

Evidence to Action for Strengthened Family Planning
and Reproductive Health Services
for Women and Girls Project

Summary Report of the Pre-Intervention Health Facility Assessment of Emergency Obstetric Care in Cross River State, Nigeria: *The Saving Mothers, Giving Life (SMGL) Initiative*



About E2A

The Evidence to Action Project (E2A) is USAID's global flagship for strengthening family planning and reproductive health service delivery. The project aims to address the reproductive healthcare needs of girls, women, and underserved communities around the world by increasing support, building evidence, and leading the scale-up of best practices that improve family planning services. A Cooperative Agreement awarded in September 2011, E2A is led by Pathfinder International in partnership with ExpandNet, Intrahealth International, Management Sciences for Health, and PATH.

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Acronyms

AGPMPN	Private Medical Practice Medical Practitioners of Nigeria
AIDs	Acquired Immuno Deficiency Syndrome
AMSTL	Active Management of Third Stage of Labor
ANC	Antenatal Care
AVD	Assisted Vaginal Delivery
BEmONC	Basic Emergency Obstetric and Newborn Care
CBO	Community Based Organizations
CEmONC	Comprehensive Emergency Obstetric and Newborn Care
CHEW	Community Health Extension Worker
CHO	Community Health Officer
CHW	Community Health Worker
CRS	Cross River State
E2A	Evidence to Action for Strengthened Family Planning and Reproductive Health Services for Women and Girls
EmONC	Emergency Obstetric and Newborn Care
FHI	Family Health International
FMoH	Federal Ministry of Health
GIS	Geographic Information Systems
HC	Health Center
HFA	Health Facility Assessment
HFG	Health Finance and Governance
HIV	Human Immunodeficiency Virus
HMIS	Health Management Information System
HP	Health Post
LGA	Local Government Authority
M&E	Monitoring and Evaluation
MAMA	Mobile Alliance for Maternal Action
MMR	Maternal Mortality Ratio
MNH	Maternal and Newborn Health
MVA	Manual Vacuum Aspiration
NDHS	Nigeria Demographic and Health Survey
NGO	Non-Governmental Organization
NMR	Neonatal Mortality Rate
NYSC	National Youth Service Corps
Ob-Gyn	Obstetrician - Gynecologist
PEPFAR	President's Emergency Plan for AIDs Relief
PHC	Primary Health Care
PMTCT	Preventing Mother-to-Child Transmission of HIV
SBA	Skilled Birth Attendance/Attendants
SMGL	Saving Mothers Giving Life
SMS	Short Messaging Service
UNFPA	United Nations Population Fund
USAID	United States Agency for International Development
WHO	World Health Organization

Summary Findings¹ from the SMGL Health Facility Assessment, All LGAs, Cross Rivers State, December 2014 and June 2015*

Cross Rivers State, Demographic Estimates, 2014: Nigeria National Census, 2006 projections	
Population	3,648,404
Women 15-49	963,948
Livebirths and Mortality Statistics, Cross River State, Health Facility Assessment	
Live Births	25,808
Maternal Mortality Ratio per 100,000 live births	876
Early Neonatal Mortality Rate per 1,000 live births (first 24 hours)	15
Number of Facilities with EmONC Status (in 12 months preceding HFA)	
Any delivery services in the past 12 months	812
Comprehensive Emergency Obstetric and Neonatal Care	21
Basic Emergency Obstetric and Neonatal Care (BEmONC)	9
BEmONC without Assisted Vaginal Delivery	19
Other (offered any delivery services in the last 12 months)	763
Facility Staffing**	
Skilled Birth Attendants (SBAs)	3,502
Medical Personnel	4,892
Total Employees	6,158
Services Performed (in the 12 months preceding HFA)	
Deliveries	29,960
Percent Health Facilities with Basic Infrastructure (n=812)	
Piped water (available in facility or available for patients and staff)	6.2%
Functioning toilet (usable flush toilet or latrine) available for client use	46.9%
Electricity	56.8%
Cellphone owned by facility	7.1%
Cellphone owned by individual staff member	91.7%
Cellphone owned by individual staff member used for referral in the last month	36.7%
Transportation***	18.1%
Percent of Facilities with (n=812):	
No stock-outs of Oxytocin in the last 12 months	48.9%
No stock-outs of Magnesium Sulphate in the last 12 months	12.2%
Staff routinely practicing active management of third stage of labor	86.9%
At least one SBA	90.4%
Official audit or case reviews of maternal deaths	4.8%
* Health Facility Assessment (HFA) was conducted in two rounds – December 2014 in the 8 southern LGAs (HFA-I) and June 2015 in the 8 northern LGAs (HFA-II). Consolidated results are presented.	
** Facility Staffing	
Skilled Birth Attendants (SBAs) are defined as medical officers, obstetricians and gynecologists, Youth Corps Doctors, registered midwives, registered nurses, community nurses, community health officers, and community health extension workers (CHEWs).	
Medical Personnel is defined as SBAs; specialists (pediatricians), radiology staff (radiologist and radiology technicians), anesthesiology staff (anesthesiologists and anesthesiology technicians), and junior CHEWs.	
Total Employees include Medical Personnel (SBAs and “other medical”), other non-medical staff, and auxiliary nurses.	
*** Transportation includes facilities with functional 4-wheeled motor vehicle or motorcycle or motorized tricycle or boat.	

¹Data from the data extraction forms are currently under review and analysis. The data will be presented subsequently in an addendum to this report.

I. Executive Summary

In collaboration with host governments and other stakeholders, the *Saving Mothers Giving Life (SMGL)* initiative is committed to accelerating the reduction in maternal and newborn mortality through targeted interventions addressing the Three Delays Model. The SMGL initiative addresses the three delays in accessing maternal and newborn health care by improving quality of obstetric and neonatal care with a special focus on the time of labor, delivery, and the first 48 hours postpartum. The three delays addressed are:

Delay One: Recognition of the need to seek care and making the decision to do so

Delay Two: Physically accessing care when necessary

Delay Three: Receiving appropriate care once in a health facility

A major objective of the SMGL initiative is to have every pregnant woman deliver in a functional health care facility, attended by skilled birth attendants (SBAs), with access to emergency obstetric and newborn care, when needed.

In Nigeria, the SMGL initiative is designed to leverage and integrate maternal and newborn health services with family planning/reproductive health/maternal, newborn, and child health and HIV/AIDS programs in Cross Rivers State (CRS). To assess the extent to which primary, secondary, and tertiary public and private health facilities are equipped to provide quality basic and comprehensive emergency obstetric and newborn care, the USAID-funded Evidence to Action (E2A) Project conducted a Health Facility Assessment (HFA) in two phases: December 2014 for nine southern local government areas (LGAs) and June 2015 for nine northern LGAs in CRS.

The HFA consisted of two data sources: those routinely collected from the health facilities as part of the health management information system (HMIS), and those not routinely collected from the health facilities. Both data sources were analyzed to determine gaps in the readiness of the health facilities to provide quality services, as well as to identify the types of interventions needed to improve emergency obstetric and newborn care. This report, which summarizes the HFA, is organized by the Three Delays Model that the SMGL Initiative works to improve.

Results of the HFA and review of the HMIS data showed that the maternal mortality ratio (876 per 100,000 live births) in CRS is higher than the national average, and health facilities and systems need to be strengthened. The results also highlighted the need for community engagement that informs women about when and where to seek services (Delay One). One key to improving maternal and obstetric care in CRS will be ensuring women have the necessary information to know when and where they need to seek care.

The focus of the HFA was on health facility capacity. The HFA gathered information on the number of facilities that were fully equipped and provided basic emergency obstetric and newborn care (BEmONC) and comprehensive emergency obstetric and newborn care (CEmONC) services^a in the last 12 months. The HFA showed that an insufficient number of health facilities in CRS were capable of providing the BEmONC and CEmONC services. Capacities of health facilities were not evenly distributed in CRS, with some higher-capacity facilities in the North and some in the South.

Delay Three assessed the ability of women to access quality care at the health facility. In regards to this delay, there was a lot of variation by facility type (hospital, health center) and private versus public facility. Many facilities did not report providing the 7 BEmONC signal functions within the last 12 months, inadequate staffing of SBAs, and poor infrastructure at the health facilities.

^a BEmONC consists of these 7 signal functions: parenteral administration of antibiotics; administration of uterotonic drugs (Oxytocics or Misoprostol); parenteral anticonvulsants (magnesium sulphate); manual removal of placenta; removal of retained products; assisted vaginal delivery (with vacuum extractor or forceps); and newborn resuscitation. CEmONC services consist of the 7 BEmONC signal functions plus the following two: cesarean delivery and blood transfusion related to labor and delivery.

The report provides insight into the current capacity and services available to women in CRS in accessing life-saving obstetric care. It concludes with recommendation for improving care at the facility (Delay Three), improving the ability of women to reach the facility (Delay Two), and engaging women on when and where to seek care (Delay One).

2. Background

Despite several decades of donor investments in different interventions, maternal, newborn, infant, and child mortality rates are still high in Nigeria, showing little improvement over the years. The 2013 Nigeria Demographic and Health Survey (NDHS)¹ showed that the:

- Neonatal mortality rate (NMR) declined from 46 per 1,000 live births in the 1999-2003 period to 37 per 1,000 live births in the 2009-2013 period;
- Infant mortality rate declined from 93 per 1,000 live births in the 1999-2003 period to 69 per 1,000 live births in the 2009-2013 period;
- Under-five mortality rate declined from 185 per 1,000 live births in the 1999-2003 period to 128 per 1,000 live births in the 2009-2013 period; and
- Maternal mortality ratio (MMR) was 576 per 100,000 live births.

The infant and child mortality data show that in the 2009-2013 period, 29% of under-five deaths occurred in the first month of life. Nigeria's MMR in 2013 was one of the highest in the world; the mortality statistics from this period translate to 241,000 newborns and 33,000 women dying each year from largely preventable obstetric and newborn causes, with little change in the MMR between 2008 and 2013 (545 per 100,000 live births in the 2008 NDHS² and 576 per 100,000 livebirths in the 2013 NDHS).¹ Data from Nigeria's Five-Year Countdown Strategy for achieving the Millennium Development Goals (MDGs) show that although MMRs fell from 800 deaths per 100,000 live births in 2003 to 545 deaths per 100,000 live births in 2008, progress related to this goal has been slow and challenges remain.³ These deaths have occurred despite the fact that Nigeria has a growing economy, a large number of trained health providers, and the existence of low-cost life-saving. Nigeria has committed to the global pledge to end preventable child and maternal deaths and achieve an AIDS-free generation by 2035.

In addition to other interventions designed to reduce maternal mortality and achieve the MDG target of 250 maternal deaths per 100,000 live births, the government, in collaboration with development partners, has continued to improve access to quality maternal health services through the Community Health Insurance Scheme and the Midwives Service Scheme.³ Despite the existence of these schemes, over the years, budget allocations for health have been inadequate, and availability and deployment of existing resources have been uneven across regions/states (and within states, between rural and urban centers). The decentralized nature of the health care system poses additional challenges, making it necessary to cultivate support and leadership from several levels of government and professional associations for an initiative to facilitate positive health outcomes at the community, local government, state, and federal levels.

Coverage of key maternal and neonatal health (MNH) interventions, such as skilled birth attendance, delivery at health facilities, and tetanus toxoid injections vary widely across regions and within regions/states, influencing availability of quality obstetric and newborn health services; however, caution must be exercised in interpreting coverage data. Wide coverage of the MNH interventions might not necessarily translate to better MNH outcomes, as reflected in the MMR and NMR. Unless the quality of care at the health facilities is generally good, increased health facility deliveries may not necessarily translate to significant improvements in maternal and newborn survival. Thus, while efforts should be invested to improve the coverage of key MNH interventions, more efforts are required to improve quality of obstetric and newborn care services in health facilities in Nigeria. The *Saving Mothers, Giving Life (SMGL)* initiative addresses the three delays in accessing MNH care by improving quality of obstetric and neonatal care with a special focus on the time of labor, delivery, and the first 48 hours postpartum.

The three delays addressed are: (1) recognition of the need to seek care and making the decision to do so; (2) physically accessing care when necessary; and (3) receiving appropriate care once in a health facility. A major objective of the SMGL initiative is to have every pregnant woman deliver in a functional health care facility, attended by skilled birth attendants (SBAs), with access to emergency obstetric and newborn care, when needed.

2.1 The Health Care System in Nigeria

Nigeria operates both orthodox and traditional health care delivery systems that are formally independent of each other.⁴ While individuals or families largely provide traditional health care services, the public and private sectors operate the orthodox health care system. The public health service is organized into primary, secondary, and tertiary care. Different categories of community health extension workers (CHEWS) provide primary health care (PHC) at primary health facilities (health centers and health posts) owned by communities and local governments. The primary health facility services are complemented by those of voluntary village health workers at the community level. In 2011, the estimated total number of health facilities in Nigeria was 34,300, of which 30,221 (88%) were PHC facilities; 3,996 (11%) were secondary health care facilities; and 83 (1%) were tertiary health care facilities. Of the 30,221 PHC facilities, 21,028 (72%) were public sector owned, while the remaining 8,413 (28%) were private sector owned. At the secondary health care level, 969 (24%) of 3,996 health facilities were publicly owned while 3027 (76%) were privately owned. Of the 36 states and the Federal Capital Territory (FCT), Lagos State, with 2,253 facilities, had the most health facilities. Kaduna State was second with 1,588 health facilities, and Cross Rivers State (CRS) was twenty-fourth with 734 health facilities.⁵

The National Health Policy ascribes responsibilities for PHC to local governments, secondary care to states, and tertiary care to the federal government. However, federal-level parastatals—for example, the National Primary Health Care Development Agency—are involved in the development and provision of PHC services. Although national policies, formulated by the Federal Ministry of Health, provide some level of standardization, each level is largely autonomous in the financing and management of services under its jurisdiction.

The PHC facilities are the communities' entry points into the health care system. They include health centers (HCs) and clinics, dispensaries, and health posts (HPs) which typically provide general preventive, curative, promotive, and pre-referral care. PHC facilities are typically staffed by nurses, community health officers (CHOs), CHEWs, junior CHEWs, and environmental health officers. Local Government Areas (LGAs) finance and manage PHC services under the supervisory oversight of the state government.⁶

2.2. The Goal and Objectives of the Saving Mothers, Giving Life Initiative in Nigeria

Goal: In collaboration with host governments and other stakeholders, the SMGL initiative is committed to accelerating the reduction in maternal and newborn mortality. In line with this commitment, SMGL interventions in Nigeria are expected to lead to a 15% reduction in MMR and a 10% reduction in NMR in the intervention areas of CRS at the end of the first two years of program implementation (that is, at the end of September 2017).

