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EVALUATION

EVALUATION OF ENCOURAGING POSITIVE PRACTICES FOR IMPROVING CHILD SURVIVAL, EAST MAMPRUSI, GHANA, WEST AFRICA

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Evaluation of Encouraging Positive Practices for Improving Child Survival, East Mamprusi, Ghana, WEST AFRICA

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Innovation Category

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CONTENTS

ACRONYMS

5A	Fives Alive!
AED/GSCP	Academy for Educational Development's Ghana for Sustainable Change Project (USAID funded)
ANC	Antenatal Care
AR	Annual Report
BCC	Behavior Change Communication
BF/EBF	Breastfeeding/Exclusive Breastfeeding
BL	Baseline
BMC	Baptist Medical Center
C4D	Communication for Development (UNICEF)
CBA	Community-Based Agent
CBIS	Community-Based Information System
CETS	Community Emergency Transport System
CDO	Community Development Officer
CHAG	Christian Health Association of Ghana
CHPS	Community-Based Health Planning and Services
CHC	Community Health Committee
CHV	Community Health Volunteer
CHO	Community Health Officer
CIMACS	Community-Led Initiative for Mother and Child Survival
CIS	Community Information System
CoC	Council of Champions
C-PreS	Community Pregnancy Surveillance
CRS	Catholic Relief Services
CSPs	Community based Surveillance Programs
DA	District Assembly
DDHS	Director District Health Services
DHMT	District Health Management Team
DIMS	District Information Management System
DIP	Detailed Implementation Plan
DOTS	Directly Observed Treatment Short course
ECOWAS	Economic Community of West African States
EL	Endline
EMD	East Mamprusi District
EmOC	Emergency Obstetrical Care
ENA	Essential Nutrition Actions
ENC	Essential Newborn Care
EPPICS	Encouraging Positive Practice for Improving Child Survival
FE	Final Evaluation

FP	Focal Person
FGD	Focus Group Discussion
FtF	Feed the Future
GDHS	Ghana Demographic and Health Survey (2008)
GHI	Global Health Initiative
GHS	Ghana Health Services
HHs	Households
Hb	Hemoglobin
HDM	Household Decision Makers
HF	Health Facility
HFA	Height for Age
HIRD	High Impact Rapid Delivery
HIS/HMIS	Health Information System/Management Information System
HMNCCs	Healthy Mothers and Newborn Care Committee
HW / CHW	Health Workers / Community Health Workers
IFA	Iron Folic Acid
IMCI	Integrated Management of Childhood Illnesses
IMR	Infant Mortality Rate
IPTp	Intermittent preventive therapy (Pregnancy)
IPT3	Intermittent preventive therapy (3 doses of SP)
IRS	Indoor Residual Spraying
ITN/LLIN	Insecticide Treated Net/Long Lasting Insecticidal Nets
IYCF	Infant and Young Child Feeding
KPC	Knowledge Practice and Coverage Survey
LAM	Lactation Amenorrhea Method
LAQS	Lot Quality Assurance Sampling
LOE	Level of Effort
MAMAN	Minimum Package for Mothers and Newborns
MAF	MDG Accelerated Framework
MCH	Maternal Child Health
MD/MW	Medical Doctor/Midwife
M&E	Monitoring and Evaluation
MDG	Millennium Development Goals
MICS	Multi-Indicator Cluster Survey
MIS	Malaria Indicator Survey
MIP	Malaria in Pregnancy
MMR	Maternal Mortality Ratio
MMT	Modified Motor Tricycle
MNC	Maternal and Newborn Care
MN/N	Maternal, Newborn and Nutrition
MNCH	Maternal, Newborn and Child Health
MOH	Ministry of Health
MOP	Malaria Operational Plan (PMI)
NNMR	Neonatal Mortality Rate

NR	Northern Region
OR	Operations Research
PRABs	Practices, Rituals, Attitudes and Beliefs
PD/PDI	Positive Deviance/Positive Deviance Inquiry
PDM	Positive Deviant Mothers
PDQ	Partnership Defined Quality
PMI	Project Management Institute
PMTCT	Prevention of Mother to Child Transmission of HIV
PRA/PLA	Participatory Rural Appraisal/Participatory Learning and Action
P/L M	Pregnant/Lactating Mothers
PP	Post-Partum Care
QA	Quality Assurance
RF	Results Framework
RHFA	Rapid Health Facility Assessment
RTI	Research Triangle Institute
SBCC	Social Behavior Change Communication
SD	Sub-district
SO	Strategic Objective
TA	Technical Assistance
TBA/TTBA	Traditional Birth Attendant/Trained TBA
TT	Tetanus Toxoid (Immunization)
UDS	University for Development Studies
UNICEF	United Nations Children's Fund
USAID	United States Agency for International Development
WFP	United Nations World Food Program
WRA	Women of Reproductive Age

Evaluation of the Encouraging Positive Practices for Improving Child Survival Project - Executive Summary

November 2015

An expectant mother in Bongbini poses in front of her community's Wall of Good Health, which shows progress towards improved maternal neonatal practices. Photo: CRS

Key Findings:

Maternal and Newborn Care indicators improved from baseline to endline: Four plus antenatal care visits increased by 18%; use skilled assisted deliveries increased by 33% and postnatal care for newborn within first two days increased by 52%.

The Wall of Good Health is a creative tool used to track and pictorially present at least two key MNC indicators in each project community.

The Council of Champions (CoC) strategy is useful for addressing challenging PRABs related to MNC service uptake – women were 2.9 and 1.7 times more likely to use ANC within first trimester and early PNC respectively in communities with CoC.

Modified Motor-tricycles made statistically significant contributions to skilled assisted deliveries in the target communities from a baseline of 23% to 78% at endline.

Evaluation, Purpose, And Evaluation Questions

The final evaluation assessed the performance of the EPPICS maternal and child survival project. The evaluation assessed:

- To what extent did the project accomplish and/or contribute to the goals and objectives stated in the Detailed Implementation Plan?
- What were the key strategies and factors, including management and partnership issues that contributed to what worked or did not work?
- Which elements of the project have been or are likely to be sustained or expanded (for example, through institutionalization or policies)?
- What are stakeholder perspectives on the implementation of operations research, and how did the operations research study affect capacity, practices, and policy?

Project Background

EPPICS was designed to improve maternal and newborn health in the East Mamprusi district of northern Ghana through the components of Maternal and Newborn Care (60%), Nutrition (30%), and Malaria in Pregnancy (10%). EPPICS was launched in 2011, with a target of 51,000 direct beneficiaries including women of reproductive age and children 0-59 months.

The project combined health facility and community based strategies to: improve geographic access to health services through provision of modified motor-tricycles as rural ambulances; reposition traditional birth attendants as "link providers" to health facilities for skilled assisted childbirth; and modify practices, rituals and beliefs (PRABs) to remove barriers to health seeking behaviors. In Sakogu sub-district, EPPICS created Councils of Champions (CoCs) in each community comprised of the chief, and women and religious leaders. CRS worked in close partnership with Ghana Health Services (GHS) to implement EPPICS.

The EPPICS project was funded by the *US Agency for International Development* through the Child Survival and Health Grants Program, 2011-2015.

In September 2015, a four-person evaluation team conducted the final evaluation (see Annex XIII for a list of members). The team visited project sites in EMD (sub-districts: Gambaga, Nalerigu, Sakogu, Jawani and Tamboku) and also talked with staff and partners in Gambaga, Tamale, and Accra districts. The team first reviewed findings from the knowledge, practice, and coverage (KPC) surveys and other studies commissioned by the project to determine what further questions it wanted to answer during the field evaluation. The team then used qualitative methods to assess the project and answer these questions through interviews, group discussions, and observations. One of the limitations of this report is that the FE evaluator who conducted the qualitative field review with CRS staff and project stakeholders was unable to complete the report; a second evaluator finished the report using data and information collected by the previous consultant.

