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Maternal and Child Survival Program

MCSP Nigeria Maternal Newborn Child Health (MNCH)

End of Project Final Report

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www.mcsprogram.org

The Maternal and Child Survival Program (MCSP) is a global, $560 million, 5-year cooperative agreement funded by the United States Agency for International Development (USAID) to introduce and support scale-up of high-impact health interventions among USAID's 25 maternal and child health priority countries, as well as other countries.

This project is made possible by the generous support of the American people through the United States Agency for International Development (USAID) under the terms of the Cooperative Agreement AID-OAA-A-14-00028. The contents are the responsibility of the Maternal and Child Survival Program and do not necessarily reflect the views of USAID or the United States Government.

Cover Photo: Tens of thousands of women like Blessing Orji and thousands more children like her baby have benefited from Maternal and Child Survival Program (MCSP) interventions to prevent maternal, newborn, and child deaths in Ebonyi and Kogi states. Photo credit: Karen Kasmauski/MCSP

May 2019

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Acknowledgments

The funding for the implementation of the Maternal and Child Survival Program (MCSP) was made possible by the generous support of the American people through the United States Agency for International Development Nigeria (USAID/Nigeria) under the terms of the Cooperative Agreement AID-OAA-A-N-00028. We appreciate the support of the present and past USAID/Nigeria Health Population and Nutrition team leaders, activity managers, and the entire USAID/Nigeria team in working with MCSP to ensure that we achieved our goal and objectives. We also thank the USAID/Washington MCSP agreement officer's representative team for their strong support throughout our program.

We thank the Federal Ministry of Health, National Primary Health Care Development Agency, and the Ministry of Health and State Primary Health Care Development Agency of both Ebonyi and Kogi states for playing a large role in the implementation of MCSP in Nigeria. We sincerely appreciate these and other relevant ministries, departments, and agencies for affording us a conducive environment in which to operate. Their active participation in the program and eventual ownership of the interventions contributed to the program's success.

As subawardees of MCSP in Nigeria, four local professional associations—the Society of Gynecology and Obstetrics of Nigeria, Pediatric Association of Nigeria, Nigerian Society of Neonatal Medicine, and National Association of Nigerian Nurses and Midwives—made immense contributions and were a huge addition to the delivery of program activities and interventions. The United States Pharmacopeia – Promoting Quality of Medicines program, Pharmaceutical Council of Nigeria, and National Association of Patent and Propriety Medicine Dealers were also instrumental to the success of MCSP in Nigeria, especially in improving the availability of quality essential medicines at the community level in the project states.

We equally acknowledge the role and collaboration of United States-based professional associations—the American Academy of Pediatrics, American College of Obstetricians and Gynecologists, and American College of Nurse-Midwives—and the support of the General Electric, Glaxo Smith Kline, Saving One Million Lives, and Survive and Thrive Global Development Alliance partners.

Special thanks to the MCSP team of Jhpiego (lead partner), John Snow, Inc., Save the Children International, and Results for Development, which managed the implementation of MCSP in Nigeria. The complementary roles of the partners in terms of their technical expertise made the achievements described in this report possible. We also thank the global leadership of MCSP for their support and guidance throughout the planning and implementation of MCSP in Nigeria.

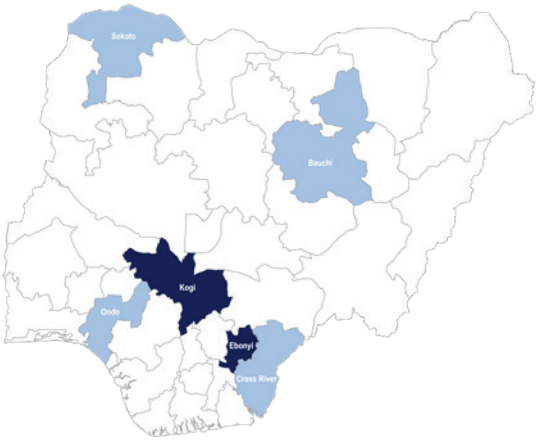
Lastly, a big thank you for the immense contributions of all MCSP staff and consultants, past and present, who crisscrossed towns and villages including hard-to-reach areas and ensured that the interventions and activities of MCSP in Nigeria were implemented as planned, and resulted in improvements in the lives of the Nigerian people.

Acronyms and Abbreviations

ACT	artemisinin-based combination therapy
ALS	age and life stage
bCPAP	bubble continuous positive airway pressure
BEmONC	basic emergency obstetric and newborn care
CEmONC	comprehensive emergency obstetric and newborn care
CHEW	community health extension worker
CORPs	community-oriented resource persons
DRF	Drug Revolving Fund
EmONC	emergency obstetric and newborn care
ENCC	essential newborn care course
EQUiPP	Enhancing Quality iCCM through PPMVs and Partnerships
FMOH	Federal Ministry of Health
FP	family planning
FTYP	first-time young parents
GBV	gender-based violence
HIV/AIDS	human immunodeficiency virus/acquired immune deficiency syndrome
HMIS	health management information system
iCCM	integrated community case management of childhood illnesses
IMCI	Integrated Management of Childhood Illness
ISS	integrated supportive supervision
KMC	kangaroo mother care
LDHF	low-dose, high-frequency
LGA	local government area
LMCU	Logistic Management Coordination Unit
LMIS	logistics management information systems
MCSP	Maternal and Child Survival Program
M&E	monitoring and evaluation
MIP	Malaria in pregnancy
MNCH	maternal, neonatal, and child health
MNH	maternal and neonatal health
MOH	Ministry of Health
MPDSR	Maternal and Perinatal Death Surveillance and Response
NAPPMED	National Association of Patent and Propriety Medicine Dealers
NiENAP	Nigeria Every Newborn Action Plan
NPHCDA	National Primary Health Care Development Agency
PCN	Pharmaceutical Council of Nigeria
PHC	primary health care
PMP	Performance Monitoring Plan

PPFP	postpartum family planning
PPMV	patent and proprietary medicine vendor
PSBI	possible serious bacterial infection
PSE	pre-service education
QI	quality improvement
QoC	quality of care
RMC	respectful maternity care
RMNCAH	reproductive, maternal, newborn, child, and adolescent health
RMNCH	reproductive, maternal, newborn, and child health
SMOH	State Ministry of Health
SPHCDA	State Primary Health Care Development Agency
TWG	technical working group
USAID	United States Agency for International Development
WASH	water, sanitation, and hygiene
WHO	World Health Organization

Country Summary: Nigeria



Left: Map of Nigeria highlighting the two project states of Ebonyi and Kogi. MCSP also intervened in other states, including Bauchi, Cross River, Ondo, and Sokoto states.

Right: Midwife Stella Dansuma and young mom, Celestina Edoka and her baby were among the beneficiaries of MCSP in Nigeria. *Photo credit: Karen Kasmauski/MCSP*

Selected Health and Demographic Data for Nigeria	
Total population	185 million
MCSP-supported areas	5.4 million
Maternal mortality ratio	576 / 100,000 live births
Newborn mortality rate	37 / 1,000 live births
Infant mortality rate	69 / 1,000 live births
Under-five mortality rate	128 / 1,000 live births
Total fertility rate	5.5
Births with skilled provider	38%
Contraceptive prevalence	15% (all methods)
Source: Nigeria Demographic and Health Survey (NDHS) 2013 as NDHS 2018 results are not yet available	

Program Objectives and Major Accomplishments

- Improve quality of facility-based maternal and newborn health (MNH) services, and of community and facility-based child health services
  - ✓ Over 3,800 health care workers across 321 facilities and 862 medicine vendors across 682 outlets empowered with lifesaving skills to deliver quality maternal, newborn, and child health services
- Improve health information systems to monitor service delivery and health outcomes
  - ✓ Ebonyi and Kogi data reporting rates increased from 53.5% and 63.4% in 2016 to 64.5% and 70.7% in 2018, respectively, and use of scorecards for decision-making was institutionalized in both states
- Increase use of lifesaving innovation
  - ✓ Uptake of chlorhexidine gel for umbilical cord care increased from 14% to 90% in Ebonyi and Kogi states; and introduction of a low-dose, high-frequency training approach enabled more health workers to be trained than previously possible

<table>
<tr><td>Program Dates</td><td colspan="3">October 2014 – March 2019</td></tr>
<tr><td rowspan="2">Funding</td><td colspan="2">Total Mission Funding to Date</td><td>Total Core Funding to Date by Area</td></tr>
<tr><td colspan="2">$36,605,524</td><td>Total: $954,888
FP: $137,000
WASH: $811,838
MH: $6,050</td></tr>
<tr><td rowspan="2">Geographic Coverage</td><td>No. (%) of states</td><td>No. (%) of districts</td><td>No. (%) of facilities</td></tr>
<tr><td>2 of 36 states
(5.5% of total states)</td><td>Kogi: 21 LGAs (100%)
Ebonyi: 13 LGAs (100%)
34 LGAs (4.4% of total LGAs in Nigeria)</td><td>321 (24% of total health facilities in Kogi and Ebonyi)</td></tr>
<tr><td>Country and HQ Contacts</td><td colspan="3">MCSP Project Director: Dr. Oniyire Adetiloye
Country Support Manager: Laura Skolnik
Sr. Program Officer: Alishea Galvin</td></tr>
<tr><td>Technical Interventions</td><td colspan="3"> 
PRIMARY: Maternal Health; Newborn Health; Child Health; Reproductive Health; Adolescent Sexual & Reproductive Health; OTHER: Gender; Pre-Service Education; Operations Research; Monitoring & Evaluation; Water, Sanitation and Hygiene; Health Systems Strengthening</td></tr>
</table>

Executive Summary

The overarching goal of the Maternal and Child Survival Program (MCSP) in Nigeria was to contribute to the reduction of maternal, newborn, and child mortality by improving the quality and use of maternal, newborn, and child health interventions in Ebonyi and Kogi states. Over a period of 4 years, MCSP worked with several key stakeholders within and outside Nigeria to plan and implement a wide range of interventions designed to achieve this goal.

The Program's focus was to address the major causes of maternal, newborn, and child mortality at the health facility level. This effort led to strengthening the capacity of more than **3,800** health workers across **321** facilities to deliver quality reproductive, maternal, newborn, child, and adolescent health services. Trained health workers have been applying their new skills to provide lifesaving care. During MCSP's implementation, these health workers conducted **71,665** deliveries, resuscitated **1,938** newborns who did not breathe at birth, and treated **59,756** cases of childhood pneumonia, diarrhea, and uncomplicated malaria. Trained providers also increased voluntary family planning uptake in the states by serving **19,823** women, including adolescents and young mothers, with preferred contraceptives.

The impact of MCSP on strengthening the capacity of health workers extends beyond the two states through support provided for national adaptation of training materials and the creation of a pool of master trainers that were selected from every state in the country and are now available to scale up the training to other parts of the country.

MCSP promoted the use and scale-up of chlorhexidine gel for umbilical cord care in line with Nigeria's vision that half of newborns across Nigeria receive chlorhexidine by 2020. Following MCSP's support, uptake of the gel increased from **14% to 90%** in MCSP-supported facilities in Ebonyi and Kogi states. MCSP also introduced a low-dose, high-frequency training approach, which helped both states to train and retrain more health workers than previously possible. Similarly, the introduction and use of bubble continuous positive airway pressure machines in Ebonyi, Kogi, and Cross River states, though at a pilot stage, helped dozens of newborns with respiratory problems to survive and thrive.

Furthermore, MCSP facilitated the provision of essential tools and equipment in its supported facilities, including newborn corners in **240** facilities, oral rehydration therapy corners in **119** facilities, and water, sanitation, and hygiene infrastructure in 30 facilities. In addition to contributing to increased data reporting rates by the two states (from **53.5%** and **63.4%** in 2016 to **64.5%** and **70.7%** in 2018 in Ebonyi and Kogi, respectively), MCSP helped to institutionalize the use of scorecards for monitoring health service delivery and outcomes.

At the community level, MCSP's interventions led to improved capacity of **862** patent proprietary medicine vendors (PPMVs), following which the PPMVs have been assessing, classifying, and treating children under age 5 with uncomplicated malaria, pneumonia, and diarrhea, and referring children with danger signs to health facilities. MCSP also helped to establish an emergency transport scheme, through which **854** pregnant women and sick children were transported without delay to nearby health facilities for care. Similarly, MCSP introduced women's savings and loans clubs, enabling **2,120** women access to alternative financing to seek high-quality health care.

Despite periodic challenges in implementing MCSP in Nigeria, stakeholders agree that the Program has significantly helped improve health outcomes for Nigerian women and children. This is probably most evident in the **91** facilities that received extensive support on quality improvement from MCSP, where marked improvements in the delivery of maternal and newborn services are still being recorded. The project's impact on health workers has extended beyond the two states through support provided for national adaptation of training materials and the creation of a pool of trainers.

