SMI-Belize

Community Survey Data Quality Report

Second Follow-up Measurement

August 2018

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This report of the Salud Mesoamérica Initiative (SMI) Belize Community survey 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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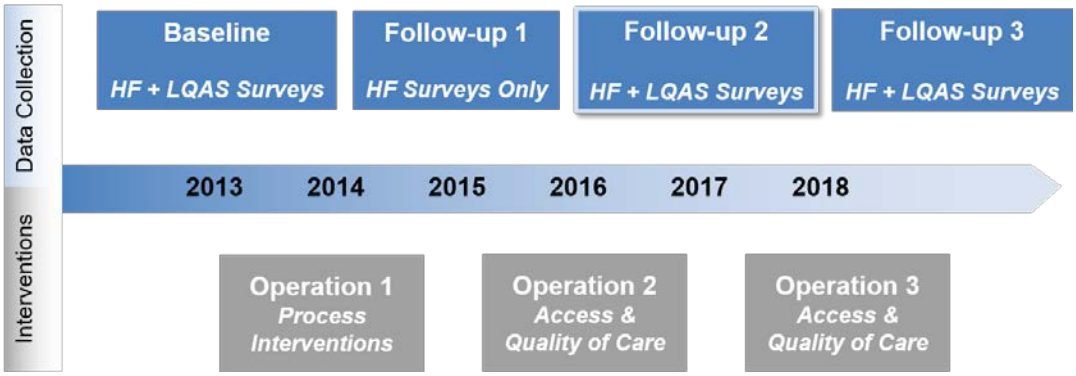
1 CHAPTER 1: INTRODUCTION

1.1 Overview

The 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% 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 health care packages, and the delivery of incentives for effective health services. One of its defining features is the application of a results-based aid (RBA) 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 Belize, baseline data were collected in homes, marketplaces, and health facilities (2013). The first follow-up data collection took place at health facilities only (2014), and this second follow-up measurement was performed at households, marketplaces and health facilities (2017). The timeline of data collection, evaluation, and interventions is shown in Figure 1.1. This report describes the results of community surveys conducted in households and marketplaces.

Figure 1.1: SMI-Belize timeline



1.2 SMI community survey

The objectives of the community survey are to capture household characteristics and reported maternal and child health data for women 15-49 years of age and for children 0-59 months of age. Community data collection permits the measurement of changes in health status, access to health care, and satisfaction with health care, as well as an array of data points, which give context to these factors.

Chapter 1 provides a general overview of the design and implementation of the SMI-Belize second follow-up community survey and discusses the design and coverage of the study. The subsequent chapters present results of the SMI-Belize second follow-up community survey.

The baseline SMI-Belize community survey was used to generate a rapid assessment of current coverage rates of health interventions in the strategic areas of the Initiative (reproductive, maternal and neonatal health, immunization, and nutrition). Standardized questionnaires as well as surveys of health facilities and data from the health information systems were used to provide the information needed. The content of the questionnaire was developed to measure the coverage of key health interventions and indicators, and many items were adapted from existing Demographic and Health Surveys (DHS).

During the interview, eligible women aged 15-49 years were asked questions on the following topics: background characteristics (including marital status), birth history; antenatal, delivery, and postpartum care; fertility preferences; and knowledge and use of family planning methods (including barriers to use). Those with a child born in the last two years were asked detailed questions on topics such as birth spacing, antenatal care, labor and delivery, postpartum care, and breastfeeding for each live birth in the last two years. Those who cared for children 0-59 months were asked about child health status, feeding practices, and immunization and supplementation history in reference to each child under age five.

1.3 Methodology

The SMI-Belize second follow-up community survey follows a Lot Quality Assurance Sampling methodology in order to balance the costs of data collection with the need to provide estimates of the coverage of key health interventions and indicators for an aggregate geographic area that approximates the lowest wealth quintile of the population of Belize. Because individuals in the sample are not randomly selected, all estimates presented in this report are unweighted.

1.3.1 *Study area*

The primary administrative unit in Belize is the district. Belize has six districts. IDB identified three of these districts for the SMI-Belize initiative on the basis of their high concentration of residents in the country's lowest wealth quintile (Figure 1.2).

Figure 1.2: Map of Salud Mesoamérica Initiative study area

1.3.2 *Sample selection*

From the three districts selected for the study, we selected a two-stage sample in order to reach a target minimum sample size of 350 women at the baseline and 400 women at the second follow-up. First, in each round of data collection, a set of 16 communities was selected to match health facilities surveyed in the Health Facility Survey, identified using a referral network provided by the Ministry of Health. There were a total of 20 health facilities in Cayo, Corozal, and Orange Walk Districts, all of which were visited in the second follow-up Health Facility Survey. For the Community Survey, four communities with a hospital or health facility that provides basic- or complete-level Essential Obstetric and Neonatal Care were first selected with certainty. The remaining 12 communities were randomly selected among a list of communities with ambulatory-level health facilities. At the second follow-up survey, selection of these 12 communities was stratified by district, with four facilities selected per district.

The number of communities selected by district and facility level is summarized in Table 1.1.

Table 1.1: Selected communities by district and facility level

	Baseline 2013			Second Follow-Up 2017		
District	Ambulatory	Basic	Complete	Ambulatory	Basic	Complete
Belize City	0	0	1	0	0	0
Cayo	3	2	1	5	1	1
Corozal	3	2	0	6	1	0
Orange Walk	3	0	1	5	0	1

* During the baseline survey, one Belize City community was interviewed because it is in proximity of a key referral facility for residents of Cayo, Corozal, and Orange Walk.

For efficiency, we chose to complete half the total interviews with women approached in markets and town centers, and half with women visited in their homes. This allows for the capture of information from documents stored in the home like the immunization card. Therefore, the 16 selected communities were randomly assigned to receive either the household survey or the marketplace survey. We interviewed between 23 and 27 women per community. In communities selected for the household sample, households were identified for the interview using field randomization techniques. In the case that more than one eligible woman resided in a selected household, one was selected at random to participate. In communities selected for the marketplace sample, interviewers simply approached women in public places, like markets, where eligible women were likely to be found, and checked for age eligibility before beginning the interview. In the second follow-up, a few communities were selected for the market survey, but did not have a large community space where a full market sample could be obtained in one day. Due to this, there were 6 communities where the survey took place in a market and 10 communities where the survey took place in households. Sample sizes by interview location are summarized in Table 1.2. Ultimately, we collected data on 434 women and 480 children during the second follow-up.

