

# **SM2015 – Mexico**

## **18-Month Health Facility**

---

**Data Quality Report**

**June 2015**



## TABLE OF CONTENTS

<b>Chapter 1 SURVEY METHODOLOGY .....</b>	<b>6</b>
1.1 Overview .....	6
1.2 Health facility survey .....	6
1.3 Contents and methods for data collection.....	6
1.3.1 Contents of the 2014 Mexico health facility survey .....	6
1.3.2 Methods for data collection .....	7
1.4 Sampling.....	7
1.5 Survey implementation .....	7
1.5.1 Data collection instruments .....	7
1.5.2 Training and supervision of data collectors.....	8
1.5.3 Data collection and management .....	8
1.5.4 Data analysis and report writing .....	8
<b>Chapter 2 FACILITY-LEVEL INFRASTRUCTURE, RESOURCES, MANAGEMENT, AND SUPPORT .....</b>	<b>9</b>
2.1 General description of the facility.....	9
2.1.1 Type of health facility .....	9
2.1.2 Geographical representation .....	10
2.1.3 Medical record extraction .....	10
2.1.4 Referrals .....	11
2.1.5 Governing authority .....	11
2.2 Basic infrastructure .....	11
2.2.1 Electricity and Water.....	11
2.2.2 Internet access .....	12
2.2.3 Access to safe blood.....	12
2.3 Personnel.....	12
2.3.1 Personnel in ambulatory units .....	12
2.3.2 Personnel in basic and complete facilities .....	13
2.3.3 Staff availability 24 hours a day, 7 days a week .....	14
2.4 Sociocultural services .....	14
2.4.1 Health facilities with sociocultural adaptation.....	14
<b>Chapter 3 CHILD HEALTH .....</b>	<b>15</b>
3.1 Child services offered – a background .....	15
3.2 Child health care equipment.....	15
3.2.1 Child health care equipment in ambulatory facilities .....	15
3.2.2 Child health care equipment in basic and complete facilities.....	16

3.3 Important drugs and supplements.....	17
3.4 Composite indicator for child care and nutrition.....	20
3.5 Education material.....	21
3.6 Diarrhea management.....	21
<b>Chapter 4 VACCINES.....</b>	<b>23</b>
4.1 Vaccination services.....	23
4.2 Vaccine logistics.....	23
4.2.1 Storage.....	23
4.2.2 Demand and supply.....	24
4.3 Vaccines observed.....	24
4.4 Cold chain.....	26
4.5 Composite cold chain indicator.....	26
<b>Chapter 5 FAMILY PLANNING.....</b>	<b>29</b>
5.1 Service provision and storage.....	29
5.2 Observed contraception methods and reported family planning services.....	29
5.3 Composite family planning indicator.....	31
5.4 Teaching and awareness.....	34
<b>Chapter 6 MATERNAL HEALTH: ANTENATAL CARE (ANC), DELIVERY, AND POSTPARTUM CARE (PPC)..35</b>	
6.1 Service provision.....	35
6.2 ANC - PPC equipment.....	36
6.2.1 ANC - PPC equipment in ambulatory facilities.....	36
6.2.2 ANC - PPC equipment in basic and complete facilities.....	37
6.3 ANC - PPC laboratory inputs.....	38
6.3.1 ANC - PPC laboratory inputs in basic and complete facilities.....	38
6.4 ANC - PPC medications.....	39
6.4.1 ANC - PPC medications in ambulatory facilities.....	40
6.4.2 ANC - PPC medications in basic and complete facilities.....	41
6.5 ANC medical record review.....	42
6.5.1 Antenatal care according to the norm for births in the past two years.....	42
6.5.2 ANC according to the norms for births in the past two years with 5 visits at ambulatory and basic facilities and 1 visits at complete facilities.....	44
6.5.3 ANC according to the norms for births in the past two years with 4 visits at all facilities.....	50
6.6 Delivery care.....	53
6.6.1 Delivery care equipment.....	54
6.6.2 Delivery care pharmacy inputs.....	54
6.6.3 Prevalence of C-sections.....	56

6.6 Delivery medical record review .....	56
6.6.1 Oxytocin administration .....	56
6.6.2 Partograph revision .....	56
6.7 Postpartum care medical record review .....	58
6.7.1 Checks after birth performed according to the norm .....	58
6.7.2 Neonatal postpartum checks after birth performed according to the norm .....	59
<b>Chapter 7 MATERNAL &amp; NEONATAL HEALTH: COMPLICATIONS .....</b>	<b>61</b>
7.1 Emergency obstetric and neonatal care service provision .....	61
7.2 Supplies and equipment needed for emergency obstetric and neonatal care .....	61
7.3 Important drugs needed for emergency obstetric and neonatal care .....	62
7.4 Distribution of obstetric and neonatal complications .....	63
7.5 Management of obstetric complications (sepsis, hemorrhage, pre-eclampsia and eclampsia) in the last two years .....	64
7.5.1 Sepsis in basic facilities .....	64
7.5.2 Sepsis in complete facilities .....	65
7.5.3 Hemorrhage in basic facilities .....	66
7.5.4 Hemorrhage in complete facilities .....	67
7.5.5 Pre-eclampsia & eclampsia in basic facilities .....	68
7.5.6 Pre-eclampsia & eclampsia in complete facilities .....	69
7.6 Management of neonatal complications (low birth weight, prematurity, sepsis and asphyxia) in the last two years .....	71
7.6.1 Low birth weight (LBW) and prematurity in basic facilities .....	71
7.6.2 Low birth weight (LBW) and prematurity in complete facilities .....	73
7.6.3 Sepsis in basic facilities .....	74
7.6.4 Sepsis in complete facilities .....	75
7.6.5 Asphyxia in basic facilities .....	76
7.6.6 Asphyxia in complete facilities .....	77
<b>Chapter 8 INFECTION CONTROL .....</b>	<b>79</b>
8.1 Equipment for disposal and disposal methods .....	79
8.1.1 Equipment for disposal .....	79
8.2 Decontamination and sterilization .....	79
<b>Appendix A: SM2015 Health Facility Indicators .....</b>	<b>81</b>
Table A.1.1 Facility indicators matrix and comparison to baseline .....	82
Table A.1.2 Facility indicators matrix and comparison to baseline .....	83

This Data Quality Report on the SM2015-Mexico 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.

## **Lead authors**

Casey Johanns, BS  
Data Analyst, IHME

Nicholas Zyzniwski, MA  
Data Analyst, IHME

Erin Palmisano, BA  
Project Officer, IHME

Emily Dansereau, MPH  
Researcher, IHME

Bernardo Hernandez, MS, DSc  
Associate Professor, IHME

Ali H. Mokdad, PhD  
Professor, IHME

## **Contributing authors**

Alexandra Schaefer, BA  
Data Analyst, IHME

Sima Desai, BS  
Data Analyst, IHME

Marielle C. Gagnier, BS  
Post-Bachelor Fellow, IHME

Annie Haakenstad, MA  
Project Officer II, IHME

### **Acknowledgements**

We would like to extend our gratitude to El Colegio de la Frontera Sur (ECOSUR) for their participation in data collection for this project.

## 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 Mexico, data collection is taking place at households and health facilities in intervention and control areas. The evaluation design includes a baseline data collection prior to the beginning of the intervention, as well as follow-up measures at 18 months (only in health facilities), and again at 36 and 54 months later. This document describes the methods and results of the 18-month measurement 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. Twinning 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 will capture changes made by interventions at the level of the health services access point, the health facility, and predict changes in population health outcomes. The baseline health facility survey, recounted in this report, measured baseline prevalence 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 Mexico health facility survey

The 18-month health facility survey includes 3 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 3

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 is 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 which 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 covered by the SM2015 initiative. This list was constructed according to a referral network outlined by the Ministry of Health (Secretaría de Salud). All complete and basic facilities serving SM2015 areas were included in the sample, due to the small number of these facilities operating in the area. Among ambulatory facilities, 50% of the remaining sample was drawn randomly from the list of ambulatory health facilities located in SM2015 intervention areas that were included in the baseline evaluation. The other 50% were drawn from ambulatory facilities in SM2015 areas that were not visited at baseline. A simple random sample was drawn from each ambulatory strata to meet the quota of 60 intervention facilities. One complete-level facility and one basic-level facility were replaced with ambulatory facilities, due to access issues. The replacement facilities were selected from a designated list of back-up facilities within the respective municipalities.

For the medical record review, a systematic sampling method was used to select complications and delivery records in each facility, with some records for some types of complications manually over-sampled for representativeness. 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 Mexico in March 2014. The 10 surveyors had medical backgrounds (physicians and nurses) and underwent four 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 final 18-month data quality report includes information from the 60 facilities selected in the intervention area in Mexico and comparisons to baseline intervention-area numbers, when comparing performance indicators. An appendix of SM2015 indicator values and 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 the sample description and 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 both the baseline and the 18-month evaluations. 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** Facilities by EONC level

	Baseline	18-month
Ambulatory	41	46
Basic	11	7
Complete	8	7
Total	60	60

**Table 2.1.1b** Facilities by facility type

	Baseline	18-month
Comprehensive community hospital	5	4
General hospital	2	3
Health center with expanded services	7	4
Health center with hospitalization	4	4
Health post	11	10
Mobile unit	5	9
Rural health center with one medical clinic	18	23
Rural health center with two medical clinics	1	2
Rural health center with three or more medical clinics	n/a	1
Specialty hospital	1	n/a
Urban health center with one medical clinic	3	n/a
Urban health center with three or more medical clinics	1	n/a
Urban health center with two medical clinics	2	n/a
Total	60	60

### 2.1.2 Geographical representation

Facilities surveyed for the 18-month evaluation were located in 26 municipalities (Table 2.1.2).

**Table 2.1.2** Geographical representation

Jurisdiction	Municipality	No. of facilities
Ocosingo	Chilón	6
	Sitalá	1
Palenque	Sabanilla	1
	Salto De Agua	6
	Tila	1
	Tumbalá	3
	Yajalón	3
Pichucalco	Amatán	3
	Pueblo Nuevo Solistahuacán	1
	San Andrés Duraznal	1
	Simojovel	2
San Cristóbal De Las Casas	Aldama	1
	Chalchihuitán	1
	Chamula	4
	Chanal	1
	Chenalhó	4
	Huixtán	2
	Larráinzar	1
	Oxchuc	3
	Pantelhó	2
	San Cristóbal De Las Casas	4
	San Juan Cancuc	2
	Santiago El Pinar	1
	Tenejapa	1
	Teopisca	3
	Zinacantán	2
<b>Total</b>	<b>26</b>	<b>60</b>

### 2.1.3 Medical record extraction

The 18-month health facility survey included a review of 1,985 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 were evaluated in all facilities. At ambulatory facilities, records of diarrheal cases were also reviewed. In addition, records of delivery, postpartum care, maternal complications and neonatal complications were reviewed at basic- and complete-level facilities.

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

Medical records	Ambulatory	Basic	Complete	Total
Antenatal care	383	116	7	506
Delivery	0	91	245	336
Postpartum	0	83	244	327
Maternal complications	0	80	280	360
Neonatal complications	0	67	193	260
Diarrhea	196	0	0	196
Total	579	437	969	1985

#### 2.1.4 Referrals

In response to the question, “Do you usually receive referred patients from another health facility?” 10.9% of ambulatory facilities and 100% of basic and complete facilities reported receiving referred patients from other facilities. Aside from one ambulatory facility, all facilities reported sending or referring patients to other health units.

#### 2.1.5 Governing authority

All health facilities were public institutions from the Ministry of Health (Secretaría de Salud).

### 2.2 Basic infrastructure

#### 2.2.1 Electricity and Water

All complete and basic health units and 93.5% of ambulatory units had functional electricity. Of the facilities with functional electricity, central electricity supply was nearly universal (100% of basic and complete facilities, 97.7% of ambulatory). Fourteen percent of complete facilities also used an in-facility generator.

When reporting on their source of water, the majority of ambulatory (68.9%) and complete (71.4%) facilities had water piped into the facility. Most basic facilities reported having water delivered by a tanker truck (71.4%), though piped water was also common (42.9%). Many facilities also reported that they used another source of water which was not listed in the survey. These open responses varied from tanks and receiving water from a neighboring house or health unit to river water and a spring.

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

	Ambulatory			Basic			Complete		
	N	%	SE	N	%	SE	N	%	SE
Functional electricity	46	93.5	3.6	7	100		7	100	
Source of electricity									
Central supply	43	97.7	2.3	7	100		7	100	
Private supply	43	0		7	0		7	0	
In-facility generator	43	0		7	0		7	14.3	13.2
Solar generator	43	0		7	0		7	0	
Other source	43	2.3	2.3	7	0		7	14.3	13.2
Source of water									
Piped into facility	45	68.9	6.9	7	42.9	18.7	7	71.4	17.1
Public well	45	13.3	5.1	7	14.3	13.2	7	0	
Facility well	45	2.2	2.2	7	0		7	14.3	13.2
Unprotected well	45	2.2	2.2	7	0		7	0	
Hand pump	45	4.4	3.1	7	0		7	0	
Bottled water	45	11.1	4.7	7	0		7	0	
Tanker truck	45	2.2	2.2	7	71.4	17.1	7	42.9	19
Rain water	45	0		7	14.3	13.2	7	0	
Other	45	26.7	6.6	7	0		7	28.6	17.1
DK/DR	1			0			0		

### 2.2.2 Internet access

Only 25.0% of facilities had access to the internet, which was more commonly available at higher level facilities. More specifically, 13.0%, 57.1%, and 71.4% of ambulatory, basic, and complete facilities had internet access, respectively.

### 2.2.3 Access to safe blood

In the questionnaire component of the survey, health facility managers at complete facilities are asked to indicate whether the facility has access to safe blood. All complete facilities reported access to safe blood.

## 2.3 Personnel

### 2.3.1 Personnel in ambulatory units

Ambulatory health units are further categorized by those that do and those that do not have a doctor on staff. The following table (Table 2.3.1) details the personnel composition in ambulatory health facilities, with the mean representing the average number of personnel reported per category. Personnel are limited in health units classified as not having a permanent doctor: on average, there were 0.4 general physicians, 0.3 nurses, and 0.6 health promoters per facility.

Ambulatory health units that do have a doctor reported a greater variety of personnel and, in general, a larger number of staff working at the facility. On average, there were 1.7 general physicians, 2 nurses,

0.4 auxiliary nurses, and 0.4 health promoters per ambulatory facility with a doctor. Ambulatory facilities, both with and without a doctor, also reported that other personnel not listed in the survey included facility help, community coordinators, dentists, orthodontists, psychologists, and technicians.

**Table 2.3.1** Personnel composition in ambulatory facilities

Personnel type	Ambulatory without doctor			Ambulatory with doctor		
	N	Mean	SE	N	Mean	SE
General physician	9	0.4	0.5	37	1.7	2.2
Pediatrician	9	0		37	0	
Nutritionist	9	0		37	0.1	0.3
Pharmacist	9	0		37	0.2	0.7
Nurse	9	0.3	0.5	37	2	3.4
Auxiliary nurse	9	0.1	0.3	37	0.4	1.1
Midwife	9	0		37	0	
Social worker	9	0		37	0.2	0.4
Laboratory technician	9	0		37	0.1	0.3
Health promoter	9	0.6	0.7	37	0.4	1.0
Polyvalent personnel	9	0.2	0.4	37	0.2	0.4
Other personnel	9	0.8	1.1	37	0.9	1.1

### 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 health facilities had 8.6 general physicians, 12.7 nurses, and 2.4 auxiliary nurses. Complete facilities had an average of 20.7 general physicians, 76.4 nurses, 11.6 auxiliary nurses, and 7.7 laboratory technicians. Basic and complete facilities also reported that other personnel not listed in the survey included facility help, dentists, orthodontists, psychologists, chemists, and an emergency physician.

**Table 2.3.2** Personnel composition in basic and complete health units

Personnel type	Basic			Complete		
	N	Mean	SE	N	Mean	SE
General physician	7	8.6	2.2	7	20.7	14.1
Pediatrician	7	0		7	4.7	5.5
Nutritionist	7	0.9	0.4	7	2.1	1.5
Pharmacist	7	0.4	1.1	7	0.1	0.4
Nurse	7	12.7	9.4	7	76.4	69.8
Auxiliary nurse	7	2.4	2.9	7	11.6	10.6
Midwife	7	0		7	0.6	1.0
Social worker	7	1.4	0.8	7	5	3.6
Laboratory technician	7	1.1	1.2	7	7.7	6.6
Health promoter	7	0.6	1.0	7	0.7	1.1
Polyvalent personnel	7	0.3	0.8	7	1.9	2.8
Internist	7	0		7	1.6	4.2
Gynecologist	7	0		7	3.6	5.6
Surgeon	7	0.1	0.4	7	2.6	4.0
Anesthesiologist	7	0.3	0.5	7	4.6	5.2
Emergency medical technician	7	0		7	0	
Radiology technician	7	0.3	0.8	7	4.1	2.5
Ambulance driver	7	0.7	1.9	7	1.9	2.8
Other personnel	7	3	1.9	7	4.3	3.3

### 2.3.3 Staff availability 24 hours a day, 7 days a week

According to the country norm, complete-level health facilities should have an internist, gynecologist, and anesthesiologist available 24 hours a day, 7 days a week. Only 14.3% of complete facilities have an internist, gynecologist, and anesthesiologist available at all times. Around half (57.1%) of complete facilities have an anesthesiologist available 24/7, while only 42.9% and 28.6% of complete facilities have a gynecologist and internist available 24/7, respectively.

## 2.4 Sociocultural services

### 2.4.1 Health facilities with sociocultural adaptation

Health facilities were asked questions related to the provision of socio-cultural services at delivery; 85.7% of complete facilities reported that they adapt their services to the sociocultural needs of women at delivery.

## 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.

**Table 3.1.1** Child health care services provision

	Ambulatory			Basic			Complete		
	N	%	SE	N	%	SE	N	%	SE
Unit reports offering child services	46	100		7	100		7	100	
Unit reports vaccination services for children under 5	46	100		7	100		7	85.7	13.2
Child care room									
Private room with visual and auditory privacy	46	87	5.0	7	100		7	100	
Non-private room without auditory or visual privacy	46	6.5	3.6	7	0		7	0	
Visual privacy only	46	2.2	2.2	7	0		7	0	
No privacy	46	4.3	3.0	7	0		7	0	

### 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. These items were observed by the surveyors, rather than merely reported by hospital staff. Overall, 75.6% of ambulatory-, 0% of basic-, and 57.1% of complete- level facilities contained all functional equipment necessary for basic child care on the day of the survey.

#### 3.2.1 Child health care equipment in ambulatory facilities

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 3.2.1a – 3.2.1b) list medical equipment related to child health care in ambulatory facilities with and without a doctor. Overall, there was a large improvement in equipment at ambulatory facilities. Ambulatory facilities without a doctor increased from only 20% having all functional equipment at the baseline to 77.8% having all functional equipment at the follow-up. Ambulatory facilities with a doctor also increased from only 31.3% having functional equipment on the day of the survey at the baseline to 75% having functional equipment at the follow-up.