Findings and Conclusions:

Key Findings: A review of the KPC findings shows that EPPICS improved on most of its performance indicators (see Annex V for complete report): (1) Pregnant women who registered for and use antenatal care at the health facilities within the first trimester increased from a baseline of 50% to 74% at endline; (2) four plus antenatal visits among pregnant women showed statistically significant increase from 63.9% to 82%.; (3) birth preparedness (setting aside money to pay for emergency transport, getting clean clothes to wrap baby etc) increased from 16% at baseline to 41% at endline; (4) skilled assisted deliveries showed statistically significant rise from 43% to 76% at baseline and endline respectively; (5) knowledge of danger signs in pregnancy increased from 81% at baseline to 86% endline while knowledge of delivery danger signs increased from 69% to 72% at baseline and endline respectively; (6) knowledge of post-partum danger signs increased from 77% baseline to 87% endline while knowledge of neonatal dangers increased from 72% baseline to 80% endline; (7) the use of health facilities for postnatal care within the first two days of delivery showed statistically significant improvement from 32% baseline to 84% endline; (8) uptake of two or more dozes of tetanus toxoid increased from 64% baseline to 71% endline; (9) the portion of mothers who slept under long lasting insecticide nets with their babies increased from 16% at baseline to 43% at endline; (10) early initiation (within the first 30 minutes after delivery) of breastfeeding increased from 50% at baseline to 75% at endline; (11) exclusive breastfeeding of infants within the first 6 months of age showed statistically significant increase from 47% at baseline to 70% at endline; (12) the proportion of children age 6-23 months fed according to a minimum of appropriate feeding practices showed statistically significant increase from 55% at baseline to 78% at endline; (13) severe stunting reduced from 17% at baseline to 5% at endline.

At the time of the final evaluation, many of the project activities were being scaled up or expanded. For example, with support from CRS and GHS, the community was able to offer Community Pregnancy Surveillance and targeted education (C-PreS) sessions. CRS and GHS have also worked to scale up repositioning TBAs as Link Providers as well as the Council of Champions strategies in six new districts in northern Ghana with an expected 100,000 beneficiaries with funds from a US based Foundation. Also, the Walls of Good Health methodology was shared at the ECOWAS meetings in 2012 and CRS Ghana has supported CRS Niger and Burkina Faso with integration in their child survival projects. The EPPICS project strategies contributed in making the East Mamprusi District transform from the worst to the best performing district in the Northern Region from 2011 to 2014.

To address the socio-cultural barriers to accessing health services, the project developed innovative operations research (OR). As part of the OR, EPPICS developed community-led approaches to target

challenging socio-cultural practices in 44 communities through creation of a Council of Champions in intervention communities. The CoCs are composed of the 5-7 most influential individuals in the community and are trained to engage with household decision makers, and work to modify challenging MNC PRABs. COC members had a strong influence on the improvement of early ANC attendance and increase in institutional births (See Annex XIV for details). The OR study provided insight into how SBCC through empowered community leaders can positively influence access to and utilization of quality MNC services, leading to improved health outcomes for families.

Conclusions: The EPPICS project as designed was implemented in full and has made positive contributions to improvements in all MCH indicators in EMD over the last four years. The deployment of combined health facility and community based strategies may have accounted for these improvements. The strategies found to be most promising include: the "Walls of Good Health", repositioning TBAs as Link Providers, the Council of Champions, and the Quality Improvement Methods in health facilities. These strategies have already been adopted by Ghana Health Service and are being scaled up in 6 other districts with technical support from CRS. The EPPICS design designated GHS staff as the lead implementers while CRS project staff provided technical support. This design not only contributed to the positive gains recorded by the project but also ensured that project interventions will be sustained beyond the life of the project.

Recommendations: The evaluation team proposes the following recommendations to CRS, GHS and USAID:

Ghana Health Services/Ministry of Health

- Facilitate the use EPPICS design as a reference model for future MCH interventions that target the health of women and children in similar context.
- To improve referrals between the CHPS compounds and next level of care, GHS should invest in scaling up the use of modified motor tricycles (MMTs) as a promising and cost effective strategy.
- EPPICS strategies should be integrated into the current MDG Accelerated Framework (MAF) strategy for Ghana and post MDG policies for MCH and should also support the scale up of Walls of Good Health, Council of Champions, Modified Motortricycles, Repositioning TBAs as Link Providers and Quality Improvement Methods.

Catholic Relief Services

- CRS should collaborate with other USAID funded MCH interventions in Ghana such as *Systems for Health* to scale-up EPPICS strategies that will benefit the other regions and should explore funding to document and share guidance on how to implement each strategy for adoption in similar settings.

United States Agency for International Development (USAID)

- CRS and GHS should be supported to document and share "How to Implement" these strategies including the Council of Champions strategy for adoption in other USAID funded projects.
- Future USAID maternal health projects should invest more of their resources in improving staffing and supplies at health facilities.

EVALUATION PURPOSE AND EVALUATION QUESTIONS

EVALUATION PURPOSE

The purpose of this final evaluation (FE) is to assess performance of the CRS-led Encouraging Positive Practices for Improving Child Survival (EPPICS) project and to make the findings/results available to various audiences including the Ghana Health Service and Ministry of Health (MOH) of other countries. The findings are expected contribute evidence relevant to global initiatives such as the Global Health Initiative and Feed the Future.[1]

Also, 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 (Health Centers, CHPS compounds etc.), 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.

The CSHGP grant included funding for hiring of the FE evaluator. In order to assure independence of the evaluation, the evaluator was selected by CRS but approved by USAID. USAID also reviewed the Scope of Work and the final report is being submitted to USAID at the same time that it is sent to CRS.

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 reviewed during the evaluation to answer the following questions:

1. To what extent did the project accomplish and/or contribute to the strategic objectives and Intermediate Results stated in the detailed implementation plan (DIP)?
    - Describe the extent to which the project was implemented as planned, any changes to the planned implementation, and why those changes were made.
    - How were results achieved? If the project improved coverage of high-impact interventions simultaneously, what types of integration enabled this? Specifically, refer to community based

[1] For more information on these two initiatives, visit http://www.usaid.gov and http://www.feedthefuture.gov.

strategies and approaches and construct a logic model describing inputs, process/activities, outputs, and outcomes.

- Document high impact interventions and its potential for scalability

2. What were the key strategies and factors, including management and partnership 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,[2] 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 Expand Net resource for reference).[3]
4. What are stakeholder perspectives on the OR implementation, and how did the OR study affect capacity, practices and policy?

[2] See Table 1 in the document here: http://heapol.oxfordjournals.org/content/20/suppl_1/i18.long

[3] http://expandnet.net/PDFs/ExpandNet-WHO%20Nine%20Step%20Guide%20published.pdf

PROJECT BACKGROUND

Over the past decade, Ghana Health Service (GHS) and its Development Partners (USAID, UNICEF and WHO among others) have been implementing evidence-based interventions including the free maternal health policy, an expansion of the health infrastructure as well as investments in human resources for health. In spite of these efforts, set targets for Ghana's health related Millennium Development Goals (MDG) four (Reduce Child Mortality) and five (Improve Maternal Health) were all missed. Though the institutional maternal mortality ratio fell from 216 per 100,000 live births in 1990 to 144 per 100,000 live births in 2014, it fell short of the MDG target of 54 per 100,000 live births in 2015. Though under-5 mortality rate improved from 122 per 1,000 live births in 1990 to 60 per 1,000 live births in 2014, it still fell below the MDG target of 40 per 1,000 live births[4].

