

**Salud Mesoamérica Initiative**  
**El Salvador**  
**Health Facility Data Quality Report**  
**Second Follow-up Measurement**

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June 2018



## Contents

Foreword.....	4
<b>1 Chapter 1: Survey Methodology .....</b>	<b>5</b>
1.1 Overview .....	5
1.2 Health facility surveys.....	5
1.3 Contents and methods for data collection .....	5
1.4 Sampling .....	6
1.5 Survey implementation .....	7
<b>2 Chapter 2: Facility-level infrastructure, resources, management, and support .....</b>	<b>9</b>
2.1 General description .....	9
2.2 Personnel.....	14
2.3 Basic infrastructure.....	17
2.4 Internet access.....	18
2.5 Blood supply monitoring indicator.....	19
<b>3 Chapter 3: Child health.....</b>	<b>20</b>
3.1 Child health care services provision.....	20
3.2 Child health care equipment.....	20
3.3 Child health care pharmacy inputs .....	21
3.4 Child health care vaccine provision.....	22
3.5 Composite child health care indicator .....	23
3.6 Diarrhea management, child medical records .....	24
<b>4 Chapter 4: Immunization services.....</b>	<b>26</b>
4.1 Immunization services provision.....	26
4.2 Vaccine storage .....	26
4.3 Vaccine supply .....	27
4.4 Refrigerators for vaccine storage.....	29
4.5 Vaccines observed .....	30
4.6 Cold chain composite monitoring indicator.....	31
<b>5 Chapter 5: Family planning services.....</b>	<b>32</b>
5.1 Family planning services provision.....	32
5.2 Contraceptive methods observed .....	32
5.3 Family planning services composite monitoring indicator.....	33
<b>6 Chapter 6: Maternal health: antenatal care (ANC), delivery, and postpartum care (PPC).....</b>	<b>35</b>
6.1 Service provision.....	35
6.2 ANC and PNC equipment.....	36
6.3 ANC and PNC pharmacy inputs .....	36
6.4 ANC and PNC laboratory inputs .....	37
6.5 ANC/PNC composite indicator .....	38
6.6 Delivery care equipment observed .....	39
6.7 Delivery care pharmacy inputs.....	39

6.8	Delivery care composite indicator .....	40
6.9	Cesarean section prevalence.....	40
6.10	Medical Record Review: four antenatal care visits according to SMI standard (performance indicator).....	41
6.11	Medical Record Review: four antenatal care visits according to SMI standard (monitoring indicator).....	41
6.12	Antenatal care medical record review: timely first antenatal care visit .....	42
6.13	Antenatal care medical record review: birth plans.....	43
6.14	Medical record review: immediate maternal postpartum care.....	43
6.15	Medical record review: active management of third stage of labor .....	44
6.16	Medical record review: postpartum contraception administration .....	44
6.17	Medical record review: immediate neonatal postpartum care .....	45
<b>7</b>	<b>Chapter 7: Maternal and neonatal health: complications .....</b>	<b>46</b>
7.1	Emergency obstetric and neonatal care service provision.....	46
7.2	Emergency care composite indicator: equipment.....	46
7.3	Emergency care composite indicator: pharmacy inputs .....	47
7.4	Emergency care composite indicator .....	48
7.5	Uterine balloon availability .....	48
7.6	Distribution of obstetric and neonatal complications.....	49
7.8	Management of neonatal complications in previous two years (sepsis, asphyxia, low birth weight, prematurity).....	56
<b>8</b>	<b>Chapter 8: Infection control .....</b>	<b>62</b>
8.1	Disposal equipment and methodology .....	62
	<b>Appendix A: Indicator Matrices .....</b>	<b>63</b>
	<b>Appendix B: Indicator Definitions .....</b>	<b>64</b>
8.2	Performance Indicators .....	64
8.3	Monitoring Indicators .....	64

## Foreword

This Data Quality Report on the Salud Mesoamérica Initiative (SMI) El Salvador Health Facility Surveys was produced in agreement with the Inter-American Development Bank (IDB). All analyses and writing were conducted by the Institute for Health Metrics and Evaluation (IHME) at the University of Washington.

### 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 better-informed decision-making and higher achievement in health. To that end, we strive to build the objective evidence about what does and does not improve health conditions and health system performance. IHME provides high-quality and timely information on health, enabling policymakers, researchers, donors, practitioners, local decision-makers, and others to better allocate limited resources to achieve optimal results.

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### Acknowledgments

This measurement was funded by the Bill & Melinda Gates Foundation, the Carlos Slim Foundation, and the Spanish Agency for International Development Cooperation, through the Inter-American Development Bank. We thank all the children and families who willingly participated in the study. We thank central and local governments for the support they extended to the study teams and their facilitation of access to communities and health facilities. We extend our gratitude to UNIMER for their implementation of data collection in El Salvador for this project.

# 1 Chapter 1: Survey Methodology

## 1.1 Overview

Salud Mesoamérica Initiative (SMI) is a regional public-private partnership that brings together Mesoamerican governments, 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 focuses on supply- and demand-side interventions, including 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 (RBA) aid model that relies on performance measurement and enhanced transparency and accountability. The initiative focuses its resources on integrating key interventions aimed at reducing health inequalities that stem from the lack of access to quality reproductive, maternal, neonatal, and child health services (including immunization and nutrition services) for the poorest quintile of the population.

The objectives of the SMI evaluation are to assess whether countries are reaching the indicator targets set by the Initiative and to evaluate the results of specific interventions. In El Salvador, baseline data were collected at households and health facilities in intervention areas (2011). The first follow-up data collection took place at health facilities in intervention areas (2014), and this second follow-up measurement was performed at households and health facilities in intervention areas (2017).

## 1.2 Health facility surveys

In general terms, the objectives of the health facility survey are to assess facility conditions, evaluate service provision and utilization, and measure quality of care. The medical record review (MRR) is implemented to collect retrospective data on facilities' treatment practices. Importantly, health facility data collection captures changes produced by interventions at the level of the health services access point, which may foretell changes in population health outcomes.

## 1.3 Contents and methods for data collection

### 1.3.1 Contents of the 2017 second follow-up measurement in health facilities

The second follow-up health facility survey includes three components: an interview questionnaire, an observation checklist, and MRRs. The questionnaire captures information reported by the facility director, manager, or person in charge of the health facility. Data are collected on general facility characteristics, infrastructure, and human resource composition, supply logistics, infection control, child health care, vaccine availability, family planning, and maternal, antenatal, delivery, and postpartum care. The checklist captures the direct observations of the surveyors at the time of the survey using an observation checklist, and in the case of some inputs, also reviewing administrative records to identify the presence of stock-outs in the three months prior to the survey. The MRR assesses the record keeping of the facilities and captures facilities' treatment practices in the case of various medical complications that women and infants experience, as well as the care provided before, during, and after uncomplicated deliveries.

## 1.4 Sampling

### 1.4.1 Health facility sampling

For this evaluation, a sample of 60 intervention-area health facilities was selected from a list of all facilities serving the 14 municipalities covered by the SMI initiative, located in the departments of Cabañas, Morazán, La Unión, La Libertad, Cuscatlán, San Vicente, Ahuachapán, and La Paz. Hospitals located outside of these 14 municipalities but that serve as referral hospitals for these populations were also included in the sample. Indicators measured at the hospital level are only used for monitoring purposes. This list was constructed according to a referral network outlined by the Ministry of Health. Facilities in El Salvador are grouped according to two levels of Essential Obstetric and Neonatal Care (EONC) services provided: ambulatory and complete. Ambulatory facilities provide outpatient care, while complete facilities are able to attend uncomplicated and complicated deliveries, provide immediate emergency obstetric and neonatal care, and have surgical capacity. Ambulatory facilities are further categorized based on employed personnel into “Family ECOS” and “Specialized ECOS”. While Family ECOS consist of one staff team serving a health unit, Specialized ECOS may consist of multiple staff teams that are based within the same physical structure or location. Health centers classified as Specialized ECOS include a team of specialized health care professionals, in addition to the more basic Family ECOS staff teams.

Family ECOS that are combined with Specialized ECOS each serve separate populations from designated areas; therefore, they hold separate registries and medical records. However, as these staffing teams are based at the same physical location, they are evaluated as a single unit in all indicators, with the exception of the indicator relating to staff composition.

All hospitals (9) and combined Specialized ECOS (3) are selected with certainty. The remaining 48 facilities are ambulatory Family ECOS, and are selected from a stratified random sample such that 50% come from the baseline sample, and 50% are new facilities. However, in El Salvador only 15 Family ECOS were not visited at the baseline, so the sampling frame was adjusted to account for this. Two backup facilities per municipality are selected in case sampled facilities cannot be interviewed due to security or logistic concerns.

### 1.4.2 Medical record review sampling

To complete the medical record portion of the survey, records are randomly selected according to the level of services provided at the facility and the number of facilities within the study sample in order to reach a set total sample size of records for each review module. Reviews were conducted of antenatal care, child growth and development follow-up, and diarrhea records at ambulatory facilities, while uncomplicated delivery, postpartum, and neonatal and maternal complications records were reviewed at complete facilities.

Medical record review quotas are set per facility by dividing the total number of records to be reviewed in intervention areas by the number of data entry modules to be completed at each level of care, and then among all sampled facilities at each level. Quota calculations take into account the prevalence of each type of record as measured in the SMI first follow-up survey, as well as the statistical power necessary

to detect projected differences from baseline to the second follow-up for performance indicators for SMI interventions. Cases of obstetric 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 surveys are conducted using a computer-assisted personal interview (CAPI). The CAPI was programmed using DatStat Illume and installed onto computer netbooks. 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, maintain a logical answering pattern across different questions, decrease data entry errors, and permit rapid data verification remotely.

### **1.5.2 Training and supervision of data collectors**

Training sessions and health facility and household pilot surveys were conducted in El Salvador from July 17, 2017 to July 21, 2017. Two doctors and two nurses were trained to conduct the health facility surveys. For the household and census data collection, 26 surveyors and six anthropometrists were trained. All UNIMER contracted employees underwent training led by IHME. Teams were split into their respective groups and given in-depth training and practice for each relevant component of data collection. The training included content of each survey, proper conduct of the survey, in-depth review of the instrument, and hands-on training on the CAPI software. Household surveyors participated in a two-day pilot data collection exercise in communities that were not selected to be part of the SMI sample, where they applied the census and household survey. Health facility surveyors participated in a pilot at out-of-sample health facilities of different EONC levels where they applied the questionnaire, conducted observation exercises, and practiced medical record sampling and review. Representatives from IHME, IDB, and the El Salvador Ministry of Health provided oversight during pilot exercises. IHME and UNIMER held debriefing and re-training sessions with surveyors post-pilot and provided continued training during the first week of data collection in sampled communities and health facilities.

### **1.5.3 Data collection and management**

As described above, data were collected using computer netbooks equipped with CAPI software. Field team leaders monitored the implementation of the 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 instrument and readily transmitted to the field. In El Salvador, data collection was conducted between July 26, 2017 and December 15, 2017.

#### **1.5.4 Data analysis and report writing**

Data analysis was conducted at IHME. Analysis was done using STATA version 14. Performance indicators were calculated at IHME following indicator definitions provided by IDB. This report provides detailed information on key indicator components and overall data quality from the 60 facilities selected in intervention areas in El Salvador.



## 2 Chapter 2: Facility-level infrastructure, resources, management, and support

### 2.1 General description

#### 2.1.1 Health facility classification

Table 2.1 shows the number of health facilities by EONC classification level in all evaluation periods.

**Table 2.1: Health facility classification**

EONC	Baseline	First Follow-Up	Second Follow-Up
Ambulatory (Specialized ECOS)	3	3	3
Ambulatory (Family ECOS)	55	48	48
Complete	7	9	9
Total	65	60	60

#### 2.1.2 Geographical representation

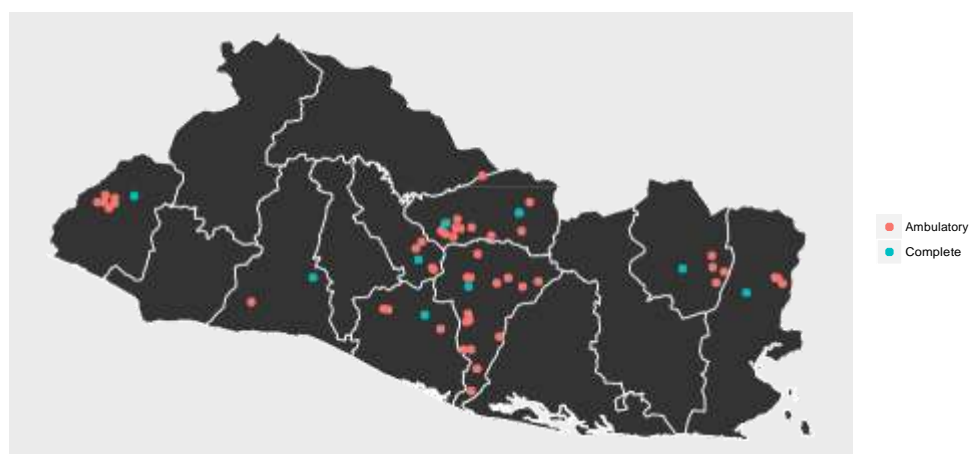
Facilities surveyed during the 36-month evaluation were located in 22 municipalities within eight departments.

**Table 2.2: Number of facilities by municipality and health department**

Municipality	First Follow-up Facilities	Second Follow-up Facilities
<b>Ahuachapán</b>		
Ahuachapán	1	1
Tacuba	6	6
<b>Cabañas</b>		
Ilobasco	9	10
Sensuntepeque	5	5
<b>Cuscatlan</b>		
Cojutepeque	1	1
Monte San Juan	3	2
San Cristobal	3	2
<b>La Libertad</b>		
Chiltiupan	1	1
Santa Tecla	1	1
<b>La Paz</b>		
San Antonio Masahuat	2	2
Santa Maria Ostuma	3	1
Zacatecoluca	1	1
<b>La Union</b>		
El Sauce	3	3
La Union	1	-
Santa Rosa de Lima	-	1
<b>Morazan</b>		
San Francisco Gotera	1	1
Sociedad	3	4
<b>San Vicente</b>		
Apastepeque	3	5
San Esteban Catarina	2	1
San Ildefonso	2	2
San Vicente	1	1
Tecoluca	8	9
<b>Total</b>	<b>60</b>	<b>60</b>

\* Regional data not captured at baseline evaluation.

**Figure 2.1: Geographical representation of facilities**



### 2.1.3 Governing authority

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

**Table 2.3: Medical record extraction**

Record Type	First Follow-up		Second Follow-Up	
	Ambulatory	Complete	Ambulatory	Complete
Child follow-up	372	0	387	0
Diarrhea	212	0	430	0
Antenatal care	273	10	345	81
Delivery	0	190	0	243
Postpartum care	0	112	0	242
Maternal complications	0	213	0	252
Neonatal complications	0	209	0	252
-	-	-	-	-
Total	857	734	1162	1070

\* Medical record extraction only occurred at first and second follow-up evaluations.

### 2.1.4 Referrals

During the questionnaire component of the survey, complete facility representatives were asked about whether the facility receives patient referrals from other facilities and whether the facility sends patient referrals to other facilities. Referral practices specific to routine and complicated deliveries were also

evaluated. Referral practice data was not captured at the baseline evaluation, however all facilities indicated that they were a part of a referral network.

**Table 2.4: Referrals, ambulatory facilities**

	First Follow-up			Second Follow-Up		
	N	%	CI	N	%	CI
Receives referred patients from other facilities	51	47.1	(32.9 - 61.5)	51	17.6	(8.4 - 30.9)
Receives referred routine deliveries	-	-	-	9	11.1	(0.3 - 48.2)
Receives referred complicated deliveries	-	-	-	9	0.0	(0 - 33.6)
Sends patient referrals to other facilities	51	100.0	(93 - 100)	51	98.0	(89.6 - 100)
Sends referred routine deliveries	-	-	-	50	56.0	(41.3 - 70)
Sends referred complicated deliveries	-	-	-	50	54.0	(39.3 - 68.2)

**Table 2.5: Referrals, complete facilities**

	First Follow-Up			Second Follow-Up		
	N	%	CI	N	%	CI
Receives referred patients from other facilities	9	100	(66.4 - 100)	9	100.0	(66.4 - 100)
Receives referred routine deliveries	-	-	-	9	100.0	(66.4 - 100)
Receives referred complicated deliveries	-	-	-	9	88.9	(51.8 - 99.7)
Sends patient referrals to other facilities	9	100	(66.4 - 100)	9	100.0	(66.4 - 100)
Sends referred routine deliveries	-	-	-	9	11.1	(0.3 - 48.2)
Sends referred complicated deliveries	-	-	-	9	77.8	(40 - 97.2)

Representatives at facilities which receive referred patients for routine and complicated deliveries were also asked about documents requested during referral processing.

**Table 2.6: Requested referral documents, second follow-up evaluation**

	Complete		
	N	%	CI
<b>Routine Deliveries</b>			
Referral sheet	9	100.0	(66.4 - 100)
Patient medical record	9	44.4	(13.7 - 78.8)
Lab tests	9	11.1	(0.3 - 48.2)
Proof of insurance	9	0.0	(0 - 33.6)
Other documentation	9	22.2	(2.8 - 60)
<b>Complicated Deliveries</b>			
Referral sheet	8	100.0	(63.1 - 100)
Patient medical record	8	50.0	(15.7 - 84.3)
Lab tests	8	0.0	(0 - 36.9)
Proof of insurance	8	0.0	(0 - 36.9)
Other documentation	8	37.5	(8.5 - 75.5)

## 2.2 Personnel

### 2.2.1 Employed personnel

During the interview portion of the health facility surveys, representatives reported the types of staff employed at the facility. The following tables display the types of personnel employed from baseline to second follow-up by facility type. Each table displays the percent of facilities that employ at least one type of doctor or staff member listed. These tables do not reflect the total number or average number of staff employed at a given facility.