Objectives:

In line with the goal of the SMGL initiative—to have every pregnant woman deliver in a functional health facility attended by SBAs with access to emergency obstetric and newborn care as needed—the objectives of the SMGL initiative in Nigeria are to:

1. Increase timely utilization of institutional delivery services.
2. Ensure women and their newborns receive key health services including the use of life-saving innovations in an integrated manner (e.g., counseling on self-care, knowledge of danger signs, and the importance of birth preparedness and birth planning; access to HIV counseling and testing, use of Anti-Retroviral Therapy and PMTCT services; prevention and treatment of malaria; treatment of anemia; post-abortion care; postpartum family planning).
3. Improve the quality of maternity care and institutional delivery services, including emergency obstetric and newborn care (EmONC).

4. Strengthen the capacity of health system to capture, evaluate, and report on birth outcomes using community and facility health information systems, and strengthen essential drugs/commodity logistics systems.

2.2.1 SMGL Programming Approach

The SMGL interventions aim to increase the coverage and quality of MNH and HIV services with consequent improvements in health outcomes. In Nigeria, as in other countries, the SMGL district strengthening approach works to address the three delays to women accessing life-saving maternity and newborn health care. These are the delays in making the decision to seek appropriate care, in reaching a health care provider in a timely manner, and in receiving quality respectful care at the facility; with a special focus on the time of labor, delivery, and the first 48 hours postpartum. In addition, SMGL provides technical assistance to the national government to update policies and standards, adapt training materials, and train national master trainers on high-impact interventions. SMGL interventions are intended and designed to leverage and integrate MNH services with ongoing and planned family planning/reproductive health/maternal, newborn, and child health and HIV/AIDS programs in CRS, particularly with the Evidence to Action (E2A) Project's USAID-funded Nigeria Private Sector PMTCT Plus project and the FHI360-led Strengthening the Delivery of HIV/AIDS Service project.

The SMGL interventions will take place in the 18 LGAs of CRS from 2015-2017 in public facilities, as well as private facilities with funding from Merck for Mothers. The selection of CRS for the implementation of the SMGL initiative was based on the following:

1. Selection of states from the PEPFAR Tiers 1 and 2 (top priority, based on desire to build on a robust PEPFAR platform). Of the 36 states in Nigeria and the FCT, 8 were in Tiers 1 and 2: Akwa Ibom, Benue, CRS, FCT, Kaduna, Lagos, Nassarawa, and Rivers.
2. Elimination of 3 states with a level 3 security rating (high risk), leaving 5 states.
3. Discussions with key stakeholders about programming realities and a review of the epidemiologic context, which led to the selection of CRS in South-South Nigeria as the most promising location for SMGL implementation.

To obtain buy-in and stakeholder support at the federal and state levels for the SMGL initiative, USAID and the E2A Project held a national stakeholders meeting in Abuja, on November 20, 2014, to formally present the SMGL initiative, including E2A's Health Facility Assessment (HFA) and gain buy-in at the federal and state levels. Participants included staff of the Federal Ministry of Health, CRS Ministry of Health, donors, professional associations, relevant regulatory bodies, and implementing partners engaged in MNH.

At appropriate times during the planning and implementing phase, stakeholder meetings will be co-hosted by USAID and E2A/SMGL to present preliminary findings from the HFAs, and seek input for specific programming strategies that are evidence-driven with regular progress briefings during the implementation phase.

2.3 Maternal, Newborn and Child Health in Cross River State

CRS is a coastal state in southeastern Nigeria, bordering Cameroon to the east, Benue State to the north, Ebonyi and Abia States to the west, and Akwa Ibom and the Atlantic Ocean to the south. Located in the Niger Delta, CRS occupies 20,156 square kilometers. Its capital is at Calabar and the river that has its namesake cuts across the state. The state is largely covered with swampy rainforest and numerous creeks. The river has many tributaries and forms an inland delta near its confluence with the Calabar River between the cities of Oron (Akwa Ibom State) on the west bank and Calabar on the east bank, making the terrain difficult to traverse. Figure 1 illustrates the geography of CRS and its 18 LGAs, based on the 2006 boundaries.

While the NMR and MMR are unavailable for CRS, other relevant statistics from the 2013 NDHS¹ describe a situation slightly better than national statistics. Table 1, on page 15, illustrates the relevant maternal and child health (MCH) indicators for Nigeria, South-South and CRS described in the 2013 NDHS.¹ For example, the

2013 NDHS shows that in CRS, nearly 73% of women seek antenatal care (ANC) and 73% receive tetanus toxoid, compared to the national averages of 61% for ANC and 53% for tetanus toxoid. However, only about 40% of all deliveries took place in the health facilities (about 34% in public health facilities and 6% in the private health facilities). Among those not delivering in health facilities, cost (32.5%) and geographic distances (13.4%) were cited as the most common reasons.¹

Figure I: Map of Cross River State, with Local Government Area boundaries

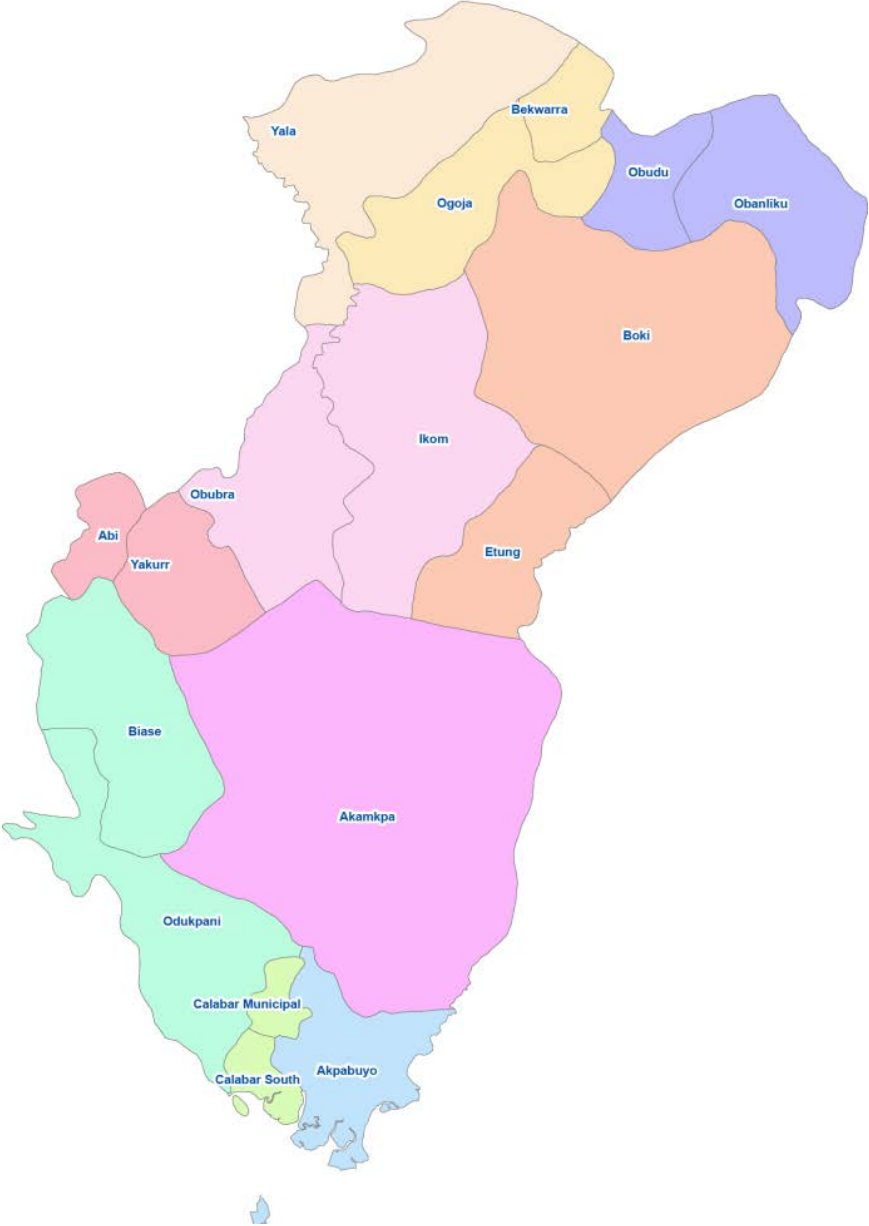


Table 1: Relevant SMGL indicators—national, South-South, and CRS

	ANC (%)	SBA (%)	% deliveries in health facility	% babies breastfed before one hour	% women that obtained tetanus toxoid	Modern CPR (%)	Neonatal Mortality Rate*	Maternal Mortality Ratio**	Population (in millions)
National	61	38	36	22	53	9.8	37	576	170
South-South	73.0	55.4	50.1	42.5	73.0	16.4	32	-	25.2
Cross River State	72.6	41.3	40.4	32.8	73.2	14.4	-	-	3.5

*Neonatal Mortality Rate: per 1,000 live births

**Maternal Mortality Ratio: per 100,000 live births

3. Methodology

3.1 The Health Facility Assessment Design

The HFA tool was administered to assess the extent to which primary, secondary, and tertiary public and private health facilities are equipped to provide quality basic and comprehensive emergency obstetric and newborn care—that is, labor, delivery and postpartum care—within the first 48 hours after delivery. The HFA data included two sources: those routinely collected from the health facilities as part of the health management information system (HMIS) and those not routinely collected from the health facilities. Both data sources are necessary to determine gaps in the readiness of the primary, secondary, and tertiary health facilities to provide quality obstetric and newborn services and to guide the types of interventions to improve MNH outcomes by addressing the Three Delays. Data collection was conducted in two phases:

- Phase One (HFA-I): data collection conducted in December 2014 for the nine southern LGAs
- Phase Two (HFA-II): data collection conducted June-July 2015 for the nine northern LGAs

3.1.1 Selection of Health Facilities, Training of Research Assistants, and Fieldwork

To be included in the assessment, a health facility must have conducted at least one delivery in the 12 months preceding the month of assessment. The LGA PHC coordinators were asked to provide lists of all public and private health facilities in their LGAs that met this inclusion criterion prior to field work. In total, 1,038 public and private health facilities were listed. All the listed facilities were visited by the research assistants who were instructed to confirm the delivery status of each facility by asking the in-charge whether any delivery took place in the facility in the 12 months preceding the assessment and by checking available records on delivery. The research assistants were instructed only to conduct the assessment in any facility with a record of a delivery in the 12 months preceding the assessment. Of those considered, 812 health facilities^b met the inclusion criterion at the time of assessment. The HFA results will inform how the SMGL global programming model will be adapted in the 18 CRS LGAs. In addition, the results will provide the baseline figures for some SMGL program performance indicators.

3.1.2 Data Collection Instruments

Two instruments were used to collect data—the HFA core questionnaire (data not routinely collected) and the data extraction forms (data routinely collected by the HMIS). The HFA core questionnaire had seven modules:

^b HFA I = 268 facilities; HFA II = 544 facilities

Introduction and Consent; Identification of Facility and Infrastructure; Human Resources; Maternal and Neonatal Healthcare Medications, Equipment, and Supplies; EmONC Signal Functions and Other Essential Services^c Documents, Protocols and Guidelines; and, Community Mobilization. The questionnaire asked about the circumstances 12 months prior to the HFA for all indicators as well as performance 3 months prior to the HFA for questions related to signal functions. The data extraction form was used to extract relevant SMGL program indicators from the service delivery monthly summary forms, and maternity and newborn service delivery registers.

SMGL has standard HFA tools used across all three SMGL countries—Uganda, Zambia, and Nigeria—to permit cross-country comparisons. The HFA core tool was adapted and shortened to accommodate Nigeria’s health system profile. Both tools were pretested, revised appropriately, and applied in Nigeria.

3.1.3 The Field Team

The field team members were supervisors and data collectors/research assistants. The supervisors were selected from a pool of mid-level health officials from the Ministry of Health, other relevant government departments, and the Association of Private Medical Practitioners of Nigeria (AGPMPN). The LGA PHC coordinators were also involved in identifying the field team. For each phase of the assessment, there were nine supervisors (one for each LGA). In addition, a lead supervisor was recruited to oversee the implementation of each phase of the HFA. The data collectors consisted of recent graduates from tertiary institutions in Nigeria who were on national service (youth corps) and others with some survey experience.

3.1.4 Training of Field Team

For each phase of the HFA, the field team (supervisors and data collectors) was trained to improve their interviewing skills as well as their ability to conduct health facility inventories, observe physical conditions of the health facilities, and extract relevant maternal and newborn performance indicators from the monthly summary forms and labor and delivery register. For HFA-I, a four-day training, consisting of plenary sessions, small group discussions, and field practice, was conducted. For HFA-II, which included several questions from the Health Finance and Governance project (HFG), a two-day training of supervisors, which prepared them to effectively lead their teams, preceded a five-day general training of field workers. To assess level of understanding and promote participation, supervisors were assigned sessions to lead under the guidance of the facilitators (E2A M&E staff). Both the two-day training of supervisors and the five-day training of all field workers consisted of plenary sessions, small group discussions, and field practice. SMGL Uganda staff supported the HFA I training to encourage “South-to-South” collaboration.

3.1.5 Data Collection

For each phase of the HFA, data collection started the week after the training. For the nine southern LGAs, (HFA-I: Abi, Akamkpa, Akpabuyo, Bakassi, Biase, Calabar Municipal, Calabar South, Odukpani, and Yakurr) data collection started on December 1, 2014 and ended about December 19, 2014. For the nine northern LGAs (HFA-II: Bekwarra, Boki, Etung, Ikom, Obanliku, Obubra, Obudu, Ogoja, and Yala) data collection started on June 15, 2015 and ended around July 10, 2015. Nine teams of fieldworkers were deployed for each phase, representing one team per LGA. The size of each team was determined by the estimated number of facilities to be assessed, with LGAs with more health facilities having bigger teams. Data were collected using the HFA core questionnaire and the

^c Other EmONC essential services include: whether staff routinely practice active management of third stage of labor; routinely use a partograph to manage labor; routinely practice the Help Babies Breathe protocol; routinely practice skin-to-skin mother care; whether a breech delivery has been performed in the last three months; whether rapid testing is performed in the maternity/labor ward for mothers of unknown HIV status; whether ARVs are given to HIV-infection mothers and exposed newborns in the maternity/labor ward in the last three months; if special or intensive care is provided to preterm or low birthweight babies in the last three months; if short-, long-term, and permanent family planning methods are provided in the last three months; whether postabortion contraception has been provided; and whether there is a mothers’ shelter.

data extraction form. In addition, supervisors and team members obtained geographic information system (GIS) coordinates of each facility to determine the spatial distribution of the health facilities. The supervisors reviewed completed tools for data quality—daily in the field for completeness and later in the evening to identify any data inconsistencies. The lead supervisor did a second-level review of completed forms and recommended follow-up actions as necessary.