To ensure the gains of MCSP are sustained and scaled up as widely as possible, a number of policy documents, strategic development plans, training manuals, job aids, and learning briefs have been developed as a framework for use and reference. As MCSP ends its activities in Nigeria, it is reassuring that state-funded interventions (e.g., training of health care workers) are already being implemented in line with MCSP-promoted proven approaches. No doubt, this is the right step toward ending preventable maternal, newborn, and child deaths in Nigeria.

Introduction

In 2013, the maternal mortality ratio in Nigeria was 576 per 100,000 live births; the newborn mortality rate was 37 per 1,000 live births; and the under-5 mortality rate was 128 per 1,000 live births.[1] These mortality rates were among the highest in the world, making Nigeria one of the largest contributors to the global burden of maternal, newborn, and child deaths. Hemorrhage account for the majority of maternal deaths; preterm birth complications are the primary causes of newborn deaths; and pneumonia, diarrhea, and malaria account for much of child mortality after the neonatal period.

Efforts by Nigerian federal and state governments and partners to address the high rates of maternal, newborn, and child mortality yielded some results, but the challenges remained daunting and widespread. Even in states where interventions helped to significantly increase availability of skilled birth attendants (e.g., 60% in Ebonyi and 78% in Kogi), maternal and newborn mortality rates remained high and not much better than states or regions with fewer skilled birth attendants.

It was against this background and in recognition of the need for all stakeholders to do more to reduce maternal, newborn, and child mortality in Nigeria that the Government of Nigeria and the United States Agency for International Development (USAID) asked the Maternal and Child Survival Program (MCSP) to intervene in 2014 to: 1) improve the quality of facility-based maternal, neonatal, and child health (MNCH) services and community-based child health services in Ebonyi and Kogi states; 2) improve health information systems to monitor service delivery and health outcomes; and 3) increase the use of lifesaving innovations. MCSP was designed to build on the work of a previous USAID global program, the Maternal and Child Health Integrated Program. MCSP's approach and guiding principles included implementation of proven interventions, active leadership and engagement, and effective implementation and impact at state level.

MCSP started with 120 supported health facilities in 2015 and had covered up to 321 facilities by the end of project implementation in the field in 2018. MCSP's interventions in Nigeria covered the technical areas of reproductive, maternal, newborn, child,[2] and adolescent health (RMNCAH), as well as the cross-cutting areas of quality improvement (QI), gender, monitoring and evaluation, pre-service education, operations research, and health systems strengthening. Table 1 lists selected project indicators.

[1] National Population Commission (NPC) [Nigeria] and ICF International. 2014. *Nigeria Demographic and Health Survey 2013*. Abuja, Nigeria and Rockville, Maryland, USA: NPC and ICF Nigeria.
[2] The child health component originally started as a separate program in 2015, and then merged with the maternal and newborn health program in 2017.

Table 1. MCSP/Nigeria results framework

Number of supported health facilities that have a systematic approach to track and display priority reproductive, maternal, newborn, and child health indicators
Number of pregnant women that attended an antenatal clinic for the fourth time
Number of deliveries with skilled birth attendants
Percent of women who delivered in a facility that received voluntary postpartum contraception predischarge
Couples years of protection in US Government (USG)-supported programs
Number of children under age 5 referred to a high-level health facility by patent and proprietary medicine vendors for treatment of severe diarrhea, pneumonia, and malaria or danger signs in USG-supported programs
Percent of women receiving an immediate postpartum uterotonic in the third stage of labor
Percent of newborns receiving essential care through USG-supported programs
Percent of births monitored with a partograph
Percent of babies for whom chlorhexidine gel was applied to the umbilical cord at birth
Number of live births not breathing at birth who were resuscitated in USG-supported programs

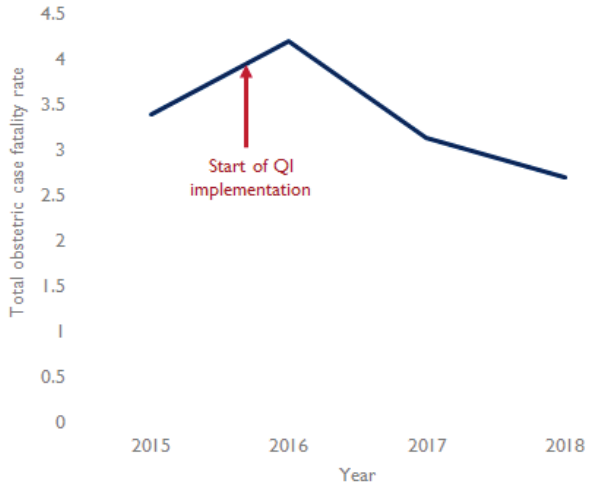
Major Accomplishments

Maternal Health

The major contributors to maternal death in Nigeria are postpartum hemorrhage, pre-eclampsia/eclampsia, and obstructive labor.[3] Findings from a baseline assessment of quality of care (QoC)[4] conducted by MCSP in 2016 in Ebonyi and Kogi states showed gaps in the quality of antenatal, intrapartum, and immediate postnatal care for pregnant women and mothers. Based on these findings, MCSP designed and implemented a number of interventions aimed at improving health outcomes for pregnant women and new mothers in Ebonyi and Kogi states.[5] The major accomplishments from these efforts include the following:

- A pool of 40 health professionals was established as state-level master trainers on basic emergency obstetric and newborn care (BEmONC) and service delivery. The master trainers subsequently cascaded the BEmONC training to more than 1,500 health care workers across 240 public and private health facilities, empowering them with skills to prevent and manage postpartum hemorrhage, detect and manage pre-eclampsia and eclampsia using a loading dose of MgS04, manage obstructed labor and assisted vaginal delivery, and resuscitate newborns.
- Between 2015 and 2018, the more than 1,500 trained health workers supervised 202,274 first antenatal care (ANC) visits, attended 71,665 deliveries, and provided 60,521 women with immediate postpartum uterotonic drugs for active management of the third stage of labor.
- Use of uterotonics (for preventing postpartum hemorrhage) increased from 41% in 2015 to 99% in 2018; and use of the partograph (for early detection, referral, or proper management of pregnancy complications and avoiding obstructed labor) increased from 30% in 2015 to 78% in 2018.
- The readiness of 28 secondary and mission hospitals across Ebonyi and Kogi states to provide quality comprehensive emergency obstetric and newborn care (CEmONC) services also improved following MCSP's capacity-building of doctors on CEmONC. An adapted surgical safety checklist and perioperative tools to standardize and guide surgical safety efforts were also introduced and are in use across the facilities.

Figure 1. Downward trend in facility total obstetric case fatality rate



Data Source: MCSP QI dashboard (DHIS2 data and additional data)

[3] National Population Commission (NPC) [Nigeria] and ICF International. 2014. *Nigeria Demographic and Health Survey 2013*. Abuja, Nigeria and Rockville, Maryland, USA: NPC and ICF Nigeria.

[4] Maternal and Child Survival Program in Ebonyi and Kogi Quality of Care Assessment Baseline Report, October 2017

[5] Maternal and Child Survival Program. 2019. Ensuring better care for Nigerian pregnant women and new mothers. Technical brief. https://www.mcsprogram.org/resource/ensuring-better-care-for-nigerian-pregnant-women-and-new-mothers-and-their-babies/

- The Federal Ministry of Health developed an integrated supportive supervision (ISS) tool for supervising and mentoring health care workers at all levels of health facilities in the country. However, despite the tool's importance and known impact, its use at state and local government area (LGA) levels across the country was limited. The ISS tool was not in use in the two MCSP-supported states at the start of MCSP. MCSP therefore supported both Ebonyi and Kogi states to build their capacity on the use of the ISS tool and raised their awareness of the importance and impact of regular onsite supervision and mentoring visits to health care workers. With technical support from MCSP, which included orientation and training on the use of the national ISS tools, ISS teams from the State Ministry of Health (SMOH) and LGAs in both states visited and supported an average of 220 facilities every quarter. The visits enabled immediate resolution of some issues and flagging of others for future resolution.
- Overall, the total obstetric case fatality rate trended downward from 2016 to 2018 in MCSP-supported phase-one facilities. The percent of women in facilities who died due to an obstetric complication decreased from 3.4% in 2015 to 2.7% in June 2018 (see Figure 1). Similarly, the institutional maternal mortality ratio trended downward in all program-supported phase-one facilities from 2016 to 2018.
- The implementation of the Maternal and Perinatal Death Surveillance and Response (MPDSR) system in Nigeria, in particular in Ebonyi and Kogi states, which reviews maternal and perinatal deaths to prevent reoccurrence, has progressed significantly following MCSP's support. This support included orienting relevant stakeholders on the system's significance, establishing MPDSR committees (at state, district, and facility levels) and training members, and producing MPDSR tools and guidelines. The Ebonyi and Kogi SMOH leadership, with support from the Society of Gynecology and Obstetrics of Nigeria and the Pediatric Association of Nigeria/Nigerian Society of Neonatal Medicine, are now managing the MPDSR committees and processes in both states.
- At the community level, a referral support system (the emergency transport scheme [ETS]) was introduced and established in selected LGAs in Ebonyi and Kogi states, leading to the timely transportation of 539 women and 315 sick children to nearby facilities for care by the end of MCSP's implementation in 2018.
- Also at the community level, 73 savings and loans clubs serving 2,120 women members were established in selected LGAs in Ebonyi and Kogi states by September 2018, with members making a total weekly contribution of more than N5 million (USD14,000). Needy members used these funds for deliveries, care of sick children, and other health emergencies, as well as to improve businesses and livelihoods.
- A range of policy documents, training manuals, job aids, and behavior change communication materials relating to maternal health are now available for use by health workers, policymakers, and trainers at the facility, state, and national levels. MCSP supported the development of the documents and materials, which include a national lifesaving skills (LSS) training manual, ANC orientation package, national and state strategic health development plans, safe motherhood posters, maternal health job aids, and maternity record booklet.

Newborn Health

In Nigeria, newborn deaths account for about 32% of all deaths of children under 5 years of age.[6] The three major causes of newborn mortality in Nigeria are preterm birth complications (31%), intrapartum-related events including birth asphyxia (31%), and infection, including pneumonia and sepsis (19%).[7] Together, they contribute to 81% of all neonatal deaths in the country. MCSP promoted the use of lifesaving innovations for improving newborn health outcomes. MCSP's interventions in Nigeria focused on reducing newborn mortality due to prematurity, asphyxia, and sepsis.[8] By September 2018, when MCSP completed its field interventions, the Program had made appreciable progress in improving health outcomes for newborns in Ebonyi and Kogi states.

[6] Federal Ministry of Health. 2016. Nigeria Every Newborn Action Plan: A plan to end preventable newborn deaths in Nigeria. Abuja: Federal Ministry of Health. https://www.healthynewbornnetwork.org/hnn-content/uploads/Nigeria-Every-Newborn-Action-Plan.pdf

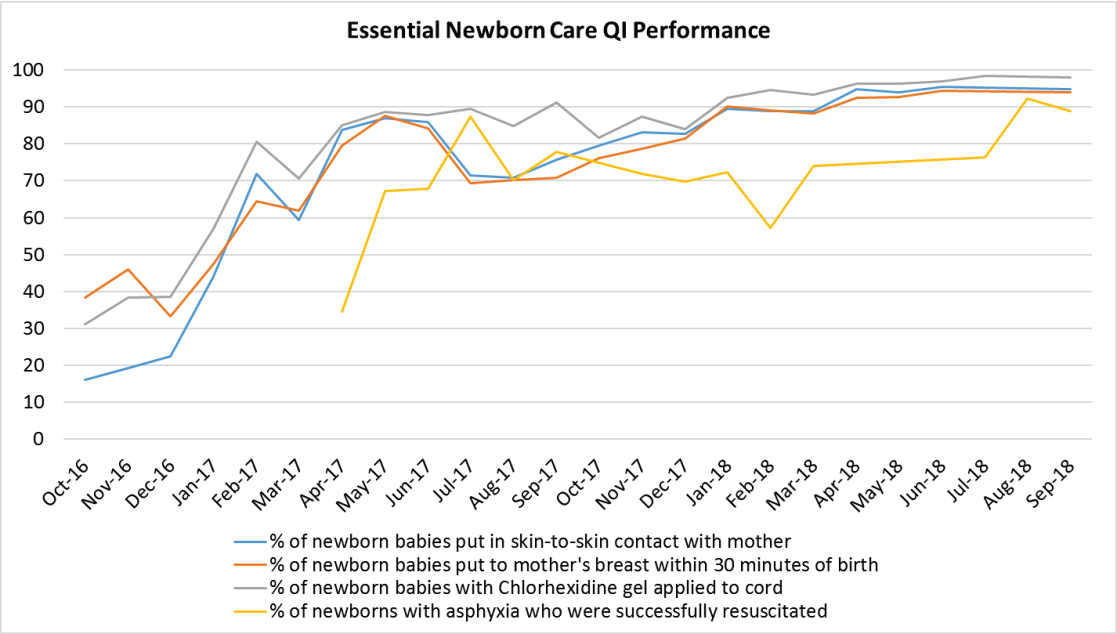
[7] https://www.healthynewbornnetwork.org/country/nigeria/