Following data collection, we compared estimates for the sub-sample of randomly selected women interviewed in their households with estimates for the sub-sample of women approached in public places. Because results did not differ substantially between these samples, reported estimates are assumed by the investigators to be representative of the sampled population of the aggregate study area. LQAS methodology is not designed to be representative for disaggregation to lower administrative levels, and sampling weights are not derived given that the probability of selection cannot be calculated at the individual level. This analysis does not account for clustering, since the sample of 16 communities makes up the large majority of the 20 total communities identified as the study area.

Table 1.2: Location of interview

	Baseline 2013		Second Follow-Up 2017	
	n	%	n	%
Household	153	58.6	272	62.7
Market	108	41.4	162	37.3

1.4 Survey implementation

1.4.1 *Data collection instruments*

Questionnaires were initially developed in English, and then translated to Spanish during the baseline measurement. To best reflect the issues most relevant to the region under study and the local language, the Spanish-language questionnaires were revised following input from key stakeholders and at the conclusion of the baseline study (described below). During the second follow-up, 53.5% of community interviewers were completed in English, 42.9% of interviews were completed in Spanish, and 3.7% of interviews were conducted partly or completely in a language other than Spanish or English.

All surveys were 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.

1.4.2 *Training and supervision of data collectors*

At the baseline, a total of 14 people were trained in December 2012 to serve as supervisors and interviewers. Training sessions for the second follow-up survey were conducted in Belize in September 2017. For community data collection, 10 surveyors were trained. All surveyors underwent a weeklong training, which included in-classroom instruction and practice of interview application. 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 the survey, proper conduct of the survey, in-depth review of the instrument, and hands-on training on the CAPI software. 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. IHME held debriefing and re-training sessions with surveyors post-pilot and continuously trained interviewers during the first week of data collection in sampled communities. This additional training was provided by an IHME team member who stayed in Belize for 12 days after the start of data collection on a supervisory mission to monitor the health facility and LQAS teams.

1.4.3 *Data collection, management, and analysis*

Data collection for the SMI-Belize community survey at the baseline began on April 18, 2013 and was completed on May 3, 2013. At the follow-up, data collection began September 16, 2017, and was completed on December 15, 2017. Data collection teams, consisting of one supervisor and three to four interviewers were deployed to conduct the SMI community survey. Supervisors were responsible for reviewing questionnaires for quality and consistency prior to departing each segment. There were two supervisors overseeing the SMI community survey at baseline, and three supervisors overseeing the follow-up survey.

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 connection to IHME. IHME monitored collected data on a continuous basis and provided feedback. Suggestions, surveyor feedback, and any modifications were incorporated into the instruments and readily transmitted to the field.

Data analysis was conducted at IHME using STATA version 14 and R version 3. Performance and monitoring indicators were calculated at IHME following indicator definitions provided by IDB.

1.4.4 *Final sample description*

Table 1.3 shows the total number of completed interviews with women of reproductive age (15-49), and the total number of children aged 0-59 months whose caretakers were interviewed, by district.

Table 1.3: Number of communities surveyed, number of eligible women interviewed, and number of eligible children among interviewed caregivers by district

	Baseline 2013			Second Follow-Up 2017		
District	Communities	Eligible women	Eligible children	Communities	Eligible women	Eligible children
Belize City	1	23	20	0	0	0
Cayo	6	147	145	6	164	182
Corozal	5	115	105	5	135	147
Orange Walk	4	66	41	5	135	151
Total	16	351	311	16	434	480

* During the baseline survey, one Belize City community was interviewed because it is in proximity of a key referral facility for residents of Cayo, Corozal, and Orange Walk.

1.5 Report structure

The subsequent chapters present characteristics of the surveyed SMI-Belize sample. Most tables take one of two forms. Tabulations of select-only-one question types are similar to Table 2.1. The categories are mutually exclusive, so the proportions sum to 100%. Counts are shown for non-response ("Don't know" or "Decline to respond" recorded), but these cases are always excluded from the denominator.

Tabulations of select-all-that-apply question types look like Table 3.1. As respondents can report more than one option, categories are not mutually exclusive, and thus proportions do not sum to 100%. The table shows affirmative cases (n) and non-missing cases (N). Non-response is the difference between non-missing cases (N) and the total sample eligible for that section of the questionnaire, indicated at the start of the chapter. Where statistics are reported for subpopulations, the size of the subpopulation is reported in the same table or the preceding table for straightforward comparison.

2 CHAPTER 2: GENERAL CHARACTERISTICS OF RESPONDENTS

This chapter summarizes the demographic characteristics, socioeconomic status, and information on family size of women of reproductive age (15-49 years) participating in the SMI-Belize second follow-up community survey.

2.1 Demographic Characteristics

2.1.1 *Age and marital status*

The age distribution of the de facto population of women of a reproductive age participating in the community interviews in Belize is shown in Figure 2.1 by five-year age groups. About 60% of all women participating in the second follow-up SMI-Belize community survey were younger than 30 years of age, 27% were between the ages of 30 and 39, and 12% were between the ages of 40 and 49. While 33% of women reported being married and 45% being partnered, 15% indicated they were never married (Table 2.1).

