Pathfinder INTERNATIONAL

A Whole-System Approach to Saving Mothers in Cross River State, Nigeria

TECHNICAL BRIEF
JULY 2019

Reducing maternal mortality and ensuring women around the world have equitable access to quality sexual and reproductive health information and services is a global health priority. During the Millennium Development Goal era, the global maternal mortality ratio declined by 45 percent—a significant achievement, but short of the goal of 75 percent. In 2012, the *Saving Mothers, Giving Life* initiative set out to drastically reduce maternal and neonatal mortality in sub-Saharan African countries over a shorter period of time by addressing the three delays to life-saving care and engaging the private sector. Under *Saving Mothers, Giving Life*, Uganda and Zambia achieved a 44 percent and 41 percent decrease, respectively, in maternal mortality ratios in initiative-supported districts. Over a three-year period, Nigeria's Cross River state experienced a 66 percent decrease in maternal mortality from baseline assessments within initiative-supported facilities. Existing documentation explains how interventions in Uganda and Zambia impacted maternal and neonatal mortality ratios. The project in Nigeria will close in September 2019. This brief documents how the *Saving Mothers, Giving Life* approach was adapted to the Cross River state context to achieve substantial declines in mortality in its first three years of implementation. A final report will be released once endline data are available for analysis of the entire project.

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MSD MSD for mothers

Saving Mothers, Giving Life

Every human has the right to the highest attainable standard of mental and physical well-being. Yet, approximately 830 women die around the world every day due to preventable causes related to pregnancy and childbirth.[1] Almost all of these deaths happen in developing regions and over 60 percent of them occur in sub-Saharan Africa.[2] Most of these deaths are caused by hemorrhage, pre-eclampsia, and sepsis[3]—all of which can be virtually eliminated by medical interventions such as universal access to emergency obstetric and newborn care.[4] While we understand what clinical interventions are needed to prevent maternal mortality, we have fallen short in understanding how to effectively overcome the barriers that prevent women's access to these quality interventions.

In 1994, Thaddeus and Maine proposed a conceptual framework of "three delays" to explain barriers to timely care which contribute to maternal mortality: (1) delay in deciding to seek care, (2) delay in reaching an adequate health care facility, and (3) delay in receiving adequate, or quality, care at the facility.[5] As reflected in this framework, delays to life-saving care occur at the individual, community, and facility levels. Maternal mortality is thus a systemic problem.

Timely recognition of danger signs; access to emergency transportation; strong communication and referral networks; and prompt, respectful,[6] quality care at facilities all increase maternal survival. In other words, to continue to reduce maternal mortality and support equitable, quality, maternal health care, we need a system-wide approach that supports community members' abilities to recognize emergencies, provide transportation to facilities, and receive timely and quality medical interventions at the facilities. Further, these interventions must be connected. After recognition of danger, an individual must know how to access transportation, the transportation service must know what facility to go to, and the facility that accepts the case must know what to do and must practice quality, respectful care.

In 2012, the *Saving Mothers, Giving Life* (SMGL) initiative set out to apply such an approach to select districts in low-resource, high-burden sub-Saharan African countries. The SMGL approach is based on the hypothesis that district-based systems strengthening that targets the three delays to care and engages the public and private sectors will contribute to drastic reductions in maternal and neonatal mortality over a short time period. The approach is guided by five organizing principles: the whole system must be involved; there can be no weak links; women must have access to life-saving care no more than two hours away; all neonatal and maternal deaths must be counted, analyzed, and reported; and all women deserve respectful, quality care at all times.

The initiative aimed to achieve a 50 percent decrease in maternal mortality and 30 percent decrease in neonatal mortality between 2012 and 2017 through working towards four outcomes: (1) increased use of services and improved self-care, (2) timelier access to appropriate care, (3) improved quality and experience of care, and (4) a more robust and resilient health system. The program began with four districts in Uganda and four in Zambia. Over the next few years, the program expanded in both countries and, in 2015, to Cross River state, Nigeria.

While the district health system strengthening approach that targets the three delays to care was at the foundation of program activities in the three countries, each country and implementing partner adapted the approach to best fit the country context. As a result, how SMGL was implemented in each country varied. This brief explores how the SMGL approach was implemented in Nigeria's Cross River context.[a]

Nigeria and Cross River state

Due to Pathfinder International's previous implementation experience in Nigeria, which focused on a whole-system approach to successfully address postpartum hemorrhage,[b] the Evidence to Action (E2A) project, led by Pathfinder, was selected as the implementing organization in Nigeria. The whole-system approach means engaging the individual and community in addition to the health system—it means engaging at the household and community levels to ensure that women are empowered to seek care and have access to necessary resources (such as emergency transportation) and information; engaging at a facility level with public, private, and traditional health care providers; and engaging at a state or institutional level with government stakeholders. Because women's lives can be lost at any point between home and a facility, interventions to address maternal mortality must target each point in the continuum of care—from an individual household to a delivery facility—and they must do so cohesively.

Nigeria has one of the world's highest maternal mortality ratios, with estimates ranging from 576[7] to 814[8] maternal deaths per 100,000 live births. The 2013 Demographic and Health Survey data suggest that there is low utilization of facility-based delivery services due, in part, to lack of decision-making authority, feelings that facility-based deliveries are unnecessary, prohibitive costs, and distance

a. While some results will be included, the brief will focus on processes. Please refer to the upcoming endline results documentation for more.
b. For more information on Pathfinder's Clinical and Community Action to Address Postpartum Hemorrhage work, please see: https://www.pathfinder.org/projects/scaling-up-clinical-community-action/, https://www.pathfinder.org/publications/nigerias-clinical-community-action-address-postpartumhemorrhage-technical-update/

to a facility.[9] Data from Cross River suggests that the state experiences similar challenges.