[8] Maternal and Child Survival Program. 2018. Strengthening newborn care: Kogi and Ebonyi States, Nigeria. Technical brief. https://www.mcsprogram.org/resource/strengthening-newborn-care-in-kogi-and-ebonyi-states-nigeria/

- Global Helping Babies Survive training materials were adapted and integrated into the Nigerian national newborn training package and endorsed by the Federal Ministry of Health (FMOH) as the Essential Newborn Care Course (ENCC), the approved training package to build the capacity of service providers (doctors, nurses, and community health extension workers [CHEWs]) to combat the major causes of newborn death. Also revised was the Nigeria Every Newborn Action Plan (NiENAP), which describes the country's overarching newborn health strategy and key actions to take.
- A national pool of 88 ENCC master trainers and course directors was created. These master trainers cascaded the training to build the capacity of 1,234 frontline service providers in Ebonyi and Kogi states. The master trainers are well equipped to support the Ministry of Health (MOH) and other implementing partners to build service provider capacity in non-MCSP-supported states.
- Newborn corners were set up in the delivery rooms of 240 supported health facilities across Ebonyi and Kogi states to facilitate provision of essential newborn services. By September 2018, 37,382 babies had received essential newborn care across MCSP-supported sites in Ebonyi and Kogi states. Of 2,029 babies who did not breathe at birth, 1,938 were successfully resuscitated, representing a 95.5% successful neonatal resuscitation rate in these two states.
- Forty-one (41) secondary and tertiary health facilities received support in setting up kangaroo mother care (KMC) corners for quality management of preterms and low-birthweight babies. Subsequently, mothers and caregivers of 929 low-birthweight newborns were assisted to nurse their babies using the low-cost, skin-to-skin method.
- Provision of essential newborn care across Ebonyi and Kogi states increased from about 26% to 92% (Figure 2).
- The National Scale-up Strategy for Chlorhexidine in Nigeria was developed and launched with MCSP's support.[9] MCSP supported dissemination of the strategy across all states in Nigeria, and supported the governments of Kogi and Ebonyi states to set up and strengthen coordinating structures for state-level scale-up of chlorhexidine (CHX).
    - CHX was applied at birth for more than 30,730 babies delivered at MCSP-supported facilities by the end of the implementation of MCSP interventions.
    - Uptake of CHX gel for umbilical cord care increased in supported facilities from 12% in 2015 to 99% in 2018 in Kogi, and from 3% to 83% over the same period in Ebonyi (Figure 2).
    - Kogi state subsequently developed a 5-year costed operational plan for CHX scale-up in the state.

[9] Maternal and Child Survival Program and Nigeria Federal Ministry of Health. 2018. Scaling up chlorhexidine for umbilical cord care in Nigeria. Technical brief. https://www.healthynewbornnetwork.org/resource/scaling-up-chlorhexidine-for-umbilical-cord-care-in-nigeria/

Figure 2. Improved essential newborn care in 91 MCSP-supported quality improvement sites



Data source: MCSP QI Dashboard (N=91 facilities)

- A training manual to guide management of sick newborns in secondary health facilities in Nigeria (titled "sick newborn care course") was developed and used to conduct a series of trainings to build the capacity of doctors and nurses to provide quality inpatient care for severely sick newborns. Consequently, sick newborn corners were established in 32 secondary health facilities in both states.
- Similarly, MCSP introduced the use of bubble continuous positive airway pressure (bCPAP), a lifesaving innovation for low-birthweight babies with respiratory distress syndrome, and provided the bCPAP machine to seven program-supported sites in Kogi, Ebonyi, and Cross River states.[10] A total of 76 neonates were treated with the Pumani bCPAP device at the seven facilities. Overall, the complication rate among newborns treated with bCPAP was low. However, for bCPAP to become a feasible and viable technology across Nigeria, the challenges of human resources for health, facility infrastructure, equipment, and financing identified in relation to the use of the device in the seven facilities must be addressed.
- MCSP supported the FMOH and the Kogi and Ebonyi SMOHs to drive the use of simplified antibiotics for management of sick newborns with possible serious bacterial infection (PSBI) at the primary health care (PHC) facility when referral is not possible. In collaboration with the FMOH, MCSP revised the ENCC and Integrated Management of Childhood Illness (IMCI) tools to be harmonized with PSBI, built the capacity of health workers and advocated to the Kogi and Ebonyi state governments on the need to ensure that PSBI commodities (amoxicillin dispersible tablet [Amox-DT] and gentamicin injection) are easily available and reasonably affordable for preventing and managing newborn sepsis.
- Despite the intervention's short length and the lack of infrastructure investments, some of the 30 health facilities and specific wards demonstrated an ability to make improvements. In total, 14 general facility spaces, 17 delivery wards, 10 postnatal care wards, and eight special newborn care wards achieved a clean clinic certification status in Kogi and Ebonyi states.

[10] Improving care for newborns with respiratory distress in Nigeria through use of bubble continuous positive airway pressure devices. Technical brief.

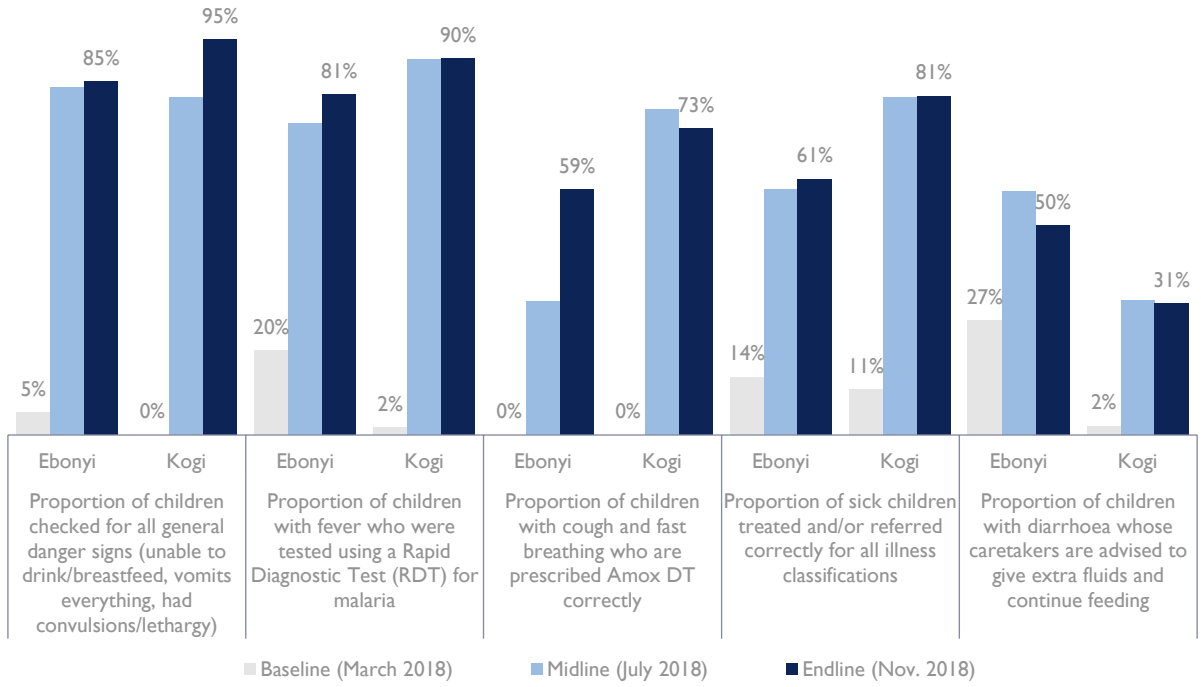
Child Health

Malaria, diarrhea, and pneumonia (compounded by malnutrition) remain the three leading contributors to child death in Nigeria, yet these conditions can be easily prevented and treated. MCSP implemented the child health component through a three-pronged approach that involved enabling a supportive policy environment at the national level, enlisting the government's stewardship at the state level, and mobilizing communities to take action.[11] The following are some of MCSP's major accomplishments from these efforts:

- The deregulation of Amox-DT and its inclusion in the national essential medicines list and Pharmaceutical Council of Nigeria's (PCN's) approved medicines list for patent and proprietary medicine vendors (PPMVs) enables improved treatment of uncomplicated childhood illnesses and pneumonia, and allows trained PPMVs to stock and dispense the medicines for treating sick children even at the household level.
- Enhancing the capacity of 246 frontline health care workers in 119 MCSP-supported PHC facilities in Kogi and Ebonyi states to use the IMCI/PSBI strategy resulted in treatment of 8,452 cases of childhood pneumonia with Amox-DT, 6,434 cases of childhood diarrhea with oral rehydration salts (ORS)/zinc, and 44,870 children with confirmed uncomplicated malaria with artemisinin-based combination therapy (ACT) between October 2016 and September 2018.
- Seven basic health institutions in Kogi and Ebonyi states mainstreamed the IMCI strategy into the curriculum following MCSP's reactivation of IMCI in the pre-service program. In addition, MCSP initiated the first-ever review and update of the IMCI student handbook and developed a teacher's guide for pre-service training.
- The Kogi State Council on Health, the highest decision-making organ on health in the state, adopted the IMCI strategy as the state's child survival program in recognition of the impact of IMCI implementation as promoted by MCSP.
- At the community level, MCSP designed and implemented an operational research activity, Enhancing Quality of the Integrated Community Case Management of Childhood Illness (iCCM) through PPMVs and Partnerships (EQuiPP). MCSP enhanced the capacity of 862 PPMVs to assess, classify, and treat children under age 5 with uncomplicated malaria, pneumonia, and diarrhea, and to refer children with danger signs. Between April and September 2018, MCSP-trained PPMVs treated 2,635 childhood pneumonia cases with Amox-DT, 10,201 malaria rapid diagnostic test (mRDT)-confirmed malaria cases with ACT, and 3,006 diarrhea cases with low osmolarity ORS/zinc. The training also resulted in a significant increase in the proportion of sick children assessed for danger signs, treated and counseled, and referred for higher level care (Figure 3).
- MCSP facilitated a joint supervision model that built the capacity of 140 PHC workers and PPMV peer supervisors to supervise PPMVs' service provision, provide on-the-job mentoring, and ensure data collection. This model ensured that data flowed from the community to the DHIS2 platform.
- MCSP improved on the national iCCM training curriculum by incorporating addenda on inventory management and the community health management information system (HMIS), enabling PPMVs to manage their medicine supplies and report to the national HMIS.
- MCSP presented findings and lessons learned from the EQuiPP approach during the national review of the iCCM national guidelines in Lagos in November 2018. This resulted in extensive discussions and the FMOH's decision to include PPMVs as community resource persons (CORPs) and, once trained, as official iCCM service providers. This was reflected immediately in the updated national iCCM guidelines and national iCCM training materials.

[11] Maternal and Child Survival program. 2019. Improving health outcomes for children under five in Nigeria. Technical brief. https://www.mcsprogram.org/resource/improving-health-outcomes-for-children-under-five-in-nigeria/

Figure 3. Quality of assessment, treatment, and counseling for sick children under age 5 at 176 patent and proprietary medicine vendors (PPMVs) before, during, and at the end of EQuiPP implementation.



The proportion of children assessed for danger signs increased by over 80% between baseline and endline. *(Data source: External assessments using direct observation and clinical re-examination; n = 88 PPMVs in each state)*

- MCSP promoted the involvement of community-based organizations working with ward development committees and community volunteers to reach caregivers in their homes with messages/information for improving care for children under age 5. Within 3 months of this intervention, five community-based organizations had reached 163,169 caregivers and community members and referred 5,065 sick children under age 5 to PHC providers and PPMV outlets for care.
- The review of the 2016 National Child Health Policy and development of the National Child Health Advocacy and Strategic Plan supported by MCSP enabled the FMOH to provide more strategic leadership and coordination in child health programming nationally. At the state level, the child health technical working group (TWG) was reactivated as the coordinating platform in each state for all child health activities.
- Similarly, the first costed annual operational plan for child health developed for Ebonyi and Kogi SMOHs, also with MCSP support, is providing strategic guidance for implementing child health activities in the states and serving as a tool for mobilizing and using resources to address the health needs of children in the states.
- To ensure availability of low-cost, quality essential childhood medicines at the community level, MCSP facilitated linkages between local manufacturers/wholesalers and PPMVs. The wholesalers now make the medicines available at monthly PPMV meetings, ensuring quality products at reasonable cost, while easing supply chain bottlenecks. At the same time, technical support was provided to inform the logistics system design of Ebonyi state's first sustainable drug financing strategy for essential medicines. The Drug Revolving Fund (DRF) is currently operational in 171 PHC facilities, including the 58 MCSP-supported facilities.

