SM2015 – Nicaragua

18-Month Health Facility

Data Quality Report

April 2015

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This Data Quality Report on the SM2015-Nicaragua Facility Survey was produced in agreement with the Inter-American Development Bank (IDB). All analyses and report writing were performed by the Institute for Health Metrics and Evaluation (IHME) at the University of Washington. This report is meant as a descriptive analysis to explore the most significant aspects of the information gathered for Salud Mesoamérica 2015 and to ensure that collected data are of the highest possible quality. Its purpose is to detail summary statistics of data collected for the first follow-up measurement and to provide comparisons, where applicable, between SM2015 performance health indicators from the baseline and first follow-up measurements.

About IHME

IHME monitors global health conditions and health systems and evaluates interventions, initiatives, and reforms. Our vision is that better health information will lead to more knowledgeable decision-making and higher achievements in health. To that end, we strive to build the needed base of objective evidence about what does and does not improve health conditions and health systems performance. IHME provides high-quality and timely information on health, enabling policymakers, researchers, donors, practitioners, local decision-makers, and others to better allocate limited resources to achieve optimal results.

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Chapter 1 SURVEY METHODOLOGY

1.1 Overview

Salud Mesoamérica 2015 (SM2015) is a regional public-private partnership that brings together Mesoamerican countries, private foundations and bilateral and multilateral donors with the purpose of reducing health inequalities affecting the poorest 20 percent of the population in the region. Funding will focus on supply and demand-side interventions, including changes in policy, evidence-based interventions, the expansion of proven and cost-effective healthcare packages, and the delivery of incentives for effective health services. One of its defining features is the application of a results-based financing model (RBF) that relies on serious performance measurement and enhanced transparency in reporting accountability and global impact assessment. The initiative will focus its resources on integrating key interventions aimed at reducing health inequalities resulting from the lack of access to reproductive, maternal and neonatal health (including immunization and nutrition) for the poorest quintile of the population.

The objectives of the SM2015 evaluation are to assess whether countries are reaching the targeted indicators set by the initiative, and to evaluate the impact of specific interventions. In Nicaragua, data collection is taking place at households and health facilities in intervention and control areas. The 18-month follow-up data collection took place at health facilities only. Future data collection will occur at 36 and 54 months at households and health facilities. This document describes the 18-month follow-up performance and monitoring indicator results in health facilities.

1.2 Health facility survey

The health facility survey is one of two (the other being a household survey) components of the overall data collection method employed in the initiative. Twining of both surveys is a defining and innovative feature designed to most accurately capture prevalence estimates of select key indicators. In general terms, the objectives of the health facility survey are assessing facility conditions, evaluating service provision and utilization, and measuring quality of care. The medical record review (MRR) was implemented in order to capture historical data on the facilities' treatment practices by asking about various medical complications that mothers and infants experienced, along with how each case was treated. It also assessed the medical practices of the facilities before, during, and after uncomplicated births. Importantly, the facility survey captures changes made by interventions at the level of the health services access point, the health facility, and predicts changes in population health outcomes. The 18-month health facility survey, recounted in this report, measured follow-up estimates of various health indicators with the aim of monitoring future changes in those indicators.

1.3 Contents and methods for data collection

1.3.1 Contents of the 2014 18-month Nicaragua health facility survey

The health facility survey includes three components: an interview questionnaire, an observation checklist, and a medical record review. The questionnaire captures information reported by the facility director, manager, or person in charge of the health facility; the checklist captures objective data observed by the surveyors at the time of the survey using an observation checklist, and in the case of some inputs, also reviewing administrative records to identify the presence of stock-outs in the three

months prior to the survey. The medical record review assesses the record-keeping of the facilities and captures the facilities' treatment practices. In each part of the survey, data are collected on general facility characteristics, infrastructure, and human resource composition, supply logistics, infection control, child health care, vaccine availability, family planning, and maternal antenatal, delivery, and postpartum care. For the topics of child and maternal care and family planning, information is collected on the types of services provided, components of the care offered, equipment available, and quality of record keeping.

1.3.2 Methods for data collection

The facility survey is conducted using a computer-assisted personal interview (CAPI). The CAPI was programmed using DatStat Illume and installed into computer netbooks that are used by the surveyors at all times of the interview. CAPI supports skip patterns, inter-question answer consistency, and data entry ranges. The aim of introducing CAPI to the field was to reduce survey time by prompting only relevant questions, to maintain a logical answering pattern across different questions, and to decrease data-entry errors.

1.4 Sampling

For this evaluation, a sample of 60 health facilities was selected from a list of all facilities serving the municipalities in intervention areas covered by the SM2015 initiative. This list was constructed according to a referral network outlined by the Ministry of Health (Ministerio de Salud). All basic and complete facilities serving SM2015, as well as all health centers (ambulatory), were included in the sample with certainty, due to the small number of these facilities operating in the area. Among health posts (which are ambulatory facilities), 50% of the remaining sample was drawn randomly from the list of health posts located in SM2015 intervention areas that were interviewed at baseline. The other 50% were drawn from the remaining ambulatory facilities in SM2015 areas that were not visited at baseline. A simple random sample was drawn from each ambulatory strata to reach the quota of 60 intervention facilities. One complete-level facility and one basic-level facility were replaced with ambulatory facilities, due to problems with safety and access in the areas. In addition, 7 ambulatory units were replaced due to accessibility issues. The replacement facilities were selected from a designated list of back-up facilities within the respective municipalities.

For the MRR, a systematic sampling method was used to reach the required sample of records in each facility. Records for specific conditions (maternal and neonatal complications, deliveries, antenatal and postpartum care, and child care) were selected according to a quota-set considering the Essential Obstetric and Neonatal Care (EONC) level that each facility provides. Cases of maternal and neonatal complications were sampled at random from Ministry of Health registries and, if required, additional cases were sampled using a systematic sampling technique in-facility.

1.5 Survey implementation

1.5.1 Data collection instruments

All health facility surveys were conducted using computer netbooks equipped with CAPI programs (See section 1.3.2)

1.5.2 Training and supervision of data collectors

Training sessions and health facility pilot surveys were conducted in Nicaragua in April 2014. The 6 surveyors had medical backgrounds (physicians and nurses) and underwent two days of training. The training included an introduction to the initiative, proper conduct of the survey, in-depth review of the instrument, and hands-on training with the CAPI software. Training was followed by a two-day pilot of all components of the survey at currently operating health facilities.

1.5.3 Data collection and management

As described in Section 1.3.2, data were collected using computer netbooks equipped with CAPI software. A lead surveyor monitored the implementation of the facility survey and reported feedback. Data collection using CAPI allowed data to be transferred instantaneously once a survey was completed via a secure link to IHME. IHME monitored collected data on a continuous basis and provided feedback. Suggestions, surveyor feedback, and any modifications were incorporated into the health facility instruments and readily transmitted to the field.

1.5.4 Data analysis and report writing

Ongoing data analysis was done at IHME and new data were continuously incorporated. Analysis was done using STATA version 13.1. Performance indicators were calculated at IHME following the indicator definitions provided by IDB. A mid-survey report was submitted to IDB with estimates on key performance indicators. This Data Quality Report includes information from facilities in intervention areas and comparisons to baseline intervention-area results. An appendix showing updated indicators and their definitions is included (Appendix A).

Chapter 2 FACILITY-LEVEL INFRASTRUCTURE, RESOURCES, MANAGEMENT, AND SUPPORT

The main body of this report refers to facilities surveyed for the 18-month evaluation in intervention areas only, and compares intervention-area data at the 18-month follow-up to intervention-area data from the baseline evaluation when detailing performance indicators. Appendix A compares indicator values from baseline to follow-up.

2.1 General description of the facility

2.1.1 Type of health facility

A total of 60 facilities in intervention areas were surveyed for the 18-month evaluation. These health units are further broken down by facility EONC classification and facility type in Tables 2.1.1a and 2.1.1b.

Table 2.1.1a Health facilities by EONC classification

	Baseline	18-Month
Ambulatory	32	46
Basic	5	11
Complete	3	3
Total	40	60

Table 2.1.1b Health facilities by facility type

	Baseline	18-Month
Health post	30	39
Health center	3	7
Primary hospital	4	11
Departmental hospital	1	1
Regional hospital	2	2
Total	40	60

2.1.2 Geographical representation

Facilities surveyed for the 18-month evaluation were located in 19 municipalities in a total of 4 regions (Table 2.1.3).

Table 2.1.2 Geographic representation

Region	Municipality	No. of facilities
Bilwi	Puerto Cabezas	13
	Waspan	7
Jinotega	Bocay	3
	El Cua	5
	San Sebastian De Yali	2
	Santa Maria De Pantasma	1
	Wiwili	1
Las Minas	Bocana De Paiwas	1
	Bonanza	2
	Mulukuku	1
	Rosita	3
	Siuna	4
Matagalpa	Matagalpa	1
	Matiguás	3
	Rancho Grande	1
	San Dionisio	2
	Terrabona	2
	Tuma La Dalia	5
	Waslala	3
Total	19	60

2.1.3 Medical record extraction

The health facility survey included a review of 1,698 medical records. The number and type of medical records reviewed varied depending on the type of facility and the services it provided. Records of antenatal care and maternity home stays were evaluated in all facilities. In addition, records of delivery, postpartum care, maternal complications and neonatal complications were reviewed only at basic and complete facilities.

Table 2.1.3 Number of medical records by facility classification (EONC level)

Medical records	Ambulatory	Basic	Complete	Total
Antenatal care	415	105	49	569
Delivery	0	172	49	221
Postpartum	0	140	51	191
Maternal complications	0	172	70	242
Neonatal complications	0	168	69	237
Maternity homes	35	179	24	238
Total	450	936	312	1,698

2.1.4 Referrals

In response to the question, “Do you usually receive referred patients from another health facility?” 46.7% of ambulatory facilities, 90.9% of basic, and 100% of complete facilities reported receiving referred patients from other facilities. Data for this question, regarding patient referral from another health facility, was missing from one ambulatory facility.

In response to the question “Do you usually send or refer patients to another health facility?” 97.8% of ambulatory and 100% of basic and complete facilities reported sending/referring patients. One ambulatory facility reported that they did not know if patients were referred or sent to another facility and data was missing from an additional ambulatory facility for this question.

2.1.5 Governing authority

All health facilities were public institutions governed by the Ministry of Health.

2.2 Basic infrastructure

2.2.1 Electricity and Water

All basic and complete health units and 86.7% of ambulatory units had functional electricity. Of the ambulatory health units that had functional electricity, 89.7% used a central electricity supply and 15.4% used a solar generator. The majority of basic facilities (90.9%) and all complete facilities also used a central supply as a source of electricity.

The sources of water at ambulatory and basic facilities varied. Over half of ambulatory and basic facilities reported using water piped into the facility. Other open-ended responses included water tanks, river water, and a private pump. All complete facilities reported using water piped into the facility as a source of water, and 33.3% of complete facilities also reported using a facility well.

Table 2.2.1 details the sources of electricity and water available at facilities. Interviewers asked facility representatives to indicate all sources of electricity and water for the health unit; therefore, representatives could indicate more than one source serving the facility.

Table 2.2.1 Electricity and water sources at all facilities

	Ambulatory			Basic			Complete		
	N*	%	SE	N	%	SE	N	%	SE
Functional electricity	45	86.7	5.1	11	100		3	100	
Source of electricity									
Central supply	39	89.7	4.9	11	90.9	8.7	3	100	
Private supply	39	0		11	0		3	0	
In-facility generator	39	0		11	45.5	15.0	3	0	
Solar generator	39	15.4	5.8	11	0		3	0	
Other source	39	5.1	3.5	11	9.1	8.7	3	0	
DK/ DR	0			0			0		
Source of water									
Piped into facility	45	53.3	7.4	11	54.5	15.0	3	100	
Public well	45	33.3	7.0	11	9.1	8.7	3	0	
Facility well	45	17.8	5.7	11	18.2	11.6	3	33.3	27.2
Unprotected well	45	2.2	2.2	11	9.1	8.7	3	0	
Hand pump	45	2.2	2.2	11	0		3	0	
Bottled water	45	0		11	0		3	0	
Tanker truck	45	0		11	0		3	0	
Rain water	45	2.2	2.2	11	0		3	0	
Other	45	6.7	3.7	11	36.4	14.5	3	0	
DK/ DR	0			0			0		

*Data missing for one ambulatory facility

2.2.2 Internet access

Only 11.1% of ambulatory facilities had access to the internet while 90.9% of basic and 100% of complete facilities in our sample reported the same. Data regarding internet access is missing for one ambulatory facility.

2.3 Personnel

2.3.1 Personnel in ambulatory units

Ambulatory health units are further sub-categorized into two facility types: health posts and health centers. Table 2.3.1 details the personnel composition in these facilities. The mean represents the average number of personnel reported per category. On average, there were 0.3 general physicians, 0.9 nurses, and 0.7 doctors in social service at health posts. At health centers, there was an average of 3.1 general physicians, 11.3 nurses, 13.7 auxiliary nurses, and 8.7 doctors in social services.

Table 2.3.1 Personnel composition in ambulatory facilities

	Health post				Health center			
Personnel type	N*	Mean	SE	DK/DR	N	Mean	SE	DK/DR
General physician	38	0.3	0.6	0	7	3.1	2.1	0
Pediatrician	38	0	0.2	0	7	0.3	0.8	0
Nutritionist	38	0		0	7	0.1	0.4	0
Pharmacist	38	0.1	0.2	0	7	0.4	0.5	0
Nurse	38	0.9	0.9	0	7	11.3	14.9	0
Auxiliary nurse	38	0.4	0.6	0	7	13.7	14.9	0
Social worker	38	0.1	0.4	0	7	0.9	1.6	0
Laboratory technician	38	0	0.2	0	7	2.3	3.5	0
Ambulance driver	38	0.1	0.3	0	7	2.3	1.4	0
Doctor in social service	38	0.7	1.0	0	7	8.7	6.0	0
Nurse in social service	38	0.1	0.4	0	7	1.1	0.9	0
Other	38	0		1	7	1.1	2.2	0
Specialists								
Internist	38	0		0	7	0		0
Gynecologist	38	0		0	7	0.1	0.4	0
Surgeon	38	0		0	7	0		1
Anesthesiologist	38	0		0	7	0		0
Emergency medical technician	38	0		0	7	0		0
Radiology technician	38	0		0	7	0		0
Other specialist	38	0		0	7	0.1	0.4	0

*Data missing from one health post

2.3.2 Personnel in basic and complete facilities

The personnel composition shows a large variation across basic and complete health units. The mean represents the average number of personnel reported per category by facility type (Table 2.3.2). On average, basic facilities have 10.1 nurses, 17.4 auxiliary nurses, and 13.4 doctors in social service. Complete facilities employ an average of 20 general physicians, 60 nurses, and 55.7 auxiliary nurses.

Table 2.3.2 Personnel composition in basic and complete health units

	Basic			Complete		
Personnel type	N	Mean	SE	N	Mean	SE
General physician	11	3.2	1.8	3	20	14.7
Pediatrician	11	1.2	0.4	3	7	2
Nutritionist	11	0.1	0.3	3	0.7	0.6
Pharmacist	11	1.3	2.3	3	0.7	0.6
Nurse	11	10.1	6.6	3	60	33.3
Auxiliary nurse	11	17.4	10.2	3	55.7	13.6
Social worker	11	0		3	1.3	0.6
Laboratory technician	11	3.1	2.3	3	9.3	5.5
Ambulance driver	11	2.6	0.9	3	3.7	1.5
Doctor in social service	11	13.4	5.3	3	7.3	6.4
Nurse in social service	11	2.7	2.7	3	6.7	1.5
Other	11	0.6	0.8	3	2.7	4.6
Specialists						
Internist	11	0.6	0.5	3	5	3.6
Gynecologist	11	1.2	0.4	3	5.7	2.5
Surgeon	11	1.2	0.8	3	9.7	6.5
Anesthesiologist	11	0.7	0.5	3	4	1.7
Emergency medical technician	11	0.3	0.6	3	8	6.2
Radiology technician	11	0.7	0.8	3	7.3	4.5
Other specialist	11	0.7	1.6	3	0.3	0.6

2.4 Socio-cultural services

2.4.1 Health centers with socio-cultural adaption

Health centers were asked questions related to the provision of socio-cultural services. Of the seven health centers that reported on socio-cultural services, 71.4% took action to adapt services to the sociocultural conditions of women for delivery care.

Chapter 3 CHILD HEALTH

3.1 Child services offered – a background

This chapter summarizes key indicators related to child health care. In the questionnaire component of the survey, facility representatives were asked about service provision and logistics of ordering and receiving supplies. In the observation component, interviewers observed the setting of the room in which child services are provided, functionality of equipment, stock of pharmacy inputs, stock of vaccines, and related educational materials. Table 3.1.1 shows the percentage of facilities that offer child health care services and vaccinations for children under age 5, as well as the setting in which these services are provided. Data were incorporated from both the observation module and the interview module, which indicated differing prevalence of child health service provision. In some cases, facility representatives indicated that child health services were not provided, though interviewers observed child health rooms in these facilities.