Baseline data collection and health facility assessments reveal significant variation in preparedness to provide quality care and an unequal distribution of facilities across the state—contributing to a facility maternal mortality ratio of 876 maternal deaths per 100,000 live births in Cross River state.[11] In addition to low recognition of danger signs and a lack of confidence in the health system among women and community members, there is minimal outreach by facilities and low connectivity between facilities and community-based organizations that could mobilize community members to seek care.[12] This contributes to the first delay: recognizing a need for care and deciding to act on that recognition. Further, there are poor roads, the distribution of public and private facilities that offer life-saving services is unequal across local governmental authorities in Cross River, and the capacity of facilities and providers to provide comprehensive and basic emergency obstetric and newborn care (EmONC) is inadequate.[13] There is also variability in the supply of essential medicines, poor use of registers, and infrequent performance of maternal and neonatal death audits. These factors act as barriers to reaching facilities and to receiving quality care (delays two and three).

Finally, communities in Nigeria often turn to spiritual and traditional healers in conjunction with or as alternatives to providers—public and private—in the formal health system. These providers—traditional, public, private—may vary by skill level and qualification. In Nigeria's complex and fragmented public health system, each level of facility is governed by a different entity. In a single district, primary facilities are mostly public and governed by local government authorities (LGAs); many secondary facilities are private and governed by private providers; and tertiary facilities are mostly governed at the federal level.[14]

How is SMGL in Nigeria different?

State and local government authority vs. district-level implementation: Whereas SMGL in Uganda and Zambia worked in different districts across each country, SMGL in Nigeria worked within one state and with all of the state's local government authorities (LGAs) as local implementers.

Population served: The population of Cross River at project start in 2016 was 3,866,300. The population of supported districts in Uganda in 2011 was 1,7500,000 and in Zambia was 925,198.

Number of implementing partners: Pathfinder's Evidence to Action (E2A) project is the only implementing partner in Nigeria.

Implementing WHO Quality, Equity, and Dignity standards in private facilities: Though not a focus of this brief, Nigeria is the only country where the WHO QED standards are implemented in private and faith-based facilities and systems.

For more on the standards: https://www.who.int/maternal_child_adolescent/documents/improving-maternal-newborn-care-quality/en/

TABLE 1: BARRIERS TO ACCESSING CARE IN NIGERIA, DATA FROM THE 2013 NIGERIA DEMOGRAPHIC AND HEALTH SURVEY.[10]

Data suggests that Cross River is fairly representative of Nigeria, however, a higher percentage of women report cost as a barrier to facility deliveries and a lower percentage of women seem to access private health care facilities for delivery services.

	Cross River state	Nigeria
Problems accessing health care		
Trouble getting money for care	55%	42%
Attitude of health care worker	18%	17%
Distance to facility too far	25%	29%
Reasons for not delivering in facility		
Prohibitive costs	33%	8%
Too far/lack of transportation	13%	13%
Percent of women delivering at home	59%	63%
Percent of women delivering in a public facility	34%	23%
Percent of women delivering in a private facility	6%	13%

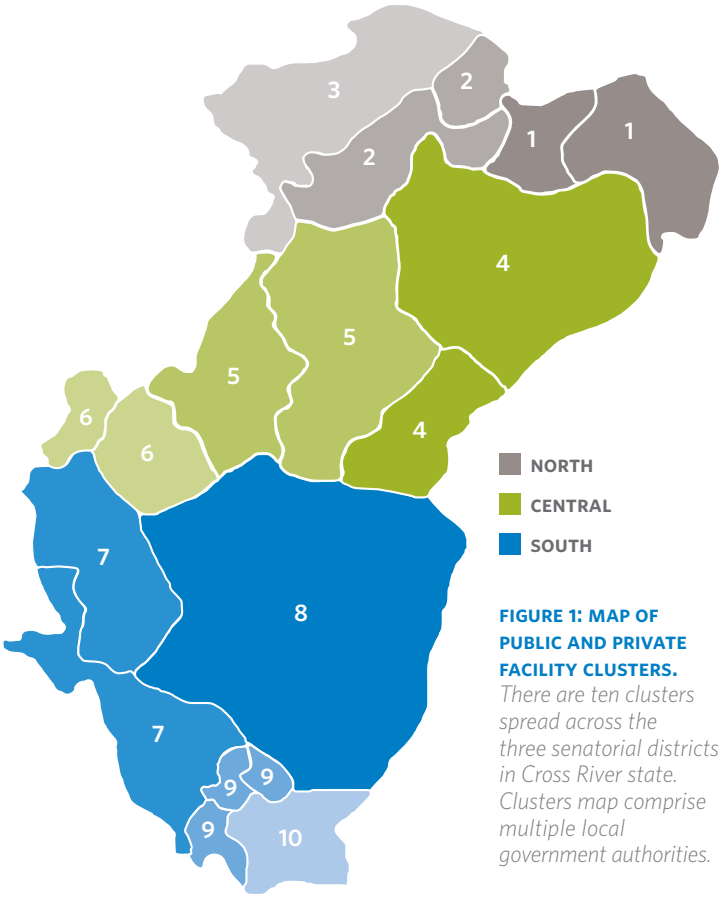


FIGURE 1: MAP OF PUBLIC AND PRIVATE FACILITY CLUSTERS. *There are ten clusters spread across the three senatorial districts in Cross River state. Clusters map comprise multiple local government authorities.*