Family Planning

Despite the relatively high rates of women delivering in health facilities in Kogi (78.9%) and Ebonyi (59.6%),[12] a baseline assessment conducted by MCSP in 2015 showed that none of the women who delivered in health facilities in either state went home with any form of voluntary contraception. Yet, the 2015 World Health Organization (WHO) Medical Eligibility Criteria identifies the immediate postpartum period (within 48 hours of delivery) in a facility as an excellent opportunity for women to access a voluntary contraception method of their choice.

To address the low (9.8%) modern contraceptive prevalence rate (mCPR) in Nigeria, MCSP intervened to expand contraceptive access for postpartum women and increase voluntary family planning (FP) uptake in Ebonyi and Kogi states[13] to support the country's commitment to achieving the global mCPR of 36% by 2020. The following are some of MCSP's major accomplishments in providing voluntary FP care in Ebonyi and Kogi states:

- More than 637 health care providers (including doctors, nurses, midwives, and CHEWs in ANC, labor, delivery, and postpartum units) across 233 health facilities in Ebonyi and Kogi states developed or improved their competency to provide quality postpartum FP/long-acting reversible contraceptives (PPFP/LARCs) to women wanting to avoid unintended pregnancies or space pregnancies. This effort resulted in an increased number of FP service providers and increased access to quality FP care.
- With MCSP funding, 233 health facilities were equipped with essential PPFP equipment, commodities, counseling cards, job aids, posters, and simple PPFP data collection tools, and quality of FP care was strengthened.
- Trained service providers initiated PPFP care in 233 health facilities, counseled 60,814 women on PPFP during antenatal clinics, and provided contraceptives of choice to 13,885 women or new adopters (more than 41% of women who delivered in supported health facilities) before discharge. As a result, access to and uptake of contraceptives increased in Kogi and Ebonyi.
- Availability of FP/PPFP dedicated counselors in 36 facilities implies further strengthening and expansion of access to FP information and care in Ebonyi and Kogi states. As a result, women are being empowered and supported to voluntarily make informed decision and choices.
- Within 1 year of the introduction of mini laparotomy under local anesthesia in Ebonyi and Kogi states, 28 women voluntarily opted for and received this permanent sterilization method. Thus, MCSP expanded voluntary contraceptive options for postpartum women in the two MCSP-supported states.
- Ebonyi and Kogi SMOHs adopted the PPFP/LARC training package, and replicated it to train 270 health care workers (180 in Ebonyi and 90 in Kogi) in non-MCSP-supported facilities.
- An estimated 47,000 pregnancies were averted over the period of the MCSP intervention. This estimate is based on the calculation of the total couple years of protection for each FP method after considering the methods' failure rates.

Adolescent, Family Planning, and Reproductive Health

MCSP's work in adolescent-friendly health care aimed to increase the use of health care for adolescents and young mothers/first-time parents by building the knowledge and skills necessary to delay early childbearing; provide care during pregnancy, birth, and the postpartum period; and increase access to quality, adolescent-responsive postnatal care, PPFP, and child health services.

- Age and life stage (ALS) assessment and counseling tools were developed to tailor counseling based on adolescents' needs and were disseminated to health facilities to strengthen the capacity of health care

[12] National Population Commission (NPC) [Nigeria] and ICF International. 2014. *Nigeria Demographic and Health Survey 2013*. Abuja, Nigeria and Rockville, Maryland, USA: NPC and ICF Nigeria.
[13] Maternal and Child Survival Program. 2018. Increasing family planning uptake among postpartum women in Nigeria. Technical brief. https://www.mcsprogram.org/resource/increasing-family-planning-uptake-among-postpartum-women-in-nigeria/

providers to deliver quality adolescent, FP, and reproductive health care. The ALS tools are now available for counseling service provision in all adolescent health care project sites, pre-service institutions, and selected MCSP-supported health facilities. The tools also cover all aspects of home, education, activities/employment, drugs, suicidality, and sex assessment, hence they are useful in settings outside of PHC.

- Fifty-five service providers received capacity-building training in adolescent, FP, and reproductive health care, including in using ALS and Our First Baby manuals. These service providers reached 7,907 adolescents with RMNCAH services between October 2016 and September 2018. More than 5,938 young mothers (under age 25) voluntarily received their FP methods of choice.

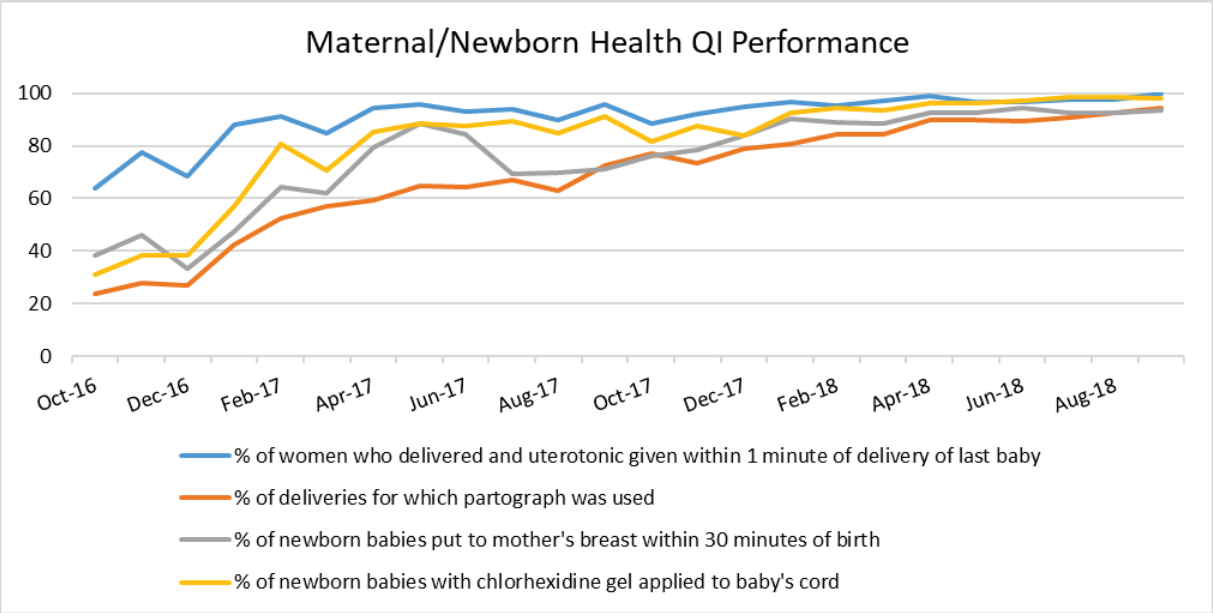
Cross-Cutting and Global Learning Themes

Quality Improvement

At the heart of the various interventions and activities carried out by MCSP was the QI work,[14] which was needed because poor QoC is considered an important underlying contributor to maternal, newborn, and child deaths in Nigeria. Using findings from the baseline facility readiness and QoC assessments[15] conducted by MCSP in 2016, MCSP designed and implemented a number of QI interventions in its supported facilities but with greater focus on 91 health facilities, now also referred to as QI facilities.

From October 2016 to September 2018, the 91 facilities involved in the multifaceted QI intervention demonstrated many improvements in labor, delivery, and postnatal care best practices for women and newborns (Figure 4). Table 2 shows some of the major outcomes of these interventions, such as improvements in QoC process indicators (e.g., increase in use of partograph to monitor labor progress and increase in live newborns receiving early skin-to-skin contact with their mothers) and a decline in total obstetric case fatality rate in phase-one QI facilities from 2016 to 2018.

Figure 4: Improving trends in provision of quality care for mothers and newborns in the 91 MCSP-supported health facilities in Kogi and Ebonyi states



[14] Maternal and Child Survival Program2018. Improving quality of maternal, newborn, and postpartum family planning care. Technical brief. https://www.mcsprogram.org/resource/nigeria-mnch-program-technical-brief-improving-quality-of-maternal-newborn-and-postpartum-family-planning-care/

[15] Maternal and Child Survival Program in Ebonyi and Kogi States: Baseline Report, May 2016

Table 2. Comparison of quality of care process indicators at baseline and endline

QoC process indicators	Start of MCSP QI interventions (Oct 2016)	End of MCSP QI interventions (Sept 2018)
Percentage of women in active labor for whom a partograph was used	22%	94.5%
Percentage of women receiving an immediate prophylactic postpartum uterotonic to prevent postpartum hemorrhage	64%	100%
Percentage of postpartum women counseled for postpartum family planning	19%	94.9%
Percentage of live newborns initiating breastfeeding within 30 minutes	57%	93%
Percentage of newborns who had chlorhexidine gel applied to their umbilical cord	31%	97.9%
Percentage of newborns with asphyxia who were resuscitated	34%	88.8%
Percentage of women in facilities who died due to an obstetric complication	3.4% (2015)	2.7% (June 2018)

In addition to the changes in the 91 QI facilities described above, there were significant improvements in the QoC identified at the baseline assessment compared to the endline assessment in 40 of these facilities. Improvements were observed in essential antenatal services provided in both states, and clients were treated more respectfully during labor and delivery (Table 3).

At the national level, MCSP supported the FMOH to create a national MNCH QoC TWG in 2014, which initiated the development of a first-ever national quality strategy for reproductive, maternal, newborn, and child health (RMNCH). In 2015, MCSP, in collaboration with the FMOH, helped to introduce the just-published *WHO Framework for Quality of Maternal and Newborn Health Care* [16] to Nigeria stakeholders, leveraging MCSP's close engagement in the development of this framework at the global level. The FMOH decided to base the national RMNCH quality strategy on the WHO QoC MNH framework and subsequently applied, successfully, to join the WHO multicountry MNCH QoC network launched in 2016.

MCSP has provided continuing technical support through the national QoC TWG to the development of a national RMNCH quality strategy and a road map for Nigeria's participation in the WHO-led multicountry QoC MNH network. Leveraging learning in Ebonyi and Kogi states, the Program has collaborated with the FMOH and partners to define selection criteria for Nigeria network QoC "learning sites," prioritize QoC indicators, and regularly share learning from Ebonyi and Kogi states.

[16] Tunçalp Ö, Were WM, MacLennan C, et al. 2015. Quality of care for pregnant women and newborns—the WHO vision. *BJOG* 122:1045–1049.

Table 3. Comparison of quality of care (QoC) process and respectful maternity care indicators at baseline (2016) and endline (2018)

QoC process indicators	Baseline assessment (435 observations)		Endline assessment (400 observations)	
	Ebonyi	Kogi	Ebonyi	Kogi
Gave tetanus toxoid injections	11%	19%	89%	82%
Gave malaria prophylaxis medicine (SP)	41%	46%	77%	57%
Gave Iron/folic acid	84%	54%	98%	85%

Respectful maternal care	Baseline assessment (47 observations), both states	Endline assessment (397 observations), both states
Respectfully greeted clients	90%	100%
Asked client if she has any questions	50%	66%
Encouraged woman to have support person (birth companion) present during birth	45%	69%
Client had a support person/birth companion present during birth	10%	56%

Onsite Training vs. Traditional Offsite Trainings

MCSP conducted a study to compare the effectiveness and cost of a facility-based, onsite, low-dose, high-frequency (LDHF) training approach with that of a traditional offsite group-based training approach in improving the knowledge and skills of maternal and newborn care health workers,[17] and to determine trainees' satisfaction with the approaches. Switching to an onsite LDHF approach with in-service learning updates and mobile mentoring may reduce health worker absenteeism resulting from frequent offsite trainings.

Overall, the LDHF arms had better post-training assessment scores for assisting normal birth, active management of the third stage of labor, manual removal of the placenta, bimanual compression of the uterus, abdominal aortic compression, pre-eclampsia/eclampsia management, which were marked during the 12-month post-training assessment ($p < 0.05$). The LDHF arm was associated with a savings of $830.71 per provider trained compared to the traditional method that is commonly practiced.

The study findings support the recommendation to shift to onsite training using the LDHF with mobile mentoring approach to improve providers' clinical competency and skills retention, reduce the amount of time health care workers spend away from their posts at clinical trainings, and improve the overall cost-effectiveness of investments in health worker capacity development.

Scale-Up

In its efforts to scale up the use of CHX gel and reach additional stakeholders who previously had not been engaged in the scale-up process, MCSP supported the FMOH to convene several learning and sharing meetings, which included two full-day workshops with reproductive health coordinators from the 36 states and the Federal Capital Territory. During these meetings, MCSP and FMOH technical experts shared progress and lessons learned from state-level implementation of the national CHX scale-up strategy, and oriented participants on a new template for nonroutine collection of CHX data. MCSP continued to facilitate

[17] MCSP will include the link to the LDHF brief once it has been finalized and uploaded to the MCSP website.

cross-country learning on key drivers of scale-up, including hosting the May 16, 2018, "Successful Country-Led Scale-Up of RMNCAH Interventions" panel discussion that convened representatives from partner country governments, implementing partners, and researchers. The panel discussion featured representatives from three countries, including the director of child health at the FMOH in Nigeria and the MCSP newborn health specialist, sharing experiences of scaling up CHX for umbilical cord care in Nigeria. MCSP also delivered a presentation, "Scaling Up Chlorhexidine in Nigeria: Systematically Implementing and Studying a Scale-Up Effort in the 'Real World,'" at the Conference on the Science of Dissemination and Implementation in Health in Virginia in December 2017.