Table 1: Pre-EPPICS MNCH/N Indicators EM, NR and National

Indicator	EM*	NR**	Ghana**
Supervised delivery	48	35.5	48.2
Antenatal visits (1st trimester)	30	49	55
Antenatal visits(4+)	46	58	78
IPT2+	51	33	44
ITN use (pregnant women)		36	45
Height for age -2 SD	39	31	28
Weight for age -2 SD	30	29	14
WRA (any anemia)		59	59

* EM GHS Annual Report 2010;
**Ghana Statistical Service et al, Districts MICS Report, 2009

Though there has been positive progress in MNCH indicators generally, these MNCH indicators in the Northern Region reflect significant challenges (See table 1 comparing indicators of the Northern Region, East Mamprusi District (EMD) and national level). Most of the GHS efforts have focused on improving health facility based services (supply side) using evidence based interventions, but gaps remained on the community/household level (demand side) in terms of improving service delivery as well as in overcoming harmful practices, rituals, attitudes and beliefs (PRABs) that prevent care seeking. Research shows that most of the neonatal deaths in high mortality regions are due to preventable and behavior modifiable causes. However, the extent to which prevention measures can reduce neonatal mortality is not clear.

A study in EMD, which explored women's knowledge of neonatal danger signs, revealed that even where the quality of antenatal care is consistent with World Health Organization (WHO) Guidelines, many women still have limited knowledge of neonatal danger signs. The study also shows that low utilization of services, such as supervised deliveries and post-natal care continue to persist even where financial and geographic access is adequate.[5] This low utilization of services in EMD was attributed to PRABs that jeopardize maternal and child health and result in delays in seeking prompt care at health facilities. CRS partnered with the Ghana Health Services (GHS), through the EPPICS project to improve local PRABs related to pregnancy and newborn care, and encourage strengthening of civil society structures in order to empower local communities to advocate for improved MNCH services in the district. The project population is presented in table 2 below.

[4]Ghana Millennium Development Goal Report, 2015

[5]Exploring Women's Knowledge of Newborn Danger Signs: A Case of Mothers with under Five Children. Public Health Research. 2014

Table 2 Project population of East Mamprusi

Beneficiaries*	Total
Total Population	139,606
Total Neonates	2,887
Infants aged 0–11 Months	5,584
Children 12 -23 Months	5,747
Children 24 -59 Months	16,1485
Children aged <5 Years	27,921
Women of Reproductive Age (15–49 years)	30,713
Total Beneficiaries	58,634
Expected Pregnancies	5,584
Community Health Workers or Volunteers (CHWs), Disaggregated by Sex	Males=235 Females=275
Health Facilities (Hospital to Sub Health Post)	12
Community-Based Structures (e.g., Village Development Committees [VDCs])	175

*Source: District Health Information System II, Ghana

Project and OR Design. East Mamprusi District was selected as the project site out of 5 potential districts in the Northern Region (NR). This decision was reached from discussions with the GHS Regional Director for NR based on high rates of maternal, newborn and infant mortality, stunting rates and low utilization of MNC services. Another factor included the previous positive work relationship between the GHS and CRS in that district, a very supportive DHMT and the suitability of the district for implementing and testing the project innovation. The project design including the results framework (see figure 1 below) was developed jointly with the DHMT with input from GHS and partners including regional level staff at UNICEF and PMI. PMI and GHS see MIP as a priority that needs to be addressed at the community level due to low IPT uptake and low LLIN utilization.

The project goal and strategic objectives were to contribute to sustainable maternal/newborn morbidity/mortality reduction in East Mamprusi District by 2015. They entailed particularly:

- SO1: East Mamprusi District has improved maternal and neonatal health outcomes
- SO2: Families have increased access to quality maternal and neonatal services

The key project strategy has been to scale up community led strategies that enhance MNCH/N practices and service utilization. Technical interventions included: Maternal and newborn care (60%), Nutrition (30%) and Malaria in Pregnancy (10%). The social and BCC strategies at household and community level were key for achieving SO1 and its IRs. Community mobilization supports achievement of SO2 and IRs. To address the three delays that contribute to MNC morbidity and mortality,[6] the BCC strategy was employed including working with community members for effective response to MNC

[6] 1) Recognizing harmful practices and danger signs, 2) decision making and seeking care, and 3) diagnosing and providing timely care.

complications. The third delay was addressed by strengthening GHS capacities and quality of care at the health facilities.

Operations Research (OR) Design: As noted above, the high maternal and neonatal death rates in East Mamprusi are attributed to household PRABs well as non-recognition of danger signs and lack of timely decisions to access services, which all increase risks of obstetric complications. Low institutional deliveries also have negative impacts on early initiation of BF and cord care[7]. The ability of the health system to provide timely interventions is mediated by challenging PRABs of mothers/ fathers, chiefs, religions leaders and others who control the birthing practices in rural Ghana. To address this, CRS, together with University for Development Studies (UDS) designed an OR to test an innovation that targeted challenging PRABs through creation of a council of champions (CoC) in each intervention community. The CoCs are composed of the 5-7 most influential community members who are trained and regularly supervised by the project. These individuals have a strong influence in the improvement of early antenatal attendance as well as institutional childbirths.

Partnership/ collaboration: From the conceptualization, design and field level implementation stages of EPPICS, GHS and the UDS have played strategic roles. As a lead implementer of field level activities, GHS has contributed in the training of community-based agents, monitoring and supervision of project activities as well as coordinated and led the overall provision of services and interventions being promoted by the EPPICS Project. Additionally, GHS has coordinated with other relevant organizations including Presby Health Services and the Baptist Medical Centre who run a number of health facilities which were all beneficiaries of the EPPICS interventions. SEND Foundation collaborates with GHS- East Mamprusi for the implementation of Family Planning activities at the community level. The UDS has been instrumental in the design, execution, documentation and dissemination of the OR component of the EPPICS Project.

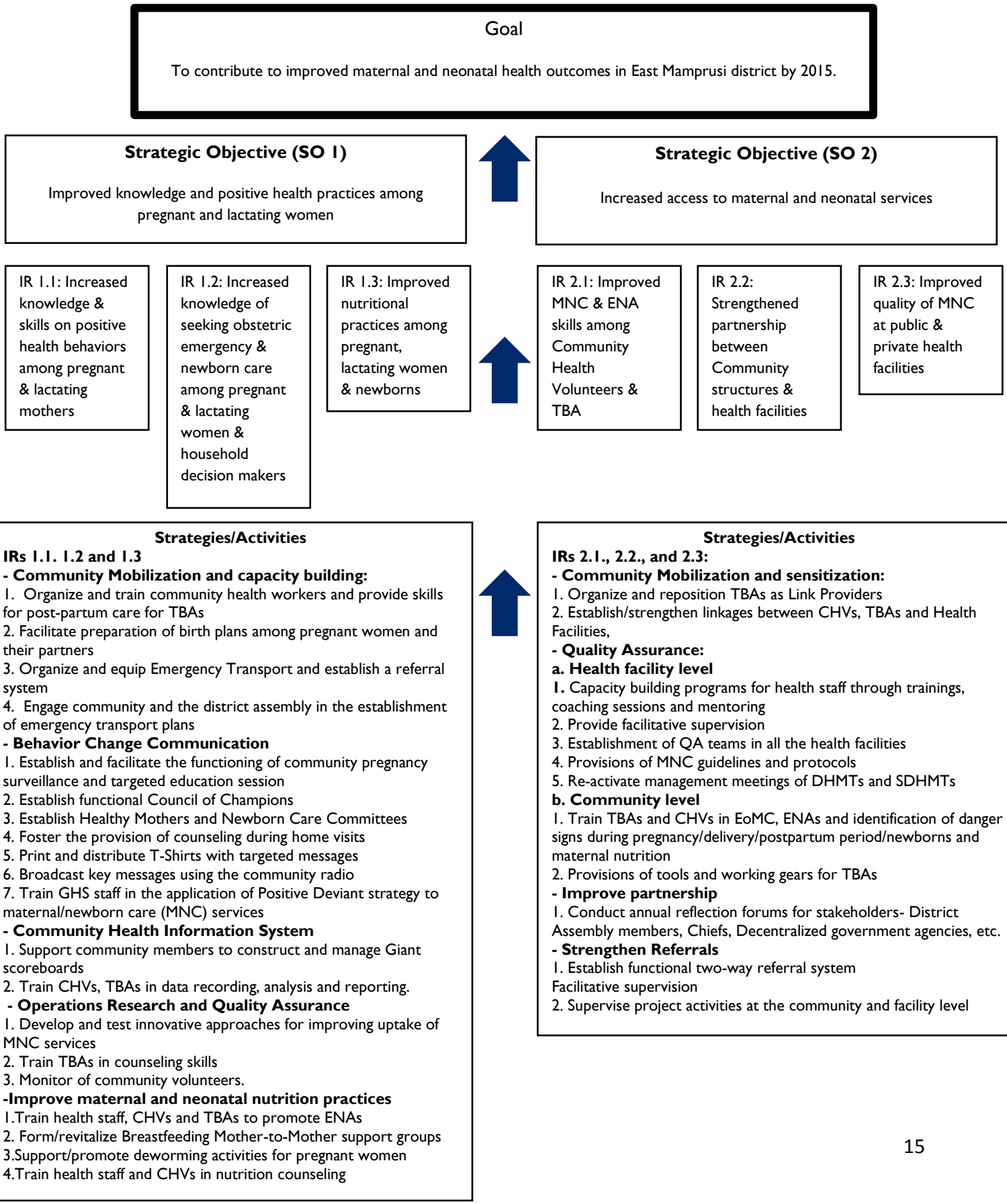
EPPICS Project activities were designed to contribute to Ghana's MOH MNCH/N policies, and also, the USAID Health Program's Global Health Initiative (GHI) which is all focused on contributing to MDGs 4 and 5 and beyond. EPPICS has enjoyed great collaboration with USAID-Washington and USAID Ghana Mission. Over the life of the project USAID's Ghana Mission has supported EPPICS in various ways: USAID was part of the official launch of the EPPICS Project on site; the Director and MCH Advisor of the Health and Population Bureau conducted three separate monitoring and support visits to the field. Additionally, CRS Ghana has always participated in USAID Ghana's Implementing Partners Meetings where lessons learned and best practices are shared as part of project updates.