Designing mixed market facility clusters to ensure access to care

The SMGL project in Nigeria aimed to achieve a 25 percent reduction in maternal mortality ratio and a 35 percent reduction in neonatal mortality rate by 2019. The disparate state of facilities and resources and the number of stakeholders with decision-making power in Cross River state make this a challenging context. To address these particular challenges, the project designed a cluster approach. By organizing both public and private facilities into clusters (comprising at least four basic EmONC facilities and one comprehensive EmONC facility per 500,000 people, per WHO guidelines),[15] and enabling shared records, management and referral systems, the project created a mixed public and private network to ensure more quality services are accessible and acceptable to women across Cross River. The project developed ten clusters that spanned across the state's 18 LGAs (see Figure 1).

This cluster approach was complemented by a set of interventions that—by addressing the three delays to care—ensured women sought care and accessed quality services at these clusters within two hours of identifying a need (see Figure 2).

Interventions addressing the first delay: demand

To increase awareness of pregnancy and labor danger signs and to mobilize communities towards increased uptake of facility-based services, the project engaged community-based organizations, traditional birth attendants, and leveraged a digital health mobile app.

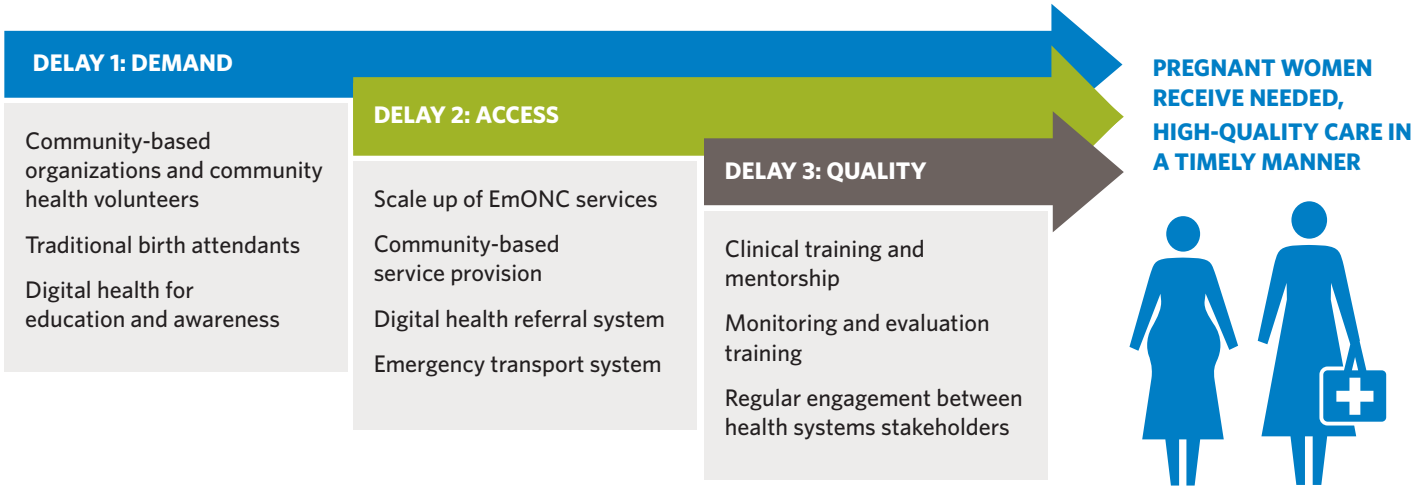
Community-based organizations

The project selected three community-based organizations (CBOs)—Center for Health Works Development and Research Initiative, Association of Grassroots Counsellors of Health and Development Nigeria, and Greater Hands Foundation—based on experience in community mobilization, governance practices, and geographic location. One CBO was selected in each of the three senatorial districts in the state (North, Central, and South). These organizations received program management training and technical support from the project.

The CBOs worked to generate demand for quality maternal and newborn health and antenatal care services through a community-based health volunteer cadre, education and awareness campaigns, and integrating safe motherhood messaging in existing services (e.g., malaria and HIV and AIDS campaigns) and activities (e.g., prioritization of safe motherhood messages in community development committee meetings).

Community-based organizations trained and monitored community health volunteers to increase maternal and newborn health awareness—including identification of danger signs—and to link community members to facility-based care. Volunteers were selected based on literacy, level of education achieved, ability to speak local languages, prior health-related work experience, ability to commit at least three days of service per week, and recommendations from community leaders or the ward development committee. These volunteers were trained on community interventions to address the three delays, identification of danger signs in pregnancy and postpartum, principles of contraception counseling, and ways to support and improve referrals. After training, community volunteers conducted individual household visits to pregnant women and young first-time parents, facilitated group discussions with men and women, and served as focal points for ward development committees. Community health volunteers referred to both public and private facilities based on client preferences and their perceived need for emergency obstetric and newborn care.

FIGURE 2: INTERVENTIONS BY DELAY TO CARE. *The project designed interventions to strengthen health systems and communities to respond to the three delays to life-saving care.*



To increase education and awareness, CBOs engaged community town announcers to broadcast safe motherhood activities; disseminated information through posters, banners, and fliers; and held bi-annual community and ward-level meetings at which participants would receive information on and discuss birth preparedness, healthy timing and spacing of pregnancies, and signs of complication in pregnancies.