**Table 2.7: Personnel employed, Family ECOS**

	Baseline			First Follow-up			Second Follow-Up		
	N	%	CI	N	%	CI	N	%	CI
Doctor	55	98.2	(90.3 - 100)	48	100.0	(92.6 - 100)	48	97.9	(88.9 - 99.9)
General physician	55	98.2	(90.3 - 100)	48	100.0	(92.6 - 100)	48	68.8	(53.7 - 81.3)
Doctor in social service	-	-	-	-	-	-	48	45.8	(31.4 - 60.8)
Nurse	55	100.0	(93.5 - 100)	48	100.0	(92.6 - 100)	48	91.7	(80 - 97.7)
Nurse in social service	-	-	-	-	-	-	48	4.2	(0.5 - 14.3)
Auxiliary nurse	-	-	-	43	97.7	(87.7 - 99.9)	48	95.8	(85.7 - 99.5)
Polyvalent (multipurpose)	55	81.8	(69.1 - 90.9)	48	100.0	(92.6 - 100)	48	81.2	(67.4 - 91.1)
Health promoter	-	-	-	48	100.0	(92.6 - 100)	48	100.0	(92.6 - 100)
Pediatrician	-	-	-	48	4.2	(0.5 - 14.3)	48	0.0	(0 - 7.4)
Nutritionist	-	-	-	48	4.2	(0.5 - 14.3)	48	2.1	(0.1 - 11.1)
Pharmacist	-	-	-	48	70.8	(55.9 - 83)	48	18.8	(8.9 - 32.6)
Dentist	-	-	-	48	27.1	(15.3 - 41.8)	48	25.0	(13.6 - 39.6)
Physiotherapist	-	-	-	48	2.1	(0.1 - 11.1)	48	4.2	(0.5 - 14.3)
Health educator	-	-	-	48	0.0	(0 - 7.4)	48	0.0	(0 - 7.4)
Social worker	-	-	-	48	2.1	(0.1 - 11.1)	48	0.0	(0 - 7.4)
Lab technician	-	-	-	48	6.2	(1.3 - 17.2)	48	6.2	(1.3 - 17.2)
Equipment maintenance worker	-	-	-	48	4.2	(0.5 - 14.3)	48	0.0	(0 - 7.4)
Building maintenance worker	-	-	-	48	22.9	(12 - 37.3)	48	0.0	(0 - 7.4)

\* Baseline evaluation did not capture all personnel comparable to subsequent rounds.

† At the second follow-up, many facilities reported that the pharmacy is operated by an auxiliary nurse or other UCSF.

**Table 2.8: Personnel employed, Specialized ECOS**

	Baseline			First Follow-up			Second Follow-Up		
	N	%	CI	N	%	CI	N	%	CI
Doctor	3	66.7	(9.4 - 99.2)	3	66.7	(9.4 - 99.2)	3	100.0	(29.2 - 100)
General physician	3	66.7	(9.4 - 99.2)	3	66.7	(9.4 - 99.2)	3	100.0	(29.2 - 100)
Doctor in social service	-	-	-	-	-	-	3	66.7	(9.4 - 99.2)
Nurse	3	100.0	(29.2 - 100)	3	100.0	(29.2 - 100)	3	100.0	(29.2 - 100)
Nurse in social service	-	-	-	-	-	-	3	66.7	(9.4 - 99.2)
Auxiliary nurse	-	-	-	3	100.0	(29.2 - 100)	3	100.0	(29.2 - 100)
Polyvalent (multipurpose)	3	66.7	(9.4 - 99.2)	3	66.7	(9.4 - 99.2)	3	66.7	(9.4 - 99.2)
Health promoter	-	-	-	3	33.3	(0.8 - 90.6)	3	66.7	(9.4 - 99.2)
Pediatrician	3	100.0	(29.2 - 100)	3	100.0	(29.2 - 100)	3	100.0	(29.2 - 100)
Nutritionist	3	100.0	(29.2 - 100)	3	100.0	(29.2 - 100)	3	66.7	(9.4 - 99.2)
Pharmacist	3	100.0	(29.2 - 100)	3	100.0	(29.2 - 100)	3	100.0	(29.2 - 100)
Dentist	3	100.0	(29.2 - 100)	3	100.0	(29.2 - 100)	3	100.0	(29.2 - 100)
Physiotherapist	3	100.0	(29.2 - 100)	3	100.0	(29.2 - 100)	3	66.7	(9.4 - 99.2)
Health educator	3	66.7	(9.4 - 99.2)	3	100.0	(29.2 - 100)	3	100.0	(29.2 - 100)
Social worker	-	-	-	3	0.0	(0 - 70.8)	3	0.0	(0 - 70.8)
Lab technician	-	-	-	3	100.0	(29.2 - 100)	3	100.0	(29.2 - 100)
Internist	3	66.7	(9.4 - 99.2)	3	66.7	(9.4 - 99.2)	3	66.7	(9.4 - 99.2)
Gynecologist	3	100.0	(29.2 - 100)	3	100.0	(29.2 - 100)	3	100.0	(29.2 - 100)
Surgeon	-	-	-	3	0.0	(0 - 70.8)	3	0.0	(0 - 70.8)
Anesthesiologist	-	-	-	3	0.0	(0 - 70.8)	3	0.0	(0 - 70.8)
Emergency medical technician	3	0.0	(0 - 70.8)	3	33.3	(0.8 - 90.6)	3	33.3	(0.8 - 90.6)
Radiology technician	-	-	-	3	0.0	(0 - 70.8)	3	0.0	(0 - 70.8)
Ambulance driver	-	-	-	3	100.0	(29.2 - 100)	3	100.0	(29.2 - 100)
Equipment maintenance worker	-	-	-	3	33.3	(0.8 - 90.6)	3	33.3	(0.8 - 90.6)
Building maintenance worker	-	-	-	3	66.7	(9.4 - 99.2)	3	33.3	(0.8 - 90.6)

\* Baseline evaluation did not capture all personnel comparable to subsequent rounds.

† At the second follow-up, many facilities reported that the pharmacy is operated by an auxiliary nurse or other UCSF.

**Table 2.9: Personnel employed, complete facilities**

	Baseline			First Follow-up			Second Follow-Up		
	N	%	CI	N	%	CI	N	%	CI
Doctor	7	100.0	(59 - 100)	9	100.0	(66.4 - 100)	9	100.0	(66.4 - 100)
General physician	7	100.0	(59 - 100)	9	100.0	(66.4 - 100)	9	100.0	(66.4 - 100)
Doctor in social service	-	-	-	-	-	-	9	22.2	(2.8 - 60)
Nurse	7	71.4	(29 - 96.3)	9	100.0	(66.4 - 100)	9	100.0	(66.4 - 100)
Nurse in social service	-	-	-	-	-	-	9	100.0	(66.4 - 100)
Auxiliary nurse	-	-	-	9	100.0	(66.4 - 100)	9	100.0	(66.4 - 100)
Polyvalent (multipurpose)	7	57.1	(18.4 - 90.1)	9	77.8	(40 - 97.2)	9	22.2	(2.8 - 60)
Health promoter	-	-	-	9	33.3	(7.5 - 70.1)	9	0.0	(0 - 33.6)
Pediatrician	7	14.3	(0.4 - 57.9)	9	100.0	(66.4 - 100)	9	100.0	(66.4 - 100)
Nutritionist	7	14.3	(0.4 - 57.9)	9	88.9	(51.8 - 99.7)	9	88.9	(51.8 - 99.7)
Pharmacist	7	14.3	(0.4 - 57.9)	9	100.0	(66.4 - 100)	9	100.0	(66.4 - 100)
Dentist	7	71.4	(29 - 96.3)	9	88.9	(51.8 - 99.7)	9	77.8	(40 - 97.2)
Physiotherapist	7	14.3	(0.4 - 57.9)	9	100.0	(66.4 - 100)	9	100.0	(66.4 - 100)
Health educator	7	0.0	(0 - 41)	9	22.2	(2.8 - 60)	9	33.3	(7.5 - 70.1)
Social worker	-	-	-	9	100.0	(66.4 - 100)	9	100.0	(66.4 - 100)
Lab technician	-	-	-	9	100.0	(66.4 - 100)	9	100.0	(66.4 - 100)
Internist	7	0.0	(0 - 41)	9	100.0	(66.4 - 100)	9	100.0	(66.4 - 100)
Gynecologist	7	14.3	(0.4 - 57.9)	9	100.0	(66.4 - 100)	9	100.0	(66.4 - 100)
Surgeon	-	-	-	9	100.0	(66.4 - 100)	9	100.0	(66.4 - 100)
Anesthesiologist	-	-	-	9	77.8	(40 - 97.2)	9	100.0	(66.4 - 100)
Emergency medical technician	7	0.0	(0 - 41)	9	11.1	(0.3 - 48.2)	9	0.0	(0 - 33.6)
Radiology technician	-	-	-	9	100.0	(66.4 - 100)	9	100.0	(66.4 - 100)
Ambulance driver	-	-	-	9	100.0	(66.4 - 100)	9	88.9	(51.8 - 99.7)
Equipment maintenance worker	-	-	-	9	77.8	(40 - 97.2)	9	100.0	(66.4 - 100)
Building maintenance worker	-	-	-	9	88.9	(51.8 - 99.7)	9	88.9	(51.8 - 99.7)

\* Baseline evaluation did not capture all personnel comparable to subsequent rounds.

### 2.2.2 Personnel available 24/7: monitoring indicator

The personnel monitoring indicator (7190) evaluates the 24-hour-a-day, 7-day-a-week on-call availability of doctors of internal medicine, obstetricians/gynecologists, and anesthesiologists in complete level facilities. Most hospitals lacked this availability, with anesthesiologists being the least likely to be on call 24/7.



**Table 2.10: 24/7 availability of personnel on-call, complete facilities**

	First Follow-up			Second Follow-Up		
	N	%	CI	N	%	CI
Internist	9	55.6	(21.2 - 86.3)	9	22.2	(2.8 - 60)
Obstetrician / gynecologist	9	88.9	(51.8 - 99.7)	9	44.4	(13.7 - 78.8)
Anesthesiologist	9	55.6	(21.2 - 86.3)	9	11.1	(0.3 - 48.2)
All of the above available on-call 24/7	9	44.4	(13.7 - 78.8)	9	0.0	(0 - 33.6)

## 2.3 Basic infrastructure

### 2.3.1 Electricity and water

In the health facility questionnaire, facility managers were asked about sources of electricity and water to the facility. Facilities in the table below may report more than one source of electricity and water.

**Table 2.11: Access to electricity and water, ambulatory facilities**

	Baseline			First Follow-Up			Second Follow-Up		
	N	%	CI	N	%	CI	N	%	CI
Functional electricity supply	58	72.4	(59.1 - 83.3)	51	86.3	(73.7 - 94.3)	51	94.1	(83.8 - 98.8)
Central supply	42	90.5	(77.4 - 97.3)	44	97.7	(88 - 99.9)	48	100.0	(92.6 - 100)
Private electricity network	42	7.1	(1.5 - 19.5)	44	0.0	(0 - 8)	48	0.0	(0 - 7.4)
In-facility generator	42	0.0	(0 - 8.4)	44	2.3	(0.1 - 12)	48	0.0	(0 - 7.4)
Solar	42	2.4	(0.1 - 12.6)	44	0.0	(0 - 8)	48	0.0	(0 - 7.4)
Other source	42	0.0	(0 - 8.4)	44	2.3	(0.1 - 12)	48	0.0	(0 - 7.4)
Functional water supply	47	70.2	(55.1 - 82.7)	51	88.2	(76.1 - 95.6)	51	92.2	(81.1 - 97.8)
Piped into facility	44	75.0	(59.7 - 86.8)	51	70.6	(56.2 - 82.5)	51	86.3	(73.7 - 94.3)
Public well	44	11.4	(3.8 - 24.6)	51	11.8	(4.4 - 23.9)	51	0.0	(0 - 7)
Protected well at facility	44	2.3	(0.1 - 12)	51	2.0	(0 - 10.4)	51	2.0	(0 - 10.4)
Unprotected well	-	-	-	51	0.0	(0 - 7)	51	2.0	(0 - 10.4)
Manual pump	-	-	-	51	0.0	(0 - 7)	51	0.0	(0 - 7)
Bottled water	44	25.0	(13.2 - 40.3)	51	3.9	(0.5 - 13.5)	51	0.0	(0 - 7)
Tank or pipe truck	44	4.5	(0.6 - 15.5)	51	0.0	(0 - 7)	51	2.0	(0 - 10.4)
Rain water	-	-	-	51	0.0	(0 - 7)	51	0.0	(0 - 7)
Other source	44	11.4	(3.8 - 24.6)	51	21.6	(11.3 - 35.3)	51	13.7	(5.7 - 26.3)

**Table 2.12: Access to electricity and water, complete facilities**

	Baseline			First Follow-Up			Second Follow-Up		
	N	%	CI	N	%	CI	N	%	CI
Functional electricity supply	7	100.0	(59 - 100)	9	100.0	(66.4 - 100)	9	100.0	(66.4 - 100)
Central supply	7	100.0	(59 - 100)	9	100.0	(66.4 - 100)	9	88.9	(51.8 - 99.7)
Private electricity network	7	14.3	(0.4 - 57.9)	9	0.0	(0 - 33.6)	9	11.1	(0.3 - 48.2)
In-facility generator	7	0.0	(0 - 41)	9	33.3	(7.5 - 70.1)	9	0.0	(0 - 33.6)
Solar	7	0.0	(0 - 41)	9	0.0	(0 - 33.6)	9	0.0	(0 - 33.6)
Other source	7	0.0	(0 - 41)	9	0.0	(0 - 33.6)	9	0.0	(0 - 33.6)
Functional water supply	7	100.0	(59 - 100)	9	100.0	(66.4 - 100)	9	100.0	(66.4 - 100)
Piped into facility	7	100.0	(59 - 100)	9	88.9	(51.8 - 99.7)	9	100.0	(66.4 - 100)
Public well	7	0.0	(0 - 41)	9	0.0	(0 - 33.6)	9	0.0	(0 - 33.6)
Protected well at facility	7	0.0	(0 - 41)	9	44.4	(13.7 - 78.8)	9	22.2	(2.8 - 60)
Unprotected well	-	-	-	9	0.0	(0 - 33.6)	9	11.1	(0.3 - 48.2)
Manual pump	-	-	-	9	0.0	(0 - 33.6)	9	0.0	(0 - 33.6)
Bottled water	7	14.3	(0.4 - 57.9)	9	0.0	(0 - 33.6)	9	0.0	(0 - 33.6)
Tank or pipe truck	7	0.0	(0 - 41)	9	0.0	(0 - 33.6)	9	0.0	(0 - 33.6)
Rain water	-	-	-	9	0.0	(0 - 33.6)	9	0.0	(0 - 33.6)
Other source	7	0.0	(0 - 41)	9	0.0	(0 - 33.6)	9	0.0	(0 - 33.6)

## 2.4 Internet access

During the questionnaire, facility representatives were asked whether the facility has an internet connection. Internet availability data was not captured at the baseline evaluation.

**Table 2.13: Internet access, ambulatory facilities**

	First Follow-up			Second Follow-Up		
	N	%	CI	N	%	CI
Internet connection	51	17.6	(8.4 - 30.9)	51	7.8	(2.2 - 18.9)

**Table 2.14: Internet access, complete facilities**

	First Follow-up			Second Follow-Up		
	N	%	CI	N	%	CI
Internet connection	9	100	(66.4 - 100)	9	100	(66.4 - 100)

## 2.5 Blood supply monitoring indicator

Monitoring indicator 7210 evaluate reported access to a supply of safe blood in hospitals.

**Table 2.15: Blood supply monitoring indicator, hospitals**

	First Follow-up			Second Follow-Up		
	N	%	CI	N	%	CI
Access to safe blood	9	100	(66.4 - 100)	9	88.9	(51.8 - 99.7)

\* Access to safe blood is based on data reported by health facility representatives.

### 3 Chapter 3: Child health

#### 3.1 Child health care services provision

This chapter summarizes key aspects of child health care. In the questionnaire component of the survey, facility representatives were asked about service provision. 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. Slight discrepancies may exist between responses in the questionnaire and observation.

**Table 3.1: Child health care services provision, ambulatory facilities**

	Baseline			First Follow-Up			Second Follow-Up		
	N	%	CI	N	%	CI	N	%	CI
Provides childcare services	58	100.0	(93.8 - 100)	51	100.0	(93 - 100)	51	100.0	(93 - 100)
Vaccinates children under five	58	98.3	(90.8 - 100)	51	100.0	(93 - 100)	51	100.0	(93 - 100)
<b>Child health care area</b>									
Visual and auditory privacy	-	-	-	51	78.4	(64.7 - 88.7)	51	94.1	(83.8 - 98.8)
Non private area	-	-	-	51	5.9	(1.2 - 16.2)	51	5.9	(1.2 - 16.2)
Visual privacy only	-	-	-	51	15.7	(7 - 28.6)	51	0.0	(0 - 7)
Other	-	-	-	51	0.0	(0 - 7)	51	0.0	(0 - 7)
Do not provide service	-	-	-	51	0.0	(0 - 7)	51	0.0	(0 - 7)

**Table 3.2: Child health care services provision, complete facilities**

	Baseline			First Follow-Up			Second Follow-Up		
	N	%	CI	N	%	CI	N	%	CI
Provides childcare services	7	100	(59 - 100)	9	100	(66.4 - 100)	9	100.0	(66.4 - 100)
Vaccinates children under five	7	100	(59 - 100)	9	100	(66.4 - 100)	9	88.9	(51.8 - 99.7)
<b>Child health care area</b>									
Visual and auditory privacy	-	-	-	9	100	(66.4 - 100)	9	100.0	(66.4 - 100)
Non private area	-	-	-	9	0	(0 - 33.6)	9	0.0	(0 - 33.6)
Visual privacy only	-	-	-	9	0	(0 - 33.6)	9	0.0	(0 - 33.6)
Other	-	-	-	9	0	(0 - 33.6)	9	0.0	(0 - 33.6)
Do not provide service	-	-	-	9	0	(0 - 33.6)	9	0.0	(0 - 33.6)

#### 3.2 Child health care equipment

During the observation component of the survey, interviewers observed the presence and functionality (if possible) of equipment related to child health care in ambulatory facilities. The standards for child

health care are determined by the SMI composite child health care indicator (7010). Facilities which do not provide child care or for which interviewers did not enter the child care area during observation are excluded. Unless otherwise specified, at least one functional item must be observed for each of the child care equipment requirements. Drug requirements for child health are detailed in section 3.3.

