins Bloomberg School of Public Health
OR Project Description:	World Vision implemented an operations research (OR) study to test the feasibility of using illiterate frontline health workers to deliver integrated community case management (CCM) and a newborn care component, which included essential newborn care and management of newborn asphyxia, at the household level.

The two main products of the OR were to develop a medical action plan targeted at most neonatal intrapartum problems and a supportive supervision model to maintain clinical competencies over time.

Partners

Gogrial East Womens Association (Collaborating Partner)	\$0
Women Can Do It Association (Collaborating Partner)	\$0

Strategies

Social and Behavioral Change Strategies:	Community Mobilization Group interventions Interpersonal Communication
Health Services Access Strategies:	Emergency Transport Planning/Financing Addressing social barriers (i.e. gender, socio-cultural, etc)
Health Systems Strengthening:	Quality Assurance Conducting capacity assessment of local partners Supportive Supervision Task Shifting Developing/Helping to develop clinical protocols, procedures, case management guidelines Developing/Helping to develop job aids Monitoring health facility worker adherence with evidence-based guidelines Providing feedback on health worker performance Monitoring CHW adherence with evidence-based guidelines Referral-counterreferral system development for CHWs Community role in supervision of CHWs Community role in recruitment of CHWs Review of clinical records (for quality assessment/feedback) Coordinating existing HMIS with community level data Pharmaceutical management and logistics Performance-based incentives or contracts for health facility workers
Strategies for Enabling Environment:	Create/Update national guidelines/protocols Advocacy for revisions to national guidelines/protocols Stakeholder engagement and policy dialogue (local/state or national) Advocacy for policy change or resource mobilization Building capacity of communities/CBOs to advocate to leaders for health
Tools/Methodologies:	Sustainability Framework (CSSA) Rapid Health Facility Assessment

Capacity Building

Local Partners:	Dist. Health System Health Facility Staff Other CBOs Government sanctioned CHWs TBAs Faith-Based Organizations (FBOs)
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Interventions & Components

Control of Diarrheal Diseases (20%) <ul style="list-style-type: none">- Water/Sanitation- Hand Washing- ORS/Home Fluids- Feeding/Breastfeeding- Care Seeking- Case Management/Counseling- POU Treatment of water- Community Case Management with Zinc (Implementation)- Community Case Management with ORS (Implementation)	CHW Training HF Training
Immunizations (10%) <ul style="list-style-type: none">- Polio- Vitamin A- Surveillance- Cold Chain Strengthening- New Vaccines- Injection Safety- Mobilization- Measles Campaigns- Community Registers- RED approach (Reaching Every District)	CHW Training
Malaria (20%) <ul style="list-style-type: none">- Training in Malaria CM- Adequate Supply of Malarial Drug- Access to providers and drugs- Antenatal Prevention Treatment- ITN (Bednets)- Care Seeking, Recog., Compliance- IPT- ACT- Community Case Management of Malaria (Implementation)	CHW Training HF Training

Maternal & Newborn Care (30%)

- Emergency Obstetric Care
- Neonatal Tetanus
- Recognition of Danger signs
- Newborn Care
- Post partum Care
- Child Spacing
- Integation. with Iron & Folic Acid
- Normal Delivery Care
- Birth Plans
- Home Based LSS
- Control of post-partum bleeding
- Emergency Transport
- Neonatal Vitamin A
- AMTSL

IMCI Integration

CHW Training
HF Training**Pneumonia Case Management (20%)**

- Case Management Counseling
- Access to Providers Antibiotics
- Recognition of Pneumonia Danger Signs
- Zinc
- Community Case Management with Antibiotics (Implementation)