Figure 2.1: Age of respondents

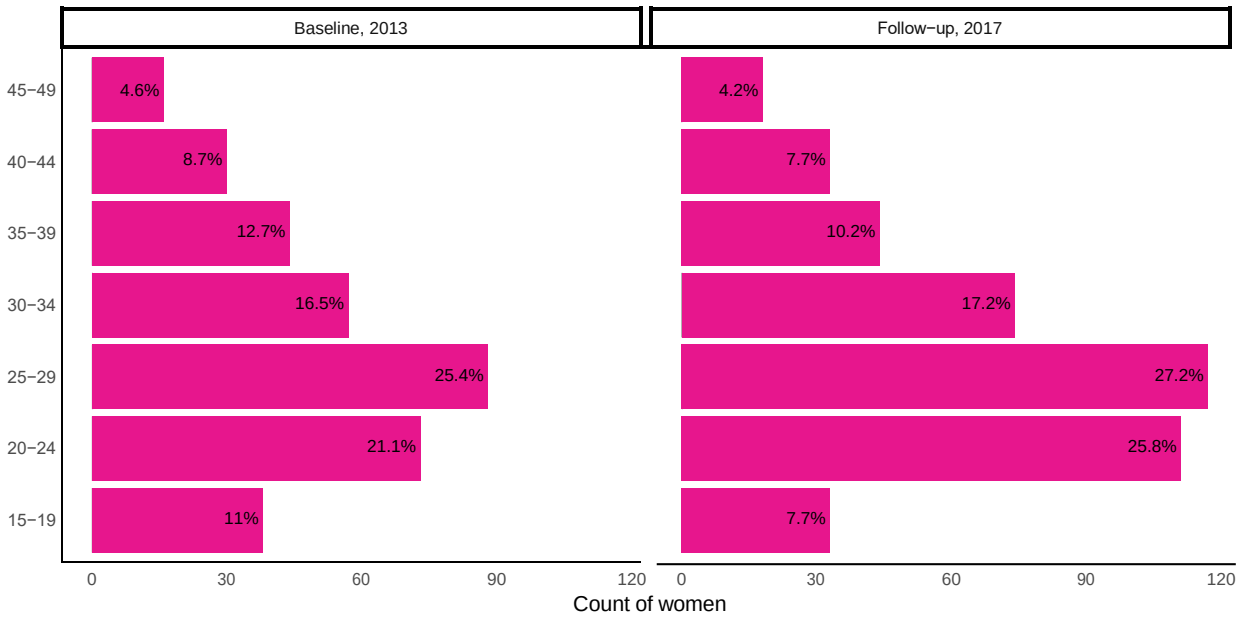


Table 2.1: Marital status of respondents

	Baseline 2013			Second Follow-Up 2017		
	n	%	SE	n	%	SE
Partner/Common Law/Open Union	117	33.8	2.5	195	44.9	2.4
Married	152	43.9	2.7	143	32.9	2.3
Never married	34	9.8	1.6	66	15.2	1.7
Separated	20	5.8	1.3	27	6.2	1.2
Widowed	3	0.9	0.5	2	0.5	0.3
Divorced	5	1.4	0.6	1	0.2	0.2
Other	15	4.3	1.1	0	0.0	-
Don't know	0	-	-	0	-	-
Decline to respond	3	-	-	0	-	-

2.2 Socioeconomic Status

2.2.1 *Educational attainment*

The highest level of education for most women interviewed in the second follow-up was primary school (55.4%). Another 36.7% of women reached secondary schooling, and 7.9% had university education.

Table 2.2: Education attainment

	Baseline 2013			Second Follow-Up 2017		
	n	%	SE	n	%	SE
Primary	155	45.9	2.7	240	55.4	2.4
Secondary	127	37.6	2.6	159	36.7	2.3
University	55	16.3	2.0	34	7.9	1.3
Literacy course	1	0.3	0.3	0	0.0	-
Don't know	6	-	-	1	-	-
Decline to respond	2	-	-	0	-	-

2.2.2 *Household income*

As summarized in Table 2.3, women reported their monthly household income within nine income ranges. In the second follow-up, 43.5% of women reported a monthly income less than 600 Belize dollars (BZD). Approximately 38.5% reported incomes in the range of 601 to 1,000 BZD. The remaining 18% of women reported incomes more than 1,000 BZD.

Table 2.3: Household monthly income, self-reported by women aged 15-49

	Baseline 2013			Second Follow-Up 2017		
	n	%	SE	n	%	SE
<600	116	33.1	2.5	189	43.5	2.4
600-1,000	135	38.6	2.6	167	38.5	2.3
1,001-2,000	48	13.7	1.8	67	15.4	1.7
2,001-3,000	19	5.4	1.2	8	1.8	0.6
3,001-5,000	11	3.1	0.9	3	0.7	0.4
5,001-7,000	8	2.3	0.8	0	0.0	-
7,001-10,000	9	2.6	0.8	0	0.0	-
10,001-13,000	1	0.3	0.3	0	0.0	-
>13,000	3	0.9	0.5	0	0.0	-

2.2.3 *Family size*

Women were asked their number of biological children under 5 years of age. As shown in Table 2.4, 95.6% of interviewed women in the second follow-up have biological children between 0 and 59 months of age. Most women have one child (85%) and 10.6% have two children in that age group.

Table 2.4: Parity and number of children

	Baseline 2013			Second Follow-Up 2017		
	n	%	SE	n	%	SE
No children	110	31.3	2.5	19	4.4	1.0
1 child	200	57.0	2.6	369	85.0	1.7
2 children	36	10.3	1.6	46	10.6	1.5
3 or more children	5	1.4	0.6	0	0.0	-

In addition, women were asked if they take care of other children under 5 years of age, such as grandchildren or adopted children. As shown in Table 2.5, 4.4% of women in the second follow-up said they take care of children in this age group. All of the women in the second follow-up who care for children other than their own, only care for one child in this age group.

Table 2.5: Caretaking of other children

	Baseline 2013			Second Follow-Up 2017		
	n	%	SE	n	%	SE
No children	305	86.9	1.8	415	95.6	1
1 child	40	11.4	1.7	19	4.4	1
2 children	5	1.4	0.6	0	0.0	-
3 or more children	1	0.3	0.3	0	0.0	-

3 CHAPTER 3: FAMILY PLANNING

This chapter summarizes key indicators related to the access to, need for, and use of family planning methods among women of reproductive age (15-49 years) participating in the SMI-Belize second follow-up community survey. Family planning questions were asked only to women of reproductive age who were married or partnered.