**Table 3.3: Child health care equipment observed and functional, ambulatory facilities**

	Baseline			First Follow-Up			Second Follow-Up		
	N	%	CI	N	%	CI	N	%	CI
Pediatric scale	52	88.5	(76.6 - 95.6)	51	96.1	(86.5 - 99.5)	51	90.2	(78.6 - 96.7)
Child scale	50	94.0	(83.5 - 98.7)	51	100.0	(93 - 100)	51	100.0	(93 - 100)
Height rod	-	-	-	51	64.7	(50.1 - 77.6)	51	100.0	(93 - 100)
Stethoscope	-	-	-	51	100.0	(93 - 100)	51	98.0	(89.6 - 100)
Thermometer	55	96.4	(87.5 - 99.6)	51	100.0	(93 - 100)	51	100.0	(93 - 100)
All equipment observed and functional	-	-	-	51	62.7	(48.1 - 75.9)	51	88.2	(76.1 - 95.6)

**Table 3.4: Child health care equipment observed and functional, complete facilities**

	Baseline			First Follow-Up			Second Follow-Up		
	N	%	CI	N	%	CI	N	%	CI
Pediatric scale	7	100	(59 - 100)	9	77.8	(40 - 97.2)	9	77.8	(40 - 97.2)
Child scale	7	100	(59 - 100)	9	100.0	(66.4 - 100)	9	100.0	(66.4 - 100)
Height rod	-	-	-	9	88.9	(51.8 - 99.7)	9	100.0	(66.4 - 100)
Pediatric stethoscope	-	-	-	9	77.8	(40 - 97.2)	9	77.8	(40 - 97.2)
Pediatric blood pressure device	-	-	-	9	88.9	(51.8 - 99.7)	9	88.9	(51.8 - 99.7)
All equipment observed and functional	-	-	-	9	55.6	(21.2 - 86.3)	9	66.7	(29.9 - 92.5)

### 3.3 Child health care pharmacy inputs

During the observation component of the survey, interviewers evaluated the presence and stock of pharmacy inputs related to child health care, such as deworming and diarrhea medication. The standards for child health care are determined by the SMI composite child health care indicator (7010). Interviewers were instructed to observe each drug and review any kardex or written documentation for stock-out in the last three months. If the facility did not have three-month stock documentation at the first or second follow-up, the facility was considered to be stocked out of the drug and did not pass that portion of the indicator. Since the baseline survey did not capture whether or not stock information came from a kardex, it is assumed that all three-month stock data collected came from documentation, as was instructed.

**Table 3.5: Child health care pharmacy inputs, ambulatory facilities**

	Baseline			First Follow-Up			Second Follow-Up		
	N	%	CI	N	%	CI	N	%	CI
Oral rehydration medication	58	89.7	(78.8 - 96.1)	51	98	(89.6 - 100)	51	100.0	(93 - 100)
Ferrous sulfate / micronutrients	-	-	-	51	100	(93 - 100)	51	98.0	(89.6 - 100)
Albendazole / mebendazole	58	48.3	(35 - 61.8)	51	100	(93 - 100)	51	98.0	(89.6 - 100)
Erythromycin / ampicillin / Penicillin benzathine	-	-	-	51	100	(93 - 100)	50	34.0	(21.2 - 48.8)
All drugs observed day of survey	-	-	-	51	98	(89.6 - 100)	51	35.3	(22.4 - 49.9)
All drugs continuously available in past 3 months	-	-	-	-	-	-	51	29.4	(17.5 - 43.8)

\* Mebendazol not captured at baseline.

† Erythromycin / ampicillin / Penicillin benzathine only required at ambulatory facilities with a doctor on staff.

**Table 3.6: Child health care pharmacy inputs, complete facilities**

	Baseline			First Follow-Up			Second Follow-Up		
	N	%	CI	N	%	CI	N	%	CI
Oral rehydration medication	7	100.0	(59 - 100)	9	88.9	(51.8 - 99.7)	9	100.0	(66.4 - 100)
Ferrous sulfate / micronutrients	-	-	-	9	100.0	(66.4 - 100)	9	77.8	(40 - 97.2)
Albendazole / mebendazole	7	42.9	(9.9 - 81.6)	9	100.0	(66.4 - 100)	9	100.0	(66.4 - 100)
Penicillin crystals / ampicillin IV / amoxicillin	-	-	-	9	100.0	(66.4 - 100)	9	100.0	(66.4 - 100)
Ringers lactate / Hartman's / saline solution	-	-	-	-	-	-	9	100.0	(66.4 - 100)
All drugs observed day of survey	-	-	-	9	88.9	(51.8 - 99.7)	9	77.8	(40 - 97.2)
All drugs continuously available in past 3 months	-	-	-	-	-	-	9	66.7	(29.9 - 92.5)

\* Mebendazol not captured as alternative at baseline.

### 3.4 Child health care vaccine provision

During the observation component of the survey, interviewers used registries to evaluate the stock of vaccines administered to children at facilities which store vaccines. The standards for child immunization are determined by the SMI composite child health care indicator (7010). Interviewers were instructed to observe each vaccine and review any kardex or written documentation for stock-out in the last three months. If the facility did not have three-month stock documentation at the first or second follow-up, the facility was considered to be stocked out of the vaccine and did not pass that portion of the indicator. Since the baseline survey did not capture whether or not stock information came from a kardex, it is assumed that all three-month stock data collected came from documentation, as was instructed.

**Table 3.7: Child health care vaccine availability, ambulatory facilities**

	Baseline			First Follow-Up			Second Follow-Up		
	N	%	CI	N	%	CI	N	%	CI
Pentavalent (DPT + HepB + Hib)	25	20	(6.8 - 40.7)	38	100.0	(90.7 - 100)	47	100.0	(92.5 - 100)
Polio	25	20	(6.8 - 40.7)	38	94.7	(82.3 - 99.4)	47	68.1	(52.9 - 80.9)
Measles, mumps, rubella	25	20	(6.8 - 40.7)	38	97.4	(86.2 - 99.9)	47	100.0	(92.5 - 100)
Rotavirus	25	20	(6.8 - 40.7)	38	97.4	(86.2 - 99.9)	47	100.0	(92.5 - 100)
Pneumococcal conjugate	25	16	(4.5 - 36.1)	38	94.7	(82.3 - 99.4)	47	100.0	(92.5 - 100)
BCG	25	12	(2.5 - 31.2)	38	92.1	(78.6 - 98.3)	47	87.2	(74.3 - 95.2)
Influenza	-	-	-	38	18.4	(7.7 - 34.3)	47	93.6	(82.5 - 98.7)
All vaccines continuously available in past 3 months	-	-	-	38	15.8	(6 - 31.3)	47	2.1	(0.1 - 11.3)

\* Three-month stock only evaluated for MMR and BCG at first follow-up evaluation.

**Table 3.8: Child health care vaccine availability, complete facilities**

	Baseline			First Follow-Up			Second Follow-Up		
	N	%	CI	N	%	CI	N	%	CI
Pentavalent (DPT + HepB + Hib)	-	-	-	9	100.0	(66.4 - 100)	9	100.0	(66.4 - 100)
Polio	-	-	-	9	100.0	(66.4 - 100)	9	77.8	(40 - 97.2)
Measles, mumps, rubella	-	-	-	9	100.0	(66.4 - 100)	9	100.0	(66.4 - 100)
Rotavirus	-	-	-	9	100.0	(66.4 - 100)	9	88.9	(51.8 - 99.7)
Pneumococcal conjugate	-	-	-	9	100.0	(66.4 - 100)	9	88.9	(51.8 - 99.7)
BCG	-	-	-	9	100.0	(66.4 - 100)	9	100.0	(66.4 - 100)
Influenza	-	-	-	9	22.2	(2.8 - 60)	9	66.7	(29.9 - 92.5)
All vaccines continuously available in past 3 months	-	-	-	9	11.1	(0.3 - 48.2)	9	0.0	(0 - 33.6)

\* Three-month stock only evaluated for MMR and BCG at first follow-up evaluation.

† Vaccine availability not captured at baseline at complete facilities based on logic.

### 3.5 Composite child health care indicator

The tables below display composite performance in the SMI child health care indicator (7010). Facilities are evaluated on availability and functionality of equipment, continuous availability of pharmacy inputs, and continuous availability of vaccines (at facilities which store vaccines). At the first follow-up evaluation, three month vaccine stock was only captured for the BCG and MMR vaccines. Vaccine stock was only captured at facilities which indicated that they store vaccines and for which a vaccine registry was observed. Three month drug stock was not a requirement of this indicator at first follow-up.

**Table 3.9: Child health care composite indicator, ambulatory facilities**

	First Follow-Up			Second Follow-Up		
	N	%	CI	N	%	CI
All equipment observed and functional	51	62.7	(48.1 - 75.9)	51	88.2	(76.1 - 95.6)
All pharmacy inputs observed day of survey	51	98.0	(89.6 - 100)	51	35.3	(22.4 - 49.9)
Vaccines continuously available in past three months	38	15.8	(6 - 31.3)	47	51.1	(36.1 - 65.9)
Child health care provision according to standard, evaluating drug availability only on the day of the survey	51	21.6	(11.3 - 35.3)	51	13.7	(5.7 - 26.3)
Child health care provision according to standard, including three month drug availability	-	-	-	51	13.7	(5.7 - 26.3)

\* All vaccines evaluated on the day of the survey at facilities which store vaccines, only MRR and BCG evaluated for three month continuous supply.

**Table 3.10: Child health care composite indicator, complete facilities**

	First Follow-Up			Second Follow-Up		
	N	%	CI	N	%	CI
All equipment observed and functional	9	55.6	(21.2 - 86.3)	9	66.7	(29.9 - 92.5)
All pharmacy inputs observed day of survey	9	88.9	(51.8 - 99.7)	9	77.8	(40 - 97.2)
Vaccines continuously available in past three months	9	11.1	(0.3 - 48.2)	9	33.3	(7.5 - 70.1)
Child health care provision according to standard, evaluating drug availability only on the day of the survey	9	11.1	(0.3 - 48.2)	9	22.2	(2.8 - 60)
Child health care provision according to standard, including three month drug availability	-	-	-	9	11.1	(0.3 - 48.2)

\* All vaccines evaluated on the day of the survey at facilities which store vaccines, only MRR and BCG evaluated for three month continuous supply.

### 3.6 Diarrhea management, child medical records

The SMI monitoring indicator 4130 evaluates the treatment of childhood diarrhea based on medical records of cases in the past two years.



**Table 3.11: Child diarrhea treatment, medical records from ambulatory facilities**

	First Follow-Up			Second Follow-Up		
	N	%	CI	N	%	CI
All of the following symptoms evaluated	212	46.7	(39.8 - 53.7)	428	54.9	(50.1 - 59.7)
General condition	212	64.2	(57.3 - 70.6)	428	81.5	(77.5 - 85.1)
Eyes	212	57.1	(50.1 - 63.8)	428	68.0	(63.3 - 72.4)
Thirst	212	58.5	(51.5 - 65.2)	428	60.5	(55.7 - 65.2)
Skin	212	48.6	(41.7 - 55.5)	428	63.6	(58.8 - 68.1)
All of the following checks performed	212	16.5	(11.8 - 22.2)	428	65.4	(60.7 - 69.9)
Pulse / heart rate	212	30.2	(24.1 - 36.9)	428	92.3	(89.3 - 94.6)
Capillary fill	212	20.3	(15.1 - 26.3)	428	68.2	(63.6 - 72.6)
Treated appropriately (ORS / IV)	212	96.7	(93.3 - 98.7)	428	99.1	(97.6 - 99.7)
Diarrhea treated according to SMI standard	212	13.7	(9.4 - 19.1)	428	42.8	(38 - 47.6)

\* Heart rate not captured as pulse alternative at first follow-up evaluation.

## 4 Chapter 4: Immunization services

### 4.1 Immunization services provision

This chapter summarizes key aspects of immunization services. In the questionnaire component of the survey, facility representatives were asked about service provision as well as vaccine logistics. In the observation component, interviewers observed the setting of the room in which immunizations are provided, as well as the availability and stock of vaccines.

**Table 4.1: Immunization services provision, ambulatory facilities**

	Baseline			First Follow-Up			Second Follow-Up		
	N	%	CI	N	%	CI	N	%	CI
Vaccinates children under five	58	98.3	(90.8 - 100)	51	100.0	(93 - 100)	51	100.0	(93 - 100)
<b>Immunization area</b>									
Visual and auditory privacy	-	-	-	51	70.6	(56.2 - 82.5)	51	86.3	(73.7 - 94.3)
Non private area	-	-	-	51	13.7	(5.7 - 26.3)	51	13.7	(5.7 - 26.3)
Visual privacy only	-	-	-	51	15.7	(7 - 28.6)	51	0.0	(0 - 7)
Other	-	-	-	51	0.0	(0 - 7)	51	0.0	(0 - 7)
Do not provide service	-	-	-	51	0.0	(0 - 7)	51	0.0	(0 - 7)

**Table 4.2: Immunization services provision, complete facilities**

	Baseline			First Follow-Up			Second Follow-Up		
	N	%	CI	N	%	CI	N	%	CI
Vaccinates children under five	7	100	(59 - 100)	9	100	(66.4 - 100)	9	88.9	(51.8 - 99.7)
<b>Immunization area</b>									
Visual and auditory privacy	-	-	-	9	100	(66.4 - 100)	9	100.0	(66.4 - 100)
Non private area	-	-	-	9	0	(0 - 33.6)	9	0.0	(0 - 33.6)
Visual privacy only	-	-	-	9	0	(0 - 33.6)	9	0.0	(0 - 33.6)
Other	-	-	-	9	0	(0 - 33.6)	9	0.0	(0 - 33.6)
Do not provide service	-	-	-	9	0	(0 - 33.6)	9	0.0	(0 - 33.6)

### 4.2 Vaccine storage

In the questionnaire component of the survey, representatives of facilities which provide immunization services to children under five were asked about vaccine storage logistics.

**Table 4.3: Vaccine storage, ambulatory facilities which provide immunization services to children under five**

	First Follow-Up			Second Follow-Up		
	N	%	CI	N	%	CI
Stores vaccines	51	76.5	(62.5 - 87.2)	51	94.1	(83.8 - 98.8)
Collected from another health facility	51	23.5	(12.8 - 37.5)	51	5.9	(1.2 - 16.2)
Delivered when immunization services provided	51	0.0	(0 - 7)	51	0.0	(0 - 7)
Does not store vaccines	51	0.0	(0 - 7)	51	0.0	(0 - 7)
Don't know / did not respond	51	0.0	(0 - 7)	51	0.0	(0 - 7)

**Table 4.4: Vaccine storage, complete facilities which provide immunization services to children under five**

	First Follow-Up			Second Follow-Up		
	N	%	CI	N	%	CI
Stores vaccines	9	100	(66.4 - 100)	9	100	(66.4 - 100)
Collected from another health facility	9	0	(0 - 33.6)	9	0	(0 - 33.6)
Delivered when immunization services provided	9	0	(0 - 33.6)	9	0	(0 - 33.6)
Does not store vaccines	9	0	(0 - 33.6)	9	0	(0 - 33.6)
Don't know / did not respond	9	0	(0 - 33.6)	9	0	(0 - 33.6)

### 4.3 Vaccine supply

Among those facilities which provide immunization services to children under five and store vaccines, representatives were also asked about vaccine supply logistics.

**Table 4.5: Vaccine supply, ambulatory facilities which provide immunization services to children under five**

	First Follow-Up			Second Follow-Up		
	N	%	CI	N	%	CI
<b>Ordering strategy</b>						
Determines own need	39	100.0	(91 - 100)	48	100.0	(92.6 - 100)
Need determined elsewhere	39	0.0	(0 - 9)	48	0.0	(0 - 7.4)
Both (differ by vaccine)	39	0.0	(0 - 9)	48	0.0	(0 - 7.4)
Don't know	39	0.0	(0 - 9)	48	0.0	(0 - 7.4)
<b>Time to receive supplies</b>						
One day	39	56.4	(39.6 - 72.2)	48	54.2	(39.2 - 68.6)
2 - 6 days	39	20.5	(9.3 - 36.5)	48	22.9	(12 - 37.3)
One week or longer	39	23.1	(11.1 - 39.3)	48	22.9	(12 - 37.3)
<b>Reception of quantity ordered</b>						
Always	39	92.3	(79.1 - 98.4)	48	68.8	(53.7 - 81.3)
Almost always	39	7.7	(1.6 - 20.9)	48	31.2	(18.7 - 46.3)
Almost never	39	0.0	(0 - 9)	48	0.0	(0 - 7.4)
Don't Know	39	0.0	(0 - 9)	48	0.0	(0 - 7.4)

**Table 4.6: Vaccine supply, complete facilities which provide immunization services to children under five**

	First Follow-Up			Second Follow-Up		
	N	%	CI	N	%	CI
<b>Ordering strategy</b>						
Determines own need	9	100.0	(66.4 - 100)	9	100.0	(66.4 - 100)
Need determined elsewhere	9	0.0	(0 - 33.6)	9	0.0	(0 - 33.6)
Both (differ by vaccine)	9	0.0	(0 - 33.6)	9	0.0	(0 - 33.6)
Don't know	9	0.0	(0 - 33.6)	9	0.0	(0 - 33.6)
<b>Time to receive supplies</b>						
One day	9	66.7	(29.9 - 92.5)	9	66.7	(29.9 - 92.5)
2 - 6 days	9	22.2	(2.8 - 60)	9	33.3	(7.5 - 70.1)
One week or longer	9	11.1	(0.3 - 48.2)	9	0.0	(0 - 33.6)
<b>Reception of quantity ordered</b>						
Always	9	88.9	(51.8 - 99.7)	9	88.9	(51.8 - 99.7)
Almost always	9	11.1	(0.3 - 48.2)	9	11.1	(0.3 - 48.2)
Almost never	9	0.0	(0 - 33.6)	9	0.0	(0 - 33.6)
Don't Know	9	0.0	(0 - 33.6)	9	0.0	(0 - 33.6)

#### 4.4 Refrigerators for vaccine storage

In the observation component of the survey, interviewers observed the number and functionality of each type of refrigerator used to store vaccines, at facilities which indicated that vaccines are stored on-site or are transported to the facility directly before use.