3.1.6 Data Quality Assurance

Several quality assurance measures were implemented to ensure that data were of high quality. In addition to the training described above, supervisors and E2A/Pathfinder staff monitored the fieldwork to ensure completeness of data and to ensure adherence to assessment guidelines. A data quality consultant also collected data independently in randomly selected facilities. This data was not significantly different from those collected by the research assistants. Field teams also met daily to review their work, discuss problems and challenges, explore ways to improve data-collection activities, and plan for the following day.

3.1.7 Data Entry and Analysis

For the HFA core questionnaire, a data-entry template was developed in CSPro by Auricle Services, Nigeria. The data-entry screens were made to mirror the questionnaires to facilitate speedy and accurate data entry. Double entry was done for about 20% of the facilities. Once the data for all the assessed facilities were completely entered electronically, the CSPro dataset was converted to SPSS. For HFA-I, the data collected through the data extraction form were entered in Excel. However, based on the challenges encountered in generating relevant tables from the Excel file, data from HFA-II data extraction form was entered in CSPro. The CSPro data file was later converted into SPSS. Data from HFA-I and HFA-II were combined and analyzed for this report.

E2A staff analyzed the data, using a data analysis plan generated by SMGL M&E team for cross-country standardization, which outlined the type of analysis to be conducted. Frequency tables were generated, as appropriate, to show the distribution of facilities by variables of interest or level of indicators. Bivariate analyses explored relationships between variables. E2A staff wrote this report. Indicators collected for the purposes of the HFG program (HFA-II) are not included in the report.

3.1.8 Limitations of the Health Facility Assessments

Although the HFA is a census of all health facilities that reported one or more deliveries in the 12 months preceding the assessment, our selection might have missed facilities that, for one reason or the other, did not record or confirm any delivery during the reference period. In addition, there were several cases of missing data, particularly in the nine northern LGAs (HFA-II), making it difficult to have true values for some indicators of interest. In several cases, it was difficult to determine whether the missing values represented ‘not applicable,’ ‘no response,’ or ‘non-availability of data’ at the time of the HFA.

Furthermore, the GIS coordinates of a few health facilities, as recorded during the assessments, were inaccurate. Consequently, the initial GIS mapping showed those facilities to be outside of the LGAs in which they are physically located. The assessment team could fix most of the errors by revisiting and retaking the GIS coordinates in these affected health facilities.

Additionally, the data extraction was in part reliant on the HMIS, and therefore any shortcomings in the data reported, including data inconsistencies, are reflected in the HFA data collection process. This limited the data usability of certain indicators^d.

^d Data from the data extraction forms are currently under review and analysis; results will be presented subsequently in an addendum to this report.

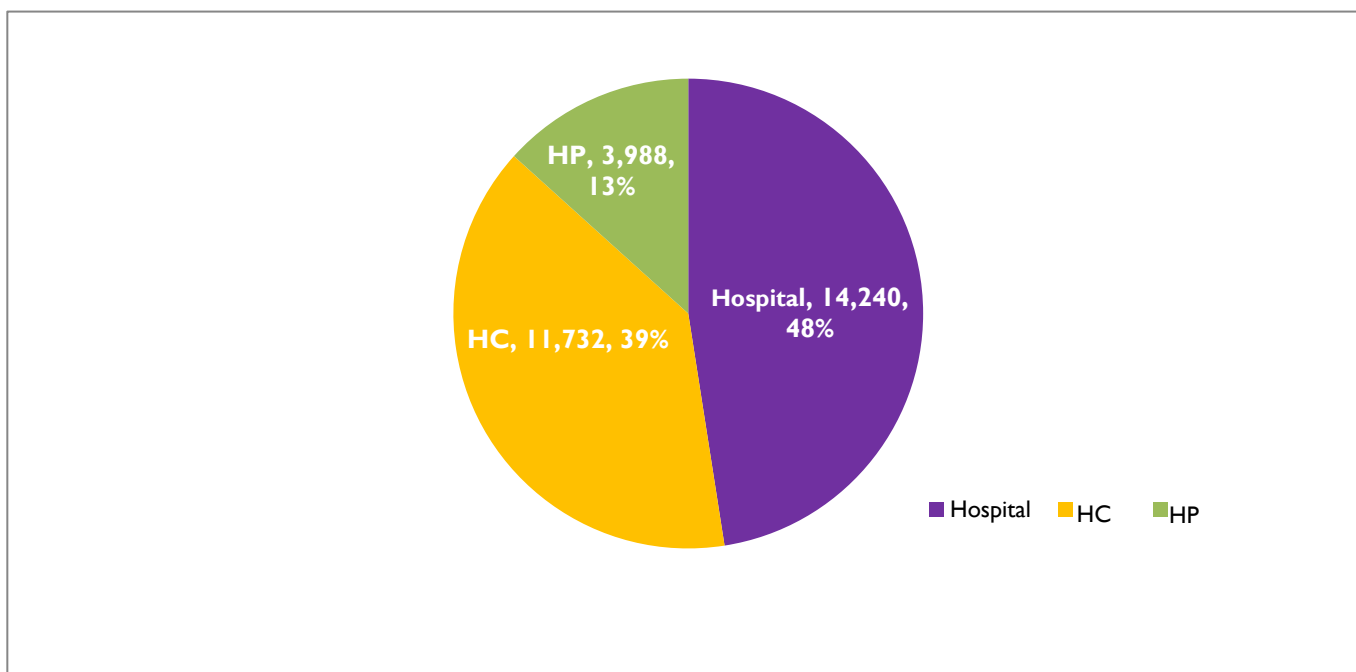
4. Results of Health Facility Assessment, Cross River State

The results of the HFA are presented in order of the three delays and include data from the core questionnaire and data extraction tool relevant to each delay.^d The data identifies the landscape of MNH resources in CRS.

4.1 Location of Deliveries

As indicated above, a census of all facilities that reported one or more deliveries in the 12 months preceding the HFA was assessed. There was a total of 29,960 deliveries reported 12 months prior to the HFA from the 812 public and private health facilities assessed. Figure 2 below illustrates the distribution of deliveries in the 12 months preceding the HFA by facility type (hospital, health center, and health post).

Figure 2: Distribution of deliveries in the 12 months preceding the HFA by facility type; HFA-I (December 2014) and HFA-II (June 2015)



Among all deliveries, 48% (n=14,240) reported in HFA-I and HFA-II occurred in a hospital setting as compared to 39% at HCs and 13% at HPs. However, northern and southern LGAs (HFA-I and HFA-II, respectively) disaggregated findings, depicted a different distribution (Appendix I, Figure 6). The majority of deliveries (62%; n=15,046) in the southern LGAs (HFA-I) were reported at hospitals, whereas hospital deliveries comprised only 33% (n=15,010) in the northern LGAs (HFA-II). The majority of all deliveries in the northern LGAs were reported either from HCs (46%) or HPs (21%).

4.2 Characteristics of Facilities Assessed

In the 18 LGAs of CRS, 728 public and 84 private health facilities reported conducting at least one delivery in the 12 months preceding the HFA. The public health facilities consisted of 18 hospitals, 348 HCs, and 362 HPs. The private facilities consisted of 53 hospitals and 31 HCs. There were no private HPs in CRS (Table 2 on the next page).

Table 2: Distribution of facilities assessed; HFA-I (December 2014) and HFA-II (June 2015)

Facility (Public/Private)	Total	Hospital	Health Center	Health Post
Public	728	18	348	362
Private	84	53	31	N/A
Total	812	71	379	362

Regional Differences

The distribution of facilities disaggregated by northern and southern LGAs (Appendix 1, Table 12) shows significant variations in the numbers of health facilities by facility type, possibly due to differences in population size and the rural-urban composition of the LGAs.^e While Calabar municipality had 3^f of the 11 public hospitals and 9 of the 20 private hospitals, Abi and Bakassi did not have any hospitals reporting at least one delivery in the 12 months preceding HFA-I. The number of public HCs in the northern LGAs ranges from 11 in Etung to 42 in Yala and the number of private HCs ranges from 0 in Etung and Obudu to 6 in Yala, with all facilities reporting at least one delivery in the 12 months preceding HFA-II.

4.3 Emergency Obstetric and Newborn Care

The World Health Organization (WHO), the United Nations Population Fund (UNFPA), and the Averting Maternal Death and Disability program have defined nine essential EmONC services termed as "Signal Functions" for the treatment and management of MNH complications.⁷ The designation of an EmONC facility depends upon round-the-clock availability of services and whether these life-saving signal functions have been performed recently. To qualify for a Basic EmONC (BEmONC) facility status, the health facility (hospitals, HCs, or HPs) must have performed the following 7 signal functions: parenteral administration of antibiotics; administration of uterotonic drugs (Oxytocics or Misoprostol); parenteral anticonvulsants (magnesium sulphate); manual removal of placenta; removal of retained products; assisted vaginal delivery (with vacuum extractor or forceps); and newborn resuscitation. The comprehensive emergency obstetric and newborn care (CEmONC) services consist of the 7 BEmONC signal functions and the following two: cesarean delivery and blood transfusion related to labor and delivery.

Within this report, facilities are characterized as BEmONC and CEmONC based on the number of signal functions reported in the 12 months preceding the assessment. A health facility is classified as providing BEmONC services if it reported to have performed all 7 signal functions associated with BEmONC. To qualify as a CEmONC health facility, a facility must have provided all 9 signal functions associated with CEmONC. Health facilities that performed all BEmONC functions, except assisted vaginal delivery, are classified as BEmONCwoutAVD. The 'others' category refers to the remaining facilities that provided one or more than one of the signal functions. In Nigeria, HCs are expected to provide BEmONC services and hospitals are expected to provide CEmONC services.

4.4 Maternal and Neonatal Severe Morbidity and Mortality

Data on deliveries, obstetric complications, and mortality in each of the 12 months prior to the HFAs were extracted from the completed National HMIS Monthly Summary Form for Health Facilities. For the nine

^e Hospitals are usually more concentrated in the urban areas; health posts are usually more concentrated in rural areas.

^f One of the three hospitals is the University of Calabar Teaching Hospital, the only tertiary health facility in the state.

southern LGAs (HFA-I), data were collected for each month between November 2013 and October 2014. For the nine northern LGAs (HFA-II), data were collected for each month between June 2014 and May 2015. As previously stated, all data presented represents the 18 CRS LGAs, unless otherwise noted.

At the 812 health facilities assessed in the 18 LGAs, 29,960 deliveries were recorded in the 12 months preceding the assessment. Of the 29,960 recorded deliveries, 25,808 were recorded as live births; an equal number of deliveries occurred in the northern and southern LGAs. Because the data were extracted from the monthly summary forms, we were not able to collect information to explain the difference (14%) between the number of reported deliveries and live births, though perhaps some of these deliveries might reflect either stillbirths or abortions.

Regional Differences

With an MMR of 876 per 100,000 livebirths, the MMR in CRS is high by all standards and efforts must be made to reduce this significantly. It is important to note the regional differences in the MMR. The southern LGAs (HFA-I; December 2014) reported 90 maternal deaths, yielding an MMR of 750 per 100,000 livebirths. For the northern LGAs (HFA-II; June 2015), 136 maternal deaths were reported, yielding an MMR of 984 per 100,000 livebirths.

4.5 Delay One: Recognition of the Need to Seek Care and Making the Decision to do so

The first delay in accessing emergency care relates to the ability to identify the need to seek emergency obstetric and newborn care. A health facility can contribute to improving this delay through their community mobilization and outreach activities. Health facilities are expected to conduct community outreach to create awareness about the services they offer and the need for community members to access these services. During the HFA, facilities were asked to state whether: (i) they conduct community outreach to increase demand and use of selected services; and (ii) there are community-based organizations (CBOs) that link the community to the health facility to improve community health and increase demand for selected services. The results are presented in Table 3.

Hospitals, public or private, rarely conduct outreach activities. Only 6 of 18 public hospitals reported ever conducting community outreach. Among private hospitals, the percentages that have ever conducted outreach activities range from 9% for male involvement in MNH to 23% for family planning services. Although these percentages are much lower than expected, a greater percentage of the HCs and the HPs reported conducting community outreach activities. For the public HCs, the percentage that conducted community outreach ranged from 32% for male involvement in MNH to 53% for ANC. For the private HCs, the percentages range from 28% for male involvement in MNH to 50% for ANC. For the HPs, the percentages range from 27% for male involvement in MNH to 48% for ANC.

The lower panel in Table 3 shows the number and percentages of health facilities that reported working with CBOs that link communities to any of their services. Only a few health facilities reported the existence of such relationships. These results show little collaboration between the health facilities and the CBOs.

There were no major differences in facilities conducting outreach services between the southern (HFA-I; December 2014) and northern (HFA-II; June 2015) LGAs.^g

^g Data available upon request

Table 3: Percent of health facilities that reported to conduct outreach services (ongoing and frequently) and existence of community-based organizations, by facility type; HFA-I (December 2014) and HFA-II (June 2015)

Frequent and ongoing community mobilization efforts	Public						Private			
	Hospital		Health Center		Health Post		Hospital		Health Center	
	11	%	138	%	88	%	20	%	11	%
Community outreach to increase demand and use										
HIV testing	5	27.8	151	43.5	108	29.8	8	15.1	14	43.8
PMTCT	5	27.8	156	45.0	110	30.4	6	11.3	13	40.6
Antenatal care	6	33.3	183	52.7	172	47.5	9	17.0	16	50.0
Facility-based deliveries	4	22.2	169	48.7	160	44.2	10	18.9	12	37.5
Newborn care	4	22.2	162	46.7	161	44.5	8	15.1	13	40.6
Family planning	6	33.3	159	45.8	135	37.3	12	22.6	14	43.8
Male involvement in maternal and neonatal health	5	27.8	110	31.7	96	26.5	5	9.4	9	28.1
Existence of community-based organization to create demand for services										
HIV testing	6	33.3	120	34.6	84	23.2	8	15.1	8	25.0
PMTCT	6	33.3	114	32.9	82	22.7	9	17.0	6	18.8
Antenatal care	7	38.9	122	35.2	118	32.6	10	18.9	8	25.0
Facility-based deliveries	7	38.9	118	34.0	111	30.7	6	11.3	7	21.9
Newborn care	6	33.3	111	32.0	113	31.2	6	11.3	7	21.9
Family planning	7	38.9	118	34.0	89	24.6	12	22.6	6	18.8
Male involvement in maternal and neonatal health	5	27.8	84	24.2	72	19.9	3	5.7	4	12.5

4.6 Delay Two: Physically Accessing Care When Necessary

Delay two examines a woman's ability to access care once the decision has been made to do so. This includes distance and accessibility to a nearby health facility and cost and resources needed to reach the appropriate facility. The WHO recommends that subnational areas should have at least five facilities providing BEmONC and at least one CEmONC facility, per population of 500,000. With an estimated total population of 3,648,404, CRS should have 37 facilities providing emergency obstetric care by WHO standards. Of these 37 facilities, 8 should be CEmONC facilities. As per WHO guidelines, the distribution of these facilities is also important as not to disadvantage women in rural areas.