3.1 Current Use of Family Planning Methods

The coverage of contraceptive methods is one of the indicators most frequently used to assess the success of family planning program activities. It is also widely used as a determinant of fertility. Table 3.1 displays the percentage of all married or partnered women using at least one family planning method. Approximately 84% of all survey respondents in the second follow-up reported current use of at least one family planning method. Among all married or partnered women surveyed, 88.5% are "in need" of contraception (Table 3.1). Women considered "in need" of family planning methods are those who are married or partnered, excluding those who report the following characteristics: does not have sexual relations, virgin, menopausal, infertile, pregnant, or wants to become pregnant. Even women not considered "in need" of contraception may use a method.

Table 3.1: Current use of family planning methods, women 15-49 years of age who are married or partnered

	Baseline 2013				Second Follow-Up 2017			
	n	N	%	SE	n	N	%	SE
Current use of any method, among all women	185	267	69.3	2.8	284	338	84.0	2.0
Currently in need of contraception	242	267	90.6	1.8	299	338	88.5	1.7

As shown in Table 3.2, 90.3% of married and partnered women who were considered "in need" of contraception were using a method of modern family planning at the time of the interview. The percentage of women reporting use of more than one family planning method at the time of the interview is shown in Table 3.2.

Table 3.2: Current use of modern family planning methods, women 15-49 years of age who are married or partnered and in need of contraception

	Baseline 2013				Second Follow-Up 2017			
	n	N	%	SE	n	N	%	SE
Current use of any method	172	242	71.1	2.9	270	299	90.3	1.7
Current use of modern method	154	242	63.6	3.1	251	299	83.9	2.1

	Baseline 2013			Second Follow-Up 2017		
	n	%	SE	n	%	SE
Number of methods the respondent is currently using (any type of method)						
Not using any family planning methods	70	28.9	2.9	29	9.7	1.7
Using 1 family planning method	161	66.5	3.0	232	77.6	2.4
Using 2 family planning methods	9	3.7	1.2	25	8.4	1.6
Using 3+ family planning methods	2	0.8	0.6	11	3.7	1.1

Table 3.3 displays the percentage of all married and partnered women using specific family planning methods, regardless of whether they are considered "in need" of contraception. The methods most commonly in use during the second follow-up are female sterilizations (33.5%) and injectables (30.3%).

Table 3.3: Current use of family planning methods, by type of method, for women 15-49 years of age who are married or partnered and using a method of family planning

	Baseline 2013				Second Follow-Up 2017			
	n	N	%	SE	n	N	%	SE
Female sterilization	35	185	18.9	2.9	95	284	33.5	2.8
Injectable	55	185	29.7	3.4	86	284	30.3	2.7
Oral contraceptive	53	185	28.6	3.3	43	284	15.1	2.1
Male condom	23	185	12.4	2.4	36	284	12.7	2.0
Withdrawal	11	185	5.9	1.7	27	284	9.5	1.7
Implant	1	185	0.5	0.5	20	284	7.0	1.5
Intrauterine device (IUD)	4	185	2.2	1.1	12	284	4.2	1.2
Rhythm	13	185	7.0	1.9	9	284	3.2	1.0
Lactational amenorrhea	1	185	0.5	0.5	4	284	1.4	0.7
Emergency contraception (Plan B)	1	185	0.5	0.5	2	284	0.7	0.5
Female condom	1	185	0.5	0.5	1	284	0.4	0.4
Diaphragm	0	185	0.0	-	1	284	0.4	0.4
Other traditional method	0	185	0.0	-	1	284	0.4	0.4
Male sterilization	0	185	0.0	-	0	284	0.0	-
Sponge	0	185	0.0	-	0	284	0.0	-
Other modern method	0	185	0.0	-	0	283	0.0	-

* categories not mutually exclusive (select all that apply)

3.1.1 *Non-use of family planning methods*

The prevalence of non-use of family planning methods is summarized in Table 3.4. Of women participating in the second follow-up survey, 9.7% are not using a method of contraception and are considered "in need" of contraception (i.e., they did not report any of the following: does not have sexual relations, virgin, menopausal, infertile, pregnant, or wants to become pregnant).

3.1.2 *Reasons for non-use*

Women who indicated they were not using any method on the day of the interview were asked to specify all reasons why they did not use a family planning method. The interviewer matched responses provided by the respondent to a list of reasons in the questionnaire (Table 3.4). The most commonly cited reasons for non-use at the time of the second follow-up interview were, currently pregnant (22.2%), respondent is other reason (18.5%), and respondent is married (11.1%).

Table 3.4: Reasons for non-use of family planning methods, women 15-49 years of age who are married or partnered and who are not using family planning methods

	Baseline 2013				Second Follow-Up 2017			
	n	N	%	SE	n	N	%	SE
Currently pregnant	0	17	0.0	-	12	54	22.2	5.7
Other reason	3	17	17.6	9.3	10	54	18.5	5.3
Married	1	17	5.9	5.7	6	54	11.1	4.3
Trying to become pregnant	2	17	11.8	7.8	5	54	9.3	3.9
Not sexually active	2	17	11.8	7.8	4	54	7.4	3.6
Spouse or partner opposed to use	0	17	0.0	-	2	54	3.7	2.6
Concerned about side effects	5	17	29.4	11.1	2	54	3.7	2.6
Using contraception is uncomfortable	2	17	11.8	7.8	2	54	3.7	2.6
Using contraception interferes with normal body processes	2	17	11.8	7.8	2	54	3.7	2.6
Unmarried	0	17	0.0	-	1	54	1.9	1.8
Infrequently sexually active	1	17	5.9	5.7	1	54	1.9	1.8
Menopausal	0	17	0.0	-	1	54	1.9	1.8
No menstrual period since giving birth	0	17	0.0	-	1	54	1.9	1.8
Breastfeeding	3	17	17.6	9.3	1	54	1.9	1.8
Against religious beliefs	0	17	0.0	-	1	54	1.9	1.8
The health facility is too far away	1	17	5.9	5.7	1	54	1.9	1.8
Mistrust health center staff	0	17	0.0	-	1	54	1.9	1.8
Have undergone hysterectomy	0	17	0.0	-	0	54	0.0	-
Infertile	0	17	0.0	-	0	54	0.0	-
Opposed to use	1	17	5.9	5.7	0	54	0.0	-
Knows no method	1	17	5.9	5.7	0	54	0.0	-
No method was available	1	17	5.9	5.7	0	54	0.0	-
Do not like to use contraception	1	17	5.9	5.7	0	54	0.0	-