**Table 4.7: Vaccine storage equipment, ambulatory facilities**

	Baseline			First Follow-Up			Second Follow-Up		
	N	%	CI	N	%	CI	N	%	CI
<b>At least one of the following refrigerator type used for vaccine storage</b>									
Electric fridge	57	40.4	(27.6 - 54.2)	38	97.4	(86.2 - 99.9)	47	100.0	(92.5 - 100)
Kerosene fridge	57	0.0	(0 - 6.3)	38	0.0	(0 - 9.3)	47	0.0	(0 - 7.5)
Gas fridge	57	0.0	(0 - 6.3)	38	7.9	(1.7 - 21.4)	47	2.1	(0.1 - 11.3)
Solar fridge	57	0.0	(0 - 6.3)	38	0.0	(0 - 9.3)	47	0.0	(0 - 7.5)
Cold box	57	47.4	(34 - 61)	38	78.9	(62.7 - 90.4)	47	97.9	(88.7 - 99.9)

**Table 4.8: Vaccine storage equipment, complete facilities**

	Baseline			First Follow-Up			Second Follow-Up		
	N	%	CI	N	%	CI	N	%	CI
<b>At least one of the following refrigerator type used for vaccine storage</b>									
Electric fridge	7	100.0	(59 - 100)	9	100.0	(66.4 - 100)	9	100	(66.4 - 100)
Kerosene fridge	7	0.0	(0 - 41)	9	0.0	(0 - 33.6)	9	0	(0 - 33.6)
Gas fridge	7	0.0	(0 - 41)	9	0.0	(0 - 33.6)	9	0	(0 - 33.6)
Solar fridge	7	0.0	(0 - 41)	9	0.0	(0 - 33.6)	9	0	(0 - 33.6)
Cold box	7	28.6	(3.7 - 71)	9	77.8	(40 - 97.2)	9	100	(66.4 - 100)

#### 4.5 Vaccines observed

In the observation component of the survey, interviewers observed vaccine stock on the day of the survey according to vaccine registries. Vaccine stock was only evaluated at facilities which indicated that vaccines are stored on-site or are transported to the facility directly before use.

**Table 4.9: Vaccines observed, ambulatory facilities**

	Baseline			First Follow-Up			Second Follow-Up		
	N	%	CI	N	%	CI	N	%	CI
Pentavalent (DPT + HepB + Hib)	25	20	(6.8 - 40.7)	38	100.0	(90.7 - 100)	47	100.0	(92.5 - 100)
Polio	25	20	(6.8 - 40.7)	38	94.7	(82.3 - 99.4)	47	68.1	(52.9 - 80.9)
Measles, mumps, rubella	25	20	(6.8 - 40.7)	38	97.4	(86.2 - 99.9)	47	100.0	(92.5 - 100)
Rotavirus	25	20	(6.8 - 40.7)	38	97.4	(86.2 - 99.9)	47	100.0	(92.5 - 100)
Pneumococcal conjugate	25	16	(4.5 - 36.1)	38	94.7	(82.3 - 99.4)	47	100.0	(92.5 - 100)
BCG	25	12	(2.5 - 31.2)	38	92.1	(78.6 - 98.3)	47	87.2	(74.3 - 95.2)
Influenza	-	-	-	38	18.4	(7.7 - 34.3)	47	93.6	(82.5 - 98.7)

**Table 4.10: Vaccines observed, complete facilities**

	Baseline			First Follow-Up			Second Follow-Up		
	N	%	CI	N	%	CI	N	%	CI
Pentavalent (DPT + HepB + Hib)	-	-	-	9	100.0	(66.4 - 100)	9	100.0	(66.4 - 100)
Polio	-	-	-	9	100.0	(66.4 - 100)	9	77.8	(40 - 97.2)
Measles, mumps, rubella	-	-	-	9	100.0	(66.4 - 100)	9	100.0	(66.4 - 100)
Rotavirus	-	-	-	9	100.0	(66.4 - 100)	9	88.9	(51.8 - 99.7)
Pneumococcal conjugate	-	-	-	9	100.0	(66.4 - 100)	9	88.9	(51.8 - 99.7)
BCG	-	-	-	9	100.0	(66.4 - 100)	9	100.0	(66.4 - 100)
Influenza	-	-	-	9	22.2	(2.8 - 60)	9	66.7	(29.9 - 92.5)

#### 4.6 Cold chain composite monitoring indicator

The tables below display composite performance in the SMI vaccine cold chain indicator (7000). Ambulatory facilities are evaluated on the use of temperature monitoring charts and continuous recording of temperatures, twice daily for the past thirty days, for each functional refrigerator used to store vaccines. This indicator applies only to facilities which store vaccines. Components of this indicator are detailed in the below tables.

**Table 4.11: Cold chain composite indicator, ambulatory facilities**

	First Follow-Up			Second Follow-Up		
	N	%	CI	N	%	CI
Temperature monitoring chart for each functional refrigerator	38	94.7	(82.3 - 99.4)	47	95.7	(85.5 - 99.5)
Temperature recorded twice daily during past 30 days	38	89.5	(75.2 - 97.1)	47	93.6	(82.5 - 98.7)
Temperature within appropriate range (2-8°C) at each recording*	38	78.9	(62.7 - 90.4)	47	91.5	(79.6 - 97.6)
Cold chain according to standard	38	71.1	(54.1 - 84.6)	47	89.4	(76.9 - 96.5)

\* If temperature is outside 2-8 degree range, the record passes the indicator if a record of action is recorded on the chart

**Table 4.12: Cold chain composite indicator, complete facilities**

	First Follow-Up			Second Follow-Up		
	N	%	CI	N	%	CI
Temperature monitoring chart for each functional refrigerator	9	100	(66.4 - 100)	9	100	(66.4 - 100)
Temperature recorded twice daily during past 30 days	9	100	(66.4 - 100)	9	100	(66.4 - 100)
Temperature within appropriate range (2-8°C) at each recording*	9	100	(66.4 - 100)	9	100	(66.4 - 100)
Cold chain according to standard	9	100	(66.4 - 100)	9	100	(66.4 - 100)

\* If temperature is outside 2-8 degree range, the record passes the indicator if a record of action is recorded on the chart

## 5 Chapter 5: Family planning services

### 5.1 Family planning services provision

This chapter summarizes key aspects of family planning services. In the questionnaire component of the survey, facility representatives were asked about family planning service provision. In the observation component, interviewers observed the setting of the room in which family planning services are provided, as well as the availability and stock of family planning methods.

**Table 5.1: Family planning services provision, ambulatory facilities**

	Baseline			First Follow-Up			Second Follow-Up		
	N	%	CI	N	%	CI	N	%	CI
Offers family planning services	58	100	(93.8 - 100)	51	100.0	(93 - 100)	51	100	(93 - 100)
<b>Family planning area</b>									
Visual and auditory privacy	-	-	-	51	84.3	(71.4 - 93)	51	98	(89.6 - 100)
Non private area	-	-	-	51	2.0	(0 - 10.4)	51	2	(0 - 10.4)
Visual privacy only	-	-	-	51	13.7	(5.7 - 26.3)	51	0	(0 - 7)
Other	-	-	-	51	0.0	(0 - 7)	51	0	(0 - 7)
Do not provide service	-	-	-	51	0.0	(0 - 7)	51	0	(0 - 7)

**Table 5.2: Family planning services provision, complete facilities**

	Baseline			First Follow-Up			Second Follow-Up		
	N	%	CI	N	%	CI	N	%	CI
Offers family planning services	7	100	(59 - 100)	9	100	(66.4 - 100)	9	100	(66.4 - 100)
<b>Family planning area</b>									
Visual and auditory privacy	-	-	-	9	100	(66.4 - 100)	9	100	(66.4 - 100)
Non private area	-	-	-	9	0	(0 - 33.6)	9	0	(0 - 33.6)
Visual privacy only	-	-	-	9	0	(0 - 33.6)	9	0	(0 - 33.6)
Other	-	-	-	9	0	(0 - 33.6)	9	0	(0 - 33.6)
Do not provide service	-	-	-	9	0	(0 - 33.6)	9	0	(0 - 33.6)

### 5.2 Contraceptive methods observed

During the observation component of the survey, surveyors evaluated the availability of various contraceptive methods for distribution to patients seeking family planning counselling.



**Table 5.3: Contraceptive methods observed, ambulatory facilities**

	Baseline			First Follow-Up			Second Follow-Up		
	N	%	CI	N	%	CI	N	%	CI
Male condom	58	89.7	(78.8 - 96.1)	51	100.0	(93 - 100)	51	100.0	(93 - 100)
Female condom	58	1.7	(0 - 9.2)	51	5.9	(1.2 - 16.2)	51	90.2	(78.6 - 96.7)
Combined oral pill	58	82.8	(70.6 - 91.4)	51	98.0	(89.6 - 100)	51	92.2	(81.1 - 97.8)
Progestin-only oral pill	58	31.0	(19.5 - 44.5)	51	15.7	(7 - 28.6)	51	31.4	(19.1 - 45.9)
Combined injectable	58	79.3	(66.6 - 88.8)	51	98.0	(89.6 - 100)	51	98.0	(89.6 - 100)
Progestin-only injectable	58	79.3	(66.6 - 88.8)	51	52.9	(38.5 - 67.1)	51	100.0	(93 - 100)
Emergency contraceptive	58	15.5	(7.3 - 27.4)	51	43.1	(29.3 - 57.8)	51	19.6	(9.8 - 33.1)
Spermicides	58	0.0	(0 - 6.2)	51	0.0	(0 - 7)	51	0.0	(0 - 7)
Diaphragm	58	0.0	(0 - 6.2)	51	0.0	(0 - 7)	51	2.0	(0 - 10.4)
Intrauterine device	58	19.0	(9.9 - 31.4)	51	94.1	(83.8 - 98.8)	51	96.1	(86.5 - 99.5)
Implant	58	0.0	(0 - 6.2)	-	-	-	51	0.0	(0 - 7)
Doctor/nurse capable of IUD insertion	-	-	-	51	64.7	(50.1 - 77.6)	51	92.2	(81.1 - 97.8)
Doctor/nurse capable of implant insertion	-	-	-	-	-	-	51	11.8	(4.4 - 23.9)

\* Nurse alternative for IUD insertion not captured at first follow-up evaluation.

**Table 5.4: Contraceptive methods observed, complete facilities**

	Baseline			First Follow-Up			Second Follow-Up		
	N	%	CI	N	%	CI	N	%	CI
Male condom	7	100.0	(59 - 100)	9	100.0	(66.4 - 100)	9	100.0	(66.4 - 100)
Female condom	7	0.0	(0 - 41)	9	22.2	(2.8 - 60)	9	66.7	(29.9 - 92.5)
Combined oral pill	7	85.7	(42.1 - 99.6)	9	100.0	(66.4 - 100)	9	77.8	(40 - 97.2)
Progestin-only oral pill	7	42.9	(9.9 - 81.6)	9	55.6	(21.2 - 86.3)	9	22.2	(2.8 - 60)
Combined injectable	7	100.0	(59 - 100)	9	88.9	(51.8 - 99.7)	9	88.9	(51.8 - 99.7)
Progestin-only injectable	7	85.7	(42.1 - 99.6)	9	66.7	(29.9 - 92.5)	9	88.9	(51.8 - 99.7)
Emergency contraceptive	7	28.6	(3.7 - 71)	9	55.6	(21.2 - 86.3)	9	33.3	(7.5 - 70.1)
Spermicides	7	0.0	(0 - 41)	9	0.0	(0 - 33.6)	9	0.0	(0 - 33.6)
Diaphragm	7	0.0	(0 - 41)	9	0.0	(0 - 33.6)	9	0.0	(0 - 33.6)
Intrauterine device	7	42.9	(9.9 - 81.6)	9	100.0	(66.4 - 100)	9	100.0	(66.4 - 100)
Implant	7	0.0	(0 - 41)	9	0.0	(0 - 33.6)	9	0.0	(0 - 33.6)
Doctor/nurse capable of IUD insertion	-	-	-	9	100.0	(66.4 - 100)	9	100.0	(66.4 - 100)
Doctor/nurse capable of implant insertion	-	-	-	-	-	-	9	88.9	(51.8 - 99.7)
Doctor capable of performing vasectomy	-	-	-	9	100.0	(66.4 - 100)	9	100.0	(66.4 - 100)
Doctor capable of performing tubal ligation	-	-	-	9	66.7	(29.9 - 92.5)	9	77.8	(40 - 97.2)

\* Nurse alternative for IUD insertion not captured at first follow-up evaluation.

### 5.3 Family planning services composite monitoring indicator

The family planning services composite indicator (7050) evaluates whether facilities have continuous three-month availability of appropriate contraceptive methods, as well as access to doctors trained in tubal ligation and vasectomy. The following tables show composite indicator performance among these facilities.

**Table 5.5: Family planning composite indicator, ambulatory facilities**

	First Follow-Up			Second Follow-Up		
	N	%	CI	N	%	CI
Male condom	51	100	(93 - 100)	51	100.0	(93 - 100)
Any oral pill	51	100	(93 - 100)	51	100.0	(93 - 100)
Any injectable	51	98	(89.6 - 100)	51	100.0	(93 - 100)
All methods continuously in stock in past three months	51	100	(93 - 100)	51	94.1	(83.8 - 98.8)
Family planning services according to SMI standard	51	98	(89.6 - 100)	51	94.1	(83.8 - 98.8)

**Table 5.6: Family planning composite indicator, complete facilities**

	First Follow-Up			Second Follow-Up		
	N	%	CI	N	%	CI
Male condom	9	100.0	(66.4 - 100)	9	100.0	(66.4 - 100)
Any oral pill	9	100.0	(66.4 - 100)	9	100.0	(66.4 - 100)
Any injectable	9	100.0	(66.4 - 100)	9	100.0	(66.4 - 100)
Intrauterine device	9	100.0	(66.4 - 100)	9	100.0	(66.4 - 100)
IUD insertion kit	9	100.0	(66.4 - 100)	9	100.0	(66.4 - 100)
All methods continuously in stock in past three months	9	100.0	(66.4 - 100)	9	100.0	(66.4 - 100)
Doctor trained in tubal ligation and vasectomy	9	66.7	(29.9 - 92.5)	9	77.8	(40 - 97.2)
Family planning services according to SMI standard	9	66.7	(29.9 - 92.5)	9	77.8	(40 - 97.2)

## 6 Chapter 6: Maternal health: antenatal care (ANC), delivery, and postpartum care (PPC)

### 6.1 Service provision

This chapter summarizes key aspects of 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 antenatal care medical records in ambulatory facilities, as well as delivery and postpartum care medical records in complete facilities.

**Table 6.1: Antenatal care service provision, ambulatory facilities**

	Baseline			First Follow-Up			Second Follow-Up		
	N	%	CI	N	%	CI	N	%	CI
Offers antenatal care services	58	100	(93.8 - 100)	51	100.0	(93 - 100)	51	100	(93 - 100)
<b>Antenatal care area</b>									
Visual and auditory privacy	-	-	-	51	82.4	(69.1 - 91.6)	51	98	(89.6 - 100)
Visual privacy only	-	-	-	51	15.7	(7 - 28.6)	51	0	(0 - 7)
Non private area	-	-	-	51	2.0	(0 - 10.4)	51	2	(0 - 10.4)
Other	-	-	-	51	0.0	(0 - 7)	51	0	(0 - 7)

**Table 6.2: Antenatal care and delivery service provision, complete facilities**

	Baseline			First Follow-Up			Second Follow-Up		
	N	%	CI	N	%	CI	N	%	CI
Offers antenatal care services	7	100.0	(59 - 100)	9	100	(66.4 - 100)	9	100	(66.4 - 100)
Offers (non-urgent) delivery services	7	14.3	(0.4 - 57.9)	9	100	(66.4 - 100)	9	100	(66.4 - 100)
<b>Antenatal care area</b>									
Visual and auditory privacy	-	-	-	9	100	(66.4 - 100)	9	100	(66.4 - 100)
Visual privacy only	-	-	-	9	0	(0 - 33.6)	9	0	(0 - 33.6)
Non private area	-	-	-	9	0	(0 - 33.6)	9	0	(0 - 33.6)
Other	-	-	-	9	0	(0 - 33.6)	9	0	(0 - 33.6)
Do not provide service	-	-	-	9	0	(0 - 33.6)	9	0	(0 - 33.6)
<b>Delivery area</b>									
Visual and auditory privacy	-	-	-	9	100	(66.4 - 100)	9	100	(66.4 - 100)
Visual privacy only	-	-	-	9	0	(0 - 33.6)	9	0	(0 - 33.6)
Non private area	-	-	-	9	0	(0 - 33.6)	9	0	(0 - 33.6)
Other	-	-	-	9	0	(0 - 33.6)	9	0	(0 - 33.6)
Do not provide service	-	-	-	9	0	(0 - 33.6)	9	0	(0 - 33.6)

## 6.2 ANC and PNC equipment

At facilities which indicated that they provide the relevant services, surveyors observed the availability and functionality of equipment necessary for antenatal and postpartum care. The standards for antenatal and postpartum care are determined by the SMI composite monitoring indicator (7020). The following tables display the percent of facilities at which at least one functional item of equipment was observed.