Traditional birth attendants

Traditional birth attendants (TBAs) refer to traditional, non-formally trained community-based providers of care during pregnancy, childbirth, and the postnatal period.[16] The project mapped TBAs working in all project areas and recruited those working close to supported facilities. While TBAs are not often connected to the formal health system, the project recognized the key role this cadre could play in creating links between communities and facilities that provide needed care. As a result, and as part of its whole-system approach, the project incorporated TBAs as referral agents and to escort women to facilities. State agencies (e.g., the Cross River State Primary Health Care Development Agency and the State Ministry of Health) collaborated with the project to train TBAs on infection prevention and control, early identification of danger signs, and referrals.

Digital health

To address the first delay, the initiative also implemented HelloMama, a digital platform that disseminated maternal and newborn health information through voice and text messaging to women and heads of household. HelloMama content was adopted from Baby Center® (a member of the Johnson and Johnson family of companies) and adapted to the Nigerian context. The messages include age and pregnancy-stage-specific guidance on antenatal care attendance and delivering in a health facility, identification of danger signs, breastfeeding, immunization, and contraception. Women could enroll to receive messages upon registering for their first antenatal care visit at any of the 67 SMGL-supported facilities in the state.

Interventions addressing the second delay: access

To ensure women reach appropriate facilities and services in a timely manner, the project scaled up facilities to provide EmONC services, focused on strengthening the community-based health workforce by preparing community health extension workers to provide select services, piloted a digital health system, and supported development of an emergency transport system.

Scale-up of EmONC services

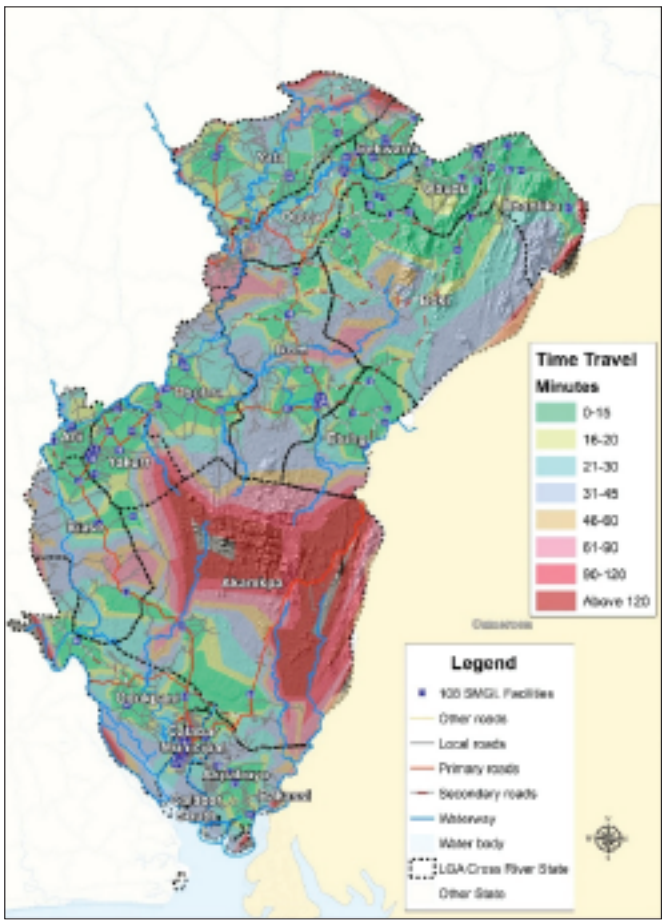
During a health facility assessment of 812 facilities in Cross River state, 2.6 percent (21) and 1.1 percent (9) of the facilities had comprehensive EmONC and basic EmONC status 12 months preceding the baseline health facility assessment. The WHO recommends, per population of 500,000, there be at least four facilities providing basic EmONC and at least one providing comprehensive EmONC. Based on geographic proximity and population size of LGAs in Cross River, the project scaled up 108 facilities across all 18 LGAs to provide necessary care in relation to the population. The project then used Geographic Information System (GIS) to map public,

private, and faith-based facilities providing EmONC in relation to the population. The resulting map shows 92 percent of the state is within a two-hour travel time of an EmONC facility as recommended by the WHO.

Community-based service provision and task-sharing

Nigeria's new national task-shifting and sharing policy permits community health extension workers (CHEWs) to provide certain midwifery tasks (e.g., the management of uncomplicated pregnancies and postnatal care), and certain contraceptive methods within communities, making these services more accessible to more women at the primary health care level. The project trained CHEWs to provide EmONC services, essential newborn care, and contraceptive implants at the primary health care level. Community health extension workers would refer cases they were unable to address to higher-level facilities.

FIGURE 3: MAP OF TRAVEL TIME COVERAGE AREA FOR 108 SMGL-SUPPORTED FACILITIES. *EmONC travel time analysis indicates that 92 percent of the state is within two hours travel time to an SMGL facility.*



Digital health referral system

To connect women with the appropriate services, the project piloted a digital health referral system in two clusters to enable facilities to make referrals to other facilities, in the event that the original facility does not have the means to provide the care needed. The project digitized the paper-based referral system currently in use across the state and hosted it on a CommCare platform. This digital system enabled facilities to make referrals to all other facilities in a cluster (public, private, primary, secondary, or tertiary). It also supported tracking referrals issued and completed referrals and strengthened the relationships across different types of facilities—specifically through increased communication and feedback between facilities and health care providers.