EPPICS' technical intervention areas (maternal and newborn care, nutrition and malaria) are in consonance with USAID Ghana's Health Sector Strategy (Strategic Objective 7- Health status of Ghanaians is improved)[8].The project was positioned to contribute towards achieving Intermediate Results 3 (improved nutritional status of women and children) of the USAID funded Feed the Future initiative in Ghana which commenced a few months before the closure of EPPICS.

[7] Wuni A (2009) Determinants of use of MCH services among women of reproductive age in West and East Mamprusi. Northern Health Monitor

[8]USAID Ghana Strategic Plan for the Health Sector (2009 -2013) http://pdf.usaid.gov/pdf_docs/PDACP753.pdf

Figure 1.1 EPPICS Results Framework



EVALUATION METHODS AND LIMITATIONS

One of the limitations of this report is that the FE evaluator who conducted the qualitative field review with the CRS staff and project stakeholders was unable to complete the report, so another evaluator was asked to write it. This second evaluator did not participate in the field evaluations so has been dependent upon project documents, an incomplete draft from the first evaluator and communications with CRS staff and project stakeholders to complete the report.

Evaluation Methods: In the second half of September 2015, over a ten-day period, a four-person evaluation team conducted the final evaluation of the Child Survival project (see Annex XIII for a list of members). Members of the team visited project sites in East Mamprusi district (sub-districts: Gambaga, Nalerigu, Sakogu, Jawani and Tamboku) and held discussions with project staff and partners in Gambaga, Tamale, and Accra districts.

The team reviewed the findings of knowledge, practice, and coverage (KPC) surveys and other studies commissioned by project staff in the district (see Annex1 for a list of documents). In addition, the evaluation team used qualitative information – non-numeric and opinion-based – to assess the project. The evaluation team used a small number of interviews, group discussions, and observations to supplement existing information. Interviewers and discussion facilitators conducted a few unhurried sessions, probing for answers and meetings with other individuals and women's/community groups. In particular, the evaluators sought answers to an important question: "Why?" For example, when surveys showed that the prevalence of low weight-for- age (an indicator of malnutrition among children) had decreased in East Mamprusi, the team brought this positive finding up for discussion in meetings with project staff and partners in Tamale and Accra to explore possible reasons for the decline. The methods used by the evaluation team include:

- Discussions with project team members
- Review of project documents including the KPC survey and OR reports and community based data forms on the Walls of Health
- Group discussions with mothers
- Interviews with community members
- Interviews with project partners
- Observations of patient-provider interactions
- Exit interviews with patients
- Investigation of maternal death in Gambaga sub-district
- Review of referrals to hospital in Nalerigu

Group discussions were conducted by two experienced data collectors (Bachelor degree holders) who have facilitated such sessions for the project before. Working together, they facilitated the discussions (in Mampruli, the local language) and took notes (rotating the two roles in a series of discussions). Group discussion topics included antenatal care, delivery (transport, place, and birth attendant), infant feeding practices, use of bed nets, and opinion about project activities. Group discussion facilitators (Raymond Atariba and Sumaila Nambe) also conducted a participatory diagramming exercise to explore the roles played in deliveries by family members, community members, transportation providers, health care providers, and health facilities.

Interviews with health facility staff explored a number of topics related to the provision of services for antenatal, delivery, and post-partum care, including the following: number, qualifications, and responsibilities of staff; availability of equipment and medicines (and stock-outs of medicines); cost of consultation, procedures, and treatment; use of services (number of patients and waiting periods); thoughts about improving services; and opinions about project activities.

While an important theme of the evaluation was project performance as assessed through the KPC surveys, the team also examined other issues related to the project. These included project accomplishments, project strategies that worked (or did not) including the review of community based data forms from Healthy Mothers and Newborn Care Committees (HMNCCs) on their Walls of Health, results of the operations research study and, continuation or expansion of activities. (See annex XIV for the number, location and timing of interviews and group discussions.)

Data Quality and Use: In general, there were no significant problems with the KPC baseline and Final evaluations. The findings were used consistently by the project to focus the project training and BCC activities. An issue regarding the design of the OR project, which the project staff concedes, concerns the selection of case/intervention and comparison sub-districts. It turns out that the intervention/study district had only one health facility while the control district had 5. This may account for the discrepancy in findings in the final OR report where women in the intervention communities were 50 percent less likely to deliver in a facility than women in the comparison communities. According to project staff there was violence in the intervention district that caused the facility midwife to leave the district and as a result, women did not go there for deliveries. Unfortunately, there were no other facilities in this sub-district for women to seek delivery services. Another OR issue was with the council of Champions (CoC). Because the Council was composed of 5-7 high level leaders in each community, it was sometimes hard to keep their CoC activities separate from the comparison communities. This is because the leaders, especially the Chiefs were so excited about what they were doing that they shared the information with other communities who then began listening to the Chiefs. So there may have been contamination of the comparison communities as well.

Another data issue became apparent during the internal mid-term review conducted by the headquarters Senior Technical Advisor for Health. During her review the GHS reported a very high number of stillbirths and the rate had not decreased over time. She advised the GHS to review their data and determine where the women lived. The analysis found that most of the mothers of stillbirth babies were from neighboring districts and had not participated in the different SBCC interventions being implemented by GHS and CRS. Once this was done, they discovered that the actual number of stillbirths in East Mamprusi District was much lower than originally calculated.

One of the successes of the EPPICs project is how it assisted the GHS improve their HIS system. The project provided training and mini I-pads and cell phones to improve health information/data collection, analysis and timely transmission from the district facilities to the DHMT, who then pass it on to the national level. The project also shared their community-based HIS (CIS) using the walls of health to collect data and improve demand by communities for better data and follow-up. This community data was a useful comparison with the facility data regarding deliveries.

FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

FINDINGS

The main finding of the evaluation team is that improvements have occurred in maternal and child health in East Mamprusi District over the last four years. This section will address the evaluation questions in the scope of work.

1. To what extent did the project accomplish and/or contribute to the Strategic Objectives and Intermediate Results stated in the Detailed Implementation Plan?

Table 3 presents the summary of inputs, activities and outputs related to the S.O.s and I.Rs is presented below.

Table 3: Summary Table of Inputs, Activities, and Outputs That Contributed to Key Outcomes

Strategic Objective (SO 1): Improved knowledge and positive health behaviors among pregnant and lactating women			
Project Inputs	**Activities**	**Outputs**	**Outcomes**
Fuel, funds and Logistics	Conducted community Sensitization on project strategies	Sensitized project communities on EPPICS strategies	240 mobilized and sensitized on all EPPICS strategies communities in FY13
	Formed and trained Community Pregnancy Surveillance and Targeted MNC education sessions (C-PreS) sessions	C-PreS formed in 240 communities	C-PreS session contributed to improved MCNH knowledge awareness and service uptake among Pregnant women and lactating mothers
Behavior Change Communication (BCC) Materials Funds/Logistics for trainings and Workshops	480 Positive Deviant Mothers[9] trained in SBCC	Positive Deviant Mothers positioned to facilitate C-PreS session for pregnant and lactating mothers	Increase in percentage of births attended by skilled personnel (from 43% to 76%) Essential newborn care increased from 12% at baseline to 52% at endline Exclusive breastfeeding increased from 47% at baseline to 70% at endline Post-natal checkup for the newborn increased from 30% at baseline to 80% at endline
	480 Traditional Birth Attendants and Traditional Medical Practitioners repositioned as Link Providers	480 Link Providers facilitate referrals of women and point of labor and delivery as well as postnatal mothers to health facilities	
Modified Motor Tricycles (MMTs) as Rural Ambulances	Provided 4 MMTs to remote communities to facilitate access to health facilities for pregnant women and newborn emergencies	Increased access to skilled assisted care among women in remote communities. The 4 MMTs reached 40+ communities	

[9] These are mothers who inspite of their locations and conditions have been able to uptake MNC services in line with the recommendations of GHS: Presented at antenatal clinic within first trimester, made four plus ANC visits, used skilled professionals for childbirth, exclusively breastfeed infant and ensured that the infant was fully vaccinated against vaccine preventable diseases. Has good communication skills to provide educational support to peers

Long lasting Insecticide Nets (LLINs)	Collaborated with GHS and Networks (USAID funded project) to continuously distribute and improve LLIN use among Pregnant and Lactating mothers	17,368 pregnant and lactating mothers communities benefited from the package	Increased use of LLINs by pregnant and lactating mother from 42% at baseline to 71% at endline
Strategic Objective 2 Families have increased access to quality and use of maternal and neonatal services by 2015			
Funds/Logistics for trainings and Workshops	Trained Health staff (midwives and nurses) in Emergency Obstetric Care (EmOC, Essential Newborn Care (ENC) and Essential Nutrition Action(ENA)	Midwives/Nurses trained in EmOC, ENC and ENA and have been deployed to provide services in all 11 health facilities	Improved knowledge and skills health staff ENC and ENA, Improved MNC services are being provide in all the 11 health facilities and 240 outreach points Increase in percentage of health facilities in which interviewed health worker reported receiving any training in maternal and neonatal care in the last twelve months (from 71% to 100%)
MNC Guidelines and Protocols	Developed/Reproduced MNC related protocols/guidelines for distribution to all health facilities	All relevant MNC guidelines/protocols are available and used in all the health facilities	Increased percentage of health facilities with guidelines on delivery care (from 14% to 100%)
Cements, Paints and funds	Facilitate the construction of Alaafia Gooma- Walls of Good Health/ community giant scoreboard (CGS)	240 Alaafia Gooma – walls of Good Health/Community Giant scoreboards constructed	Community members actively participate in the monitoring of key MNC indicators
Training designs/Funds and logistics	Form and train quality assurance teams for health facilities	Five member quality assurance teams formed and trained for each of the 11 health facilities	10 health facilities provided with functional QA teams and are working to improve quality of MNC services
Cross cutting activities: Innovation – Operations Research			
Funds and Logistics for Operations Research	Identified, trained and support the operations of 200 Council of Champions (CoC) in 44 communities in the intervention arm of the OR	CoCs in 44 communities deployed and supported to influence Household Decision Makers	The 200 CoCs visited and engaged 13,632 and 15,152 Household Decision Makers and Caregivers respectively to influence them and support prompt uptake of health services by pregnant and lactating mothers
	Developed CoCs manual and provided orientation for 200 CoCs members Documentation of OR Activities/Data collection		An average of 6 key Practices, Rituals, Attitudes and Beliefs challenging to the uptake of MNC were modified/eliminated
	Conduct baseline, midterm and final evaluation of the OR in both intervention and comparison arms	The three study reports were conducted and are available for use to replicate the strategy or to influence policy	The CoC strategy researched and documented to inform policy on community engagement for enhance uptake of maternal and child health services

The goal of the EPPICS project was to contribute to sustainable maternal/newborn morbidity/mortality reduction in East Mamprusi District by 2015. The objectives were to improve maternal and neonatal health outcomes and to increase access to quality MNC services for all families in EMD.

A review of the KPC results shows that EPPICS improved all of its indicators (see Annex IV and V for complete report). The endline (EL) KPC survey found a statistically significant increase in the proportion of mothers of children 0-23 months received 4 or more ANC visits (82%) against baseline (BL) value (63.9%). Also statistically significant is the increase in proportion of women who accessed ANC during their first trimester from 50% (BL) to 74% (EL). Ninety percent indicated they were satisfied with their treatment by health staff though 10% did say they were abused by HF staff, generally this meant they were exposed to yelling. Baseline focus group discussions with communities revealed that abuse by HF workers was one of the reasons women went to facilities for ANC but not for deliveries. Seventy-one percent of women at EL received tetanus toxoid compared with 64% at baseline. Skilled birth attendance showed a statistically significant increase to 76% at EL from 43% at baseline. Postnatal care for children within two days after birth had a statistically significant increase from 30 % (BL) to 83% (EL). Postpartum care for mothers also showed a statistically significant increase from 32% (BL) to 82% (EL). Overall 95% of mothers were checked by health provider at endline compared to 86% at BL.

There was an increase in children 0-5 months breastfed in the previous 24 hours (47% BL- 70% EL). Likewise exclusive breastfeeding (EBF) of children 0-5 months showed a statistically significant increase from 47% at BL to 70% at EL. At baseline only 50% of children were immediately breastfed after birth but this increased to 75% by the EL. The proportion of children's mothers who reported to have had clean cord care showed statistically significant increase from 22% (BL) to 73% at EL. The use of clean delivery kits during birth of youngest child by mothers with children 0-23 months also showed statistically significant increase from 65% at BL to 95% at EL. Knowledge of danger signs at BL also increased at EL (delivery danger signs 69-72%, pregnancy danger signs 81% - 86%, postpartum danger signs – 77% BL – 87% EL, neonatal danger signs 72% at BL- 80% at EL). Some of EPI indicators example immunization levels for measles, DPT1 either did not increase or stayed the same, but childhood immunization was not a focus of the project.

ORT use for children 0-23 months with diarrhea showed a statistically significant increase from 48% at BL to 65% at EL. Appropriate care seeking for pneumonia also showed a statistically significant increase from 45% at BL to 63%. The percentage of households that treat water effectively grew from 4% to 33% and appropriate hand-washing practices rose from 28% at BL to 46% at EL. Knowledge of PMTCT increased from 36% at BL to 65% at EL. ITN use of children 0-23 months showed a statistically significant increase from 42% at BL to 71% at EL. IPTp however, decreased by 59% at BL to 58% at EL. This was attributed to the shortage of Suphurdoxine Pyramithamine (SP) as a result of procurement challenges that was made worse by the fire that gutted the Central Medical stores of Ghana in 2013.