**Table 3.2.1a** Child health care equipment observed and functional in ambulatory facilities without a doctor

	Ambulatory without doctor					
	Baseline			18-month		
	N	%	SE	N	%	SE
Pediatric balance or scale/salter scale <sup>1</sup>	5	40	21.9	9	77.8	13.9
Standing balance or scale for children/salter scale <sup>1</sup>	5	40	21.9	9	100	
Height rod/stadiometer	5	40	21.9	9	100	
Stethoscope	5	60	21.9	9	100	
Oral/axillary thermometer	5	100		9	100	
Growth & development card/national vaccination card <sup>2</sup>	5	80	17.9	9	100	
All equipment observed and functional	5	20	17.9	9	77.8	13.9

<sup>1</sup>Salter scale not measured at baseline

<sup>2</sup>National vaccination card not measured at baseline

**Table 3.2.1b** Child health care equipment observed and functional in ambulatory facilities with a doctor

	Ambulatory with doctor					
	Baseline			18-month		
	N	%	SE	N	%	SE
Pediatric balance or scale/salter scale <sup>1</sup>	32	65.6	8.4	37	81.1	6.4
Standing balance or scale for children/salter scale <sup>1</sup>	32	53.1	8.8	37	100	
Height rod/stadiometer	32	71.9	7.9	37	100	
Stethoscope	32	71.9	7.9	37	100	
Oral/Axillary thermometer <sup>2</sup>	32	96.9	3.1	36	94.4	3.8
Growth & development card/national vaccination card <sup>3</sup>	32	100		37	97.3	2.7
All equipment observed and functional	32	31.3	8.2	36	75	7.2

<sup>1</sup>Salter scale not measured at baseline

<sup>2</sup>Data for thermometer missing for one facility at follow-up

<sup>3</sup>National vaccination card not measured at baseline

### 3.2.2 Child health care equipment in basic and complete facilities

Basic and complete facilities were not as well-equipped with equipment necessary for child care at the follow-up. This is largely due to a lack of pediatric tensiometers and pediatric stethoscopes. Tables 3.2.2a-3.2.2b detail the functional equipment observed at basic and complete facilities on the day of the survey.

**Table 3.2.2a** Child health care equipment observed and functional in basic facilities

	Basic					
	Baseline			18-month		
	N	%	SE	N	%	SE
Pediatric balance or scale/salter scale*	11	81.8	11.6	7	100	
Standing balance or scale for children/salter scale*	11	45.5	15.0	7	100	
Height rod/stadiometer	11	63.6	14.5	7	100	
Pediatric tensiometer	11	27.3	13.4	7	14.3	13.2
Pediatric stethoscope	11	27.3	13.4	7	28.6	17.1
All equipment observed and functional	11	27.3	13.4	7	0	

\*Salter scale not measured at baseline

**Table 3.2.2b** Child health care equipment observed and functional in complete facilities

	Complete					
	Baseline			18-month		
	N	%	SE	N	%	SE
Pediatric balance or scale/salter scale*	7	100		7	71.4	17.1
Standing balance or scale for children/salter scale*	7	71.4	17.1	7	85.7	13.2
Height rod/stadiometer	7	85.7	13.2	7	100	
Pediatric tensiometer	7	14.3	13.2	7	85.7	13.2
Pediatric stethoscope	7	57.1	18.7	7	71.4	17.1
All equipment observed and functional	7	14.3	13.2	7	57.1	18.7

\*Salter scale not measured at 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), ferrous sulfate drops, albendazole/mebendazole, and antibiotics in most facilities. Additionally, Ringer's lactate/Hartmann's solution/Saline solution were observed basic and complete facilities. As displayed in Tables 3.3.1a-3.3.1d, all facilities improved in drug availability on the day of the survey; however, facilities still have a large amount of stock-out in the previous three months of certain pharmacy inputs.

**Table 3.3.1a** Child health care observed drugs and supplements in ambulatory facilities without a doctor

Ambulatory without doctor						
Pharmacy inputs	Baseline			18-month		
	N	%	SE	N	%	SE
Packets/envelopes of oral rehydration salt/ oral rehydration serum <sup>1</sup>	4	75	21.7	9	100	
Ferrous sulfate drops <sup>2</sup>	4	50	25.0	9	66.7	15.7
Albendazole/mebendazole	4	75	21.7	9	100	
All drugs available on the day of the survey	4	50	25.0	9	66.7	15.7
Continuous availability of all inputs in the previous three months <sup>3</sup>	4	25	21.7	9	33.3	15.7

<sup>1</sup>Oral rehydration serum was not measured at baseline

<sup>2</sup>Ferrous sulfate was not measured for stock-out in the previous three months at the baseline

<sup>3</sup>Overall availability including availability of all inputs in the day of the survey and no stock-out in the previous three months of packets/envelopes of oral rehydration salt/oral rehydration serum + ferrous sulfate drops + albendazole/mebendazole

**Table 3.3.1b** Child health care observed drugs and supplements in ambulatory facilities with a doctor

Ambulatory with doctor						
Pharmacy inputs	Baseline			18-month		
	N	%	SE	N	%	SE
Packets/envelopes of oral rehydration salt/ oral rehydration serum <sup>1</sup>	31	87.1	6.0	37	100	
Ferrous sulfate drops <sup>2</sup>	31	58.1	8.9	37	91.9	4.5
Albendazole/mebendazole	31	87.1	6.0	37	100	
Ampicillin/erythromycin/benzathine penicillin	31	83.9	6.6	37	97.3	2.7
All drugs available on the day of the survey	31	41.9	8.9	37	89.2	5.1
Continuous availability of all inputs in the previous three months <sup>3</sup>	31	38.7	8.7	37	48.6	8.2

<sup>1</sup>Oral rehydration serum was not measured at baseline

<sup>2</sup>Ferrous sulfate was not measured for stock-out in the previous three months at the baseline

<sup>3</sup>Overall availability including availability of all inputs on the day of the survey and no-stockout in the previous three months of packets/envelopes of oral rehydration salt/oral rehydration serum + ferrous sulfate drops + albendazole/mebendazole

**Table 3.3.1c** Child health care observed drugs and supplements in basic facilities

Pharmacy inputs	Basic					
	Baseline			18-month		
	N	%	SE	N	%	SE
Packets/envelopes of oral rehydration salt/ oral rehydration serum <sup>1</sup>	11	63.6	14.5	7	100	
Ferrous sulfate drops <sup>2</sup>	11	72.7	13.4	7	100	
Albendazole/Mebendazole <sup>3</sup>	11	72.7	13.4	7	100	
Crystalline penicillin/ampicillin/amoxicillin <sup>4, 5</sup>	10	70	14.5	7	100	
Ringer's lactate/Hartmann's solution/Saline solution <sup>5</sup>	10	40	15.5	7	100	
All drugs available on the day of the survey	11	45.5	15.0	7	100	
Continuous availability of all inputs in the previous three months <sup>6</sup>	11	45.5	15.0	7	57.1	18.7

<sup>1</sup>Oral rehydration serum was not measured at baseline

<sup>2</sup>Micronutrients for children not used as an alternative to ferrous sulfate

<sup>3</sup>Albendazole & mebendazole were not measured for stock-out in the previous three months at the baseline

<sup>4</sup>Baseline measured crystalline penicillin/ampicillin IV 1 gr/amoxicillin

<sup>5</sup>Missing data from one basic facility at baseline

<sup>6</sup>Overall availability including availability of all inputs on the day of the survey and no-stockout in the previous three months of packets/envelopes of oral rehydration salt/oral rehydration serum + ferrous sulfate drops/multivitamins + albendazole/mebendazole

**Table 3.3.1d** Child health care observed drugs and supplements in complete facilities

Pharmacy inputs	Complete					
	Baseline			18-month		
	N	%	SE	N	%	SE
Packets/envelopes of oral rehydration salt/ oral rehydration serum <sup>1</sup>	6	33.3	19.2	7	100	
Ferrous sulfate drops <sup>2</sup>	6	33.3	19.2	7	100	
Albendazole/Mebendazole	6	33.3	19.2	7	100	
Crystalline penicillin/ampicillin/amoxicillin <sup>3</sup>	6	50	20.4	7	100	
Ringer's lactate/Hartmann's solution/Saline solution	6	16.7	15.2	7	100	
All drugs available on the day of the survey	6	16.7	15.2	7	100	
Continuous availability of all inputs in the previous three months <sup>4</sup>	6	16.7	15.2	7	71.4	17.1

<sup>1</sup>Oral rehydration serum was not measured at baseline

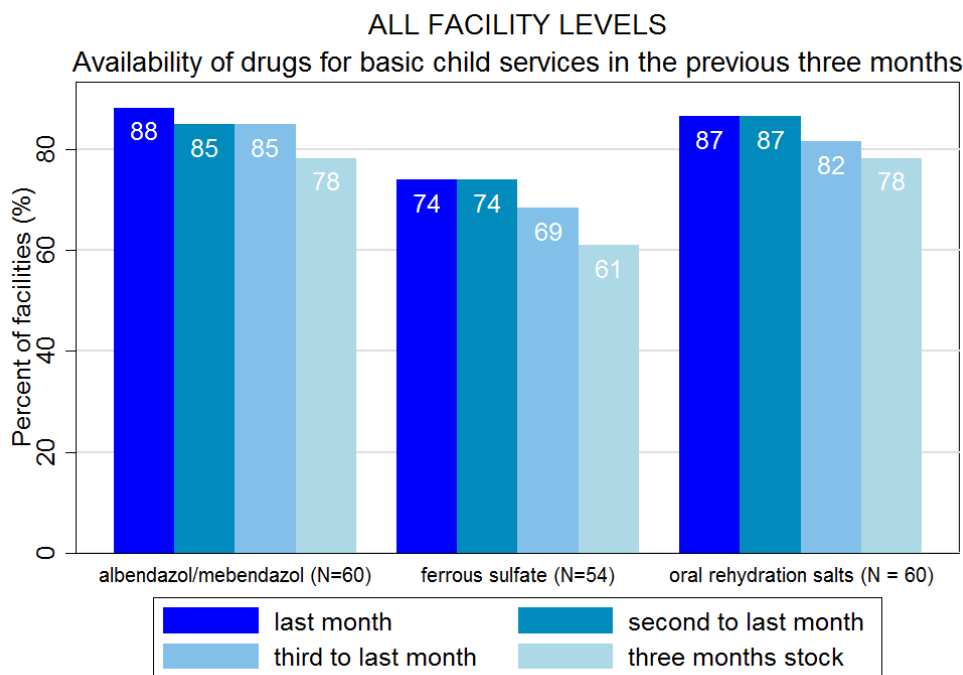
<sup>2</sup>Micronutrients for children not used as an alternative to ferrous sulfate; ferrous sulfate was not measured for stock-out in the previous three months at the baseline

<sup>3</sup>Baseline measured crystalline penicillin/ampicillin IV/amoxicillin

<sup>4</sup>Overall availability including availability of all inputs on the day of the survey and no-stockout in the previous three months of packets/envelopes of oral rehydration salt/oral rehydration serum + ferrous sulfate drops/multivitamins + albendazole/mebendazole

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 3.3.1e details the percentage of facilities that had a continuous supply of albendazole/mebendazole, ferrous sulfate, and oral rehydration salts/oral rehydration serum 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 3.3.1e** Availability of pharmacy inputs in the previous three months among facilities that had inputs on the day of the survey



### 3.4 Composite indicator for child care and nutrition

According to the indicator related to the continuous availability of supplies and equipment needed for child care, facilities that offer child services are evaluated for observed and functional equipment, continuous availability of pharmacy inputs, and continuous availability of vaccines (in facilities that store vaccines). Table 3.4.1 presents these broad components of the indicator. Equipment and pharmacy inputs for child care are further detailed in previous sections 3.2 and 3.3. Vaccines will be further detailed in chapter 4.

**Table 3.4.1** Continuous availability of supplies and equipment needed for child care

	Ambulatory			Basic			Complete		
	N	%	SE	N	%	SE	N	%	SE
All equipment observed on the day of the survey	45	75.6	6.4	7	0		7	57.1	18.7
All pharmacy inputs observed on the day of the survey	45	86.7	5.1	7	100		7	100	
Continuous availability of pharmacy inputs	45	46.7	7.4	7	57.1	18.7	7	71.4	17.1
Continuous availability of vaccines <sup>1</sup>	16	18.8	9.8	6	0		5	0	
Continuous availability of supplies and equipment needed for childcare, immunization and nutrition <sup>2</sup>	45	17.8	5.7	7	0		7	0	

<sup>1</sup>Only applicable if facility stores vaccines

<sup>2</sup>Refer to Appendix A for specific formulas used to calculate final indicator value

### 3.5 Education material

Table 3.5.1 lists educational material observed either as cards handed to the caretaker or as an illustration of disease management hung on the unit walls. Printed materials on danger signs and symptoms were more common than printed materials on child growth and development in ambulatory- and basic- level facilities.

**Table 3.5.1** Child health education and awareness

Education material	Ambulatory			Basic			Complete		
	N	%	SE	N	%	SE	N	%	SE
Printed materials on child growth and child development	46	43.5	7.3	7	42.9	18.7	7	57.1	18.7
Printed materials on danger signs and symptoms in children at risk	46	58.7	7.3	7	71.4	17.1	7	57.1	18.7

### 3.6 Diarrhea management

During the medical record reviews, interviewers systematically selected records of diagnosed cases of diarrhea in children (aged 0–59 months) that were correctly tested, classified, and treated at ambulatory-level facilities within the last two years. While 90.8% of cases had the child's general condition recorded, only 25% of cases had all symptoms recorded appropriately. Almost 93% of children received oral rehydration salts or IV rehydration therapy for their diarrhea.

**Table 3.6.1** Diarrhea management at ambulatory facilities

Diarrhea management	Ambulatory		
	N	%	SE
All symptoms recorded:	196	25	3.1
General condition	196	90.8	2.1
Eyes	196	71.4	3.2
Thirst	196	42.9	3.5
Skinfold	196	41.8	3.5
Vital signs recorded:	196	31.6	3.3
Pulse	196	95.4	1.5
Capillary refill time	196	31.6	3.3
Treatment administered			
ORS or IV rehydration therapy	196	92.9	1.8
Diarrhea managed according to the norms	196	6.1	1.7

## Chapter 4 VACCINES

### 4.1 Vaccination services

When asked about vaccination services, all ambulatory- and basic-level health facilities reported that they do vaccinate children; one complete-level facilities reported that they do not vaccinate children. Interviewers observed and recorded the setting of the room used for immunization. While 100% of basic-level facilities provided a private room with visual and auditory privacy, only 67.4% of ambulatory health facilities offer privacy during immunization (Table 4.1.1).

**Table 4.1.1** Vaccination services

	Ambulatory			Basic			Complete		
	N	%	SE	N	%	SE	N	%	SE
Unit vaccinates children under 5	46	100		7	100		7	85.7	13.2
Immunization room									
Private room with visual and auditory privacy	46	67.4	6.9	7	100		7	85.7	13.2
Non-private room without auditory or visual privacy	46	21.7	6.1	7	0		7	0	
Visual privacy only	46	2.2	2.2	7	0		7	0	
No privacy	46	8.7	4.2	7	0		7	0	
Don't provide such services	46	0		7	0		7	14.3	13.2

### 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, 41.3% of the units stored vaccines in-facility, while 52.2% picked-up vaccines from other facilities. In contrast, 85.7% of basic- and 83.3% of complete-level facilities reported storing vaccines in-facility. (Table 4.2.1).

**Table 4.2.1** Vaccine storage

	Ambulatory			Basic			Complete		
	N	%	SE	N	%	SE	N*	%	SE
Storage									
Stored in facility	46	41.3	7.3	7	85.7	13.2	6	83.3	15.2
Picked up from another facility	46	52.2	7.4	7	14.3	13.2	6	16.7	15.2
Delivered when services are being provided	46	6.5	3.6	7	0		6	0	
None of the above	46	0		7	0		6	0	

\* One complete-level facility reported not providing child vaccination services.



#### 4.2.2 Demand and supply

Facilities that store vaccines were asked logistical questions about the supply and demand of vaccines. All facilities reported self-determination in ordering vaccine supplies, and ordering the same quantity each time. 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 supply and demand

	Ambulatory			Basic			Complete		
	N	%	SE	N <sup>2</sup>	%	SE	N <sup>1,2</sup>	%	SE
<b>Ordering Strategy</b>									
Determines own needs	19	100		6	100		5	100	
Need determined elsewhere	19	0		6	0		5	0	
Both(differ by vaccine)	19	0		6	0		5	0	
<b>Quantity to order strategy</b>									
Order same amount	19	100		6	100		5	100	
Different per vaccine	19	0		6	0		5	0	
<b>Time to order strategy</b>									
Fixed time, > once/week	19	15.8	8.4	6	50	20.4	5	40	21.9
Fixed time, < once/week	19	73.7	10.1	6	33.3	19.3	5	60	21.9
Order when needed	19	10.5	7.0	6	16.7	15.2	5	0	
<b>Time to receive supplies</b>									
< 1 week	19	94.7	5.12	5	80	17.9	5	80	17.9
1-2 weeks	19	5.3	5.12	5	20	17.9	5	20	17.9
> 2 weeks	19	0		5	0		5	0	
Don't know/didn't respond				1					
<b>Reception of quantity ordered</b>									
Always	19	42.1	11.3	6	16.7	15.2	5	40	21.9
Almost always	19	47.4	11.4	6	66.7	19.3	5	60	21.9
Almost never	19	10.5	7.0	6	16.7	15.2	5	0	

<sup>1</sup> One facility reported not offering child vaccination services.

<sup>2</sup> One facility reported not routinely storing vaccines in-facility.

#### 4.3 Vaccines observed

Tables 4.3.1a-c 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). While availability had increased for some vaccines at the 18-month evaluation it reduced for others. In total, at the 18-month evaluation, only 28.6% of facilities had all required vaccines available on the day of the survey.

**Table 4.3.1a** Vaccine stocks observed in ambulatory facilities

Vaccine type	Ambulatory					
	Baseline			18-month		
	N	%	SE	N	%	SE
Pentavalent <sup>1</sup>	15	66.7	12.2	17	58.8	11.9
MMR <sup>2</sup>	15	73.3	11.4	17	82.4	9.2
Rotavirus	15	66.7	12.2	17	76.5	10.3
Pneumococcal conjugate	15	20	10.3	17	58.8	11.9
BCG	15	60	12.6	17	52.9	12.1
All vaccines observed on the day of the survey	15	20	10.3	17	41.2	11.9
Continuous availability of all vaccines in the previous three months <sup>3</sup>	n/a	n/a	n/a	17	23.5	10.3

<sup>1</sup>Pentavalent = DPT + HepB + Hib. Due to a survey programming error, Hib was not measured.

<sup>2</sup>MMR = Measles + Mumps + Rubella

<sup>3</sup>Overall vaccine availability including availability on the day of the survey and no stock-out in the previous three months of MMR + BCG

**Table 4.3.1b** Vaccine stocks observed in basic facilities

Vaccine type	Basic					
	Baseline			18-month		
	N	%	SE	N	%	SE
Pentavalent <sup>1</sup>	8	100		6	50	20.4
MMR <sup>2</sup>	8	100		6	100	
Rotavirus	8	87.5	11.7	6	100	
Pneumococcal conjugate	8	50	17.7	6	0	
BCG	8	100		6	33.3	19.2
All vaccines observed on the day of the survey	8	37.5	17.1	6	0	
Continuous availability of all vaccines in the previous three months <sup>3</sup>	n/a	n/a	n/a	6	0	

<sup>1</sup>Pentavalent = DPT + HepB + Hib. Due to a survey programming error, Hib was not measured.

<sup>2</sup>MMR = Measles + Mumps + Rubella

<sup>3</sup>Overall vaccine availability including availability on the day of the survey and no stock-out in the previous three months of MMR + BCG

**Table 4.3.1c** Vaccine stocks observed in complete facilities

Vaccine type	Complete					
	Baseline			18-month		
	N	%	SE	N	%	SE
Pentavalent <sup>1</sup>	5	60	21.9	5	60	21.9
MMR <sup>2</sup>	5	80	17.9	5	80	17.9
Rotavirus	5	80	17.9	5	60	21.9
Pneumococcal conjugate	5	60	21.9	5	40	21.9
BCG	5	40	21.9	5	60	21.9
All vaccines observed on the day of the survey	5	40	21.9	5	20	17.9
Continuous availability of all vaccines in the previous three months <sup>3</sup>	n/a	n/a	n/a	5	20	17.9

<sup>1</sup>Pentavalent = DPT + HepB + Hib. Due to a survey programming error, Hib was not measured.

<sup>2</sup>MMR = Measles + Mumps + Rubella

<sup>3</sup>Overall vaccine availability including availability on the day of the survey and no stock-out in the previous three months of MMR + BCG

#### 4.4 Cold chain

Facilities responded to questions related to cold chain if they reported storing vaccines, collecting vaccines from other health units, or having vaccines delivered to the unit to be immediately applied. 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. Electric fridges were most common at all facility levels. In addition to fridges, 76.7% of ambulatory, 85.7% of basic, and 83.3% of complete facilities have at least one cold box.