Table 4 highlights the distribution of health facilities with reported CEmONC and BEmONC services within the 12-month and 3-month period preceding the HFA. Based on the minimum requirements established above, CRS falls short of the WHO standard, with a total of 30 facilities providing EmONC services, of which 21 provided CEmONC within the last 12 months. As few facilities reported offering AVD (for vacuum extraction or forceps), we included a BEmONCwoutAVD category. The distribution of all public and private health facilities in CRS is described below by whether or not they reported to have provided the necessary signal functions for BEmONC and CEmONC 12 and 3 months preceding the HFA.

Table 4: Distribution of health facilities in the 18 LGAs of CRS by ownership and type of facility, and EmONC status; HFA-I (December 2014) and HFA-II (June 2015)

EmONC status in 12 months preceding assessment	Public			Private		All
	Hospital	Health Center	Health Post	Hospital	Health Center	
	18	348	362	53	31	
CEmONC	4	1	0	12	4	21
BEmONC	1	4	0	4	0	9
BEmONCwoutAVD	4	3	1	8	3	19
Others	9	340	361	29	24	763
EmONC status in 3 months preceding assessment						
CEmONC	0	0	0	5	0	5
BEmONC	0	0	0	1	0	1
BEmONCwoutAVD	6	2	0	11	7	26
Others	12	346	362	36	24	780

If we examine the availability of CEmONC and BEmONC functions in relation to national standards, a low percentage of health facilities that are expected to perform BEmONC and CEmONC functions (HCs and hospitals, respectively) reported actually doing so:

12-month reference period:

- Only 16 of 71 hospitals (4 of 18 public hospitals and 12 of 53 private hospitals) reported providing CEmONC in the 12-month period before the HFA. Five HCs also reported providing CEmONC services in the 12-month reference period. Of these 5, only 1 was a public HC.
- Only 4 of 379 HCs, all of them public, and 5 of 71 hospitals, (1 public and 4 private), reported providing BEmONC services in the 12-month period before the HFA. All of the others performed one or more signal functions in the 12-month period.

3-month reference period:

- Only 5 of 71 hospitals (none of the 18 public hospitals and 5 of 53 private hospitals) reported providing CEmONC in the 3-month period before the HFA. None of the public or private HCs reported providing CEmONC services in the three-month reference period.

- None of the 379 public and private HCs reported providing BEmONC services in the 3-month reference period. However, one private hospital reported providing BEmONC services during the 3-month period. All the others performed one or more signal functions in the 3-month period.

That only a few of the hospitals and HCs offered CEmONC and BEmONC services respectively, in the 12-month reference period and even fewer in the 3-month reference period, could be attributed to several factors including: low demand for these services, lack of capability to perform BEmONC or CEmONC signal functions when necessary, poor perception of the quality of services, and transportation costs. Unfortunately, this was not closely examined in the HFA and therefore more information would be needed to fully understand the low performance.

Regional Differences

There is a skewed distribution in the total number of public hospitals, HCs, and HPs in the southern LGAs as compared to the northern LGAs; a substantially greater number of HCs (southern LGAs = 138, northern LGAs = 210) and HPs (southern LGAs = 88, northern LGAs = 274). However, there is relatively equal numbers of private hospitals and HCs in the northern and southern LGAs. If we further examine the number of CEmONC and BEmONC facilities by northern and southern LGAs we see a greater discrepancy in the appropriate number of facilities providing emergency obstetric and newborn services that meet WHO standards. The southern LGAs (HFA-I, December 2014) meet 90% of the minimum number of facilities (19 hospitals and HCs providing CEmONC and BEmONC services). However, the northern LGAs (HFA-II, June 2015) only meet 61% of the minimum number of facilities per WHO standards (11 hospitals and HCs providing CEmONC and BEmONC services) (Appendix I, Table 13).

12-month reference period:

Southern LGAs (HFA-I, December 2014):

- Only 9 of 31 hospitals (3 of 11 public hospitals and 6 of 20 private hospitals) reported providing CEmONC in the 12-month period before the HFA. In the 12-month period, 5 HCs also reported providing CEmONC services. Of these 5, only 1 was a public HC.
- Only 2 of 149 HCs, all of them public, and 3 of 31 hospitals, reported providing BEmONC services in the 12-month period before the HFA.

Northern LGAs (HFA-II, June 2015):

- 7 out of 40 hospitals (1 of 7 public hospitals and 6 out of 33 private hospitals) reported providing CEmONC in the 12-month period before the HFA.
- Only 2 of the 230 health centers, all of which were public, reported providing BEmONC services in the 12-month period before the HFA.

3-month reference period:

Southern LGAs (HFA-I, December 2014):

- There were no health facilities that provided BEmONC or CEmONC services. There were 17 facilities that provided BEmONC without AVD—9 hospitals and 8 HCs.

Northern LGAs (HFA-II, June 2015):

- Five facilities provided CEmONC services, all of which were private hospitals.
- Only 1 health facility, a private hospital, provided BEmONC services.

4.7 Delay Three: Receiving Appropriate Care Once in a Health Facility

Delay three relates to the care a woman receives once she arrives at a health facility. This section examines a facility's ability to provide quality EmONC services through the examination of signal function performance in the 12 months prior to the HFA, including: health resources and staffing; equipment, supplies, and essential drugs; other maternal health services; and quality assurance measures.

4.7.1 Human Resources and Staffing

One of SMGL initiative's key objectives is to have every pregnant woman deliver in a functional health facility, attended by SBAs. Thus, understanding staffing and staff capacity is important in determining a facility's ability to carry out quality EmONC services. In the 18 LGAs, 6,158 people were reportedly employed in the 812 assessed health facilities at the time of the HFA (Table 5). Of these, 3,502, representing 57% of all employees, were SBAs: medical officers (n=240), 50 obstetrician-gynecologists (Ob-Gyn), registered midwives (n=189), registered nurses (n=454), registered nurse-midwives (n=645), registered community nurses (n=140), CHOs (n=282), and CHEWs (n=1,468). The number of health workers per health facility varies within and among facility type as well between public and private.

Table 5: Total number of health workers and number who received training in labor and delivery, by type of health worker; HFA-I (December 2014) and HFA-II (June 2015) *

Trained in Labor and Delivery			
Health worker	Total	Number	Percent
Medical Officers	240	182	75.8
Specialists (Ob-Gyn)	50	38	76.0
Registered Midwives	189	134	70.9
Registered Nurses	454	170	37.4
Registered Nurse-Midwives	645	541	83.9
Registered Community Nurses	140	72	51.4
Community Health Officers	282	211	74.8
Community Health Extension Workers	1,468	1,154	78.6
SBA Staff (Subtotal)	3,502	2,526	72.1
Other Medical (Subtotal)	1,390	240*	17.3
Total Medical	4,892	2,766	56.5
Other Employees	1,266	120*	9.5
Total employees	6,158	2,886	46.9

Skilled Birth Attendants (SBAs) are defined as medical officers, obstetricians and gynecologists, registered midwives, Youth Corps Doctors, registered nurses, community nurses, community health officers, and community health extension workers (CHEWs).

Other Medical are defined as specialists (pediatricians), radiology staff (radiologist and radiology technicians), anesthesiology staff (anesthesiologists and anesthesiology technicians), and junior CHEWs.

Other Employees include other non-medical staff and auxiliary nurses.

*Questions on "trained in labor and delivery" was not asked for the "Other Medical" and "Other Employees" category in the nine northern LGAs (HFA-II), but were asked in the nine southern LGAs (HFA-I). The total numbers for trained in labor and delivery therefore reflect only information from HFA-I for the "Other Medical" and "Other Employees" category.

Although the general perception is that the number of health workers is inadequate to meet the needs of the population served by the health facilities, in the absence of an estimate of what the ideal staffing should be, it is

difficult to estimate and evaluate current staffing. Efforts should be made to estimate the ideal number of health workers required for each health facility selected for SMGL program implementation per national guidelines.

Among the SBAs, the percentages reportedly trained in labor and delivery range from a low of 38% among nurses to 76% among Ob-Gyns. By not reporting that all Ob-Gyns were trained in labor and delivery, we suspect that many interviewers or respondents interpreted training as in-service training.

There were no major differences in the staffing pattern between the southern (HFA-I; December 2014) and northern (HFA-II; June 2015) LGAs.^h

4.7.2 Equipment, Supplies and Essential Drugs

In the absence of necessary equipment, supplies, and essential drugs; health facility staff trained in labor and delivery find it difficult to provide quality labor and delivery services, including emergency obstetric care. To assess the readiness of health facilities to provide quality labor and delivery services, health facility staff were asked to describe the availability of equipment, supplies, and essential drugs needed for quality services during the HFA. In addition, data on the stock of essential drugs in the 12 months preceding the HFA was obtained from the HMIS Monthly Summary Form for facilities.

Equipment and Supplies

Higher percentages of hospitals reported having several basic obstetric equipment and supplies (Table 6 on the next page). Within each facility type (hospital, HC, and HP), some equipment and supplies were reported to be more readily available than others. As outlined in Table 6, fewer than half of public hospitals reported access to an adult ventilator mask, filled oxygen cylinder carrier and key to open valve, partographs, rectal thermometer for newborns, adult ventilator bag, and newborn ventilator bag. It is important to note that partographs were available in only 50% of the public hospitals and even fewer (34%) in private hospitals.

^h Data available on request

Table 6: Percent of health facilities that reported availability of functioning basic obstetric supplies and equipment 12 months prior to assessment by facility type; HFA-I (December 2014) and HFA-II (June 2015)

Equipment and Supplies	Public						Private			
	Hospital		Health Center		Health Post		Hospital		Health Center	
	18	%	347	%	362	%	53	%	32	%
Non-sterile protective clothing	16	88.9	178	51.3	141	39.0	46	86.8	24	75.0
Puncture-proof sharps container	17	94.4	263	75.8	206	56.9	44	83.0	24	75.0
Clean delivery kits	15	83.3	194	55.9	168	46.4	43	81.1	28	87.5
Neonatal resuscitation packs	11	61.1	73	21.0	22	6.1	32	60.4	12	37.5
Rectal thermometer for newborn	7	38.9	116	33.4	76	21.0	28	52.8	16	50.0
Partographs	9	50.0	111	32.0	26	7.2	18	34.0	8	25.0
Autoclave	11	61.1	33	9.5	7	1.9	27	50.9	6	18.8
Blood pressure cuff	8	44.4	152	43.8	166	45.9	41	77.4	23	71.9
Adult stethoscope	12	66.7	251	72.3	248	68.5	43	81.1	24	75.0
Fetal stethoscope	12	66.7	258	74.4	248	68.5	41	77.4	22	68.8
Episiotomy/cervical/vaginal laceration repair packs functioning today	8	44.4	61	17.6	43	11.9	34	64.2	15	46.9
Newborn ventilator bag	5	27.8	10	2.9	6	1.7	14	26.4	1	3.1
Labor/delivery table	14	77.8	245	70.6	242	66.9	43	81.1	22	68.8
Newborn scale	13	72.2	219	63.1	237	65.5	40	75.5	16	50.0
Suction equipment for clearing the newborn airway	10	55.6	149	42.9	106	29.3	39	73.6	21	65.6
Filled oxygen cylinder carrier and key to open valve	6	33.3	17	4.9	4	1.1	21	39.6	4	12.5
Adult ventilator bag	5	27.8	14	4.0	9	2.5	22	41.5	3	9.4
Adult ventilator mask	8	44.4	31	8.9	6	1.7	44	83.0	13	40.6

Regional Differences

The availability of certain equipment and supplies varied among northern and southern LGAs. For example, 34% of health facilities in the southern LGAs (HFA-I) reported having blood pressure cuffs as compared to 55% of northern LGAs (HFA-II); 55% of health facilities in southern LGAs had newborn scales, compared to 69% in the northern LGAs. Furthermore, there were variations among clean delivery kits and neonatal resuscitation packs at public hospitals. Of southern LGA public hospitals, 10 out of 11 reported having clean delivery kits and 9 out of 11 reported having neonatal resuscitation packs, as compared to 5 and 2 of 7 public hospitals having clean delivery kits and neonatal resuscitation packs, respectively, in the northern LGAs (Appendix I, Table 14).

The unavailability of these essential pieces of equipment and supplies in several health facilities implies that investments must be made in equipment and supplies before many facilities could adequately perform expected emergency obstetric and newborn functions. This is an issue to examine in the implementation of the SMGL initiative/approach.

Essential Medicines

In addition to obstetric supplies and equipment, a facility's capacity is also measured by its stock of essential medicines and supplies. Table 7 shows significant variation in the percentages of health facilities that reported year-round availability of essential medicines and supplies by facility type. Within each facility type, some essential medicines and supplies were more regularly available than others. Table 7 on the following page shows that higher percentages of private facilities reported year-round availability of several essential medicines and supplies as compared to public facilities. For example, magnesium sulfate availability year-round was 50% in public hospitals and 14% in public HCs, with similar percentages in private hospitals and HCs. The non-availability of some essential drugs year-round limits the ability to deliver quality services as services are disrupted during stock-outs.