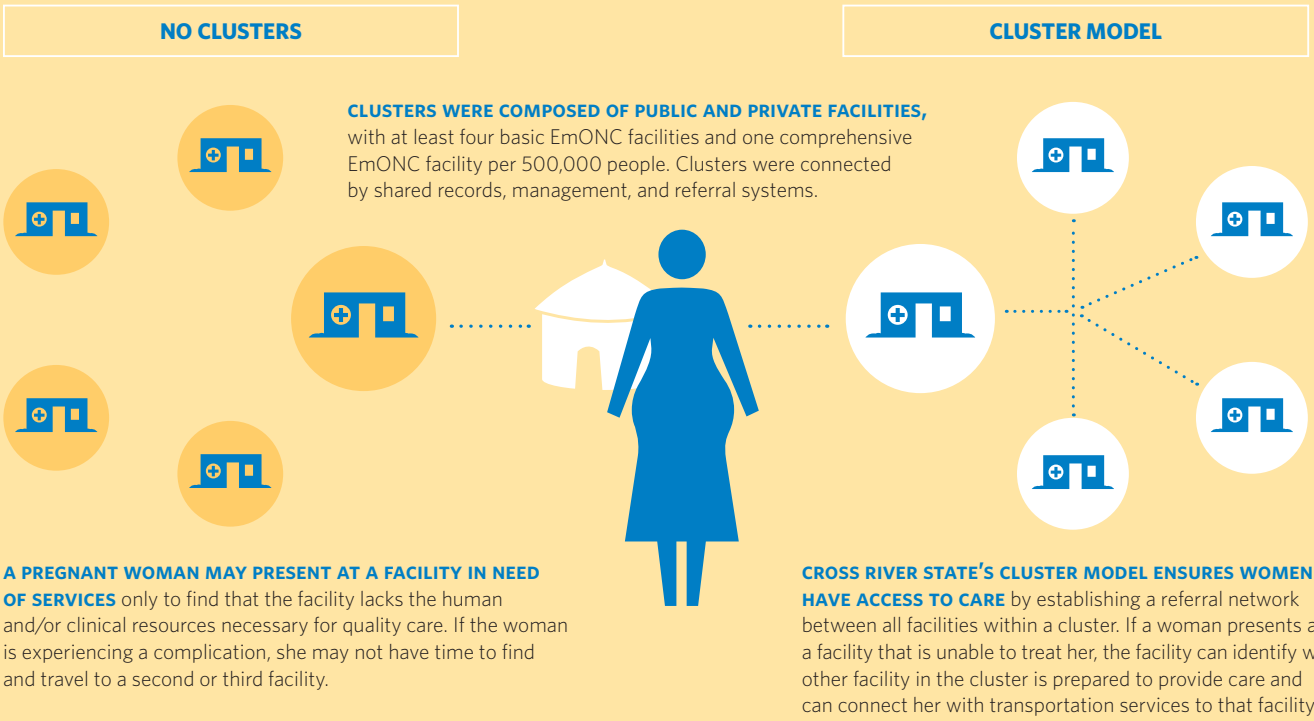
The referral system was also supported by regular cluster-level meetings in which referrals were reviewed and community and facility-based providers discussed challenges and successes faced in the referral process. Through these meetings—and in addition to reviewing maternal and newborn health outcomes of referrals—the project monitored the system's ability to address one aspect of the second delay: knowing where to go for the appropriate services.

Emergency transport system

To address distance and transportation barriers, the project supported a community-led transportation and voucher system by providing trainings to build advocacy skills for fundraising to ensure financial stability of these systems. Baseline assessments reveal that across the state, there are two main transportation barriers: lack of access to transportation itself (despite available funds) and lack of access to transportation as well as lack of funds for transportation. Ward health development committees developed lists of drivers' names, addresses, and phone numbers, and supplied these lists to supported facility clusters. At antenatal care visits, women received vouchers for emergency transportation and a list of drivers and their phone numbers. In the event of an emergency, women called drivers, presented their vouchers, and were transported to the appropriate facility.

Individual wards then assessed what approach to financially support emergency transport would work best in their context. Each ward was responsible for raising its own funds for the system. Some wards raised funds through donations by philanthropic or community organizations within the ward, others received monthly contributions from villages in the ward. Notably, some

Ensuring access to care through public-private facility clusters



wards saw families with resources offering to subsidize the cost of vouchers for those who did not have funds for transportation, signaling community understanding of and support for the importance of funds and transportation to accessing timely care.

The project incentivized fundraising by providing complementary funds to wards that demonstrated progress in community-led fundraising. In addition, the project provided technical assistance to wards in opening and managing corporate bank accounts to store funds raised for emergency transport systems, and to hold regular meetings in which reports on vouchers and funds are reviewed by ward development committees. Finally, to support the financial stability of this community-led effort, the project conducted a SMART Advocacy[c] orientation for fundraising efforts for each ward and, subsequently, wards developed their own SMART objectives, fundraising commitments, and timelines.

Interventions addressing the third delay: quality services

Through clinical training and mentorship, enhancing data monitoring and health information system capacity of LGAs, and improved coordination across health system stakeholders, project interventions aimed to strengthen the health workforce, capacity for quality service delivery, and leadership and governance within Cross River state.