**Table 6.3: Antenatal and postnatal care equipment, ambulatory facilities**

	Baseline			First Follow-Up			Second Follow-Up		
	N	%	CI	N	%	CI	N	%	CI
Scale	58	98.3	(90.8 - 100)	51	100.0	(93 - 100)	51	96.1	(86.5 - 99.5)
Height rod	-	-	-	51	100.0	(93 - 100)	51	100.0	(93 - 100)
Gynecological table	-	-	-	51	94.1	(83.8 - 98.8)	51	100.0	(93 - 100)
Obstetric tape	-	-	-	51	98.0	(89.6 - 100)	51	100.0	(93 - 100)
Lamp	58	56.9	(43.2 - 69.8)	51	100.0	(93 - 100)	51	100.0	(93 - 100)
Blood pressure apparatus	58	89.7	(78.8 - 96.1)	51	100.0	(93 - 100)	51	100.0	(93 - 100)
Stethoscope	58	91.4	(81 - 97.1)	51	100.0	(93 - 100)	51	100.0	(93 - 100)
Perinatal history card	-	-	-	51	100.0	(93 - 100)	51	100.0	(93 - 100)
Perinatal license	-	-	-	51	100.0	(93 - 100)	51	100.0	(93 - 100)
IUD insertion kit	-	-	-	51	86.3	(73.7 - 94.3)	50	94.0	(83.5 - 98.7)
All ANC/PNC equipment observed and functional	-	-	-	51	80.4	(66.9 - 90.2)	51	90.2	(78.6 - 96.7)

\* IUD kit only required at facilities which employ a doctor on staff.

**Table 6.4: Antenatal and postnatal care equipment, complete facilities**

	Baseline			First Follow-Up			Second Follow-Up		
	N	%	CI	N	%	CI	N	%	CI
Scale	7	100	(59 - 100)	9	100.0	(66.4 - 100)	9	100.0	(66.4 - 100)
Height rod	-	-	-	9	100.0	(66.4 - 100)	9	100.0	(66.4 - 100)
Gynecological table	-	-	-	9	100.0	(66.4 - 100)	9	100.0	(66.4 - 100)
Obstetric tape	-	-	-	9	100.0	(66.4 - 100)	9	100.0	(66.4 - 100)
Lamp	7	100	(59 - 100)	9	100.0	(66.4 - 100)	9	100.0	(66.4 - 100)
Blood pressure apparatus	7	100	(59 - 100)	9	100.0	(66.4 - 100)	9	77.8	(40 - 97.2)
Stethoscope	7	100	(59 - 100)	9	77.8	(40 - 97.2)	9	100.0	(66.4 - 100)
Perinatal history card	-	-	-	9	100.0	(66.4 - 100)	9	100.0	(66.4 - 100)
Perinatal license	-	-	-	9	100.0	(66.4 - 100)	9	100.0	(66.4 - 100)
IUD insertion kit	-	-	-	9	88.9	(51.8 - 99.7)	9	100.0	(66.4 - 100)
All ANC/PNC equipment observed and functional	-	-	-	9	77.8	(40 - 97.2)	9	77.8	(40 - 97.2)

## 6.3 ANC and PNC pharmacy inputs

During the observation component of the survey, interviewers evaluated the presence and stock of pharmacy inputs related to antenatal and postpartum care. The standards for ANC/PNC pharmacy inputs are determined by the SMI composite monitoring indicator (7020). Interviewers were instructed

to observe each drug and review any kardex or written documentation for stock-out in the last three months. If the facility did not have three-month stock documentation at the first or second follow-up, the facility was considered to be stocked out of the drug and did not pass that portion of the indicator. It was not possible to capture three-month stock data for pharmacy inputs at the first follow-up evaluation.

**Table 6.5: Antenatal and postnatal care pharmacy inputs, ambulatory facilities**

	First Follow-Up			Second Follow-Up		
	N	%	CI	N	%	CI
Multivitamins / (folic acid + iron)	51	98.0	(89.6 - 100)	51	100.0	(93 - 100)
Ayre palettes	51	98.0	(89.6 - 100)	51	98.0	(89.6 - 100)
Microscope slides	51	98.0	(89.6 - 100)	51	100.0	(93 - 100)
Nitrofurantonin	51	78.4	(64.7 - 88.7)	51	98.0	(89.6 - 100)
Erythromycin / Ampicillin / Penicillin benzathaine	51	100.0	(93 - 100)	51	33.3	(20.8 - 47.9)
Tetanus vaccine	-	-	-	47	97.9	(88.7 - 99.9)
All drugs observed day of survey	51	74.5	(60.4 - 85.7)	51	31.4	(19.1 - 45.9)
All drugs in continuous supply in past three months	49	67.3	(52.5 - 80.1)	51	25.5	(14.3 - 39.6)

\* Amoxicillin considered an antibiotic alternative at first follow-up but not at second follow-up due to survey logic. If amoxicillin is included as an alternative at second follow-up, the indicator value rises to 61.7%.

† Tetanus vaccine evaluated only at facilities which store vaccines

**Table 6.6: Antenatal and postnatal care pharmacy inputs, complete facilities**

	First Follow-Up			Second Follow-Up		
	N	%	CI	N	%	CI
Multivitamins / (folic acid + iron)	9	100.0	(66.4 - 100)	9	88.9	(51.8 - 99.7)
Ayre palettes	9	66.7	(29.9 - 92.5)	9	88.9	(51.8 - 99.7)
Microscope slides	9	66.7	(29.9 - 92.5)	9	88.9	(51.8 - 99.7)
Nitrofurantonin	9	66.7	(29.9 - 92.5)	9	100.0	(66.4 - 100)
Tetanus vaccine	-	-	-	9	100.0	(66.4 - 100)
Cefalexin	9	0.0	(0 - 33.6)	9	22.2	(2.8 - 60)
All drugs observed day of survey	9	0.0	(0 - 33.6)	9	11.1	(0.3 - 48.2)
All drugs in continuous supply in past three months	9	0.0	(0 - 33.6)	9	11.1	(0.3 - 48.2)

## 6.4 ANC and PNC laboratory inputs

At complete facilities, surveyors also observed availability and functionality of laboratory inputs necessary for appropriate ANC and PNC as determined by the SMI composite monitoring indicator (7020).

**Table 6.7: Laboratory inputs, complete facilities**

	First Follow-Up			Second Follow-Up		
	N	%	CI	N	%	CI
Dark field microscope	9	22.2	(2.8 - 60)	9	22.2	(2.8 - 60)
Enzyme immunoassay	9	33.3	(7.5 - 70.1)	9	44.4	(13.7 - 78.8)
Fluorescent microscope	9	11.1	(0.3 - 48.2)	9	33.3	(7.5 - 70.1)
Urinalysis equipment	9	77.8	(40 - 97.2)	9	100.0	(66.4 - 100)
Automated blood cell counter	9	88.9	(51.8 - 99.7)	9	88.9	(51.8 - 99.7)
Blood type antibody	9	100.0	(66.4 - 100)	9	100.0	(66.4 - 100)
Rh factor	9	100.0	(66.4 - 100)	9	100.0	(66.4 - 100)
Syphilis & HIV reactives (if immunoassay observed)	3	100.0	(29.2 - 100)	4	100.0	(39.8 - 100)
All lab inputs observed	9	0.0	(0 - 33.6)	9	11.1	(0.3 - 48.2)

## 6.5 ANC/PNC composite indicator

The tables below displays performance on the SMI composite monitoring indicator for antenatal and postpartum care (7020). This indicator is evaluated at all facilities that provide antenatal or postnatal care. Only complete facilities are required to show availability of laboratory inputs. Three-month pharmacy stock data was not evaluated at first follow-up.

**Table 6.8: Antenatal and postnatal care composite indicator, ambulatory facilities**

	First Follow-Up			Second Follow-Up		
	N	%	CI	N	%	CI
All equipment observed and functional	51	80.4	(66.9 - 90.2)	51	90.2	(78.6 - 96.7)
All drugs observed day of survey	51	74.5	(60.4 - 85.7)	51	31.4	(19.1 - 45.9)
ANC/PNC provision according to standard, evaluating drug availability only on the day of the survey	51	64.7	(50.1 - 77.6)	51	25.5	(14.3 - 39.6)
ANC/PNC provision according to standard, including three month drug availability	51	60.8	(46.1 - 74.2)	51	21.6	(11.3 - 35.3)

\* Three-month stock data only available for cefalexin and nitrofurantoin at first follow-up evaluation.

† Amoxicillin considered an antibiotic alternative at first follow-up but not at second follow-up due to survey logic. If amoxicillin is included as an antibiotic alternative at second follow-up, the indicator value rises to 61.7%.

**Table 6.9: Antenatal and postnatal care composite indicator, complete facilities**

	First Follow-Up			Second Follow-Up		
	N	%	CI	N	%	CI
All equipment observed and functional	9	77.8	(40 - 97.2)	9	77.8	(40 - 97.2)
All drugs observed day of survey	9	0.0	(0 - 33.6)	9	11.1	(0.3 - 48.2)
All lab inputs observed	9	0.0	(0 - 33.6)	9	11.1	(0.3 - 48.2)
ANC/PNC provision according to standard, evaluating drug availability only on the day of the survey	9	0.0	(0 - 33.6)	9	0.0	(0 - 33.6)
ANC/PNC provision according to standard, including three month drug availability	9	0.0	(0 - 33.6)	9	0.0	(0 - 33.6)

\* Three-month stock data only available for cefalexin and nitrofurantoin at first follow-up evaluation.

## 6.6 Delivery care equipment observed

During the observation component of the second follow-up evaluation, surveyors observed and evaluated the functionality of equipment related to delivery care at complete facilities (hospitals). Standards for delivery care equipment are determined by the SMI delivery care composite monitoring indicator (7040).

**Table 6.10: Delivery care equipment, complete facilities**

	Second Follow-Up		
	N	%	CI
Macro/microgotera serum	9	100.0	(66.4 - 100)
Sterile sheets/blankets for neonate	9	100.0	(66.4 - 100)
Nasogastric probe K33	9	22.2	(2.8 - 60)
Metal clamp / umbilical tape	9	88.9	(51.8 - 99.7)
Intravenous sterile catheter N.18	9	100.0	(66.4 - 100)
All delivery care equipment observed and functional	9	22.2	(2.8 - 60)

## 6.7 Delivery care pharmacy inputs

During the observation component of the survey, interviewers evaluated the presence and stock of pharmacy inputs related to delivery care. The standards for delivery care pharmacy inputs are determined by the SMI composite monitoring indicator (7040). Interviewers were instructed to observe each drug and review any kardex or written documentation for stock-out in the last three months. If the facility did not have three-month stock documentation, the facility was considered to be stocked out of the drug and did not pass that portion of the indicator.

**Table 6.11: Delivery care pharmacy inputs, complete facilities**

	Second Follow-Up		
	N	%	CI
Ergonovine maleate / Ergometrine	9	100.0	(66.4 - 100)
Povidone-iodine	9	33.3	(7.5 - 70.1)
Insulin syringe	9	88.9	(51.8 - 99.7)
Lidocaine	9	100.0	(66.4 - 100)
Butylscopolamine / Hyoscine bromide	9	100.0	(66.4 - 100)
Oxytocin	9	100.0	(66.4 - 100)
Ringer's / Hartmann's / saline solution	9	100.0	(66.4 - 100)
Ophthalmic chloramphenicol drops	9	100.0	(66.4 - 100)
Vitamin K	9	100.0	(66.4 - 100)
All drugs observed day of survey	9	33.3	(7.5 - 70.1)
All drugs continuously available in past three months	9	33.3	(7.5 - 70.1)

## 6.8 Delivery care composite indicator

The tables below displays performance on the SMI composite monitoring indicator for delivery care (7040). This indicator is evaluated at complete facilities (hospitals) for the second follow-up evaluation.

**Table 6.12: Delivery care composite indicator, complete facilities**

	Second Follow-Up		
	N	%	CI
All equipment observed and functional	9	22.2	(2.8 - 60)
All drugs observed day of survey	9	33.3	(7.5 - 70.1)
All drugs continuously available in past three months	9	33.3	(7.5 - 70.1)
Delivery care according to SMI standard	9	11.1	(0.3 - 48.2)

## 6.9 Cesarean section prevalence

During the questionnaire component of the survey, representatives of complete facilities were asked to enumerate the total number of deliveries and the total number of cesarean sections attended each year since 2012. The SMI monitoring indicator (4120) evaluates the prevalence of cesarean sections in complete facilities in the past two years where data is available.



**Table 6.13: Cesarean section prevalence monitoring indicator, complete facilities**

Evaluation	C-section prevalence in past two years
First Follow-up	24.7%
Second Follow-up	25.9%

\* Data collected where available from nine hospitals at the second follow-up evaluation.

### 6.10 Medical Record Review: four antenatal care visits according to SMI standard (performance indicator)

Doctors and nurses systematically selected and reviewed antenatal care (ANC) records from ambulatory facilities for women who delivered in the last two years. According to the SMI performance indicator (3030), which determines the standards for antenatal care, women should receive at least four antenatal care visits with appropriate check ups (weight + blood pressure at each visit, fetal heart rate + fetal movement if gestational age is > 20 weeks, uterine height if gestational age is >= 14 weeks), and should receive each standard lab test at least once during the pregnancy. The tables below display the percentage of medical records for which the standards for antenatal care were met. Women who were referred for antenatal care are excluded.

**Table 6.14: At least four ANC visits to standard, medical records from ambulatory facilities**

	First Follow-Up			Second Follow-Up		
	N	%	CI	N	%	CI
At least four ANC visits	185	75.1	(68.3 - 81.2)	252	74.6	(68.8 - 79.9)
All appropriate checks performed, at least four ANC visits	185	75.1	(68.3 - 81.2)	252	67.1	(60.9 - 72.8)
All lab tests performed at least once during pregnancy:	185	73.0	(66 - 79.2)	252	83.3	(78.1 - 87.7)
Blood group	185	90.3	(85.1 - 94.1)	252	92.1	(88 - 95.1)
Rh factor	185	88.6	(83.2 - 92.8)	252	91.7	(87.5 - 94.8)
Blood glucose	185	90.3	(85.1 - 94.1)	252	90.9	(86.6 - 94.1)
HIV test	185	93.5	(88.9 - 96.6)	252	88.5	(83.9 - 92.2)
Hemoglobin	185	81.1	(74.7 - 86.5)	252	84.9	(79.9 - 89.1)
Urinalysis	185	94.6	(90.3 - 97.4)	252	86.9	(82.1 - 90.8)
Antenatal care performed according to standard	185	51.4	(43.9 - 58.8)	252	63.9	(57.6 - 69.8)

\* Uterine height and fetal checkups only evaluated at the first ANC visit at the first follow-up evaluation.

### 6.11 Medical Record Review: four antenatal care visits according to SMI standard (monitoring indicator)

The 3030 indicator for four ANC visits with quality has additionally been modified for monitoring at the Family ECOS level. Doctors and nurses systematically selected and reviewed antenatal care (ANC)

records from ambulatory facilities for women who delivered in the last two years. The appendix contains definitions for each of these separate indicators.

**Table 6.15: At least four ANC visits (monitoring), medical records from Family ECOS**

	First Follow-Up			Second Follow-Up		
	N	%	CI	N	%	CI
At least four ANC visits	166	78.9	(71.9 - 84.9)	241	74.3	(68.3 - 79.7)
First ANC visit before 13 weeks gestation	166	65.1	(57.3 - 72.3)	241	72.6	(66.5 - 78.1)
All appropriate checks performed, at least four ANC visits	166	78.9	(71.9 - 84.9)	241	66.8	(60.5 - 72.7)
All lab tests performed at least once during pregnancy:	166	76.5	(69.3 - 82.7)	241	82.2	(76.7 - 86.8)
Blood group	166	92.2	(87 - 95.8)	241	91.7	(87.5 - 94.9)
Rh factor	166	91.6	(86.3 - 95.3)	241	91.3	(87 - 94.5)
Blood glucose	166	92.8	(87.7 - 96.2)	241	90.5	(86 - 93.9)
HIV test	166	94.0	(89.2 - 97.1)	241	88.0	(83.2 - 91.8)
Hemoglobin	166	83.1	(76.6 - 88.5)	241	84.2	(79 - 88.6)
Urinalysis	166	97.0	(93.1 - 99)	241	86.3	(81.3 - 90.4)
VDRL / RPR	166	83.7	(77.2 - 89)	241	87.1	(82.2 - 91.1)
At least one tetanus vaccine during pregnancy	166	71.1	(63.6 - 77.8)	241	62.2	(55.8 - 68.4)
Proper management based on lab results	-	-	-	55	52.7	(38.8 - 66.3)
Antenatal care performed according to standard	166	28.9	(22.2 - 36.4)	241	27.0	(21.5 - 33)

\* Uterine height and fetal checkups only evaluated at the first ANC visit at the first follow-up evaluation.