**Table 4.4.1** Cold chain input availability

	Ambulatory			Basic			Complete		
	N	%	SE	N	%	SE	N	%	SE
Storage									
Electric fridge	30	60	8.9	7	85.7	13.2	6	83.3	15.2
Kerosene fridge	30	0		7	0		6	0	
Gas fridge	30	0		7	0		6	0	
Solar fridge	30	3.3	3.3	7	0		6	0	
Any of the above	30	63.3	8.8	7	85.7	13.2	6	83.3	15.2

#### 4.5 Composite cold chain indicator

In the health facility observation checklist, surveyors observed the vaccine storage area in all facilities that provide those services. The cold chain was managed according to standards at only 70.8% of facilities at the baseline as compared to 77.8% at the follow-up.

**Table 4.4.1b** Cold chain in ambulatory facilities

	Ambulatory					
	Baseline			18-Month		
	N	%	SE	N	%	SE
Temperature was 2-8 C on the day of the survey	13	53.8	13.8	16	87.5	8.3
Temperature monitoring chart for each functioning fridge	13	53.8	13.8	16	100	
Temperature was recorded twice daily during the last 30 days for each fridge	13	53.8	13.8	16	87.5	8.3
Temperature range was 2-8 C for each fridge in the last 30 days + if temperature wasn't 2-8 C there's a record of actions	13	53.8	13.8	16	100	
Cold chain according to standards (meets above criteria)	13	53.8	13.8	16	75	10.8

**Table 4.4.1c** Cold chain in basic facilities

	Basic					
	Baseline			18-Month		
	N	%	SE	N	%	SE
Temperature was 2-8 C on the day of the survey	7	85.7	13.2	6	100	
Temperature monitoring chart for each functioning fridge	7	85.7	13.2	6	100	
Temperature was recorded twice daily during the last 30 days for each fridge	7	85.7	13.2	6	83.3	15.2
Temperature range was 2-8 C for each fridge in the last 30 days + if temperature wasn't 2-8 C there's a record of actions	7	85.7	13.2	6	100	
Cold chain according to standards (meets above criteria)	7	85.7	13.2	6	83.3	15.2

**Table 4.4.1c** Cold chain in complete facilities

	Complete					
	Baseline			18-Month		
	N	%	SE	N	%	SE
Temperature was 2-8 C on the day of the survey	4	100		5	100	
Temperature monitoring chart for each functioning fridge	4	100		5	100	
Temperature was recorded twice daily during the last 30 days for each fridge	4	100		5	80	17.9
Temperature range was 2-8 C for each fridge in the last 30 days + if temperature wasn't 2-8 C there's a record of actions	4	100		5	100	
Cold chain according to standards (meets above criteria)	4	100		5	80	17.9

## 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 responded to questions about service provision and logistics of ordering and receiving supplies for family planning. In the observation component of the survey, interviewers observe the stock of certain family planning methods in the previous 3 months.

Almost all health facilities reported providing family planning services in-facility, with the exception of one complete-level facility. Almost all facilities store contraceptives, with the exception of one ambulatory facility (Tables 5.1.1 - 5.1.2). Interviewers recorded the setting of the room used for family planning services, finding that the majority of facilities offered 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	46	100		7	100		7	85.7	13.2
FP room									
Private room with visual and auditory privacy	46	87	5.0	7	100		7	85.7	13.2
Non-private room without auditory nor visual privacy	46	4.3	3.0	7	0		7	0	
Visual privacy only	46	2.2	2.2	7	0		7	0	
No privacy	46	6.5	3.6	7	0		7	0	
Other	46	0		7	0		7	0	
Do not provide these services	46	0		7	0		7	14.3	13.2

**Table 5.1.2** Family planning (FP) storage

	Ambulatory			Basic			Complete		
	N	%	SE	N	%	SE	N	%	SE
FP Storage									
Yes, stores contraceptives	46	97.8	2.2	7	100		6	100	
No, delivered when services are being provided	46	2.2	2.2	7	0		6	0	
None provided	46	0		7	0		6	0	
Don't know/decline to respond							1		

### 5.2 Observed contraception methods and reported family planning services

Tables 5.2.1a and 5.2.1b list the percent of facilities in which the surveyor observed at least one unit of a specific contraception method at the time of the survey. Most popular are male condoms, pills, and injectables. The table also shows reported availability of pregnancy tests: two thirds of all ambulatory

units without a doctor offer pregnancy tests, while only 56.7% of ambulatory units with a doctor offer these.

**Table 5.2.1a** Observed contraception methods and reported services in ambulatory facilities

	Ambulatory without doctor			Ambulatory with doctor		
	N	%	SE	N	%	SE
<b>Observed FP methods</b>						
Any pill	9	88.9	10.5	37	83.8	6.1
Combined oral pill	9	88.9	10.5	37	81.1	6.4
Progestin only pill	9	33.3	15.7	37	16.2	6.1
Any injectable	9	100		37	100	
Combined injectable (1 month)	9	77.8	13.9	37	100	
Progestin only injectable (2 or 3 months)	9	66.7	15.7	37	97.3	2.7
Male condom	9	100		37	100	
Female condom	9	77.8	13.9	37	78.4	6.8
IUD <sup>1</sup>	9	88.9	10.5	37	97.3	2.7
Spermicide	9	11.1	10.5	37	2.7	2.7
Diaphragm	9	11.1	10.5	37	2.7	2.7
Emergency contraception pill	9	77.8	13.9	37	78.4	6.8
Implant	9	77.8	13.9	37	94.6	3.7
<b>Reported Services</b>						
Offers pregnancy tests	9	66.7	15.7	37	56.8	8.1
Trained doctor to perform IUD insertion <sup>2</sup>	9	66.7	15.7	36	83.3	6.2

<sup>1</sup>Intrauterine device

<sup>2</sup>Missing data for one ambulatory facility with doctor

**Table 5.2.1b** Observed contraception methods and reported services in basic and complete facilities

	Basic			Complete		
	N	%	SE	N <sup>1</sup>	%	SE
Observed FP methods						
Any pill	7	100		6	100	
Combined oral pill	7	100		6	100	
Progestin only pill	7	14.3	13.2	6	16.7	15.2
Any injectable	7	100		6	100	
Combined injectable (1 month)	7	100		6	83.3	15.2
Progestin only injectable (2 or 3 months)	7	100		6	100	
Male condom	7	100		6	100	
Female condom	7	71.4	17.1	6	66.7	19.2
IUD <sup>2</sup>	7	100		6	100	
IUD insertion kit <sup>2</sup>	7	71.4	17.1	6	100	
Spermicide	7	14.3	13.2	6	0	
Diaphragm	7	28.6	17.1	6	0	
Emergency contraception pill	7	85.7	13.2	6	100	
Implant	7	85.7	13.2	6	100	
Reported services						
Offers pregnancy test	7	100		6	100	
Trained doctor to perform tubal ligation	7	14.3	13.2	6	66.7	19.2
Trained doctor to perform vasectomy	7	28.6	17.1	6	66.7	19.2

<sup>1</sup>One complete facility reported they do not provide family planning services

<sup>2</sup>Intrauterine device

### 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 5.3.1a – 5.3.1c.

Although 84.8% of ambulatory facilities evaluated at the 18-month evaluation had all methods in stock on the day of the survey, only 67.4% had a continuous supply of these family planning methods in the three months prior to the survey. Basic facilities also had a large amount of stock-out in the previous three months; 71.4% of basic facilities had all inputs on the day of the survey but only 57.1% of facilities had continuous availability of inputs in the previous three months. Complete facilities were well stocked with family planning methods but only 66.7% had the appropriate personnel to perform tubal ligation or a vasectomy.



**Table 5.3.1a** Composite family planning indicator in ambulatory facilities

	Ambulatory					
	Baseline			18-month		
	N	%	SE	N	%	SE
Male condom	35	97.1	2.8	46	100	
Any pill	35	91.4	4.7	46	84.8	5.3
Any injectable	35	94.3	3.9	46	100	
All inputs observed on the day of the survey	35	82.9	6.4	46	84.8	5.3
Continuous availability of all methods in the previous three months*	35	65.7	8	46	67.4	6.9

\*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 5.3.1b** Composite family planning indicator in basic facilities

	Basic					
	Baseline			18-month		
	N	%	SE	N	%	SE
Male condom	9	77.8	13.9	7	100	
Any pill	9	77.8	13.9	7	100	
Any injectable	9	77.8	13.9	7	100	
IUD <sup>1</sup>	9	55.6	16.6	7	100	
IUD insertion kit	9	77.8	13.9	7	71.4	17.1
All inputs observed on the day of the survey	9	33.3	16.7	7	71.4	17.1
Continuous availability of all methods in the previous three months <sup>2</sup>	9	33.3	16.7	7	57.1	18.7

<sup>1</sup>IUD not measured for stock-out in the previous three months at the baseline

<sup>2</sup>Overall family planning availability including availability of all inputs on the day of the survey and no stock-out in the previous three months of male condom + any pill + any injectable + IUD

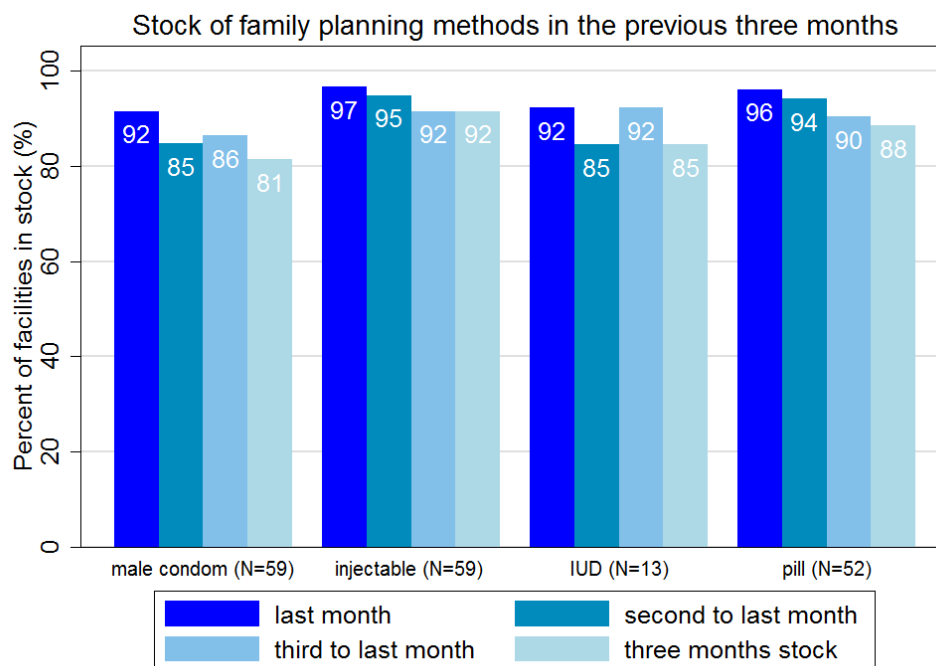
**Table 5.3.1c** Composite family planning indicator in complete facilities

	Complete					
	Baseline			18-month		
	N	%	SE	N	%	SE
Trained doctor to perform tubal ligation	5	80	17.9	6	66.7	19.2
Trained doctor to perform vasectomy	5	40	21.9	6	66.7	19.2
All inputs observed on the day of the survey:	5	60	21.9	6	100	
Male condom	5	100		6	100	
Any pill	5	100		6	100	
Any injectable	5	80	17.9	6	100	
IUD <sup>1</sup>	5	100		6	100	
IUD insertion kit	5	60	21.9	6	100	
Continuous availability of all methods in the previous three months <sup>2</sup>	5	20	17.9	6	66.7	19.2

<sup>1</sup>IUD not measured for stock-out in the previous three months at the baseline

<sup>2</sup>Overall family planning availability including availability of all inputs on the day of the survey and no stock-out in the previous three months of male condom + any pill + any injectable + IUD

**Figure 5.3.1b** Stock of family planning methods in the previous three months in all facilities that store family planning methods and stocks available on the day of the survey



## 5.4 Teaching and awareness

Table 5.4.1 illustrates the percent of facilities that promote family planning through counseling, teaching, and educational graphics in the local language posted in the facility. Posters were only sought out in facilities that administer contraceptive methods.

**Table 5.4.1** Teaching and awareness on family planning and STIs

	Ambulatory			Basic			Complete		
	N	%	SE	N	%	SE	N*	%	SE
Individual FP counseling	46	97.8	2.2	7	100		6	100	
Group FP counseling	46	95.7	3.0	7	100		6	100	
FP posters on walls of facility	46	73.9	6.5	7	85.7	13.2	6	83.3	15.2
STI/HIV posters on walls of facility	46	56.5	7.3	7	71.4	17.1	6	83.3	15.2

\* One health facility did not provide family planning services

## 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 antenatal care (ANC) services. Both ambulatory facilities without and with a doctor overwhelmingly reported providing a private room with auditory and visual privacy: 88.9% and 94.6%, respectively. Questions about delivery and postpartum care (PPC) were not asked at the ambulatory level (Table 6.1.1).

**Table 6.1.1** ANC service provision in ambulatory facilities

	Ambulatory without doctor			Ambulatory with doctor		
	N	%	SE	N	%	SE
Offers ANC services	9	100		37	100	
ANC room						
Private room with auditory and visual privacy	9	88.9	10.5	37	94.6	3.7
Non-private room without auditory nor visual privacy	9	0		37	0	
Visual privacy only	9	11.1	10.5	37	0	
No privacy	9	0		37	5.4	3.7

All basic level facilities reported offering ANC and PPC services. In total, 85.7% of complete facilities reported offering delivery and PPC while only 71.4% of complete facilities offer ANC services. The type of room used for each service is listed in Table 6.1.2.

**Table 6.1.2** ANC, delivery, and PPC service provision in basic and complete facilities

	Basic			Complete		
	N	%	SE	N	%	SE
Offers ANC services	7	100		7	71.4	17.1
Offers routine delivery services (non-urgent)	7	100		7	85.7	13.2
Offers PPC services	7	100		7	85.7	13.2
<b>ANC - PPC room</b>						
Private room with auditory and visual privacy	7	100		7	100	
Non-private room without auditory nor visual privacy	7	0		7	0	
Visual privacy only	7	0		7	0	
No privacy	7	0		7	0	
<b>Delivery room</b>						
Private room with auditory and visual privacy	7	100		7	100	
Non-private room with neither auditory nor visual privacy	7	0		7	0	
Visual privacy only	7	0		7	0	
No privacy	7	0		7	0	

## 6.2 ANC - PPC equipment

Tables 6.2.1a-6.3.1b 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-6.2.1b detail the availability of ANC-PPC equipment in ambulatory facilities. Ambulatory facilities without a doctor increased from only 20% having all necessary equipment at the baseline to 77.8% at the follow-up. Ambulatory facilities with a doctor also increased from only 12.1% having all necessary equipment at the baseline to 73% at the follow-up.

**Table 6.2.1a** Observed and functional ANC - PPC equipment in ambulatory facilities without a doctor

Ambulatory without doctor						
Equipment type	Baseline			18-Month		
	N	%	SE	N	%	SE
Standing scales	5	80	17.9	9	100	
Height rod/stadiometer	5	80	17.9	9	100	
Gynecological exam table	5	40	21.9	9	100	
CLAP obstetrical tape/measuring tape	5	20	17.9	9	100	
Gooseneck lamp/hand lamp	5	20	17.9	9	77.8	13.9
Blood pressure apparatus	5	80	17.9	9	100	
Stethoscope	5	80	17.9	9	100	
Perinatal maternal medical history	5	60	21.9	9	100	
Perinatal maternal card	5	80	17.9	9	100	
All equipment observed and functional	5	20	17.9	9	77.8	13.9

**Table 6.2.1b** Observed and functional ANC - PPC equipment in ambulatory facilities with a doctor

Ambulatory with doctor						
Equipment type	Baseline			18-Month		
	N	%	SE	N	%	SE
Standing scales	33	69.7	8.0	37	100	
Height rod/stadiometer	33	72.7	7.8	37	100	
Gynecological exam table*	28	89.3	5.8	29	100	
CLAP obstetrical tape/measuring tape	33	36.4	8.4	37	100	
Gooseneck lamp/hand lamp	33	72.7	7.8	37	97.3	2.7
Blood pressure apparatus	33	87.9	5.7	37	94.6	3.7
Stethoscope	33	87.9	5.7	37	100	
IUD insertion kit	33	57.6	8.6	37	83.8	6.1
Perinatal maternal medical history	33	93.9	4.2	37	91.9	4.5
Perinatal maternal card	33	93.9	4.2	37	91.9	4.5
All equipment observed and functional	33	12.1	5.7	37	73	7.3

\*Not measured at mobile units

### 6.2.2 ANC - PPC equipment in basic and complete facilities

Tables 6.2.2a-6.2.2b detail the availability of ANC-PPC equipment in basic and complete facilities. Basic facilities increased from only 9.1% having all necessary equipment at the baseline to 71.4% at the follow-up. Complete facilities also increased from only 16.7% having all necessary equipment at the baseline to 28.6% at the follow-up.

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

Basic						
Equipment type	Baseline			18-Month		
	N	%	SE	N	%	SE
Standing scales	11	72.7	13.4	7	85.7	13.2
Height rod/stadiometer	11	72.7	13.4	7	100	
Gynecological exam table	11	81.8	11.6	7	100	
CLAP obstetrical tape/measuring tape	11	18.2	11.6	7	100	
Gooseneck lamp/hand lamp	11	63.6	14.5	7	100	
Blood pressure apparatus	11	90.9	8.7	7	100	
Stethoscope	11	90.9	8.7	7	100	
IUD insertion kit	11	54.5	15	7	85.7	13.2
Perinatal maternal medical history	11	100		7	100	
Perinatal maternal card	11	100		7	100	
All equipment observed and functional	11	9.1	8.7	7	71.4	17.1

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

Complete						
Equipment type	Baseline			18-Month		
	N	%	SE	N	%	SE
Standing scales	6	66.7	19.2	7	100	
Height rod/stadiometer	6	66.7	19.2	7	100	
Gynecological exam table	6	83.3	15.2	7	100	
CLAP obstetrical tape/measuring tape	6	16.7	15.2	7	100	
Gooseneck lamp/hand lamp	6	83.3	15.2	7	100	
Blood pressure apparatus	6	66.7	19.2	7	85.7	13.2
Stethoscope	6	66.7	19.2	7	100	
IUD insertion kit	6	66.7	19.2	7	85.7	13.2
Perinatal maternal medical history	6	83.3	15.2	7	71.4	17.1
Perinatal maternal card	6	66.7	19.2	7	42.9	18.7
All equipment observed and functional	6	16.7	15.2	7	28.6	17.1

### 6.3 ANC - PPC laboratory inputs

#### 6.3.1 ANC - PPC laboratory inputs in basic and complete facilities

Tables 6.3.1a - 6.3.1b detail the percentage of health facilities with the necessary laboratory inputs for basic ANC and PPC. These inputs are only observed by the surveyors at basic and complete facilities that have a laboratory.