Clinical training and mentorship

Following a health facility readiness assessment at baseline, the project collaborated with the Federal Ministry of Health and national level trainers to train master trainers in EmONC, essential newborn care, postpartum family planning, postabortion care, and general family planning (including long-acting reversible methods of contraception), and use of the Maternal and Perinatal Deaths Surveillance and Response tool. These master trainers then replicated the training at the facility level, where it was cascaded down to all doctors, nurses, midwives, and CHEWs. In addition, the project engaged professional organizations (e.g., Society of Gynaecology and Obstetrics of Nigeria and the Nigeria Society of Neonatal Medicine), Ministry of Health staff, Cross River State Primary Health Care Development Agency staff, and project staff to form a team for mentorship. A mentorship team visited each cluster on a monthly basis and provided on-the-job training and mentorship to providers based on need identified by the mentorship app (described below) and perceived by the mentorship team.

The project's collaboration with professional organizations also included training and mentorship for emergency obstetric and newborn care. Professional organizations launched a volunteer obstetric scheme and volunteer pediatrician program at six high-volume secondary facilities through which specialists provided regular visits

c Advance Family Planning's (AFP) SMART Advocacy approach focuses on achieving "quick wins" to contribute towards achieving broader goals in the future. For more on this approach, please see: https://www.advancefamilyplanning.org/

PHOTO: Seun Asala

Health care providers, mother, and baby at General Hospital Ugep. Cross River state, Nigeria

to facilities for on-the-job training. In addition, the project engaged retired midwives[d] as mentors in high-volume primary and secondary facilities to support birth attendants in provision of quality antenatal and delivery services, emergency obstetric care, newborn resuscitation, routine care of babies, and breastfeeding and immunization support to new mothers.

Digital health

To ensure quality of care in project-supported facilities and communities, mentorship teams were equipped with a digital maternal and newborn health app that enabled them to assess and monitor the progress of individual providers and to provide mentorship based on the provider's strengths and weaknesses. The app was developed in collaboration with professional organizations and using WHO service delivery standards. In addition to monitoring support, the app allows for the generation of performance and gap reports and the creation of action plans for improvement, which can be tracked by mentorship teams. The app measures provider competence across antenatal, intrapartum, and postnatal care through a checklist of provider performance administered by the mentorship team.

Enhancing capacity for monitoring and evaluation and of health information systems

In addition to clinical training, the initiative provided monitoring and evaluation training for facility staff and managers. This training reviewed how to use the national registers and indicators relevant to the initiative's efforts (e.g., women attending ANC first and fourth visits, the number of maternal deaths, etc.). Notably, this training intended to harmonize data collection and reporting practices of public and private facilities, given that many private facilities were not using national registers. Further, the project trained facility staff to strengthen their capacity to forecast their drug and commodity needs and manage the supply chain for their facilities. The project also supported their participation in coordination meetings for drug and commodity supply.

Notably, baseline assessments revealed documentation gaps in service delivery at primary and secondary facilities. The project facilitated a two-day workshop for state-level leadership, professional organizations, and facility staff to harmonize tools to document service delivery across the maternal and newborn health and family planning continuum of care. The result is the Mother-Baby Care Card, that captures service delivery from antenatal care through the first year of a baby's life. This tool is used in all primary and secondary facilities across the state (both project-supported and non-supported sites).

Improving coordination across health system actors through data monitoring and review

Monitoring and data review is crucial to ensuring that women receive the specific services and quality of care they need. The project supported technical assistance to LGA monitoring and evaluation officers, and training on data collection tools, data review and analysis, and data use for decision-making.

Perhaps most important were the project's contributions to the institutionalization of the Maternal and Perinatal Deaths Surveillance and Response (MPDSR) tool. The MPDSR tool is a Federal Ministry of Health intervention to eliminate preventable maternal and perinatal mortality by using collected data to identify gaps and inform recommendations for health system adaptations in response to deaths.

d Midwives were recently retired from active service at the primary- or secondary-level health facilities

Baseline assessments suggest the MPDSR tool was not implemented in Cross River because of funding constraints, unclear roles and responsibilities, and use of cumbersome paper-based systems for reporting. The project designed a phased approach to support institutionalization of the MPDSR tool in secondary health facilities across the state. Beginning with 14 public and faith-based comprehensive EmONC facilities in 2017, the project implemented an initial sensitization training for all staff, supported development of MPDSR committees at the state and facility levels with clear roles and responsibilities, and facilitated regular meetings in which committees review all maternal and perinatal deaths from comprehensive EmONC facilities to identify circumstances leading to causes of death and provided recommendations to prevent further deaths. This was later scaled up to all supported private-for-profit facilities. Additionally, the project identified a response officer at each comprehensive EmONC facility to ensure recommendations were implemented. Finally, the project supported the Federal Ministry of Health to roll out implementation of a digital MPDSR platform and trained facility medical reporting officers to transfer existing data to the digital database and to use the digital system going forward in secondary health facilities. Currently, all maternal deaths since initial use of the MPDSR tool in public and faith-based facilities have been identified, reviewed, and reported on the electronic platform with clear recommendations, and approximately half of perinatal deaths were also identified and reviewed.