The proportion of children fed according to minimum appropriate infant feeding practices (WHO) increased at a statistically significant 55% at BL to 78% at EL. The percent of children who 0-23 months who ate vitamin and iron rich food, fortified food and dairy increased by 4% to 10% points. Those eating vitamin A rich foods dropped slightly (from 76% to 72%). Children eating animal source food also decreased from 72% to 54%. This drop was attributed to the seasonal difference during which the two surveys were conducted. The BL was conducted during the latter part of dry season where families had

access to animal source foods from bush-hunting, whereas the EL was conducted during the rainy season.

In general, the project was implemented as planned but there were a few nested interventions:

- Four Modified Motor Tricycles (MMTs) served twenty clusters of communities as rural ambulances to address challenge of limited geographic access to health facilities. From April, 2012 to September 2015, the MMTs had served 2,894 pregnant women, 3,022 mothers with newborns/children and 754 other emergency medical conditions. Each MMT averagely recorded 212 transport events with a cost per event at $5±.5 on the average. The fee was divided to cover fueling-$3.3±.2, maintenance-$1±.2 and driver/link provider motivation fee-$0.7±0.1. Total fuel and maintenance requirements of each MMT were approximately $22- $35/month. The MMT made a statistically significant contribution to skilled assisted deliveries in the target communities from a baseline of 23% to 78%.
- EPPICS staff investigated and established a key cause of the level of child under-nutrition and wasting (30%) to be a rapid repeat birth rate, with little spacing. As a result, the Lactational Amenorrhea Method (LAM) as well as birth control using cycle beads and calendars was promoted. EPPICS first piloted the cycle bead method in 4 large communities and then expanded it to all the communities along with its exclusive breast feeding strategy in the project district. There is now demand for cycle beads from neighboring districts.
- In EMD, CRS found that 24 different forms for data collection were filled manually on a monthly basis. On average, each health facility serves 30 communities. Manual completion and submission of these data forms to the district level took considerable time (2 days to deliver the forms), money and risks. CRS addressed these challenges by supplying the sub-districts with mini iPads and digitized forms along with training on how to use them. These iPads not only facilitated transmission of data to the district office improving timeliness and data completeness but also reduced absenteeism. Health providers no longer had to travel long distances and spend hours per day filling out forms while patients were waiting for services. An assessment by the District Health Information Officer indicated that timeliness of data reporting had improved greatly since the system was installed in year 2 of the project. The system has been adopted by the GHS that uses cell phones to capture data and ensure real time data collection for better management of health delivery issues in the district.

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

At community and household levels, EPPICS combined tested strategies from earlier projects to link communities with GHS facilities by providing support networks to promoting the uptake of maternal and newborn care services. Key strategies included:

- *Community Pregnancy Surveillance and targeted Education Session (C-PrES): C-PrES* aimed at improving the knowledge of pregnant women and lactating mothers on MNC. In all, EPPICS engaged a total of 64,244 pregnant women and lactating mothers and supported them to increase the MNC health knowledge and practices. On the average, 25 women pregnant women or lactating mothers were constituted into groups and received for MNC education covering a wide range of themes including: important of antenatal care and uptake of related services,

healthy birthing practices with emphasis on institutional deliveries, essential newborn car, IPT intake, use of LLINs, danger signs, postpartum check, maternal and child nutrition. A total of 480 trained Positive Deviant Mothers[10] were engaged to facilitate C-PreS sessions in each community over the life of the project. This strategy contributed to SO1 for EPPICS: *Improved knowledge and positive health behaviors among pregnant and lactating women.* Examples of some status of some MNC knowledge indicators as at endline against baseline are: knowledge of danger signs at BL increased at EL (delivery danger signs 69-72%, pregnancy danger signs 81% - 86%, postpartum danger signs – 77% BL – 87% EL, neonatal danger signs 72% at BL- 80% at EL). Also knowledge about the risk associated with births to pregnancy intervals less than 24 increased from 35% baselines to 54% at endline.

- *Re-positioning traditional birth attendants as Link Providers as partners in skilled care:* To encourage early and frequent ANC, promote maternal nutrition in pregnancy, support skilled assisted deliveries and to discourage home deliveries, 480 TBAs were identified, trained and repositioned to play a new role as Link Providers in all the 240 communities. Link providers accompany pregnant/postpartum women to facilities and assist with the health facility deliveries. TBAs also doubled as providers and teachers on essential newborn care when babies are born at home, promoted uptake skilled post-partum and newborn care and accompany mothers and babies to a facility within 24 hours after a home birth for postnatal and newborn checkups. This strategy contributed in strengthening partnership between community structures and health facilities, Key outcomes that benefitted directly from this strategy is significant increase in skill assisted deliveries from 43% at baseline to 76% at endline while post-natal visit for newborn health increase significantly from 30% at baseline to 83% at endline. The strategy praised by the GHS during the evaluation concerns how TBAs have become key MNC stakeholders in rural communities. The Link Providers showed no resistance as the engagement process still guaranteed them their original incentives of fowls and soap even after linking a pregnant women to health facility for childbirth

- *Creation of Healthy Mothers and Newborn Committees (HMNCCs)* – HMNCCs were comprised of influential community members including men and women, TBAs, CHVs, THs, grandmothers, religious leaders etc. The HMNCC's tasks included mobilizing communities to develop birth plans including transport expenses, engaging fathers to support birth plans and supporting pregnant mothers in seeking early ANC and nutritional behaviors, influencing women's behaviors through women leaders. The also led communities to construct and managed the walls of good health. This strategy assisted in enhancing the operations of the community health planning and service (CHPS) compounds as the HMNCCs also doubled as the Community Health Committees and worked directly with the Community Health Officers in charge of the CHPS compounds.

[10] These women 1) registered early for ANC, 2) used skilled delivery and 3) employ newborn care practices known to prevent MN deaths. Experience shows that these mothers have good access to households, and are good face-to-face peer counselors

- *Using CBIS for Community Motivation and Feedback with "Walls of Health"*: In public health it is often difficult to present health data to communities where literacy levels, especially among women, are low. The FE team found the *Alaafia Goomni* "Wall of Health" to be an ingenious solution for this. The walls are made of mud, plastered and painted and often stand on the roadside. They are a little taller than a man and as broad as a car. The wall displays data on 2 health indicators, chosen from a menu of indicators by community members. Ten holes at the top of the wall hold ten colored sticks, green and red. To use these, for example, the percentage of births attended by skilled providers out of the total is calculated; say 60% - in which case six green sticks and 4 red sticks are on the wall. There are walls in all 240 communities. The team found the Walls to be a great strategy for the community to monitor MNC indicators. The members become involved in collecting and analyzing community data and progress. The walls have been adapted as a Score Card for monitoring MNCH indicators at facilities. The FE team did raise concerns regarding upkeep of the walls. The team visited one community where the wall had collapsed and not been rebuilt and heard of other instances where this had occurred. However, the chiefs and community members in areas visited did say that that they did and would repair damaged walls. One of the FE team was also concerned about privacy for individuals in small communities who might fall in the "red" area, but the rest of the team believed because the communities were large enough and since individuals were not singled out, that privacy was protected.