Table 3.1.1 Child health care services provision

	Ambulatory			Basic			Complete		
	N	%	SE	N	%	SE	N*	%	SE
Unit reports offering child services*	45	100		11	100		3	66.7	27.2
Unit reports vaccination services for children under 5*	45	86.7	5.1	11	100		3	100	
Child care room**									
Private room with visual and auditory privacy	42	61.9	7.5	11	81.8	11.6	3	100	
Non-private room without auditory or visual privacy	42	21.4	6.3	11	9.1	8.7	3	0	
Visual privacy only	42	9.5	4.5	11	9.1	8.7	3	0	
No privacy	42	7.1	4.0	11	0		3	0	

*Missing data from health facility questionnaire on child care service provision from one ambulatory facility

**Missing data from health facility observation on the type of room used for child care services from four ambulatory facilities

3.2 Child health care equipment

In the health facility survey observation module, interviewers checked availability and functional status of inputs needed for child care among children under 5 years of age. The tables below (Tables 3.2.1 – 3.2.3) list medical equipment related to child health care in ambulatory facilities. Tables 3.2.2 and 3.2.3 break down ambulatory facilities into two separate categories, health posts and health centers. These items were observed by the surveyors, rather than merely reported by hospital staff. Overall, 88.1% of ambulatory facilities contained all functional equipment necessary for basic child care on the day of the survey.

Table 3.2.1 Child health care equipment observed and functional in all ambulatory facilities

	Ambulatory					
	Baseline			18-Month		
Equipment type	N	%	SE	N	%	SE
Pediatric scale*	32	81.3	6.9	42	100	
Height rod	32	59.4	8.7	46	97.8	2.2
Stethoscope	32	53.1	8.8	46	97.8	2.2
Pediatric stethoscope**	2	0		7	100	
Oral/axillary thermometer	32	18.8	6.9	46	95.7	3.0
Growth and development card*	32	96.9	3.1	42	92.9	4.0
All equipment observed and functional	32	3.1	3.1	42	88.1	5

*Data missing for 4 ambulatory facilities (18-month)

**Pediatric stethoscopes not measured at health posts

Table 3.2.2 Child health care equipment observed and functional in health posts

	Health Post		
	18-Month		
Equipment type	N	%	SE
Pediatric scale*	35	100	
Height rod	39	97.4	2.5
Stethoscope	39	97.4	2.5
Oral/axillary thermometer	39	94.9	3.5
Growth and development card*	35	94.3	3.9
All equipment observed and functional	35	88.6	5.4

*Data missing for 4 health posts

Table 3.2.3 Child health care equipment observed and functional in health centers

	Health Center		
	18-Month		
Equipment type	N	%	SE
Pediatric scale	7	100	
Height rod	7	100	
Stethoscope	7	100	
Pediatric stethoscope	7	100	
Oral/axillary thermometer	7	100	
Growth and development card	7	85.7	13.2
All equipment observed and functional	7	85.7	13.2

Basic and complete facilities were also well-equipped with equipment necessary for basic child care. Overall, 81.8% of basic facilities contained all functional equipment on the day of the follow-up survey, though no facilities contained all functional equipment at baseline. As displayed in Table 3.2.5, all complete facilities had at least one functional pediatric scale, height rod, stethoscope, thermometer, and growth and development card on the day of the survey.

Table 3.2.4 Child health care equipment observed and functional in basic facilities

	Basic					
	Baseline			18-Month		
Equipment type	N	%	SE	N	%	SE
Pediatric scale	5	80	17.9	11	100	
Height rod	5	0		11	100	
Stethoscope	5	40	21.9	11	100	
Pediatric stethoscope	5	0		11	90.9	8.7
Oral/axillary thermometer	5	40	21.9	11	100	
Growth and development card	5	20	17.9	11	90.9	8.7
All equipment observed and functional	5	0		11	81.8	11.6

Table 3.2.5 Child health care equipment observed and functional in complete facilities

	Complete					
	Baseline			18-Month		
Equipment type	N	%	SE	N	%	SE
Pediatric scale	2	100		3	100	
Height rod	2	50	35.4	3	100	
Stethoscope*	n/a	n/a	n/a	3	100	
Pediatric stethoscope*	n/a	n/a	n/a	3	66.7	27.2
Oral/axillary thermometer	2	50	35.4	3	100	
Growth and development card	2	0		3	100	
All equipment observed and functional	2	0		3	66.7	27.2

*Not measured for complete facilities at the baseline

3.3 Important drugs and supplements

Interviewers observed the availability and stock of important drugs and supplements used for basic child health care in facility pharmacies, namely packets/envelopes of oral rehydration salts (ORS), zinc sulfate/zinc gluconate/ferrous sulfate, and albendazole/mebendazole. The tables below (Tables 3.3.1 – 3.3.3) list pharmacy inputs related to child health care in ambulatory facilities. Tables 3.3.2 and 3.3.3 break down ambulatory facilities into two separate categories, health posts and health centers. Among health posts, 89.7% contained all pharmacy inputs on the day of the survey. All health centers had all of the pharmacy inputs observed for basic child services on the day of the survey. Overall, 89.1% of all ambulatory facilities had continuous availability of these drugs in the previous three months.

Table 3.3.1 Child health care drugs and supplements observed in ambulatory facilities

	Ambulatory					
	Baseline			18-Month		
Pharmacy inputs	N	%	SE	N	%	SE
Packets/envelopes of oral rehydration salts	32	90.6	5.2	46	100	
Zinc sulfate/zinc gluconate/ferrous sulfate	32	96.9	3.1	46	100	
Albendazole/mebendazole	32	93.8	4.3	46	91.3	4.2
Antibiotics*	2	100		7	100	
All inputs observed on the day of the survey	32	81.3	6.9	46	91.3	4.2
Continuous availability of all inputs in the previous three months**	32	81.3	6.9	46	89.1	4.6

*Antibiotics = erythromicin/amoxicillin/benzathine penicillin

*Antibiotics not measured at health posts

**Overall pharmacy availability including availability on the day of the survey and no stock-out in the previous three months of all inputs

Table 3.3.2 Child health care drugs and supplements observed in health posts

	Health Post		
	18-Month		
Pharmacy inputs	N	%	SE
Packets/envelopes of oral rehydration salts	39	100	
Zinc sulfate/zinc gluconate/ferrous sulfate	39	100	
Albendazole/mebendazole	39	89.7	4.9
All inputs observed on the day of the survey	39	89.7	4.9

Table 3.3.3 Child health care drugs and supplements observed in health centers

	Health Center		
	18-Month		
Pharmacy inputs	N	%	SE
Packets/envelopes of oral rehydration salts	7	100	
Zinc sulfate/zinc gluconate/ferrous sulfate	7	100	
Albendazole/mebendazole	7	100	
Antibiotics*	7	100	
All inputs observed on the day of the survey	7	100	

*Antibiotics = erythromicin/amoxicillin/benzathine penicillin

Basic and complete facilities were also well-equipped with pharmacy inputs necessary for basic child care, with 100% of facilities having all drugs available on the day of the survey. Overall, 81.8% of basic facilities and 33.3% of complete facilities had continuous availability of these drugs in the previous three months.

Table 3.3.4 Child health care drugs and supplements observed in basic facilities

	Basic					
	Baseline			18-Month		
Pharmacy inputs	N	%	SE	N	%	SE
Packets/envelopes of oral rehydration salts	5	80	17.9	11	100	
Zinc sulfate/zinc gluconate/ferrous sulfate	5	100		11	100	
Albendazole/mebendazole	5	100		11	100	
Antibiotics*	5	100		11	100	
All inputs observed on the day of the survey	5	80	17.9	11	100	
Continuous availability of all inputs in the previous three months**	5	80	17.9	11	81.8	11.6

*Antibiotics = erythromicin/amoxicillin/benzathine penicillin

**Overall pharmacy availability including availability on the day of the survey and no stock-out in the previous three months of all inputs

Table 3.3.5 Child health care drugs and supplements observed in complete facilities

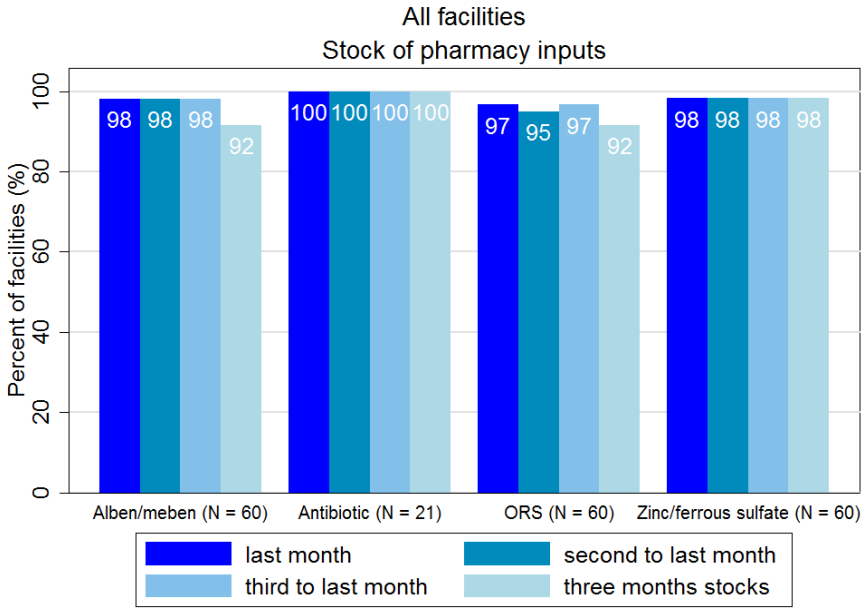
	Complete					
	Baseline			18-Month		
Pharmacy inputs	N	%	SE	N	%	SE
Packets/envelopes of oral rehydration salts	2	100		3	100	
Zinc sulfate/zinc gluconate/ferrous sulfate	2	100		3	100	
Albendazole/mebendazole	2	100		3	100	
Antibiotics*	2	100		3	100	
All inputs observed on the day of the survey	2	100		3	100	
Continuous availability of all inputs in the previous three months**	2	100		3	33.3	27.2

*Antibiotics = erythromicin/amoxicillin/benzathine penicillin

**Overall pharmacy availability including availability on the day of the survey and no stock-out in the previous three months of all inputs

All facilities with availability of select supplements and medications related to basic child care were asked to provide further information regarding the stock of those inputs in the previous three months. Facilities that did not have availability on the day of the survey were not further evaluated for previous months' stock. Figure 3.3.6 details the percentage of facilities that had a continuous supply of albendazole/mebendazole, antibiotics, oral rehydration salts, and zinc sulfate/zinc gluconate/ferrous sulfate in the three months prior to the date of the survey. Facilities were considered to be out of stock if there was a shortage of the specified pharmacy input on any day in the given month.

Figure 3.3.6 Stock of pharmacy inputs for child care in the previous three months in all facilities



3.4 Composite child care indicator

The indicator related to the continuous availability of supplies and equipment needed for childcare, immunization and nutrition was calculated at ambulatory and basic health facilities using relevant equipment, vaccines, and drugs. The compiled values for each component are displayed in Table 3.4.1. Child-care inputs were measured differently for both types of ambulatory facilities; therefore, they are broken down in the table by health posts and health centers. The individual inputs that comprise this indicator are listed in Appendix A and further detailed in Chapters 3 and 4.

Table 3.4.1 Child care indicator components

	Health post			Health center			Basic		
Indicator components	N	%	SE	N	%	SE	N	%	SE
All equipment observed & functional	35	88.6	5.4	7	85.7	13.2	11	81.8	11.6
Continuous availability of vaccines*	18	88.9	7.4	7	85.7	13.2	10	80	12.6
Continuous availability of pharmacy inputs	39	87.2	5.4	7	100		11	81.8	11.6
Continuous availability of supplies and equipment needed for childcare, immunization and nutrition**	35	74.3	7.4	7	71.4	17.1	11	63.6	14.5

*Vaccines only applicable if the facility reported storing vaccines

**Refer to Appendix A for specific formulas used to calculate final indicator value

3.5 Educational materials

Table 3.5.1 lists some educational materials observed either as cards handed to the caretaker or as illustrations of disease management hung on the unit walls. The majority of facilities had printed materials about child growth and development, as well as danger signs and symptoms in children at risk.

Table 3.5.1 Child health education and awareness

	Ambulatory			Basic			Complete		
Education material	N	%	SE	N	%	SE	N	%	SE
Printed materials on child growth and child development	42	88.1	5	11	81.8	11.6	3	100	
Printed materials on danger signs and symptoms of children at risk	42	90.5	4.5	11	90.9	8.7	3	100	

Chapter 4 VACCINES

4.1 Vaccination services

When asked about vaccination services, all basic- and complete-level facilities and 86.7% of ambulatory facilities reported that they do vaccinate children. Interviewers observed and recorded the setting of the room used for immunization. A variety of rooms are used for immunization at ambulatory and basic facilities. All complete facilities use a private room with visual and auditory privacy. Data were incorporated from both the observation module and the interview module, which indicated differing prevalence of vaccination service provision.

Table 4.1.1 Vaccination services

	Ambulatory			Basic			Complete		
	N	%	SE	N	%	SE	N	%	SE
Unit vaccinates children under 5*	45	86.7	5.1	11	100		3	100	
Immunization room**									
Private room with visual and auditory privacy	38	55.3	8.1	10	30	14.5	3	100	
Non-private room without auditory or visual privacy	38	18.4	6.3	10	20	12.6	3	0	
Visual privacy only	38	10.5	5.0	10	10	9.5	3	0	
No privacy	38	7.9	4.4	10	40	15.5	3	0	
Other	38	7.9	4.4	10	0		3	0	

*Missing data from health facility questionnaire on immunization service provision from one ambulatory facility
**Missing data from the health facility observation on the type of room used for immunization services from one ambulatory and one basic facility that reported providing vaccination services

4.2 Vaccine logistics

4.2.1 Storage

In the questionnaire component of the survey, interviewers asked facility representatives about vaccine storage. Among ambulatory facilities, only 64.1% of the units store vaccines in-facility while 100% of basic and complete facilities report storing vaccines within the facility (Table 4.2.2).

4.2.2 Demand and supply

Facilities that store vaccines or receive vaccines from other facilities on the day of administration were asked logistical questions about the supply and demand of vaccines in the health facility questionnaire. All facilities reported self-determination in ordering vaccine supplies, and ordering the same quantity each time. When reporting on the time to order strategy, seven facilities reported they order both on a fixed schedule and when needed. For the purposes of the table below, these seven facilities were categorized as only ordering on a fixed time period. Responses from facility representatives about the time it takes to receive orders and whether they received the correct quantity are further detailed in Table 4.2.2.

Table 4.2.2 Vaccine demand and supply

	Ambulatory			Basic			Complete		
	N*	%	SE	N	%	SE	N	%	SE
Storage									
Stored in facility	39	64.1	7.7	11	100		3	100	
Picked up from another facility	39	17.9	6.2	11	0		3	0	
Delivered when services are being provided	39	17.9	6.2	11	0		3	0	
None of the above	39	0		11	0		3	0	
Demand and Supply									
Ordering Strategy									
Determines own needs	25	100		11	100		3	100	
Need determined elsewhere	25	0		11	0		3	0	
Both (differ by vaccine)	25	0		11	0		3	0	
Quantity to order strategy									
Order same amount	26	100		11	100		3	100	
Different per vaccine	26	0		11	0		3	0	
Time to order strategy									
Fixed time, >= once/week	26	15.4	7.1	11	18.2	11.6	3	33.3	27.2
Fixed time, < once/week	26	76.9	8.3	11	81.8	11.6	3	33.3	27.2
Order when needed	26	7.7	5.2	11	0		3	33.3	27.2
Time to receive supplies									
< 1 week	25	100		11	100		3	100	
1-2 weeks	25	0		11	0		3	0	
> 2 weeks	25	0		11	0		3	0	
Reception of quantity ordered									
Always	24	95.8	4.1	11	90.9	8.7	3	100	
Almost always	24	4.2	4.1	11	9.1	8.7	3	0	
Almost never	24	0		11	0		3	0	
DK/DR	1								

*Missing data for one ambulatory facility

4.3 Vaccines observed

Tables 4.3.1-4.3.3 indicate the percentage of facilities at which at least one unit of a specified vaccine was observed by the surveyors at the time of the survey (if the facility stores vaccines) in the health facility observation survey. Specifically, Tables 4.3.1 and 4.3.2 reflect availability of vaccines in ambulatory and basic facilities as measured in the composite child care indicator. There was a large increase in availability of vaccines in both ambulatory and basic facilities from the baseline measurements. Ambulatory facilities increased from only 18.8% at the baseline measurement to 100% of facilities having three months' stock of vaccines necessary for basic child care. Basic facilities also increased from only 20% at the baseline to 90% of facilities having three months' stock of the same vaccines by follow-up.