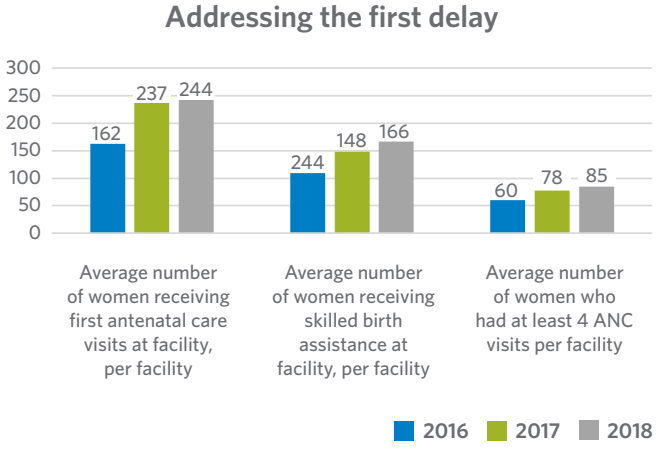
Improvements to infrastructure and supplies

Additional support was provided to facilities through renovations and procurement of equipment and supplies to ensure that each facility was prepared to provide quality care. Notably, the project supported all public and faith-based primary and secondary facilities with safe delivery kits, all public and faith-based comprehensive EmONC sites with solar-powered blood banks, and high-volume comprehensive EmONC sites with solar-powered incubators. The project engaged We Care Solar to train project and state-level Ministry of Health staff in the operation and maintenance of solar electric suitcases to provide lights, fetal heart rate monitors, and phone charging for emergency calls. After this initial training, project and state-level ministry of health staff trained local trainers and technicians to maintain and use these suitcases within their clusters. The project then supported the state government to take over this partnership and the project provided technical support to ensure proper installation and training of health care workers. Prior to this development, many facilities lacked reliable energy sources, leaving providers without communication devices, necessary equipment, and light to support deliveries. At the time of this writing, approximately 125 facilities now have light for deliveries, which improves both the quality of care provided and the perception of quality within the community. This perception then encourages women to seek facility-based care and reduces risks in the event of obstetric complications. In addition, through a collaboration with Project C.U.R.E., 65 supported facilities were equipped with items such as: newborn ventilator and resuscitative equipment, job aids, and training models for facility-based training.

Select results

Preliminary results suggest project interventions contributed positively to addressing the three delays to care, yielding improvements in outcomes of interest: diagnosis of deliveries postpartum hemorrhage decreased between 2016 and 2018 (from 2.3 percent to 1.4 percent), the facility maternal mortality ratio decreased by 66 percent between initial baseline and health facility assessments and March 2019, and the facility neonatal mortality rate decreased by 47 percent between baseline and March 2019. For example, over the life of the project, the average number of women[e] receiving facility-based antenatal care and skilled birth assistance increased from 2016 to 2018 (see Figure 4). This data suggests an increased demand for or motivation to seek care by women and by their influencers. These trends are reflected in key findings from the 2018 Nigeria Demographic and Health Survey (see Table 2).

FIGURE 4: AVERAGE NUMBER OF WOMEN RECEIVING ANTENATAL CARE AND SKILLED BIRTH ASSISTANCE PER FACILITY. *Over the life of the project, the average and absolute number of women receiving SMGL-supported facility-based care increased, suggesting the project contributed positively to addressing the first delay. Note: The number of SMGL-supported facilities increased each year (from 73 to 97 to 108), so the project took the average number of visits per facility, rather than the absolute number.*



e Because the number of SMGL-supported facilities increased each year (from 73 to 97 to 108), the project took the average number of visits per facility rather than the absolute number. However, the absolute number of women visiting facilities for antenatal care and skilled birth assistance also increased over the life of the project.

Regarding interventions to address the first delay, frontline implementers note that while working with traditional birth attendants was ultimately helpful in increasing demand for facility-based and skilled care because of women's preference for delivering with TBAs, some TBAs were challenging for project staff to work with. Many of Nigeria's TBAs are faith-based and are driven to this work because of their faith. Project staff found that messaging about danger signs and clinical education was less motivating to these TBAs than their faith-based calling to their practice.

In addition, project staff learned that many TBAs and women avoided private facilities because of perceptions of high-cost. To address this, the project advocated with private facilities to lower costs for registration and antenatal care and worked out an arrangement which resulted in reduced prices in exchange for some basic equipment, training, and supportive supervision.

Further, project data shows an increase in the number of referrals completed at the facility, the number of women using emergency transport services, and the percent of SMGL-supported facilities with functioning emergency transport systems (see Table 3). By the end of the project, 90.5 percent of SMGL-supported facilities had functioning systems. With regard to the second delay, project and facility staff noted a pattern of late referrals by CHEWs in 2016. To investigate, project and facility staff held a collaborative data review session in which it was discovered that some CHEWs required additional training on use of partograph to determine any abnormalities in labor. As a result, the project designed additional training on partograph use, created a job aid with a list of conditions to help CHEWs easily identify women during ANC who will need referrals (e.g., diabetes, hypertension), and began tracking use of partograph in deliveries.

Finally, to estimate the project's contributions to addressing the third delay of receiving quality, life-saving care, project staff examined the change in SMGL-supported provider performance during delivery. While the percentage of newborns put to breast and kept warm within 30 minutes of birth and the percentage of newborns with birth asphyxia successfully resuscitated (both WHO output quality measures, indicating the coverage of key newborn care practices)[17] were already high, performance within these indicators improved over the life of the project (see Figure 5).