Health Systems Strengthening

MCSP's health systems strengthening and equity work focused on addressing system-level barriers that directly affected availability of essential medicines across the 171 PHC facilities in Ebonyi state.[18] The Program thus supported Ebonyi state to facilitate the establishment of a PHC-DRF scheme as a health financing initiative. Key results included the development of a tailored, readily usable DRF strategy co-designed by state and LGA officials as a framework and guidance document for the ongoing pilot implementation of the PHC-DRF scheme across 171 health facilities.

Team capacity was also built to monitor the scheme's performance and the skills of 200 LGA and facility-level staff were enhanced to take on financial and logistics management responsibilities. Tools were also developed to facilitate transparent and effective management of facility-level stocks of essential drugs, accounting and remittance of proceeds, and community-level monitoring and support.

In Kogi state, MCSP built the capacity of 45 staff of the LGA Logistic Management Coordination Unit (LMCU) on supply chain management of MNCH commodities and logistics management information systems (LMISs) through on-the-job training and mentoring. MCSP also supported the Kogi state LMCU to develop LMIS tools and job aids for tracking logistics data, which contributed to improved data visibility and use for decision-making, coordinated actions to address MNCH supply chain issues, and improved ordering and inventory management skills of LGA child health/IMCI focal persons. Finally, MCSP supported the prioritization of MNCH program areas at state-level meetings of the Procurement and Supply Management TWG, a coordination forum that addresses gaps and challenges related to commodity security in all health program areas.

Measurement and Data Use for Action

MCSP's monitoring and evaluation (M&E) activities[19] were geared to support the governments of Ebonyi and Kogi states in their use of improved metrics and methodologies to effectively collect data for assessing the coverage, quality, and equity of RMNCH interventions. This support included the development and use of RMNCAH scorecards as a flexible management tool for the SMOH to strengthen accountability and drive action for improving service provision. The two states have institutionalized the use of the scorecards, having equipped the staff of the HMIS units in the two states with the skills to update the scorecards on a quarterly basis.

MCSP's M&E activities contributed to a steady increase in reporting rates by the two states. A comparison of state reporting rates before and after MCSP's interventions showed the reporting rate, as captured in the DHIS2 platform, increased from 53.5% in 2016 to 64.5% in 2018 for Ebonyi state, and from 63.4% in 2016 to 70.7% in 2018 for Kogi state. This accomplishment is attributed to, among other things, the recordkeeping trainings and monthly data collation and validation meetings facilitated by MCSP.

[18] Maternal and Child Survival Program. 2018. Sustainable financing of essential medicines to strengthen the primary health care system in Ebonyi state, Nigeria: Support to the design and implementation of a drug revolving fund scheme. Technical brief. https://www.mcsprogram.org/resource/sustainable-financing-of-essential-medicines-to-strengthen-the-primary-health-care-system-in-nigeria/

[19] Maternal and Child Survival Program. 2018. Improving health outcomes by enhancing the content and use of RMNCH data in Nigeria's national health management information system. Technical brief. https://www.mcsprogram.org/resource/improving-health-outcomes-by-enhancing-the-content-and-use-of-rmnch-data-in-nigerias-national-health-management-information-system/

MCSP provided technical support to improve the use of child health data for decision-making and strategic planning at the national and state levels. By piloting various community HMIS tools developed by the FMOH (including community LMIS) in the four EQuiPP LGAs, MCSP supported the FMOH to further develop and institutionalize their national HMIS data collection module.

Gender

Gender was integrated as a cross-cutting theme under MCSP in Nigeria to address gender-related barriers to delivering quality care in Kogi and Ebonyi states.[20] MCSP conducted a literature review of existing peer-reviewed and gray literature on gender and RMNCAH to inform the Program's gender-integration strategies. MCSP also integrated gender into the baseline QoC assessment, which was conducted between April and June 2016. A manuscript on the findings from this assessment is currently being finalized. Using these findings, MCSP designed a number of gender-transformative activities focusing on male engagement in RMNCAH; improving provider knowledge and practices around gender, autonomy, and consent; training providers to offer gender-based violence (GBV) information and services; and supporting the Government of Nigeria in the development of a gender and health policy.

One of the major accomplishments of the gender work includes a significant increase in the number of women accompanied to health facilities by their male partners if they desired their involvement. As many as 5,627 women were accompanied to MCSP-supported facilities for FP counseling, ANC, and labor and delivery in September 2018, compared to 1,479 women in June 2017. This fourfold increase is due to a variety of efforts, including MCSP's training on effectively engaging men and couples in March 2018, which reached 101 providers.

Other accomplishments include the promotion of the Health Workers for Change[21] approach for strengthening providers' ability to deliver gender-sensitive, respectful care, especially during childbirth, by implementing action plans to address health facilities' challenges and bottlenecks. More than 1,000 health providers were oriented on this approach and a pool of 30 core facilitators were trained to sustain and scale up the approach to other facilities and providers in Ebonyi and Kogi states. MCSP also helped to build the capacity of 251 health workers/professionals to provide first-line support and basic clinical care to GBV survivors. In addition, a GBV referral directory was developed and disseminated to health facilities to help providers link GBV survivors to other available services (shelter, police, mental health, etc.) in Ebonyi and Kogi states.

Human Capacity Development

MCSP worked with 14 pre-service institutions (nine in Ebonyi and five in Kogi) to strengthen pre-service education for frontline MNH providers, including midwives, nurses, and CHEWs.[22] Outcomes included furnishing the institutions' skills laboratories with anatomic models and essential equipment, such as blood pressure monitors, resuscitation equipment, and other items pre-service students need to practice clinical skills before providing care to clients in hospitals and clinics. Capacity of selected tutors and preceptors was also enhanced and education development committees were established in the schools to oversee the management of the skills laboratories and sustain the laboratory improvements.

[20] Incorporating Gender Strategies to Improve Accessibility and Utilization of MNCH Services in Nigeria, August 2018
[21] Health Workers for Change: A Manual to Improve Quality of Care in Kogi and Ebonyi States
[22] MCSP will include the link to the preservice brief once it has been finalized and uploaded to the MCSP website.

Recommendations and Way Forward

The following recommendations are made in the light of the overall experience gained in implementing MCSP in Nigeria:

- Local ownership and partnership, and a comprehensive systems-strengthening approach, are necessary to achieve sustainable results. Projects should always aim to strengthen existing systems even when implementing over a short term or piloting a new approach. Integrating project activities into existing state-led projects (e.g., Saving One Million Lives project) or routine MNCH services and in partnerships with state actors will ensure sustainability.
- Competency-based training with more practice on anatomic models and supervised clinical practice coupled with ongoing supportive supervision and monitoring should be maintained to strengthen human resources for health. Onsite clinical training should be encouraged since it is more efficient than traditional classroom training, as shown in the LDHF operations research findings.
- The professional associations played a critical role in passing down trainings to health care workers and mentoring them, including through association members' visits to remote facilities. We recommend including professional associations in health care provider capacity-building plans going forward, especially at the state level.
- Building providers' clinical, data, and QI skills is not sufficient to improve maternal, child, and perinatal health outcomes in the absence of essential infrastructure and commodities. States should guarantee adequate infrastructure and commodities for the provision of quality care in all facilities by incorporating interventions into state health development plans.
- States and their LGAs should continue supporting the QI facilities through the established ISS teams through onsite supervision and mentoring. States should also consider scaling up facility-based QI initiatives to other facilities as appropriate.
- States should align donor funding and universal health coverage financing initiatives with the PHC-DRF scheme to further sustain and expand PHC-DRF implementation.
- The SMOH should continue to invest in regular learning forums for facility teams as well as the SMOH and local government health managers who support them. The forums will accelerate iterative learning, uptake of best practices, and course correction.
- Data visualization promotes use of routine data to inform QI decisions. The laminated wall charts in use in the facilities for data visualization are handy and cost-effective in resource-limited environment like Nigeria.
- PPMVs remain the closest available and most affordable service provision outlets for caregivers of sick children and serve as the first source of care. Through tailored training, adequate supervision and mentoring, and easy access to low-cost, high-quality medicines, PPMVs can improve access to quality services for children.
- To expand contraceptive access for postpartum women, PPFP care should be integrated with other MNCH services, including ANC and child immunization clinics.
- To increase the use of essential health services among vulnerable populations, including young parents, the Government of Nigeria should invest in a mainstreamed approach to adolescent-responsive health services to ensure that providers and health facility staff in all service areas (ANC, maternity, FP, postnatal) are welcoming and responsive to the needs of all clients regardless of age.

Going Forward

Many RMNCH stakeholders, including health workers, facility administrators, government officials, and development partners, have attested to and applauded MCSP's contributions in improving health outcomes for mothers, newborns, and children in Ebonyi and Kogi states. They have also expressed optimism that figures from the next Nigeria Demographic and Health Survey (NDHS 2018) will show decreasing rates of maternal and child mortality in Ebonyi and Kogi states, and validate the contributions of MCSP and other partners in these states.

Going forward, as MCSP ends its activities in Nigeria, the onus is now on state actors like the FMOH, Ebonyi and Kogi SMOHs, State Primary Health Care Development Agencies, and others to ensure that the Program's gains and legacy are sustained and scaled up as much as possible across the states. It is reassuring that state-funded interventions (e.g., training of health care workers) are already being implemented in line with MCSP's approach.

Appendix A: Performance Monitoring Plan

	MCSP/Nigeria PMP indicators	Baseline	Target PY1	Achieved PY1	Target PY2	Achieved PY2	Target PY3	Achieved PY3	Target PY4	Achieved PY4	LOP target	LOP achieved
Sub IR 1.1: Increased availability of emergency obstetric and newborn care (EmONC) and family planning workers												
	Training area											
1	Maternal and newborn health (essential newborn care, respectful maternity care, kangaroo mother care [KMC], Helping Mothers Survive, Helping Babies Breathe)	0	154	154	250	691	300	564	540	619	1,244	2,028
2	Basic emergency obstetric and newborn care	NA	0	0	0	0	400	528	600	589	1,000	1,117
3	Family planning/reproductive health	0	0	62	200	222	240	269	240	144	680	697
4	Health management information systems	260	0	0	260	259	240	237	190	267	690	763
5	Data for decision-making	0	0	0	140	148	240	237	190	267	570	652
6	Clinical skills for tutors and preceptors	0	0	0	20	0	26	146	0	0	46	146
7	Integrated Management of Childhood Illness and integrated community case management	NA	0	0	0	0	1,710	308	1,320	1,723	3,030	2,031
8	MCSP sites that have a systematic approach to track and display priority RMNCH indicators	0	0	0	60	8	52	48	42	91	154	91
9	MCSP sites with an established quality improvement team that track quality of care measures on a monthly basis	NA	0	0	40	0	40	91	0	91	80	91
10	Number of supportive supervision visits conducted at MCSP-supported facilities	NA	0	0	60	80	160	119	600	877	820	1,076
11	Number of referral for complications due to pregnancy-related issues in MCSP-supported facilities	179	0	0	670	931	400	142	400	135	1,470	1,208
12	Percent of facilities in targeted states providing comprehensive EmONC services	2.4%									80%	67%
13	Number of facilities with maternal and perinatal death review surveillance (MPDRS)	NA	0	0	40	31	40	32	40	33	120	96
14	Number of clinical skills laboratories established through MCSP support	0	0	0	6	0	13	0	14	14	33	14

	MCSP/Nigeria PMP indicators	Baseline	Target PY1	Achieved PY1	Target PY2	Achieved PY2	Target PY3	Achieved PY3	Target PY4	Achieved PY4	LOP target	LOP achieved
15	Percent of patent and proprietary medicine vendors (PPMVs) that received quarterly supportive supervision	NA	0	0	0	0	80%	0%	80%	87% (682/778)	80%	87%
16	Number of grants awarded to local nongovernmental institutions to advance reproductive, maternal, newborn, and child health (RMNCH)	0	0	0	4	4	0	0		0	4	4
17	Number of local partners whose capacity MCSP has built	0	0	0	4	4	0	0		0	4	4
18	Number of articles submitted for publication in peer-reviewed journals	0	0	0	0	0	1	0	6	2	7	2
19	Number of technical reports/papers, policy/research/program briefs and fact sheets produced and disseminated	0	0	0	0	2	5	6	8	11	13	17
Demand for quality primary health care services increased												
20	Number of first antenatal care (ANC) visits supervised by skilled providers from US Government (USG)-assisted facilities	104,176	125,000	29,971	125,000	47,897	90,000	63,267	70,000	62,092	410,000	203,227
21	Number of pregnant women that attended antenatal clinic for the fourth visit	20,537	0	3,093	23,000	18,806	30,000	20,866	30,000	18,188	83,000	60,953
22	Number of deliveries with a skilled birth attendants	9,899	13,000	4,393	13,000	13,650	20,000	18,019	25,000	23,257	71,000	59,319
23	Number of deliveries in MCSP-supported health facilities	15,882	0	0	18,000	21,351	25,000	25,728	29,000	24,586	72,000	71,665
24	Number of live births in MCSP-supported health facilities	NA	0	0	12,350	16,833	24,000	24,428	27,000	23,156	63,350	64,417
25	Number of stillbirths in MCSP-supported health facilities	NA	0	0	400	663	1,000	797	350	969	1,750	2,429
26	Percent of cesarean sections performed in comprehensive EmONC facilities	3%	0	0	15%	11%	15%	24%	15%	27%	5-15%	25%
27	Number of postnatal attendees in USG-supported programs	NA	0	0	0	0	12,000	9,682	12,000	12,432	24,000	22,114

