



saludmesoamerica2015.org

SM2015 – PANAMA Study Protocol

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This protocol on the SM2015-Panama surveys was produced in agreement with the Inter-American Development Bank (IDB). All analyses and report writing will be performed 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 more knowledgeable decision-making and higher achievements in health. To that end, we strive to build the needed base of objective evidence about what does and does not improve health conditions and health systems performance. IHME provides high-quality and timely information on health, enabling policymakers, researchers, donors, practitioners, local decision-makers, and others to better allocate limited resources to achieve optimal results.

CHAPTER 1: INTRODUCTION

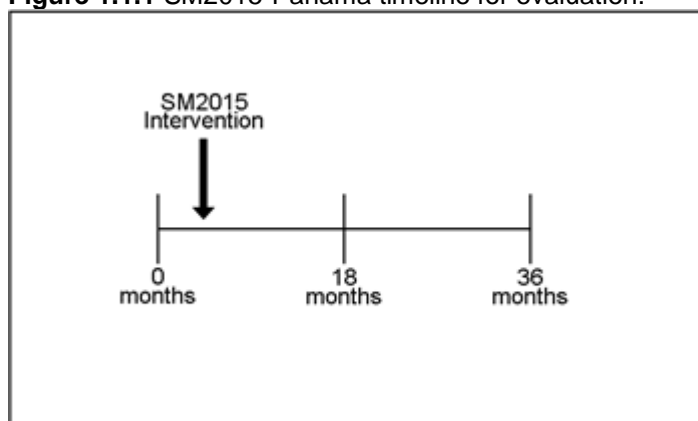
Salud Mesoamérica 2015 (SM2015) is a regional public-private partnership that brings together Mesoamerican countries, private foundations and bilateral and multilateral donors with the purpose of reducing health inequalities affecting the poorest 20 percent of the population in the region. Funding will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

The initiative will focus its resources on integrating key interventions aimed at reducing health inequalities resulting from the lack of access to reproductive, maternal and neonatal health (including immunization and nutrition) for the poorest quintile of the population. A key element of SM2015 is the evaluation. In general, the evaluation will track the progress of the countries to reach a set of goals of the intervention, and will also estimate the impact of specific components of the intervention. The Inter-American Development Bank has contracted IHME to conduct this evaluation. In Panama, Fundación FES will be the agency in charge of data collection.

1.1 Data Collection

In order to monitor efficacy of interventions and the status of indicators, data collection efforts are utilized. The overall data collection method employed in the initiative involves two major components: a health facility survey and a household survey. Twinning of both surveys is a defining and innovative feature designed to capture most accurately prevalence estimates of select key indicators. Indicator goals are established as a cooperative effort between IDB and the Panama Ministry of Health following the collection of baseline information. Periodic waves of data collection will allow for continued monitoring of indicators among the population. These evaluations will occur at 18 and 36 months following baseline surveys (Figure 1.1.1).

Figure 1.1.1 SM2015-Panama timeline for evaluation.



The principal objective of the SM2015-Panama Household Survey is to collect data on household characteristics, household expenditures, and numerous reproductive health, maternal and neonatal health, immunization, and nutrition indicators (including physical measurements) related to the strategic areas of the initiative in Panama. Performance for these indicators will be evaluated after the baseline and each subsequent data collection wave.

In general terms, the objectives of the health facility survey are assessing facility conditions, evaluating service provision and utilization, and measuring quality of care. Equally important, the facility survey will capture changes of interventions at the level of the health services access point, the facility, and predict changes in population health outcomes. The baseline health facility survey, recounted in this report, measured baseline prevalence estimates of various health indicators in aim to monitor future changes in those indicators.