* categories not mutually exclusive (select all that apply)

3.2 Danger Signs in a Newborn

3.2.1 *Women who can recognize danger signs in newborns*

During the interview, women with a birth in the past 2 years were asked about their knowledge of child health danger signs. Women's responses were unprompted and matched to a list of five pre-specified danger signs: feeding problems; reduced activity; difficulty breathing; fevers, fits, and convulsions; and cold to the touch. Women named fever, fits, and convulsions the most often (69.4%), followed by feeding

problems (34.7%), and difficulty breathing (24%). Fourteen percent of women in the second follow-up were able to correctly identify three danger signs in newborns, compared to 31.9% at baseline.

Table 3.5: Ability to recognize danger signs in a newborn, women 15-49 years of age with a birth in the last two years

	Baseline 2013				Second Follow-Up 2017			
	n	N	%	SE	n	N	%	SE
Fever, fits, or convulsions*	62	118	52.5	4.6	136	196	69.4	3.3
Feeding problems	47	117	40.2	4.5	68	196	34.7	3.4
Difficulty breathing	60	117	51.3	4.6	47	196	24.0	3.1
Cold to the touch	15	117	12.8	3.1	36	196	18.4	2.8
Reduced activity	15	117	12.8	3.1	22	196	11.2	2.3
Recognize at least 3 danger signs in a newborn	37	116	31.9	4.3	28	196	14.3	2.5

* During the second follow-up, ”Fever”, ”Fits”, and ”Convulsions” were three separate options, which were combined into ”Fever, fits, or convulsions” to make it comparable to baseline.

4 CHAPTER 4: MATERNAL HEALTH CARE

This chapter summarizes key indicators pertaining to antenatal care, delivery care, and postpartum care for the most recent live birth in the last two years as reported by women of reproductive age (15-49 years) participating in the SMI-Belize second follow-up community survey. Participating women were interviewed about all live births in the last two years, but to reduce the impact of recall bias, results reported here are for each woman's most recent birth only. At the second follow-up, 196 women were interviewed about births in the last two years, compared to 121 women during the baseline.

4.1 Antenatal Care

To reduce recall bias, data pertaining to antenatal care are summarized for a woman's most recent birth in the last two years.

4.1.1 *Antenatal care coverage*

Early and regular checkups by trained medical providers are important in assessing the physical status of women during pregnancy and provide an opportunity to intervene in a timely manner if any problems are detected. The Community Questionnaire captured information from women on both overall coverage of antenatal care, the provider of care, and the content of care received.

The percentage of women with a birth in the last two years who attended at least one antenatal care visit for the most recent birth is presented in Table 4.1. Among women with a birth in the last two years in the second follow-up, 93.9% attended at least one antenatal care visit and 93.9% of women had at least one antenatal care visit with a doctor or professional nurse.

Table 4.1: Antenatal care coverage for the most recent birth in the last two years, women 15-49 years of age

	Baseline 2013				Second Follow-Up 2017			
	n	N	%	SE	n	N	%	SE
Attended at least one antenatal care visit	118	121	97.5	1.4	184	196	93.9	1.7
Attended at least one antenatal care visit with doctor or professional nurse	117	120	97.5	1.4	184	196	93.9	1.7

4.1.2 *Frequency of antenatal care visits*

Antenatal care can be more effective in avoiding adverse pregnancy outcomes when it is sought early in the pregnancy and continues until delivery. According to the national norm in Belize, it is recommended that women receive a minimum of four antenatal care visits. The frequency of antenatal care visits is summarized in Table 4.2.

In the second follow-up, 85.1% of women reported having four or more antenatal care visits during their most recent pregnancy in the last two years. Sixty four percent of women reported having seven or more antenatal care visits during their most recent pregnancy.

Table 4.2: Frequency of antenatal care visits for the most recent birth in the last two years, women 15-49 years of age

	Baseline 2013			Second Follow-Up 2017		
	n	%	SE	n	%	SE
No visits	3	2.8	1.6	12	6.4	1.8
1-3 visits	5	4.6	2.0	16	8.5	2.0
4-6 visits	16	14.8	3.4	40	21.3	3.0
7-9 visits	42	38.9	4.7	73	38.8	3.6
10+ visits	42	38.9	4.7	47	25.0	3.2

4.2 Delivery Care

Proper medical attention and hygienic conditions during delivery can reduce the risk of complications, infections, and even death for the mother and newborn baby. Characteristics of the delivery, including place of delivery and assistance at delivery were captured for all births in the two years preceding the survey. To reduce recall bias, only data from the most recent delivery within the last two years are summarized.

4.2.1 *Place of delivery*

The location of the most recent birth is shown in Table 4.3. The majority of births occurred in public hospitals (89.8%). Deliveries in private-sector facilities were rare (5.6%).

Table 4.3: Place of delivery for most recent birth in the last two years, women 15-49 years of age

	Baseline 2013			Second Follow-Up 2017		
	n	%	SE	n	%	SE
Public hospital	107	88.4	2.9	176	89.8	2.2
Private hospital	7	5.8	2.1	9	4.6	1.5
Your home	1	0.8	0.8	2	1.0	0.7
Public health center / clinic	0	0.0	-	2	1.0	0.7
Private health center / clinic	4	3.3	1.6	2	1.0	0.7
Other home	0	0.0	-	1	0.5	0.5
Public health unit	1	0.8	0.8	0	0.0	-
Public mobile clinic	0	0.0	-	0	0.0	-
Other public health facility	0	0.0	-	0	0.0	-
Private office	0	0.0	-	0	0.0	-
Private mobile clinic	0	0.0	-	0	0.0	-
Other private health facility	1	0.8	0.8	0	0.0	-
Pharmacy	0	0.0	-	0	0.0	-
Community health worker	0	0.0	-	0	0.0	-
Traditional healer	0	0.0	-	0	0.0	-
Polyclinic	0	0.0	-	0	0.0	-
Other	0	0.0	-	4	2.0	1.0
Don't know	0	-	-	0	-	-
Decline to respond	0	-	-	0	-	-

* During the second follow-up, four "Other" responses were recorded where women reported the name of the facility where they delivered, rather than the facility type.