	MCSP/Nigeria PMP indicators	Baseline	Target PY1	Achieved PY1	Target PY2	Achieved PY2	Target PY3	Achieved PY3	Target PY4	Achieved PY4	LOP target	LOP achieved
28	Number/percent of women who delivered in a facility that received a contraceptive postpartum and pre-discharge	NA	0	0	540 (3%)	763/21,340 (5%)	15%	21% (4,158/19,471)	23%	8,964/21,555 (42%)	30%	42%
29	Couples year of protection in USG-supported programs	14,804	16,200	3,515	16,000	16,206	19,000	57,903	70,000	86,710	121,200	164,334
30	Number of postpartum counseling visits for family planning/reproductive health	0	0	0	500	12,000	12,000	38,949	24,000	49,275	36,500	100,224
31	Percent of USG-supported service delivery points providing FP counseling/services	75%	95%	70%	100%	100%	100%	75%	100%	100%	100%	100%
32	Number of children under 5 referred to a high-level health facility by PPMVs for treatment of severe diarrhea, pneumonia, and malaria or danger signs in USG (MCSP)-supported programs	NA	0	0	0	0	0	0	1,505	255	1,505	255
33	Number and percent of confirmed malaria cases in children aged 0–59 months that received first-line artemisinin-based combination therapy (ACT) for treatment of malaria	NA	0	0	0	0	65%	84% (18,444/21,940)	65%	96%	90%	99%
Facility based MNH improved												
34	Number/percent of women receiving immediate postpartum uterotonic in the third stage of labor	NA	7,000	1,851	7,000	12,814 (61%)	20,000	84% (21,722/25,776)	26,000	98% (24,134/24,586)	60,000	60,521
35	Percent of women admitted with eclampsia who received magnesium sulfate	NA	0	0	75%	0	70%	100% (93/93)	75%	100% (199/199)	85%	100%
36	Percent of newborns receiving essential care through USG-supported programs	51%	80%	32%	80%	9057/16,833	80%	78%	67%	94%	90%	96%
37	Percent of babies for whom chlorhexidine was applied to the umbilical cord at birth	NA	0%	0%	25%	2,428/16,833	25%	56%	60%	88%	80%	92%
38	Percent of births monitored with a partograph in the past quarter	29%	25%	32%	37%	30%	45%	42%	41%	77%	55%	77%
39	Percent of targeted health facilities with appropriate handwashing supplies in the delivery room in MCSP-supported areas	26%									80%	100%

	MCSP/Nigeria PMP indicators	Baseline	Target PY1	Achieved PY1	Target PY2	Achieved PY2	Target PY3	Achieved PY3	Target PY4	Achieved PY4	LOP target	LOP achieved
40	Percent of newborns identified as having sepsis of possible serious bacterial infection (PSBI) treated in MCSP-supported facilities	NA										NA
41	Percent of live births put to breast and kept warm within 30 minutes of birth in a health facility	NA	0	0	85%	151 (6%)	70%	75% (18,317/24,483)	64%	91% (5,329/5,837)	85%	84%
42	Percent of MCSP-supported facilities with a functional newborn care corner established	0	0	0							100%	100%
43	Number of babies born live but not breathing	NA	0	0	0	0	500	863	2,700	1,166	3,200	2,029
44	Number of newborns not breathing at birth who were resuscitated in USG-supported programs	NA	0	0	0	0	450	821	2,430	1,117	2,880	1,938
45	Number of MCSP-supported facilities implementing KMC	0	0	0	47	15	32	32	4	32	83	79
46	Percent/number of low-birthweight newborns admitted to facility-based KMC at MCSP-supported facilities	NA	0	0	779	118 (55%)	60%	58% (290/497)	45%	50%	60%	50%
47	Facility-based maternal mortality ratio	NA	0	0	160	36	520	473	520	560	520/100,000	546/100,000
48	Facility neonatal mortality rate	NA	0	0	75/1,000	167/1,000	175/1,000	134/1,000	175	167	175/1,000	168/1,000
49	Number of pregnant women attending ANC who received a first dose of intermittent preventive treatment (IPT1) under direct observation	26,722	0	0	0	0	30,000	44,184	56,000	38,138	86,000	82,322
50	Number of pregnant women attending ANC who received a second dose of intermittent preventive treatment (IPT2) under direct observation	21,949	0	0	23,047	22,989	20,000	29,668	35,000	24,312	78,047	76,969
51	Number/percent of pregnant women who received at least two doses of tetanus toxoid (TT2)	18,119	0	0	22,356	0	20,000	30,786	34,000	38,258	76,356	69,044
52	Number of cases of child diarrhea treated in USAID-assisted programs	NA	0	0	0	0	12,777	2,530	19,653	6,292	32,430	8,822

	MCSP/Nigeria PMP indicators	Baseline	Target PY1	Achieved PY1	Target PY2	Achieved PY2	Target PY3	Achieved PY3	Target PY4	Achieved PY4	LOP target	LOP achieved
53	Number of cases of child pneumonia treated with antibiotics by trained facility workers or PPMVs in USG-supported programs	NA	0	0	0	0	3,543	2,992	4,142	6,454	7,685	9,446
54	Percent of women who are satisfied with their experience of care during childbirth in selected MCSP-supported facilities	NA	0%	0%							45%	77%

Appendix B: Success Stories

Saved by a Skilled Birth Attendant

Baby Testimony looked lifeless after his delivery by cesarean section. Thanks to a newly trained nurse-midwife, he was revived just in time.

Abakaliki, Nigeria—Like many expectant mothers, Obasi Emeka, 26, longed to deliver a beautiful, healthy baby. While she awaited her bundle of joy, her first child, she did what was recommended, including attending antenatal care at Mile Four Hospital Abakaliki in Ebonyi state in southeast Nigeria.

Proud midwife and happy mother: Uzo and Obasi warmly embrace Testimony

But the delivery did not happen as Obasi had hoped. First, she carried the pregnancy for three weeks beyond her due date. Second, she didn't have enough amniotic fluid to cushion her unborn baby in the womb, causing him serious distress. At the same time, Obasi had become exhausted.

As it became unlikely that Obasi would be able to push and deliver her baby naturally, the hospital team decided to perform a cesarean section. When the newborn was eventually brought out of his now-unconscious mom, he looked lifeless, his skin completely blue.

In a country with 70 newborn deaths in every 1,000 live births, the baby was almost passed off as yet another stillbirth.

But nurse-midwife Uzonwanne Udochukwu, the head nurse during Obasi's labor, thought differently. She noticed that the baby's cord was still beating, so she knew the baby could—and must—be saved.

Uzo learned this critical lifesaving knowledge only a few weeks before Obasi's labor, at a training she attended on basic emergency obstetric and newborn care (BEmONC). The training was organized by the Maternal and Child Survival Program (MCSP), a program funded by the United States Agency for International Development (USAID) to prevent needless deaths of pregnant women, new mothers, and their babies in Ebonyi and Kogi states.

Without hesitation, Uzo applied a Penguin Suction device, which MCSP donated to the hospital after the BEmONC training, to suction the lifeless baby. After a moment, he started to breath.

"The baby couldn't have died with our new skills on essential newborn care," Uzo said confidently.

Like Uzonwanne, more than 1,500 health workers across 240 health facilities in Ebonyi and Kogi states were empowered by MCSP with skills to prevent maternal and newborn deaths. Within three years, the health workers had applied their new skills to conduct 71,665 deliveries and resuscitate 1,938 newborns who did not breathe at birth—like Uzonwanne did for Testimony.

"I have learnt a lot as a midwife. I am happy MCSP came in my generation," Uzo said as she hurried to a room in the hospital to pass on her BEmONC skills to her waiting colleagues.

Building Synergy to Improve Access to Essential Medicines

Kogi state government is committed to improving child health through the procurement of essential medicines. However, the state lacked the information management structure for assuring effective procurement, storage, and distribution of medicines—until the Maternal and Child Survival Program (MCSP) intervened.

In Kogi state, the government has demonstrated commitment to improving the state's child health indices by investing available resources in the procurement of essential medicines and health supplies to support the maternal, newborn, and child health (MNCH) program. These medicines and supplies complement quantities procured with donor funding and through initiatives such as the Saving One Million Lives scheme, but there is not nearly enough to meet the demand for quality lifesaving medicines, especially in rural communities across the country.

Although data within the state's health care system strongly suggests a need to invest in services that reduce the number of children who die of preventable diseases, these data lack the necessary details to support forecasting, supply planning, and distribution management for essential medicines to treat conditions responsible for poor child health outcomes. Due to poor data availability and use, many public sector health facilities stock out of essential medicines over extended periods, while at the same time, inconsistent distribution and poor inventory management have led to considerable wastage due to expiries at the state's central medical stores.

A LMCU staff mentoring a service provider at a facility in Kogi state

The State's Logistics Management Coordinating Unit (LMCU) supports the Ministry of Health to manage oversight and accountability for supply chain investments and outcomes. The LMCU provides a coordination framework that has worked well for the HIV/AIDS, malaria, family planning, and tuberculosis health programs—programs that have established national commodity logistics systems and donor funding to support procurement, warehousing, transportation, and inventory management for the relevant health products.

Since such a system did not exist for the MNCH program, there was neither a logistics structure nor an information system to ensure that medicines reach health facilities and are available in sufficient quantities. Constrained for funds, the LMCU had little insight into the MNCH program and was ill equipped to provide oversight to logistics activities that would improve the availability of data and medicines.

To bridge the gap, the MCSP provided recordkeeping tools to enable service providers to track essential logistics data and supported the LMCU to develop a reporting tool for gathering logistics information and using it at higher levels for decision-making. MCSP presented the tool at the state Procurement and Supply Management Technical Working Group meeting, where stakeholders agreed that it would be useful in promoting data visibility for the MNCH program.

The state adopted the tool for periodic monitoring of stock status of MNCH commodities from various sources at the health facility level. A gap analysis using this information can enable the Ministry of Health and partners to prioritize procurements and maximize available resources to ensure availability of improved medicines.

"The MNCH tracking tool will enable us to track commodities procured by different state programs for distribution to public health facilities. We will apply it to guide future forecasting, quantification and

procurement to ensure MNCH commodity security and minimize wastages due to losses and expiries," says Yakubu Achimugu, Logistics Coordinator, Kogi State.

Based on the goal of improved data visibility, MCSP put into operation the local government area (LGA) LMCUs by building staff capacity on supply chain management for public health commodities. In addition to supporting data review, the MCSP team guided LGA LMCU staff on how to monitor inventory management at health facilities, coordinate distribution, and oversee stock transactions at warehouses.

"The operationalization of the LGA LMCUs was instrumental to the release of funds to support LMCU functions. We are now able to collate, review data from health facilities and provide mentoring and supervision to improve availability of essential medicines," says Adams Shaibu, State Data Consultant, Nigeria Supply Chain Integration Project.

With a clear understanding of their roles and responsibilities, LMCU staff developed work plans that incorporated data review and coordination meetings, mentoring, and supportive supervision visits to health facilities. Representation of LMCU staff within different health programs enabled the integration of logistics functions for MNCH medicines into existing supply chain systems. The LMCU work plan was incorporated into an advocacy package, on the basis of which funds were released to support LMCU operations in the state.

Through logistics data management, ownership, and supervision, the Kogi state LMCU has set the bar in ensuring that the considerable investment into medicines and supplies for women and children will be channeled toward saving lives.

Making Health Care Affordable: Women's Savings and Loans Clubs to the Rescue

Jumeyetu Akor, a petty trader in Kogi state, had only NGN5,000 (USD 14) when she was due to deliver her baby. However, she needed three times the amount to deliver at the hospital. Thanks to being a member of Club 16 women's savings and loans club, she got a N10,000 interest-free loan, which she used to pay her hospital bill.

Accessing high-quality health care usually comes with a price tag. The cost differs from place to place and from individual to individual. Some pay little or nothing. For others, health care services cost nearly all they have. And for still others, like several pregnant women and sick children in Nigeria, the cost can be their lives.