**Table 6.3.1a** Laboratory inputs in basic facilities

Laboratory inputs	Basic					
	Baseline			18-Month		
	N	%	SE	N	%	SE
Rapid syphilis test kit/dark field microscope/equipment for enzyme immunoassay	9	77.8	13.9	7	85.7	14.3
Rapid HIV/AIDS test/fluorescence microscope	9	88.9	10.5	7	100	
Urine protein strips/urinalysis equipment	9	100		7	85.7	14.3
Blood glucose strips/glucose meter	9	100		7	100	
HemoCue/automated cell counter	9	88.9	10.5	7	100	
Pregnancy test kit	9	100		7	100	
Lab reagents: blood type + RH factor antibody + HIV/AIDS antigen (if enzyme immunoassay equipment present)	9	100	9.5	7	71.4	18.4
Availability of all lab inputs	9	66.7	15.7	7	57.1	20.2

**Table 6.3.1b** Laboratory inputs in complete facilities

Laboratory inputs	Complete					
	Baseline			18-Month		
	N	%	SE	N	%	SE
Rapid syphilis test kit/dark field microscope/equipment for enzyme immunoassay <sup>1</sup>	6	33.3	19.2	7	85.7	14.3
Rapid HIV/AIDS test/fluorescence microscope <sup>2</sup>	6	0		7	100	
Urine strips/Urinalysis equipment <sup>3</sup>	6	33.3	19.2	7	100	
Blood glucose strips/glucose meter <sup>4</sup>	6	50	20.4	7	57.1	20.2
HemoCue/automated cell counter <sup>5</sup>	6	33.3	19.2	7	100	
Lab reagents: blood type + RH factor antibody + HIV/AIDS antigen (if enzyme immunoassay equipment present)	6	83.3	15.2	7	85.7	14.3
Availability of lab inputs	6	0		7	42.9	20.2

<sup>1</sup>Rapid syphilis test kit not measured at baseline

<sup>2</sup>Rapid HIV/AIDS test not measured at baseline

<sup>3</sup>Urine strips not measured at baseline

<sup>4</sup>Blood glucose strips not measured at baseline

<sup>5</sup>HemoCue not measured at baseline

#### 6.4 ANC - PPC medications

Health facilities were evaluated for necessary pharmacy inputs for basic child care. Surveyors observed the availability of certain inputs in the day of the survey and the registry of stock of these inputs in the previous three months to determine continuous availability.



### 6.4.1 ANC - PPC medications in ambulatory facilities

Ambulatory health units without a doctor were measured for continuous availability (no stock-outs in the last 3 months) of multivitamins or a combination of iron and folic acid. All ambulatory facilities without a doctor had continuous availability of (iron +folic acid)/multivitamins at the follow-up, as displayed in Table 6.4.1a.

**Table 6.4.1a** ANC - PPC pharmacy inputs in ambulatory facilities without a doctor

Pharmacy inputs	Ambulatory without doctor					
	Baseline			18-month		
	N	%	SE	N	%	SE
(Iron + Folic acid)/Multivitamin	4	75	21.7	9	100	
Continuous availability of all inputs in the previous three months*	4	75	21.7	9	100	

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

Ambulatory health units with a doctor were measured for availability of the following pharmacy inputs on the day of the survey: a combination of iron and folic acid or multivitamin + erythromycin/ampicillin/penicillin benzathine + tetanus vaccine/tetanus-diphtheria toxoid (if facility stores vaccines) + Ayre's spatula/swabs + microscope slides + nitrofurantoin. Additionally, surveyors checked the stock in the previous three months of iron and folic acid or multivitamin, tetanus vaccines/tetanus-diphtheria toxoid (if the facility stores vaccines), and nitrofurantoin. Ambulatory facilities with a doctor demonstrated increased availability of all pharmacy inputs for ANC and PPC at the 18-month evaluation (Table 6.4.1b).

**Table 6.4.1b** ANC - PPC pharmacy inputs in ambulatory facilities with a doctor

Pharmacy inputs	Ambulatory with doctor					
	Baseline			18-month		
	N	%	SE	N	%	SE
(Iron + Folic acid)/multivitamin	32	81.3	6.9	37	97.3	2.7
Erythromycin/ampicillin/penicillin benzathine <sup>1</sup>	32	81.3	6.9	36	100	
Tetanus vaccine/tetanus-diphtheria toxoid <sup>2</sup>	15	40	12.6	27	81.5	7.5
Ayre's spatula/swabs	32	43.8	8.8	37	81.1	6.4
Microscope slides	32	65.6	8.4	37	89.2	5.1
Nitrofurantoin	32	75	7.7	37	97.3	2.7
All inputs observed on the day of the survey	32	9.4	5.2	36	66.7	7.9
Continuous availability of all inputs in the previous three months <sup>3</sup>	32	6.3	4.3	36	66.7	7.9

<sup>1</sup>Missing data from one ambulatory facility at the follow-up

<sup>2</sup>Only applicable if facility stores vaccines

<sup>3</sup>Overall pharmacy availability including availability of all inputs on the day of the survey and no stock-out in the previous three months of (iron + folic acid)/multivitamin + tetanus vaccine/tetanus-diphtheria toxoid (if facility stores vaccines) + nitrofurantoin

## 6.4.2 ANC - PPC medications in basic and complete facilities

Basic and complete facilities were measured for availability of the following pharmacy inputs on the day of the survey: a combination of iron and folic acid or multivitamin + cephalixin + tetanus vaccine/tetanus-diphtheria toxoid (if facility stores vaccines) + Ayre's spatula/swabs + microscope slides + nitrofurantoin. Additionally, surveyors checked the stock in the previous three months of iron and folic acid or multivitamin, tetanus vaccines/tetanus-diphtheria toxoid (if the facility stores vaccines), cephalixin, and nitrofurantoin.

Although over half of basic and complete facilities had all drugs observed on the day of the survey, fewer had continuous availability of these drugs in the previous three months. Only 28.6% of basic facilities and no complete facilities had full stocks of all drugs both on the day of the survey and in the three months prior to the survey. The percentage of facilities that had each of these components is detailed by facility level classification in Tables 6.4.2a-6.4.2b.

**Table 6.4.2a** ANC - PPC pharmacy inputs in basic facilities

Pharmacy inputs	Basic					
	Baseline			18-month		
	N	%	SE	N	%	SE
(Iron + Folic acid)/multivitamin	11	63.6	14.5	7	100	
Cephalixin <sup>1</sup>	10	30	14.5	7	100	
Tetanus vaccine/tetanus-diphtheria toxoid <sup>2</sup>	8	12.5	11.7	7	85.7	13.2
Ayre's spatula/swabs	11	0		7	71.4	17.1
Microscope slides	11	9.1	8.7	7	57.1	18.7
Nitrofurantoin <sup>3</sup>	11	45.5	15.0	7	100	
All inputs observed on the day of the survey	11	0		7	57.1	18.7
Continuous availability of all inputs in the previous three months <sup>4</sup>	11	0		7	28.6	17.1

<sup>1</sup>Missing data from one basic facility at the baseline

<sup>2</sup>Only applicable if facility stores vaccines

<sup>3</sup>Nitrofurantoin was not measured for stock-out in the previous three months at the baseline

<sup>4</sup>Overall pharmacy availability including availability of all inputs on the day of the survey and no stock-out in the previous three months of (iron + folic acid)/multivitamin + tetanus vaccine/tetanus-diphtheria toxoid (if facility stores vaccines) + nitrofurantoin + cephalixin

**Table 6.4.2b** ANC - PPC pharmacy inputs in complete facilities

Pharmacy inputs	Complete					
	Baseline			18-month		
	N	%	SE	N	%	SE
(Iron + Folic acid)/multivitamin	6	33.3	19.2	7	100	
Cephalexin	6	33.3	19.2	7	100	
Tetanus vaccine/tetanus-diphtheria toxoid <sup>1</sup>	5	20	17.9	6	66.7	19.2
Ayre palettes/swabs	6	0		7	71.4	17.1
Microscope slides	6	33.3	19.2	7	100	
Nitrofurantoin <sup>2</sup>	6	33.3	19.2	7	100	
All inputs observed on the day of the survey	6	0		7	57.1	18.7
Continuous availability of all inputs in the previous three months <sup>3</sup>	6	0		7	0	

<sup>1</sup>Only applicable if facility stores vaccines

<sup>2</sup>Nitrofurantoin was not measured for stock-out in the previous three months at the baseline

<sup>3</sup>Overall pharmacy availability including availability of all inputs on the day of the survey and no stock-out in the previous three months of (iron + folic acid)/multivitamin + tetanus vaccine/tetanus-diphtheria toxoid (if facility stores vaccines) + nitrofurantoin + cephalexin

## 6.5 ANC medical record review

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

### 6.5.1 Antenatal care according to the norm for births in the past two years

According to the country norm for early catchment at all facilities, women should have their first ANC visit with a doctor or nurse within the first trimester of pregnancy (12 weeks gestation). 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 6.5.1a displays the proportion of women who met these standards. While 94.4% of women at ambulatory and 100% of women at basic and complete facilities had their first ANC visit with a doctor or nurse, only 22%, 34.9%, and 25% 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.

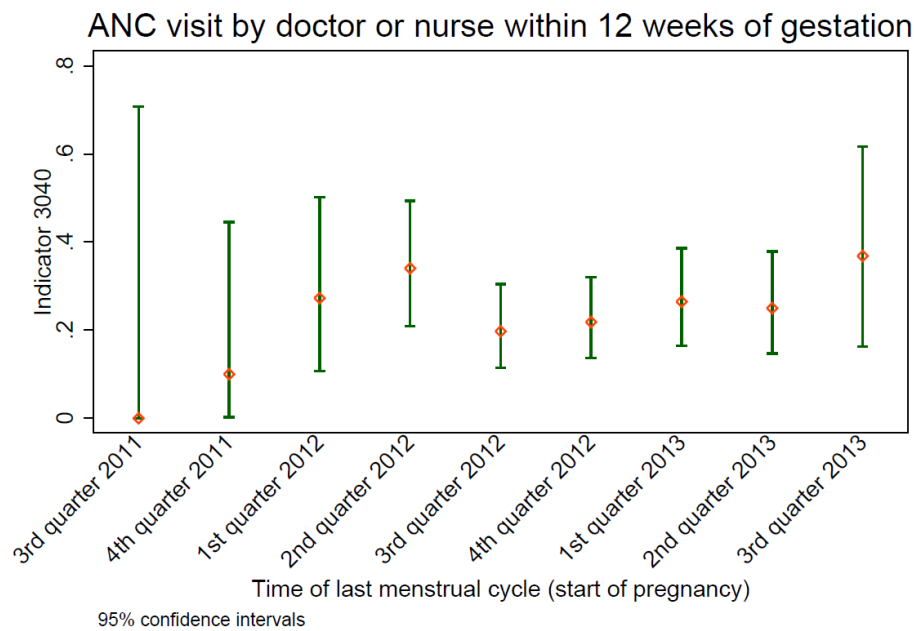
**Table 6.5.1a** First ANC visit at all facilities

	Ambulatory			Basic			Complete		
	N	%	SE	N	%	SE	N	%	SE
Indicator according to the norm (first visit with a doctor/nurse within 12 weeks of gestation) <sup>1</sup>	305	22.0	2.4	83	34.9	5.2	4	25	21.6
First ANC visit with a doctor/nurse <sup>2</sup>	305	94.4	1.3	83	100		4	100	
First ANC visit during first trimester of pregnancy (gestational age <= 12 weeks)	305	22.6	2.4	83	34.9	5.2	4	25	21.6
First ANC visit during second trimester of pregnancy (gestational age > 12 weeks & <= 26 weeks)	305	64.9	2.7	83	60.2	5.4	4	25	21.6
First ANC visit during third trimester of pregnancy (gestational age > 26 weeks)	305	12.5	1.9	83	4.8	2.3	4	50	25.0

<sup>1</sup>Using reported gestational age, 26.5% of ambulatory, 39.1% of basic & 25% of complete facilities met the indicator

<sup>2</sup>Doctor/nurse in social services was used as an alternative

**Figure 6.5.1b** First antenatal care visit with a doctor/nurse/doctor or nurse in social services before 12 weeks of gestation by quarter at all facilities



**Table 6.5.1c** First ANC visit with a doctor/nurse/doctor or nurse in social services before 12 weeks of gestation by quarter at all facilities

Quarter	ANC records		
	N	%	SE
3rd quarter 2011	3	0	
4th quarter 2011	10	10	9.5
1st quarter 2012	22	27.3	9.5
2nd quarter 2012	47	34.0	6.9
3rd quarter 2012	76	19.7	4.6
4th quarter 2012	87	21.8	4.4
1st quarter 2013	68	26.5	5.3
2nd quarter 2013	60	25	5.6
3rd quarter 2013	19	36.8	11.1

**Table 6.5.1d** First ANC visit with a doctor/nurse/doctor or nurse in social services before 12 weeks of gestation by quarter and facility type

Quarter	Ambulatory			Basic			Complete		
	N	%	SE	N	%	SE	N	%	SE
3rd quarter 2011	2	0		1	0		0		
4th quarter 2011	6	0		4	25	21.6	0		
1st quarter 2012	17	17.6	9.3	5	60	21.9	0		
2nd quarter 2012	31	25.8	7.9	15	53.3	12.9	1	0	
3rd quarter 2012	57	17.5	5.0	17	23.5	10.3	2	50	35.4
4th quarter 2012	71	21.1	4.8	15	26.7	11.4	1	0	
1st quarter 2013	55	25.5	5.9	13	30.8	12.8	0		
2nd quarter 2013	48	22.9	6.1	12	33.3	13.6	0		
3rd quarter 2013	18	33.3	11.1	1	100		0		

### 6.5.2 ANC according to the norms for births in the past two years with 5 visits at ambulatory and basic facilities and 1 visits at complete facilities

Records of antenatal care were reviewed in all applicable facilities. In order to demonstrate ANC according to the country norm, each facility level must have a different number of visits with a woman. Proper antenatal care is defined as the following:

Each woman at an ambulatory or basic facility should have at least five 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

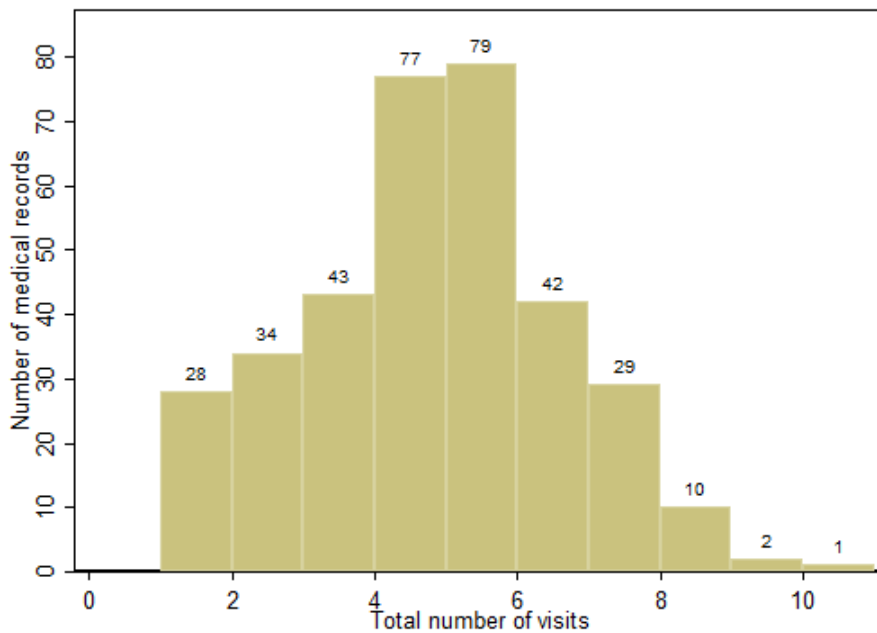
Each woman at a complete facility should have at least one visit with a doctor or nurse during her pregnancy with the appropriate physical and fetal checkups performed. These include:

- (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

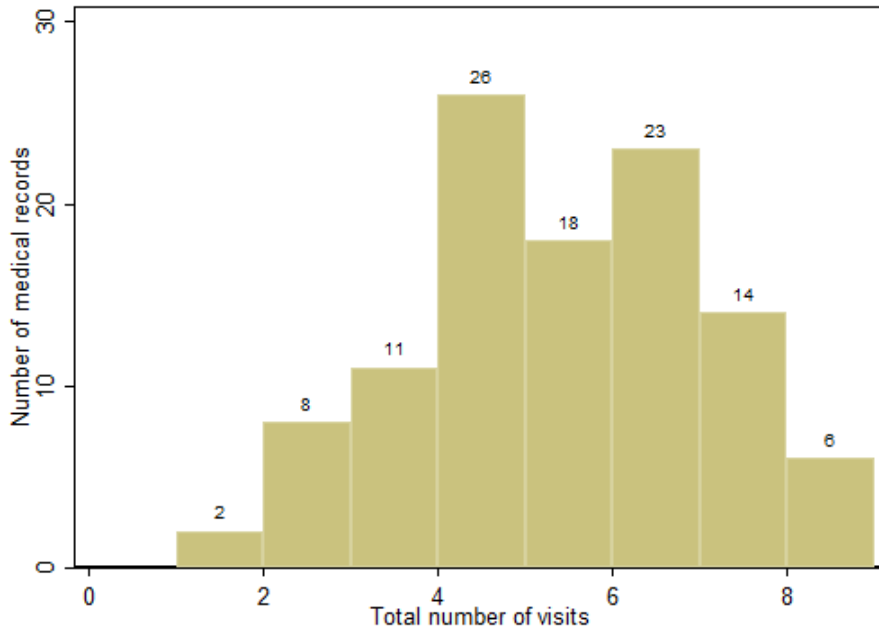
No matter what level facility, the woman must also have certain laboratory tests performed at least once throughout the pregnancy. These laboratory tests vary and are detailed in Tables 6.5.2e and 6.5.2g.

Figures 6.5.2a – 6.5.2c display the total number of antenatal care visits attended at facilities for women who gave birth in the past two years, excluding physical/fetal checkups and laboratory tests. Figures 6.3.2h - 6.3.2j display the total number of antenatal care visits at ambulatory and basic facilities where the proper physical/fetal checkups were performed at each visit.

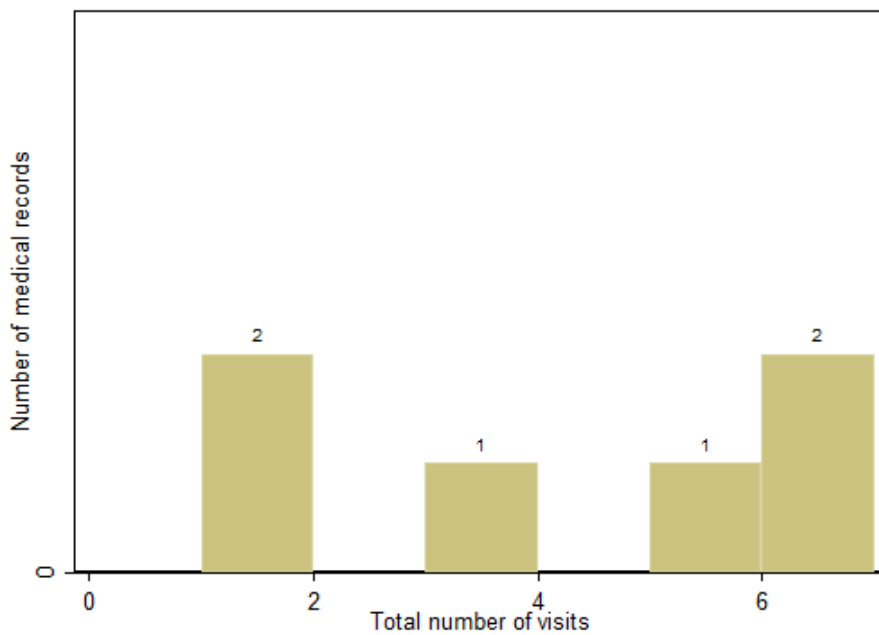
**Figure 6.5.2a** Total number of antenatal care visits of women at ambulatory facilities



**Figure 6.5.2b** Total number of antenatal care visits of women at basic facilities



**Figure 6.5.2c** Total number of antenatal care visits of women at complete facilities



The majority of women did not have a minimum of five antenatal care visits as displayed in Table 6.5.2d below; of the women who had at least five visits, few records indicated that the woman was also given the proper physical and fetal checkups, leaving only 11.8% of woman at ambulatory and 22.6% of

women at basic facilities treated appropriately. Table 6.3.2e displays how many women were given each laboratory test at least once during her pregnancy at ambulatory and basic facilities.