4.2.2 *Assistance at delivery*

The assistance a woman receives during childbirth has important health consequences for both mother and child. Table 4.4 displays the types of personnel who attended her most recent birth in the past two years if the woman reported she was not alone. Most in-facility deliveries during the second follow-up were accompanied by a medical doctor (80.9%) and/or a professional nurse (72.9%). For 14.7% of the deliveries an auxiliary nurse was in attendance. For 7.5% a midwife/comadrona was in attendance. During the second follow-up, 2.9% of women had a professional midwife in attendance for her most recent delivery; this option was not available at baseline.

Table 4.4: Types of attendants: assistance at delivery for most recent birth in the last two years, women 15-49 years of age

	Baseline 2013				Second Follow-Up 2017			
	n	N	%	SE	n	N	%	SE
Medical doctor	78	121	64.5	4.4	157	194	80.9	2.8
Professional nurse	110	118	93.2	2.3	140	192	72.9	3.2
Auxiliary nurse	51	114	44.7	4.7	26	177	14.7	2.7
Midwife/comadrona*	26	114	22.8	3.9	13	174	7.5	2.0
Relative	24	118	20.3	3.7	12	174	6.9	1.9
Laboratory technician	17	116	14.7	3.3	6	173	3.5	1.4
Professional midwife**	-	-	-	-	5	170	2.9	1.3
Community health worker	5	114	4.4	1.9	1	171	0.6	0.6
Pharmacist	13	116	11.2	2.9	0	174	0.0	-
Traditional healer	1	114	0.9	0.9	0	175	0.0	-
Other	7	111	6.3	2.3	7	175	4.0	1.5

* At second follow-up, ”Midwife/comadrona” was selected if the attendant had received no formal training. Midwife attendants with and without formal training were included in ”Midwife/comadrona” at baseline.
** ”Professional midwife” was selected for trained midwife attendants during the follow-up evaluation, but this was not a specification at baseline.

Thirty eight percent of women in the second follow-up delivered with one attendant, 42.3% with two attendants, and 14.3% with three attendants (Table 4.5). For women’s most recent live birth in the past two years, 96.9% of deliveries had a skilled attendant present and 94.9% delivered with a skilled attendant in a health facility (Table 4.6). Ninety three percent of women in the second follow-up delivered with a skilled attendant in a hospital (Table 4.6).

Table 4.5: Number of attendants: assistance at delivery for most recent birth in the last two years, women 15-49 years of age

	Baseline 2013			Second Follow-Up 2017		
	n	%	SE	n	%	SE
One	25	20.7	3.7	75	38.3	3.5
Two	42	34.7	4.3	83	42.3	3.5
Three	28	23.1	3.8	28	14.3	2.5
Four or more	26	21.5	3.7	10	5.1	1.6

Table 4.6: Delivery with skilled birth attendant: assistance at delivery for most recent birth in the last two years, women 15-49 years of age

	Baseline 2013				Second Follow-Up 2017			
	n	N	%	SE	n	N	%	SE
Delivery with a skilled birth attendant	116	121	95.9	1.8	189	195	96.9	1.2
Delivery with a skilled birth attendant in any health facility*	115	121	95.0	2.0	185	195	94.9	1.6
Delivery with a skilled birth attendant in a hospital	109	121	90.1	2.7	181	195	92.8	1.9

* In-facility deliveries include deliveries at public and private hospitals, health centers/clinics, health units, and other health facilities

4.3 Breastfeeding

4.3.1 *Early initiation of breastfeeding*

Early initiation of breastfeeding is defined as the percentage of children born in the 24 months prior to the survey (<24 months old) who are put to the breast within one hour after birth. As shown in Table 4.7, 64.6% of children in the second follow-up are breastfed within one hour after birth, compared to 70.3% at baseline.

Table 4.7: Early initiation of breastfeeding, children <24 months of age

	Baseline 2013				Second Follow-Up 2017			
	n	N	%	SE	n	N	%	SE
Early initiation of breastfeeding among children <24 months	83	118	70.3	4.2	124	192	64.6	3.5