Table 4.3.1 Vaccine stocks observed in ambulatory facilities

	Ambulatory					
	Baseline			18-Month		
Vaccine type	N	%	SE	N	%	SE
Pentavalent/(DPT + Hib + Hepb)*	16	93.8	6.1	25	100	
Polio	16	93.8	6.1	25	100	
MMR	16	93.8	6.1	25	100	
Rotavirus	16	87.5	8.3	25	100	
Pneumococcal conjugate	16	68.8	11.6	25	100	
BCG	16	31.3	11.6	25	100	
All inputs observed on the day of the survey	16	18.8	9.8	25	100	
Continuous availability of all inputs in the previous three months**	16	18.8	9.8	25	100	

*Due to a survey programming error, Hib not evaluated

**Overall vaccine availability including availability on the day of the survey and no stock-out in the previous three months of MMR + BCG

Table 4.3.2 Vaccine stocks observed in basic facilities

	Basic					
	Baseline			18-Month		
Vaccine type	N	%	SE	N	%	SE
Pentavalent/(DPT + Hib + Hepb)*	5	100		10	100	
Polio	5	100		10	100	
MMR	5	100		10	100	
Rotavirus	5	80	17.9	10	100	
Pneumococcal conjugate	5	40	21.9	10	90	9.5
BCG	5	20	17.9	10	100	
All inputs observed on the day of the survey	5	20	17.9	10	90	9.5
Continuous availability of all inputs in the previous three months**	5	20	17.9	10	90	9.5

*Due to a survey programming error, Hib not evaluated

**Overall vaccine availability including availability on the day of the survey and no stock-out in the previous three months of MMR + BCG

Table 4.3.3 displays availability of all vaccines on the day of the survey at the 18-month data collection. Note that DPT and HepB as individual vaccines were only sought out if the facility did not have the pentavalent vaccine on the day of the survey. Hib could not be evaluated during this evaluation.

Table 4.3.3 Vaccine stocks observed in all facilities

Vaccine type	Ambulatory			Basic			Complete		
	N	%	SE	N	%	SE	N	%	SE
Pentavalent	25	100		10	100		3	100	
MMR	25	100		10	100		3	100	
Polio	25	100		10	100		3	100	
Rotavirus	25	100		10	100		3	100	
Pneumococcal conjugate	25	100		10	90	9.5	3	100	
BCG	25	100		10	100		3	100	
Tetanus	25	96	3.9	10	100		3	100	
DPT*	0			0			0		
HepB*	0			0			0		

*Only measured if pentavalent was not observed on the day of the survey

**Pentavalent = DPT + HepB + Hib; MMR = measles, mumps, rubella

4.4 Cold chain

Facilities that either store vaccines, collect vaccines from other health units or have vaccines delivered to the unit to be immediately administered were asked questions related to the cold chain. Interviewers observed the type of fridges used to store vaccines. Table 4.4.1 details the percent of facilities that have each type of fridge observed and functional at the time of the survey. Among basic facilities, 90% had functioning fridges on the day of the survey and one basic facility reported having a non-functional electric fridge. Additionally, 51.9% of ambulatory, 80% of basic, and 100% of complete facilities reported having at least one cold box to store vaccines.

Table 4.4.1 Cold chain input availability

	Ambulatory			Basic			Complete		
	N	%	SE	N	%	SE	N	%	SE
Storage									
Electric fridge	27	66.7	9.1	10	90	9.5	3	100	
Kerosene fridge	27	0		10	0		3	0	
Gas fridge	27	0		10	0		3	0	
Solar fridge	27	3.7	3.6	10	0		3	0	
Any of the above	27	70.4	8.8	10	90	9.5	3	100	

4.5 Composite cold chain indicator

In the health facility observation checklist, surveyors observed the vaccine storage area in ambulatory- and basic-level facilities that provide those services. At the baseline, staff were required to complete a temperature monitoring chart every day in the previous thirty days; in the follow-up evaluation this was only required on working days (Monday – Friday, excluding local holidays) in the previous thirty days. The value of the cold chain indicator increased from 28.6% to 88.9% overall.

Table 4.5.1 Composite cold chain indicator at ambulatory facilities

	Ambulatory					
	Baseline			18-Month		
	N	%	SE	N	%	SE
Temperature monitoring chart for each functioning fridge	23	56.5	10.3	18	94.4	5.4
Excluding local holidays, temperature was recorded twice daily on weekdays during the last 30 days for each fridge*	23	26.1	9.2	18	88.9	7.4
Cold chain according to standards (meets above criteria)	23	26.1	9.2	18	88.9	7.4

*At baseline, every day in previous 30 days was considered

Table 4.5.2 Composite cold chain indicator at basic facilities

	Basic					
	Baseline			18-Month		
	N	%	SE	N	%	SE
Temperature monitoring chart for each functioning fridge	5	60	21.9	9	88.9	10.5
Excluding local holidays, temperature was recorded twice daily on weekdays during the last 30 days for each fridge*	5	40	21.9	9	88.9	10.5
Cold chain according to standards (meets above criteria)	5	40	21.9	9	88.9	10.5

*At baseline, every day in previous 30 days was considered

Chapter 5 FAMILY PLANNING

5.1 Service provision and storage

This chapter summarizes key indicators related to family planning. In the questionnaire component of the survey, facility representatives are asked about service provision and logistics of ordering and receiving supplies. In the observation component of the survey, interviewers observe the stock of certain family planning methods in the previous three months.

All health facilities reported providing family planning services in-facility and storing contraceptives, with the exception of missing data that could not be captured from one ambulatory facility (Tables 5.1.1-5.1.2). Data were incorporated from both the observation module and the interview module, which indicated differing prevalence of family planning service provision. Interviewers also recorded the setting of the room used for family planning services, finding that the majority of facilities offer rooms with visual and auditory privacy for patients seeking family planning services.

Table 5.1.1 Family planning (FP) services provision

	Ambulatory			Basic			Complete		
	N*	%	SE	N	%	SE	N	%	SE
Offers FP services	45	100		11	100		3	100	
FP room									
Private room with visual and auditory privacy	45	73.3	6.6	11	100		3	100	
Non-private room without auditory or visual privacy	45	11.1	4.7	11	0		3	0	
Visual privacy only	45	8.9	4.2	11	0		3	0	
No privacy	45	6.7	3.7	11	0		3	0	
Other	45	0		11	0		3	0	

*Missing data for one ambulatory facility

Table 5.1.2 Family planning (FP) storage

	Ambulatory			Basic			Complete		
	N*	%	SE	N	%	SE	N	%	SE
FP Storage									
Yes, stores contraceptives	45	100		11	100		3	100	
No, delivered when services are being provided	45	0		11	0		3	0	

*Missing family planning storage data for one ambulatory facility

5.2 Observed contraception methods and reported family planning services

Table 5.2.1 lists the percent of facilities in which the surveyor observed at least one unit of a specific contraception method at the time of the survey. Almost all facilities had family planning methods present on the day of the survey. The table also shows reported availability of other services. At ambulatory health centers, there were not any trained doctors available to perform a vasectomy and only 14.3% had a trained doctor to perform tubal ligation.

Table 5.2.1 Observed contraception methods and reported services in ambulatory facilities

	Ambulatory			Basic			Complete		
	N*	%	SE	N	%	SE	N	%	SE
Observed FP methods									
Combined oral pill	45	97.8	2.2	11	100		3	100	
Any injectable	45	100		11	100		3	100	
Combined injectable	45	100		11	100		3	100	
Progestin only injectable	45	100		11	100		3	100	
Male condom	45	97.8	2.2	11	100		3	100	
Intrauterine device (IUD)**	7	100		11	100		3	100	
Reported services									
Offers pregnancy test	45	88.9	4.7	11	100		3	100	
Trained personnel to perform IUD insertion***	38	52.6	8.1	n/a	n/a	n/a	n/a	n/a	n/a
Trained doctor to perform tubal ligation**	7	14.3	13.2	11	90.9	8.7	3	100	
Trained doctor to perform vasectomy**, ****	6	0		11	63.6	14.5	3	100	

*Data missing for one ambulatory facility

**Not measured at health posts; one health center declined to respond

***Only measured at health posts

5.3 Composite family planning indicator

The composite family planning indicator was calculated considering the continuous availability of family planning methods (oral, injectable, barrier, IUD). Each input was observed by the surveyor for availability on the day of the survey as well as for no stock-out in the last three months. The compiled values for each component are displayed in Tables 5.3.1 – 5.3.5. Family planning methods were measured differently for both types of ambulatory facilities; therefore, they are broken down in Tables 5.3.2 and 5.3.3 by health posts and health centers. This composite indicator was evaluated at all ambulatory and basic health facilities that stored contraceptives.

Both ambulatory- and basic-level facilities performed better on the family planning indicator at 18 months than at baseline. Ambulatory facilities increased from 59.4% of units having continuous availability of all inputs at the baseline to 86.7% at the follow-up, while basic facilities increased from 60% to 90.9%, respectively.

Table 5.3.1 Composite family planning indicator in ambulatory facilities

	Ambulatory					
	Baseline			18-Month		
	N	%	SE	N	%	SE
Condoms	32	78.1	7.4	45	97.8	2.2
Contraceptive pills	32	81.3	7.0	45	97.8	2.2
Injectables	32	96.9	3.1	45	100	
Intrauterine device*	2	50	50	7	100	
All inputs observed on the day of the survey	32	68.8	8.3	45	95.6	3.1
Continuous availability of all inputs in the previous three months**	32	59.4	8.8	45	86.7	5.1

*Intrauterine device not applicable for health posts

**Overall family planning availability including availability on the day of the survey and no stock-out in the previous three months of all inputs

Table 5.3.2 Composite family planning indicator in health posts

	Health Post		
	18-Month		
	N	%	SE
Condoms	38	100	
Contraceptive pills	38	97.4	2.6
Injectables	38	100	
All inputs observed on the day of the survey	38	97.4	2.6
Continuous availability of all inputs in the previous three months*	38	86.8	5.5

*Overall family planning availability including availability on the day of the survey and no stock-out in the previous three months of all inputs

Table 5.3.3 Composite family planning indicator in health centers

	Health Center		
	18-Month		
	N	%	SE
Condoms	7	85.7	13.2
Contraceptive pills	7	100	
Injectables	7	100	
Intrauterine device	7	100	
All inputs observed on the day of the survey	7	85.7	13.2
Continuous availability of all inputs in the previous three months**	7	85.7	13.2

*Overall family planning availability including availability on the day of the survey and no stock-out in the previous three months of all inputs

Table 5.3.4 Composite family planning indicator in basic health facilities

	Basic					
	Baseline			18-Month		
	N	%	SE	N	%	SE
Condoms	5	80	20.0	11	100	
Contraceptive pills	5	60	24.5	11	100	
Injectables	5	100		11	100	
Intrauterine device	5	80	20.0	11	100	
All inputs observed on the day of the survey	5	60	24.5	11	100.0	
Continuous availability of all inputs in the previous three months*	5	60	24.5	11	90.9	8.7

*Overall family planning availability including availability on the day of the survey and no stock-out in the previous three months of all inputs

Table 5.3.5 displays the final indicator values for the continuous availability of family planning methods for each type of facility; formulas used to calculate the final values are specified in Appendix A.

Table 5.3.5 Composite family planning indicator in all facilities

	Health post			Health center			Basic		
Indicator components	N	%	SE	N	%	SE	N	%	SE
All FP methods observed on the day of the survey	38	97.4	2.6	7	85.7	14.3	11	100	
Continuous availability of FP methods in the previous three months	38	86.8	5.6	7	85.7	14.3	11	90.9	9.1
Continuous availability of supplies of modern family planning methods (oral, injectable, barrier, IUD)*	38	86.8	5.6	7	85.7	14.3	11	90.9	9.1

*Refer to Appendix A for specific formulas used to calculate final indicator value

5.4 Teaching and awareness

Table 5.4.1 illustrates the percent of facilities that promote family planning through counseling, teaching, and educational graphics posted in the facility.

Table 5.4.1 Teaching and awareness on family planning and STIs

	Ambulatory			Basic			Complete		
	N*	%	SE	N	%	SE	N	%	SE
Individual FP counseling	45	97.8	2.2	11	100		3	100	
Group FP counseling	45	100		11	100		3	100	
FP posters on walls of facility	45	91.1	4.2	11	90.9	8.7	3	100	
STI/HIV posters on walls of facility	45	93.3	3.7	11	90.9	8.7	3	100	

*Data missing for one ambulatory facility

5.5 Family planning method adoption

Medical records of women who gave birth in the last two years and received postpartum care were reviewed. These records were used to measure rates of family planning method adoption after delivery. Table 5.5 displays whether a woman received a contraceptive after delivery and, more specifically, whether the contraceptive was a condom, injection, IUD, or tubal ligation. The medical record may indicate more than one contraceptive method was received.

Table 5.5 Family planning methods adopted during postpartum care

	Basic			Complete		
	N	%	SE	N	%	SE
Woman received a contraceptive	129	80.6	3.5	48	35.4	6.9
Method of contraception recorded (at least one):	129	72.9	3.9	48	33.3	6.8
Condom	104	2.9	1.6	17	5.9	5.7
Injection	104	65.4	4.7	17	88.2	7.8
Intrauterine device	104	17.3	3.7	17	0	
Tubal ligation	104	5.8	2.3	17	5.9	5.7
Woman received a contraceptive + contraceptive was condom/injection/IUD/tubal ligation	129	72.9	3.9	48	33.3	6.8

5.6 Maternity homes and family planning

During medical record review, records of women who stayed in maternity homes in the previous 18 months were selected systematically and reviewed. Surveyors reviewed these records to identify whether women adopted family planning methods within 40 days of giving birth. Of the 34 medical records reviewed, 76.5% of women housed in maternity homes adopted family planning methods within 40 days of giving birth.

Chapter 6 MATERNAL HEALTH: ANTENATAL CARE (ANC), DELIVERY, AND POSTPARTUM CARE (PPC)

6.1 Service provision

This chapter summarizes key indicators related to maternal health. Interviewers observed the functionality of equipment, the continuous availability of drugs and supplements, and key lab inputs related to the provision of antenatal, delivery and postpartum care. In addition to the questionnaire and observation component of the survey, interviewers reviewed ANC medical records in all applicable facilities, as well as delivery and PPC medical records in facilities at the basic and complete level.

All ambulatory facilities reported offering ANC services. The majority of these facilities used a private room with auditory and visual privacy for ANC services (Table 6.1.1a). Questions about delivery and PPC were not asked at the ambulatory level.

Table 6.1.1a ANC service provision in ambulatory facilities

	Health post			Health center		
	N	%	SE	N	%	SE
Offers ANC services*	38	100		7	100	
ANC room						
Private room with auditory and visual privacy	38	71.1	7.4	7	71.4	17.1
Non-private room without auditory or visual privacy	38	13.2	5.5	7	28.6	17.1
Visual privacy only	38	13.2	5.5	7	0	
No privacy	38	2.6	2.6	7	0	
Don't provide this service	1					

*Missing data for one health post

All basic facilities reported offering ANC, delivery, and PPC services, and almost all had a private room with auditory and visual privacy for these services. All complete facilities reported offering delivery and PPC services; however, only 33.3% reported offering ANC services. Table 6.1.1b details the types of services provided by basic- and complete- level facilities as well as the types of rooms provided for each service.

Table 6.1.1b ANC, delivery, and PPC service provision in basic and complete facilities

	Basic			Complete		
	N	%	SE	N	%	SE
Offers ANC services	11	100		3	33.3	27.2
Offers routine delivery services (non-urgent)	11	100		3	100	
Offers PPC services	11	100		3	100	
ANC - PPC room						
Private room with auditory and visual privacy	11	90.9	8.7	3	100	
Non-private room without auditory or visual privacy	11	0		3	0	
Visual privacy only	11	0		3	0	
No privacy	11	9.1	8.7	3	0	
Delivery room						
Private room with auditory and visual privacy	11	100		3	100	
Non-private room without auditory or visual privacy	11	0		3	0	
Visual privacy only	11	0		3	0	
No privacy	11	0		3	0	

6.2 ANC - PPC equipment

Tables 6.2.1a-6.2.3 display the percentage of facilities where specific ANC equipment and laboratory inputs were present at the time of the survey and were observed as functional by a surveyor.

6.2.1 ANC - PPC equipment in ambulatory facilities

Tables 6.2.1a-6.2.1c detail the availability of ANC equipment in health posts and health centers. Health centers were better equipped at the 18-month follow-up, with 100% of facilities having functional equipment on the day of the survey whereas only 71.1% of health posts reported the same.