CHW Training
HF Training

Operational Plan Indicators

Number of People Trained in Maternal/Newborn Health			
Gender	Year	Target	Actual
Female	2010		
Female	2010		0
Male	2010		0
Male	2010		
Female	2011	409	
Female	2011		0
Male	2011		0
Male	2011	50	
Female	2012	83	
Female	2012		196
Male	2012		10
Male	2012	100	
Female	2013	100	
Female	2013		419
Male	2013		47
Male	2013	165	
Number of People Trained in Child Health & Nutrition			
Gender	Year	Target	Actual
Female	2010		
Female	2010		0
Male	2010		0
Male	2010		
Female	2011	340	
Female	2011		0
Male	2011		0
Male	2011	137	
Female	2012	83	
Female	2012		35
Male	2012		8
Male	2012	183	
Female	2013	17	
Female	2013		435
Male	2013		59
Male	2013	20	
Number of People Trained in Malaria Treatment or Prevention			
Gender	Year	Target	Actual
Female	2010		0
Female	2010		
Male	2010		0
Male	2010		
Female	2011		0
Female	2011	454	
Male	2011		0
Male	2011	100	
Female	2012		50
Female	2012	83	
Male	2012		5
Male	2012	100	
Female	2013		44
Female	2013	142	
Male	2013		24

Male	2013	125	
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Locations & Sub-Areas

Total Population: 145,508

Target Beneficiaries

Sudan - WV - FY2010

Children 0-59 months	72,754
Women 15-49 years	72,754
Beneficiaries Total	145,508

Rapid Catch Indicators: DIP Submission

Sample Type: 30 Cluster				
Indicator	Numerator	Denominator	Percentage	Confidence Interval
Percentage of mothers with children age 0-23 months who received at least two Tetanus toxoid vaccinations before the birth of their youngest child	76	298	25.5%	7.0
Percentage of children age 0-23 months whose births were attended by skilled personnel	35	298	11.7%	5.2
Percentage of children age 0-5 months who were exclusively breastfed during the last 24 hours	0	0	0.0%	0.0
Percentage of children age 6-23 months who received a dose of Vitamin A in the last 6 months: card verified or mother's recall	52	208	25.0%	8.3
Percentage of children age 12-23 months who received a measles vaccination	54	140	38.6%	11.4
Percentage of children age 12-23 months who received DTP1 according to the vaccination card or mother's recall by the time of the survey	64	140	45.7%	11.7
Percentage of children age 12-23 months who received DTP3 according to the vaccination card or mother's recall by the time of the survey	3	140	2.1%	3.4
Percentage of children age 0-23 months with a febrile episode during the last two weeks who were treated with an effective anti-malarial drug within 24 hours after the fever began	9	187	4.8%	4.3
Percentage of children age 0-23 months with diarrhea in the last two weeks who received oral rehydration solution (ORS) and/or recommended home fluids	31	124	25.0%	10.8
Percentage of children age 0-23 months with chest-related cough and fast and/or difficult breathing in the last two weeks who were taken to an appropriate health provider	43	115	37.4%	12.5
Percentage of households of children age 0-23 months that treat water effectively	23	298	7.7%	4.3
Percentage of mothers of children age 0-23 months who live in households with soap at the place for hand washing	36	298	12.1%	5.2
Percentage of children age 0-23 months who slept under an insecticide-treated bednet (in malaria risk areas, where bednet use is effective) the previous night	148	298	49.7%	8.0
Percentage of mothers of children age 0-23 months who had four or more antenatal visits when they were pregnant with the youngest child	37	298	12.4%	5.3
Percentage of mothers of children age 0-23 months who are using a modern contraceptive method	1	298	0.3%	0.9
Percentage of children age 0-23 months who received a post-natal visit from an appropriately trained health worker within two days after birth	44	298	14.8%	5.7