**Table 6.5.2d** Women of a reproductive age who received at least five ANC visits according to best practices

ANC visit	Ambulatory			Basic		
	N	%	SE	N	%	SE
At least 5 ANC visits	331	45	2.7	106	55.7	4.8
At least 5 ANC visits with a doctor/nurse/community worker <sup>1</sup>	331	44.4	2.7	106	55.7	4.8
At least 5 ANC visits with physical checkups <sup>2</sup>	331	40.8	2.7	106	53.8	4.8
At least 5 ANC visits with fetal checkups <sup>3</sup>	331	36.9	2.7	106	44.3	4.8
Lab tests performed at least once <sup>4</sup>	331	21.8	2.3	106	49.1	4.9
Women of reproductive age (15-49 years) who received at least 5 ANC visits by a qualified personnel according to the best practices in the last two years	331	11.8	1.8	106	22.6	4.1

<sup>1</sup>Doctor/nurse in social services was used as an alternative

<sup>2</sup>Physical checkups include weight + blood pressure + fundal height

<sup>3</sup>Fetal checkups = fetal heart rate + fetal movement only if the gestational age is >20 and <=42 weeks at the time of the visit

<sup>4</sup>Lab tests = blood glucose level + hb level + hiv test+ urinalysis

**Table 6.5.2e** Laboratory tests performed at least once in ambulatory and basic facilities during an ANC visit

Lab tests	Ambulatory			Basic		
	N	%	SE	N	%	SE
Blood glucose level	331	28.4	2.5	106	67.9	4.5
Hb level	331	29.9	2.5	106	68.9	4.5
HIV test	331	26.6	2.4	106	75.5	4.2
Urinalysis (general)	331	27.8	2.5	106	67.9	4.5
All lab tests performed	331	21.8	2.3	106	49.1	4.9

All women at complete facilities had at least one ANC visit with a doctor/nurse, however, no women were given all laboratory tests.



**Table 6.5.2f** Women of a reproductive age who received at least one ANC visit according to best practices

ANC visit	Complete		
	N	%	SE
At least 1 ANC visit	4	100	
At least 1 ANC visit with a doctor/nurse <sup>1</sup>	4	100	
At least 1 ANC visit with physical checkups <sup>2</sup>	4	75	21.6
At least 1 ANC visit with fetal checkups <sup>3</sup>	4	50	25.0
Lab tests performed at least once <sup>4</sup>	4	0	
Women of reproductive age (15-49 years) who received at least 1 ANC visits by a qualified personnel according to the best practices in the last two years	4	0	

<sup>1</sup>Doctor/nurse in social services was used as an alternative

<sup>2</sup>Physical checkups include weight + blood pressure + fundal height

<sup>3</sup>Fetal checkups = fetal heart rate + fetal movement only if the gestational age is >20 and <=42 weeks at the time of the visit

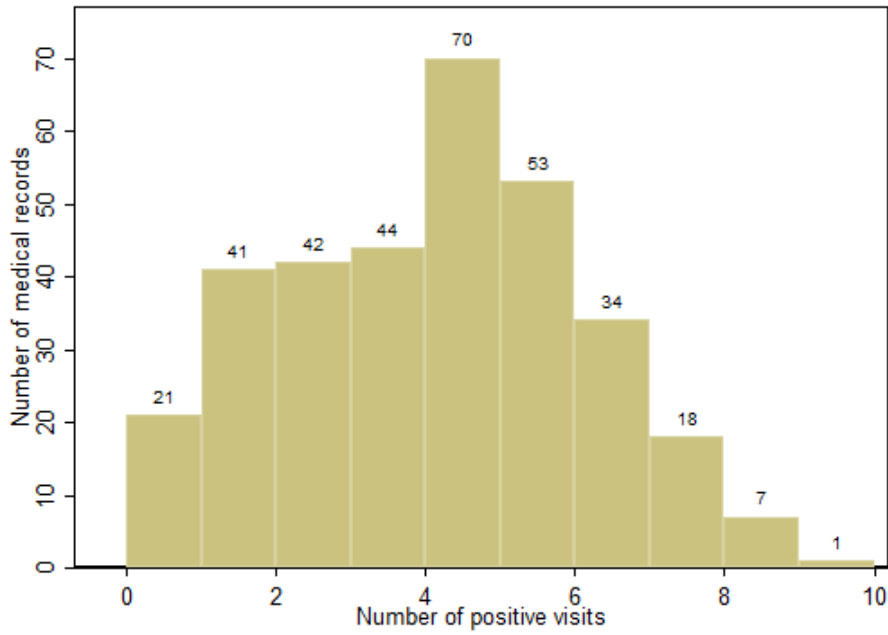
<sup>4</sup>Lab tests = blood type + blood glucose level + hb level + hiv test+ platelet count + rh test + uric acid in blood + uric acid in urine + urinalysis + VDRL test

**Table 6.5.2g** Laboratory tests performed at least once in complete facilities during an ANC visit

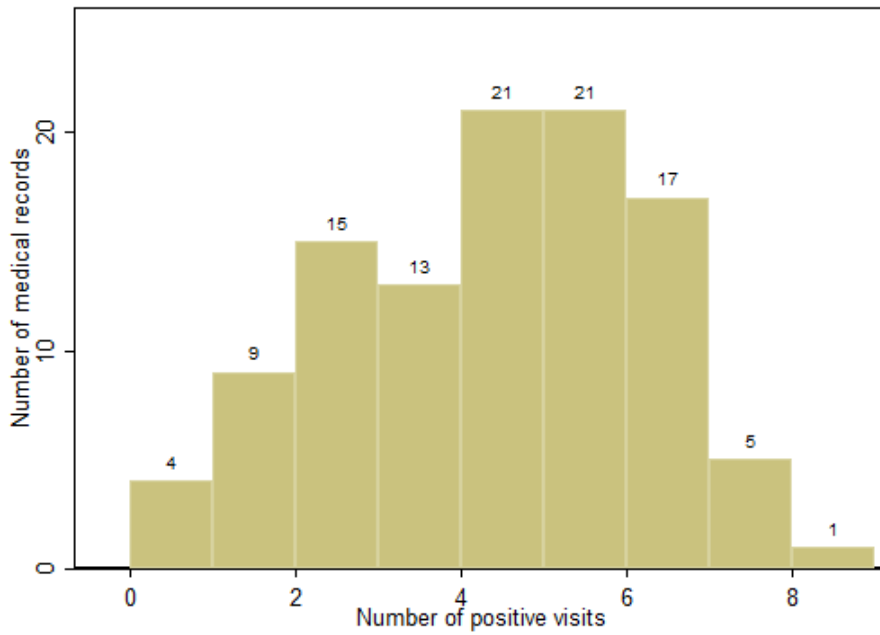
Lab tests	Complete		
	N	%	SE
Blood type	4	25	21.6
Blood glucose level	4	25	21.6
Hb level	4	0	
HIV test	4	0	
Platelet count	4	25	21.6
Rh test	4	25	21.6
Uric acid in blood	4	25	21.6
Uric acid in urine	4	25	21.6
Urinalysis (general)	4	0	
VDRL test	4	0	
All lab tests performed	4	0	

Figures 6.5.2h – 6.5.2j display the total number of ANC visits attended at facilities where all appropriate checkups were performed (excluding laboratory tests) for women who gave birth in the past two years.

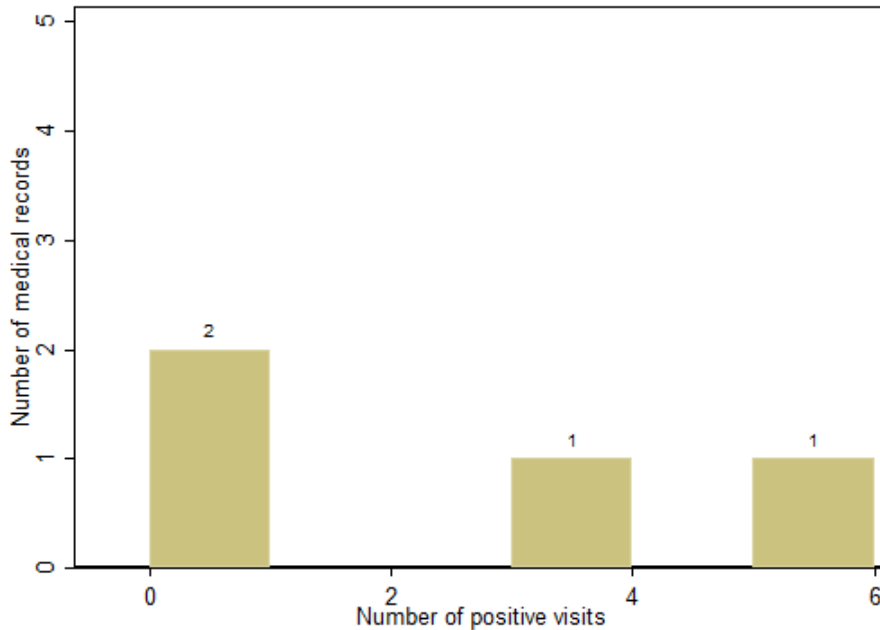
**Figure 6.5.2h** Number of visits according to the norm in ambulatory facilities (excluding laboratory tests)



**Figure 6.5.2i** Number of visits according to the norm in basic facilities (excluding laboratory tests)



**Figure 6.5.2j** Number of visits according to the norm in complete facilities (excluding laboratory tests)



### 6.5.3 ANC according to the norms for births in the past two years with 4 visits at all facilities

Records of antenatal care were reviewed in all applicable facilities. Another way to define proper ANC is for each woman to have at least four visits at a facility, regardless of the facility level. Proper antenatal care can also be defined as the following:

Each woman should have at least four visits with a doctor, nurse, or doctor/nurse in social services during her pregnancy with the appropriate physical and fetal checkups performed. These include:

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

No matter what level facility, the woman must also have certain laboratory tests performed at least once throughout the pregnancy. These laboratory tests are detailed in Tables 6.5.3b and 6.5.3c.

The majority of women at ambulatory- and basic-level facilities had at least 4 ANC visits with a doctor/nurse/doctor or nurse in social services, however, only 25% of women at complete-level facilities had the same. There was also a lack of laboratory tests performed at all levels as displayed in Table 6.5.3a.

**Table 6.5.3a** Women of a reproductive age who received at least four ANC visits according to best practices

ANC visit	Ambulatory			Basic			Complete		
	N	%	SE	N	%	SE	N	%	SE
At least 4 ANC visits	332	67.8	2.6	105	80	3.9	4	25	21.6
At least 4 ANC visits with a doctor/nurse <sup>1</sup>	332	65.7	2.6	105	80	3.9	4	25	21.6
At least 4 ANC visits with physical checkups <sup>2</sup>	332	47.9	2.7	105	54.3	4.9	4	25	21.6
At least 4 ANC visits with fetal checkups <sup>3</sup>	332	58.7	2.7	105	63.8	4.7	4	25	21.6
Lab tests performed at least once <sup>4</sup>	332	19	2.2	105	41.9	4.8	4	0	
Women of reproductive age (15-49 years) who received at least 4 ANC visits by a doctor/nurse/community worker according to the best practices in the last two years	332	13.9	1.9	105	23.8	4.2	4	0	

<sup>1</sup>Doctor/nurse in social services was used as an alternative

<sup>2</sup>Physical checkups include weight + blood pressure + fundal height + edema presence + reflexes. Reflexes were only able to be measured in some of the records.

<sup>3</sup>Fetal checkups = fetal heart rate + fetal movement only if the gestational age is >20 and <=42 weeks at the time of the visit

<sup>4</sup>Lab tests (ambulatory) = blood type + blood glucose level + Hb level + HIV test + platelet count + Rh test + uric acid in blood + uric acid in urine + urinalysis (general) + VDRL test; Lab tests (basic & complete) = blood type + blood glucose level + Hb level + Rh test + urinalysis (general) + VDRL test

**Table 6.5.3b** Laboratory tests performed at least once in ambulatory facilities during an ANC visit

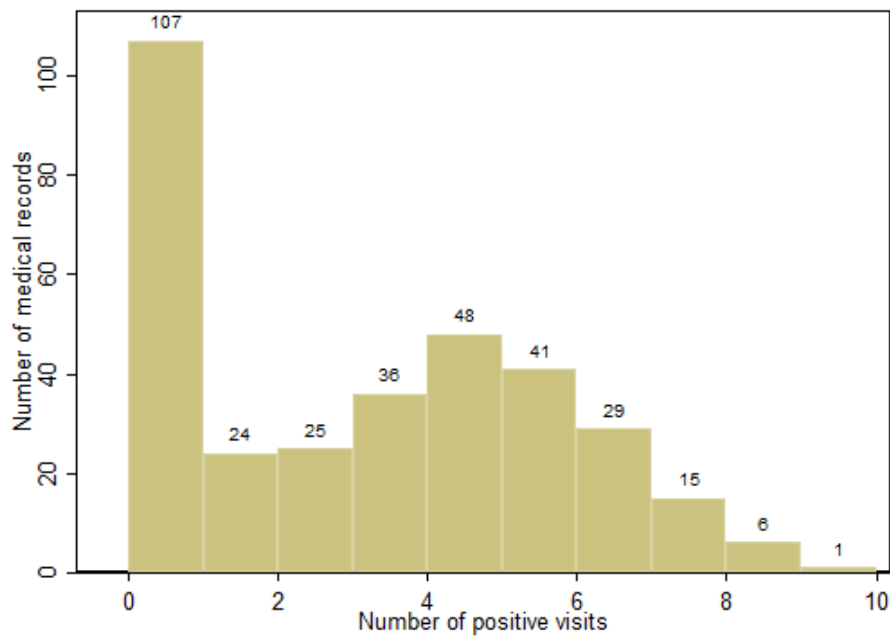
Lab tests	Ambulatory		
	N	%	SE
Blood type	332	26.5	2.4
Blood glucose level	332	28.3	2.5
Hb level	332	30.1	2.5
HIV test	332	26.5	2.4
Platelet count	332	28.3	2.5
Rh test	332	26.2	2.4
Uric acid in blood	332	24.1	2.3
Uric acid in urine	332	23.5	2.3
Urinalysis (general)	332	28	2.5
VDRL test	332	27.7	2.5
All lab tests performed	332	19	2.2

**Table 6.5.3c** Laboratory tests performed at least once in basic and complete facilities during an ANC visit

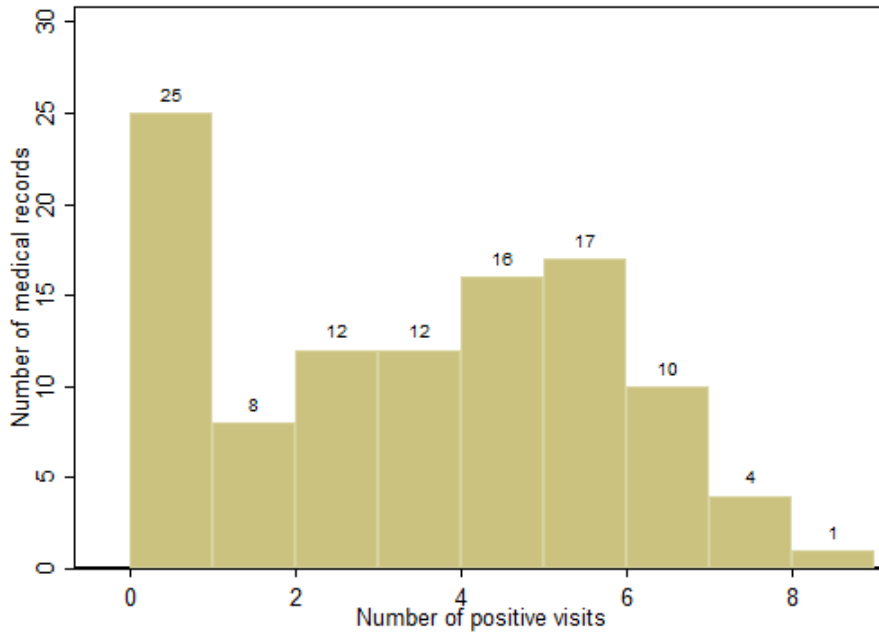
Lab tests	Basic			Complete		
	N	%	SE	N	%	SE
Blood type	105	65.7	4.6	4	25	21.65
Blood glucose level	105	68.6	4.5	4	25	21.65
Hb level	105	70.5	4.4	4	0	
Rh test	105	65.7	4.6	4	25	21.65
Urinalysis (general)	105	69.5	4.5	4	0	
VDRL test	105	69.5	4.5	4	0	
All lab tests performed	105	41.9	4.8	4	0	

Figures 6.5.3d – 6.5.3f display the total number of ANC visits attended at facilities where all appropriate checkups were performed (excluding laboratory tests) for women who gave birth in the past two years.

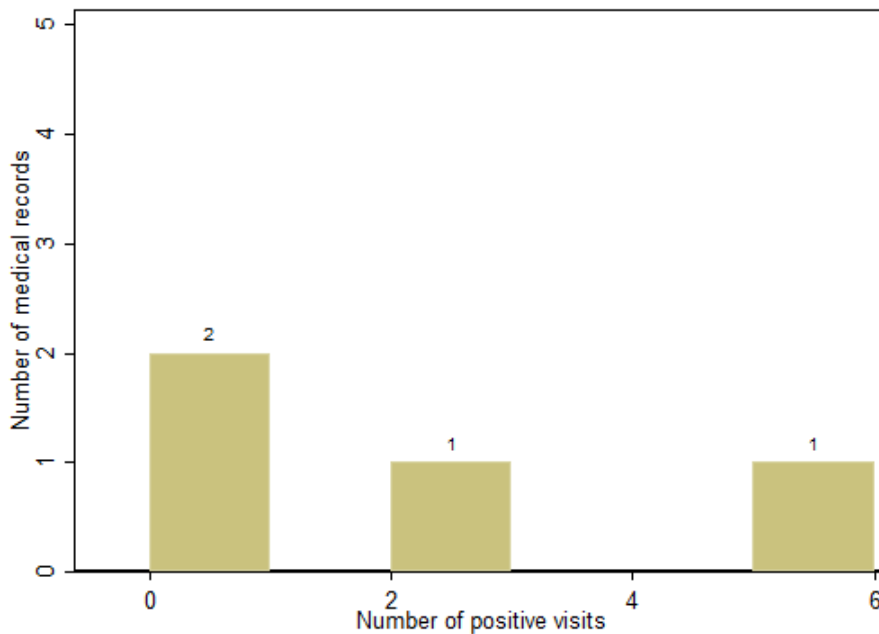
**Figure 6.5.3d** Number of visits according to the norm in ambulatory facilities (excluding laboratory tests)



**Figure 6.5.3e** Number of visits according to the norm in basic facilities (excluding laboratory tests)



**Figure 6.5.3f** Number of visits according to the norm in complete facilities (excluding laboratory tests)



## 6.6 Delivery care

In the observation component of the health facility survey, interviewers check for supplies and equipment necessary for delivery and newborn care.

### 6.6.1 Delivery care equipment

Basic and complete facilities are equipped for delivery care if they have at least one of each of the following pieces of equipment: intravenous catheter sterile N°18, metallic clamp/umbilical tape, equipment p/serum c/macro drip and microdrip, nasogastric tube, and sterile fields/sheltering for a baby. Tables 6.6.1a and 6.6.1b display the percentage of basic and complete facilities that possess at least one piece of functional equipment for this purpose.

**Table 6.6.1a** Equipment needed for delivery care in basic facilities

Equipment type	Basic					
	Baseline			18-Month		
	N	%	SE	N	%	SE
Intravenous catheter sterile N ° 18	11	90.9	8.7	7	100	
Metallic Clamp or umbilical tape	11	100		7	100	
Equipment p/serum c/macro drip and microdrip	11	90.9	8.7	7	100	
Nasogastric tube*	11	36.4	14.5	7	57.1	18.7
Sterile fields or sheltering for a baby	11	90.9	8.7	7	100	
All equipment observed and functional	11	36.4	14.5	7	57.1	18.7

\*Nasogastric tube K 33 measured at baseline; One facility had multiple nasogastric tubes observed, but all were still in the packaging and not available for use, so were considered non-functioning

**Table 6.6.1b** Equipment needed for delivery care in complete facilities

Equipment type	Complete					
	Baseline			18-Month		
	N	%	SE	N	%	SE
Intravenous catheter sterile N ° 18	6	83.3	15.2	7	100	
Metallic Clamp or umbilical tape	6	100		7	100	
Equipment p/serum c/macro drip and microdrip	6	100		7	85.7	13.2
Nasogastric tube*	6	50	20.4	7	100	
Sterile fields or sheltering for a baby	6	100		7	85.7	13.2
All equipment observed and functional	6	33.3	19.3	7	85.7	13.2

\*Nasogastric tube K 33 measured at baseline

### 6.6.2 Delivery care pharmacy inputs

Tables 6.6.2a and 6.6.2b display the percentage of basic and complete facilities that have the proper drugs used for delivery care. Both basic and complete facilities improved in their drug stock from baseline to follow-up on the day of the survey, however, facilities still have stock-out in the previous three months of certain drugs.