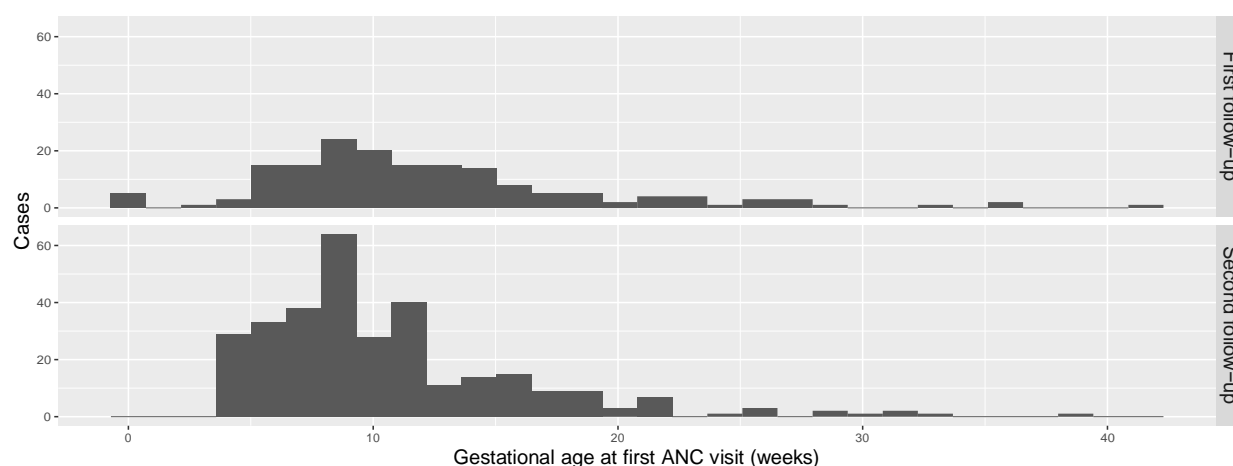
## 6.12 Antenatal care medical record review: timely first antenatal care visit

Doctors and nurses systematically selected and reviewed antenatal care (ANC) records from Family ECOS (ambulatory) facilities for women who delivered in the last two years. Records were evaluated on the timeliness of the first ANC visit using reported gestational age at first and second follow-up. According to the SMI performance indicator (3041), the first antenatal care visit should occur at or within twelve weeks of gestation. Gestational age at first visit was reported at the second follow-up evaluation and calculated at the first follow-up evaluation.

**Table 6.16: ANC timeliness, medical records from Family ECOS facilities**

	First Follow-Up			Second Follow-Up		
	N	%	CI	N	%	CI
First ANC visit within 12 weeks	167	58.7	(50.8 - 66.2)	311	74.6	(69.4 - 79.3)

**Figure 6.1: Histogram comparison of first ANC visit, by collection period**



### 6.13 Antenatal care medical record review: birth plans

Doctors and nurses systematically selected and reviewed antenatal care (ANC) records from ambulatory facilities for women who delivered in the last two years. Records were evaluated on whether a birth plan was included, and whether that birth plan listed the hospital where the woman intended to deliver. Birth plan standards are determined by the SMI performance indicator 8380 and were captured at the second follow-up evaluation.

**Table 6.17: Birth plan performance indicator, medical records from ambulatory facilities**

	Second Follow-Up		
	N	%	CI
Birth plan included in medical record	328	93.3	(90 - 95.7)
Hospital recorded	306	85.0	(80.5 - 88.8)
Birth plan according to SMI standard	328	86.3	(82.1 - 89.8)

### 6.14 Medical record review: immediate maternal postpartum care

Doctors and nurses reviewed immediate postpartum records from uncomplicated deliveries in the past two years at complete facilities. Standards for immediate postpartum care are determined by the SMI monitoring indicator (4050). Delivery patients must have all appropriate checks performed four times in the first hour after deliver, twice in the second hour, and once at discharge. Immediate postpartum checkups were not evaluated for uterine involution, abnormal bleeding, or lochia characteristics at first follow-up evaluation.

**Table 6.18: Immediate maternal postpartum care, medical records from complete facilities**

	First Follow-Up			Second Follow-Up		
	N	%	CI	N	%	CI
<b>Checked 4 times in first hour, twice in second hour, once at discharge:</b>						
Blood pressure	86	0.0	(0 - 4.2)	210	57.1	(50.2 - 63.9)
Temperature	86	3.5	(0.7 - 9.9)	210	56.7	(49.7 - 63.5)
Heart rate / pulse	86	4.7	(1.3 - 11.5)	210	56.7	(49.7 - 63.5)
Respiratory rate	86	12.8	(6.6 - 21.7)	210	54.8	(47.8 - 61.6)
Uterine involution	-	-	-	210	54.3	(47.3 - 61.2)
Abnormal bleeding	-	-	-	210	51.0	(44 - 57.9)
Lochia characteristics	-	-	-	210	51.0	(44 - 57.9)
Immediate maternal PPC to standard	86	0.0	(0 - 4.2)	210	48.6	(41.6 - 55.5)

<sup>a</sup> Heart rate not captured as alternative to pulse at first follow-up evaluation.

### 6.15 Medical record review: active management of third stage of labor

Doctors and nurses systematically selected and reviewed delivery records from complete facilities for women who delivered in the last two years. According to the SMI monitoring indicator (4090), which determines the standards for active management of the third stage of labor, oxytocin or another uterotonic should be administered within one minute of birth. If administration occurred but the time was not recorded, the record did not pass this indicator.

**Table 6.19: Active management of third stage of labor, medical records from complete facilities**

	First Follow-Up			Second Follow-Up		
	N	%	CI	N	%	CI
Oxytocin / other uterotonic administered	164	88.4	(82.5 - 92.9)	177	94.9	(90.6 - 97.6)
Oxytocin / other uterotonic administered within 1 minute (I4090)	164	26.8	(20.2 - 34.3)	177	59.3	(51.7 - 66.6)

### 6.16 Medical record review: postpartum contraception administration

Doctors and nurses reviewed immediate postpartum records from uncomplicated deliveries in the past year at complete facilities to evaluate whether contraception was administered. Standards for postpartum contraception administration are determined by the SMI monitoring indicator (2500). Among women who received postpartum contraception, 52.8% indicated that it was the rhythm method.

**Table 6.20: Postpartum contraception, medical records from complete facilities**

	First Follow-Up			Second Follow-Up		
	N	%	CI	N	%	CI
Woman received contraception postpartum	84	38.1	(27.7 - 49.3)	102	89.2	(81.5 - 94.5)
Progesterone-only oral contraceptive pill	32	0.0	(0 - 10.9)	91	0.0	(0 - 4)
Implant	-	-	-	91	0.0	(0 - 4)
Intrauterine device	32	0.0	(0 - 10.9)	91	4.4	(1.2 - 10.9)
Tubal ligation	32	3.1	(0.1 - 16.2)	91	12.1	(6.2 - 20.6)
Postpartum contraception administered to standard	84	1.2	(0 - 6.5)	102	14.7	(8.5 - 23.1)

\* Implant not captured at first follow-up evaluation.

† Only general oral contraceptive pill captured at first follow-up evaluation (no type specified).

## 6.17 Medical record review: immediate neonatal postpartum care

Doctors and nurses reviewed immediate postpartum records from uncomplicated deliveries in the past two years at complete facilities. Standards for immediate neonatal postpartum care are determined by the SMI monitoring indicator (4103). The complete physical evaluation and discharge evaluation forms were not captured at the first follow-up evaluation.

**Table 6.21: Immediate neonate postpartum care, medical records from complete facilities**

	First Follow-Up			Second Follow-Up		
	N	%	CI	N	%	CI
Vitamin K administration	107	97.2	(92 - 99.4)	227	92.1	(87.8 - 95.2)
Oxytetracycline ophthalmic as prophylaxis or chloramphenicol	107	97.2	(92 - 99.4)	227	94.3	(90.4 - 96.9)
APGAR at 1 minute	107	63.6	(53.7 - 72.6)	227	98.7	(96.2 - 99.7)
APGAR at 5 minutes	107	63.6	(53.7 - 72.6)	227	99.1	(96.9 - 99.9)
Respiratory rate	107	58.9	(49 - 68.3)	227	96.9	(93.7 - 98.8)
Weight	107	63.6	(53.7 - 72.6)	227	99.6	(97.6 - 100)
Height	107	63.6	(53.7 - 72.6)	227	98.7	(96.2 - 99.7)
Head circumference	107	57.9	(48 - 67.4)	227	97.8	(94.9 - 99.3)
Complete physical evaluation	-	-	-	227	99.6	(97.6 - 100)
Full evaluation at discharge form	-	-	-	227	98.7	(96.2 - 99.7)
Immediate neonate PPC to standard	107	50.5	(40.6 - 60.3)	227	89.0	(84.2 - 92.7)

## 7 Chapter 7: Maternal and neonatal health: complications

### 7.1 Emergency obstetric and neonatal care service provision

This chapter summarizes key aspects of management of maternal and neonatal complications at complete facilities. The following tables display the type of setting in which emergency care takes place among facilities that provide delivery services.

**Table 7.1: Emergency service provision, complete facilities**

	First Follow-Up			Second Follow-Up		
	N	%	CI	N	%	CI
<b>Emergency care area</b>						
Visual and auditory privacy	9	66.7	(29.9 - 92.5)	9	100	(66.4 - 100)
Visual privacy only	9	0.0	(0 - 33.6)	9	0	(0 - 33.6)
Non private area	9	0.0	(0 - 33.6)	9	0	(0 - 33.6)
Other	9	0.0	(0 - 33.6)	9	0	(0 - 33.6)
Do not provide service	9	33.3	(7.5 - 70.1)	9	0	(0 - 33.6)

### 7.2 Emergency care composite indicator: equipment

At facilities which indicated that they provide the relevant services, surveyors observed the availability and functionality of equipment necessary for obstetric and neonatal emergency care. The standards for emergency care are determined by the SMI composite monitoring indicator (7030). The following table displays the percent of facilities at which at least one functional item of equipment was observed.

**Table 7.2: Emergency care equipment, complete facilities**

	First Follow-Up			Second Follow-Up		
	N	%	CI	N	%	CI
Blood pressure apparatus	6	83.3	(35.9 - 99.6)	9	100.0	(66.4 - 100)
Neonatal / pediatric stethoscope	6	66.7	(22.3 - 95.7)	9	88.9	(51.8 - 99.7)
Pinard / doppler	6	83.3	(35.9 - 99.6)	9	100.0	(66.4 - 100)
Autoclave / heat sterilizer	6	100.0	(54.1 - 100)	9	100.0	(66.4 - 100)
Oxygen tank	6	66.7	(22.3 - 95.7)	9	100.0	(66.4 - 100)
Adult reanimation bag	6	66.7	(22.3 - 95.7)	9	100.0	(66.4 - 100)
Neonatal reanimation bag	6	83.3	(35.9 - 99.6)	9	100.0	(66.4 - 100)
Laryngoscope	6	83.3	(35.9 - 99.6)	9	100.0	(66.4 - 100)
Manual vacuum aspiration	6	83.3	(35.9 - 99.6)	9	88.9	(51.8 - 99.7)
Anesthesia equipment	6	50.0	(11.8 - 88.2)	9	100.0	(66.4 - 100)
Cesarean kit	6	33.3	(4.3 - 77.7)	9	88.9	(51.8 - 99.7)
All emergency equipment observed and functional	6	16.7	(0.4 - 64.1)	9	77.8	(40 - 97.2)

### 7.3 Emergency care composite indicator: pharmacy inputs

The SMI composite monitoring indicator (7030) also evaluates whether key drugs and supplements necessary for emergency care are observed on the day of the survey and in continuous supply for the past three months at complete facilities which indicate that they provide maternal and neonatal emergency care services. Three month drug stocks were not evaluated for this indicator at the first follow-up evaluation.

**Table 7.3: Emergency care pharmacy inputs, complete facilities**

	First Follow-Up			Second Follow-Up		
	N	%	CI	N	%	CI
Ergonovine maleate / ergometrine	6	100.0	(54.1 - 100)	9	100.0	(66.4 - 100)
Oxytocin	-	-	-	9	100.0	(66.4 - 100)
Dexamethasone / betamethasone	6	100.0	(54.1 - 100)	9	100.0	(66.4 - 100)
Crystal penicillin / ampicillin / amoxicillin	6	100.0	(54.1 - 100)	9	100.0	(66.4 - 100)
Magnesium sulfate	6	100.0	(54.1 - 100)	9	100.0	(66.4 - 100)
Amikacin	-	-	-	9	100.0	(66.4 - 100)
Ceftraxione	-	-	-	9	100.0	(66.4 - 100)
Chloramphenicol / metronidazole	-	-	-	9	100.0	(66.4 - 100)
Hydralazine / Hydrochloride	6	100.0	(54.1 - 100)	9	100.0	(66.4 - 100)
Nifedipine	-	-	-	9	77.8	(40 - 97.2)
Furosemide	6	100.0	(54.1 - 100)	9	100.0	(66.4 - 100)
Diazepam / Midazolam hydrochloride	6	100.0	(54.1 - 100)	9	100.0	(66.4 - 100)
Sevoflurane	6	83.3	(35.9 - 99.6)	9	100.0	(66.4 - 100)
Succinylcholine	6	100.0	(54.1 - 100)	9	66.7	(29.9 - 92.5)
All drugs observed day of survey	6	83.3	(35.9 - 99.6)	9	55.6	(21.2 - 86.3)
All drugs continuously available in past three months	-	-	-	9	55.6	(21.2 - 86.3)

\* Not all drugs captured at first follow-up due to skip logic in the survey.

† Only ergotamine captured at first follow-up, not ergonovine maleate / ergometrine.

## 7.4 Emergency care composite indicator

The table below displays composite performance on the SMI emergency care monitoring indicator (7030) in complete facilities which provide emergency care services. Three-month drug stock was not evaluated for this indicator at the first follow-up evaluation.

**Table 7.4: Emergency care composite indicator, complete facilities**

	First Follow-Up			Second Follow-Up		
	N	%	CI	N	%	CI
All equipment observed and functional	6	16.7	(0.4 - 64.1)	9	77.8	(40 - 97.2)
All drugs observed day of survey	6	83.3	(35.9 - 99.6)	9	55.6	(21.2 - 86.3)
Emergency care provision according to standard, evaluating drug availability only on the day of the survey	6	16.7	(0.4 - 64.1)	9	44.4	(13.7 - 78.8)
Emergency care provision according to standard, including three month drug availability	-	-	-	9	44.4	(13.7 - 78.8)

## 7.5 Uterine balloon availability

During the questionnaire component of the survey, representatives of facilities which provide delivery services were asked about the availability and staff training in the use of uterine tamponade balloons, a



method of obstetric hemorrhage management.

**Table 7.5: Uterine tamponade balloon for hemorrhage management, second follow-up evaluation**

	Complete Facilities		
	N	%	CI
Facility uses tamponade to manage obstetric hemorrhage	9	55.6	(21.2 - 86.3)
<b>Type</b>			
Bakri	5	0.0	(0 - 52.2)
Foley catheter	5	80.0	(28.4 - 99.5)
Condom-based balloon	5	20.0	(0.5 - 71.6)
Do not know	5	0.0	(0 - 52.2)
<b>Assembly kit</b>			
Facility has tamponade kit	5	60.0	(14.7 - 94.7)
Kit commercially assembled	3	0.0	(0 - 70.8)
Kit prepared from available materials	3	100.0	(29.2 - 100)
<b>Staff training</b>			
Staff trained in tamponade use	9	66.7	(29.9 - 92.5)
Staff trained in tamponade assembly	9	77.8	(40 - 97.2)

<sup>a</sup> Uterine balloon data not captured at baseline and first follow-up evaluations.

## 7.6 Distribution of obstetric and neonatal complications

During medical record review, surveyors systematically selected records from deliveries in the past two years for which complications arose. Specifically, maternal records were reviewed for cases of sepsis, hemorrhage, pre-eclampsia, and eclampsia, while neonate records were reviewed for cases of low birth weight, prematurity, sepsis, and asphyxia.

**Table 7.6: Distribution of obstetric complications, complete facilities**

	Second Follow-up
Sepsis	128
Hemorrhage	41
Pre-eclampsia	72
Eclampsia	1

**Table 7.7: Distribution of neonatal complications, complete facilities**

	Second Follow-up
Sepsis	132
Low birth weight	66
Asphyxia	15
Prematurity	40

## 7.7 Management of obstetric complications in previous two years (sepsis, hemorrhage, pre-eclampsia, and eclampsia)

### 7.7.1 Sepsis (obstetric)

During the medical record review, doctors and nurses systematically evaluated records which met the criteria for sepsis according to the SMI standards. The obstetric complications indicator determines the standard treatment for each potential cause of sepsis, as well as the management protocol based on facility EONC level. Sepsis management is defined as follows:

1. The woman must have the following vital signs checked:
  - Pulse/ heart rate
  - Blood pressure
  - Temperature
2. The woman must receive blood biometry lab test
3. The woman must be administered antibiotics:
  - (metronidazole & ceftriaxone) OR (clindamycin + gentamicin)
4. The woman must receive appropriate care:
  - If abortion: AMEU / hysterectomy/referred
  - If uterine perforation: surgical repair/hysterectomy/referred
  - If abscess: drainage/lapartomoy/hysterectomy/referred
  - If postpartum or post-cesarean endometritis: antibiotics/referred
  - If fever: antibiotics/referred
  - If retention of placental remains: curettage/laparotomy/hysterectomy/referred

**Table 7.8: Obstetric sepsis management, complete facilities**

	Second Follow-Up		
	N	%	CI
Vital signs checked	128	99.2	(95.7 - 100)
Pulse / heart rate	128	100.0	(97.2 - 100)
Blood pressure	128	99.2	(95.7 - 100)
Temperature	128	100.0	(97.2 - 100)
Blood biometry lab test	128	76.6	(68.3 - 83.6)
Antibiotics administered	128	1.6	(0.2 - 5.5)
Appropriate treatment:	12	91.7	(61.5 - 99.8)
Abortion	1	0.0	(0 - 97.5)
Uterine perforation	-	-	-
Abscess	-	-	-
Postpartum/post-cesarean endometritis	2	100.0	(15.8 - 100)
Fever	-	-	-
Placental retention	11	100.0	(71.5 - 100)
Obstetric sepsis managed according to SMI standard	128	0.8	(0 - 4.3)

\* Antibiotics required: both metronidazole & ceftriaxone or both clindamycin & gentamicin

### 7.7.2 Hemorrhage

During the medical record review, doctors and nurses systematically evaluated records which met the criteria for hemorrhagic complication according to the SMI standards. The obstetric complications indicator determines the standard treatment for each potential cause of hemorrhage, as well as the management protocol based on facility EONC level. Hemorrhage management is defined as follows:

1. The woman must have the following vital signs checked:
  - Pulse / heart rate
  - Blood pressure
2. The woman must have the following laboratory tests:
  - Hematocrit
  - Hemoglobin
  - Platelet count
  - Prothrombin time
  - Partial thromboplastin time
3. The woman must be receive Ringer's lactate / Hartman's solution / saline solution
4. The woman must receive appropriate care:

- If incomplete complicated abortion with hemorrhage or hemorrhage after abortion:  
AMEU/curettage/referred
- If ectopic pregnancy/broken ectopic pregnancy:  
laparotomy/salpingectomy/surgical repair/hysterectomy/referred
- If placenta previa with hemorrhage:  
laparotomy/hysterectomy/surgical repair/caesarean section/uterine artery ligation/hypogastric artery ligation/referred
- If uterine rupture:  
laparotomy/hysterectomy/surgical repair/caesarean section/uterine artery ligation/referred
- If uterine atony:  
uterotonics + (uterine massage/bimanual compression/compressive sutures/hydrostatic balloon/uterine tamponade/hysterectomy/referred
- If uterine inversion:  
uterotonic + reposition/restoration of the uterus under sedation or anesthesia with surgical or non-surgical techniques/referred
- If placental retention:  
manual extraction/hysterectomy/referred
- If placental or chorio-placental remains:  
uterotonics + (manual extraction/curettage/referred)

**Table 7.9: Obstetric hemorrhage management, complete facilities**

	Second Follow-Up		
	N	%	CI
Vital signs checked	41	100.0	(91.4 - 100)
Pulse / heart rate	41	100.0	(91.4 - 100)
Blood pressure	41	100.0	(91.4 - 100)
Lab tests	41	43.9	(28.5 - 60.3)
Hematocrit	41	85.4	(70.8 - 94.4)
Hemoglobin	41	87.8	(73.8 - 95.9)
Platelet count	41	87.8	(73.8 - 95.9)
Prothrombin time	41	56.1	(39.7 - 71.5)
Partial thromboplastin time	41	48.8	(32.9 - 64.9)
Ringer's lactate / Hartman's / saline solution	41	80.5	(65.1 - 91.2)
Appropriate treatment	31	61.3	(42.2 - 78.2)
Abortion	3	100.0	(29.2 - 100)
Ectopic pregnancy	1	0.0	(0 - 97.5)
Placenta previa	4	100.0	(39.8 - 100)
Uterine rupture	-	-	-
Uterine atony	18	72.2	(46.5 - 90.3)
Uterine inversion	-	-	-
Placental retention	5	0.0	(0 - 52.2)
Placental/chorio-placental remains	3	66.7	(9.4 - 99.2)
Hemorrhage managed according to SMI standard	41	22.0	(10.6 - 37.6)

### 7.7.3 Pre-eclampsia

During the medical record review, doctors and nurses systematically evaluated records which met the criteria for severe obstetric pre-eclampsia complication according to the SMI standards. The obstetric complications indicator determines the standard treatment as well as management protocol for pre-eclampsia cases based on facility EONC level. Pre-eclampsia management is defined as follows:

1. The woman must have the following vital signs checked:
  - Blood pressure
  - Pulse / heart rate
  - Respiratory rate
  - Patellar reflex
2. The woman must have the following laboratory tests:
  - Urine protein
  - Platelet count
  - Aspartate aminotransferase / glutamic-oxaloacetic transaminase
  - Alanine transaminase / glutamic-pyruvic transaminase
  - Lactate dehydrogenase

3. The woman was administered one of the following medications:

- Magnesium sulfate
- Ringer's lactate / Hartman's / saline solution
- Hydralazine / labetalol / nifedipine (if diastolic blood pressure  $\geq$  110 or systolic blood pressure  $\geq$  160)
- Dexamethasone / Betamethasone (if gestational age is between 24 and 35 weeks)

**Table 7.10: Obstetric pre-eclampsia management, complete facilities**

	Second Follow-Up		
	N	%	CI
Vital signs checked	72	55.6	(43.4 - 67.3)
Pulse / heart rate	72	100.0	(95 - 100)
Blood pressure	72	100.0	(95 - 100)
Respiratory rate	72	100.0	(95 - 100)
Patellar reflex	72	55.6	(43.4 - 67.3)
Lab tests	72	4.2	(0.9 - 11.7)
Urine protein	72	34.7	(23.9 - 46.9)
Platelet count	72	95.8	(88.3 - 99.1)
Aspartate aminotransferase / glutamic-oxaloacetic transaminase	72	72.2	(60.4 - 82.1)
Alanine transaminase / glutamic-pyruvic transaminase	72	72.2	(60.4 - 82.1)
Lactate dehydrogenase	72	18.1	(10 - 28.9)
All appropriate medications administered	72	41.7	(30.2 - 53.9)
Ringer's lactate / Hartman's / saline solution	72	52.8	(40.7 - 64.7)
Magnesium sulfate	72	91.7	(82.7 - 96.9)
Hydralazine / labetalol / nifedipine (if high blood pressure)	22	72.7	(49.8 - 89.3)
Dexamethasone / Betamethasone (if gestational age 24-35 weeks)	7	28.6	(3.7 - 71)
Pre-eclampsia managed according to SMI standard	72	1.4	(0 - 7.5)

#### 7.7.4 Eclampsia

During the medical record review, doctors and nurses systematically evaluated records which met the criteria for obstetric eclampsia complication according to the SMI standards. The obstetric complications indicator determines the standard treatment as well as management protocol for eclampsia cases based on facility EONC level. Eclampsia management is defined as follows:

1. The woman must have the following vital signs checked:
  - Blood pressure
  - Pulse / heart rate
  - Respiratory rate
  - Patellar reflex
2. The woman must have the following laboratory tests:
  - Urine protein

- Platelet count
  - Aspartate aminotransferase / glutamic-oxaloacetic transaminase
  - Alanine transaminase / glutamic-pyruvic transaminase
  - Lactate dehydrogenase
3. The woman was administered one of the following medications:
- Magnesium sulfate
  - Ringer's lactate / Hartman's / saline solution
  - Hydralazine / labetalol / nifedipine (if diastolic blood pressure  $\geq$  110 or systolic blood pressure  $\geq$  160)
  - Dexamethasone / Betamethasone (if gestational age is between 24 and 35 weeks)

**Table 7.11: Obstetric eclampsia management, complete facilities**

	Second Follow-Up		
	N	%	CI
Vital signs checked	1	0	(0 - 97.5)
Pulse / heart rate	1	100	(2.5 - 100)
Blood pressure	1	100	(2.5 - 100)
Respiratory rate	1	100	(2.5 - 100)
Patellar reflex	1	0	(0 - 97.5)
Lab tests	1	0	(0 - 97.5)
Urine protein	1	0	(0 - 97.5)
Platelet count	1	100	(2.5 - 100)
Aspartate aminotransferase / glutamic-oxaloacetic transaminase	1	0	(0 - 97.5)
Alanine transaminase / glutamic-pyruvic transaminase	1	0	(0 - 97.5)
Lactate dehydrogenase	1	0	(0 - 97.5)
All appropriate medications administered	1	0	(0 - 97.5)
Ringer's lactate / Hartman's / saline solution	1	0	(0 - 97.5)
Magnesium sulfate	1	100	(2.5 - 100)
Hydralazine / labetalol / nifedipine (if high blood pressure)	-	-	-
Dexamethasone / Betamethasone (if gestational age 24-35 weeks)	-	-	-
Pre-eclampsia managed according to SMI standard	1	0	(0 - 97.5)

### 7.7.5 Maternal complications indicator performance

The table below displays the percentage of medical records reviewed for maternal complications that indicated appropriate treatment and management according to the SMI standard (4080).

**Table 7.12: Obstetric complications indicator performance, complete facilities**

	Second Follow-Up		
	N	%	CI
Sepsis managed according to SMI standard	128	0.8	(0 - 4.3)
Hemorrhage managed according to SMI standard	41	22.0	(10.6 - 37.6)
Pre-eclampsia managed according to SMI standard	72	1.4	(0 - 7.5)
Eclampsia managed according to SMI standard	1	0.0	(0 - 97.5)
Complications managed according to SMI standard	241	4.6	(2.3 - 8)

## 7.8 Management of neonatal complications in previous two years (sepsis, asphyxia, low birth weight, prematurity)

### 7.8.1 Sepsis (neonatal)

During the medical record review, doctors and nurses systematically evaluated records which met the criteria for sepsis complication according to the SMI standards. The neonatal complications indicator determines the standard treatment as well as the management protocol for sepsis cases based on facility EONC level. Sepsis management is defined as follows:

1. The neonate must have the following vital signs checked:
  - Pulse / heart rate
  - Temperature
  - Respiratory rate
  - APGAR score (1 or 5 minutes)
2. The neonate must have received the following laboratory tests:
  - Oxygen saturation level
  - Blood biometry
  - Hemoculture
  - C-reactive protein
  - neutrophil band ratio/neutrophil absolute ratio
3. The neonate must be administered the following medications:
  - Ampicillin
  - Gentamicin/amikacin



**Table 7.13: Neonatal sepsis management, complete facilities**

	Second Follow-Up		
	N	%	CI
Vital signs checked	132	96.2	(91.4 - 98.8)
Pulse / heart rate	132	99.2	(95.9 - 100)
Temperature	132	97.0	(92.4 - 99.2)
Respiratory rate	132	99.2	(95.9 - 100)
Lab tests	132	3.0	(0.8 - 7.6)
Blood biometry	132	81.8	(74.2 - 88)
Oxygen saturation	132	59.8	(51 - 68.3)
Hemoculture	132	24.2	(17.2 - 32.5)
Neutrophil band ratio / absolute ratio	132	32.6	(24.7 - 41.3)
C-reactive protein	132	79.5	(71.7 - 86.1)
Medications administered	132	88.6	(82 - 93.5)
Ampicillin	132	96.2	(91.4 - 98.8)
Gentamicin / amikacin	132	89.4	(82.8 - 94.1)
Neonatal sepsis managed according to SMI standard	132	3.0	(0.8 - 7.6)

### 7.8.2 Asphyxia

During the medical record review, doctors and nurses systematically evaluated records which met the criteria for asphyxia complication according to the SMI standards. The neonatal complications indicator determines the standard treatment as well as the management protocol for asphyxia cases based on facility EONC level. Asphyxia management is defined as follows:

1. The neonate must have the following vital signs checked:
  - Pulse/ heart rate
  - Respiratory rate
  - APGAR score at 1 minute
  - APGAR score at 5 minute (considered severe asphyxia if score <=3)
2. The neonate must have received the following procedures:
  - Oxygen saturation
  - Heat application
  - Oxygen application (if severe)
  - AMBU/positive pressure ventilation/endotracheal intubation (if severe)

**Table 7.14: Neonatal asphyxia management, complete facilities**

	Second Follow-Up		
	N	%	CI
Vital signs checked	15	86.7	(59.5 - 98.3)
Pulse / heart rate	15	100.0	(78.2 - 100)
Respiratory rate	15	100.0	(78.2 - 100)
APGAR at 1 minute	15	93.3	(68.1 - 99.8)
APGAR at 5 minutes	15	86.7	(59.5 - 98.3)
Oxygen saturation lab test	15	100.0	(78.2 - 100)
Heat application	15	66.7	(38.4 - 88.2)
Oxygen application (if severe)	2	50.0	(1.3 - 98.7)
AMBU/positive pressure ventilation/endotracheal intubation (if severe)	2	100.0	(15.8 - 100)
Asphyxia managed according to SMI standard	15	53.3	(26.6 - 78.7)

### 7.8.3 Low birth weight

During the medical record review, doctors and nurses systematically evaluated records which met the criteria for low birth weight complication according to the SMI standards. The neonatal complications indicator determines the standard treatment as well as the management protocol for cases of low birth weight based on facility EONC level. Low birth weight management is defined as follows:

1. The neonate must have the following vital signs checked:
  - Pulse / heart rate
  - Respiratory rate
  - Weight
  - APGAR score (1 or 5 minutes)
  - Head circumference
  - Silverman score
2. The neonate must be fed glucose
3. The neonate must receive the appropriate care:
  - if neonate has pneumonia: antibiotics
  - if neonate has diarrhea: antibiotics + IV treatment
  - if neonate has seizures: anticonvulsants
  - if neonate has hypoglycemia: IV glucose serum

**Table 7.15: Neonatal low birth weight management, complete facilities**

	Second Follow-Up		
	N	%	CI
Vital signs checked	66	6.1	(1.7 - 14.8)
Pulse / heart rate	66	98.5	(91.8 - 100)
Respiratory rate	66	97.0	(89.5 - 99.6)
Weight	66	100.0	(94.6 - 100)
Head circumference	66	97.0	(89.5 - 99.6)
APGAR score (1 or 5 minutes)	66	97.0	(89.5 - 99.6)
Silverman score	66	6.1	(1.7 - 14.8)
Fed glucose	66	84.8	(73.9 - 92.5)
Treated appropriately:	8	100.0	(63.1 - 100)
Pneumonia	1	100.0	(2.5 - 100)
Diarrhea	-	-	-
Seizures	-	-	-
Hypoglycemia	7	100.0	(59 - 100)
Low birth weight managed according to SMI standard	66	3.0	(0.4 - 10.5)

#### 7.8.4 Prematurity

During the medical record review, doctors and nurses systematically evaluated records which met the criteria for prematurity complication according to the SMI standards. The neonatal complications indicator determines the standard treatment as well as the management protocol for cases of prematurity based on facility EONC level. Prematurity management is defined as follows:

1. Gestational age calculation using Capurro or Ballard
2. Classification based on gestational age recorded (if not referred from other facility)
3. The neonate must have the following vital signs checked:
  - Pulse / heart rate
  - Respiratory rate
  - Weight
  - APGAR score (1 or 5 minutes)
  - Head circumference
  - Silverman score
4. The neonate must receive the following laboratory tests:
  - Oxygen saturation level
  - Glycemia test
5. The neonate must have the following procedures:
  - Heat application

- Fed glucose

6. The neonate must receive the appropriate care:

- if neonate has pneumonia: antibiotics
- if neonate has diarrhea: antibiotics + IV treatment
- if neonate has seizures: anticonvulsants
- if neonate has hypoglycemia: IV glucose serum

**Table 7.16: Neonatal prematurity management, complete facilities**

	Second Follow-Up		
	N	%	CI
Capurro/Ballard gestational age calculation	39	87.2	(72.6 - 95.7)
Classification of gestational age	36	91.7	(77.5 - 98.2)
Vital signs checked	39	2.6	(0.1 - 13.5)
Pulse / heart rate	39	94.9	(82.7 - 99.4)
Respiratory rate	39	94.9	(82.7 - 99.4)
Weight	39	94.9	(82.7 - 99.4)
Head circumference	39	94.9	(82.7 - 99.4)
APGAR score (1 or 5 minutes)	39	79.5	(63.5 - 90.7)
Silverman score	39	2.6	(0.1 - 13.5)
Lab tests:	39	41.0	(25.6 - 57.9)
Oxygen saturation	39	66.7	(49.8 - 80.9)
Glycemia test	39	56.4	(39.6 - 72.2)
Heat application	39	84.6	(69.5 - 94.1)
Fed glucose	39	82.1	(66.5 - 92.5)
Treated appropriately:	5	100.0	(47.8 - 100)
Pneumonia	1	100.0	(2.5 - 100)
Diarrhea	-	-	-
Seizures	-	-	-
Hypoglycemia	4	100.0	(39.8 - 100)
Prematurity managed according to SMI standard	39	0.0	(0 - 9)

### 7.8.5 Neonatal complications indicator performance

The table below displays the percentage of medical records reviewed for neonatal complications that indicated appropriate treatment and management according to the SMI standard (4070).

**Table 7.17: Neonatal complications indicator performance, complete facilities**

	Second Follow-Up		
	N	%	CI
Sepsis managed according to SMI standard	132	3.0	(0.8 - 7.6)
Asphyxia managed according to SMI standard	15	53.3	(26.6 - 78.7)
Low birth weight managed according to SMI standard	66	3.0	(0.4 - 10.5)
Prematurity managed according to SMI standard	39	0.0	(0 - 9)
Complications managed according to SMI standard	238	5.9	(3.3 - 9.7)

## 8 Chapter 8: Infection control

### 8.1 Disposal equipment and methodology

During the questionnaire component of the survey, facility representatives were asked about equipment and methodology pertaining to infection control and biohazard disposal.

**Table 8.1: Infection control and disposal, ambulatory facilities**

	Baseline			First Follow-Up			Second Follow-Up		
	N	%	CI	N	%	CI	N	%	CI
Incinerator at facility	-	-	-	51	3.9	(0.5 - 13.5)	51	2.0	(0 - 10.4)
Contract with other facility for disposal (if no incinerator)	-	-	-	50	84.0	(70.9 - 92.8)	51	33.3	(20.8 - 47.9)
Manual for decontamination	57	28.1	(17 - 41.5)	50	78.0	(64 - 88.5)	51	66.7	(52.1 - 79.2)

\* One facility at baseline and one facility at first follow-up evaluation responded 'do not know' to decontamination manual. One facility at first follow-up evaluation responded 'do not know' to disposal contract with other facility. These are omitted here.

**Table 8.2: Infection control and disposal, complete facilities**

	Baseline			First Follow-Up			Second Follow-Up		
	N	%	CI	N	%	CI	N	%	CI
Incinerator at facility	-	-	-	9	22.2	(2.8 - 60)	9	0	(0 - 33.6)
Contract with other facility for disposal (if no incinerator)	-	-	-	9	100.0	(66.4 - 100)	9	100	(66.4 - 100)
Manual for decontamination	7	100	(59 - 100)	9	100.0	(66.4 - 100)	9	100	(66.4 - 100)

## Appendix A: Indicator Matrices

**Table A.1: Performance matrix**

Code	Description	First Follow-Up			Second Follow-Up		
		N	%	CI	N	%	CI
3030	At least four ANC visits meeting standard	185	51.4	(43.9 - 58.8)	252	63.9	(57.6 - 69.8)
3041	First ANC visit within 12 weeks	167	58.7	(50.8 - 66.2)	311	74.6	(69.4 - 79.3)
8380	Birth plan at ECOS facility	-	-	-	328	86.3	(82.1 - 89.8)

<sup>1</sup> 3030 & 3041: Gestational age calculated at first follow-up, reported at second follow-up.