1.2 Objectives in Panama

1.2.1 Health Issues and Health System Constraints in Panama

The indigenous regions of Kuna Yala and Emberá in Panama have been selected as targets for SM2015-Panama because of the current health status, health inequalities, and capacity for interventions. The goal of the initiative in these regions is to reduce maternal, newborn, and child morbidity and mortality in the poorest areas. It is expected that there will be an increase in coverage, quality, and use of reproductive, maternal, newborn, and child health services, and an improvement in the health status and nutrition of women of reproductive age and children under 5 years old.

Panama is one of the fastest growing countries in the Mesoamerican region. It is critical that as the population continues to increase, there are paralleling improvements of health and living conditions in the country. As of 2008, 32.7% of Panama's population lived under the poverty line. Inequalities remain evident in health indicators, especially the ones related to maternal and infant health. These can be partly explained by the inequalities in access to primary health care interventions, low utilization, and low quality services. The population of Kuna Yala is 92% indigenous peoples and the population of Emberá is 94% indigenous peoples. The Kuna region and townships encompass over 40 inhabited islands among an area of over 300 islands in the Atlantic Coast. Populations are distributed along the coasts and have high population density. Travel is primarily by boat and plane. In Emberá, towns are small and far apart, mostly along rivers and coasts.

Panama is a country with relatively good health indicators compared with other countries, but with big disparities in health status within the country. In 2007, the national maternal mortality rate was 59.2 deaths per 100,000 live births. However, the maternal mortality rate was as high as 584.8 deaths per 100,000 live births in Kuna Yala in 2006. The infant mortality rate is 12.2 per 1,000 live births nationally, and 20.3 per 1,000 live births among indigenous populations. Risk factors for maternal health and infant mortality rate in infants less than one year old, in the poorest and backward areas, are consistently identified by national epidemiological data as: low use of modern contraceptive methods; high fertility rates and early fertility; low use of health services, especially prenatal checks; low coverage of institutional birth and lack of trained staff; low coverage of pregnancy and postnatal checks. Approximately 27.5% of the indigenous population uses modern contraceptive methods, as compared to the national average of 53%. Similarly, the national average for

prenatal care from a physician is 89.5%, but only 64.3% of the indigenous population received prenatal care from a physician. Only 50% of the indigenous population gives birth in a health facility.

Health of children is also of concern in these regions. Among children under age 5 years in 2008, 19.1% nationally had chronic malnutrition and 56% among indigenous populations had chronic malnutrition. There are also inequities of immunization coverage. There are also health system constraints that affect indigenous populations. Less than 1% of the country's physicians work in the indigenous jurisdictions.

Table 1.2.1 Supply-side and demand-side barriers in Panama

Supply-side barriers	<ul style="list-style-type: none"> ▶ Institutional: Failure to coordinate efforts among different government agencies and private sector as well as among the MoH levels ▶ Capacity: Lack of problem solving capacity ▶ Infrastructure and inputs: Problems with infrastructure and equipment, and insufficient supplies ▶ Human resources: Lack of personnel and capacity for planning and managing services
Demand-side barriers	<ul style="list-style-type: none"> ▶ Geographic: high geographic dispersion, lack of road access, and inaccessible geography in some municipalities ▶ Economic: Barriers for transport to facility due to cost ▶ Cultural: Distrust of medical personnel, open spot system, and medical personal's lack of respect towards cultural practices

1.2.2 Targets for Improvement

Goals for maternal, newborn, and child health will be achieved through a network of community interventions, health system improvements, and education. The strategy includes a group of interventions aimed to eradicate health care exclusion and create equitable access to these services and health opportunities, as well as decrease the economic, social and general negative impact. Three work areas have been identified through policy dialogue in Panama. The first is the service delivery platform. This includes institution of a payment by results scheme, improvement of the linkage of mobile and ground health levels, and improvement of the impact done by the first line workers. A second work area is chronic malnutrition care. The national policy for micronutrient supplementation will be reviewed, zinc will be included in diarrhea treatment, and the cost-effectiveness of interventions will be reviewed. The third work area is a focus on indigenous populations; evidence from indicators will provide information and the lack of incentives for providers to work in these areas will be addressed.