**Table 6.6.2a** Pharmacy inputs needed for delivery care in basic facilities

Pharmacy inputs	Basic					
	Baseline			18-Month		
	N	%	SE	N	%	SE
Bromomethane/butylbromide	10	60	15.5	7	100	
Ergonovine maleate/ergometrine/oxytocin	10	50	15.8	7	100	
Drops of chloramphenicol ophthalmic/silver nitrate/oxytetracycline ophthalmic <sup>1</sup>	10	50	15.8	7	100	
Povidone-iodine	10	20	12.6	7	100	
Ringer's lactate/Hartmann's solution/Saline solution	10	40	15.5	7	100	
Lidocaine	10	30	14.5	7	100	
C syringe/insulin syringe	10	40	15.5	7	85.7	13.2
Vitamin K	10	30	14.5	7	100	
All pharmacy inputs available on the day of the survey	10	10	9.5	7	85.7	13.2
Continuous availability of all inputs in the previous three months <sup>2</sup>	n/a	n/a	n/a	7	28.6	17.1

<sup>1</sup>Baseline value does not use oxytetracycline ophthalmic as an alternative

<sup>2</sup>Overall pharmacy availability including availability on the day of the survey and no stock-out in the previous three months of ergonovine maleate/ergometrine/oxytocin + vitamin K at follow-up

**Table 6.6.2b** Pharmacy inputs needed for delivery care in complete facilities

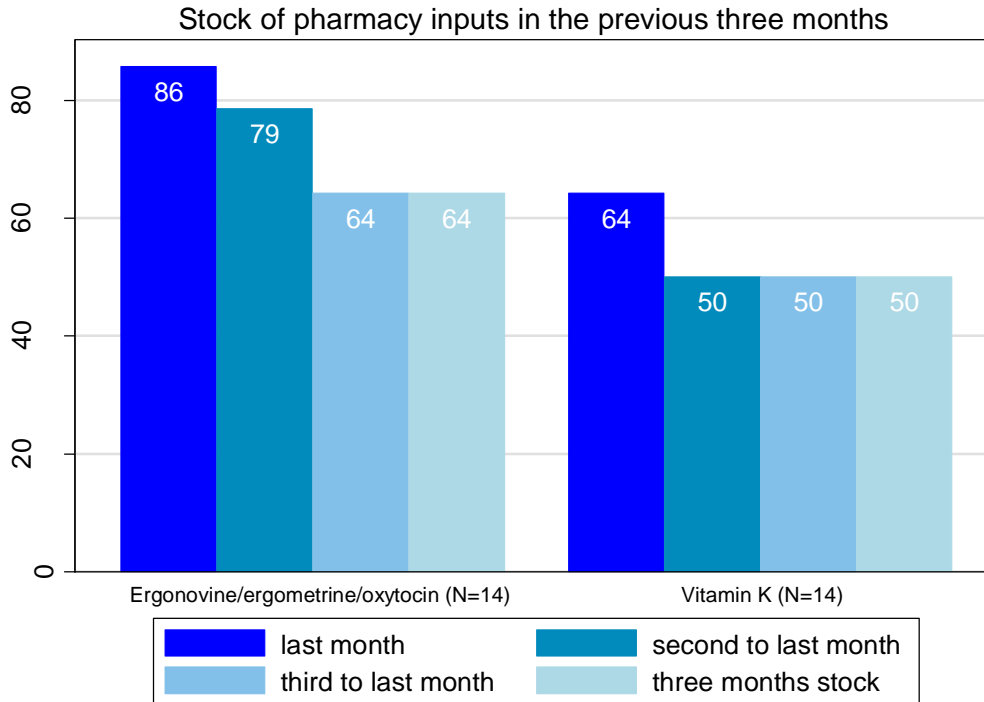
Pharmacy inputs	Complete					
	Baseline			18-Month		
	N	%	SE	N	%	SE
Bromomethane/butylbromide	5	40	21.9	7	71.4	17.1
Ergonovine maleate/ergometrine/oxytocin	5	40	21.9	7	100	
Drops of chloramphenicol ophthalmic/silver nitrate/oxytetracycline ophthalmic <sup>1</sup>	5	40	21.9	7	85.7	13.2
Povidone-iodine	5	20	17.9	7	85.7	13.2
Ringer's lactate/Hartmann's solution/Saline solution	5	20	17.9	7	100	
Lidocaine	5	60	21.9	7	100	
C syringe/insulin syringe	5	40	21.9	7	85.7	13.2
Vitamin K	5	60	21.9	7	100	
All pharmacy inputs available on the day of the survey	5	0		7	42.9	18.7
Continuous availability of all inputs in the previous three months <sup>2</sup>	n/a	n/a	n/a	7	28.6	17.1

<sup>1</sup>Baseline value does not include oxytetracycline ophthalmic as an alternative

<sup>2</sup>Overall pharmacy availability including availability on the day of the survey and no stock-out in the previous three months of ergonovine maleate/ergometrine/oxytocin + vitamin K at follow-up



**Figure 6.6.2c** Stock of pharmacy inputs for delivery and newborn care in basic and complete facilities



### 6.6.3 Prevalence of C-sections

In the health facility questionnaire module, the number of C-sections in the last two years is asked to the managers of basic and complete health facilities. This data was only collected from 13 health facilities. Of the 15,387 total deliveries performed by these facilities, 30.3% were carried out as C-sections.

## 6.6 Delivery medical record review

### 6.6.1 Oxytocin administration

During the review of delivery medical records in basic and complete facilities, interviewers reported the administration of oxytocin after deliveries in the last two years. Only 83.6% of records reported the administration of oxytocin or another uterotonic after delivery. Of these cases where oxytocin was administered after birth, 2.9% reported that the form of oxytocin delivery was intramuscular, 95.0% were intravenous, 0.4% were both intramuscular and intravenous, and 1.8% did not register the form of administration.

### 6.6.2 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 6.6.2a 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). In total, 68.1% of records at basic facilities and 52.7% of records at complete facilities 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. Since some women had a dilation > 4.5cm or fetal heart rate < 120 BPM and did not have proper documentation, the number of records that were kept according to standards was reduced to only 64.8% at basic facilities and 31.4% at complete facilities.

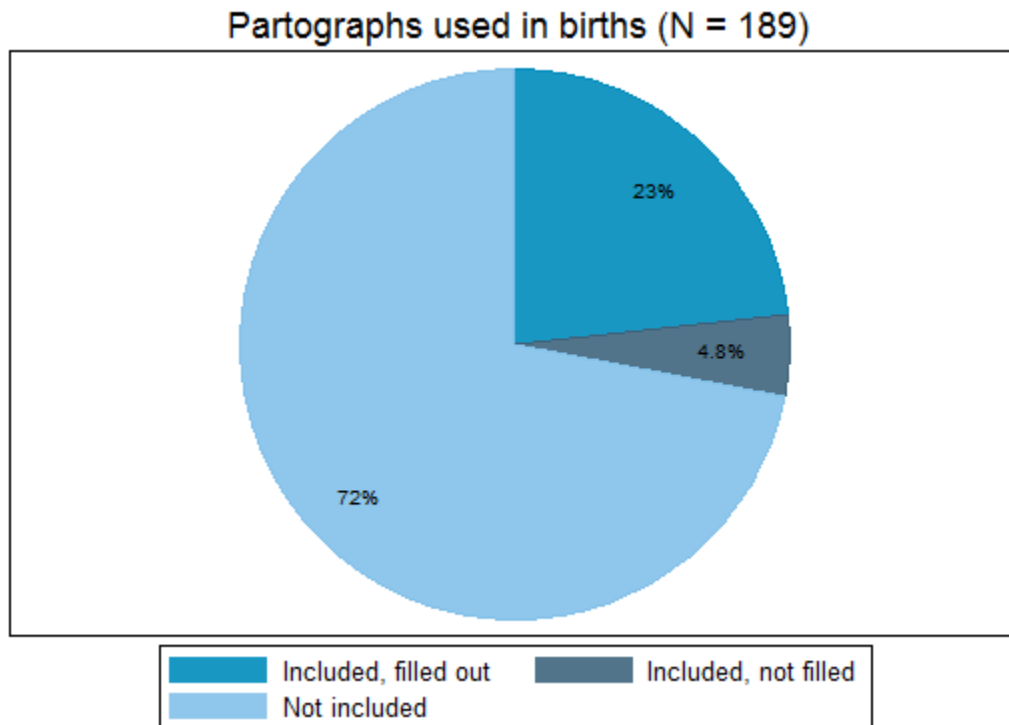
**Table 6.6.2a** Partograph revision in basic and complete facilities

Partograph revision	Basic			Complete		
	N	%	SE	N	%	SE
Partograph included and filled out or woman arrived in imminent birth or elective C-section	91	68.1	4.9	245	52.7	3.2
Women with dilation > 4.5 cm	10	40	16.3	95	70.5	4.7
Fetal heart rate and alert curve are recorded if dilation > 4.5 cm	4	25	25.0	67	28.4	5.5
Women with alert curve surpassed	10	10	10.0	96	4.2	2.1
There exists a note within 30 minutes if alert curve surpassed*	0			0		
Fetal heart rate < 120 bpm	10	0		96	10.4	3.1
There exists a note within 30 minutes if FHR < 120 bpm	0			10	30	15.3
Partograph according to the norm	91	64.8	5.0	245	31.4	3.0

\*Data missing for 1 basic facility and 4 complete facilities. This component is excluded from the overall indicator

Figure 6.6.2b details partograph inclusion in the delivery records for the 189 women who either did not arrive in imminent birth or for a C-section or did not record the delivery method. 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 23% of these delivery records at basic- and complete- level facilities had a partograph included and filled out.

**Figure 6.6.2b** Partograph use during birth



## 6.7 Postpartum care medical record review

### 6.7.1 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, pulse/heart rate, and respiratory rate. 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. Surveyors also reviewed medical records for discharge care, where a woman should be checked at least once for blood pressure, pulse/heart rate, respiratory rate, and temperature. As displayed in Table 6.7.1, no women were treated according to standards at basic facilities and only 0.9% of women were treated according to standards at complete facilities.

Of the 305 medical records that were reviewed for postpartum care, only 0.7% of woman were checked six times for systolic or diastolic blood pressure, temperature, respiratory rate, and pulse. On average, diastolic and systolic blood pressure were only checked 1.2 times each in the first two hours. Additionally, temperature, respiratory rate, and pulse were checked only 1.2 times each in the first two hours.

**Table 6.7.1** Postpartum care according to the norm

Vitals	Basic			Complete		
	N	%	SE	N	%	SE
Checked $\geq$ 6 times during the first 2 hours after birth:	70	0		235	0.9	0.6
Diastolic blood pressure	70	0		235	0.9	0.6
Systolic blood pressure	70	0		235	0.9	0.6
Pulse/heart rate	70	0		235	0.9	0.6
Respiratory rate	70	0		235	0.9	0.6
Temperature	70	0		235	0.9	0.6
Checked (at least once) at discharge:	70	62.9	5.8	235	73.6	2.9
Blood pressure	70	72.9	5.3	235	78.7	2.7
Pulse/heart rate	70	67.1	5.6	235	77.9	2.7
Respiratory rate	70	70	5.5	235	77.4	2.7
Temperature	70	70	5.5	235	75.3	2.8
All checks listed above were performed the appropriate number of times	70	0		235	0.9	0.6

### 6.7.2 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 6.7.2 for basic and complete facilities. All neonates were attended by a doctor, nurse, midwife, or doctor/nurse in social services after birth at basic and complete facilities; however, not all checkups and procedures were performed. Neonates were rarely given the BCG vaccination and the umbilical was almost never treated with chlorhexidine/water. No neonates were given the proper treatment after birth.

**Table 6.7.2** Immediate neonatal care in basic & complete facilities

PPC for neonates	Basic			Complete		
	N	%	SE	N	%	SE
Newborn attended by a doctor/nurse/midwife	53	100		84	100	
Procedures and checkups recorded:	53	0		84	0	
Apgar score at 1 minute	53	79.2	5.6	84	88.1	3.5
Apgar score at 5 minutes	53	79.2	5.6	84	84.5	4.0
BCG vaccination	53	7.5	3.6	84	0	
Chlorhexidine/water for umbilical cord	53	7.5	3.6	84	8.3	3.0
Evaluation of malformations presence	53	86.8	4.7	84	73.8	4.8
Head circumference	53	77.4	5.8	84	94	2.6
Height	53	83	5.2	84	95.2	2.3
Oxytetracycline ophthalmic chloramphenicol administration (such as prophylaxis or chloramphenicol)	53	71.7	6.2	84	83.3	4.1
Pulse	53	67.9	6.4	84	83.3	4.1
Respiratory rate	53	64.2	6.6	84	83.3	4.1
Skin color	53	83	5.2	84	66.7	5.1
Vitamin K administration	53	73.6	6.1	84	81	4.3
Weight	53	83	5.2	84	95.2	2.3
Newborn attended + all procedures and checkups recorded	53	0		84	0	

## 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 the 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.

**Table 7.1.1** Emergency obstetric and neonatal care service provision in basic and complete facilities

	Basic			Complete		
	N	%	SE	N	%	SE
Emergency room						
Private room with auditory and visual privacy	7	100		7	100	
Non-private room without auditory nor visual privacy	7	0		7	0	
Visual privacy only	7	0		7	0	
No privacy	7	0		7	0	
Don't provide this service	7	0		7	0	

### 7.2 Supplies and equipment needed for emergency obstetric and neonatal care

Tables 7.2.1a – 7.2.1b display equipment related to emergency obstetric and neonatal care in basic and complete facilities. Basic facilities increased from no facilities having all equipment at the baseline to 28.6% having all equipment at the follow-up. Complete facilities also increased from no facilities having all equipment at the baseline to 42.9% having all equipment at the follow-up.

**Table 7.2.1a** Observed and functional equipment for emergency care in basic level units

Equipment type	Basic					
	Baseline			18-Month		
	N	%	SE	N	%	SE
Autoclave/dry heat sterilizer	9	44.4	16.6	7	71.4	17.1
Tensiometer/blood pressure apparatus*	9	44.4	16.6	7	85.7	13.2
Laryngoscope	9	44.4	16.6	7	71.4	17.1
MVA kit	9	11.1	10.5	7	28.6	17.1
Oxygen tank	9	44.4	16.6	7	85.7	13.2
Portable Doppler/Pinard stethoscope	9	44.4	16.6	7	85.7	13.2
Reanimation resuscitation bag for adult	9	55.6	16.6	7	71.4	17.1
Neonatal resuscitation bag	9	55.6	16.6	7	71.4	17.1
Stethoscope	9	55.6	16.6	7	85.7	13.2
All equipment observed and functional	9	0		7	28.6	17.1

\*Baseline only measured tensiometer

**Table 7.2.1b** Observed and functional equipment for emergency care in complete facilities

Equipment type	Complete					
	Baseline			18-Month		
	N	%	SE	N	%	SE
Anesthesia equipment	4	100		7	85.7	13.2
Autoclave/dry heat sterilizer	4	50	25.0	7	100	
Tensiometer/blood pressure apparatus*	4	25	21.7	7	85.7	13.2
Kit for C-sections	4	100		7	85.7	13.2
Laryngoscope	4	100		7	100	
MVA kit	4	75	21.7	7	57.1	18.7
Neonatal/pediatric stethoscope	4	75	21.7	7	71.4	17.1
Oxygen tank	4	100		7	100	
Portable Doppler/Pinard stethoscope	4	100		7	85.7	13.2
Reanimation resuscitation bag for adult	4	50	25.0	7	85.7	13.2
Neonatal resuscitation bag	4	100		7	85.7	13.2
All equipment observed and functional	4	0		7	42.9	18.7

\*Baseline only measured tensiometer

### 7.3 Important drugs needed for emergency obstetric and neonatal care

Health facilities were also 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 Tables 7.3.1a, all basic facilities had the necessary pharmacy inputs on the day of the survey, but only 14.3% had continuous availability in the previous three months. Only 42.9% of complete facilities (Table 7.3.1b) had pharmacy stock on the day of the survey as well as continuous availability in the previous three months.

**Table 7.3.1a** Drugs needed for emergency and neonatal care in basic level facilities

Drug availability	Basic					
	Baseline			18-Month		
	N	%	SE	N	%	SE
Penicillin crystalline/ampicillin/amoxicillin	8	75	15.3	7	100	
Dexamethasone/Betamethasone	8	12.5	11.7	7	100	
Gentamicin	8	0		7	100	
Hydralazine ampulla	8	37.5	17.1	7	100	
Magnesium sulfate	8	25	15.3	7	100	
Ergonovine maleate/ergometrine/oxytocin	8	62.5	17.1	7	100	
All drugs available on the day of the survey	8	0		7	100	
Continuous availability in the previous three months*	n/a	n/a	n/a	7	14.3	13.2

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

**Table 7.3.1b** Drugs needed for emergency and neonatal care in complete facilities

Drug availability	Complete					
	Baseline			18-Month		
	N	%	SE	N	%	SE
Amikacin/amikacin sulfate	4	25	21.7	7	100	
Penicillin crystalline/ampicillin/amoxicillin	4	50	25.0	7	100	
Ceftriaxone	4	25	21.7	7	100	
Chloramphenicol/metronidazole	4	25	21.7	7	100	
Dexamethasone/Betamethasone	4	50	25.0	7	100	
Diazepam/midazolam hydrochloride	4	25	21.7	7	100	
Furosemide	4	50	25.0	7	100	
Hydralazine/hydralazine hydrochloride	4	25	21.7	7	100	
Magnesium sulfate	4	75	21.7	7	71.4	17.1
Nifedipine	4	50	25.0	7	100	
Ergonovine maleate/ergometrine/oxytocin <sup>1</sup>	4	50	25.0	7	100	
Sevoflurane	4	0		7	100	
Succinylcholine chloride (suxamethonium)	4	25	21.7	7	71.4	17.1
All drugs available on the day of the survey	4	0		7	42.9	18.7
Continuous availability in the previous three months <sup>2</sup>	n/a	n/a	n/a	7	42.9	18.7

<sup>1</sup>Baseline measured ergonovine maleate 0.2mg/oxytocin 5 IU/ergonovine ampulla 0.2mg

<sup>2</sup>Overall drug availability including availability on the day of the survey and no stock-out in the previous three months of magnesium sulfate + dexamethasone/betamethasone + ceftriaxone + diazepam/midazolam hydrochloride + nifedipine

## 7.4 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 360 women and 260 infants with one or more complications (Tables 7.4.1-7.4.2). 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 7.4.1** Distribution of obstetric complications by facility classification

	Basic	Complete
Women with sepsis	11	48
Women with hemorrhage	31	79
Women with pre-eclampsia	38	127
Women with eclampsia	1	31
Total	81	285

**Table 7.4.2** Distribution of neonatal complications by facility classification

	Basic	Complete
Neonates with low birth weight	33	79
Neonates with prematurity	15	31
Neonates with sepsis	22	90
neonates with asphyxia	5	65
Total	75	265

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

### 7.5.1 Sepsis in basic facilities

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

There were 11 records of maternal sepsis at the basic level (Table 7.5.1). None of the evaluated records had the proper lab test recorded (leukocyte count), and therefore, were not managed according to the country norm.