There were no major differences in the availability of essential supplies and equipment or stock-outs of essential drugs between the southern (HFA-I; December 2014) and northern (HFA-II; June 2015) LGAs.ⁱ

ⁱ Data available on request

Table 7: Percent of health facilities that reported no stock-out of some essential medicines and supplies in the 12 months preceding assessment by facility type; HFA-I (December 2014) and HFA-II (June 2015)

Medicines/Supplies	Public						Private			
	Hospital		Health Center		Health Post		Hospital		Health Center	
	18	%	347	%	362	%	53	%	32	%
Oxytocin	13	72.2	173	49.9	145	40.1	41	77.4	25	78.1
Misoprostol	4	22.2	59	17.0	22	6.1	32	60.4	8	25.0
Magnesium sulfate (injection) 50% concentration	9	50.0	49	14.1	18	5.0	25	47.2	8	25.0
Injectable antibiotics for newborn (at least one: Ampicillin or Cefotaxime)	5	27.8	29	8.4	16	4.4	20	37.7	9	28.1
Injectable antibiotics for mother (at least one): Ceftriaxone, Gentamicin, or Ciprofloxacin)	13	72.2	139	40.1	116	32.0	44	83.0	23	71.9
Metronidazole (Flagyl) for mother	12	66.7	151	43.5	105	29.0	42	79.2	21	65.6
Injectable Metronidazole (Flagyl) for infant	9	50.0	46	13.3	27	7.5	22	41.5	9	28.1
Gentamycine ointment for eye prophylaxis	6	33.3	70	20.2	56	15.5	21	39.6	7	21.9
Tetanus toxoid vaccine	12	66.7	203	58.5	135	37.3	35	66.0	13	40.6
Ferrous sulfate or fumarate	13	72.2	188	54.2	140	38.7	37	69.8	19	59.4
Pyrimethamine/Sulfadoxine (Fansidar for IPT)	13	72.2	128	36.9	60	16.6	29	54.7	8	25.0
ARV Prophylaxis for mother	8	44.4	112	32.3	41	11.3	20	37.7	8	25.0
ART (triple drug regimen) for mother	10	55.6	165	47.6	55	15.2	24	45.3	7	21.9
NVP Syrup for infant	8	44.4	157	45.2	68	18.8	24	45.3	10	31.3
AZT syrup for infant	3	16.7	39	11.2	19	5.2	15	28.3	4	12.5
Artemisium-based combination therapy	13	72.2	186	53.6	87	24.0	33	62.3	7	21.9
Parantral Artesunate	10	55.6	80	23.1	41	11.3	26	49.1	9	28.1
Quinine	10	55.6	88	25.4	48	13.3	34	64.2	20	62.5
Intrauterine device	13	72.2	114	32.9	49	13.5	33	62.3	14	43.8
Male condom	16	88.9	263	75.8	173	47.8	32	60.4	17	53.1
Female condom	11	61.1	146	42.1	86	23.8	19	35.8	11	34.4

4.7.3 The Signal Functions

The preceding section shows that low percentages of hospitals and HCs reported providing CEmONC and BEmONC services, respectively, in the 12-month period before the HFA. Among the 71 and 379 public and private hospitals and HCs:

- Only 16 hospitals and 5 HCs reported providing CEmONC services; and,
- Only 5 hospitals and 4 HCs provided BEmONC services.

However, all HCs reported performing at least 1 of the 7 signal function within the 12 months preceding the HFA. Table 8 illustrates the percentage of health facilities performing each signal function 12 months prior to the HFA. It is important to note that HPs are not required by national standards to provide BEmONC services and were included in the assessment because they performed one delivery or more in the past 12 months. There was, however, no signal function performed 100% across all facilities.

In comparing public versus private HCs and hospitals, private hospitals were more likely to perform each of the 9 signal functions as illustrated by the “Total” column in Table 8. The highest performing signal function at both private and public health facilities was the administration of antibiotics parenterally (95.3% and 77.5%, respectively), followed by administration of uterotonic drugs (Oxytoxics or Misoprostol) (85.9% and 64.1%, respectively).

Table 8: Percent of health facilities that performed each EmONC signal function 12 months preceding the HFA by facility type; HFA-I (December 2014); HFA-II (June 2015)

Signal function-12 months preceding assessment	Public							Private				
	Hospital		Health Center		Health Post		Total Public ¹	Hospital		Health Center		Total Private
	18	%	347	%	362	%	365	53	%	32	%	85
Antibiotics administered parenterally	17	94.4	266	76.7	277	76.5	77.5	50	94.3	31	96.9	95.3
Uterotonic drugs (Oxytoxics or Misoprostol)	16	88.9	218	62.8	189	52.2	64.1	48	90.6	25	78.1	85.9
Parenteral anticonvulsants (Magnesium sulfate)	14	77.8	65	18.7	61	16.9	21.6	36	67.9	19	59.4	64.7
Manual removal of placenta	15	83.3	177	51.0	170	47.0	52.6	47	88.7	25	78.1	84.7
Removal of retained products	13	72.2	138	39.8	108	29.8	41.4	45	84.9	22	68.8	78.8
Assisted vaginal delivery	5	27.8	66	19.0	61	16.9	19.5	26	49.1	15	46.9	48.2
Newborn resuscitation	10	55.6	39	11.2	16	4.4	13.4	32	60.4	9	28.1	48.2
Caesarian delivery	14	77.8	5	1.4	0	0.0	5.2	42	79.2	19	59.4	71.76
Blood transfusion related to labor and delivery	13	72.2	9	2.6	1	0.3	6.0	37	69.8	17	53.1	63.5

¹“Total Public” represents hospitals and health centers, but excludes health posts as they are not required to provide BEmONC functions.

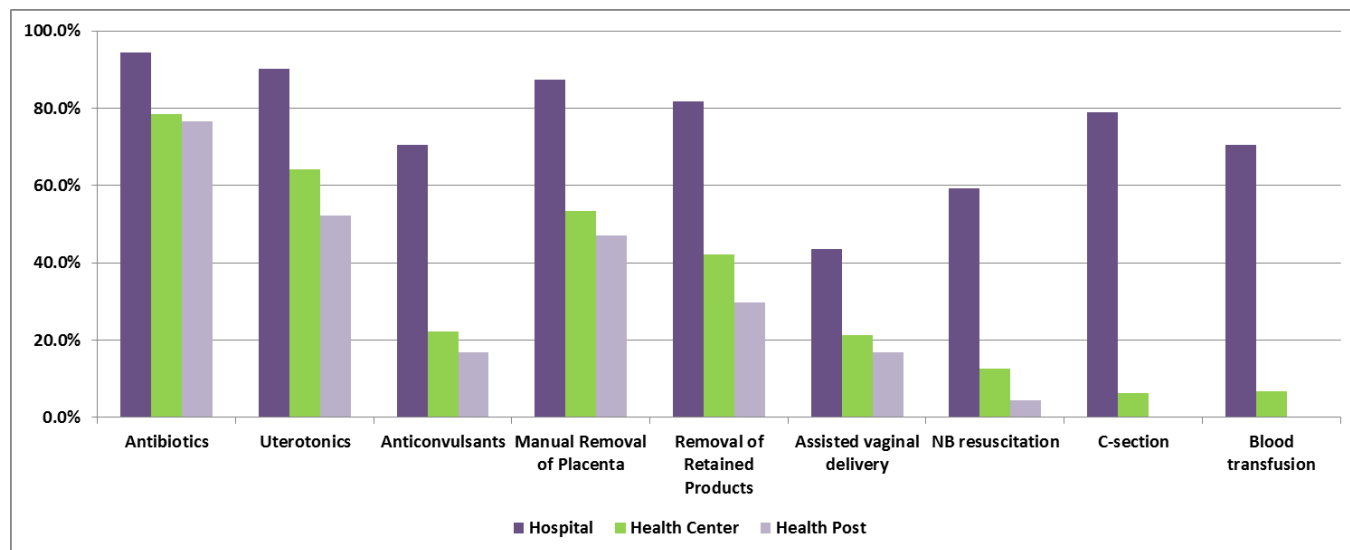
Figure 3, on following page, illustrates the percentage of each facility type performing each of the 9 signal functions. When comparing across facilities types, as expected, a higher percentage of hospitals performed each signal function as compared to HCs and HPs. This trend by facility type is further illustrated by the mean number of signal functions performed. Figure 4, on page 31, shows that the 812 facilities, on average, perform

3.1 signal functions. However, public or private hospitals perform better (mean number of signal functions = 6.5/public and 6.8/private) as compared to HCs (mean number of signal functions = 2.8/public and 5.7/private). Private facilities (n=84), on average, perform 6.5 signal functions, whereas public hospitals and HCs (n=366), on average, perform 3 signal functions as shown in Figure 5.

Regional Differences

There were also some differences in each of the signal functions performed in the northern (HFA-II) compared to the southern (HFA-I) regions. While there is no clear pattern of the nine northern or nine southern LGAs having a higher percentage of facilities performing each signal function, there were some differences by signal function, such as for AVD. Only 1 out of 7 of public hospitals in the northern LGAs (HFA-II) performed AVD in the 12 months prior to the HFA as compared to 4 out of 11 (HFA-I) in the southern LGAs. When comparing the mean number of signal functions, the nine northern LGAs, on average, performed 7.2 signal functions compared to 6.2 in the nine southern LGAs.^j

Figure 3: Percent of facilities that performed each of the 9 EmONC signal functions 12 months preceding assessment by facility type; HFA-I (December 2014); HFA-II (June 2015)



^j Data available upon request

Figure 4: Mean number of signal functions performed 12 months preceding HFA by public-private facility type; HFA-I (December 2014); HFA-II (June 2015)

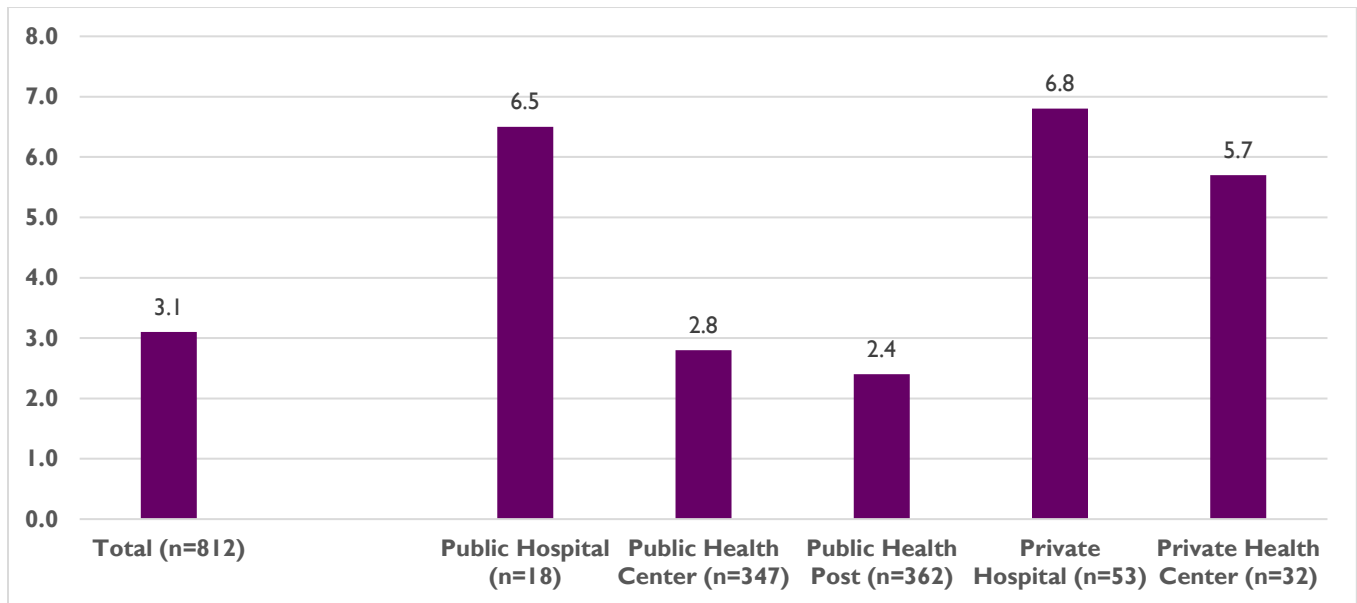
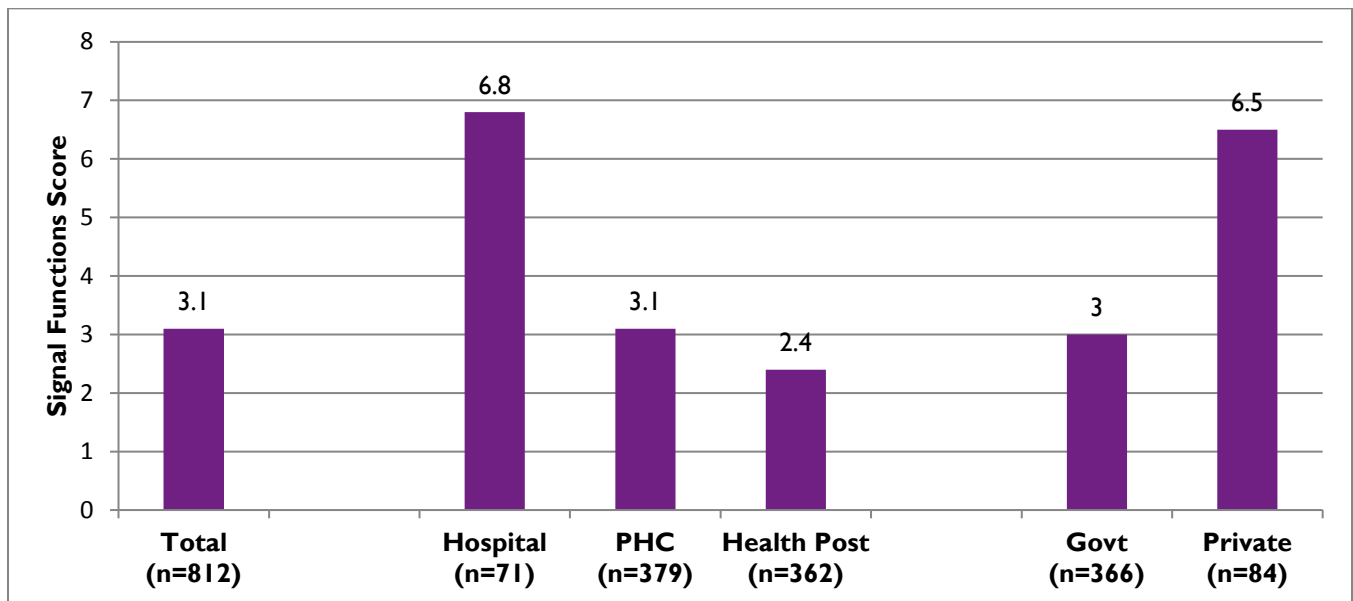


Figure 5: Mean number of signal functions performed 12 months preceding HFA by facility type, HFA-I (December 2014); HFA-II (June 2015)



4.7.4 Other Maternal and Newborn Health Services

All the facilities providing delivery services reported providing some other MNH services that include rapid test for HIV, administration of ARVs to HIV-infected mothers and HIV-exposed newborns, mother care, family planning (short-acting methods, long-acting reversible methods and permanent methods), application of the Helping Babies Breathe protocol, and intensive care for preterm/low birth weight babies.