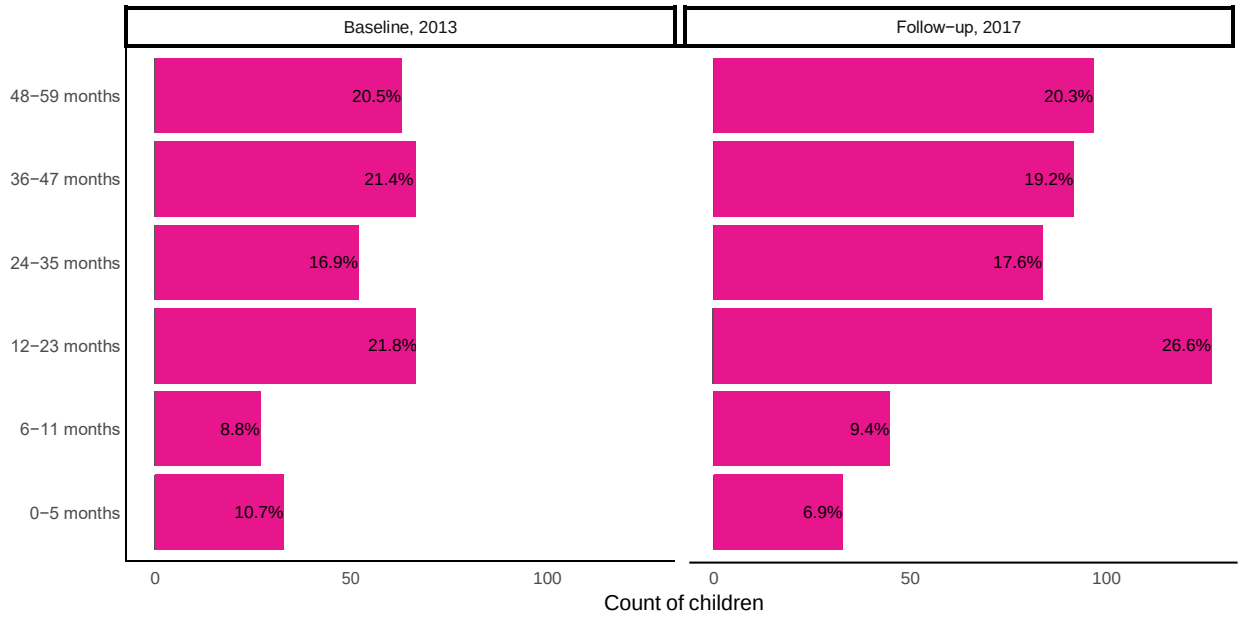
5 Chapter 5: CHILD HEALTH

This chapter summarizes the health status of children aged 0-59 months whose caregivers participated in the SMI-Belize Second Follow-up community survey. All data summarized in this chapter are based on the caregiver's report.

5.1 Demographic Characteristics

The age and sex distribution of the de facto population of children aged 0-59 months reported by caregiver is shown in Figure 5.1. The ages are categorized into six- or 12-month age groups. Nineteen percent of children surveyed at baseline and 16% of children surveyed at the second follow-up were under 1 year old at the time of the interview.

Figure 5.1: Age distribution of children aged 0-59 months of the de facto population by six- to twelve-month age groups



5.2 Diarrhea

Dehydration caused by severe diarrhea is a major cause of morbidity and mortality among children. Exposure to diarrheal disease-causing agents is frequently a result of use of contaminated water and unhygienic practices related to food preparation and disposal of feces. The prevalence of diarrhea was estimated by asking caregivers whether their children aged 0-59 months had diarrhea in the two weeks preceding the interview. If the child had diarrhea, the caregiver was asked about treatment and feeding practices during the diarrheal episode.

5.2.1 *Prevalence*

Table 5.1 shows the percentage of children aged 0-59 months with diarrhea in the two weeks preceding the interview, as reported by their caregivers (8.5% at the second follow-up).

Table 5.1: Prevalence of diarrhea in the last two weeks, among children aged 0-59 months

	Baseline 2013				Second Follow-Up 2017			
	n	N	%	SE	n	N	%	SE
Child had diarrhea in the last two weeks	41	309	13.3	1.9	41	480	8.5	1.3

5.2.2 *Utilization of treatments for diarrhea*

A simple and effective response to dehydration caused by diarrhea is a prompt increase in the child's fluid intake through some form of oral rehydration therapy. Oral rehydration therapy may include the use of a solution prepared from commercially produced packets of powdered oral rehydration salts, commercially produced bottled oral serums, or homemade fluids usually prepared from sugar, salt, and water. Other treatments, including zinc, may be administered as well.

As shown in Table 5.2, 80% of cases of diarrhea were given some form of treatment in the second follow-up. Bottled oral rehydration serum was the most common form of oral rehydration therapy (34.1%). Among the 14 children whose caretakers indicated that the child was given additional or other treatments to fluids in the second follow-up, 23.1% percent were treated with an antibiotic pill and 28.6% were treated with antibiotic syrup.

Table 5.2: Utilization of treatments for diarrhea during the last two weeks, among children aged 0-59 months

	Baseline 2013				Second Follow-Up 2017			
	n	N	%	SE	n	N	%	SE
Any treatment	36	41	87.8	5.1	32	40	80.0	6.3
Fluids								
Bottled oral rehydration serum	14	38	36.8	7.8	14	41	34.1	7.4
Fluid made with powdered oral rehydration salts	22	39	56.4	8.0	11	41	26.8	6.9
Homemade fluid recommended by health authorities	4	39	10.3	4.9	6	40	15.0	5.7
Medications*								
Antibiotic pill	2	18	11.1	7.4	3	13	23.1	11.7
Antidiarrheal pill	1	18	5.6	5.4	2	13	15.4	10.0
Zinc pill	0	16	0.0	-	1	13	7.7	7.4
Other type of pill	1	17	5.9	5.7	1	13	7.7	7.4
Unknown pill	0	17	0.0	-	0	13	0.0	-
Antibiotic injection	4	17	23.5	10.3	2	13	15.4	10.0
Non-antibiotic injection	2	17	11.8	7.8	0	13	0.0	-
Unknown injection	2	17	11.8	7.8	0	13	0.0	-
Intravenous therapy	1	17	5.9	5.7	0	14	0.0	-
Home remedy/herbal medicine	5	17	29.4	11.1	3	14	21.4	11.0
Antibiotic syrup	13	17	76.5	10.3	4	14	28.6	12.1
Antidiarrheal syrup	10	17	58.8	12.0	2	13	15.4	10.0
Zinc syrup	1	14	7.1	6.9	2	13	15.4	10.0
Other syrup	4	17	23.5	10.3	0	13	0.0	-
Unknown syrup	1	15	6.7	6.5	1	13	7.7	7.4

* Caretakers were asked about use of medications only if they indicated that the child was given additional or other treatments

Of children with diarrhea in the last two weeks, 4.9% received both oral rehydration solution and zinc in the second follow-up (Table 5.3).

Table 5.3: Utilization of oral rehydration solution and zinc for diarrhea, among children 0-59 months

	Baseline 2013				Second Follow-Up 2017			
	n	N	%	SE	n	N	%	SE
Treatment with both ORS and zinc	1	41	2.4	2.4	2	41	4.9	3.4

5.3 Immunization against common childhood illnesses

Information on immunization coverage was collected on children 0-59 months during the household survey (307 children). Table 5.4 shows the number of children who received at least one dose of each vaccination they were eligible at the time of the survey, according to the national vaccination scheme in Belize. Children who were too young and do not require any vaccine yet are excluded from this table.