CHAPTER 2: METHODOLOGY

There are two components of the overall data collection method employed in the initiative: a household survey and a health facility survey. Twinning of both surveys is a defining and

innovative feature designed to capture most accurately prevalence estimates of select key indicators.

2.1 Household Survey Methods

2.1.1 Segment Sample Selection

The sample for the SM2015-Panama Household Survey is designed to provide estimates of the coverage of key health interventions and indicators among the lowest wealth quintile of the population. Indicators are used to calculate the sample size necessary to provide estimates with sufficient power (80%) and Type I error (0.05). The indicator with the highest sample size requirement is the prevalence of exclusive breastfeeding during first 6 months of life (children 0-5 months) measured at 36 months from baseline. This requires a total of 1,650 intervention households. Additional indicator sample size calculations can be found in Appendix B.

The primary administrative units in Panama are provinces and indigenous jurisdictions called comarcas. There are nine provinces, three comarcas and two sub-provinces, similar to municipalities. Interventions will take place in the comarcas of Kuna Yala and Emberá. From these areas, a random sample of approximately 59 census segments will be selected with probability of selection proportional to size (where size is represented by the number of occupied households within the segment, as captured on the 2010 Panama Population Census). In addition, a set of alternate segments is selected using identical methodology, to be surveyed in the event that any of the selected segments cannot be surveyed and needed to be replaced for any reason (e.g., security concerns or high proportion of absent households). In a second stage, households that contain women and children under five years old will be randomly selected to provide an expected sample of 1,650 households.