- *Nutrition Interventions*: These were integrated into most MNCH and delivery activities. The project uses Essential Nutrition Actions (ENA) for health facility (HF) training and community SBCC activities. Specific behaviors include BF initiation in the first hour and colostrum, nutrition during pregnancy and lactation, anemia prevention, lactation management, and birth spacing. ENA is key for improving birth outcomes and decreasing low birth weight. As part of this strategy, *Mother to Mother Breastfeeding Support Groups were revitalized.* The groups support early initiation of EBF and introduction of complementary feeding at 6 months. Baseline assessments determine knowledge of these as well as the Lactational Amenorrhea method for birth spacing and then based on their knowledge; integrate them into the Community Pregnancy Newborn Surveillance and Education sessions. Key outcomes included a significant increase of exclusive breastfeeding from 47% at baseline to 70% at endline.

- *Health Service Quality Improvement at the CHPS and Health Facility level:* To ensure that service provision match's client's expectation, EPPICS formed and trained Quality Improvement Teams in all the 12 targeted health facilities including the CHPS compounds. The QITs provided a platform for reflection on the quality of services provided – analyze such issues and take decisive and prompt action to swiftly address challenges. Community members were part of the QITs and through these, EPPICS assisted communities to advocate for services from healthcare providers and held them accountable for quality services being provided. Additionally EPPICS focused on health manpower, health staff attitudes, and supply chain management challenges faced by NR and EMD. EPPICS filled the gaps by linking the formal health service to communities and by improving skills of CHVs and TBAs and building volunteer support to regularly visit households with pregnant/lactating mothers.

- *Council of Champions (CoC):* The ability of the formal health system to provide rapid MNC interventions is mediated by challenging *practices, rituals, attitudes and beliefs (PRABs)* of key household decision makers: husbands, mothers- and fathers-in-law. Chiefs, Magazias, Traditional Birth Attendants/Medical Practitioners and Religious Leaders are the custodians of these PRABs and also dominate the obstetric and gynecologic scene in much of the rural districts of Ghana. EPPICS regrouped a total of 200 (5 – 7 per community) most influential people to serve on the community CoC and to help address/promote PRABs related barriers/enforcers to health seeking behavior. A total number of 13,632 Household Decision Makers (HDM) were engaged by 200 CoCs in 42 communities. Also, a total of 15,152 mothers/caregivers were visited by the CoCs within the period of implementation. In all eight key challenging and four key positive PRABs were identified and work on with the support of the CoCs. The modification and reinforcement of such PRABs facilitated improvement of key MNC indicates.

Gender considerations were upheld in the design of EPPICS. The HMNCCs for managing and updating the Walls of Health required that the membership be gender balanced. The QA teams always solicited feedback from women as well as men as each viewed situations differently. The transport committees always included women as their opinions concerning transport to facilities were valued. This was important as traditions dictate that the husbands decide where the baby should be born. There is also a belief that if a mother has been faithful to her husband then she has a safe home delivery but if she delivers in an HF, it is because she has been unfaithful. Part of the committee's work was to make sure that pregnant mothers were given a choice/ voice once the dangers of home births were understood.

On partnership, project staff noted during the review that EPPICS facilitated great coordination between CRS and the GHS. Unlike other similar interventions by other GHS partners, CRS ensured that the GHS was heavily consulted and involved in the design of the project, taking ownership at all levels. CRS claims that much of the success of this partnership is due to the district director who took over just as the project was starting. Compared to other NGOs where project staff led the implementation, CRS ensured that GHS lead implementation of activities at all levels. GHS continues to commit staff (12 Quality Assurance Teams and 7 district and regional Focal Persons, 11 nurses), time and effort as part of the in-kind contribution to lead/support the six EPPICS field staff in the implementation of activities at all levels. This partnership, which is based on trust, often sees CRS and GHS jointly conducting activities including monitoring visits with facilitative support at the 12 health facilities and 240 communities.

One of the concerns mentioned by the FE external evaluator was the disparity in staffing levels between the sub-districts. One hospital at Nalerigu has three doctors plus 2-3 part-time doctors, 4/5ths of the districts nurses and half of the midwives. The 4 other facilities have one midwife and maybe a nurse. The FE team members that were there at the beginning of the project noted that over the past four years the facilities have improved in terms of cleanliness and water supply.

3. Which elements of the project have been or are likely to be sustained or expanded?

The evaluation team established from the GHS partners that the following strategies of EPPICS are being/already scaled up and or sustained: Community-managed C-PreS education strategy, Repositioning TBAs as Link Providers, Council of Champions, Modified Motor tricycles, Quality Improvement Teams, the Walls of Good Health. Other specific examples are as follows:

- With support from CRS and GHS the community managed C-Pres education strategy is being scaled up in six new districts in northern Ghana by the GHS and is expected to benefit over 100,000 beneficiaries.
- Due to the documented achievements of using TBAs as link providers for referrals of pregnant women/newborns to facilities, and the resulting increase in skilled deliveries, CRS has leveraged $2.6 million to scale up this strategy in 6 more districts, to reach an estimated 85,000 women and children. This strategy has now been adopted by the GHS and is being scaled-up in the rest of the 21 districts of the Northern Region of Ghana.
- The Walls of health have been recognized as a useful intervention outside Ghana. CRS Ghana shared the methodology at the ECOWAS meetings in 2012. Some countries showed interest in this strategy and asked CRS / Ghana to help them replicate it in their countries. CRS staff traveled to Niger and Burkina Faso to support this expansion of the MNC methodology.
- Interventions such as the use of iPad Minis to improve data collection and Natural Family Planning Methods using the Standard Days Method together with other EPPICS project strategies contributed in making the East Mamprusi District the best performing district in 2014. This is a dramatic improvement since it was recorded as the worst performing district in 2010.

The table 4 below presents EPPICS' most effective and promising community-based strategies in terms of impact. The table presents corresponding unit costs for scale up.

Table 4: Costs per Unit of EPPICS' Most Effective Strategies

Promising Strategy	Numbers involved	Total Cost incurred in USD	Cost per unit in USD	Additional information
Custodians PRABs repositioned Council of Champions for MNC	200	$6,914	$35	This includes 4 days of training CoCs including using SBCC materials
Modified Motor Tricycles (MMTs)	4	$9,000	$2,250	This includes a 1 day training of MMT drivers
Repositioning TBAs as Link Providers	480	$38,985	$81	This cost includes a 1 day training and provision of material incentives including raincoats, flashlights and wellington boots
Walls of Good Health for CBIS	240	$33,375	$139	This excludes community support in building the walls but includes cement for concrete reinforcement, paint and picture illustrations as well as training of management committees

4. What are stakeholder perspectives on the OR implementation, and how did the OR study affect capacity, practices and policy?

The OR project, like the EPPICS project, had the overall aim to contribute to sustainable reduction in maternal/newborn morbidity/mortality in East Mamprusi District by 2015. The operational research

(OR) sought to improve knowledge, modify PRABs to maternal and newborn health care through an innovative approach using the "Council of Champions" (CoCs) (see background for details). The final OR report[11] (see annex XIV) concluded through the difference-in-difference analysis, comparing the changes over time for intervention households and comparison households, an improvement in respect to all outcome measures was noted except health facility delivery due to constraints with skilled health providers.

The results showed that more pregnant women in the intervention communities received adequate prenatal care (defined as having initiated ANC in first trimester and made at least 4 visits) than the comparison communities. Women from the intervention communities were 2.9 times more likely to initiate first ANC visit early in pregnancy (AOR=2.95 (CI: 2.01-4.34) than the comparison communities. Women from the intervention communities were 1.7 times more likely to utilize postnatal care services at least twice in the first week of delivery compared to women from the comparison communities (AOR=1.74, CI: 1.28-2.37). Women who received more ANC services were 1.9 times more likely to seek postnatal services in the first week of delivery compared to those who received less than seven visits. The intervention improved essential newborn care practices (breastfeeding, safe cord care, optimum thermal care, and improved neonatal feeding). These findings demonstrated the power of council of champions to effect change in behaviors around maternal and newborn care.

The prevalence of at least one wrong MNCH belief was lower in the intervention than the comparison communities (33.9% versus 50%). Generally, mothers in the intervention communities were more knowledgeable about danger signs during pregnancy, delivery, postpartum and neonatal periods than their counterparts in the comparison communities.