According to the World Bank,[23] the lifetime risk of dying of complications of pregnancy and childbirth in Nigeria is 1 in 22. With 576 maternal deaths in every 100,000 live births, Nigeria accounts for 40,000 maternal deaths annually, or 14% of the total global burden of maternal deaths. Nigeria also accounts for 6% of deaths among newborns and children under age 5 globally—a huge price to pay for health-related needs.

Despite gradual improvement in service delivery at Nigerian health facilities, many women still do not visit these facilities for regular antenatal care or to deliver. The 2013 Nigeria Demographic and Health Survey reports that only about 34% of deliveries take place at health facilities, and only 38% are handled by skilled birth attendants.

One reason for avoiding health facilities often cited by pregnant women and mothers is the inability to pay for health care services. A study of household cost for antenatal care and delivery services in a rural community in northwestern Nigeria[24] found that although the total average cost of antenatal care and delivery services did not seem huge (about USD22), it was nonetheless a barrier to access in the study area.

This is not surprising given information in a 2016 Health Financing Profile (Nigeria) report[25] by the African Strategies for Health, a United States Agency for International Development (USAID) initiative. The report shows that in Nigeria, where government expenditure is less than a quarter of total expenditure on health and where public health facilities are weak, many people seeking care have no option but to pay out of pocket. But with pervading poverty, especially in rural communities, out-of-pocket expenses are unattainable for many. And for poor, rural women with no means of livelihood, the effect on maternal, newborn, and child health can be tragic.

Fortunately, the major causes of maternal, newborn, and child mortality in Nigeria (such as postpartum hemorrhage, birth asphyxia, and diarrhea) are preventable. Moreover, the price for accessing high-quality health care services and preventing these deaths can be affordable.

USAID's flagship Maternal and Child Survival Program (MCSP) has been working with other health stakeholders to make this a reality in Nigeria. In 2016, MCSP introduced women's savings and loans clubs in Ebonyi and Kogi states to provide women with alternative health financing to seek high-quality health care. The clubs aim increase the ability of members to access needed health care.

[23] https://www.who.int/maternal_child_adolescent/events/2008/mdg5/countries/final_cp_nigeria_18_09_08.pdf
[24] Sambo MN, Abdulrazaq GA, Shamang AF, Ibrahim AA. 2013. Household cost of antenatal care and delivery services in a rural community of Kaduna state, northwestern Nigeria. Niger Med J 54(2)87–91. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3687870/
[25] http://www.africanstrategies4health.org/uploads/1/3/5/3/13538666/country_profile_-_nigeria_-_us_letter_final.pdf

By 2018, more than 70 savings and loans clubs serving over 2,120 women had been established in selected local government areas or districts in Ebonyi and Kogi states.

Members are encouraged to contribute a small amount, in some cases less than half a dollar, to a "community pot" every one or two weeks. Members can then access these funds as loans. As of September 2018, members had contributed more than N5 million (USD14,000).

Usually, loans drawn by members for health purposes incur no interest, whereas loans drawn for business incur a small percentage of interest. Each club also sets aside a proportion of its savings for health emergencies, such as during pregnancy or delivery. Like Juyemetu, hundreds of women have benefited from the emergency funds.

In addition to loans and emergency funds, members also benefit from health services provided by nearby health facilities. For instance, members of a club in Ebonyi were sensitized on handwashing and sanitation by community extension workers at a club meeting. Four women in another club in Ebonyi state adopted long-acting reversible contraceptives (implant and injectable) after their club received health talks from family planning providers.

Savings club were also established for first-time mothers as part of a nine-session discussion group (Our First Baby) in three sites in Ebonyi and Kogi states to increase access to health care for young mothers.

Another big benefit has been for women without previous means of livelihood.

Esther Folorunsho, a 40-year-old widow and mother of two children, was one loan beneficiary. She had always sought help from relatives before receiving a USD48 loan from the club, which she used to start a palm oil business.

"I thank God for joining this club because it has helped me to start a business," Esther said. "My children are happy because I can feed them now."

"The women's savings and loans clubs are a good innovation introduced by MCSP. We will do all we can to sustain the program," said Dr. Umuzuruike Daniel, the commissioner for health in Ebonyi state.

The State Ministry of Women Affairs and Social Development in Ebonyi and Kogi states are now overseeing the women's savings and loans clubs in the states.

Appendix C: Selected Presentations at International Conferences

Name of conference	Location	Date	Presenter name and title	Title of presentation
International Conference on Family Planning	Kigali, Rwanda	November 2018	Dr. Emma Ugwa, Operations Research Advisor	Implementing quality improvement for post-partum family planning services in selected health facilities in Ebonyi state, Nigeria
			Aderonke Are-Shodeinde, Adolescent, Family Planning, and Reproductive Health Advisor	The role of male partners on the use of family planning (FP) and maternal health services by first-time adolescent mothers in Nigeria: Insights from formative research in six states
			Melanie Yahner, Senior Specialist, Adolescent, Family Planning, and Reproductive Health Advisor	Factors influencing use of health services by first-time/young parents: Findings from formative research in Madagascar and Nigeria
XXII World Congress of Gynecology and Obstetrics, (FIGO)	Rio de Janeiro, Brazil	October 14–19, 2018	Suzzane Stalls, Snr Technical Advisor, MCSP, Washington, DC	Why experience of care matters for maternal health outcomes: Early learning from Guatemala and Nigeria
			Adetiloye Oniyire, Chief of Party	Use of maternal and newborn data for decision-making by health workers in selected facilities in Ebonyi and Kogi states, Nigeria
			Melanie Yahner, Senior Specialist, Adolescent, Family Planning, and Reproductive Health Advisor	Connecting the youngest parents to health services: Gaps, lessons, and opportunities

Name of conference	Location	Date	Presenter name and title	Title of presentation
5th Global Symposium on Health Systems Research (HSR2018)	Liverpool, UK	October 2018	Kate Gilroy, Senior Child Health and Measurement, Monitoring, Evaluation and Learning Technical Advisor	Quality of management and treatment services for sick children at patent proprietary medicine vendors (PPMVs) in two states in Nigeria
International Social and Behavioral Change Communication Summit	Nusa Dua, Indonesia	April 16–20, 2018	Leanne Dougherty, Senior Technical Advisor	Understanding barriers and facilitating factors in seeking care for sick children under the age of five in Nigeria
Consortium of Universities Global Health Conference (CUGH)	New York	March 15–17, 2018	Gabriel Alobo, Kogi State Team Leader	Strengthening the health system through clinical governance and quality improvement of maternal and newborn care at health care facilities in Nigeria
IHI Africa Forum for Quality and Safety Conference	Durban, South Africa	February 19–21, 2018	Emmanuel Ugwa, Operations Research Advisor	Assessment of provider skills for simulated manual removal of placenta and newborn resuscitation as part of a quality of care assessment in Kogi and Ebonyi states, Nigeria
			Ugo Okoli, Deputy Chief of Party	Quality improvement following integrated maternal and newborn care embedded within broader state systems in Nigeria
			Bright Orji, Director of Operations	Infection prevention practices during labor and manual removal of retained placenta in selected health facilities in north-central and southeast Nigeria
			Chioma Oduenyi, Gender Technical Advisor	Health workers for change: Promoting gender-sensitive, respectful care in Kogi and Ebonyi states, Nigeria
			Chioma Oduenyi, Gender Technical Advisor	Reproductive, maternal, newborn, child and adolescent health quality of care study in Ebonyi and Kogi states, Nigeria: A gender analysis

Name of conference	Location	Date	Presenter name and title	Title of presentation
Conference on the Science of Dissemination and Implementation in Health	Arlington, VA	December 4–6, 2017	Olayinka Umar-Farouk, Newborn Health Specialist	Evaluating the use of social media to accelerate nationwide scale-up of a newborn health intervention in Nigeria
			Olayinka Umar-Farouk, Newborn Health Specialist	Scaling up chlorhexidine in Nigeria: Systematically implementing and studying a scale up effort in the "real world"
66th American Society of Tropical Medicine and Hygiene Conference	Baltimore, MD	November 2017	Gladys Olisaekee, Ebonyi State Team Leader	Review of malaria programs implementation in Ebonyi state, Nigeria: Where are we?
			Gladys Olisaekee, Ebonyi State Team Leader	Improving quality of data to advance malaria in pregnancy (MIP) indicator coverage in Ebonyi state, Nigeria
Conference of International Neonatal Nurse (COINN)	Kigali	October 2018	Vivian Obioma, Newborn Health Advisor, Kogi State	Building capacity of healthcare workers for improved chlorhexidine use in Kogi and Ebonyi states, Nigeria
International Association for Adolescent Health (IAAH)	Delhi, India	October 2017	Aderonke Are-Shodeinde, Adolescent, Family Planning, and Reproductive Health Advisor	Cross-country lessons from formative research with first-time/young parents in Nigeria and Madagascar using a socioecological approach

Appendix D: Materials and Tools Developed, Adapted, or Contributed to by the Program

Materials and tools	Thematic area
Ebonyi State Maternity Record Booklet	Maternal Health
Kogi State Maternity Record Booklet	Maternal Health
Operational Plans for Implementing Quality of Care in MNCH Services in Ebonyi and Kogi States	Maternal Health
National ANC Orientation Package *(updated 2018)*	Maternal Health
National Strategy RMNCAH Quality of Care in Nigeria: Maternal & Newborn Health	Maternal Health
Emergency Transport Scheme Concept Note	Maternal Health
Mothers Savings & Loans Club Technical Brief / Facilitators Guide	Maternal Health
Maternal Health Technical Brief	Maternal Health
Quality Improvement Technical Brief	Maternal Health
Safe Motherhood Posters	Maternal Health
Maternal Health Job Aids	Maternal Health
Preparing for My Birth: Birth Preparedness Card, Ebonyi State	Maternal Health
Preparing for My Birth: Birth Preparedness Card, Kogi State	Maternal Health
Nigeria Every Newborn Action Plan	Newborn Health
KMC Operational Guidelines: Protocol for care of the small baby	Newborn Health
Essential Care for Every Baby – Action Plan and Provider Guide	Newborn Health
Essential Care for Small Babies – Action Plan and Provider Guide	Newborn Health
Helping Babies Breath – Action Plan and Provider Guide	Newborn Health
Essential Newborn Care – Facilitator's Guide and Provider Guide	Newborn Health
Guidelines for Management of Sick Newborn in Secondary Health Facilities in Kogi and Ebonyi States	Newborn Health
National Strategy for Scale-Up of Chlorhexidine in Nigeria	Newborn Health
Improving Care for Newborns with Respiratory Distress in Nigeria Through Use of Bubble Continuous Positive Airway Pressure Devices Technical Brief	Newborn Health
Improving Care for Newborns with Respiratory Distress in Nigeria Through Use of Bubble Continuous Positive Airway Pressure Devices Technical Brief	Newborn Health
Care of Newborns with PSBI at the Primary Health Care Level Where Referral Is Not Possible Technical Brief	Newborn Health
Scaling Up Chlorhexidine for Umbilical Cord Care in Nigeria Technical Brief	Newborn Health
Training Addendum for the Community Health Management Information System Monthly Summary Form (CHMIS MSF)	Child Health

Materials and tools	Thematic area
Adaptation of the iCCM Supervisors' Checklist for EQuiPP	Child Health
Addendum to National iCCM Training Curriculum on Inventory Management for PPMVs	Child Health
Purchase Booklets, Sales Booklets, and Stock Reconciliation Forms for PPMVs	Child Health
Inventory Control Cards for PPMVs	Child Health
Maternal, Newborn and Child Health Commodities Reporting Forms for Health Facilities	Child Health
Integrated Management of Childhood Illness Training Modules for In-service Training, and Student Handbook and Teacher's Guide for Pre-service Training	Child Health
Improving Health Outcomes from Children Under Five in Nigeria Technical Brief	Child Health
Health Workers for Change: A Manual to Improve Quality of Care in Nigeria	Gender
Male Engagement in Reproductive, Maternal, Newborn and Adolescent Health: A Couple's Counselling Guide for Health Service Providers	Gender
Fathers Contribute to Healthy Families *(poster and flyers):* Pamphlets on Men's Roles in RMNCAH	Gender
Gender-Based Violence (GBV) Services Referral Directory for Kogi State, Nigeria: Job Aid for post-GBV services	Gender
Gender-Based Violence (GBV) Services Referral Directory for Ebonyi State, Nigeria: Job Aid for post-GBV services	Gender
GBV Assessment and Service Mapping in Kogi and Ebonyi States: GBV Assessment Report	Gender
Gender Technical Brief	Gender
Age and Life-Stage Assessment and Counseling Tools	Adolescent, Family Planning, and Reproductive Health
Age and Life-Stage Assessment and Counseling Flipchart	Adolescent, Family Planning, and Reproductive Health
Our First Baby Guide	Adolescent, Family Planning, and Reproductive Health
Our First Baby Flipchart	Adolescent, Family Planning, and Reproductive Health
First-Time/Young Parents Formative Research in Nigeria: A Six State Study	Adolescent, Family Planning, and Reproductive Health