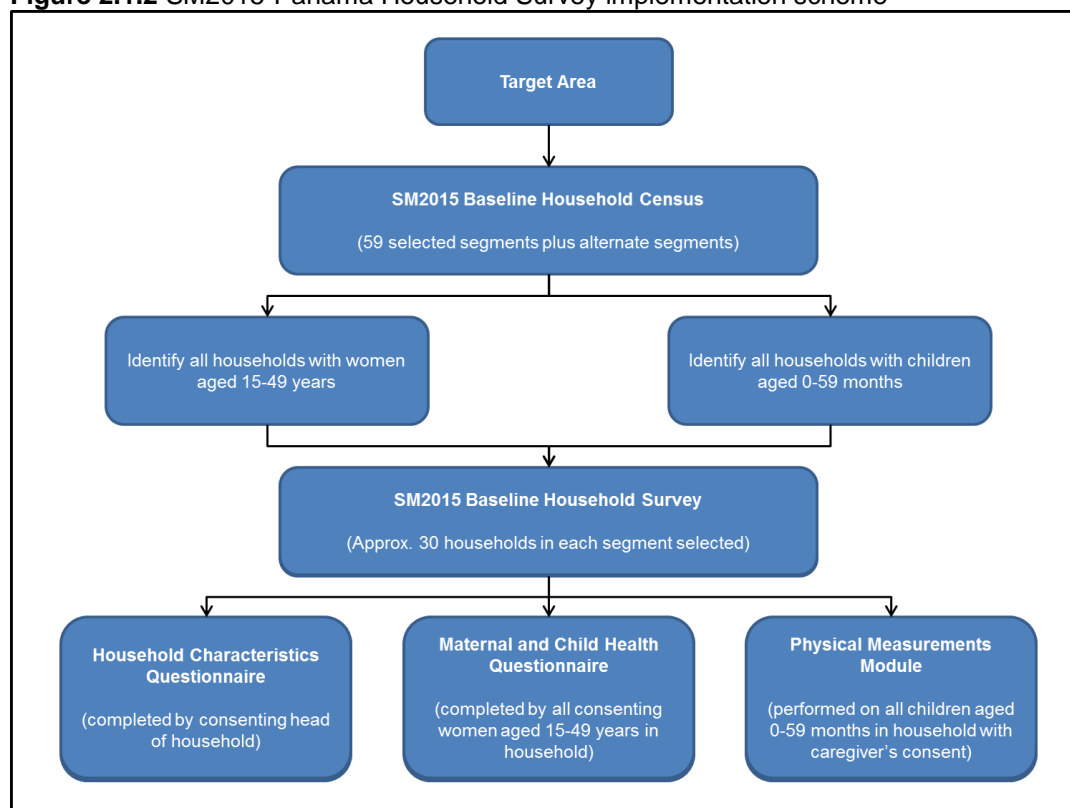
2.1.2 Household Census

In each of the selected segments, the SM2015-Panama Household Census is conducted in order to identify eligible women and children for the survey. Interviewers visit every household in the segment and create a household roster capturing the age and sex distribution of household members. Information from the census is used to sample which households will complete the SM2015-Panama Household Survey.

2.1.3 Household Survey

Using demographic data collected during the household listing exercise, households are then systematically selected for participation in the SM2015-Panama Household Survey (i.e., if age-eligible women and children were listed as residents). All women aged 15-49 years who are residents of the household are eligible to be interviewed, and all children aged 0-59 months who are residents of the household are eligible for the physical measurement module. A schematic diagram of the survey implementation is shown in Figure 2.1.2.

Figure 2.1.2 SM2015-Panama Household Survey implementation scheme



2.2 Health Facility Survey Methods

All the health facilities in the areas of collection of Household surveys, plus the ones mentioned as used for health care by respondents in that survey, will be included in the Health facility survey. As it will be detailed later, in each facility we will review also an average of 30 medical records.

CHAPTER 3: INSTRUMENTS

The SM2015 Surveys are 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 are used to provide the information needed to establish the current status of these indicators.

3.1 Electronic Data Entry

The SM2015-Panama Surveys are conducted using a computer-assisted personal interview (CAPI). CAPI is programmed using DataStat Illume and installed into computer netbooks which are used by the surveyors at all times of the interview. CAPI supports skip patterns, inter-question answer consistency, and data entry ranges. The aim of introducing CAPI to the field is to reduce survey time by prompting only relevant questions, to maintain a logical answering pattern across different questions, and to decrease data entry errors. The use of CAPI also allows instantaneous data transfer via a secure link to IHME. Data can be continuously monitored, and modifications to the instrument can be updated remotely.

3.2 Household Survey

There are three components to the SM2015-Panama Household Survey (in addition to the SM2015 Household Census): the Household Characteristics Questionnaire, the Maternal and Child Health Questionnaire, and the Physical Measurements Module.

The content of the household questionnaires is developed to measure the coverage of key health interventions and indicators, and many items are adapted from existing Demographic and Health Surveys (DHS). The questionnaires are initially developed in English, then translated to Spanish. To best reflect the issues most relevant to the region under study and the local language, the Spanish-language questionnaires are revised following input from key stakeholders and at the conclusion of the pilot study (described below). The revised Spanish-language surveys are then back-translated to English. Given that study areas include a substantial proportion of indigenous populations, the household survey will be also translated and back-translated to the most common indigenous languages in the study areas, Kuna and Emberá.

3.2.1 Household Census Instrument

The SM2015 Household Census is used to capture the age and sex distribution of all of the usual members of all of the households in the selected segments. Basic information including relationship to the head of the household and marital status is also collected. Children aged 0-59 months who had one or more parent residing in the same household are linked to their mother and/or father by way of unique household member identification codes. All data for the census is recorded using an electronic data entry program.

As previously mentioned, data from the SM2015 Household Census is then used to systematically select households for the detailed interviews and the physical measurements module (Figure 2.1.1). Selected households are revisited typically within two weeks of the census and these questionnaires are completed during this visit.