**Table 7.5.1** Medical record review at basic level facilities: sepsis

	Basic		
	N	%	SE
Vital signs checked:	11	72.7	13.4
Temperature	11	90.9	8.7
Pulse	11	72.7	13.4
Systolic blood pressure	11	90.9	8.7
Diastolic blood pressure	11	90.9	8.7
Lab tests: leukocyte count	11	0	
Antibiotic administered (at least one of the following):	11	18.2	11.6
Amikacin	11	0	
Clindamycin	11	9.1	8.7
Gentamicin	11	0	
Ampicillin	11	9.1	8.7
Metronidazole	11	0	
Other antibiotic	11	0	
Transferred to another facility	11	90.9	8.7
Sepsis managed according to the norm (meets all above criteria)	11	0	

### 7.5.2 Sepsis in complete facilities

According to the country norm, maternal sepsis is managed correctly at complete facilities if vital signs are checked (temperature + pulse + systolic blood pressure + diastolic blood pressure), lab tests are performed (leukocyte count), and antibiotics are administered. Due to a survey programming error, leukocyte count was not measured for maternal sepsis records at complete facilities.

There were 50 records of maternal sepsis at complete facilities (Table 7.5.2). All women were checked for vital signs checked and 78% of women were given an antibiotic.

**Table 7.5.2** Medical record review at complete level facilities: sepsis

	Complete		
	N	%	SE
Vital signs checked:	50	100	
Temperature	50	100	
Pulse	50	100	
Systolic blood pressure	50	100	
Diastolic blood pressure	50	100	
Antibiotic administered (at least one of the following):	50	78	5.9
Amikacin	50	6	3.4
Clindamycin	50	12	4.6
Gentamicin	50	10	4.2
Ampicillin	50	24	6.0
Metronidazole	50	28	6.3
Other antibiotic	50	52	7.1
Sepsis managed according to the norm (meets all above criteria)*	50	78	5.9

\*Leukocyte count was not measured at complete facilities and could not be included in final indicator calculation

### 7.5.3 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 blood pressure + systolic blood pressure), medication is administered (oxytocin/other uterotonic + Ringer's lactate), and the result is recorded.

There were 31 records of maternal hemorrhaging at basic facilities (Table 7.5.3). While over half of women had the appropriate vital signs checked (64.5%), no women were given Ringer's lactate; therefore no women were treated according to the norms.

**Table 7.5.3.** Medical record review at basic level facilities: hemorrhage

	Basic		
	N	%	SE
Vital signs checked:	31	64.5	8.6
Pulse	31	71	8.1
Systolic blood pressure	31	77.4	7.5
Diastolic blood pressure	31	77.4	7.5
Medication administered:	31	0	
Oxytocin/other uterotonic	31	12.9	6.0
Ringer's lactate	31	0	
Result recorded*	30	93.3	4.6
Hemorrhage managed according to the norm (meets all above criteria)	30	0	

\*Missing data from one record at a basic facility

#### 7.5.4 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 cause of the hemorrhage is recorded.

Among the 79 records of maternal hemorrhaging at complete facilities (Table 7.5.4), only 18.2% of women were managed according to the country norm. While all women had their vital signs checked, only 40.5% of women were given the appropriate laboratory tests and 57% were given medication. Specific laboratory tests evaluated are listed in the table below. The laboratory tests which were performed the least were for PT and PTT.

**Table 7.5.4** Medical record review at complete level facilities: hemorrhage

	Complete		
	N	%	SE
Vital signs checked:	79	100	
Systolic blood pressure	79	100	
Diastolic blood pressure	79	100	
Laboratory tests:	79	40.5	5.5
PT	79	53.2	5.6
PTT	79	49.4	5.6
Platelet count	79	75.9	4.8
Hemoglobin level	79	70.9	5.1
Hematocrit	79	65.8	5.3
Medication administered:	79	57	5.6
Oxytocin/other uterotonic	79	57	5.6
Cause of hemorrhage was recorded*	77	100	
Hemorrhage managed according to the norm (meets all above criteria)	77	18.2	4.4

\*Missing data from two records at complete facilities

### 7.5.5 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), lab tests are performed (urine protein), and medication is administered (magnesium sulfate + hydralazine/nifedipine (if diastolic blood pressure >110)).

Among 38 records of women with pre-eclampsia (Table 7.5.5a) and one record of a women with eclampsia (Table 7.5.5b) at basic facilities, none were treated according to the norm.

**Table 7.5.5a** Medical record review at basic level facilities: pre-eclampsia

	Basic		
	N	%	SE
Vital signs checked:	38	100	
Systolic blood pressure	38	100	
Diastolic blood pressure	38	100	
Laboratory tests: protein in urine	38	5.3	3.6
Medication administered:	38	0	
Magnesium sulfate	38	0	
Hydralazine/nifedipine/ other hypertensive (if diastolic blood pressure > 110)	38	94.7	3.6
Pre-eclampsia managed according to the norm (meets all above criteria)	38	0	

**Table 7.5.5b** Medical record review at basic level facilities: eclampsia

	Basic		
	N	%	SE
Vital signs checked:	1	100	
Systolic blood pressure	1	100	
Diastolic blood pressure	1	100	
Laboratory tests: protein in urine	1	0	
Medication administered:	1	0	
Magnesium sulfate	1	0	
Hydralazine/nifedipine/other hypertensive (if diastolic blood pressure > 110)	1	100	
Eclampsia managed according to the norm (meets all above criteria)	1	0	

### 7.5.6 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), 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 127 records of women with pre-eclampsia (Table 7.5.6a) and 31 records of women with eclampsia (Table 7.5.6b) at complete facilities, 20.1% were managed according to the country norm at complete facilities. The least prevalent tests for women were aspartate aminotransferase, alanine aminotransferase, and lactate dehydrogenase laboratory tests.

**Table 7.5.6a** Medical record review at complete level facilities: pre-eclampsia

	Complete		
	N	%	SE
Vital signs checked:	127	99.2	0.8
Pulse	127	99.2	0.8
Systolic blood pressure	127	100	
Diastolic blood pressure	127	100	
Respiratory rate	127	99.2	0.8
Laboratory tests:	127	23.6	3.8
Protein in urine	127	77.2	3.7
Platelet count	127	89	2.8
Aspartate aminotransferase (AST)	127	33.9	4.2
Alanine aminotransferase (TGP)	127	32.3	4.2
Lactate dehydrogenase (LDH)	127	37.8	4.3
Medication administered:	127	31.5	4.1
Magnesium sulfate	127	32.3	4.2
Hydralazine/nifedipine/other hypertensive (if diastolic blood pressure > 110)	127	100	
Dexamethasone/betamethasone (if gestational age is 26-34 weeks)	127	96.1	1.7
Outcome of pregnancy was recorded	123	91.9	2.5
Pre-eclampsia managed according to the norm (meets all above criteria)	123	13.8	3.1

**Table 7.5.6b** Medical record review at complete level facilities: eclampsia

	Complete		
	N	%	SE
Vital signs checked:	31	96.8	3.2
Pulse	31	96.8	3.2
Systolic blood pressure	31	100	
Diastolic blood pressure	31	100	
Respiratory rate	31	96.8	3.2
Laboratory tests:	31	54.8	8.9
Protein in urine	31	87.1	6.0
Platelet count	31	93.5	4.4
Aspartate aminotransferase (AST)	31	74.2	7.9
Alanine aminotransferase (TGP)	31	74.2	7.9
Lactate dehydrogenase (LDH)	31	71	8.1
Medication administered:	31	67.7	8.4
Magnesium sulfate	31	74.2	7.9
Hydralazine/nifedipine/other hypertensive (if diastolic blood pressure > 110)	31	100	
Dexamethasone/betamethasone (if gestational age is 26-34 weeks)	31	93.5	4.4
Outcome of pregnancy was recorded	31	96.8	3.2
Eclampsia managed according to the norm (meets all above criteria)	31	45.2	8.9

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

### 7.6.1 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 33 records of neonates with low birth weight (Table 7.6.1a) and 15 records of premature neonates (Table 7.6.1b) at basic facilities. No neonates were given the proper laboratory tests and only 6.1% with LBW were checked for vital signs.



**Table 7.6.1a** Medical record review in basic level facilities: low birth weight

	Basic		
	N	%	SE
Neonate was evaluated by a doctor	33	97	3.0
Vital signs checked:	33	6.1	4.2
Gestational age recorded	33	45.5	8.7
Method to calculate gestational age was recorded	33	66.7	8.2
Abdominal examination	33	78.8	7.1
Head circumference	33	81.8	6.7
Height	33	97	3.0
Pulse	33	93.9	4.2
Respiratory rate	33	90.9	5.0
Silverman score	33	33.3	8.2
Skin color	33	93.9	4.2
Weight	33	97	3.0
Laboratory tests:	33	0	
Blood glucose level	33	0	
Oxygen saturatoin	33	0	
Transferred to a complete facility	33	3	3.0
LBW managed according to the norm (meets all above criteria)	33	0	

**Table 7.6.1b** Medical record review in basic level facilities: prematurity

	Basic		
	N	%	SE
Neonate was evaluated by a doctor	15	100	
Vital signs checked:	15	0	
Gestational age recorded	15	73.3	11.4
Method to calculate gestational age was recorded	15	80	10.3
Abdominal examination	15	66.7	12.2
Head circumference	15	46.7	12.9
Height	15	53.3	12.9
Pulse	15	60	12.6
Respiratory rate	15	66.7	12.2
Silverman score	15	20	10.3
Skin color	15	86.7	8.8
Weight	15	73.3	11.4
Laboratory tests:	15	0	
Blood glucose level	15	0	
Oxygen saturatoin	15	0	
Transferred to a complete facility	15	60	12.6
Prematurity managed according to the norm (meets all above criteria)	15	0	

### 7.6.2 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 if they are evaluated by a doctor, all checks are performed (pulse + respiratory rate + Silverman score), and lab tests are performed (blood glucose level + oxygen saturation level).

Among 79 records of neonates with low birth weight (Table 7.6.2a) and 31 records of premature neonates (Table 7.6.2b) at complete facilities, only 13.6% were managed according to the country standards. At complete facilities, this is largely due to a lack of Silverman scores and laboratory tests.

**Table 7.6.2a** Medical record review in complete level facilities: low birth weight

	Complete		
	N	%	SE
Neonate was evaluated by a doctor	79	98.7	1.3
Vital signs checked:	79	55.7	5.6
Pulse	79	97.5	1.8
Respiratory rate	79	97.5	1.8
Silverman score	79	55.7	5.6
Laboratory tests:	79	17.7	4.3
Blood glucose level	79	24.1	4.8
Oxygen saturatoin	79	29.1	5.1
LBW managed according to the norm (meets all above criteria)	79	12.7	3.7

**Table 7.6.2b** Medical record review in complete level facilities: prematurity

	Complete		
	N	%	SE
Neonate was evaluated by a doctor	31	100	
Vital signs checked:	31	51.6	9.0
Pulse	31	93.5	4.4
Respiratory rate	31	93.5	4.4
Silverman score	31	54.8	8.9
Laboratory tests:	31	29	8.1
Blood glucose level	31	41.9	8.9
Oxygen saturatoin	31	38.7	8.8
Prematurity managed according to the norm (meets all above criteria)	31	16.1	6.6

### 7.6.3 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 + pulse + respiratory rate + temperature + 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 22 records of neonates with sepsis at basic facilities (Table 7.6.3). No neonates with sepsis at basic facilities were tested for blood glucose level or neutrophil morphology and only 4.5% were tests for leukocyte and platelet count.

**Table 7.6.3** Medical record review in basic level facilities: infants with sepsis

	Basic		
	N	%	SE
Neonate was evaluated by a doctor	22	100	
Vital signs checked:	22	13.6	7.3
Gestational age recorded	22	22.7	8.9
Abdominal examination	22	72.7	9.5
Pulse	22	54.5	10.6
Respiratory rate	22	68.2	9.9
Temperature	22	77.3	8.9
Skin color	22	77.3	8.9
Laboratory tests:	22	0	
Blood glucose level	22	0	
Leukocyte count	22	4.5	4.4
Neutrophil morphology	22	0	
Platelet count	22	4.5	4.4
Antibiotic administration*	22	18.2	8.2
Transferred to a complete facility	22	72.7	9.5
Sepsis managed according to the norm (meets all above criteria)	22	0	

\*Antibiotics = ampicillin/gentamicin/other antibiotic

#### 7.6.4 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 (pulse + temperature), lab tests are performed (c-reactive protein + erythrocyte sedimentation rate (ESR) + leukocyte count), and any antibiotic is administered.

There were 90 records of neonates with sepsis at complete facilities (Table 7.6.4). While the majority of neonates had their pulse and temperature checked, only 35.6% had a c-reactive protein laboratory test.

**Table 7.6.4** Medical record review in complete level facilities: infants with sepsis

	Complete		
	N	%	SE
Neonate was evaluated by a doctor	90	98.9	1.1
Vital signs checked:	90	90	3.2
Pulse	90	95.6	2.2
Temperature	90	90	3.2
Laboratory tests:	90	33.3	5.0
C-reactive protein	90	35.6	5.1
Erythrocyte sedimentation rate (ESR) <sup>1</sup>	2	100	
Leukocyte count	90	75.6	4.5
Antibiotic administration <sup>2</sup>	90	83.3	3.9
Sepsis managed according to the norm (meets all above criteria)	90	28.9	4.8

\*Due to an error in survey logic, ESR was not captured in all records

\*\*Antibiotics = ampicillin/gentamicin/other antibiotic

### 7.6.5 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 (Apgar score (at 1 or 5 minutes) + pulse + respiratory rate + skin color + temperature), lab tests are performed (blood glucose level + hematocrit + leukocyte count + platelet count), and antibiotics are administered. Abdominal examinations should be performed at basic facilities for neonates with an asphyxia complication, however, abdominal examinations were not measured during data collection.

There were five records of neonates with an asphyxia complication at basic facilities (Table 7.6.5). Blood glucose level was checked not checked in any of the cases.

**Table 7.6.5** Medical record review in basic level facilities: infants with asphyxia

	Basic		
	N	%	SE
Neonate was evaluated by a doctor	5	100	
Vital signs checked: <sup>1</sup>	5	20	17.9
Gestational age recorded	5	40	21.9
Apgar score (at 1 or 5 minutes)	5	60	21.9
Pulse	5	100	
Respiratory rate	5	100	
Skin color <sup>2</sup>	2	100	
Temperature	5	100	
Laboratory tests:	5	0	
Blood glucose level	5	0	
Leukocyte count	5	20	17.9
Platelet count	5	20	17.9
Antibiotics administered <sup>3</sup>	5	20	17.9
Asphyxia managed according to the norm (meets all above criteria)	5	0	

<sup>1</sup>Abdominal examinations + complete blood count were not measured

<sup>2</sup>Due to an error in survey logic, skin color was not captured in all records

<sup>3</sup>Antibiotics = ampicillin/gentamicin/other antibiotic

### 7.6.6 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 (pulse + respiratory rate + Silverman score), lab tests are performed (blood glucose level + c-reactive protein + erythrocyte sedimentation rate + hemoglobin + oxygen saturation level + chest x-ray), and antibiotics are administered.

There were 65 records of neonates with an asphyxia complication at complete facilities (Table 7.6.6). All applicable lab tests were performed in only 1.5% of records; this is due to a lack of erythrocyte sedimentation rate testing.

**Table 7.6.6** Medical record review in complete level facilities: infants with asphyxia

	Complete		
	N	%	SE
Vital signs checked:	65	58.5	6.1
Pulse	65	95.4	2.6
Respiratory rate	65	95.4	2.6
Silverman score	65	58.5	6.1
Laboratory tests:	65	1.5	1.5
Blood glucose level	65	63.1	6.0
C-reactive protein	65	44.6	6.2
Erythrocyte sedimentation rate (ESR)	65	7.7	3.3
Hemoglobin	65	61.5	6.0
Oxygen saturation level	65	66.2	5.9
Chest x-ray	65	29.2	5.6
Antibiotics administered*	65	78.5	5.1
Asphyxia managed according to the norm (meets all above criteria)	65	1.5	1.5

\*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	DK/DR	N	%	SE	N	%	SE	DK/DR
Incinerator at facility	46	4.3	3.0		7	0		7	0		
Contract with other facility for biohazard disposal*	43	23.3	6.4	1	7	71.4	17.1	7	100		
Manual for decontamination	44	52.3	7.5	2	7	71.4	17.1	6	83.3	15.2	1

\* At the ambulatory level, two facilities had an incinerator and were not asked this question.

### 8.2 Decontamination and sterilization

Table 8.2.1 lists the different techniques used for decontaminating and sterilizing equipment.



**Table 8.2.1** Decontamination and sterilization

	Ambulatory			Basic			Complete		
	N	%	SE	N	%	SE	N	%	SE
<b>Decontamination methods</b>									
Submerged in disinfectant, then scrubbed with a brush, soap and water	46	32.6	6.9	7	28.6	17.1	7	28.6	17.1
Scrubbed with a brush, soap and water, then submerged in disinfectant	46	39.1	7.2	7	42.9	18.7	7	57.1	18.7
Scrubbed with a brush, soap and water only	46	13	5.0	7	0		7	0	
Submerged in disinfectant, without scrubbing with brush	46	8.7	4.2	7	14.3	13.2	7	0	
Cleaned with water and soap, without scrubbing with a brush	46	4.3	3.0	7	0		7	0	
Equipment never reused	46	2.2	2.2	7	14.3	13.2	7	0	
Facility doesn't decontaminate	46	0		7	0		7	0	
Other	46	17.4	5.6	7	0		7	28.6	17.1
<b>Sterilization methods</b>									
Dry heat	46	39.1	7.2	7	28.6	17.1	7	14.3	13.2
Autoclave	46	30.4	6.8	7	57.1	18.7	7	57.1	18.7
Boiling	46	2.2	2.2	7	0		7	0	
Steam	46	0		7	14.3	13.2	7	28.6	17.1
Chemical sterilization	46	0		7	0		7	0	
Processed away from facility	46	8.7	4.2	7	0		7	0	
Facility doesn't sterilize	46	6.5	3.6	7	0		7	0	
Other	46	17.4	5.6	7	0		7	0	

## Appendix A: SM2015 Health Facility Indicators

In total, 20 health facility indicators were measured at the 18-month evaluation. Tables A.1.1-A.1.2 provide indicator values from both the baseline and the 18-month data collection rounds, where applicable. 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

SM2015 Indicators	Baseline Evaluation			18-month Evaluation		
	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 <sup>1</sup>	55	2	3.6% (0.4 - 12.5%)	59	8	13.6% (6.0 - 25.0%)
Health facilities with a cold chain that meets the standards	24	17	70.8% (48.9 - 87.4%)	27	21	77.8% (57.7 - 91.4%)
Health facilities with continuous availability of modern family planning supplies (oral, injectable, barrier, IUD) <sup>2</sup>	49	27	55.1% (40.2 - 69.3%)	59	37	62.7% (49.1 - 75.0%)
Health facilities with continuous availability of supplies and equipment needed for antenatal and postpartum care <sup>3</sup>	55	2	3.6% (0.4 - 12.5%)	59	27	45.8% (32.7 - 59.2%)
Health facilities with continuous availability of inputs needed for delivery and newborn care <sup>4</sup>	17	1	5.9% (0.1 - 28.7%)	14	3	21.4% (4.7 - 50.8%)
Health facilities with continuous availability of supplies and equipment needed for emergency obstetric and neonatal care <sup>5</sup>	13	0	0% (0 - 24.7%)	14	2	14.3% (1.8 - 42.8%)
Access to safe blood for monitoring purposes	8	8	100% (63.1 - 100%)	7	7	100% (59.0 - 100%)
Health facilities with availability of services 24 hours a day, 7 days a week for monitoring purposes	7	0	0% (0 - 41.0%)	7	1	14.3% (0.4 - 57.9%)
Health facilities with socio-cultural services for monitoring purposes	7	3	42.9% (9.9 - 81.6%)	7	6	85.7% (42.1 - 99.6%)
Children diagnosed with diarrhea seen at the health facility evaluated, classified and treated according to the degree of dehydration in the last two years for monitoring purposes	136	13	9.6% (5.2 - 15.8%)	196	12	6.1% (3.2 - 10.5%)