Rapid Catch Indicators: Final Evaluation

Sample Type: 30 Cluster				
Indicator	Numerator	Denominator	Percentage	Confidence Interval
Percentage of mothers with children age 0-23 months who received at least two Tetanus toxoid vaccinations before the birth of their youngest child	324	510	63.5%	5.9
Percentage of children age 0-23 months whose births were attended by skilled personnel	86	510	16.9%	4.6
Percentage of children age 6-23 months who received a dose of Vitamin A in the last 6 months: card verified or mother's recall	205	387	53.0%	7.0
Percentage of children age 12-23 months who received a measles vaccination	113	510	22.2%	5.1
Percentage of children age 12-23 months who received DTP1 according to the vaccination card or mother's recall by the time of the survey	104	510	20.4%	4.9
Percentage of children age 12-23 months who received DTP3 according to the vaccination card or mother's recall by the time of the survey	14	510	2.7%	2.0
Percentage of children age 0-23 months with a febrile episode during the last two weeks who were treated with an effective anti-malarial drug within 24 hours after the fever began	120	406	29.6%	6.3
Percentage of children age 0-23 months with diarrhea in the last two weeks who received oral rehydration solution (ORS) and/or recommended home fluids	172	234	73.5%	8.0
Percentage of children age 0-23 months with chest-related cough and fast and/or difficult breathing in the last two weeks who were taken to an appropriate health provider	170	265	64.2%	8.2
Percentage of households of children age 0-23 months that treat water effectively	233	510	45.7%	6.1
Percentage of mothers of children age 0-23 months who live in households with soap at the place for hand washing	82	510	16.1%	4.5
Percentage of children age 0-23 months who slept under an insecticide-treated bednet (in malaria risk areas, where bednet use is effective) the previous night	288	510	56.5%	6.1
Percentage of mothers of children age 0-23 months who had four or more antenatal visits when they were pregnant with the youngest child	146	510	28.6%	5.5
Percentage of mothers of children age 0-23 months who are using a modern contraceptive method	0	510	0.0%	0.0
Percentage of children age 0-23 months who received a post-natal visit from an appropriately trained health worker within two days after birth	78	510	15.3%	4.4

Rapid Catch Indicator Comments

The project did not collect information on IYCF and Underweight since nutrition is not a project intervention.

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PROJECT CONTEXT FINDINGS FROM INTERVIEWS

CONFLICT

World Vision South Sudan (WVSS), at the time of this evaluation, is implementing 43 different projects across South Sudan, and currently is responding to a Level 3 global emergency – a national crisis affecting over one million people. For World Vision, this is the largest category and necessitates the most response. The need for this type of response was declared on December 15, 2013 and continued at least through the time of the final evaluation interviews. During this current crisis, there was armed conflict in the capital city, leading to the evacuation of non-nationals and closure of the WV office. The office was reopened in early January 2014 to respond to the crisis of internally displaced persons. Some World Vision offices suffered loss of vehicles, food and other supplies to an estimated 1.2 million dollar value.

There are 17,000 internally displaced people in Juba, and around 400,000 in the camps, but the overall estimate is that there are four million displaced people. A main thrust of the WVSS efforts are relief with food and non-food items, implemented partly through the WASH project.

The development activities in the other more stable areas are losing funding as the funding moves towards these relief efforts. It is being anticipated that in October 2014 the dry season will commence and conflict may reemerge. WVSS is preparing for possible famine and hopes to prevent a major food pipeline break which may occur as the only means of transporting food is through an airlift which has a limited capacity. WV is a major food distributor for the World Food Programme.

LOGISTICS

The MaCHT project area is split by the Jur River, which was flooded at the time of the final evaluation. Due to the limited time available for the project evaluation, and the fact that the river is flooded, the eastern region could not be visited. The river, flooding, and lack of a bridge were some of the main constraints to the full project implementation.

HEALTH INFRASTRUCTURE

The implementation of this project was also affected by at least three major contextual issues – infrastructure, political and social instability, and human resource capacity. South Sudan is a “newborn” country and will have existed as a country for less than five years. After a long period of war with Sudan, this newly independent country has faced numerous challenges. The governmental health infrastructure contains gaps that are stressed by a large population of people in very rural areas. Maternal and child health indicators place South Sudan as the country with highest rate of maternal mortality. The recent influx of people leaving Khartoum and other areas of Sudan to resume residence in South Sudan had strained the already weak health care infrastructure. Many of the inhabitants of capital and areas now known as Sudan were originally from the southern part. Many moved to the south to vote in the referendum for independence resulting in an increased need for health services in South Sudan. An internal civil war based on political/tribal conflict has resulted in approximately 1.5 million internally displaced people in South Sudan and surrounding areas. Massive relief efforts are underway to prevent wide scale starvation and epidemic disease. These priority relief efforts compete for both financial and human resources with development activities – of which the currently evaluated project is a part. Current relief projects are infrastructure rich, and take priority over development efforts. When these resources are pooled, relief efforts may take advantage of available development resources. In the areas of health, much of the human capital is provided by non-nationals. The human capital needs cannot be filled by the current population of South Sudanese. Educational and capacity building projects have not created enough human capacity to fulfill all of the leadership roles necessary to implement the infrastructure needed to deliver a full range of comprehensive health care. Infrastructure needs are

great, especially in roads, health facilities, nurses, midwives and doctors. Health facilities require major upgrades, supervisory and quality assurance mechanisms.