Table 6.2.1a Observed and functional ANC - PPC equipment in ambulatory facilities

	Ambulatory					
	Baseline			18-Month		
Equipment type	N	%	SE	N	%	SE
Standing scale	32	90.6	5.2	45	97.8	2.2
Gynecological exam table	32	90.6	5.2	45	97.8	2.2
CLAP obstetrical tape/measuring tape	32	81.3	6.9	45	100	
Gooseneck lamp/hand lamp	32	53.1	8.8	45	82.2	5.7
Blood pressure apparatus	32	87.5	5.8	45	97.8	2.2
Stethoscope	32	84.4	6.4	45	97.8	2.2
Gestogram	32	81.3	6.9	45	95.6	3.1
IUD insertion kit*	2	0		7	100	
All equipment observed and functional	32	12.5	5.8	45	75.6	6.4

*Not applicable for health posts

Table 6.2.1b Observed and functional ANC - PPC equipment in health posts

	Health Post		
	18-Month		
Equipment type	N	%	SE
Standing scale	38	97.4	2.6
Gynecological exam table	38	97.4	2.6
CLAP obstetrical tape/measuring tape	38	100	
Gooseneck lamp/hand lamp	38	78.9	6.6
Blood pressure apparatus	38	97.4	2.6
Stethoscope	38	97.4	2.6
Gestogram	38	94.7	3.6
All equipment observed and functional	38	71.1	7.4

Table 6.2.1c Observed and functional ANC - PPC equipment in health centers

	Health Center		
	18-Month		
Equipment type	N	%	SE
Standing scale	7	100	
Gynecological exam table	7	100	
CLAP obstetrical tape/measuring tape	7	100	
Gooseneck lamp/hand lamp	7	100	
Blood pressure apparatus	7	100	
Stethoscope	7	100	
Gestogram	7	100	
IUD insertion kit	7	100	
All equipment observed and functional	7	100	

6.2.2 ANC - PPC equipment in basic and complete facilities

Tables 6.2.2a and 6.2.2b detail the percentage of basic and complete facilities where specific ANC and PPC equipment were observed and functional. At the baseline, no basic or complete facilities had all equipment necessary for antenatal and postpartum care; however, at the follow-up, 90.9% of basic and 100% of complete facilities had the necessary equipment.

Table 6.2.2a Observed and functional ANC - PPC equipment in basic facilities

	Basic					
	Baseline			18-Month		
Equiment type	N	%	SE	N	%	SE
Standing scale	5	80	17.9	11	100	
Gynecological exam table	5	100		11	100	
CLAP obstetrical tape/measuring tape	5	40	21.9	11	100	
Gooseneck lamp/hand lamp	5	80	17.9	11	90.9	8.7
Blood pressure apparatus	5	100		11	100	
Stethoscope	5	100		11	100	
Gestogram	5	20	17.9	11	100	
All equipment observed and functional	5	0		11	90.9	8.7

Table 6.2.2b Observed and functional ANC - PPC equipment in complete facilities

	Complete					
	Baseline			18-Month		
Equiment type	N	%	SE	N	%	SE
Standing scale	2	50	35.4	3	100	
Gynecological exam table	2	50	35.4	3	100	
CLAP obstetrical tape/measuring tape	2	50	35.4	3	100	
Gooseneck lamp/hand lamp	2	0		3	100	
Blood pressure apparatus	2	100		3	100	
Stethoscope	2	100		3	100	
Gestogram	2	50	35.4	3	100	
All equipment observed and functional	2	0		3	100	

6.2.3 ANC – PPC laboratory inputs

Table 6.2.3 details the percentage of health facilities with the necessary laboratory inputs for basic ANC and PPC at the follow-up evaluation.

Table 6.2.3 Observed and functional ANC - PPC lab inputs in basic facilities at follow-up evaluation

	Health center			Basic			Complete		
Laboratory inputs	N	%	SE	N	%	SE	N	%	SE
HIV/AIDS rapid test	7	85.7	14.3	11	100		3	100	
Syphilis rapid test/R.P.R.(syphilis)/ Rapid plasma reagin	7	100		11	90.9	9.1	3	100	
Serological mixer	7	100		11	100		3	100	
Qualitative urinalysis strip	7	85.7	14.3	11	100		3	100	
Glucose strips/glucose meter	7	100		11	100		3	100	
Standard hemoglobin TED/spectrophotometer/ Diagnostic 500/Stax Fax/ Climar Junior/ Microhematocrit centrifuge	7	100		11	100		3	100	
Microscope	7	100		11	100		3	100	
Cell counter	7	100		11	100		3	100	
All lab equipment observed	7	85.7	14.3	11	90.9	9.1	3	100	

6.2.4 Composite ANC-PPC indicator

Table 6.2.4 details the percentage of facilities that meet the indicator regarding the continuous availability of supplies and equipment needed for antenatal and postpartum care. Different inputs are measured at health posts, health centers, and basic facilities; therefore, each type of facility is displayed separately.

Table 6.2.4 Composite ANC-PPC indicator

	Health post			Health center			Basic		
Indicator components	N	%	SE	N	%	SE	N	%	SE
All equipment observed on the day of the survey	38	71.1	7.46	7	100	0	11	90.9	9.09
All lab inputs observed on the day of the survey*	n/a	n/a	n/a	7	85.7	14.3	11	90.9	9.09
Continuous availability of supplies and equipment needed for antenatal and postpartum care**	38	71.1	7.46	7	85.7	14.3	11	90.9	9.09

*Lab inputs not measured at health posts

**Refer to Appendix A for specific formulas used to calculate final indicator value

6.3 ANC medical record review

Records of women who received ANC in health facilities in the last two years were selected systematically and reviewed.

6.3.1 ANC – PPC medical record review – First ANC visit

According to the country norm for early catchment at ambulatory- and basic- level facilities, women should have their first ANC visit with a doctor or nurse within the first trimester of pregnancy (12 weeks gestation). Records of women with a date of last menstruation between 12/2011 and 08/2013 were selected systematically and reviewed. Gestational age was calculated by subtracting the date of the woman's last menstrual period from the date of her first ANC visit in order to determine if her visit was

within 12 weeks' gestation.

Table 6.3.1a displays the proportion of women who met these standards. While 84.2% of women at ambulatory and 96% of women at basic facilities had their first ANC visit with a doctor or nurse, only 34.9% and 42.7% of women, respectively, had their first visit with a doctor or nurse before 12 weeks gestation. Figure 6.3.1b and Tables 6.3.1c-6.3.1d detail the proportion and distribution of ANC records that indicate the woman had her first ANC visit with a doctor/nurse within the appropriate time frame.

Table 6.3.1a First ANC visit at ambulatory and basic facilities

	Ambulatory			Basic		
	N	%	SE	N	%	SE
Indicator according to the norm (first visit with doctor or nurse within 12 weeks of gestation)*	341	34.9	2.6	75	42.7	5.7
First ANC visit with a doctor or nurse	341	84.2	2.0	75	96	2.3
First ANC visit during first trimester of pregnancy (gestational age <= 12 weeks)	341	40.8	2.7	75	44	5.7
First ANC visit during second trimester of pregnancy (gestational age > 12 weeks & <= 26 weeks)	341	44.0	2.7	75	44	5.7
First ANC visit during third trimester of pregnancy (gestational age > 26 weeks)	341	15.3	2.0	75	12	3.8

*The gestational age was also reported in the medical records. If the indicator was calculated using the stated gestational age, 18.4% of ambulatory and 27.2% of basic facilities had their first ANC visit before 12 weeks gestation.

Figure 6.3.1b First antenatal care visit with a doctor/nurse before 12 weeks of gestation by quarter at ambulatory & basic facilities

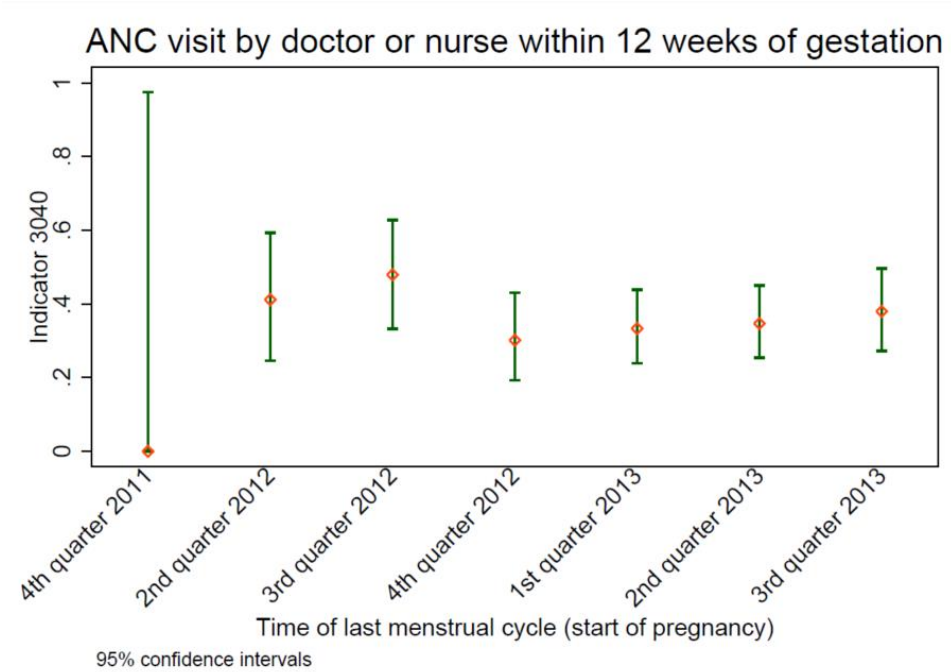


Table 6.3.1c First antenatal care visit with a doctor/nurse before 12 weeks of gestation by quarter at ambulatory & basic facilities

Quarter	ANC records		
	N	%	SE
4th quarter 2011	1	0	
2nd quarter 2012	34	41.2	8.4
3rd quarter 2012	48	47.9	7.2
4th quarter 2012	63	30.2	5.8
1st quarter 2013	93	33.3	4.9
2nd quarter 2013	98	34.7	4.8
3rd quarter 2013	79	38.0	5.5

Table 6.3.1d First antenatal care visit with a doctor/nurse before 12 weeks of gestation by quarter and facility type

Quarter	Ambulatory			Basic		
	N	%	SE	N	%	SE
4th quarter 2011	0			1	0	
2nd quarter 2012	23	26.1	9.2	11	72.7	13.4
3rd quarter 2012	40	47.5	7.9	8	50	17.7
4th quarter 2012	43	27.9	6.8	20	35	10.7
1st quarter 2013	78	35.9	5.4	15	20	10.3
2nd quarter 2013	89	34.8	5.1	9	33.3	15.7
3rd quarter 2013	68	33.8	5.7	11	63.6	14.5

6.3.2 ANC according to the norms for births in the past two years

Records of antenatal care were reviewed in all applicable facilities. In order to demonstrate ANC according to the country norm, each woman at an ambulatory or basic facility should have at least four visits with a doctor, nurse, or community worker during her pregnancy with the appropriate physical and fetal checkups performed. These include:

(1) Weight, blood pressure, and fundal height checked at each visit
(2) After 20 weeks gestation: fetal heart rate and fetal movement checked at each visit

Lab tests must also be performed at least once during a woman's pregnancy at ambulatory- and basic-level facilities. These tests include: blood type, blood glucose level, Hb level, HIV test, Rh factor test, urinalysis, and VDRL test.

Figures 6.3.2a and 6.3.2b display the total number of antenatal care visits attended at ambulatory and basic facilities for women who gave birth in the past two years, excluding physical/fetal checkups. Figures 6.3.2e and 6.3.2f display the total number of antenatal care visits at ambulatory and basic facilities where the proper physical/fetal checkups were performed at each visit.

Figure 6.3.2a Total number of antenatal care visits of women at ambulatory facilities

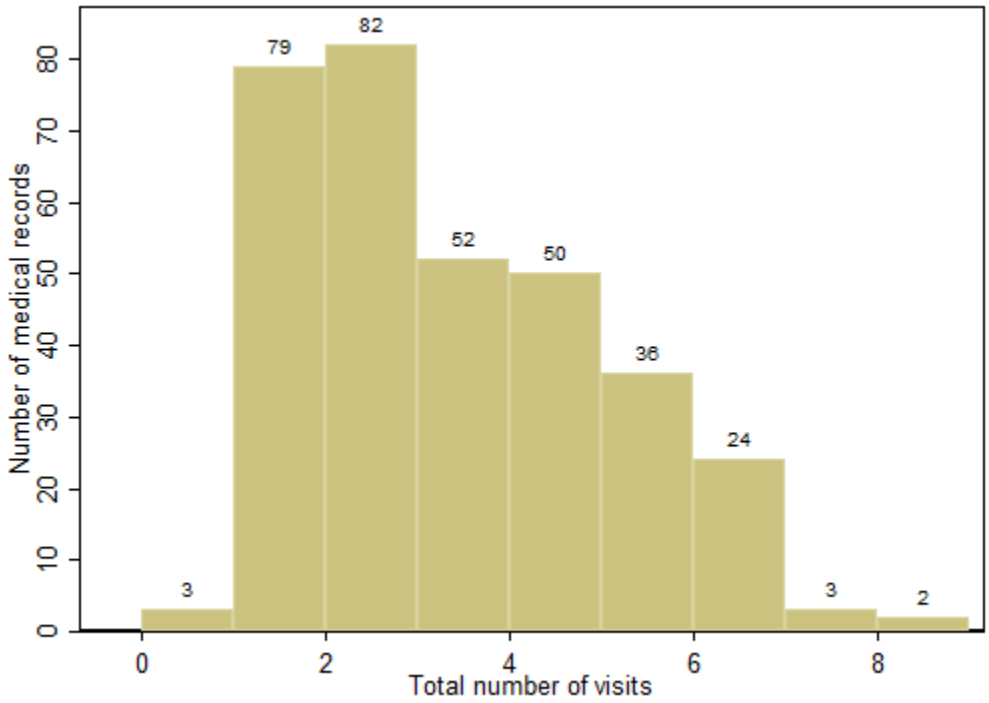
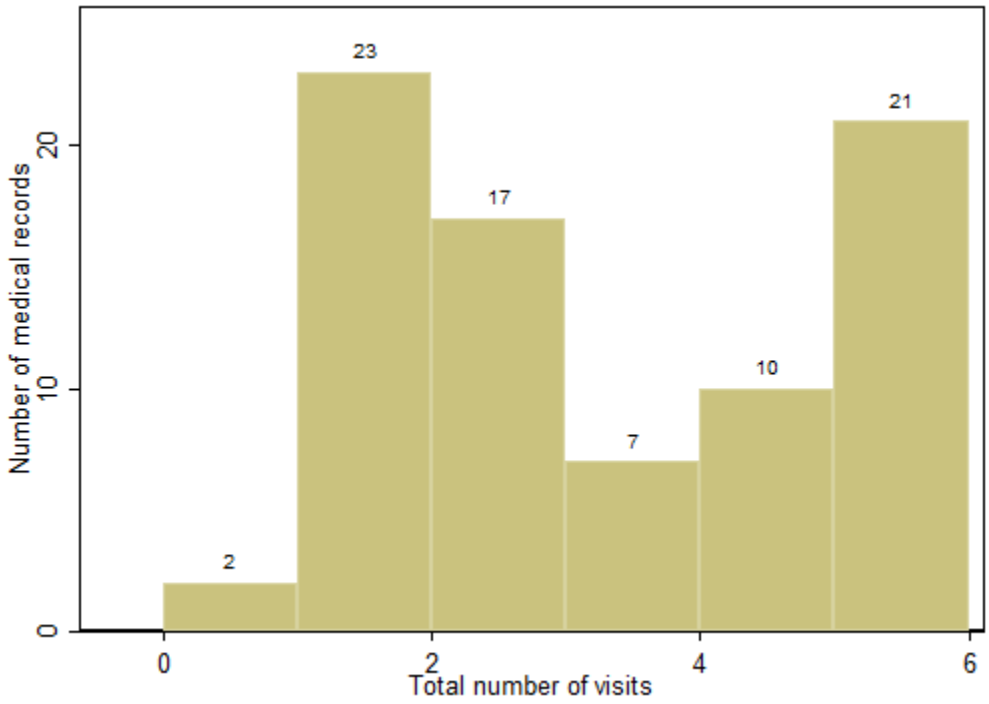


Figure 6.3.2b Total number of antenatal care visits of women at basic facilities



The majority of women did not have a minimum of four antenatal care visits as displayed in Table 6.3.2c below; of the women who had at least four visits, few records indicated that the woman was also given the proper physical and fetal checkups, leaving only 13% of woman at ambulatory and 16.3% of women at basic facilities treated appropriately. Table 6.3.2d displays how many women were given each laboratory test at least once during her pregnancy.

Table 6.3.2c Women of a reproductive age who received at least four ANC visits according to best practices

Indicator components	Ambulatory			Basic		
	N	%	SE	N	%	SE
At least 4 ANC visits	331	34.7	2.6	80	38.8	5.4
At least 4 ANC visits with a doctor/nurse	331	27.8	2.5	80	33.8	5.3
At least 4 ANC visits with physical checkups*	331	29.9	2.5	80	30	5.1
At least 4 ANC visits with fetal checkups**	331	32.6	2.6	80	35	5.3
Lab tests performed at least once***	331	68	2.6	80	73.8	4.9
Women of reproductive age (15-49 years) who received at least 4 ANC visits by a doctor/nurse according to the best practices in the last two years	331	13	1.9	80	16.3	4.1

*Physical checkups include weight + blood pressure + fundal height

**Fetal checkups = fetal heart rate + fetal movement only if the gestational age is >20 and <=42 weeks at the time of the visit

***Lab tests = blood type + blood glucose level + Hb level + HIV test + Rh test + urinalysis + VDRL test

Table 6.3.2d Laboratory tests performed at least once in ambulatory and basic facilities during an ANC visit

Lab tests	Ambulatory			Basic		
	N	%	SE	N	%	SE
Blood type	331	76.1	2.3	80	86.3	3.8
Blood glucose level	331	74	2.4	80	75	4.8
Hb level	331	74.3	2.4	80	85	4.0
HIV test	331	90	1.6	80	91.3	3.2
Rh test	331	76.1	2.3	80	86.3	3.8
Urinalysis	331	84.6	2.0	80	88.8	3.5
VDRL test	331	71.6	2.5	80	82.5	4.3
All lab tests performed	331	68	2.6	80	73.8	4.9

Figures 6.3.2e and 6.3.2f display the total number of ANC visits attended at ambulatory and basic facilities where all appropriate checkups were performed (excluding laboratory tests) for women who gave birth in the past two years. While most women had at least one complete ANC visit according to the country norm, only about 20% of women had at least 4 such visits.