<sup>1</sup>Salter scale + national vaccination card + oral rehydration serum not measured at baseline; ferrous sulfate not measured for stock-out in the previous three months at the baseline (excluding the day of the survey) in ambulatory and complete facilities; albendazole/mebendazole not measured for stock-out in the previous three months at the baseline (excluding the day of the survey) in basic facilities; stock-out was not always captured at the baseline due to an error in survey logic

<sup>2</sup>IUD not measured for stock-out in the previous three months at the baseline; stock-out was not always captured at the baseline due to an error in survey logic

<sup>3</sup>Rapid syphilis test kit + rapid HIV/AIDS test + urine strips + blood glucose strips + HemoCue not measured at complete facilities at the baseline; nitrofurantoin was not measured for stock-out in the previous three months at basic or complete facilities at the baseline; stock-out was not always captured at the baseline due to an error in survey logic

<sup>4</sup>Baseline measured Nasogastric tube K33; Baseline did not measure oxytetracycline ophthalmic; Baseline specified drug amounts/measurements; Baseline did not measure stock-out in the previous three months of all pharmacy inputs (excluding the day of the survey)

<sup>5</sup>Baseline did not measure tensiometer as an alternative to blood pressure apparatus; Baseline specified drug amounts/measurements for pharmacy inputs; Baseline did not measure stock-out in the previous three months of any pharmacy input (excluding the day of the survey); Baseline measured ergonovine ampulla 0.2mg as an alternative to oxytocin and ergonovine maleate

**Table A.1.2** Facility indicators matrix and comparison to baseline

SM2015 Indicators	Baseline Evaluation			18-month Evaluation		
	N	n	Percent (95% CI)	N	n	Percent (95% CI)
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 <sup>1</sup>	154	38	24.7% (18.1 - 32.3%)	392	97	24.7% (20.6 - 29.3%)
Women of reproductive age (15-49) who received $\geq$ 5 ANC visits by qualified personnel according to best practices for a birth in the last two years for monitoring purposes <sup>2</sup>	160	21	13.1% (8.3 - 19.4%)	441	63	14.3% (11.2 - 17.9%)
Women of reproductive age (15-49) who received $\geq$ 4 ANC visits by qualified personnel according to best practices for a birth in the last two years for monitoring purposes <sup>2</sup>	162	32	19.8% (13.9 - 26.7%)	441	71	16.1% (12.8 - 19.9%)
C-sections as proportion of childbirths in the last two years for monitoring purposes	11,246	4,320	38.4%	15,387	4,656	30.3%
Management of third stage of delivery for monitoring purposes	202	146	72.3% (65.6 - 78.3%)	336	281	83.6% (79.2 - 87.4%)
Partograph filled according to the norm for births in the last two years for monitoring purposes	n/a	n/a	n/a	336	136	40.5% (35.2 - 45.9%)
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 and at least once at discharge	207	0	0% (0 - 1.8%)	305	2	0.7% (0.1 - 2.3%)
Neonates who received care according to standards from medical personnel after birth in the last 2 years for monitoring purposes <sup>3</sup>	139	0	0% (0 - 2.6%)	137	0	0% (0 - 2.7%)
Women with obstetric complications (sepsis, hemorrhage, severe pre-eclampsia and eclampsia) managed according to the norm in the last two years for monitoring purposes <sup>4</sup>	312	2	0.6% (0.1 - 2.3%)	353	77	21.8% (17.6 - 26.5%)
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 <sup>5</sup>	192	1	0.5% (0.0 - 2.9%)	260	10	3.8% (1.9 - 7.0%)

<sup>1</sup>Using reported gestational age, 29.3% of facilities meet the indicator at the follow-up

<sup>2</sup>Baseline only measured gestational age at the first visit. Fetal heart rate + fetal movement were only measured at the first visit if gestational age was  $>$ 20 weeks during that visit; Baseline did not measure HIV test or platelet count at basic or complete facilities

<sup>3</sup>Baseline did not capture type of newborn attendant in all facilities

<sup>4</sup>Baseline and follow-up did not measure leukocyte count for women with sepsis at complete facilities

<sup>5</sup>Baseline and follow-up did not measure hematocrit + abdominal examinations for neonates with asphyxia in basic facilities

## 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 (without a doctor):* Observed on the day of the survey: pediatric balance or scale/salter scale + standing balance or scale for children/salter scale + height rod/stadiometer + stethoscope + oral/axillary thermometer + growth & development card/national vaccination card + pentavalent/ (HepB + Hib + DPT) 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 salt/oral rehydration serum + ferrous sulfate drops + albendazole/mebendazole

*Ambulatory (with a doctor):* Observed on the day of the survey: pediatric balance or scale/salter scale + standing balance or scale for children/salter scale + height rod/stadiometer + stethoscope + oral/axillary thermometer + growth & development card/national vaccination card + pentavalent/ (HepB + Hib + DPT) vaccine + rotavirus vaccine + pneumococcal conjugate vaccine + antibiotics (ampicillin/ erythromycin/ benzathine penicillin). 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 salt/oral rehydration serum + ferrous sulfate drops + albendazole/mebendazole

*Basic:* Observed on the day of the survey: pediatric balance or scale/salter scale + standing balance or scale for children/salter scale + height rod/stadiometer + pediatric tensiometer + pediatric stethoscope + pentavalent/ (HepB + Hib + DPT) vaccine + rotavirus vaccine + pneumococcal conjugate vaccine + antibiotics (amoxicillin/ampicillin/ crystalline penicillin) + Ringer's lactate/Hartmann's solution/Saline solution. 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 salt/oral rehydration serum + ferrous sulfate drops/multivitamins + albendazole/mebendazole

*Complete:* Observed on the day of the survey: pediatric balance or scale/salter scale + standing balance or scale for children/salter scale + height rod/stadiometer + pediatric tensiometer + pediatric stethoscope + pentavalent/ (HepB + Hib + DPT) vaccine + rotavirus vaccine + pneumococcal conjugate vaccine + antibiotics (amoxicillin/ampicillin/ crystalline penicillin) + Ringer's lactate/Hartmann's solution/Saline solution. 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 salt/oral rehydration serum + ferrous sulfate drops/multivitamins + albendazole/mebendazole

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

### Denominator:

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

### Formula:

*Ambulatory:* Observed on the day of the survey: temperature of the fridge was between 2 - 8 degrees Celsius on the day of the survey + temperature monitoring chart was found for each functioning fridge + temperature was recorded twice daily during the last 30 days for each fridge + temperature for each fridge was between 2 - 8 degrees Celsius during the last 30 days and if the temperature was not within that range, there is a record of actions

*Basic:* Observed on the day of the survey: temperature of the fridge was between 2 - 8 degrees Celsius on the day of the survey + temperature monitoring chart was found for each functioning fridge + temperature was recorded twice daily during the last 30 days for each fridge + temperature for each fridge was between 2 - 8 degrees Celsius during the last 30 days and if the temperature was not within that range, there is a record of actions

*Complete:* Observed on the day of the survey: temperature of the fridge was between 2 - 8 degrees Celsius on the day of the survey + temperature monitoring chart was found for each functioning fridge + temperature was recorded twice daily during the last 30 days for each fridge + temperature for each fridge was between 2 - 8 degrees Celsius during the last 30 days and if the temperature was not within that range, there is a record of actions

## 3. Health facilities that have continuous availability 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:* 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

*Basic:* Observed on the day of the survey: IUD kit. 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

*Complete:* Facility reported the following personnel: capable doctor for female tubal ligation + capable doctor for vasectomy. Observed on the day of the survey: IUD kit. 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 basic and complete facilities with laboratory inputs (if facility has a laboratory) in the sample.

##### Formula:

*Ambulatory (without doctor):* Observed on the day of the survey: standing scale + height rod/stadiometer + gynecological exam table + CLAP obstetrical tape/measuring tape + gooseneck/hand lamp + blood pressure apparatus + stethoscope + perinatal maternal medical history + perinatal card. No break in supply of the following inputs in the last three months (including the day of the survey): (iron + folic acid)/multivitamin

*Ambulatory (with doctor):* Observed on the day of the survey: standing scale + height rod/stadiometer + gynecological exam table + CLAP obstetrical tape/measuring tape + gooseneck/hand lamp + blood pressure apparatus + stethoscope + IUD insertion kit + Ayre's spatula/swabs + microscope slides + perinatal maternal medical history + perinatal card + erythromycin/ampicillin/benzathine penicillin. No break in supply of the following inputs in the last three months (including the day of the survey): (iron & folic acid)/multivitamin + tetanus vaccine + nitrofurantoin

*Basic:* Observed on the day of the survey: standing scale + height rod/stadiometer + gynecological exam table + CLAP obstetrical tape/measuring tape + gooseneck/hand lamp + blood pressure apparatus + stethoscope + IUD insertion kit + Ayre's spatula/swabs + microscope slides + perinatal maternal medical history + perinatal card + rapid syphilis test kit/dark field microscope/equipment for enzyme immunoassays + rapid HIV/AIDS test/fluorescence microscope + urine protein strips/urinalysis equipment + blood glucose strips/blood glucose meter + HemoCue/automated cell counter + pregnancy test kit + blood type reagent + rh factor reagent + syphilis reagent (if equipment for enzyme immunoassays is observed) + HIV/AIDS reagent (if equipment for enzyme immunoassays is observed). No break in supply of the following inputs in the last three months (including the day of the survey): (iron & folic acid)/multivitamin + tetanus vaccine + cephalexin + nitrofurantoin

*Complete:* Observed on the day of the survey: standing scale + height rod/stadiometer + gynecological exam table + CLAP obstetrical tape/measuring tape + gooseneck/hand lamp + blood pressure apparatus + stethoscope + IUD insertion kit + Ayre's spatula/swabs + microscope slides + perinatal maternal medical history + perinatal card + rapid syphilis test kit/dark field microscope/equipment for enzyme immunoassays + rapid HIV/AIDS test/fluorescence microscope + urine protein strips/urinalysis equipment + blood glucose strips/blood glucose meter + HemoCue/automated cell counter + pregnancy test kit + blood type reagent + rh factor reagent + syphilis reagent (if equipment for enzyme immunoassays is observed) + HIV/AIDS reagent (if equipment for enzyme immunoassays is observed). No break in supply of the following inputs in the last three months (including the day of the survey): (iron & folic acid)/multivitamin + tetanus vaccine + cephalexin + nitrofurantoin

## 5. Health facilities with continuous availability of inputs needed for delivery and newborn care:

### Denominator:

Total number of health facilities that offer delivery services in the sample.

### Formula:

*Basic:* Observed on the day of the survey: intravenous catheter sterile No. 18 + metallic clamp/umbilical tape + equipment p/serum c/macro drip and micro drip + nasogastric tube + sterile fields or sheltering for a baby + bromomethane/butylbromide + drops of chloramphenicol ophthalmic/silver nitrate/oxytetracycline ophthalmic + povidone-iodine + Ringer's lactate/Hartmann solution/Saline solution + lidocaine + c syringe/insulin syringe. No break in supply of the following inputs in the last three months (including the day of the survey): ergonovine maleate/ergometrine/oxytocin + Vitamin K

*Complete:* Observed on the day of the survey: intravenous catheter sterile No. 18 + metallic clamp/umbilical tape + equipment p/serum c/macro drip and micro drip + nasogastric tube + sterile fields or sheltering for a baby + bromomethane/butylbromide + drops of chloramphenicol ophthalmic/silver nitrate/oxytetracycline ophthalmic + povidone-iodine + Ringer's lactate/Hartmann solution/Saline solution + lidocaine + c syringe/insulin syringe. No break in supply of the following inputs in the last three months (including the day of the survey): ergonovine maleate/ergometrine/oxytocin + Vitamin K

## 6. 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:* Observed on the day of the survey: autoclave/dry heat sterilizer + tensiometer/blood pressure apparatus + laryngoscope + MVA kit + oxygen tank + Portable Doppler/Pinard stethoscope + reanimation resuscitation bag for adult + neonatal resuscitation bag + stethoscope + penicillin crystalline/ampicillin/amoxicillin + hydralazine ampulla + ergonovine maleate/ergometrine/oxytocin. No break in supply of the following inputs in the last three months (including the day of the survey): magnesium sulfate + gentamicin + dexamethasone/betamethasone

*Complete:* Observed on the day of the survey: anesthesia equipment + autoclave/dry heat sterilizer + tensiometer/blood pressure apparatus + kit for C-sections + laryngoscope + MVA kit + neonatal/pediatric stethoscope + oxygen tank + Portable Doppler/Pinard stethoscope + reanimation resuscitation bag for adult + neonatal resuscitation bag + amikacin/amikacin sulfate + penicillin crystalline/ampicillin/amoxicillin + ceftriaxone +



chloramphenicol/metronidazole + furosemide + hydralazine/hydralazine hydrochloride + ergonovine maleate/ergometrine/oxytocin + sevoflurane + succinylcholine (suxamethonium). No break in supply of the following inputs in the last three months (including the day of the survey): magnesium sulfate + dexamethasone/betamethasone + ceftriaxone + diazepam/midazolam hydrochloride + nifedipine

#### 7. Access to safe blood for monitoring purposes

Denominator:

Total number of complete health facilities in the sample.

Formula:

*Complete:* Facilities that have access to safe blood

#### 8. Health facilities with availability of services 24 hours a days, 7 days a week for monitoring purposes

Denominator:

Total number of complete health facilities in our sample.

Formula:

*Complete:* 24/7 availability of: obstetrician and gynecologist + internist + anesthesiologist

#### 9. Health facilities with socio-cultural services for monitoring purposes

Denominator:

Total number of health facilities in the sample.

Formula:

*Ambulatory:* Health facility self-reports adapting services to the sociocultural conditions of women

*Basic:* Health facility self-reports adapting services to the sociocultural conditions of women

*Complete:* Health facility self-reports adapting services to the sociocultural conditions of women

**10. Children diagnosed with diarrhea seen at the health facility, evaluated, classified and treated according to the degree of dehydration in the last two year for monitoring purposes**

Denominator:

Total number of diarrhea care records among ambulatory facilities in our sample, from the past two years.

Formula:

*Ambulatory:* symptoms recorded (general condition + eyes + thirst + skinfold) + vital signs checked (pulse + capillary refill time) + treatment administered (oral rehydration salts/intravenous rehydration)

**11. 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/doctor in social services/nurse in social services + (date of 1<sup>st</sup> ANC visit – date of last menstrual period = before 12 weeks gestation)

*Basic:* First ANC visit performed by a doctor/nurse/doctor in social services/nurse in social services + (date of 1<sup>st</sup> ANC visit – date of last menstrual period = before 12 weeks gestation)

*Complete:* First ANC visit performed by a doctor/nurse/doctor in social services/nurse in social services + (date of 1<sup>st</sup> ANC visit – date of last menstrual period = before 12 weeks gestation)

**12. Women of reproductive age (15-49) who received >=5 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 5 ANC visits with the following: doctor/nurse/doctor in social services/nurse in social services/community worker + 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 glucose level + Hb level + HIV test + urinalysis.

*Basic:* At least 5 ANC visits with the following: doctor/nurse/doctor in social services/nurse in social services/community worker + 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 glucose level + Hb level + HIV test + urinalysis.

*Complete:* At least 1 ANC visit with the following: doctor/nurse/doctor in social services/nurse in social services + 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 + HIV test + platelet count + uric acid in blood + uric acid in urine + VDRL test + hb level + urinalysis.

**13. Women of reproductive age (15-49) who received  $\geq$  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/doctor in social services/nurse in social services + physical checkups (weight+ blood pressure + fundal height + edema presence + reflexes) + 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 + HIV test + platelet count + uric acid in blood + uric acid in urine + hb level + VDRL + urinalysis).

*Basic:* At least 4 ANC visits with the follow: doctor/nurse/doctor in social services/nurse in social services + physical checkups (weight+ blood pressure + fundal height + edema presence + reflexes) + 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 + urinalysis).

*Complete:* At least 4 ANC visits with the follow: doctor/nurse/doctor in social services/nurse in social services + physical checkups (weight+ blood pressure + fundal height + edema presence + reflexes) + 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 + urinalysis).

**14. C-sections as proportion of childbirths in the last two years for monitoring purposes:**

Denominator:

Total number of births in the last 2 years at basic and complete facilities in the sample.

Formula:

Number of C-sections in the last 2 years / total number of births in the last two years

**15. 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

**16. 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). If a partograph is completed and included in the record (regardless of the type of delivery) the following standards must be met: 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) + a note is in the partograph/records within 30 minutes (if 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). If a partograph is completed and included in the record (regardless of the type of delivery) the following standards must be met: 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) + a note is in the partograph/records within 30 minutes (if alert curve is surpassed).

**17. 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 and at least once at discharge for monitoring purposes:**

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 + respiratory rate + pulse/heart rate. Checked two times in the second hour: systolic blood pressure + diastolic blood pressure + temperature + respiratory rate + pulse/heart rate. Checked at discharge: blood pressure + temperature + pulse/heart rate + respiratory rate.

*Complete:* Checked four times in the first hour: systolic blood pressure + diastolic blood pressure + temperature + respiratory rate + pulse/heart rate. Checked two times in the second hour: systolic blood pressure + diastolic blood pressure + temperature + respiratory rate + pulse/heart rate. Checked at discharge: blood pressure + temperature + pulse/heart rate + respiratory rate.

**18. Neonates who received care according to standards from medical personnel 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/doctor or nurse in social services/midwife + all procedures and checkups recorded (Apgar score at 1 and 5 minutes + bcg vaccination + evaluation of malformations presence + head circumference + height + oxytetracycline ophthalmic (such as prophylaxis or chloramphenicol) administration + pulse + respiratory rate + skin color + chlorhexidine/water for umbilical cord + vitamin k administration + weight)

*Complete:* Newborn was attended by a doctor/nurse/doctor or nurse in social services/midwife + all procedures and checkups recorded (Apgar score at 1 and 5 minutes + bcg vaccination + evaluation of malformations presence + head circumference + height + oxytetracycline ophthalmic (such as

prophylaxis or chloramphenicol) administration + pulse + respiratory rate + skin color + chlorhexidine/water for umbilical cord + vitamin k administration + weight)

**19. 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) + medication administered (oxytocin/other uterotonic + Ringer's lactate) + result was recorded

*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 uterotonic) + cause of hemorrhage recorded

Pre-eclampsia:

*Basic:* Observe the following in the record: vital signs checked (systolic blood pressure + diastolic blood pressure) + lab tests performed (urine protein) + medication administered (magnesium sulfate + hydralazine/nifedipine/other hypertensive (if diastolic blood pressure is >110))

*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/other hypertensive (if diastolic blood pressure is >110) + dexamethasone/betamethasone (if gestational age is 26-34 weeks)) + outcome of pregnancy recorded

Eclampsia:

*Basic:* Observe the following in the record: vital signs checked (systolic blood pressure + diastolic blood pressure) + lab tests performed (urine protein) + medication administered (magnesium sulfate + hydralazine/nifedipine/other hypertensive (if diastolic blood pressure is >110))

*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/other hypertensive (if diastolic blood pressure is >110) + dexamethasone/betamethasone

(if gestational age is 26-34 weeks)) + outcome of pregnancy recorded

Sepsis:

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

**20. 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 + Silverman score) + lab tests performed (blood glucose level + oxygen saturation level)

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)

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) + treatment with antibiotics (ampicillin/gentamicin/other antibiotic)

*Complete:* Observe the following in the record: vital signs checked (pulse + respiratory rate + Silverman score) + lab tests performed (oxygen saturation level + blood glucose level + hemoglobin + c-reactive protein + erythrocyte sedimentation rate + chest x-ray) + treatment with antibiotics (ampicillin/gentamicin/other antibiotic)

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) + lab tests performed (leukocyte count + neutrophil morphology + platelet count + blood glucose level) + treatment with antibiotics (ampicillin/gentamicin/other antibiotic) + transferred/referred to a complete facility

*Complete:* Observe the following in the record: neonate was evaluated by a doctor + vital signs checked (temperature + pulse) + lab tests performed (leukocyte count + c-reactive protein + erythrocyte sedimentation rate) + treatment with antibiotics (ampicillin/gentamicin/other antibiotic)