The regional office in Warrap contains the headquarters of the MaCHT project. The regional office employs over 300 persons to implement food, water and sanitation projects, along with implementing health pooled funds for maternal and child health projects in the area.

FINDINGS FROM MOTHERS

During the evaluation a visit was conducted with the first HHPs that were trained, and a focus group was conducted with nine mothers and their babies. The focus group was an open discussion, and started with a question about what the women had learned from the HHP. One woman noted that the HHP had encouraged her to go to the health facility to deliver. When she went to the facility, the HHPs gave her some clothes to cover the baby and upon further explanation, she had learned the importance of early drying. She delivered at the facility at the HHPs request, but had to travel three hours to the MSF hospital. This woman also learned that she could go to the HHP with a sick child and the HHP would give her a drug.

Another woman learned “many things”, including to set up a mosquito net around the baby, to breastfeed immediately, and how to clean her home properly. It was noted that the HHP visits the homes, and when the child has a fever they may provide medicines and then come back the next day to check on the baby. One woman said that when you deliver the HHP will come to advise about immunizations, and provide monthly ANC. “The HHPs also evaluate and advise to go to a facility if they have no drug”. “She knows more than her other village mates” due to her HHP and she teaches the others in her village.

Now that the project is ending, they don’t know what will happen to them next. One woman thinks polio has been eradicated as she has not seen any cases since the project started, and they think there is a whooping cough here and no cases of measles.

Another mother noted that the HHPs are “not getting incentives enough”.

One woman noted that there are villages where there are no HHPs; the mothers have observed that the parents in those villages without trained HHPs do not know to take their children to someone for evaluation, or to provide a drug supply to those villages and someone to distribute them.

One woman noted that the HHP went to her home when she was in labor, cut the umbilical cord and put on the iodine, then stated that, “the child is healthy to get a drug and now the child is healthy. HHPs need to be supported.”

Mothers were then asked: What did the HHP teach you about the delivery? What is the difference between delivering at home verses the health facility? Among the nine women in the focus group, five had delivered their baby at home, and four had delivered in a health facility. One had an unexpected delivery at home due to a rapid labor, noting that, “if the head has come out – can’t go to the health facility”.

One woman noted the importance of delivery at health facility especially for the first time, “because the baby may not come out and you may have a complication. You may be helped when something goes wrong.” One woman could not deliver at the health facility because she could not leave her other child to delivery at the facility.

One woman noted that when you deliver at the facility, things are covered, but when you deliver with an untrained TBA you will be asked to pay and the facility is not like that. One woman said that she felt more secure at a facility than at home. Another woman stated that she delivered at the Juba teaching hospital. She was found to have malaria and so was referred to Juba in case she needed to be treated for hemorrhage. One woman noted an interesting perception of hospital deliver, which is that when you deliver in the community you will lose your appetite and in the facility you get an appetite stimulant drug.

Women were taught a breast feeding technique that was very helpful. One HHP noted that most women do not know how to breastfeed as the baby keeps crying. In general, this particular group of women had been well educated by the HHPs and had a good relationship with them.

FINDINGS FROM HOME HEALTH PROMOTERS

A focus group with 12 HHPs in the same village and the woman who had provided their training was also conducted.

The first question asked: What did HBLSS teach you that you did not already know?

One responded that they were trained how to deliver babies in an emergency and how to handle an emergency situation, and how to teach about cleanliness of the environment. She learned about how to teach moms about mosquito nets and care of baby. She learned about referrals and when to refer. This same woman stated that they need torches to go out at night. She was taught uterine massage for postpartum hemorrhage. She also learned about the drugs, and if she examines a child at night and administers a drug, to send the child to a facility in the morning. She will notice a pregnant woman, send her to the facility, and then follow up to see the card and see what the doctors said so that she can remind the woman of her next prenatal visit. Another HHP learned that, “If you do a home birth, use boiled salt water and cotton.” Also, they learned to use the latrine.