Table 9 shows that the percentages of health facilities that performed other MNH services decreased from higher- to lower-level facilities: higher percentages of hospitals, public or private, reported providing these services. Within each facility type (hospital, HC, HP), the percentages that reported to perform the services varied significantly by the type of services offered. A high percentage of public hospitals reported conducting rapid tests among mothers with unknown HIV status (89%); routinely practicing active management of third stage of labor (AMTSL) (89%); and giving ARVs to HIV-exposed newborns (83%). Much lower percentages reported providing intensive care for preterm/low birth weight babies (50%) and using partographs to manage labor (44%). Among private hospitals, high percentages reported to practice AMTSL (96%) and conduct rapid tests for mothers with unknown HIV status (89%). Much lower percentages reported providing special or intensive care for preterm/low birth weight babies (27%); using partographs to manage labor (30%); and giving ARVs to HIV-Infected mothers (42%). The percentages providing services also vary among HCs and HPs. The findings point to the need to investigate why significant percentages of health facilities were not providing some essential MNH services.

Table 9: Percent of health facilities that reported to perform other maternal and newborn health services 3 months prior to assessment by facility type; HFA-I (December 2014); HFA-II (June 2015)

Maternal and Newborn Health Services	Public						Private			
	Hospital		Health Center		Health Post		Hospital		Health Center	
	18	%	347	%	362	%	53	%	32	%
Staff routinely practice AMTSL	16	88.9	310	89.3	300	82.9	51	96.2	29	90.6
Staff routinely use partographs to manage labor	8	44.4	90	25.9	24	6.6	16	30.2	8	25.0
Breech delivery performed in last 3 months	12	66.7	50	14.4	39	10.8	28	52.8	10	31.3
Staff routinely practice HBB* protocol	11	61.1	216	62.2	170	47.0	35	66.0	26	81.3
Staff routinely practice skin-to-skin mother care	16	88.9	280	80.7	253	69.9	45	84.9	26	81.3
Rapid test performed for mothers with unknown HIV status	16	88.9	261	75.2	150	41.4	47	88.7	25	78.1
ARVs given to HIV-infected mothers	13	72.2	139	40.1	37	10.2	22	41.5	4	12.5
ARVs given to HIV-exposed newborns	15	83.3	124	35.7	35	9.7	22	41.5	4	12.5
Special or intensive care provided for preterm/low birth weight in last 3 months	9	50.0	36	10.4	19	5.2	14	26.4	9	28.1
Short-term family planning methods provided last 3 months	18	100.0	284	81.8	185	51.1	27	50.9	16	50.0
Long-acting family planning methods provided last 3 months	13	72.2	117	33.7	14	3.9	28	52.8	10	31.3
Surgical method or permanent contraceptive performed last 3 months	7	38.9	14	4.0	3	0.8	12	22.6	7	21.9

* Helping Babies Breathe (HBB) protocol teaches the initial steps of neonatal resuscitation to be accomplished within *The Golden Minute* to save lives and give a much better start to many babies who struggle to breathe at birth.

Regional Differences

There were also noticeable regional differences in health facilities performing other MNH services. Two essential maternity services to highlight are “staff routinely practicing AMTSL” and “using partographs to manage labor.” Table 15 in Appendix I further outlines the “other MNH services” by northern and southern LGAs. Nine (82%) southern public hospitals reported routinely practicing AMSTL compared to seven (100%) in the northern LGAs, whereas six (54.5%) public hospitals routinely use partographs to manage labor in the southern LGAs compared to two (28.6%) in the northern LGAs.

4.7.5 Family Planning Services

Table 8 shows that family planning methods were provided, including short-term, long-term, and permanent methods. When comparing facility type, hospitals were the highest performing in provision of all types of contraceptive methods. In addition, a higher percentage of public facilities reported facilities providing each type of method. For example, all public hospitals reported providing short-acting family planning methods, such as pills, injectables, or condoms (100%), though fewer reported offering permanent contraceptive methods (72.2%). On the other hand, around half of the private hospitals reported offering either short-acting or permanent contraceptive methods. Public hospitals were most likely to report provision of long-acting reversible methods (IUDs and implants (72%)). Generally, among all facility types, the provision of short-term methods was the highest reported of the family planning methods, with permanent methods being the lowest reported.

Table 10 presents information on data collection of family planning in the postpartum ward. Availability and use of registries was considerably higher in public facilities as compared to private facilities. For example, most public (83%), but close to half of private hospitals (49%) reported family planning registers that were available and used in their postpartum wards. Across all facility types there is low use and availability of family planning registries, particularly among private institutions in the postpartum wards.

There were no major differences in the provision and availability of family planning registries between the southern (HFA-I; December 2014) and northern (HFA-II; June 2015) LGAs.^k

4.7.6. Quality of Care Practices

As part of the HFA, the extent to which the assessed health facilities engaged in practices associated with good quality services was examined. Quality of care was measured by the availability of obstetric and neonatal care services; documentation of protocol, guidelines, and health data; as well as audits or case reviews of maternal and neonatal deaths. Providing obstetric and neonatal services 24/7 with well trained staff on duty ensures that women can access services any time of the day. Having the protocols or guidelines available and within reach of service providers increases the chance of services being provided according to guidelines; staff can quickly refer to them when in doubt. Documenting services on the appropriate registers and analyzing data from registers could help facilities detect, among others, service elements that require improvements. Table 10 shows the percentages of facilities that reported to engage in the select practices.

^k Data available on request

Table 10: Percent of health facilities that reported to have performed some general facility and labor ward management services/events, by facility type; HFA-I (December 2014) and HFA-II (June 2015)

Services/Events	Public						Private			
	Hospital		Health Centers		Health Post		Hospital		Health Centers	
	18	%	347	%	362	%	53	%	32	%
Obstetric and neonatal services provided 24/7	15	83.3	285	82.1	194	53.6	52	98.1	29	90.6
Facility staffed 24/7 to provide obstetric and neonatal care services	15	83.3	270	77.8	183	50.6	52	98.1	27	84.4
Caesarian section performed in the last 12 months	14	77.8	5	1.4	0	0.0	42	79.2	19	59.4
Seven protocols or guidelines available and within reach	1	5.6	2	0.6	4	1.1	3	5.7	0	0.0
Official audit or case review of maternal deaths	8	44.4	14	4.0	1	0.3	11	20.8	5	15.6
Official audit or case review of neonatal deaths	7	38.9	11	3.2	3	0.8	9	17.0	5	15.6
Labor and delivery registers available and used	18	100.0	289	83.3	201	55.5	40	75.5	23	71.9
Postpartum registers available and used	13	72.2	166	47.8	103	28.5	29	54.7	14	43.8
Newborn registers available and used	11	61.1	114	32.9	73	20.2	19	35.8	8	25.0
Family planning registers in postpartum ward available and used	15	83.3	253	72.9	134	37.0	26	49.1	12	37.5

Overall, a high percentage of hospitals reported documenting services and using appropriate registers—labor and delivery registers (100% public, 76% private); newborn registers (61% public, 36% private); postpartum registers (72% public, 55% private) —and providing obstetric and neonatal services 24/7 (83% public, 98% private). In contrast, a low percentage of assessed hospitals reported having the seven outlined protocols or guidelines available and within reach (6% public, 6% private), and conducting official audit or review of neonatal deaths (39% public, 17% private) or maternal deaths (44% public, 21% private). Only one public hospital reported to have the seven protocols or guidelines available within reach, an area that requires improvement. The percentage of HCs and HPs that conducted quality of care practices varied, but often aligned by facility type: services commonly reported at hospitals were also found at HCs and HPs and those that were poorly reported by hospitals were also lacking in HPs and HCs.

There were no major differences in the quality of care practices reported between northern (HFA-II) and southern (HFA-I) LGAs.¹

4.7.7 Basic Services (Water, Toilet and Electricity)

Besides medicine, equipment, and staff, health facilities require other basic amenities to adequately deliver obstetric and newborn care services. These basic amenities include functioning electricity, water, and toilet. The percentages of facilities that reported to have the basic amenities are presented in Table 11. In the 18 LGAs, there were insufficiencies in the availability of the aforementioned basic amenities—deficiencies were more pronounced among public HCs and HPs. Of the facilities assessed:

¹ Data available on request

- 6% of public hospitals, 31% of public HCs, 35% of HPs, and 12% of private HCs reported not having access to electricity.
- Those that reported having electricity—10% of public hospitals, 56% of public HCs, 42% of HPs, 10% of private hospitals, and 40% of private HCs—did not have electricity at the time of the assessment.

To minimize the effects of power outages on service delivery, several health facilities in CRS, as in other parts of Nigeria, obtained back-up power from generators. Unfortunately, at the time of the assessments, the back-up power was not functioning in some of the public health facilities that reported having a generator: 67% of public HCs and 96% of HPs. Although facilities reported having back-up power, 56% of public hospitals, 58% of private hospitals, 91% of public HCs, 78% of private HCs, and 96% of HPs experienced power outages while delivering obstetric services.

There were also variations in the availability of water for staff and patients' use by facility type (hospital, HC, and HP) and ownership (private and public). Among the health facilities that reported having water for staff and patients' use, considerable percentages reported that, in the month preceding the assessments, the water system did not function:

- In the operating theatre (50% of public hospitals and 96% of public HCs, just 0.3% or one HP; 34% of private hospitals and 56% of private HCs).
- In the delivery room (39% of public hospitals, 81% of public HCs, and 94% of HPs; 46% of private hospitals and 56% of private HCs).

Overall, a higher percentage of public facilities reported experiencing interruptions in their water supply. There was greater access to water at private health facilities.

Furthermore, the percentage of facilities that reported having a functional toilet for clients' use are abysmally low at public HCs and HPs: 83% of public hospitals, 94% of private hospitals, 45% of public HCs, 91% of private HCs, and 27% of HPs. In terms of soap being available near the toilet used by clients, just 50% of public hospitals, 23% of public HCs, 16% of HPs, 42% of private hospitals, and 56% of private HCs had soap available. Improvement in these areas is necessary to ensure quality services are available to women who seek care at the facilities.

Table 11: Percent of health facilities that reported availability of functioning infrastructure for obstetric and newborn services, by facility type; HFA-I (December 2014); HFA-II (June 2015)

Infrastructure	Public						Private			
	Hospital		Health Center		Health Post		Hospital		Health Center	
	18	%	347	%	362	%	53	%	32	%
Electricity available	17	94.4	239	68.9	125	34.5	52	98.1	28	87.5
Electricity functioning	13	72.2	83	23.9	39	10.8	36	67.9	14	43.8
Backup power available	16	88.9	161	46.4	25	6.9	47	88.7	28	87.5
Backup power functioning	15	83.3	115	33.1	15	4.1	44	83.0	26	81.3
Never had electricity interruption for obstetric services	8	44.4	30	8.6	14	3.9	22	41.5	7	21.9
Water available for patients and staff use	18	100.0	199	57.3	144	39.8	51	96.2	29	90.6
Water system functioning in operating theatre	9	50.0	12	3.5	1	0.3	35	66.0	14	43.8
Water system functioning delivery room	11	61.1	66	19.0	23	6.4	34	64.2	14	43.8
Never had interruption of water supply	9	50.0	87	25.1	82	22.7	37	69.8	15	46.9
Functioning toilet for client use	15	83.3	188	54.2	99	27.3	50	94.3	29	90.6
Soap available near the toilet	9	50.0	78	22.5	59	16.3	22	41.5	18	56.3

Regional Differences

In terms of availability of electricity, there were noticeable differences among health facilities in the northern (HFA-I) versus southern (HFA-II) LGAs. In the southern LGAs, one public hospital, 42 public HCs, 52 HPs, and one private HC reported not having access to electricity. In the northern LGAs, 67 public HCs, 185 HPs, one private hospital, and 12 private HCs reported not having access to electricity (Appendix I, Table 16).

5. Discussion and Recommendations

5.1 Discussion

This HFA aims to determine how adequately the public and private health facilities in CRS contribute to meeting the requirements of addressing the three delays in accessing maternal and neonatal healthcare—ensure that women in need of emergency obstetric care know when and where to seek care (Delay One); ensure that these women can get to the facility (Delay Two); and ensure quality emergency obstetric and newborn care at the facility (Delay Three). From the data gathered and analyzed, the HFA then aims to identify areas requiring improvement.

The HFA results illustrate very high MMR in CRS (876 per 100,000 live births), with significant MMR differences between the southern LGAs (750 per 100,000 livebirths) as compared to the northern LGAs (984 per 100,000 live births). While recognizing that these are facility-based MMRs, the statistics indicate that mothers and their

newborns experience delays in reaching an appropriate health facility (Delays One and Two) that is equipped and capable of providing emergency obstetric and newborn care (Delay Three).

The distribution of public and private facilities (hospitals, HCs, and HPs) that offer delivery services across CRS is unequal, possibly due to differences in population size and the rural-urban composition of the LGAs. The capability of the 812 facilities to provide CEmONC and BEmONC services is inadequate; significantly poorer in the 3-month reference period as compared to the 12-month reference period (Table 4) in addition to differences between the northern and southern LGAs (Appendix I, Table 1). Our results show that CRS does not meet the minimal WHO standards of having at least five facilities providing BEmONC and at least one CEmONC facility per 500,000 population.⁷ For an estimated population of 3,648,404, CRS should have 37 facilities providing emergency obstetric care, of which 8 should be CEmONC facilities. While CRS meets the CEmONC criteria (CEmONC = 21; 16 private), the state falls far short in terms of the standard for providing BEmONC services. Although they are not evenly distributed across the 18 LGAs, the 369 HCs that should be providing BEmONC services could be upgraded to meet WHO's minimum criteria.

In terms of helping mothers recognize the need to seek care and make the decision to do so, we examined the extent to which health facilities conducted community mobilization activities to provide general information on MNH services as well as where services could be obtained. Unfortunately, the health facilities performed below expectation in this area. Hospitals performed minimal community outreach activities including advocating for facility-based deliveries, but a greater percentage of the HCs and the HPs reported conducting community outreach.

While the HFA did not focus on accessibility and transportation methods, a common limitation for moribund women accessing care, the HFA did highlight the inadequate numbers of appropriately equipped and staffed BEmONC and CEmONC facilities across the state. In addition, the functioning transport to refer moribund mothers who reach any facility to an appropriate hospital is abysmally low. Only 18% of facilities reported to have functional four-wheeled motor vehicle, motorcycle or motorized tricycle, or boat.