Materials and tools	Thematic area
Research Brief: Highlights from Formative Research with First-time Young Parents in Kogi State	Adolescent, Family Planning, and Reproductive Health
Research Brief: Highlights from Formative Research with First-time Young Parents in Ebonyi State	Adolescent, Family Planning, and Reproductive Health
Technical Brief on Adolescent Sexual and Reproductive Health	Adolescent, Family Planning, and Reproductive Health
Factors Impacting Use of Health Services by First-Time/Young Parents: A Formative Research Toolkit	Adolescent, Family Planning, and Reproductive Health
Out Patient Registers	M&E
National Health Management Information System Monthly Summary Forms	M&E
Integrated Community Case Management of Malaria (iCCM) Daily Register	M&E
Integrated Community Case Management of Malaria (iCCM) Supervisors Summary/ Register	M&E
Integrated Community Case Management of Malaria (iCCM) Referral Form	M&E
IMCI Sick Child Recording Forms	M&E
PSBI Registers for PHC	M&E
PSBI Monthly Summary Forms	M&E
PSBI CORPs Tracking Register	M&E
PSBI CORPs Referral Forms	M&E
Community Health Management Information System Monthly summary forms	M&E
Improving Health Outcomes by Enhancing the Content and Use of RMNCH Data in Nigeria's National HMIS Technical Brief	M&E
Family Planning Counseling Flip Book	Family Planning
Kogi State Family Planning Costed Implementation Plan	Family Planning
Family Planning Posters	Family Planning
BCS Counseling Cards	Family Planning
BCS Algorithm	Family Planning
Comparing Effectiveness of Family Planning	Family Planning
Steps for PPIUD Insertion	Family Planning
2016 WHO Medical Eligibility Criteria for Contraceptive Use: Quick Reference Chart for Category 3 and 4	Family Planning
LAM: Family Planning Method for Breast Feeding: A Job Aid	Family Planning

Materials and tools	Thematic area
Clear Postpartum Family Planning and Birth Spacing Saves Lives	Family Planning
Potential for Integrating Family Planning and Immunization in Nigeria Technical Brief	Family Planning
Increasing Family Planning Uptake Among Postpartum Women in Nigeria Technical Brief	Family Planning
Sustainable Financing of Essential Medicines to Strengthen the Primary Health Care System in Nigeria Technical Brief	HSS
Ebonyi State PHC Commodity Financing Strategy	HSS
Improving the Quality of Preservice Education for Health Service Providers in Nigeria Technical Brief	HSS
Onsite Low-Dose High Frequency Training (With Mobile-Mentoring) Versus Traditional Offsite Group-Based Training for Maternal and Newborn Healthcare Workers in Ebonyi and Kogi States, Nigeria Brief	HSS

Appendix E: Learning Agenda

Learning question	Funding source	Key results or findings	Key learning	Final products and dissemination
Can an integrated package of services for young mothers/parents be feasibly implemented within the greater reproductive, maternal, newborn, and child health (RMNCH) service platforms?	Field	• Factors that facilitate use of services for young mothers/ parents include respectful staff and high quality of care (QoC) (experienced or perceived), perceived need for care and beneficial health habits, gender equality and empowerment, social capital, and support from influencers of first-time young parents (FTYP). • Barriers to services include respectful staff and high QoC, financial burden of care, negative views on family planning (FP) methods and services, religious barriers, and gender inequality.	• There are a number of facilitators and barriers to the use of MNCH, essential newborn care, FP, and postpartum FP (PPFP). • The sharpest differences are between the northern and southern regions of the country. • Most of the barriers identified can be addressed by ensuring that facilitating factors are expanded and appropriately targeted to FTYPs.	• Final report • State-specific briefs (6) • Ebonyi and Kogi state brief • Manuscript (in development)
What is the feasibility and acceptability of improving care for newborns with respiratory distress using bubble continuous positive airway pressure (bCPAP) in selected hospitals in Ebonyi, Kogi, and Cross Rivers states, Nigeria?	Field	• Use of bCPAP equipment is feasible and acceptable but has key implementation challenges. • Almost 80% of eligible patients had gestational age of 36 weeks or less.	• Champions (motivated focal point persons) needed to support quality care, including correct application of medical eligibility criteria for the use of bCPAP and application of nasal saline drops. • Cascade training on use of the bCPAP equipment must be more structured.	• Study report • Training materials and job aids • Study brief

Learning question	Funding source	Key results or findings	Key learning	Final products and dissemination
			• Oxygen must be affordable for bCPAP to be used adequately. • Reliable supply of electricity needed.	
Through implementation of a systematic process for scaling up use of chlorhexidine (CHX) for umbilical cord infection prevention, can CHX uptake by and within states be accelerated?	Co-funded	• Identified the key scale-up milestones for the states and tracked progress. • Identified the five strategic priorities and barriers for scale-up as identified in the Federal Ministry of Health's (FMOH's) strategy for scale-up of CHX: 1) market and user understanding: generate awareness and demand; 2) clinical and regulatory: maintain existing support; 3) coordination: ensure leadership need to match supply and demand; 4) manufacturing and distribution: increase availability of the product; and 5) policy, advocacy, and financing: increase availability of the product.	• Of the 37 states, all 37 have developed a scale-up action plan and 31 of the 37 have updated the status of the state essential medicine list. • Efforts are underway within the FMOH to integrate CHX indicators into the routine reporting systems at facilities and the community level. • Survey suggests that CHX is readily available and health workers are aware of its benefits; therefore the product can become part of the routine delivery. • Local manufactures report combined capacity to produce and export the CHX gel.	• Implementation brief • Manuscript (under development)
Can low-dose, high-frequency (LDHF) and mobile mentoring lead to better knowledge and skills outcomes, cost-effectiveness, and feasibility compared to	Field	• The study validates the view that an onsite LDHF/mobile mentoring learning approach is as or more effective than traditional offsite group-based	• This study shows promising results that will address current absenteeism due to frequent offsite trainings. • LDHF is a more cost-effective training approach	• Study brief • Study protocol published August 13, 2018 (*BMC Health Services Research*) • Manuscripts (2): Findings from the randomized controlled trial

Learning question	Funding source	Key results or findings	Key learning	Final products and dissemination
traditional training approach?		trainings in improving health care workers' (HCWs') knowledge and skills. • Nigeria MOH and training institutions should adopt LDHF and a practice-based training approach, including repeated practice, mobile mentoring, and the integration of simple quality improvement (QI) to improved HCWs' competence and health outcomes.	than the traditional method, which is the current practice. • The study also validates the view that onsite LDHF with mobile mentoring is as or more effective than the traditional offsite group-based trainings in improving HCWs' knowledge and skills.	and cost-effectiveness of the training (in development)
How ready are health care providers to provide quality RMNCH services in selected MCSP-supported health facilities in Ebonyi and Kogi states? What is the quality of antenatal care, labor and delivery, and FP services provided?	Field	• Quality of ANC, labor and delivery, and FP was generally poor at baseline. For example, not all women in labor were monitored with partographs or had oxytonics within 1 minute of birth. However, this significantly improved at endline. • QI efforts including establishment of a functional QI team and supportive supervision will result in improvement of QoC at the health facilities.	• Between 2015 and 2018, the more than 1,500 trained health workers supervised 202,274 first ANC visits, attended 71,665 deliveries, and provided 60,521 women with immediate postpartum uterotonic drugs for active management of the third stage of labor. • Use of uterotonics (for preventing postpartum hemorrhage) increased from 41% in 2015 to 99% in 2018; while use of the partograph (for early detection, referral, or proper management of pregnancy	• Abstracts • Study report • Infographic • Article (in review at the *African Journal of Reproductive Health*) • Manuscript (in review at the *African Journal of Reproductive Health*)

Learning question	Funding source	Key results or findings	Key learning	Final products and dissemination
			complications and avoidance of obstructed labor) increased from 30% in 2015 to 78% in 2018. • Overall, the total obstetric case fatality rate trended downward from 2016 to 2018 in phase-one MCSP-supported facilities. The percent of women in facilities who died due to an obstetric complication decreased from 3.4% in 2015 to 2.7% in June 2018. Similarly, the institutional maternal mortality ratio trended downward in all program-supported first-phase facilities from 2016 to 2018.	
How does respectful maternity care (RMC) affect childbirth?	Co-funded	• The number of clients experiencing mistreatment during facility-based childbirth in Ebonyi and Kogi states is generally high and comparable with levels in other regions of Nigeria. This has a significant effect on health services use.	• Addressing health facility inadequacy, among other factors, has the potential to promote RMC during facility-based childbirth.	• Presentations at stakeholders' meetings • Study report • Manuscript (in development)
How can positive behaviors related to appropriate cord care (CHX application or the	Co-funded	• More emphasis should be placed on handwashing frequency at critical moments	• It is important to focus on the behavior change of more people than just the	• Phase I report • Phase I–III final report • Manuscripts (3): findings from the

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practice of clean, dry cord care), delivery hygiene, and hand hygiene be strengthened during the period from the onset of labor through the first two days of life?		to ensure reduced risk of infection for mothers and newborns. • There should be increased focus on improving provider skills and capacity during shifts with reduced personnel. • There is a lack of tools for health care facility staff, managers, and evaluators to routinely assess compliance with national and global water, sanitation, and hygiene and infection prevention and control standards and prioritize limited resources for improvement.	mother, as many other actors are engaged in intimate care of the newborn. Greater emphasis should be given to visitors, cleaners, and HCWs washing hands with soap.	observational study conducted under Phase 2 of the study (in development)
Toward integration of informal structures into the formal health system: patent proprietary medicine vendors (PPMVs) in two states in Nigeria.	Field	• The typical PPMV is more likely to be female in Ebonyi and male in Kogi, aged 25–44 years, and have a secondary or post-secondary education. • Almost all the surveyed PPMVs reported referring clients to higher levels of health care when necessary. • Slightly more than one of every five PPMVs had received professional health training at the time of the survey. • Almost all PPMVs were affiliated	• The existence of numerous PPMV outlets provides opportunities to engage with the private sector, taking into consideration different state-specific contexts as related to PPMVs' education, sex, registration, and geographic distribution.	• Abstract presented

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		with the National Association of Patent and Proprietary Medicine Dealers (NAPPMED) and a significant number were also affiliated with the Pharmaceutical Council of Nigeria (PCN) in both states. • NAPPMED was the most reported institution that conducted regulatory visits to the PPMVs in both Ebonyi and Kogi states. • The regulatory body carried out more reviews of types of drugs available for sale and reviews of drug expiration dates during their visits. • The main interactions the MOH had with the PPMVs were for training and supervision through the PCN.		
Understanding barriers and facilitating factors in seeking care for sick children under age 5 in Nigeria.	Field	• Families recognize most illness symptoms, but don't always understand medical causes and attribute illness to spiritual causes or teething. • Families lack terms for illness severity. • Traditional medicine, like herbs, is often	• Female caregivers are more likely to take a sick child for treatment. • The husband or partner typically decides whether to seek health care for the sick child. • The female caregiver typically decides how the money she earns is to be used.	• Abstract presented • Manuscript (in development)

Learning question	Funding source	Key results or findings	Key learning	Final products and dissemination
		used before seeking care outside the home. • Caregivers suggest distance and cost do not influence care seeking, although health providers suggest that they do delay care seeking. • Caregivers are more likely to take a child to a health provider if they perceive illness as severe.	• Pharmacy and PPMV shops are the main first source of care for fever but less so in Kogi. • There are high levels of perception that PPMVs are easy to find when needed, medicines are always available at PPMV shops, PPMV give good quality medicines, people trust in the PPMV's ability to treat children, and the PPMVs show respect to their patients.	
Quality of management and treatment services for sick children at PPMVs in two states in Nigeria.	Field	• The availability of medicine stock on day of visit significantly increased between baseline and endline in both Kogi and Ebonyi states. • There have been remarkable improvements in the assessment of sick children; the proportions of children checked for all general danger signs improved during and after implementation. • Testing of children with fever for malaria with rapid diagnostic tests increased throughout implementation. • Treatment of sick children with the appropriate	• PPMVs showed promise for provision of quality child health services • Routine integrated community case management (iCCM) data reporting using the national health management information system grid can be achieved but would require some adjustment of the community HMIS. • The joint supervision model works and if supported can continue to work. • Effective stakeholders involvement (including NAPPMED, State Primary Health Care	• Abstract presented • Manuscript (in development)

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		medicines rose remarkably after the baseline due to the intervention and continued to rise. This was true for children who required Amox-DT, ORS and zinc and ACTs for malaria.	Development Agencies, LGAs and state IMCI and HMIS unit) is key for sustainability of quality iCCM services. • Routine LMIS can be employed to aid the management of commodities for iCCM for PPMV use. • The strategy of linkage of PPMV associations to the medicine distributors ensures stock availability at PPMV outlets.	