Figure 6.3.2e Number of visits according to the norm in ambulatory facilities

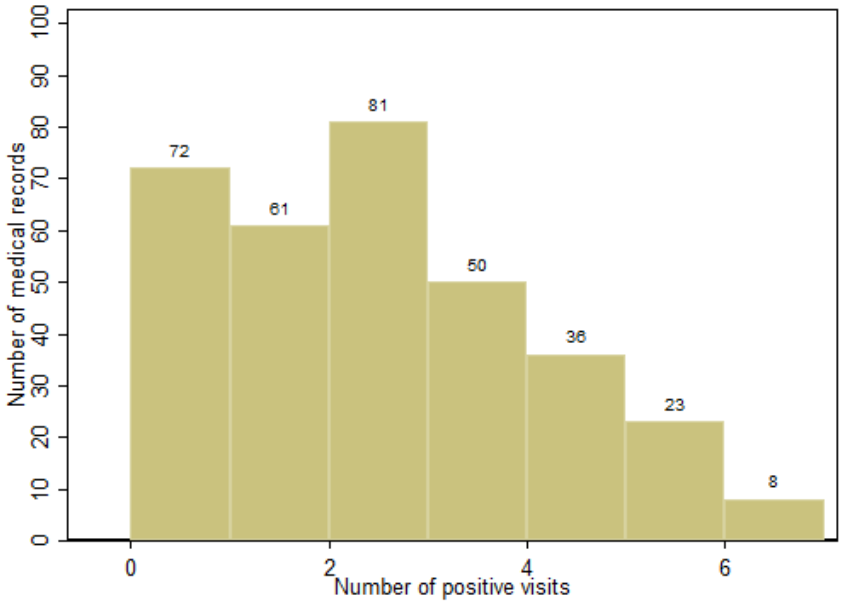
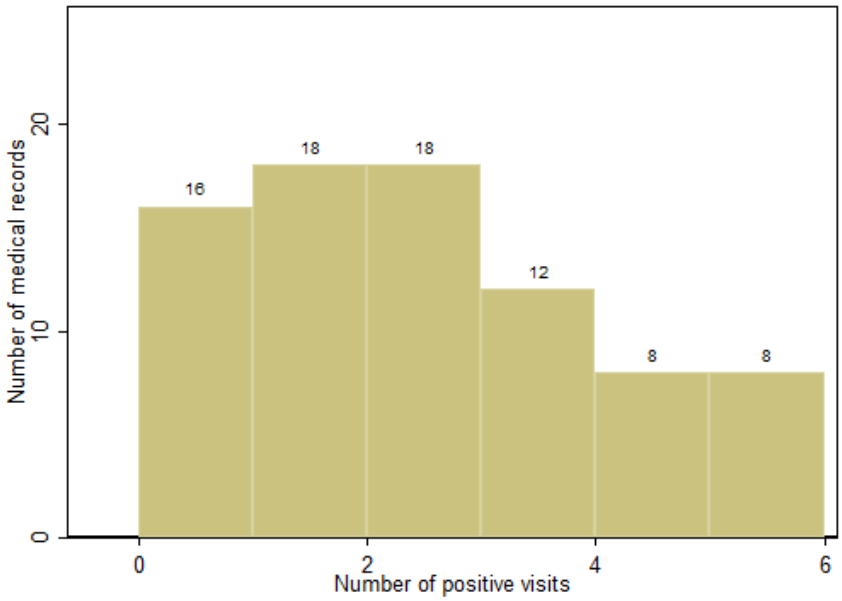


Figure 6.3.2f Number of visits according to the norm in basic facilities



6.4 Delivery care equipment & pharmacy inputs

In the observation component of the health facility survey, interviewers check for supplies and equipment necessary for delivery and newborn care. Table 6.4.1a displays the percentage of basic and complete facilities that possess at least one piece of functional equipment for this purpose.

Table 6.4.1a Equipment needed for delivery care in basic & complete facilities

Equipment type	Basic			Complete		
	N	%	SE	N	%	SE
Intravenous catheter sterile N ° 18	11	100		3	66.7	27.2
Serum and microdrip	11	100		3	100	
Nasogastric tube	11	100		3	100	
Sterile fields or sheltering for a baby	11	100		3	100	
All equipment observed and functional*	11	100		3	66.7	27.2

*Data for functionality only applicable for IV administration kit & sterile fields

Table 6.4.1b displays the pharmacy inputs used for deliveries in basic and complete facilities. All inputs were observed on the day of the survey through the observation module. The insulin syringe and Vitamin K were the only inputs not available at all facilities.

Table 6.4.1b Pharmacy inputs needed for delivery care in basic & complete facilities

Pharmacy inputs	Basic			Complete		
	N	%	SE	N	%	SE
Chloramphenicol/gentamicin	11	100		3	100	
Epinephrine	11	100		3	100	
Ergometrine/ergonovine maleate/ergobasine/oxytocin	11	100		3	100	
Povidone-iodine	11	100		3	100	
Ringer's lactate/Hartmann solution/ Saline solution	11	100		3	100	
Insulin syringe	11	100		3	66.7	27.2
Vitamin K	11	90.9	8.7	3	100	
All pharmacy inputs available on the day of the survey	11	90.9	8.7	3	66.7	27.2

6.5 Delivery medical record review

6.5.1 Oxytocin administration

During the review of delivery medical records in hospitals, interviewers reported the administration of oxytocin after deliveries in the last two years. In total, 72.9% of records reported the administration of oxytocin or another uterotonic after delivery. Of these cases where oxytocin was administered after birth, 96% showed that the form of oxytocin delivery was intramuscular, 2.3% were intravenous, and 1.7% were not registered. Of the records that recorded the time of delivery and oxytocin administration, 73.1% of records had administration of oxytocin/other uterotonic within one minute of delivery.

6.5.2 Partograph revision

Delivery records of women who gave birth in hospitals in the previous two years were selected systematically and reviewed to ensure that a partograph was included in the record when necessary. There are three scenarios, listed below, in which a surveyor was prompted to check for a complete partograph in the delivery record:

1. If the woman did not arrive in imminent birth or for an elective C-section the record must include a complete partograph

Regardless of the delivery method, if a partograph was observed and filled out in the record then the following must be documented if one, or both, of the following scenarios occurred:

2. If dilation > 4.5 cm: Fetal heart rate (FHR) and alert curve must be recorded
3. If FHR < 120 beats per minute (BPM) or alert curve surpassed: A note must be recorded within 30 minutes

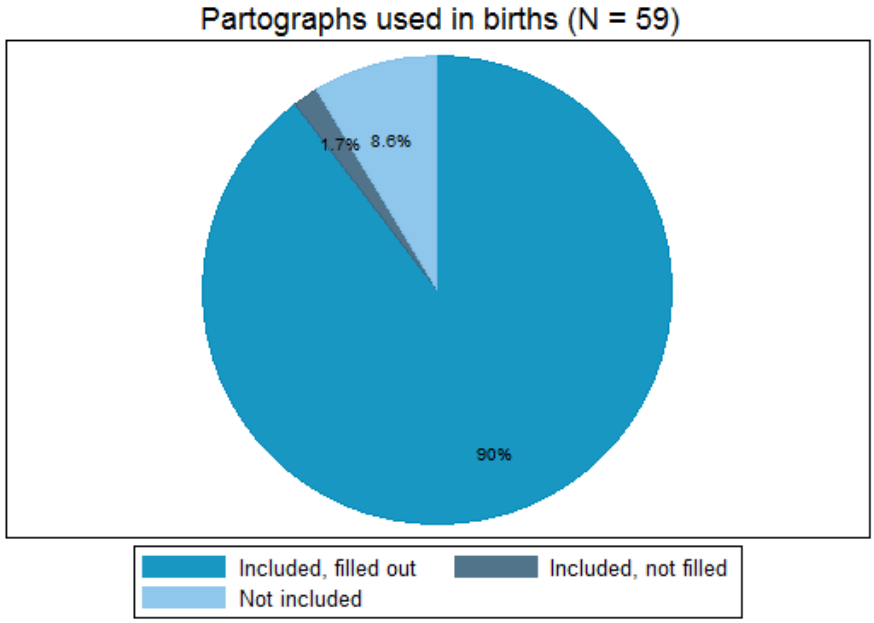
Table 6.5.2a details the number of records in basic and complete facilities that contain a complete partograph according to the country norm using the three guidelines above. Almost all records at basic and complete facilities, 95.9% and 100%, respectively, either contained a partograph or indicated that a woman arrived in imminent birth or elective C-section and were not required to include a partograph; however, some women had a dilation > 4.5cm or fetal heart rate < 120 BPM and did not have proper documentation. This reduced the number of records that were kept according to standards to only 91.3% of records at basic facilities and 98.0% at complete facilities.

Table 6.5.2a Partograph revision in basic and complete facilities

	Basic			Complete		
Partograph revision in hospitals	N	%	SE	N	%	SE
Partograph included and filled out or woman arrived in imminent birth or elective C-section	172	95.9	1.5	49	100	
Women with dilation > 4.5 cm	105	67.6	4.6	27	77.8	8.2
Fetal heart rate and alert curve are recorded if dilation > 4.5 cm	71	98.6	1.4	21	95.2	4.8
Women with alert curve surpassed	105	11.4	3.1	27	0	
There exists a note within 30 minutes if alert curve surpassed	12	58.3	14.9	0		
Fetal heart rate < 120 bpm	105	4.8	2.1	27	0	
There exists a note within 30 minutes if FHR < 120 bpm	5	20	20.0	0		
Partograph according to the norm	172	91.3	2.2	49	98.0	2.0

Figure 6.5.2b details partograph inclusion in the delivery records for the 59 women who did not arrive in imminent birth or for a C-section. This graph represents only whether the partograph was included and filled out, but does not detail whether the partograph was filled out according to the norm. Only 90.9% of delivery records at basic- and complete- level facilities had a partograph included and filled out.

Figure 6.5.2b Partograph use during birth in all hospitals (excluding imminent births and C-sections)



6.6 Postpartum care medical record review

6.6.1 Checks after birth performed according to the norm

Records of women who received immediate postpartum care in health facilities in the last two years were selected and systematically reviewed. Records were evaluated for the proper timing of check-ups after birth, such as systolic and diastolic blood pressure, temperature, and pulse. Surveyors reviewed medical records for timing of check-ups for the woman every 15 minutes during the first hour and every 30 minutes during the second hour after birth.

Of the 175 medical records of women that were reviewed for maternal postpartum care, none had record of being checked six times for systolic or diastolic blood pressure, temperature, or pulse. On average, diastolic and systolic blood pressure were only checked 3.1 times each in the first two hours. Additionally, temperature was checked 2.5 times and pulse was checked 2.4 times, on average, in the first two hours.

6.6.2 Neonatal postpartum checks after birth performed according to the norm

Postpartum care records of women who gave birth in the previous two years were reviewed to determine whether care was provided after birth to neonates according to standards. Components of the indicator measuring delivery and procedures involved in immediate neonatal care are displayed in Table 6.6.2 for basic and complete facilities. Almost all neonates were attended by a doctor, nurse, or midwife after birth at basic and complete facilities; however, not all checkups and procedures were performed. The only procedure that was performed on all neonates was the Apgar score at either 1 or 5 minutes after delivery. Only 30.4% of neonates at basic facilities and 63% of neonates at complete facilities were given the proper treatment after birth.

Table 6.6.2 Immediate neonatal care in basic & complete facilities

	Basic			Complete		
	N	%	SE	N	%	SE
Newborn attended by a doctor/nurse/midwife	56	100		46	97.8	2.2
Procedures and checkups recorded						
Apgar score at 1 or 5 minutes	56	100		46	100	
BCG vaccination	56	83.9	4.9	46	87	5.0
Evaluation for presence of malformations	56	85.7	4.7	46	93.5	3.6
Head circumference	56	80.4	5.3	46	78.3	6.1
Height	56	80.4	5.3	46	95.7	3.0
Oxytetracycline eye ointment administration	56	100		46	95.7	3.0
Pulse	56	41.1	6.6	46	78.3	6.1
Respiratory rate	56	57.1	6.6	46	87	5.0
Skin color	56	87.5	4.4	46	95.7	3.0
Chlorhexidine/water for umbilical cord	56	85.7	4.7	46	95.7	3.0
Vitamin K administration	56	100		46	95.7	3.0
Weight	56	98.2	1.8	46	97.8	2.2
Newborn attended + all procedures and checkups recorded	56	30.4	6.1	46	63	7.1

Chapter 7 MATERNAL & NEONATAL HEALTH: COMPLICATIONS

7.1 Emergency obstetric and neonatal care service provision

This chapter summarizes key indicators related to the management of maternal and neonatal complications at basic- and complete-level facilities. Interviewers observed equipment in the room designated for emergency obstetric and neonatal care and certain related drugs in the pharmacy. In addition, interviewers reviewed medical records of women and neonates with one or more complication.

7.2 Supplies and equipment needed for emergency obstetric and neonatal care

7.2.1 Equipment needed for emergency obstetric and neonatal care

Table 7.2.1 displays equipment related to emergency obstetric and neonatal care in basic and complete facilities. At the 18-month evaluation, the majority of equipment was observed at all facilities.

Table 7.2.1 Observed and functional equipment for emergency obstetric and neonatal care in hospitals

	Basic			Complete		
Equipment	N	%	SE	N	%	SE
Anesthesia equipment*	n/a	n/a	n/a	3	66.7	27.2
Autoclave/dry heat sterilizer	11	90.9	8.7	3	66.7	27.2
Blood pressure apparatus	11	100		3	100	
Equipment for C-sections*	n/a	n/a	n/a	3	66.7	27.2
Laryngoscope	11	90.9	8.7	3	100	
MVA kit/curettage equipment**	11	100		3	100	
Neonatal/pediatric stethoscope*	n/a	n/a	n/a	3	100	
Neonatal resuscitation bag	11	100		3	100	
Pinard stethoscope/Portable Doppler	11	100		3	100	
Reanimation resuscitation bag for adult	11	90.9	8.7	3	100	
Stethoscope	11	100		3	100	
Tank of oxygen/central oxygen supply***	11	90.9	8.7	3	100	
All equipment observed and functional	11	72.7	13.4	3	33.3	27.2

*Not measured in basic facilities

**Curettage equipment was measured at the basic level and MVA kit was measured at the complete level

***Central oxygen supply was an alternative at the complete level only

7.2.2 Drugs needed for emergency obstetric and neonatal care in basic facilities

Health facilities were evaluated for necessary pharmacy inputs for the provision of emergency obstetric and neonatal care. Surveyors observed the availability of certain inputs on the day of the survey and the registry of stock of these inputs in the previous three months to determine continuous availability. As detailed in Table 7.2.2a, basic facilities were well stocked during the 18-month evaluation, with one facility reporting stock out of dexamethasone, gentamicin, magnesium sulfate, and hydralazine in the previous three months. Table 7.2.2b details complete facility pharmacy stock. All complete facilities had pharmacy inputs available on the day of the survey, with only one facility reporting stock out of

dexamethasone in the previous three months.

Table 7.2.2a Availability of drugs for emergency obstetric and neonatal care in basic facilities

	Basic					
	Baseline			18-Month		
Pharmacy inputs	N	%	SE	N	%	SE
Dexamethasone	5	100		11	100	
Antibiotics*	5	100		11	100	
Gentamicin	5	80	17.9	11	100	
Magnesium sulfate	5	80	17.9	11	100	
Uterotonics**	5	100		11	100	
Hydralazine	5	80	17.9	11	100	
All inputs observed on the day of the survey	5	60	21.9	11	100	
Continuous availability of all inputs in the previous three months***	5	60	21.9	11	90.9	8.7

*Antibiotics = crystalline penicillin/IV ampicillin/amoxicillin/nitrofurantoin/cephalexin

**Uterotonics = oxytocin/ergometrine/ergobasine/ergonovine maleate

***Overall drug availability including availability on the day of the survey and no stock-out in the previous three months of all inputs

Table 7.2.2b Availability of drugs for emergency obstetric and neonatal care in complete facilities

	Complete		
	18-Month		
Pharmacy inputs	N	%	SE
Dexamethasone	3	100	
Antibiotics*	3	100	
Gentamicin	3	100	
Magnesium sulfate	3	100	
Uterotonics**	3	100	
Hydralazine	3	100	
All inputs observed on the day of the survey	3	100	
Continuous availability of all inputs in the previous three months***	3	66.7	27.2

*Antibiotics = crystalline penicillin/IV ampicillin/amoxicillin/nitrofurantoin/cephalexin

**Uterotonics = oxytocin/ergometrine/ergobasine/ergonovine maleate

***Overall drug availability including availability on the day of the survey and no stock-out in the previous three months of dexamethasone + antibiotics + gentamicin + magnesium sulfate + uterotonics

7.3 Distribution of obstetric and neonatal complications

This section summarizes the management of maternal and neonatal complications in basic- and complete- level facilities. Interviewers reviewed records of women with complications of sepsis, hemorrhage, pre-eclampsia and eclampsia and neonates with sepsis, asphyxia, prematurity, and low birth weight. These records were evaluated for vital signs, laboratory tests, correct treatment, and appropriate procedural actions.