Women in the intervention communities were 50% less likely to deliver in a health facility, compared to their counterparts in comparison communities. The intervention was unable to effect positive changes in health facility delivery because of external influences that prevented the availability of the midwife to render services (see background section for discussion). Unfortunately, there was only one facility in the intervention sub-district, so the mothers had no other place to go. This site selection was a weakness in the design of the OR strategy as the control sub-district had several facilities.

The District Health Directorate of GHS with support from OR Investigators and CRS was able to share the OR results at the GHS/ Northern Region Annual Performance Review meeting and at the National level at the USAID System for Health meeting. The MoH/GHS in northern region has adopted the Council of Champions as a novel strategy to be implemented in 20 additional districts as part of the Millennium Accelerated Framework for Maternal Health. Additionally, GHS/MoH is working with USAID/Systems for Health for implementation of the CoC strategy in five of Ghana's 10 regions. Also, MoH/GHS's Northern Regional Health Directorate is working with CRS to develop a policy brief for revision of the MNC implementation policy at the sub-district and community levels.

As part of the FE, the MoH/GHS District Director of Health Services and the GHS Regional Focal Person for the EPPICS saw the CoC strategy as very promising in addressing current bottlenecks for uptake of MNC services. To them, it's a shortcut for addressing suboptimal MNC indicators and its

[11] M.Saaka, P.A.Aryee, M. Ali, R. Kuganab-Lem. "Engaging Community Leaders as "Council of Champions" to improve uptake of maternal and newborn health services in East Mamprusi District, Northern Ghana. Endline Survey Report. August 2015

consequent effect on maternal and child survival in the region. Additionally, the Local Government representatives and the Chiefs interviewed as part of the FE were very complementary regarding GHS's role in using the CoCs to address the low utilization of MNC services. The head Chief noted that the CoC strategy has taken the engagement of community leaders in health service delivery to the next level and his subjects (sub-chiefs) now see health delivery especially at the community and health facility levels as collective responsibilities.

In conclusion, the OR established that engaging custodians of PRABs and repositioning them to influence household decision makers assisted to modify challenging MNCH/N related PRABs and enforced the positive PRABs which subsequently contributed to improved uptake of MNCH/N services in the intervention sub-district.

CONCLUSIONS

Catholic Relief Services, Ghana Health Service, and numerous committed community volunteers have implemented a great project in East Mamprusi. In the short span of four years, population-based indicators – most notably, skilled attendance at childbirth – have improved substantially in the district. The key EPPICS strategies which contributed to this success include: The Walls of Health, Repositioning TBAs as Link Providers, C-PreS, Modified Motor Tricycles (MMTs), Council of Champions and Quality Improvement Methods. The Walls of Health, an innovative strategy used by the project to display health data and to engage communities in setting health priorities, is being expanded to other Northern districts and to other West African countries. The C-Pres education strategy is also being expanded to other Northern Region districts by the GHS, as is using TBAs as Link Providers. C-PreS, MMTs, Council of Champions and the OIMs have been scaled up by GHS and CRS into six additional districts. In addition the use of iPad minis to improve data collection and reporting and the introduction of natural family planning methods along with these other EPPICS strategies are making huge improvements in the quality of health care in the region.

Another improvement encouraged by the project's quality of care objectives is that local health officials investigate maternal deaths thoroughly and offer clear recommendations to prevent such deaths in the future. Members of the evaluation team were impressed with the dedication displayed by dozens of individuals in the district to the cause of maternal and child health, their willingness to discuss systemic and specific problems, and their ability to find creative solutions to resource constraints.

Catholic Relief Services is now implementing a successor project in East Mamprusi and neighboring districts, serving a larger population and replicating elements of the Child Survival project such as those above and the three-wheeled motorcycle ambulance.

The use of health services by women and children in the project area has improved in recent years and East Mamprusi was recognized as the best-performing district in the Northern Region in 2014. Sincere efforts to improve service quality are continuing and this part of Ghana is poised for further, and rapid, gains in health service use and in health status.

RECOMMENDATIONS

Table 5: Recommendations Consistent with Major Findings and Conclusions

Findings	Conclusion	Recommendation	Action	Who Is Responsible
Improvements in MNC indicators: Both rapid and non-Rapid CATCH indicators improved considerably.	Deployment of combined health facility and community based strategies is key to effecting desired impact on MNC	The design of the EPPICS experience should be a reference for future MCH interventions that targets the health of women and children	CRS should document and share how to guide on the replication of EPPICS with other stakeholders	CRS, GHS, Christian Health Association of Ghana (CHAG) and other actors
Promising scalable strategies: A number of the strategies including the repositioning TBAs as Link Providers, Constituting Community leaders into Council of Champions, *Alaafia Goomni* –"Walls of Good Health", Modified Motor-tricycles and Quality Improvement Methods in health facilities made significant contributions to the success of the EPPICS Project	EPPICS innovative strategies have proven to be effective in addressing MNC challenges in East Mamprusi District and in similar contexts	Ghana Health Service and the Ministry of Health should coordinate with Catholic Relief Services to scale up such strategies in all districts of Ghana USAID should support CRS to document and share "How to Implement" these strategies for adoption in other USAID funded projects	CRS should take the lead in organization and dissemination meeting to introduce these innovative strategies to all the major actors in MNCH programming	CRS, GHS, CHAG and other actors USAID, CRS
Adoption of the Council of Champions strategy is useful for addressing challenging *practices, rituals, attitudes and beliefs (PRABs)* related to MNC service uptake.	The CoC strategy has proved useful in facilitating the modification of challenging PRABs that hinder acceptance and utilization of MNC services and also served as a constructive strategy for facilitating healthy engagement of community leaders with household decision makers	USAID should support CRS to document and share "How to Implement" the CoC strategy for adoption and use on other USAID funded MCH projects	CRS should make frantic efforts in reaching out to USAID and other USAID funded MNCH projects to advocate for inclusion of CoCs in areas where PRABs appears as key barriers to MNC service utilization	CRS, USAID

Findings	Conclusion	Recommendation	Action	Who Is Responsible
Management and Partnership with GHS: The EPPICS Project Model has been very successful in promoting partnership between health service providers and users. This design not only contributed to the positive health gains recorded but also promotes sustainability	EPPICS Model supports sustainability of MNCH interventions	GHS should be encouraged to adopt and expand the EPPICS Project Model in partnership with other MCH programming actors for improved success	CRS should develop basic marketing materials to showcase this model for adoption	GHS, MoH and Partners
The EPPICS Project created a great demand for formal MNC services. However there are limited human resources especially midwives, to optimally meet the demand for MCH services in some sub-districts	Human Resource for Health (HRH) is key to health system strengthening	Additional Human Resources for Health are required to enhance the human resources based within the rural districts	Future maternal health projects should consider investing more of their resources towards improving staffing and supplies at health facilities.	GHS and MoH
The Modified Motor tricycles (MMTs) piloted by EPPICS seemed to have proven cost effective and capable of improving referrals for MNC emergencies in rural settings	MMTs is a cost effective approach to bridging geographic access related gaps for rural communities	GHS should invest in scaling up the use of MMTs in rural areas to improve referrals within rural districts	GHS and CRS should work on a business model that will encourage private persons/organization to invest in this area	Ghana Health Service CRS

ANNEXES

I. List of Publications and Presentations Related to the Project
II. Project Management Evaluation (Optional)
III. Work Plan Table
IV. Rapid CATCH Table
V. Final KPC Report
VI. Community Health Worker 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 (If applicable)
XIII. Evaluation Team Members, Roles, and Their Titles
XIV. Final Operations Research Report
XV. Stakeholder Debrief PowerPoint Presentation
XVI. Project Data Form
XVII. Other Optional Annexes