This data is based on recall of the mother during the interview. Between baseline and second follow-up, the coverage of immunizations against common childhood illness increased for BCG (tuberculosis), polio, pentavalent (DPT, HepB, HiB), and measles, mumps, and rubella (MMR).

Table 5.4: Immunization against common childhood illnesses, children eligible for immunization who received at least one dose, according to caretaker recall

	Baseline 2013				Second Follow-Up 2017			
	n	N	%	SE	n	N	%	SE
Children over 3 months of age who received at least 1 dose of the BCG vaccine (tuberculosis) by caregiver recall	154	156	98.7	0.9	286	286	100.0	-
Children over 2 months of age who received at least 1 dose of the polio vaccine by caregiver recall	152	158	96.2	1.5	287	293	98.0	0.8
Children over 2 months of age who received at least 1 dose of the pentavalent vaccine (DPT, HepB, HiB) by caregiver recall	141	158	89.2	2.5	286	293	97.6	0.9
Children over 12 months of age who received at least 1 dose of the measles, mumps, and rubella (MMR) vaccine by caregiver recall	125	133	94.0	2.1	238	245	97.1	1.1

5.4 Deworming treatment

Administration of deworming treatment every six months has been shown to reduce the prevalence of anemia in children. During the interview, mothers and caregivers reported on the number of times a child received deworming medication within the past year. No children aged 12-59 month received at least two doses of deworming during the baseline or second follow-up (Table 5.7). During the second follow-up, 85.6% of children received one dose of deworming treatment compared to only 74% at baseline.

Table 5.7: Deworming treatment among children aged 12-59 months

	Baseline 2013			Second Follow-Up 2017		
	n	%	SE	n	%	SE
No deworming	60	26	2.9	56	14.4	1.8
One dose	171	74	2.9	334	85.6	1.8
Two or more doses	0	0	-	0	0.0	-
Don't know	7	-	-	1	-	-
Decline to respond	1	-	-	0	-	-

6 Chapter 6: INFANT AND YOUNG CHILDREN FEEDING PRACTICES

This chapter summarizes the feeding practices of infants and children aged 0-59 months whose caregivers participated in the SMI-Belize community survey. All data summarized in this chapter are based on the caregiver's report.

6.1 Breastfeeding

6.1.1 *Exclusive breastfeeding*

Coverage of exclusive breastfeeding is defined as the percentage of infants born in the six months prior to the survey who received only breast milk during the previous day. This information is obtained through a 24-hour dietary recall in which the caregiver indicates whether the child consumed breast milk, other foods, or other drinks during the previous day and night. In Belize during the second follow-up, the sample includes 33 children who are under 6 months of age, and 14 of those children have sufficiently complete dietary recall information to determine whether they are exclusively breastfed. Table 6.1 shows that 42.4% of children under 6 months of age are exclusively breastfed.

Table 6.1: Breastfeeding among children 0-5 months of age

	Baseline 2013				Second Follow-Up 2017			
	n	N	%	SE	n	N	%	SE
Exclusive breastfeeding among children <6 months	11	33	33.3	8.2	14	33	42.4	8.6

6.2 Micronutrient supplementation

Ideally, children should consume 60 micronutrient packets daily starting at six months old. These 60 micronutrient packets should be given to children at six-month intervals: six months old, twelve months old, and eighteen months old. While 60 packets is the standard at each age category, consumption of 50 packets is considered adequate.

As shown in Table 6.2, mothers and caregivers were asked how many packets of micronutrients the child consumed in the last six months. No child at the second follow-up consumed more than 30 packets in the last six months, and 80.7% consumed no packets.

Table 6.2: Micronutrient powders consumed among children 6-23 months

	Baseline 2013			Second Follow-Up 2017		
	n	%	SE	n	%	SE
No packets	69	86.2	3.9	134	80.7	3.1
1-10 packets	11	13.8	3.9	31	18.7	3.0
11-20 packets	0	0.0	-	0	0.0	-
21-30 packets	0	0.0	-	1	0.6	0.6
31-40 packets	0	0.0	-	0	0.0	-
41-50 packets	0	0.0	-	0	0.0	-
51-59 packets	0	0.0	-	0	0.0	-
60 or more packets	0	0.0	-	0	0.0	-

APPENDIX A. SMI LQAS INDICATORS

Table A.1: Performance of monitoring indicators

		Baseline 2013				Second Follow-Up 2017			
	Indicator	n	N	%	SE	n	N	%	SE
2020	Women (age 15-49) who did not wish to become pregnant and who were not using / did not have access to family planning methods (temporary and permanent)	88	242	36.4	3.1	48	299	16.1	2.1
4115	Women (age 15-49) with a birth in the last two years who can recognize at least 3 danger signs in newborns	37	116	31.9	4.3	28	196	14.3	2.5
2010	Women (age 15-49) who currently use (or whose partner is using) a modern method of family planning	154	242	63.6	3.1	251	299	83.9	2.1
3020	Women (age 15-49) who attended at least 4 antenatal care visits, at least one of which was with a skilled attendant, for their most recent pregnancy during the last two years	100	120	83.3	3.4	160	196	81.6	2.8
4010	Women (age 15-49) whose most recent birth was attended by a skilled attendant in an institutional setting in the last two years	115	121	95.0	2.0	185	195	94.9	1.6
5050	Children born in the last 24 months who were put to the breast within one hour of birth	84	120	70.0	4.2	126	196	64.3	3.4
5040	Children 0-5 months who were exclusively breastfed on the previous day	11	33	33.3	8.2	14	33	42.4	8.6
5060	Children 0-59 months who received ORS and zinc in the last episode of diarrhea in the past two weeks	1	41	2.4	2.4	2	41	4.9	3.4
5070	Children 6-23 months who received at least 60 packets of micronutrients in the past six months	0	82	0.0	-	0	170	0.0	-
5020	Children 0-59 months identified as having received full vaccinations for age by caregiver recall*	-	-	-	-	28	223	12.6	2.2

* Data required for definition at the second follow-up was not captured at the baseline