Records of women and infants who had one or more complication of interest in the last two years were selected systematically and reviewed. In total, interviewers reviewed the records of 241 women and 231 infants with one or more complications (Tables 7.3.1-7.3.2). Since a woman or child could have experienced more than one complication, the total number of records below may exceed the number of women or children with complications.

Table 7.3.1 Distribution of obstetric complications by facility classification

	Basic	Complete
Women with sepsis	6	13
Women with hemorrhage	82	30
Women with pre-eclampsia	72	23
Women with eclampsia	11	4
Total	171	70

Table 7.3.2 Distribution of neonatal complications by facility classification

	Basic	Complete
Neonates with low birth weight	47	9
Neonates with prematurity	12	2
Neonates with sepsis	86	27
Neonates with asphyxia	36	32
Total	181	70

7.4 Management of obstetric complications (sepsis, hemorrhage, pre-eclampsia and eclampsia) in the last two years

7.4.1 Sepsis in basic facilities

According to the country norm, maternal sepsis is managed correctly at basic facilities if vital signs are checked (temperature + pulse + diastolic and systolic blood pressure), lab tests are performed (leukocyte count), antibiotics are administered, and the woman is referred/transferred to another health facility.

There were 6 records of maternal sepsis at the basic level (Table 7.4.1). None of the evaluated records had the proper lab test recorded (leukocyte count), and therefore, were not managed according to the country norm.

Table 7.4.1 Medical record review at basic level facilities: sepsis

	Basic		
	N	%	SE
Vital signs checked:	6	33.3	19.3
Temperature	6	33.3	19.3
Pulse	6	66.7	19.3
Systolic blood pressure	6	66.7	19.3
Diastolic blood pressure	6	66.7	19.3
Lab tests: leukocyte count	6	0	
Antibiotic administered (at least one of the following):	6	66.7	19.3
Amikacin	6	0	
Clindamycin	6	0	
Gentamicin	6	66.7	19.3
Ampicillin	6	50	20.4
Metronidazole	6	33.3	19.3
Other antibiotic	6	0	
Transferred to another facility	6	16.7	15.2
Sepsis managed according to the norm (meets all above criteria)	6	0	

7.4.2 Sepsis in complete facilities

According to the country norm, maternal sepsis is managed correctly at complete facilities if vital signs are checked (temperature + pulse + diastolic and systolic blood pressure), lab tests are performed (leukocyte count), antibiotics are administered, and correct treatment is recorded.

Correct treatment is evaluated as follows:

- Manual vacuum aspiration and revision of uterus if septic abortion
- Hysterectomy if uterine perforation
- Laparotomy if perforation or abscesses or infected ectopic pregnancy
- Surgical repair if tears of cervical canal or uterus

There were 13 records of maternal sepsis at complete facilities (Table 7.4.2). All women were treated with antibiotics and almost all women (92.3%) had their vital signs checked. However, only 38.5% of women had record of leukocyte count and were managed according to the norm.

Table 7.4.2 Medical record review at complete level facilities: sepsis

	Complete		
	N	%	SE
Vital signs checked:	13	92.3	7.4
Temperature	13	92.3	7.4
Pulse	13	92.3	7.4
Systolic blood pressure	13	92.3	7.4
Diastolic blood pressure	13	92.3	7.4
Lab tests: leukocyte count	13	38.5	13.5
Antibiotic administered (at least one of the following):	13	100	
Amikacin	13	0	
Clindamycin	13	0	
Gentamicin	13	84.6	10.0
Ampicillin	13	30.8	12.8
Metronidazole	13	46.2	13.8
Other antibiotic	13	69.2	12.8
Correct treatment was recorded:	13	76.9	11.7
MVA & revision of uterus (if septic abortion)	1	0	
Hysterectomy (if uterine perforation)	n/a	n/a	n/a
Laparotomy (if perforation/abscesses/ infected ectopic pregnancy)	2	0	
Surgical repair (if tears of cervical canal/ uterus)	n/a	n/a	n/a
Sepsis managed according to the norm (meets all above criteria)	13	38.5	13.5

7.4.3 Hemorrhage in basic facilities

Women with hemorrhage complications are managed according to the country norm at basic facilities if vital signs are checked (pulse + diastolic and systolic blood pressure + fetal heart rate (if gestational age >=20 weeks)), medication is administered (oxytocin/other uterotonic + Ringer's lactate/Hartmann's solution), and the woman is referred/transferred elsewhere.

There were 82 records of maternal hemorrhaging at basic facilities (Table 7.4.3). While half of women had the appropriate vital signs checked and medication administered, only 15% of women were transferred to another facility.

Table 7.4.3 Medical record review at basic level facilities: hemorrhage

	Basic		
	N	%	SE
Vital signs checked:	82	53.7	5.5
Pulse	82	79.3	4.5
Systolic blood pressure	82	85.4	3.9
Diastolic blood pressure	82	84.1	4.0
Fetal heart rate (if gestational age >=20 weeks)	55	49.1	6.7
Medication administered:	82	46.3	5.5
Oxytocin/other uterotonic	82	73.2	4.9
Ringer's lactate/Hartmann's solution	82	54.9	5.5
Transferred to another facility*	80	15	4.0
Hemorrhage managed according to the norm (meets all above criteria)**	80	10	3.3

*Missing data for two records at basic facilities

**If saline solution was used as an alternative to Ringer's lactate/Hartmann's solution, the final indicator value would increase to 12.5% for basic facilities

7.4.4 Hemorrhage in complete facilities

According to the country norm, women with hemorrhage complications are managed correctly at complete facilities if vital signs are checked (diastolic and systolic blood pressure), lab tests are performed (Ht + Hb + PT + PTT + platelet count), oxytocin or another uterotonic is administered, and the correct treatment is given.

Correct treatment is evaluated as follows:

- Manual vacuum aspiration and revision of uterus if complicated abortion or retained placenta
- Caesarian section or hysterectomy if placenta previa or placenta abruption or uterine rupture or uterine atony
- Laparotomy if ectopic pregnancy or uterine atony
- Surgical repair if tears of cervical canal or uterus.

Among the 30 records of maternal hemorrhaging at complete facilities (Table 7.4.4), none were managed according to the country norm. While all women had their vital signs checked, only 10% of women were given the appropriate laboratory tests. Specific laboratory tests evaluated are listed in the table below. The laboratory tests which were performed the least were for PT and PTT.

Table 7.4.4 Medical record review at complete level facilities: hemorrhage

	Complete		
	N	%	SE
Vital signs checked:	30	100	
Systolic blood pressure	30	100	
Diastolic blood pressure	30	100	
Laboratory tests:	30	10	5.5
PT	30	13.3	6.2
PTT	30	13.3	6.2
Platelet count	30	66.7	8.6
Hemoglobin level	30	43.3	9.1
Hematocrit	30	70	8.4
Medication administered:	30	66.7	8.6
Oxytocin/other uterotonic	30	66.7	8.6
Cause of hemorrhage was recorded	30	93.3	4.6
Correct treatment was recorded:	30	40	8.9
MVA & revision of uterus (if complicated abortion/retained placenta)	9	0	
C-section/hysterectomy (if placenta previa/ placenta abruption/uterine rupture/uterine atony)	9	22.2	13.9
Laparotomy (if ectopic pregnancy/uterine atony)	8	0	
Surgical repair (if tears of cervical canal/uterus)	6	66.7	19.3
Hemorrhage managed according to the norm (meets all above criteria)	30	0	

7.4.5 Pre-eclampsia & eclampsia in basic facilities

Women with pre-eclampsia and eclampsia are managed according to the country norm at basic facilities if vital signs are checked (diastolic and systolic blood pressure + fetal heart rate (if gestational age >= 20 weeks)), lab tests are performed (urine protein), and medication is administered (magnesium sulfate + hydralazine/nifedipine (if diastolic blood pressure >110)).

Among 72 records of women with pre-eclampsia (Table 7.4.5a) and 11 records of women with eclampsia (Table 7.4.5b) at basic facilities, 27.3% were treated according to the norm.

Table 7.4.5a Medical record review at basic level facilities: pre-eclampsia

	Basic		
	N	%	SE
Vital signs checked:	72	66.7	5.6
Systolic blood pressure	72	87.5	3.9
Diastolic blood pressure	72	87.5	3.9
Fetal heart rate (if gestational age >=20 weeks)	48	64.6	6.9
Laboratory tests: protein in urine	72	80.6	4.7
Medication administered:	72	36.1	5.7
Magnesium sulfate	72	36.1	5.7
Hydralazine/nifedipine/ other hypertensive (if diastolic blood pressure > 110)	3	100	
Transferred to another facility*	67	34.3	5.8
Pre-eclampsia managed according to the norm (meets all above criteria)	67	13.4	4.2

*Missing data for five records at basic facilities

Table 7.4.5b Medical record review at basic level facilities: eclampsia

	Basic		
	N	%	SE
Vital signs checked:	11	36.4	14.5
Systolic blood pressure	11	54.5	15.0
Diastolic blood pressure	11	54.5	15.0
Fetal heart rate (if gestational age >=20 weeks)	9	44.4	16.6
Laboratory tests: protein in urine	11	54.5	15.0
Medication administered:	11	45.5	15.0
Magnesium sulfate	11	45.5	15.0
Hydralazine/nifedipine/other hypertensive (if diastolic blood pressure > 110)	1	100	
Transferred to another facility	11	45.5	15.0
Eclampsia managed according to the norm (meets all above criteria)	11	27.3	13.4

7.4.6 Pre-eclampsia & eclampsia in complete facilities

According to the country norm, women with pre-eclampsia and eclampsia are managed correctly at complete facilities if vital signs are checked (diastolic and systolic blood pressure + pulse + respiratory rate + reflexes), lab tests are performed (urine protein + platelet count + aspartate aminotransferase + alanine aminotransferase + lactate dehydrogenase), medication is administered (magnesium sulfate + hydralazine/nifedipine (if diastolic blood pressure >110) + dexamethasone (if gestational age is 26-34 weeks)), and the outcome of the pregnancy is recorded.

Among the 23 records of women with pre-eclampsia (Table 7.4.6a) and four records of women with

eclampsia (Table 7.4.6b) at complete facilities, none were managed according to the country norm at complete facilities. The least prevalent tests for women were reflexes when checking for vitals and the lactate dehydrogenase (LDH) laboratory test.

Table 7.4.6a Medical record review at complete level facilities: pre-eclampsia

	Complete		
	N	%	SE
Vital signs checked:	23	30.4	9.6
Pulse	23	87	7.0
Systolic blood pressure	23	95.7	4.3
Diastolic blood pressure	23	95.7	4.3
Respiratory rate	23	87	7.0
Reflexes	23	30.4	9.6
Laboratory tests:	23	0	
Protein in urine	23	39.1	10.2
Platelet count	23	78.3	8.6
Aspartate aminotransferase (AST)	23	56.5	10.3
Alanine aminotransferase (TGP)	23	56.5	10.3
Lactate dehydrogenase (LDH)	23	0	
Medication administered:	23	56.5	10.3
Magnesium sulfate	23	56.5	10.3
Hydralazine/nifedipine/labetalol/other hypertensive (if diastolic blood pressure > 110)	2	100	
Dexamethasone (if gestational age is 26-34 weeks)*	1	100	
Outcome of pregnancy was recorded**	22	100	
Pre-eclampsia managed according to the norm (meets all above criteria)	22	0	

*Betamethasone should be used as an alternative to dexamethasone; however, it was not measured at follow-up

**Missing data for one record at a complete facility

Table 7.4.6b Medical record review at complete level facilities: eclampsia

	Complete		
	N	%	SE
Vital signs checked:	4	0	
Pulse	4	50	25.0
Systolic blood pressure	4	100	
Diastolic blood pressure	4	100	
Respiratory rate	4	75	21.6
Reflexes	4	0	
Laboratory tests:	4	0	
Protein in urine	4	75	21.6
Platelet count	4	100	
Aspartate aminotransferase (AST)	4	75	21.6
Alanine aminotransferase (TGP)	4	75	21.6
Lactate dehydrogenase (LDH)	4	0	
Medication administered:	4	50	25.0
Magnesium sulfate	4	75	21.6
Hydralazine/nifedipine/labetalol/other hypertensive (if diastolic blood pressure > 110)	n/a	n/a	n/a
Dexamethasone (if gestational age is 26-34 weeks)*	2	0	
Outcome of pregnancy was recorded	4	100	
Eclampsia managed according to the norm (meets all above criteria)	4	0	

*Betamethasone should be used as an alternative to dexamethasone; however, it was not measured at follow-up

7.5 Management of neonatal complications (low birth weight, prematurity, sepsis and asphyxia) in the last two years

7.5.1 Low birth weight (LBW) and prematurity in basic facilities

According to the country norm, neonates with low birth weight and premature neonates are managed correctly at basic facilities if they are evaluated by a doctor, gestational age and the method used to calculate it is recorded, all checks are performed (abdominal examination + head circumference + height + pulse + respiratory rate + Silverman score + skin color + weight), lab tests are performed (blood glucose level + oxygen saturation level), and the neonate is transferred to a complete facility.

There were 47 records of neonates with low birth weight (Table 7.5.1a) and 12 records of premature neonates (Table 7.5.1b) at basic facilities. While all neonates with LBW were evaluated by a doctor, only 19.1% had were tested for oxygen saturation and 14.9% were transferred to another facility. All premature neonates were evaluated by a doctor, however, none were tested for oxygen saturation level and only 16.7% were checked for blood glucose level.

Table 7.5.1a Medical record review in basic level facilities: low birth weight

	Basic		
	N	%	SE
Neonate was evaluated by a doctor	47	100	
Vital signs checked:	47	66	6.9
Gestational age recorded	47	76.6	6.2
Method to calculate gestational age was recorded	47	93.6	3.6
Abdominal examination	47	100	
Head circumference	47	97.9	2.1
Height	47	100	
Pulse	47	93.6	3.6
Respiratory rate	47	97.9	2.1
Silverman score	47	89.4	4.5
Skin color	47	100	
Weight	47	100	
Laboratory tests:	47	19.1	5.7
Blood glucose level	47	27.7	6.5
Oxygen saturation	47	19.1	5.7
Transferred to a complete facility	47	14.9	5.2
LBW managed according to the norm (meets all above criteria)	47	4.3	2.9

Table 7.5.1b Medical record review in basic level facilities: prematurity

	Basic		
	N	%	SE
Neonate was evaluated by a doctor	12	100	
Vital signs checked:	12	75	12.5
Gestational age recorded	12	91.7	8.0
Method to calculate gestational age was recorded	12	100	
Abdominal examination	12	91.7	8.0
Head circumference	12	91.7	8.0
Height	12	100	
Pulse	12	91.7	8.0
Respiratory rate	12	91.7	8.0
Silverman score	12	91.7	8.0
Skin color	12	91.7	8.0
Weight	12	100	
Laboratory tests:	12	0	
Blood glucose level	12	16.7	10.8
Oxygen saturation	12	0	
Transferred to a complete facility	12	58.3	14.2
Prematurity managed according to the norm (meets all above criteria)	12	0	

7.5.2 Low birth weight (LBW) and prematurity in complete facilities

According to the country norm, neonates with low birth weight and premature neonates are managed correctly at complete facilities in the same manner with the exception of one vital sign check (blood pressure); blood pressure was not evaluated for cases of prematurity due to a programming error. A neonate is managed correctly if they are evaluated by a doctor, all checks are performed (blood pressure + pulse + respiratory rate + Silverman score), lab tests are performed (blood glucose level + oxygen saturation level), and correct treatment is given.

Correct treatment is evaluated as follows:

- IV feeding if respiratory rate > 80
- Oxygen mask/oxygen hood/oxygen cylinder/mechanical ventilation/keep in incubator

Among nine records of neonates with low birth weight (Table 7.5.2a) and two records of premature neonates (Table 7.5.2b) at complete facilities, none were managed according to the country standards. At complete facilities, this is largely due to a lack of checks for blood pressure, oxygen saturation level, and blood glucose level.