One woman discussed male involvement and noted that, “They say you can’t talk to a woman without talking to a man.” What do the men say when you teach them? “Tell them increase nutrition, child spacing, workload of the woman- and when there is a small baby- the husband should buy meat for the mother.”

When they started MaCHT it was difficult to talk to the men, but, “now the men understand it better. They try to find their male friends to talk to them and talk to their friends. Men must allow the woman to go to the health facility.”

They were asked, “What message would you like me to take back?” A participant stated that malaria cases have increased and that there are no drugs, and that supplies for the delivery rooms are not set up and they are missing equipment and supplies. Now that they are referring mothers, if the services are not up to date, it’s not good – and they need more than one uniform. They need rubber boots and raincoats. The drug supply, procurement, and distribution must be more fully developed and ensured.

When asked, it was noted that none of the 13 participants have malaria drugs, which indicates that if they don’t have the drugs, the facility does not have any drugs either. One question arose as whose responsibility it is to provide the drugs, World Vision’s or the CHWs? This is a sustainability issue and must be solved to ensure that the people who need treatment, as well as the providers of the treatment, have a sustainable and reliable chain of drugs and equipment.

FINDINGS FROM STAFF

WV AND MACHT STAFF INTERVIEW

This particular area of South Sudan is peaceful, with “normal crime” but no political or civil insecurity. While there is still a curfew that comes from the Juba office, there has never been a security problem ever in this town. Even though there is not insecurity, communal fighting still occurs. The security officer and zonal officer act as liaisons with the Juba office. They have noticed that MaCHT has had an impact on the communities, as many South Sudanese came back from Khartoum after independence. Many were vulnerable. The population doubled when people returned for the election, and many South Sudanese decided to come to Kwajok. It was during the initiation of the new country that MaCHT started. Visible impact was seen. Attendance is going up, and the processes are in place and it is visible and tangible.

There have been three different permanent managers and an interim manager. There has been turnover in the project managers and a variety of techniques for handling issues. The second manager lasted only three months, followed by a third, acting manager, who was replaced by the fourth and final manager who is currently working now to finalize the project. This frequent turnover has led to significant problems with program management and budgeting.

A big problem is the fact that the river floods and you can't get the medicines to all areas of the project as the project is implemented on both sides of the river. This geographical issue raised an issue with the management of the assets, especially the use of vehicles in a high-need setting, with multiple projects occurring at the same time. The MaCHT project only had one major vehicle for project use for transport of drugs and staff to implement on both sides of the river. Project staff had motorcycles, but when the major project truck breaks down, the project stops unless the other vehicles are used. As is the case in many other projects, the MaCHT project infrastructure was integrated into the other WV projects in Warrap. Their projects which have been taxed with the very large relief and food projects that have been implemented as a response to conditions that caused civil war in South Sudan. WV is a leader in the food and relief projects that are being implemented in the area. At the time of the final evaluation, the MaCHT vehicle had been down for three months and the funds were not available to repair it.

Funding for the project expectations was not adequate- given the context of south Sudan. The car costs were budgeted lower than expected, and the spare parts from other countries are much more expensive than had been anticipated. - And inflation is very high, and fuel costs have risen very much. Also noted were the challenges with infrastructure in the area. At this time, the Ministry of Health is still putting into place mechanisms to procure, and sustainably supply and equip the health facilities with needed materials and drugs. Needs assessments still need to be conducted in many facilities, and standards of care still need to be implemented, publicized and acted upon. The sustainability of the project is reliant on the MOH continued activities as most primary health care units are run by the government; CHWs are paid by the government. Procurement, transport and inventory control issues have not been effectively worked out, so drug absence both at health centers, and with HHPs is severely lacking.