**Table A.2: Monitoring matrix**

Code	Description	First Follow-Up			Second Follow-Up		
		N	%	CI	N	%	CI
2500	Postpartum contraception	84	1.2	(0 - 6.5)	102	14.7	(8.5 - 23.1)
3030	At least four ANC visits to standard (revised)	166	28.9	(22.2 - 36.4)	241	27.0	(21.5 - 33)
4050	Immediate maternal postpartum care	86	0.0	(0 - 4.2)	210	48.6	(41.6 - 55.5)
4070	Neonatal complications	-	-	-	238	5.9	(3.3 - 9.7)
4080	Maternal complications	-	-	-	241	4.6	(2.3 - 8)
4090	Active management of third stage of labor	164	26.8	(20.2 - 34.3)	177	59.3	(51.7 - 66.6)
4103	Immediate neonatal postpartum care	107	50.5	(40.6 - 60.3)	227	89.0	(84.2 - 92.7)
4120	Cesarean section prevalence	47768	24.7	-	29549	25.9	-
4130	Diarrhea treatment	212	13.7	(9.4 - 19.1)	428	42.8	(38 - 47.6)
7000	Cold chain composite	47	76.6	(62 - 87.7)	56	91.1	(80.4 - 97)
7010	Childcare services composite	60	20.0	(10.8 - 32.3)	60	15.0	(7.1 - 26.6)
7020	Pre/postnatal care composite	60	55.0	(41.6 - 67.9)	60	21.7	(12.1 - 34.2)
7030	Emergency care composite	6	16.7	(0.4 - 64.1)	9	44.4	(13.7 - 78.8)
7040	Delivery care composite	-	-	-	9	11.1	(0.3 - 48.2)
7050	Family planning composite	60	93.3	(83.8 - 98.2)	60	91.7	(81.6 - 97.2)
7190	Personnel on call 24/7	9	44.4	(13.7 - 78.8)	9	0.0	(0 - 33.6)
7210	Safe blood supply	9	100.0	(66.4 - 100)	9	88.9	(51.8 - 99.7)

<sup>1</sup> 4120: Cesarean section data collected from 9 hospitals for each year in the respective evaluation period (prior two years). Prevalence data unknown from one facility at each of the first and second follow-ups.

<sup>2</sup> Composite indicators: Not all equipment, pharmacy, and lab inputs required were captured at first follow-up evaluation. Please refer to individual indicator tables for details.

<sup>3</sup> 7010, 7020, 7030: These values reflect indicators without accounting for three-month drug stockouts. Values accounting for stockouts are displayed in the individual composite indicator tables in the main text.

## Appendix B: Indicator Definitions

### 8.2 Performance Indicators

**3030: Woman of reproductive age who had four antenatal care visits according to SMI standard during her latest pregnancy in the past two years**

*Denominator:*

Total number of antenatal care records in the sample, excluding women who were referred to another facility for care.

*Formula:*

Ambulatory: Observe the following in the record: woman had at least 4 ANC visits + physical checkups performed at each visit (weight + blood pressure + uterine height (if gestational age  $\geq 14$  weeks) + fetal heart rate (if gestational age  $> 20$  weeks) + fetal movement (if gestational age  $> 20$  weeks)). Lab tests performed at least once: blood glucose level + HIV test + Hb level + urinalysis + Rh factor + blood group.

**3040: Woman of reproductive age who had their first antenatal care visit at  $\leq 12$  weeks gestation in the last two years**

*Denominator:*

Total number of antenatal care records in the sample at ECOS Familiar facilities.

*Formula:*

ECOS Familiar: Observe the following in the record: woman had the first ANC at  $\leq 12$  weeks gestation

**8380: Woman of reproductive age who had a completed birth plan at an ECOS facility**

*Denominator:*

Total number of antenatal care records in the sample at ECOS Familiar facilities.

*Formula:*

ECOS Familiar: Observe the following in the record: delivery plan + the hospital where the woman will give birth is established

### 8.3 Monitoring Indicators

**2500: Women who received postpartum contraception for an uncomplicated delivery in the last year**

*Denominator:*



Total number of postpartum care records from complete facilities in the sample, excluding cases of women referred for family planning methods'

*Formula:*

Complete: Observe the following in the record: woman received one of the following methods (sterilization or IUD or implant or progesterone-only oral pill)

**3030: Women of reproductive age who received four prenatal care visits according to the best practices in the last two years**

*Denominator:*

Total number of antenatal care records from ECOS familiar

*Formula:*

ECOS familiar: Observe the following in the record: woman had at least 4 ANC visits in total + first ANC visits was at < 13 weeks gestation + physical checkups performed at each visit (weight + blood pressure + fundal height (if gestational age  $\geq 14$  weeks) + fetal heart rate (if gestational age  $> 20$  weeks) + fetal movement (if gestational age  $> 20$  weeks)). Lab tests performed at least once: blood group + Rh factor + blood glucose level + HIV test + RPR/VDRL test + Hb level + urinalysis + tetanus vaccine (any dose) + referred or evaluated by a specialist (if positive HIV test / positive RPR/VDRL test / negative Rh test / hypertension / diabetes) + referred/treated with antibiotics (if urine infection)

**4050: Woman of reproductive age who received immediate postpartum care according to SMI standard during her latest pregnancy in the past two years**

*Denominator:*

Total number of postpartum care records in the sample, excluding women referred for postpartum care

*Formula:*

Complete: Observe the following in the record: Woman received all of the following checks four times in the first hour, twice in the second hour, and once at discharge: blood pressure + temperature + respiratory rate + pulse/heart rate + uterine involution + abnormal bleeding + lochia abnormalities

**4070: Neonatal complications (sepsis, asphyxia, low birth weight, prematurity) managed according to the SMI standard in hospitals in the last two years**

*Denominator:*

Total number of records of neonates with birth complications (sepsis, asphyxia, low birth weight, prematurity) in the sample

*Formula:*

*Sepsis: Complete:*

Observe the following in the record: heart rate/pulse + respiratory rate + temperature + oxygen saturation level + blood biometry (platelet count + leukocyte count + hemoglobin + hematocrit) + hemoculture + c-reactive protein + neutrophil band ratio/neutrophil absolute ratio + ampicillin administration + gentamicin/amikacin administration

*Asphyxia*: excluding referred cases to the facility

Complete:

Observe the following in the record: pulse/heart rate + respiratory rate + Apgar score at 1 minute + Apgar score at 5 minutes + oxygen saturation level + heat application + oxygen application (if severe asphyxia) + (AMBU/positive pressure ventilation/endotracheal intubation (if severe asphyxia))

(severe asphyxia is defined as Apgar score at 5 minutes  $\leq 3$ )

*Low birth weight*: excluding neonates  $>2500$  grams

Complete:

Observe the following in the record: gestational age calculation using Capurro or Ballard + classification based on weight recorded (if neonate was not referred from another facility) + pulse/heart rate + respiratory rate + weight + Silverman-Anderson score + Head circumference + Apgar score (at 1 or 5 minutes) + neonate was fed glucose (breastfed/oral serum/IV) + appropriate care (below):

- if neonate has pneumonia: antibiotics
- if neonate has diarrhea: antibiotics + IV treatment
- if neonate has seizures: anticonvulsants  
(tazobactam/phenobarbital/levetiracetam/lidocaine/pentothal/thiobarbital)
- if neonate has hypoglycemia: IV glucose serum

*Prematurity*: excluding neonates with a gestational age of  $\geq 37$  weeks

Complete:

Observe the following in the record: gestational age calculation using Capurro or Ballard + classification based on gestational age recorded (if neonate was not referred from another facility) + pulse/heart rate + respiratory rate + weight + Silverman-Anderson score + Head circumference + Apgar score (at 1 or 5 minutes) + oxygen saturation level + glycemia test + heat application + neonate was fed glucose (breastfed/oral serum/IV) + appropriate care (below):

- if neonate has pneumonia: antibiotics
- if neonate has diarrhea: antibiotics + IV treatment
- if neonate has seizures: anticonvulsants  
(tazobactam/phenobarbital/levetiracetam/lidocaine/pentothal/thiobarbital)
- if neonate has hypoglycemia: IV glucose serum

**4080: Maternal complications (sepsis, hemorrhage, pre-eclampsia, eclampsia) managed according to the SMI standard in hospitals in the last two years**

*Denominator:*

Total number of records of women with birth complications (sepsis, hemorrhage, pre-eclampsia, eclampsia) in the sample

*Formula:*

*Sepsis: Complete:*

Observe the following in the record: pulse/heart rate + blood pressure + temperature + blood biometry (hemoglobin + hematocrit + platelet count + leukocyte count) + antibiotics ((metronidazole & ceftriaxone) OR (Clindamycin + gentamicin)) + appropriate care (below):

- If abortion: AMEU / hysterectomy/referred
- If uterine perforation: surgical repair/hysterectomy/referred
- If abscess: drainage/laparotomy/hysterectomy/referred
- If postpartum or post-cesarean endometritis: antibiotics/referred
- If fever: antibiotics/referred
- If retention of placental remains: curettage/laparotomy/hysterectomy/referred

*Hemorrhage: Complete:*

Observe the following in the record: pulse/heart rate + blood pressure + hematocrit + hemoglobin + platelet count + prothrombin time + partial thromboplastin time + Ringer's lactate/Hartmann's solution/saline solution + appropriate care (below):

- If incomplete complicated abortion with hemorrhage or hemorrhage after abortion:  
AMEU/curettage/referred
- If ectopic pregnancy/broken ectopic pregnancy:  
laparotomy/salpingectomy/surgical repair/hysterectomy/referred
- If placenta previa with hemorrhage: laparotomy/hysterectomy/surgical repair/caesarean section/uterine artery ligation/hypogastric artery ligation/referred
- If uterine rupture: laparotomy/hysterectomy/surgical repair/caesarean section/uterine artery ligation/referred
- If uterine atony: uterotonics + (uterine massage/bimanual compression/compressive sutures/hydrostatic balloon/uterine tamponade/hysterectomy/referred
- If uterine inversion: uterotonic + reposition/restoration of the uterus under sedation or anesthesia with surgical or non-surgical techniques/referred

- If placental retention: manual extraction/hysterectomy/referred
- If placental or chorio-placental remains: uterotonics + (manual extraction/curettage/referred)

*Pre-eclampsia: Complete:*

Observe the following in the record: blood pressure + pulse/heart rate + respiratory rate + patellar reflex + urine protein + platelet count + aspartate aminotransferase/glutamic-oxaloacetic transaminase (TGO or GOT) + alanine aminotransferase/glutamic-pyruvic transaminase (TGP or GPT) + lactate dehydrogenase + magnesium sulfate + ringer's lactate/hartmann's solution/saline solution + hydralazine/labetalol/nifedipine (if diastolic blood pressure is  $\geq 110$  OR systolic blood pressure  $\geq 160$ ) + dexamethasone/betamethasone (if gestational age  $\geq 24$  -  $\leq 35$  weeks)

*Eclampsia: Complete:*

Observe the following in the record: blood pressure + pulse/heart rate + respiratory rate + patellar reflex + urine protein + platelet count + aspartate aminotransferase/glutamic-oxaloacetic transaminase (TGO or GOT) + alanine aminotransferase/glutamic-pyruvic transaminase (TGP or GPT) + lactate dehydrogenase + magnesium sulfate + ringer's lactate/hartmann's solution/saline solution + hydralazine/labetalol/nifedipine (if diastolic blood pressure is  $\geq 110$  OR systolic blood pressure  $\geq 160$ ) + dexamethasone/betamethasone (if gestational age  $\geq 24$  -  $\leq 35$  weeks)

#### **4090: Active management of the third stage of labor in hospitals in the last two years**

*Denominator:*

Total number of delivery records in the sample

*Formula:*

Complete: Observe the following in the record: administration of oxytocin / other uterotonic within one minute of birth

#### **4103: Immediate neonatal postpartum care in hospitals in the last two years**

*Denominator:*

Total number of postpartum records from complete facilities in the sample

*Formula:*

Complete: Observe the following in the record: Vitamin K administration + Oxytetracycline ophthalmic as prophylaxis or chloramphenicol + APGAR at 1 minute + APGAR at 5 minutes + Respiratory rate + Weight + Height + Head circumference + Complete physical evaluation + Full evaluation at discharge form

#### **4120: Cesarean section prevalence in hospitals in the last two years**

*Denominator:*

Total number of deliveries as indicated by hospital statistics in past two years

*Formula:*

Complete: Number of cesarean section births in hospitals in the past two years

**4130: Children 0-5 diagnosed with diarrhea treated according to the SMI standard in the last two years**

*Denominator:*

Total number of diarrhea records in the sample

*Formula:*

Ambulatory: Observe the following in the record: general state check + eyes + thirst + skin fold + capillary fill + pulse/heart rate + (administered oral rehydration salts / intravenous rehydration / prescribed oral rehydration medication)

**7000: Health facilities with cold chain according to standard**

*Denominator:*

Total number of facilities that store vaccines in the sample

*Formula:*

Observe the following in the facility: For each functional refrigerator: temperature recording chart + temperature recorded twice daily for past thirty days + temperature within range of 2-8 degrees celsius for past thirty days (if temperature outside of 2-8 degree range, an action was taken and recorded)

**7010: Health facilities with child care services according to standard**

*Denominator:*

Total number of facilities that provide child care services in the sample

*Formula:*

Observe the following in the facility: Ambulatory: pediatric scale + scale + height rod + pediatric stethoscope + negatoscope + pediatric sphygmomanometer + Vaccine/growth and development card + continuous three month supply of vaccines: Pentavalent (DPT + Hib + HepB) + polio + MMR + influenza + rotavirus + pneumococcal conjugate + BCG + continuous three month supply of drugs: oral rehydration salts/packets + ferrous sulfate drops/micronutrients + albenazole/mebendazole + crystal penicillin/ampicillin/amoxicillin + Ringer's lactate/Hartman's solution/saline solution

Complete: pediatric scale + scale + height rod + stethoscope + oral/axillary thermometer + Vaccine / growth and development card + continuous three month supply of vaccines: Pentavalent (DPT + Hib + HepB) + polio + MMR + influenza + rotavirus + pneumococcal conjugate + BCG + continuous three month supply of drugs: oral rehydration salts/packets + ferrous sulfate drops/micronutrients

+ albenazole/mebendazole + crystal penicillin/ampicillin/amoxicillin + Ringer's lactate/Hartman's solution/saline solution

### **7020: Health facilities with pre/postnatal care services according to standard**

*Denominator:*

Total number of facilities that provide pre/postnatal care services in the sample

*Formula:*

Observe the following in the facility: Ambulatory without doctor: scale + height rod + gynecological exam table + obstetric tape + lamp + sphygmomanometer + stethoscope + maternal clinical history card + maternal perinatal card + continuous three month supply of drugs: (multivitamin/ iron + folic acid) + tetanus vaccine

Ambulatory with doctor: scale + height rod + gynecological exam table + obstetric tape + lamp + sphygmomanometer + stethoscope + maternal clinical history card + maternal perinatal card + IUD insertion kit + continuous three month supply of drugs: (multivitamin/ iron + folic acid) + tetanus vaccine + ayre palettes + microscope slides + nitrofurantoin + erythromycin/ampicillin/benzatinic penicillin

Complete: scale + height rod + gynecological exam table + obstetric tape + lamp + sphygmomanometer + stethoscope + maternal clinical history card + maternal perinatal card + IUD insertion kit + continuous three month supply of drugs: (multivitamin/ iron + folic acid) + tetanus vaccine + ayre palettes + microscope slides + nitrofurantoin + cephalixin + lab supplies: dark field microscope + enzyme immunoassay + fluorescent microscope + urinalysis equipment + glucometer + automated cell counter + blood type antibody + Rh factor + if immunoassay observed: syphilis reactive + HIV reactive

### **7030: Health facilities with emergency care services according to standard**

*Denominator:*

Total number of complete facilities that provide emergency obstetric and neonatal care services in the sample

*Formula:*

Observe the following in the facility: Complete: blood pressure apparatus + neonatal/pediatric stethoscope + pinard/doppler + autoclave/dry heat sterilizer + oxygen tank + adult resuscitation bag + neonatal resuscitation bag + laryngoscope + manual vacuum aspiration + anesthesia equipment + continuous three month supply of drugs: ergonovine maleate/ergometrine + oxytocin + dexamethasone/betamethasone + amikacin sulfate + crystal penicillin/ampicillin/amoxicillin + magnesium sulfate + hydralazine / hydralazine hydrochloride + nifedipine + furosemide + diazepam/midolezam + sevofluran + succinylcholine chloride

### **7040: Health facilities with delivery services according to standard**

*Denominator:*

Total number of complete facilities that provide (uncomplicated) delivery care services in the sample

*Formula:*

Observe the following in the facility: Complete: macro/microgotero serum equipment + sterile sheets/blankets for neonate + nasogastric probe K33 + intravenous catheter no.18 + metal clamp/umbilical tape + continuous three month supply of drugs: ergonovine maleate/ergometrine + iodopovidone + insulin syringe + lidocaine/epinephrine + hyoscine bromide/butilioscin + oxytocin + Ringer's lactate/Hartman's solution/saline solution + ophthalmic chloramphenicol drops + vitamin K

**7050: Health facilities with family planning services according to standard**

*Denominator:*

Total number of facilities that provide family planning services in the sample

*Formula:*

Observe the following in the facility: Ambulatory: continuous three month supply of contraceptives: male condom + oral contraceptive pill + injectable

Complete: continuous three month supply of contraceptives: male condom + oral contraceptive pill + injectable + IUD + doctor capable of tubal ligation + doctor capable of vasectomy

**7190: Health facilities with 24/7 on-call availability of obstetric care staff**

*Denominator:*

Total number of complete facilities in the sample

*Formula:*

Complete: reported staff services available on-call 24/7: gynecologist + internist + anesthesiologist

**7210: Health facilities with access to safe blood supply**

*Denominator:*

Total number of complete facilities in the sample

*Formula:*

Complete: reported access to safe blood