During implementation, the project observed that staff at some private facilities do not have the same clinical education and training as staff in the public facilities. In addition, low pay for private facility staff contributes to high rates of attrition. Both factors impact a private facility's ability to meet WHO quality measures. As a result, private facilities adopted a toolkit for quality care supplied by Merck for Mothers, and the project implemented health facility checklists to support project staff monitoring for quality care. The project also extended its continuing

TABLE 2: PERCENT OF WOMEN RECEIVING ANTENATAL CARE FROM SKILLED PROVIDER AND PERCENT OF WOMEN DELIVERING IN HEALTH FACILITY IN CROSS RIVER STATE. *This data from the 2013 and 2018 Demographic and Health Surveys suggest an increase in women seeking care from skilled and facility-based providers.*

	DHS 2013, Cross River state	DHS 2018, Cross River state
Percent of women receiving antenatal care from skilled provider	73%	80%
Percent of women delivering in a health facility	40%	53%

TABLE 3: INCREASE IN COMPLETED COMMUNITY REFERRALS AND USE OF EMERGENCY TRANSPORT SYSTEMS TO ACCESS HEALTH FACILITIES.

	# of completed referrals from community to facilities	# of women who utilized emergency transportation services	% of supported facilities with functional emergency transportation services
2016	0	0	8%
2017	5028	44	62%
2018	9306	775	91%

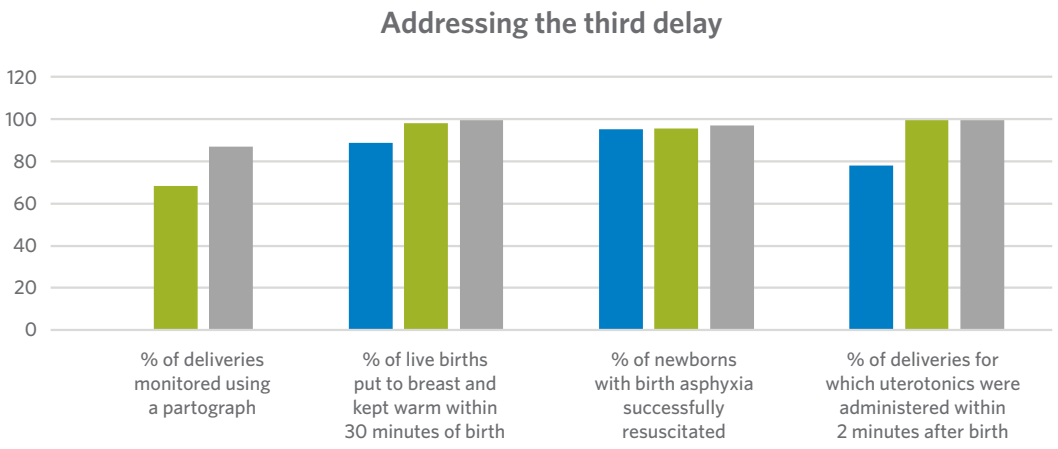


FIGURE 5: ADDRESSING THE THIRD DELAY. *Data suggests improved performance by providers over the life of the project. Note: Partograph use during deliveries was not monitored until 2017.*

medical education program to service providers, nurses, midwives, and CHEWs in all private hospitals with emphasis on those with high-attrition rates.

Lessons learned thus far

Endline data will undoubtedly provide a more robust examination as to how and why project interventions contributed to outcomes. But project experience reflects a few lessons learned meriting emphasis.

Reducing maternal mortality is not a facility problem—it starts in the community

Baseline assessments and implementation experience reveal multiple barriers to demanding and accessing care at the individual and community levels—for example, many women preferred to receive care from TBAs and avoided seeking care from private facilities because of high perceived costs of service. By incorporating this informal health cadre into project programming and working with private facilities to decrease costs for select services, the project was able to remove some barriers to facility based care. These experiences underscore the need for a whole-system strengthening approach.

Resources can be sustainably mobilized for emergency transport systems

Similar to the point above, so much of what happens prior to a woman's arrival at an EmONC facility is crucial to her survival. The Nigeria SMGL experience highlights two important learnings: (1) communities recognize the importance of access to services for maternal survival and are instrumental to ensuring such access and (2) newly developed emergency transportation systems can be created sustainably. With technical assistance, communities and ward development committees collectively raised sufficient funds to contribute to over 90 percent of facilities having functioning emergency transportation systems covering over 90 percent of land in Cross River state with a two-hour travel period. The SMGL experience in Cross River demonstrates the potential for considering building up systems for health, rather than focusing exclusively on the 'health system.'

Next steps

Sustainability was a core feature of the SMGL initiative and for this reason, the Ministry of Health was included at all stages. The project's close-out plan included a multi-month period of engaging with state and LGA stakeholders to transition meetings, data reviews, and interventions. The Cross River government transitioned several interventions to its own platform for sustainability—Saving One Million Lives (SOML)—for example, the escort services provided by TBAs has been formalized and scaled up, and the state government now manages MPDSR implementation.

Saving Mothers, Giving Life was a Sustainable Development Goal-era project, with integration at its foundation. By intentionally bringing together the public and private sectors to apply whole-system strengthening to address the three delays to life-saving care, SMGL contributed to significant improvements to maternal survival.

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ABOUT THIS PROJECT Saving Mothers, Giving Life (2012-2017) was a United States government-led public-private partnership that used a systems approach at the district level to reduce maternal and newborn mortality in Uganda and Zambia. The program aimed to reduce maternal and newborn mortality by ensuring every pregnant woman has access to quality, respectful care during pregnancy, labor and delivery, and, in the event of a complication, life-saving care within two hours. Between 2015 and 2019, Pathfinder's Evidence to Action project implemented a Merck for Mothers-funded expansion of Saving Mothers, Giving Life in Nigeria's Cross River State.

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COVER PHOTO: Mother and newborn in General Hospital Ugep, Cross River state, Nigeria 2009. Photo credit: Seun Asala 2019.