STAFF FOCUS GROUP

The project staff are located in two different areas. Three staff are located on the eastern side of the river and six staff are on the west side of the river, along with the HHP supervisor and the main office of the WV Warrap staff. There are eight health facilities in the site. There is one health care “center” for the entire region, which includes both sides of the river. Although termed a health care center, it does not yet provide the services of a center (including C-section) and in actuality functions as a health care

unit. There are seven health care units, three on the east side of the river and four on the west side of the river.

The maternal child health supervisor has overseen 100 HHPs trained in HBLSS and 50 are trained in community case management which only supply ORS and zinc.

Out of the 50 who were trained in community case management, 15 on the west side of the river were trained in integrated case management and also give antibiotics and anti-malarials, and 19 on the east side of the river project were trained with plans to train 30 more before project close out. The maternal child health supervisor also works with the “mother leader groups” that help mothers learn to identify and refer children and pregnant women to the HHPs for treatment or referral. Project staff also work with the health management committees to support the management of the facility.

What are the issues with timeliness and quality of reports?

The trainings for EMOC and case management for childhood illness emphasized coordination between communities and facilities. Staff supervises the HHPs which include monthly meetings and consolidation of their reports. He asks them how many times they have done different things, and collects their oral report. HHPs count with “sticks” for every home visit and every birth, using long sticks for boys and short sticks for girls. Most of the reporting is by using pictures of the home visits. There is quality data from the field – he takes the weekly and monthly reports that he sends to the project manager.

There are no drugs in store, and although MaCHT does not procure drugs, the drugs are supplied by WV as a match. MaCHT does not buy drugs and MaCHT depends on the donation and procurement of drugs from other sources and the government. There have been problems getting drugs to HHPs. Sometimes the CHWs do not give the drugs. There are also communication issues. Last year, the drugs only came once.

The social mobilization supervisor works with the community groups and to let the communities know what the services are at the facilities. He helps form the mother leaders groups that work with the facility management committee to help them learn to go to ANC services and know why it is important to delivery at the facility. They have trained two groups of 15 of mother’s leaders groups, and still need to train six more groups before the project ends. In the east there have been 45 trained and the plan was to train 150. The project still needs to do two refresher trainings on the west side of the river and four refresher trainings on the east side of the river. There have been 98 mother leader group members trained. He also does supervision in the health facility and sets up the ORS corner.

What are the limitations?

Staff turnover is high due to high stress and the difficulty of working in this setting. The first project manager resigned, leaving no manager for a long time before an acting manager was instated. The second one resigned after six months and in May 2014 the current supervisor was hired.

The BCC officer also resigned due to local issues. The social mobilizer was absent a lot and was terminated. One person was double employed by WV and the government, while another staff who replaced the social mobilizer did not renew his contract. A monitoring and evaluation specialist hired for the position subsequently abandoned the position.

The total number of staff turnover is 10 from November 2010. There was a plan to have the monitoring and evaluation position filled by a local but this did not happen as a qualified person could not be found. This left a large gap when the person left. The new hire for monitoring and evaluation is still learning the project monitoring and evaluation plan.

Staff noted the constraints and problems from high staff turnover and noted that it creates a vacuum that cannot be filled later. Many of the current staff have been recruited for a job that ends at the end of September, while some have taken their positions because there are no other options and will learn on the job.

Other problems noted by staff:

The project has only one vehicle, and the vehicle was broken down resulting in many plans to go to the field being cancelled. Accessibility is also an issue, as 4-5 months of the year you cannot go to the east side of the river. There are problems with referrals and no ambulances, with most patients having to be carried on a blanket. There is insecurity in some areas. Traditional practices affect the health work. The project relies on other projects for supplies and drugs that do not show up. They lost two laptops from staff. The other side of the river is a long distance and staff have to sleep out for several days to work there. They don't get to go much. There are not enough motor bikes and they need those. They can't share the vehicles because of priority in relief and food distribution efforts as a result of civil war. They were given three motor bikes, but the roads are poor and the project site large. Motor bike and repair takes a long time, and spare parts are expensive and of poor quality. The pooled system of sharing vehicles did not work well without project managers and harmonization of the budgets. With a new project manager, this has improved. MaCHT was not being supported very well. "It was supposed to be pooled, but you have to go begging."