Table 7.5.2a Medical record review in complete level facilities: low birth weight

	Complete		
	N	%	SE
Neonate was evaluated by a doctor	9	100	
Vital signs checked:	9	22.2	13.9
Blood pressure	9	22.2	13.9
Pulse	9	77.8	13.9
Respiratory rate	9	77.8	13.9
Silverman score	9	77.8	13.9
Laboratory tests:	9	11.1	10.5
Blood glucose level	9	33.3	15.7
Oxygen saturation	9	11.1	10.5
Correct treatment was recorded:	9	88.9	10.5
Oxygen mask/oxygen hood/oxygen cylinder/mechanical ventilation/keep in incubator	9	88.9	10.5
IV feeding (if respiratory rate > 80)	n/a	n/a	n/a
LBW managed according to the norm (meets all above criteria)	9	0	

Table 7.5.2b Medical record review in complete level facilities: prematurity

	Complete		
	N	%	SE
Neonate was evaluated by a doctor	2	100	
Vital signs checked:*	2	100	
Pulse	2	100	
Respiratory rate	2	100	
Silverman score	2	100	
Laboratory tests:	2	50	35.4
Blood glucose level	2	50	35.4
Oxygen saturation	2	50	35.4
Correct treatment was recorded:	2	50	35.4
Oxygen mask/oxygen hood/oxygen cylinder/mechanical ventilation/keep in incubator	2	50	35.4
IV feeding (if respiratory rate > 80)	n/a	n/a	n/a
Prematurity managed according to the norm (meets all above criteria)	2	0	

*Due to a programming error, blood pressure was not measured

7.5.3 Sepsis in basic facilities

According to the country norm, neonates with sepsis are managed correctly at basic facilities if they are evaluated by a doctor, gestational age is recorded, all vital signs are checked (abdominal examination + distal coldness + pulse + respiratory rate + skin test), lab tests are performed (blood glucose level + leukocyte count + neutrophil morphology + platelet count), any antibiotic is administered, and the neonate is transferred to a complete facility.

There were 86 records of neonates with sepsis at basic facilities (Table 7.5.3). Among neonates with sepsis, only 9.5% had all correct laboratory tests and 10.5% of were transferred to another facility.

Table 7.5.3 Medical record review in basic level facilities: infants with sepsis

	Basic		
	N	%	SE
Neonate was evaluated by a doctor	86	100	
Vital signs checked:	86	47.7	5.4
Gestational age recorded	86	54.7	5.4
Abdominal examination	86	91.9	3.0
Distal coldness	86	83.7	4.0
Pulse	86	73.3	4.8
Respiratory rate	86	88.4	3.5
Skin color	86	90.7	3.1
Laboratory tests:	84	9.5	3.2
Blood glucose level	86	48.8	5.4
Leukocyte count	86	59.3	5.3
Neutrophil morphology	86	19.8	4.3
Platelet count*	84	56	5.4
Antibiotic administration**	86	84.9	3.9
Transferred to a complete facility	86	10.5	3.3
Sepsis managed according to the norm (meets all above criteria)	84	0	

*Missing data for two records at basic facilities

**Antibiotics = ampicillin/gentamicin/other antibiotic

7.5.4 Sepsis in complete facilities

According to the country norm, neonates with sepsis are managed correctly at complete facilities if they are evaluated by a doctor, all vital signs are checked (blood pressure + pulse + temperature), lab tests are performed (blood glucose level + c-reactive protein + erythrocyte sedimentation rate (ESR) + leukocyte count + neutrophil morphology + oxygen saturation level), and any antibiotic is administered.

There were 27 records of neonates with sepsis at complete facilities (Table 7.5.4). While the majority of neonates had their pulse and temperature checked, only 3.7% had their blood pressure checked and only 11.1% had all necessary laboratory tests.

Table 7.5.4 Medical record review in complete level facilities: infants with sepsis

	Complete		
	N	%	SE
Neonate was evaluated by a doctor	27	96.3	3.6
Vital signs checked:	27	3.7	3.6
Blood pressure	27	3.7	3.6
Pulse	27	66.7	9.1
Temperature	27	92.6	5.0
Laboratory tests:	27	11.1	6.1
Blood glucose level	27	59.3	9.5
C-reactive protein	27	25.9	8.4
Erythrocyte sedimentation rate (ESR)	27	25.9	8.4
Leukocyte count	27	51.9	9.6
Neutrophil morphology	27	33.3	9.1
Oxygen saturation level	27	29.6	8.8
Antibiotic administration*	27	81.5	7.5
Sepsis managed according to the norm (meets all above criteria)	27	3.7	3.6

*Antibiotics = ampicillin/gentamicin/other antibiotic

7.5.5 Asphyxia in basic facilities

According to the country norm, neonates with an asphyxia complication are managed correctly at basic facilities if they are evaluated by a doctor, gestational age is recorded, all vital signs are checked (abdominal examination + Apgar score + pulse + respiratory rate + skin color + temperature), lab tests are performed (blood glucose level + complete blood count), and the correct treatment is given.

Correct treatment is evaluated as follows:

- Positive pressure ventilation and 100% oxygen and resuscitation bag if baby has apnea
- Secretion suctioning if baby has meconium

There were 36 records of neonates with an asphyxia complication at basic facilities (Table 7.5.5). Blood glucose level was checked in only 33.3% of cases and the complete blood count was not performed in any cases.

Table 7.5.5 Medical record review in basic level facilities: asphyxia

	Basic		
	N	%	SE
Neonate was evaluated by a doctor	36	100	
Vital signs checked:	36	41.7	8.2
Gestational age recorded	36	55.6	8.3
Abdominal examination	36	88.9	5.2
Apgar score	36	86.1	5.8
Pulse	36	66.7	7.9
Respiratory rate	36	69.4	7.7
Skin color	36	88.9	5.2
Temperature	36	72.2	7.5
Laboratory tests:	36	0	
Blood glucose level	36	33.3	7.9
Complete blood count	36	0	
Correct treatment was recorded:	36	66.7	7.9
Positive pressure ventilation, 100% oxygen, & resuscitation bag (if baby has apnea)	11	0	
Secretion suctioning (if baby has meconium)	7	85.7	13.2
Asphyxia managed according to the norm (meets all above criteria)	36	0	

7.5.6 Asphyxia in complete facilities

According to the country norm, neonates with an asphyxia complication are managed correctly at complete facilities if all vital signs are checked (Apgar score + blood pressure + pulse + respiratory rate), lab tests are performed (blood glucose level + c-reactive protein + erythrocyte sedimentation rate + hemoglobin + oxygen saturation level + chest x-ray), antibiotics are administered, and the correct treatment is given (oxygen mask/oxygen hood/oxygen cylinder/mechanical ventilation/keep in incubator).

There were 32 records of neonates with an asphyxia complication at complete facilities (Table 7.5.6). None of the evaluated records indicated that all applicable lab tests were performed, and blood pressure was only checked in 3.1% of cases.

Table 7.5.6 Medical record review in complete level facilities: asphyxia

	Complete		
	N	%	SE
Vital signs checked:	32	3.1	3.1
Apgar score	32	96.9	3.1
Blood pressure	32	3.1	3.1
Pulse	32	68.8	8.2
Respiratory rate	32	81.3	6.9
Laboratory tests:	32	0	
Blood glucose level	32	68.8	8.2
C-reactive protein	32	46.9	8.8
Erythrocyte sedimentation rate (ESR)	32	43.8	8.8
Hemoglobin	32	28.1	7.9
Oxygen saturation level	32	50	8.8
Chest x-ray	32	31.3	8.2
Correct treatment was recorded:	32	43.8	8.8
Antibiotics administered	32	50	8.8
Oxygen mask/oxygen hood/oxygen cylinder/mechanical ventilation/ keep in incubator	32	71.9	7.9
Asphyxia managed according to the norm (meets all above criteria)	32	0	

*Antibiotics = ampicillin/gentamicin/other antibiotic

Chapter 8 INFECTION CONTROL

8.1 Equipment for disposal and disposal methods

8.1.1 Equipment for disposal

Staff at health facilities were asked about certain items available related to biohazard disposal, including incinerators, manuals that specify decontamination methods, and contracts with other facilities for biohazard disposal (Table 8.1.1).

Table 8.1.1 Equipment for disposal

	Ambulatory			Basic			Complete		
	N*	%	SE	N	%	SE	N	%	SE
Incinerator at facility	45	60	7.3	11	90.9	8.7	3	66.7	27.2
Contract with other facility for biohazard disposal**	18	22.2	9.8	1	100		1	100	
Manual for decontamination	45	86.7	5.1	11	100		3	100	

*Missing data from one ambulatory facility

**Asked only if there was not an incinerator at the facility

8.2 Decontamination and sterilization

Table 8.2.1 lists the different techniques used for decontaminating and sterilizing equipment. Units that chose “other” when responding to the decontamination question specified that an autoclave, dry heat sterilizer, sterilization in the primary hospital first, or Cidex (a specific disinfectant) was the decontamination method of choice.

Table 8.2.1 Decontamination and sterilization

	Ambulatory			Basic			Complete		
	N*	%	SE	N	%	SE	N	%	SE
Decontamination methods									
Submerged in disinfectant, then scrubbed with a brush, soap and water	45	60	7.3	11	27.3	13.4	3	0	
Scrubbed with a brush, soap and water, then submerged in disinfectant	45	37.8	7.2	11	72.7	13.4	3	100	
Scrubbed with a brush, soap and water only	45	2.2	2.2	11	0		3	33.3	27.2
Submerged in disinfectant, without scrubbing with a brush	45	2.2	2.2	11	0		3	0	
Cleaned with water and soap, without scrubbing with a brush	45	0		11	0		3	0	
Equipment never reused	45	0		11	0		3	0	
Facility doesn't decontaminate	45	0		11	0		3	0	
Other	45	8.9	4.2	11	0		3	0	
Sterilization methods									
Dry heat	45	4.4	3.1	11	0		3	0	
Autoclave	45	64.4	7.1	11	100		3	100	
Boiling	45	4.4	3.1	11	0		3	0	
Steam	45	4.4	3.1	11	9.1	8.7	3	33.3	27.2
Chemical sterilization	45	2.2	2.2	11	0		3	0	
Processed away from facility	45	22.2	6.2	11	0		3	0	
Facility doesn't sterilize	45	0		11	0		3	0	
Other	45	4.4	3.1	11	0		3	0	

*Missing data from one ambulatory facility

Appendix A: SM2015 Health Facility Indicators

In total, 16 SM2015 health facility indicators were measured at the 18-month evaluation. Tables A.1.1 and A.1.2 detail all indicators measured during 18-month data collection as well as comparable baseline values. The construction of some indicators captured at both the baseline and follow-up marks have changed. The baseline values shown in the following tables reflect the definitions for the 18-month evaluation and all differences are listed in the respective footnotes.

Specifics regarding the follow-up indicators have been detailed in the corresponding chapters of this report, where the components of these indicators are disaggregated, providing a more comprehensive assessment of progress. All 18-month indicator definitions are listed in the Appendix in section A.2. For information regarding original baseline definitions and measurements refer to the Data Quality Report from the baseline measurement.

Table A.1.1 Facility indicators matrix and comparison to baseline

	BASELINE			18-MONTH		
SM2015 Indicators	N	n	Percent (95% CI)	N	n	Percent (95% CI)
Health facilities with continuous availability of supplies and equipment needed for child care, immunization and nutrition[1]	37	0	0% (0 - 9.5%)	53	38	71.7% (57.7 - 83.2%)
Number of health facilities that have cold chain according to the norms[2]	28	8	28.6% (13.2 - 48.7%)	27	24	88.9% (70.8 - 97.6%)
Health facilities that have supplies of modern family planning methods (oral, injectable, barrier, IUD)[3]	37	22	59.5% (42.1 - 75.2%)	56	49	87.5% (75.9 - 94.8%)
Health facilities with continuous availability of supplies and equipment needed for antenatal and postpartum care[4]	37	10	27.0% (13.8 - 44.1%)	56	43	76.8% (63.6 - 87.0%)
Health Facilities with continuous availability of supplies and equipment needed for emergency obstetric and neonatal care[5]	5	2	40% (5.3 - 85.3%)	11	10	90.9% (58.7 - 99.8%)
Health centers with socio-cultural services for monitoring purposes	3	3	100% (29.2 - 100%)	7	5	71.4% (29.0 - 96.3%)
Women of reproductive age (15-49) who received their first antenatal care visit by qualified personnel before 12 weeks gestation in the last two years for monitoring purposes[6]	135	33	24.4% (17.5 - 32.6%)	416	151	36.3% (31.7 - 41.1%)
Women of reproductive age (15-49) who received >= 4 ANC visits by qualified personnel according to best practices for a birth in the last two years for monitoring purposes[7]	135	28	20.7% (14.2 - 28.6%)	411	56	13.6% (10.5 - 17.3%)
Management of third stage of delivery for monitoring purposes[8]	90	87	96.7% (90.6 - 99.3%)	210	153	72.9% (66.3 - 78.7%)
Partograph filled according to the norm for births in the last two years for monitoring purposes	-	-	-	221	205	92.8% (88.5 - 95.8%)
Institutional postpartum patients of reproductive age, evaluated and registered in clinical records, at least every 15 minutes during the first hour and every 30 minutes during the second hour after birth in the last two years for monitoring purposes	77	0	0% (0 - 4.7%)	169	0	0% (0 - 2.2%)

[1]The following was not measured at the baseline: Hib + stock-out in the previous three months (excluding the day of the survey) of ferrous sulfate/zinc sulfate/zinc gluconate

[2]At the baseline, filled temperature monitoring chart required all days during the previous 30 days

[3]IUDs were not measured for stock-out in the previous three months (excluding the day of the survey) at the baseline. Baseline captured combined oral pill + progestin only pill while 18-month only captured contraceptive pill. Baseline captured progestin only injectable + combined injectable while 18-month only captured injectable (1 month + 3 months)

[4]The following was not measured at the baseline: serological mixer + qualitative urinalysis strip + standard hemoglobin TED/spectrophotometer/diagnostic 500/stax fax/climar junior/microhematocrit centrifuge + microscope

[5]Ergobasine was not measured to use as an alternative to ergometrine/oxytocin/ergonovine maleate at the baseline. Stock-out in the previous three months (excluding the day of the survey) was not measured for antibiotics + hydralazine at the baseline. The baseline only asked stock-out if ALL drugs observed on the day of the survey while 18-month asks stock-out if each individual drug is observed on the day of the survey.

[6]When using stated gestational age as opposed to calculated gestational age at the follow-up, only 20% of records meet the indicator

[7]HIV lab test was not measured at the baseline

[8]Baseline does not specify whether a date and/or time was recorded for oxytocin administration

Table A.1.2 Facility indicators matrix and comparison to baseline

	BASELINE			18-MONTH		
SM2015 Indicators	N	n	Percent (95% CI)	N	n	Percent (95% CI)
Proportion of women who received family planning (sterilization, IUD, condoms, injectable) after birth in the last two years for monitoring purposes[1]	74	35	47.3% (35.6 - 59.3%)	177	110	62.1% (54.6 - 69.3%)
Neonates who received care according to standards from medical personnel within the first 48 hours after birth in the last 2 years for monitoring purposes[2]	71	5	7.0% (2.3 - 15.7%)	102	46	45.1% (35.2 - 55.3%)
Women with obstetric complications (sepsis, hemorrhage, severe pre-eclampsia and eclampsia) managed according to the norm in the last two years for monitoring purposes[3]	113	0	0% (0 - 3.2%)	241	33	13.7% (9.6 - 18.7%)
Neonates with complications (low birth weight, prematurity, birth asphyxia and sepsis) managed according to standards in hospitals in the last two years for monitoring purposes[4]	119	1	0.8% (0.0 - 4.6%)	231	4	1.7% (0.5 - 4.4%)
Women in the last 18 months who were housed in maternity homes and adopted family planning method within 40 days after delivery for monitoring purposes	46	18	39.1% (25.1 - 54.6%)	34	26	76.5% (58.8 - 89.3%)

[1]Removed from the denominator are cases where women were referred to another facility for a family planning method. Injectable was not specifically asked in the baseline survey, but rather specified as an "other method" option

[2]Due to a programming error the baseline did not measure if a neonate was attended by a doctor/nurse/midwife

[3]Baseline did not measure the following for records of women with hemorrhaging at basic facilities: Fetal heart rate (if gestational age >= 20) + Hartmann solution not measured as an alternative to Ringer's lactate; Baseline did not measure the fetal heart rate (if gestational age >=20 weeks) for records of women with pre-eclampsia at basic facilities; Betamethasone was missing at the follow-up and could not be measured, therefore, for comparability betamethasone was removed as an alternative to dexamethasone at the baseline for women with pre-eclampsia at complete facilities; Baseline did not measure the fetal heart rate (if gestational age >=20 weeks) for records of women with eclampsia at basic facilities; Betamethasone was missing at the follow-up and could not be measured, therefore, for comparability betamethasone was removed as an alternative to dexamethasone at the baseline for women with eclampsia at complete facilities; Baseline did not measure leukocyte count for records of women with sepsis at complete facilities

[4]Baseline did not measure blood pressure for neonates with low birth weight at complete facilities; Baseline did not measure the following for neonates with asphyxia at basic facilities: abdominal examination + complete blood count + resuscitation bag; Baseline did not measure blood pressure for neonates with asphyxia at complete facilities; Baseline did not measure the following for neonates with sepsis at complete facilities: blood pressure + blood glucose level + neutrophil morphology

A.2 Indicator Definitions for 18-month data collection

1. Health facilities with continuous availability of supplies and equipment needed for child care, immunization and nutrition:

Denominator:

Total number of health units that offer child services and vaccines (if vaccines are stored) in the sample.