For a facility to provide high-quality and appropriate care, they need appropriate supplies and equipment, human resources, and data collection methods for collecting quality data. It is investments in these areas that will improve the quality of services a woman will receive once she arrives at a health facility. The HFA data revealed variations in the availability of: (i) basic obstetric supplies and functioning equipment by type of supply/equipment and facility type; and, (ii) essential medicines and supplies by type of medicine/supply and facility type. While reasonably high percentages of facilities reported the availability of some basic obstetric supplies and essential medicines, low percentages of facilities reported the availability of others. The percentage reporting the availability of functioning basic obstetric supplies and equipment and essential medicines decreases as we move from higher- to lower-level health facilities—from the hospital level to the HP level. This could create large discrepancies in the type of care urban and rural women can access.

Although more pronounced at the HC and HP levels, the HFA data reveal a high number of health facilities without functioning equipment and essential medicines at the time of the assessment. Facilities that are required to perform BEmONC and CEmONC services require investments and procurement of required equipment and essential medicines to meet the WHO standards. SMGL and the Government of CRS will have to work together to ensure steady supply of required medicines and equipment and, in turn, to take a major step in raising the status quo of the health facilities. Many of the shortcomings in the quality of care are related and require more than one investment. For example, if a facility is not staffed appropriately they might not be able to provide caesarian sections that require an Ob-Gyn to be present or a well-functioning supply chain for essential obstetric supplies such as uterotonic drugs.

Furthermore, across the facilities, relatively few used appropriate registers or conducted maternal death audits. The impact of poor data collection became apparent, which relied on the HMIS system to produce the data extraction tools.

5.2 Recommendations

The HFA results will directly inform the joint development of an operational plan and interventions for the SMGL initiative in CRS. As part of SMGL's implementation in CRS, the following recommendations would contribute to reducing the three delays in accessing appropriate services.

Delay One: Increase timely utilization of institutional delivery services through planned priority interventions that include:

- Train and support community health workers (CHWs) to mobilize communities for behavior change, positive health-seeking behavior, and to extend access to some clinical interventions at community level.
- Engage and support existing community development committees to integrate safe motherhood activities, complement CHWs' demand-generation activities, and improve referral systems/linkages to facilities.
- Use mHealth tools (activating hotlines at the facilities, Short Messaging Service (SMS) messaging, linking to Mobile Alliance for Maternal Action (MAMA) stage-based messaging service) to improve case management, referral, and supervision.

Delay Two: Improve access and availability of services through planned priority interventions that include:

- Ensure that the appropriate numbers of CEmONC and BEmONC facilities are available in CRS and are geographically distributed to ensure equity in access.

Delay Three: Improve the quality of maternity care and institutional delivery services, including EmONC, through interventions that include:

- Provision of comprehensive, integrated, in-service training for health providers at selected facilities (EmONC/life-saving skills, antenatal and postnatal care, and labor and delivery, PMTCT, postpartum family planning, and respectful maternity care).
- Improve facility infrastructure (availability of water, toilet facilities, back-up power, rehabilitation/upgrading of labor and delivery rooms, and blood banks), and provide adequate SBAs through recruitment and redistribution at selected facilities.
- Ensure availability of basic equipment and supplies, including essential drugs and commodities, to meet and maintain BEmONC and CEmONC status for selected facilities.

In addition to investments specific to each of the delays, improvements must be made to overall health in order for other investments to be realized. Suggestions include:

- Support and build capacity of LGA PHC teams in management and integrated supportive supervision.
- Strengthen the capacity of service providers and health managers in forecasting and management of drugs/commodity logistic/supply chain system.
- Strengthen and support community- and facility-based registrations of births and deaths.
- Strengthen HMIS, data quality audits, and data use for decision-making.

6. Conclusion

The HFA will inform SMGL implementation as well as serve as a resource for decision makers across CRS. As noted throughout the report, there are many shortcomings in MNH services across CRS and across the Three Delay Model that must be addressed to improve obstetric care and reduce the high MMRs. In improving MNH services, it will be important to account for each of the three delays in ensuring access to emergency obstetric and newborn care, specifically by ensuring that the types of services available meet the needs and distribution of the population.

Appendix I: Tables and Figures Disaggregated by Southern (HFA-I; December 2014) and Northern (HFA-II; June 2015) LGAs

Table 12: Distribution of health facilities in the southern (HFA I) and northern (HFA II) LGAs by LGA, ownership, type of facility, and emergency obstetric and newborn care (EmONC) status.

Southern LGAs (HFA I, December 2014)

Local Government Area	EmONC Status	Public			Private		All
		Hospital	Health Center	Health Post	Hospital	Health Center	
		11	138	88	20	11	
All LGAs	CeMONC	3	1	0	6	4	14
	BeMONC	1	2	0	2	0	5
	BeMONCwoutAVD	2	1	0	1	2	6
	Others	5	134	88	11	5	243
ABI	CeMONC	1	0	0	0	0	1
	BeMONC	0	1	0	0	0	1
	BeMONCwoutAVD	0	0	0	0	0	0
	Others	0	15	27	0	0	42
AKAMKPA	CeMONC	0	0	0	0	0	0
	BeMONC	0	0	0	0	0	0
	BeMONCwoutAVD	0	0	0	0	0	0
	Others	1	18	2	2	1	24
AKPABUYO	CeMONC	0	0	0	0	0	0
	BeMONC	0	0	0	0	0	0
	BeMONCwoutAVD	0	0	0	0	0	0
	Others	1	13	4	0	0	18
BAKASSI	CeMONC	0	0	0	0	1	1
	BeMONC	0	0	0	0	0	0
	BeMONCwoutAVD	0	0	0	0	0	0
	Others	0	12	12	0	0	24
BIASE	CeMONC	0	0	0	0	0	0
	BeMONC	1	0	0	0	0	1
	BeMONCwoutAVD	0	0	0	0	0	0
	Others	1	27	26	0	0	54
CALABAR MUNICIPALITY	CeMONC	2	1	0	4	0	7
	BeMONC	0	0	0	1	0	1
	BeMONCwoutAVD	1	1	0	0	2	4
	Others	0	13	1	4	1	19
CALABAR SOUTH	CeMONC	0	0	0	1	2	3
	BeMONC	0	0	0	0	0	0
	BeMONCwoutAVD	0	0	0	1	0	1
	Others	1	4	1	3	3	12
ODUKPANI	CeMONC	0	0	0	0	0	0
	BeMONC	0	1	0	0	0	1
	BeMONCwoutAVD	0	0	0	0	0	0
	Others	1	17	3	1	0	22
YAKURR	CeMONC	0	0	0	1	1	2
	BeMONC	0	0	0	1	0	1
	BeMONCwoutAVD	1	0	0	0	0	1
	Others	0	15	12	1	0	28

Notes:

CeMONC – Performed all 9 signal functions in the twelve months preceding the health facility assessment

BeMONC – Performed all 7 signal functions in the twelve months preceding the health facility assessment

BeMONCwoutAVD – Performed all other basic emergency obstetric care functions except assisted vaginal delivery

Others - Performed 1 or more signal functions that did not meet the CeMONC, BeMONC or BeMONCwoutAVD categories

Northern LGAs (HFA II, June 2015)

Local Government Area	EmONC Status	Public			Private		All
		Hospital	Health Center	Health Post	Hospital	Health Center	
		7	210	274	33	20	544
All LGAs	CeMONC	1	0	0	6	0	7
	BeMONC	0	2	0	2	0	4
	BeMONCwoutAVD	2	2	1	7	1	13
	Others	4	206	273	18	19	520
BEKWARRA	CeMONC	1	0	0	0	0	1
	BeMONC	0	1	0	0	0	1
	BeMONCwoutAVD	0	0	0	0	1	1
	Others	0	14	37	1	3	55
BOKI	CeMONC	0	0	0	1	0	1
	BeMONC	0	0	0	1	0	1
	BeMONCwoutAVD	0	0	0	1	0	1
	Others	0	40	34	2	1	77
OGOJA	CeMONC	0	0	0	1	0	1
	BeMONC	0	0	0	0	0	0
	BeMONCwoutAVD	1	0	0	0	0	1
	Others	0	26	14	4	1	45
ETUNG	CeMONC	0	0	0	0	0	0
	BeMONC	0	0	0	0	0	0
	BeMONCwoutAVD	0	0	0	0	0	0
	Others	0	11	15	0	0	26
IKOM	CeMONC	0	0	0	3	0	3
	BeMONC	0	0	0	1	0	1
	BeMONCwoutAVD	0	0	0	2	0	2
	Others	0	20	22	7	5	54
OBANLIKU	CeMONC	0	0	0	0	0	0
	BeMONC	0	1	0	0	0	1
	BeMONCwoutAVD	0	0	1	2	0	3
	Others	2	28	23	0	2	55
OBUBRA	CeMONC	0	0	0	0	0	0
	BeMONC	0	0	0	0	0	0
	BeMONCwoutAVD	0	2	0	1	0	3
	Others	1	13	32	1	1	48
OBUDU	CeMONC	0	0	0	1	0	1
	BeMONC	0	0	0	0	0	0
	BeMONCwoutAVD	0	0	0	1	0	1
	Others	0	12	47	1	0	60
YALA	CeMONC	0	0	0	0	0	0
	BeMONC	0	0	0	0	0	0
	BeMONCwoutAVD	1	0	0	0	0	1
	Others	1	42	49	2	6	100

Notes:

CeMONC – Performed all 9 signal functions in the twelve months preceding the health facility assessment

BeMONC – Performed all 7 signal functions in the twelve months preceding the health facility assessment

BeMONCwoutAVD – Performed all other basic emergency obstetric care functions except assisted vaginal delivery

Others - Performed 1 or more signal functions that did not meet the CeMONC, BeMONC or BeMONCwoutAVD categories

Figure 6: Distribution of deliveries 12 months preceding the assessment by facility type; southern (HFA-I; December 2014) and northern (HFA-II; June 2015) LGAs

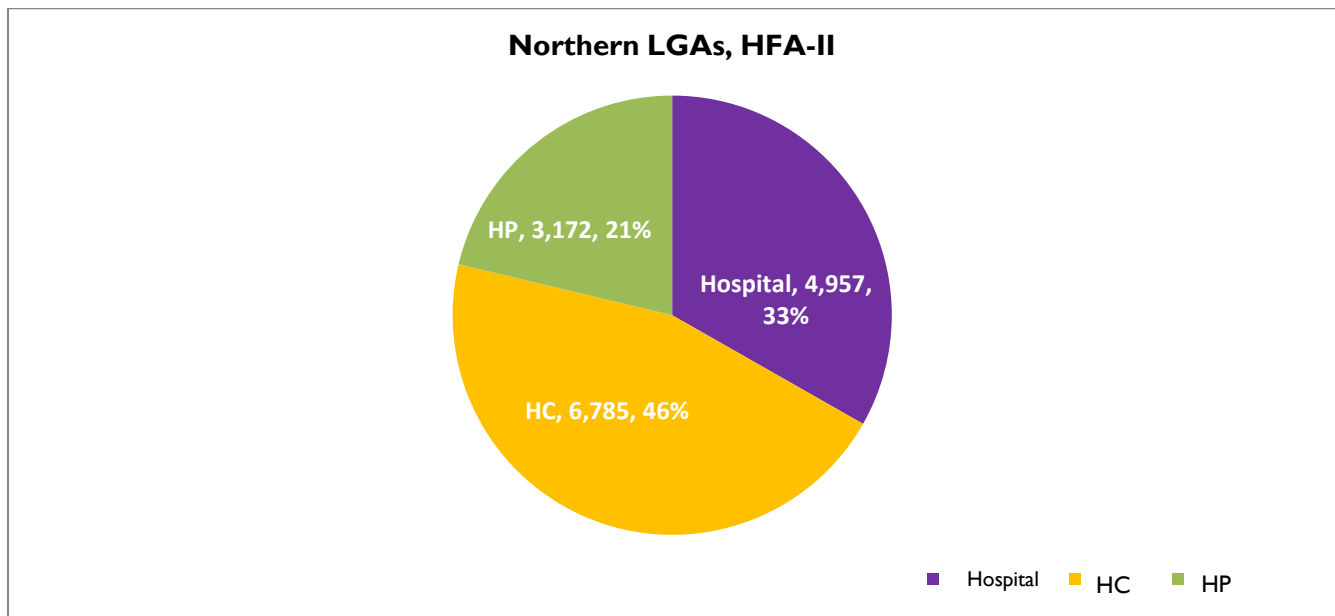
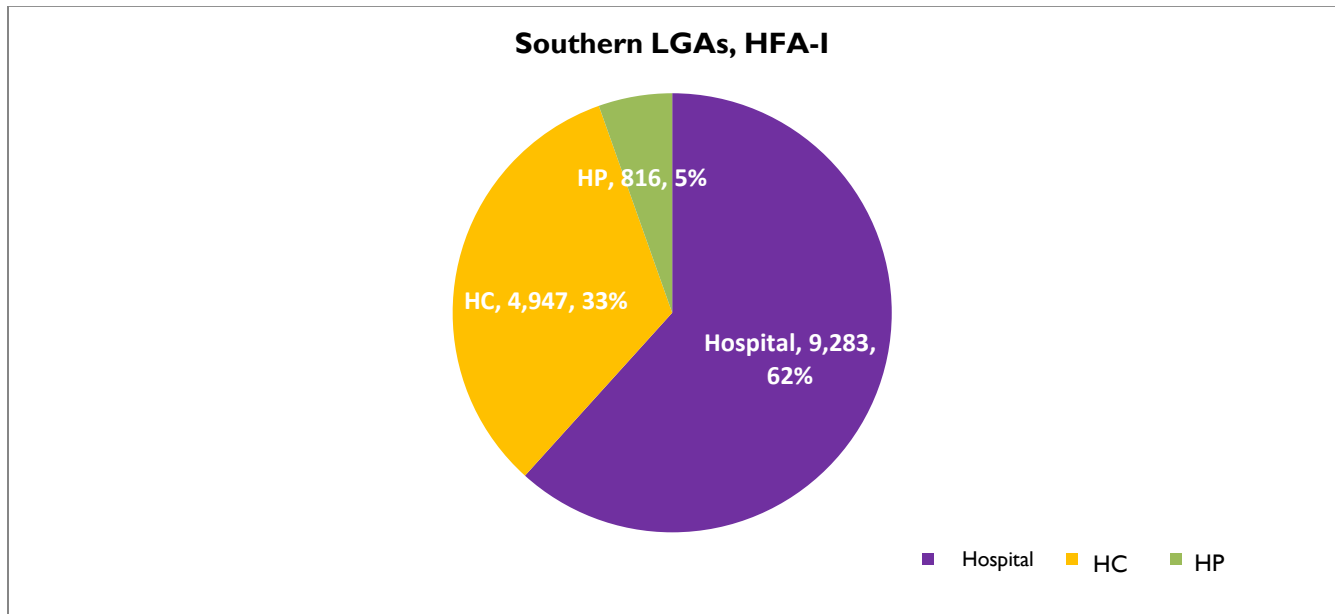