In the context of many relief projects, the development aspects of MaCHT could not be understood – they cannot rehab a health facility and cannot buy drugs. Staff were concerned about the qualifications of staff who work at the health facility, and as it is hard to recommend a facility if staff are not qualified, people will choose to deliver at home. The MOH have their own constraints and challenges.

WV NATIONAL OFFICE STAFF INTERVIEW

At the headquarters level, a discussion and interview with the monitoring and evaluation coordinator who is new and not very familiar with MaCHT project and had not worked much with MaCHT. And the other person left last year. The IRB approval delay of the final survey resulted from a miscommunication with the MOH – the state approval had been achieved, but the national approval had not come through as the government needed to review the new tools. No one could find in the files old approvals.

MaCHT is the first and only project to train HHPs which has been great to share in the other parts of South Sudan with government and other NGOs.

On the positive side, the kind of capacity building that has been done with the county health department and the health facility staff was integrated very well with the facility and increased the linkage of the health facilities and communities. ICCM is a clear new intervention that emerged. The MOH does not think it is time for the project to end because it needs to expand to other areas.

There were challenges implementing MaCHT as the environment is so challenging. "When there is no war you get the floods." The national staff capacity in professional skills is low and turnover of the project managers is high. There are other logistical issues, with vehicles and distance and the river, and budget issues around MaCHT. The funds were not adequate, as even though cost fluctuation was included in the budget it was higher than expected. Most of the budget is used except for the training, where there were huge over-expenditures.

The integration of MaCHT allows the project to continue to work, and they are focusing on the integration of all projects. With the health pool funds there is lots of integration of training. If things

were to be done differently it was suggested to focus on one county and to focus on doing fewer interventions but doing them well. For MaCHT efforts were too spread out. Another problem in the project was the January and December insecurity. The support from the World Vision US office is a motivating factor as they felt like it was important to be a part of the child survival community, creating a learning environment.

There were gaps in the budget lines for transportation. Fuel, travel, and budget revisions had not been approved by USAID. There was uncertainty about the approval of the budget. There were challenges as to how to move on with approval of the revised budget, as the MaCHT budget has been revised so many times that the number was uncertain. It was being revised more frequently than annually. An old version was being used even though implementation was under the new version that has not been approved. The root cause of the delay in approval was lack of a project manager, who should be identified from the beginning. Now they are very careful in recruiting managers during the proposal writing process. This will give a stronger and more sustainable manager to prevent unnecessary and disruptive turnover.



Figure 1. HHP iCCM training for MaCHT operations research, March 2013.



Figure 2. HHPs study together during a tea break, March 2013.



Figure 3. The central supervisor (left), field supervisor (right), and community vaccinator cross the Jur River during dry season for a supervisory visit, March 2013.



Figure 4. March 2013.



Figure 5. HHPs gather at the Magai Primary Health Unit, March 2013.



Figure 6. Magai PCHU in Gogrial West: the primary referral facility for HHPs participating in operations research, March 2013.



Figure 7. Kuol Kuol Amet, operations research field supervisor, administers a pre-test to an HHP, March 2013.



Figure 8. Sign for Yiik Adoor PCHU in Gogrial East County, 2012.



Figure 9. MaCHT Community Mobilizers, October 2011.



Figure 10. Rose Achan, Maternal and Child Health Specialist, and Community Mobilizers, October 2011.



Figure 11. MaCHT staff show visitors the new maternity ward at the (Block 14?) health unit, March 2013.



Figure 12. Girls fill water jugs at the well.



Figure 13. HHPs make respiration counting beads, March 2013.



Figure 14. HHP supervisor Peter Makuac watches as HHPs practice newborn resuscitation, March 2013.



Figure 15. Awaiting vaccination, October 2011.



Figure 16. Staff work on back-translation of project tools, March 2013.



Figure 17. Kuol Kuol Amet, field supervisor, delivers a backpack of supplies to an HHP's home, March 2013.



Figure 18. HHP and OR supervisors walk to an HHP's home for a supervisory visit, March 2013.



Figure 19. HHP and OR supervisors walk to an HHP's home for a supervisory visit, March 2013.