Formula:

Ambulatory (health posts): Observed on the day of the survey: pediatric scale + height rod + stethoscope + oral/axillary thermometer + growth and development card + pentavalent/ (HepB + Hib + DPT) vaccine + polio vaccine + rotavirus vaccine + pneumococcal conjugate vaccine. No break in supply of the following inputs in the last three months (including the day of the survey): MMR vaccine + BCG vaccine + packets/envelopes of oral rehydration salts + zinc sulfate/zinc gluconate/ferrous sulfate + albendazole/mebendazole

Ambulatory (health centers): Observed on the day of the survey: pediatric scale + height rod + stethoscope + pediatric stethoscope + oral/axillary thermometer + growth and development card + pentavalent/ (HepB + Hib + DPT) vaccine + polio vaccine + rotavirus vaccine + pneumococcal conjugate vaccine. No break in supply of the following inputs in the last three months (including the day of the survey): MMR vaccine + BCG vaccine + packets/envelopes of oral rehydration salts + zinc sulfate/zinc gluconate/ferrous sulfate + albendazole/mebendazole + antibiotics (amoxicillin/ erythromycin/ benzathine penicillin)

Basic (primary hospitals): Observed on the day of the survey: pediatric scale + height rod + stethoscope + pediatric stethoscope + oral/axillary thermometer + growth and development card + pentavalent/ (HepB + Hib + DPT) vaccine + polio vaccine + rotavirus vaccine + pneumococcal conjugate vaccine. No break in supply of the following inputs in the last three months (including the day of the survey): MMR vaccine + BCG vaccine + packets/envelopes of oral rehydration salts + zinc sulfate/zinc gluconate/ferrous sulfate + albendazole/mebendazole + antibiotics (amoxicillin/ erythromycin/ benzathine penicillin)

2. Number of health facilities that have cold chain according to the norms:

Denominator:

Total number of health units that store vaccines and have at least one functional refrigerator in the sample.

Formula:

Ambulatory (health posts): Observed on the day of the survey: temperature monitoring chart for each functioning fridge + temperature was recorded twice daily on weekdays during the last 30 days for each fridge (excluding local holidays)

Ambulatory (health centers): Observed on the day of the survey: temperature monitoring chart for each functioning fridge + temperature was recorded twice daily on weekdays during the last 30 days for each fridge (excluding local holidays)

Basic (primary hospitals): Observed on the day of the survey: temperature monitoring chart for each functioning fridge + temperature was recorded twice daily on weekdays during the last 30 days for each fridge (excluding local holidays)

3. Health facilities that have supplies of modern family planning methods (oral, injectable, barrier, IUD):

Denominator:

Total number of health facilities that store family planning methods in the sample.

Formula:

Ambulatory (health posts): No break in supply of the following inputs in the last three months (including the day of the survey): male condom + any oral pill + any injectable

Ambulatory (health centers): No break in supply of the following inputs in the last three months (including the day of the survey): male condom + any oral pill + any injectable + IUD

Basic (primary hospitals): No break in supply of the following inputs in the last three months (including the day of the survey): male condom + any oral pill + any injectable + IUD

4. Health facilities with continuous availability of supplies and equipment needed for antenatal and postpartum care:

Denominator:

Total number of health facilities that provide antenatal and postpartum care and health centers/primary hospitals with laboratory inputs (if facility has a laboratory) in the sample.

Formula:

Ambulatory (health posts): Observed on the day of the survey: standing scale + gynecological exam table + CLAP obstetrical tape/measuring tape + gooseneck/hand lamp + blood pressure apparatus + stethoscope + gestogram

Ambulatory (health centers): Observed on the day of the survey: standing scale + gynecological exam table + CLAP obstetrical tape/measuring tape + gooseneck/hand lamp + blood pressure apparatus + stethoscope + gestogram + IUD insertion kit + HIV/AIDS rapid test + syphilis rapid test/R.P.R. (syphilis)/rapid plasma regain + serological mixer + qualitative urinalysis strip + glucose strips/glucose meter + standard hemoglobin TED/spectrophotometer/diagnostic 500/stax fax/ climar junior/microhematocrit centrifuge + microscope + cell counter

Basic (primary hospitals): Observed on the day of the survey: standing scale + gynecological exam table + CLAP obstetrical tape/measuring tape + gooseneck/hand lamp + blood pressure apparatus + stethoscope + gestogram + HIV/AIDS rapid test + syphilis rapid test/R.P.R. (syphilis)/rapid plasma regain + serological mixer + qualitative urinalysis strip + glucose strips/glucose meter + standard hemoglobin TED/spectrophotometer/diagnostic 500/stax fax/ climar junior/microhematocrit centrifuge + microscope + cell counter

5. Health facilities with continuous availability of supplies and equipment needed for emergency obstetric and neonatal care:

Denominator:

Total number of health units that provide emergency care in the sample.

Formula:

Basic (primary hospitals): No break in supply of the following inputs in the last three months (including the day of the survey): Dexamethasone + gentamicin + magnesium sulfate + ergometrine/ergonovine maleate/ergobasine/oxytocin + hydralazine + antibiotics (crystalline penicillin/ampicillin/amoxicillin/cephalexin/nitrofurantoin)

6. Health centers with socio-cultural services for monitoring purposes:

Denominator:

Total number of health units in the sample.

Formula:

Ambulatory (health centers): Health facility self-reports adapting services to the sociocultural conditions of women

7. Women of reproductive age (15-49) who received their first antenatal care visit by qualified personnel before 12 weeks of gestation in the last two years for monitoring purposes:

Denominator:

Total number of antenatal care records in the sample.

Formula:

Ambulatory: First ANC visit performed by a doctor/nurse + (date of 1st ANC visit – date of last menstrual period = before 12 weeks gestation)

Basic: First ANC visit performed by a doctor/nurse + (date of 1st ANC visit – date of last menstrual period = before 12 weeks gestation)

8. Women of reproductive age (15-49) who received >= 4 ANC visits by qualified personnel according to best practices for a birth in the last two years for monitoring purposes:

Denominator:

Total number of antenatal care records in the sample.

Formula:

Ambulatory: At least 4 ANC visits with the following: doctor/nurse + physical checkups (weight+ blood pressure + fundal height) + fetal checkups if gestational age is > 20 weeks (fetal heart rate + fetal movement). Lab tests performed at least once: blood type + Rh factor + blood glucose level + VDRL + Hb + HIV test + urinalysis).

Basic: At least 4 ANC visits with the following: doctor/nurse + physical checkups (weight+ blood pressure + fundal height) + fetal checkups if gestational age is > 20 weeks (fetal heart rate + fetal movement). Lab tests performed at least once: blood type + Rh factor + blood glucose level + VDRL + Hb + HIV test + urinalysis).

9. Management of third stage of delivery for monitoring purposes:

Denominator:

Total number of delivery records in the sample.

Formula:

Basic: Oxytocin/other uterotonic was administered after delivery

Complete: Oxytocin/other uterotonic was administered after delivery

10. Partograph filled according to the norm for births in the last two years for monitoring purposes:

Denominator:

Total number of delivery records in the sample.

Formula:

Basic: A partograph is included in the record and filled out completely (in cases where the woman did not arrive in imminent birth or for a C-section): Fetal heart rate & alert curves recorded if dilation >4.5cm + a note is in the partograph/record within 30 minutes if Fetal heart rate < 120 bpm or alert curve is surpassed.

Complete: A partograph is included in the record and filled out completely (in cases where the woman did not arrive in imminent birth or for a C-section): Fetal heart rate & alert curves recorded if dilation >4.5cm + a note is in the partograph/record within 30 minutes if Fetal heart rate < 120 bpm or alert curve is surpassed.

11. Institutional postpartum patients of reproductive age, evaluated and registered in clinical records, at least every 15 minutes during the first hour and 30 minutes until 2 hours:

Denominator:

Total number of postpartum care records in the sample.

Formula:

Basic: Checked four times in the first hour: systolic blood pressure + diastolic blood pressure + temperature + pulse. Checked two times in the second hour: systolic blood pressure + diastolic blood pressure + temperature + pulse.

Complete: Checked four times in the first hour: systolic blood pressure + diastolic blood pressure + temperature + pulse. Checked two times in the second hour: systolic blood pressure + diastolic blood pressure + temperature + pulse.

12. Proportion of women who received family planning (sterilization, IUD, condoms, injectable) after birth in the last two years for monitoring purposes:

Denominator:

Total number of postpartum care records in the sample.

Formula:

Basic: Woman received contraception + contraception method recorded was one of the following: condom/injectable/IUD/sterilization

Complete: Woman received contraception + contraception method recorded was one of the following: condom/injectable/IUD/sterilization

13. Neonates who received care according to standards from medical personnel within the first 48 hours after birth in the last 2 years for monitoring purposes:

Denominator:

Total number of postpartum care records in the sample.

Formula:

Basic: Newborn was attended by a doctor/nurse/midwife + all procedures and checkups recorded (Apgar score at 1 or 5 minutes + BCG vaccination + evaluation for presence of malformations+ head circumference + height + oxytetracycline eye ointment administration + pulse + respiratory rate + skin color + chlorhexidine/water for umbilical cord + vitamin k administration + weight)

Complete: Newborn was attended by a doctor/nurse/midwife + all procedures and checkups recorded (Apgar score at 1 or 5 minutes + BCG vaccination + evaluation for presence of malformations + head circumference + height + oxytetracycline eye ointment administration + pulse + respiratory rate + skin color + chlorhexidine/water for umbilical cord + vitamin k administration + weight)

14. Women with obstetric complications (sepsis, hemorrhage, severe pre-eclampsia and eclampsia) managed according to the norm in the last two years for monitoring purposes:

Denominator:

Total number of maternal complications records in the sample.

Formula:

Hemorrhage:

Basic: Observe the following in the record: vital signs checked (pulse + diastolic blood pressure + systolic blood pressure + fetal heart rate (if gestational age >= 20 weeks)) + medication administered (oxytocin/other uterotonics + Ringer's lactate/Hartmann solution) + transferred to another facility

Complete: Observe the following in the record: vital signs checked (diastolic blood pressure + systolic blood pressure) + lab tests performed (Ht + Hb + PT + PTT + platelet count) + medication administered (oxytocin/other uterotonics) + cause of hemorrhage recorded + correct treatment recorded (MVA & revision of uterus (if complicated abortion/retained placenta) + C-section/hysterectomy (if placenta previa/placenta abruption/uterine rupture/uterine atony) + laparotomy (if ectopic pregnancy/uterine atony) + surgical repair (if tears of cervical canal/uterus))

Pre-eclampsia:

Basic: Observe the following in the record: vital signs checked (systolic blood pressure + diastolic blood pressure + fetal heart rate (if gestational age >= 20 weeks)) + lab tests performed (urine protein) + medication administered (magnesium sulfate + hydralazine/nifedipine/other hypertensive (if diastolic blood pressure is >110)) + transferred to another facility

Complete: Observe the following in the record: vital signs check (systolic blood pressure + diastolic blood pressure + pulse + respiratory rate + reflexes) + lab tests performed (urine protein + platelet count + aspartate aminotransferase + alanine aminotransferase + lactate dehydrogenase) + medication administered (magnesium sulfate + hydralazine/nifedipine/labetalol/other hypertensive (if diastolic blood pressure is >110) + dexamethasone (if gestational age is 26-34 weeks)) + outcome of pregnancy (C-section/vaginal delivery/other)

Eclampsia:

Basic: Observe the following in the record: vital signs checked (systolic blood pressure + diastolic blood pressure + fetal heart rate (if gestational age >= 20 weeks)) + lab tests performed (urine protein) + medication administered (magnesium sulfate + hydralazine/nifedipine/other hypertensive (if diastolic blood pressure is >110)) + transferred to another facility

Complete: Observe the following in the record: vital signs check (systolic blood pressure + diastolic blood pressure + pulse + respiratory rate) + lab tests performed (urine protein + platelet count + aspartate aminotransferase + alanine aminotransferase + lactate dehydrogenase) + medication administered (magnesium sulfate + hydralazine/nifedipine/labetalol/other hypertensive (if diastolic blood pressure is >110) + dexamethasone (if gestational age is 26-34 weeks)) + outcome of pregnancy (C-section/vaginal delivery/other)

Sepsis:

Basic: Observe the following in the record: vital signs checked (systolic blood pressure + diastolic blood pressure + temperature + pulse) + lab tests performed (leukocyte count) + medication administered (amikacin/clindamycin/gentamicin/ampicillin/metronidazole/other antibiotic) + transferred to another facility

Complete: Observe the following in the record: vital signs checked (systolic blood pressure + diastolic blood pressure + temperature + pulse) + lab tests performed (leukocyte count) + medication administered (amikacin/clindamycin/gentamicin/ampicillin/metronidazole/other antibiotic) + correct treatment was recorded (MVA & revision of uterus (if septic abortion) + hysterectomy (if uterine perforation) + laparotomy (if perforation/abscesses/infected ectopic pregnancy) + surgical repair (if tears of cervical canal/uterus))

15. Neonates with complications (low birth weight, prematurity, birth asphyxia and sepsis) managed according to standards in hospitals in the last two years for monitoring purposes:

Denominator:

Total number of neonatal complication records in the sample.

Formula:

Low birth weight:

Basic: Observe the following in the record: neonate was evaluated by a doctor + gestational age + method used to calculate gestational age + vital signs checked (weight + height + head circumference + skin color + pulse + respiratory rate + abdominal examination + Silverman score) + lab tests performed (blood glucose level + oxygen saturation level) + transferred/referred to a complete facility

Complete: Observe the following in the record: neonate was evaluated by a doctor + vital signs checked (pulse + respiratory rate + blood pressure + Silverman score) + lab tests performed (blood glucose level + oxygen saturation level) + correct treatment was recorded (oxygen mask/oxygen hood/oxygen cylinder/mechanical ventilation/keep in incubator + IV feeding (if respiratory rate > 80))

Prematurity:

Basic: Observe the following in the record: neonate was evaluated by a doctor + gestational age + method used to calculate gestational age + vital signs checked (weight + height + head circumference + skin color + pulse + respiratory rate + abdominal examination + Silverman score) + lab tests performed (blood glucose level + oxygen saturation level) + transferred/referred to a complete facility

Complete: Observe the following in the record: neonate was evaluated by a doctor + vital signs checked (pulse + respiratory rate + Silverman score) + lab tests performed (blood glucose level + oxygen saturation level) + correct treatment was recorded (oxygen mask/oxygen hood/oxygen cylinder/mechanical ventilation/keep in incubator + IV feeding (if respiratory rate > 80))

Asphyxia:

Basic: Observe the following in the record: neonate was evaluated by a doctor + gestational age + vital signs checked (temperature + skin color + pulse + respiratory rate + abdominal examination + Apgar score (at 1 or 5 minutes)) + lab tests performed (blood glucose level + complete blood count) + correct treatment was recorded (positive pressure ventilation, 100% oxygen, & resuscitation bag (if baby has apnea) + secretion suctioning (if baby has meconium))

Complete: Observe the following in the record: vital signs checked (pulse + respiratory rate + blood pressure + Apgar score) + lab tests performed (oxygen saturation level + blood glucose level + hemoglobin + c-reactive protein + erythrocyte sedimentation rate + chest x-ray) + correct treatment was recorded (antibiotics administered (ampicillin/gentamicin/other antibiotic) + oxygen mask/oxygen hood/oxygen cylinder/mechanical ventilation/keep in incubator)

Sepsis:

Basic: Observe the following in the record: neonate was evaluated by a doctor + gestational age + vital signs checked (temperature + skin color + pulse + respiratory rate + abdominal examination + distal coldness) + lab tests performed (leukocyte count + neutrophil morphology + platelet count + blood glucose level) + correct treatment was recorded (antibiotic administration (ampicillin/gentamicin/other antibiotic) + transferred/referred to a complete facility

Complete: Observe the following in the record: neonate was evaluated by a doctor + gestational age + vital signs checked (temperature + pulse + blood pressure) + lab tests performed (oxygen saturation level + leukocyte count + neutrophil morphology + c-reactive protein + erythrocyte sedimentation rate + blood glucose level) + correct treatment was recorded (antibiotic administration (ampicillin/gentamicin/other antibiotic))

16. Women in the last 18 months who were housed in maternity homes and adopted family planning methods within 40 days after delivery for monitoring purposes:

Denominator:

Total number of records of women who stayed in maternity homes in the sample.

Formula:

Ambulatory: Date of family planning method adoption – delivery date <= 40 days

Basic: Date of family planning method adoption – delivery date <= 40 days

Complete: Date of family planning method adoption – delivery date <= 40 days