Table 13: Percent of health facilities that reported availability of functioning basic obstetric supplies and equipment 12 months prior to assessment by facility type; southern (HFA-I; December 2014) and northern (HFA-II; June 2015) LGAs

Southern LGAs (HFA-I; December 2014)

Equipment and Supplies	Public						Private			
	Hospital		Health Center		Health Post		Hospital		Health Center	
	11	%	138	%	88	%	20	%	11	%
Non-sterile protective clothing	9	81.8	56	43.8	16	18.2	17	85.0	8	72.7
Puncture-proof sharps container	11	100.0	104	82.0	44	50.0	17	85.0	11	90.9
Clean delivery kits	10	90.9	86	68.0	48	54.5	14	70.0	10	81.8
Neonatal resuscitation packs	9	81.8	47	36.7	6	6.8	14	70.0	6	54.5
Rectal thermometer for newborn	6	54.5	54	42.2	23	26.1	10	50.0	5	45.5
Partographs	6	54.5	34	27.3	5	5.7	7	35.0	5	36.4
Autoclave	6	54.5	17	13.3	4	4.5	9	45.0	2	18.2
Blood pressure cuff	4	36.4	45	35.2	27	30.7	12	60.0	4	36.4
Adult stethoscope	7	63.6	77	60.2	54	61.4	11	55.0	4	36.4
Fetal stethoscope	7	63.6	83	65.6	45	51.1	10	50.0	4	27.3
Episiotomy/cervical/vaginal laceration repair packs functioning today	4	36.4	32	25.0	11	12.5	10	50.0	4	36.4
Newborn ventilator bag	3	27.3	8	6.3	5	5.7	4	20.0	1	9.1
Labor/delivery table	7	63.6	74	58.6	46	52.3	11	55.0	5	36.4
Newborn scale	6	54.5	77	60.9	50	56.8	11	55.0	4	27.3
Suction equipment for clearing the newborn airway	6	54.5	56	43.8	23	26.1	11	55.0	4	36.4
Filled oxygen cylinder carrier and key to open valve	3	27.3	11	8.6	4	4.5	7	35.0	2	18.2
Adult ventilator bag	3	27.3	10	7.8	6	6.8	6	30.0	2	18.2
Adult ventilator mask	5	45.5	17	13.3	4	4.5	17	85.0	8	72.7

Northern LGAs (HFA-II; June 2015)

Equipment and Supplies	Public						Private			
	Hospital		Health Center		Health Post		Hospital		Health Center	
	7	%	210	%	274	%	33	%	20	%
Non-sterile protective clothing	7	100.0	122	58.1	125	45.6	29	87.9	16	80.0
Puncture-proof sharps container	6	85.7	159	75.7	162	59.1	27	81.8	13	65.0
Clean delivery kits	5	71.4	108	51.4	120	43.8	29	87.9	18	90.0
Neonatal resuscitation packs	2	28.6	26	12.4	16	5.8	18	54.5	6	30.0
Rectal thermometer for newborn	1	14.3	62	29.5	53	19.3	18	54.5	11	55.0
Partographs	3	42.9	77	36.7	21	7.7	11	33.3	3	15.0
Autoclave	5	71.4	16	7.6	3	1.1	18	54.5	4	20.0
Blood pressure cuff	4	57.1	107	51.0	139	50.7	29	87.9	19	95.0
Adult stethoscope	5	71.4	174	82.9	194	70.8	32	97.0	20	100.0
Fetal stethoscope	5	71.4	175	83.3	203	74.1	31	93.9	18	90.0
Episiotomy/cervical/vaginal laceration repair packs functioning today	4	57.1	29	13.8	32	11.7	24	72.7	11	55.0
Newborn ventilator bag	2	28.6	2	1.0	1	0.4	10	30.3	0	0.0
Labor/delivery table	7	100.0	171	81.4	196	71.5	32	97.0	17	85.0
Newborn scale	7	100.0	142	67.6	187	68.2	29	87.9	12	60.0
Suction equipment for clearing the newborn airway	4	57.1	93	44.3	83	30.3	28	84.8	17	85.0
Filled oxygen cylinder carrier and key to open valve	3	42.9	6	2.9	0	0.0	14	42.4	2	10.0
Adult ventilator bag	2	28.6	4	1.9	3	1.1	16	48.5	1	5.0
Adult ventilator mask	3	42.9	14	6.7	2	0.7	27	81.8	5	25.0

Table 14: Number of health facilities that performed EmONC functions in the 12 and 3 months preceding the assessment by ownership and type of facility; southern (HFA-I; December 2014) and northern (HFA-II; June 2015) LGAs

Southern LGAs (HFA-I; December 2014)

EmONC status in 12 months preceding assessment	Public			Private		All
	Hospital	Health Center	Health Post	Hospital	Health Center	
	11	138	88	20	11	268
CEmONC	3	1	0	6	4	14
BEmONC	1	2	0	2	0	5
BEmONCwoutAVD	2	1	0	1	2	6
Others	5	134	88	11	5	243
EmONC status in 3 months preceding assessment						
CEmONC	0	0	0	0	0	0
BEmONC	0	0	0	0	0	0
BEmONCwoutAVD	5	2	0	4	6	17
Others	6	136	88	16	5	251

Northern LGAs (HFA II; June 2015)

EmONC Status in 12 months preceding assessment	Public			Private		All
	Hospital	Health Center	Health Post	Hospital	Health Center	
	7	210	274	33	20	544
CEmONC	1	0	0	6	0	7
BEmONC	0	2	0	2	0	4
BEmONCwoutAVD	2	2	1	7	1	13
Others	4	206	273	18	19	520
EMONC Status in 3 months preceding assessment						
CEmONC	0	0	0	5	0	5
BEmONC	0	0	0	1	0	1
BEmONCwoutAVD	1	0	0	7	1	9
Others	6	210	274	20	19	529

Table 15: Percent of health facilities that reported to perform other maternal and newborn health services 3 months prior to assessment by facility type; southern (HFA-I; December 2014) and northern (HFA-II; June 2015) LGAs

Southern LGAs (HFA-I; December 2014)

Maternal and Newborn Health Services	Public						Private			
	Hospital		Health Center		Health Post		Hospital		Health Center	
	11	%	138	%	88	%	20	%	11	%
Staff routinely practice AMTSL	9	81.8	114	82.6	65	73.9	19	95.0	11	100.0
Staff routinely use partographs to manage labor	6	54.5	35	25.4	6	6.8	7	35.0	5	45.5
Breech delivery performed in last 3 months	7	63.6	13	9.4	8	9.1	12	60.0	3	27.3
Staff routinely practice HBB* protocol	6	54.5	82	60.1	42	47.7	12	60.0	9	72.7
Staff routinely practice skin-to-skin mother care	10	90.9	116	85.5	55	62.5	17	85.0	11	81.8
Rapid test performed for mothers with unknown HIV status	10	90.9	117	85.5	40	45.5	17	85.0	9	72.7
ARVs given to HIV-infected mothers	8	72.7	79	58.0	12	13.6	9	45.0	3	18.2
ARVs given to HIV-exposed newborns	9	81.8	66	48.6	9	10.2	10	50.0	3	18.2
Special or intensive care provided for preterm/low birth weight in last 3 months	6	54.5	17	11.6	6	6.8	6	30.0	3	36.4
Short-term family planning methods provided last 3 months	11	100.0	132	96.4	49	55.7	13	65.0	7	54.5
Long-acting family planning methods provided last 3 months	8	72.7	50	35.5	3	3.4	12	60.0	4	45.5
Surgical method or permanent contraceptive performed last 3 months	5	45.5	7	5.1	0	0.0	5	25.0	3	27.3

Northern LGAs (HFA-II; June 2015)

Maternal and Newborn Health Services	Public						Private			
	Hospital		Health Center		Health Post		Hospital		Health Center	
	7	%	210	%	274	%	33	%	20	%
Staff routinely practice AMTSL	7	100.0	196	93.3	235	85.8	32	97.0	18	90.0
Staff routinely use partographs to manage labor	2	28.6	55	26.2	18	6.6	9	27.3	3	15.0
Breech delivery performed in last 3 months	5	71.4	37	17.6	31	11.3	16	48.5	7	35.0
Staff routinely practice HBB* protocol	5	71.4	134	63.8	128	46.7	23	69.7	17	85.0
Staff routinely practice skin-to-skin mother care	6	85.7	164	78.1	198	72.3	28	84.8	15	75.0
Rapid test performed for mothers with unknown HIV status	6	85.7	144	68.6	110	40.1	30	90.9	16	80.0
ARVs given to HIV-infected mothers	5	71.4	60	28.6	25	9.1	13	39.4	1	5.0
ARVs given to HIV-exposed newborns	6	85.7	58	27.6	26	9.5	12	36.4	1	5.0
Special or intensive care provided for preterm/low birth weight in last 3 months	3	42.9	19	9.0	13	4.7	8	24.2	6	30.0
Short-term family planning methods provided last 3 months	7	100.0	152	72.4	136	49.6	14	42.4	9	45.0
Long acting family planning methods provided last 3 months	5	71.4	67	31.9	11	4.0	16	48.5	6	30.0
Surgical method or permanent contraceptive performed last 3 months	2	28.6	7	3.3	3	1.1	7	21.2	4	20.0

*Helping Babies Breathe (HBB) protocol teaches the initial steps of neonatal resuscitation to be accomplished within *The Golden Minute* to save lives and give a much better start to many babies who struggle to breathe at birth

Table 16: Percent of health facilities that reported availability of functioning infrastructure for obstetric and newborn services, by facility type; southern (HFA-I; December 2014) and northern (HFA-II; June 2015) LGAs

Southern LGAs (HFA-I; December 2014)

Infrastructure	Public						Private			
	Hospital		Health Center		Health Post		Hospital		Health Center	
	11	%	138	%	88	%	20	%	11	%
Electricity available	10	90.9	96	69.6	36	40.9	20	100.0	10	90.9
Electricity functioning	9	81.8	42	30.4	21	23.9	18	90.0	6	54.5
Backup power available	10	90.9	64	46.4	8	9.1	18	90.0	10	90.9
Backup power functioning	10	90.9	50	36.2	5	5.7	16	80.0	10	90.9
Never had electricity interruption for obstetric services	8	72.7	26	18.8	9	10.2	15	75.0	6	54.5
Water available for patients and staff use	11	100.0	78	56.5	36	40.9	20	100.0	10	90.9
Water system functioning in operating theatre	6	54.5	12	8.0	0	0.0	18	90.0	9	90.9
Water system functioning delivery room	7	63.6	36	25.4	7	8.0	17	85.0	9	90.9
Never had interruption of water supply	6	54.5	29	21.0	22	25.0	15	75.0	5	45.5
Functioning toilet for client use	10	18.2	74	4.3	16	3.4	19	5.0	9	9.1
Soap available near the toilet	9	90.9	50	36.2	15	17.0	16	80.0	9	81.8

Northern LGAs (HFA-II; June 2015)

Infrastructure	Public						Private			
	Hospital		Health Center		Health Post		Hospital		Health Center	
	7	%	210	%	274	%	33	%	20	%
Electricity available	7	100.0	143	68.1	89	32.5	32	97.0	18	90.0
Electricity functioning	4	57.1	41	19.5	18	6.6	18	54.5	8	40.0
Backup power available	6	85.7	97	46.2	17	6.2	29	87.9	18	90.0
Backup power functioning	5	71.4	65	31.0	10	3.6	28	84.8	16	80.0
Never had electricity interruption for obstetric services	0	0.0	4	1.9	5	1.8	7	21.2	1	5.0
Water available for patients and staff use	7	100.0	121	57.6	108	39.4	31	93.9	19	95.0
Water system functioning in operating theatre	3	42.9	0	0.0	1	0.4	17	51.5	5	25.0
Water system functioning delivery room	4	57.1	30	14.3	16	5.8	17	51.5	5	25.0
Never had interruption of water supply	3	42.9	58	27.6	60	21.9	22	66.7	10	50.0
Functioning toilet for client use	5	14.3	114	1.4	83	0.7	31	0.0	20	0.0
Soap available near the toilet	0	0.0	28	13.3	44	16.1	6	18.2	9	45.0

Appendix II: Field Workers

HFA-I: The Nine Southern LGAs; Lead Supervisor: Dr. Aba Nwachukwu

HFA-II: The Nine Northern LGAs; Lead Supervisor: Dr. Sakina Bello

Data Quality Monitoring Consultant: Dr. Ukong Akpan

Abi

- 1 Igbigbi Jennifer Ogheneochuko
- 2 Nnaji Ekene Henry
- 3 Olaleye Akinola Emmanuel
- 4 Chukwu Ezekiel Christopher
- 5 Nwifo Jude Nonso
- 6 Ibitoye Rashidat Olubunmi
- 7 *Egbe Richard Edu - Supervisor*

Akamkpa

- 1 Okeke Lovelyn Chilezie
- 2 Okache Winifred Y.
- 3 Ayim Linda Egbor
- 4 James Benjamin Onuh
- 5 Nwatu Chidiebere Boniface
- 6 Nkoyo Okon Ekanem
- 7 *Dominic Onwe Ogrì - Supervisor*

Akpabuyo

- 1 Akinwale Akiwumi Kolawole
- 2 Anene Ifeoma Linda
- 3 Ukpanyang Okon E.
- 4 Umeh Felicia Chiamaka
- 5 Edet Inemesit Emmanuel
- 6 Isaac Emmanuel Umanah
- 7 Ogbonna Chukwuemeka O.
- 8 Anidebe Chinelo Ada
- 9 Ukpanyang Nsa Okon Effiong - Supervisor

Bakassi

- 1 John Lohya
- 2 Onye Jovita Ijeoma
- 3 Mabayoje Ifeoluwa Peter
- 4 Mewojuaye Segun
- 5 Nnaji Stella Ukamaka
- 6 Umezurike Nnanna R.

- 7 *Theresa Aleka - Supervisor*

Biase

- 1 Abass Rukayat Olamide
- 2 Amusat Wasiu Lanre
- 3 Babalola Tayo Nimotalah
- 4 Jimoh Wasiu Ayinde
- 5 Ngoka Nzube John
- 6 Oduola Abdulroqeeb Opeyemi
- 7 Oduyoye Hajarat Abimbola
- 8 Nnoruga Perpetua Obiageli
- 9 *Lovelyn P. Eteng - Supervisor*

Calabar Municipal

- 1 Nkuma Chisom Ukpai
- 2 Franka Kewoyong E.
- 3 Inok Edim Edim
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