3.2.2 Household Characteristics Questionnaire

The Household Characteristics Questionnaire collects information on the source of water, type of toilet facilities, exposure to secondhand smoke, ownership of various assets including durable goods, agricultural land, and livestock, and household expenses and sources of health care financing.

3.2.3 Maternal and Child Health Questionnaire

The Maternal and Child Health Questionnaire is used to collect information from all women of reproductive age (15-49 years). These women are asked questions on the following topics: background characteristics (including education, occupation, and exposure to media), access to health care, current health status, recent history of illness and associated medical expenses, birth history (including relevant questions about pregnancies that ended in miscarriage, stillbirth, or abortion), antenatal, delivery, and postpartum care, fertility preferences, knowledge and use of family planning methods (including barriers to use), exposure to health system interventions, and satisfaction with community health workers. Those with children aged 0-5 years are asked detailed questions in reference to each child born in the past five years on topics such as: birth spacing, antenatal care, labor and delivery, postpartum care, breastfeeding and infant feeding practices, child's current health status, recent history of illness including diarrhea, fever, and acute upper respiratory infection and associated medical expenses, child's exposure to health system interventions, immunization and supplementation history. In order to get information on quality of water for human consumption at home, we will take samples of water and check for presence or coliforms and chlorine concentrations.

3.2.4 Physical Measurements Module

The Physical Measurements Module captures weight, height/length, and hemoglobin levels of children aged 0-59 months. Portable scales and stadiometers are used for the anthropometric measurements and hemoglobin levels are assessed in the field using a portable HemoCue™ machine. Medically trained personnel (i.e., professional nurses) perform all assessments.

3.3 Health Facility Survey

The health facility survey includes three components: an interview questionnaire, an observation checklist, and a medical record review. The questionnaire captures information reported by the facility director or manager about the services provided and the general characteristics of the facility, human resource composition, supply logistics, infection control. The checklist captures objective data observed by the surveyors at the time of the survey about equipment and supplies required for prenatal and postnatal care, delivery care, emergency maternal and neonatal care, family planning and immunizations, depending on the level of the medical facility. Finally, we will conduct a review of medical records of cases of delivery, maternal and neonatal complications, prenatal and child care to collect information about the quality of health care.

CHAPTER 4: TRAINING AND MONITORING OF DATA

4.1 Training of Field Personnel

4.1.1 Training for Health Survey

Individuals are recruited and trained to serve as supervisors, male and female interviewers, and reserves for the household census and survey. Multiple data collection teams, consisting of multiple male and female interviewers are necessary to conduct the SM2015 Household Census. A fewer number of data collection teams are used to conduct the SM2015 Household Survey, each consisting of female interviewers. All field staff are

required to have formal education through high school and exhibited sufficient literacy and speaking abilities in the language of the survey, as well as basic arithmetic skills. Personnel in charge of physical measures are required to have previous experience in anthropometry and collection of blood samples.

A multi-day training exercise is to be undertaken consisting of three primary training components. The first component of training is spent briefing and training the supervisors. The next component is devoted to classroom training for all field staff. The final component is devoted to field training. Staff from FES and invited experts from IHME lead the training, which is conducted mainly in Spanish and includes a variety of lectures, presentations, demonstrations, and role-playing exercises. Nutrition experts lead the training sessions on height and weight measurements and hemoglobin testing for the professional nurses who are hired to perform the physical assessments of children. These personnel are trained to perform standardized anthropometric and hemoglobin measurements using standard techniques.

During the classroom training sessions, supervisors and interviewers are briefed on the Salud Mesoamerica 2015 Initiative (SM2015) and the specific survey instruments developed for the Initiative. Supervisors and interviewers then receive training on survey implementation (including interviewing skills), and fieldwork procedures (including map reading for locating selected households), review the content of the household questionnaires in close detail, and receive basic instruction on the principles of, and strategies for, data quality monitoring, team communication and problem-solving. Household teams engage in role-playing scenarios to practice administering the initial census survey and the full household questionnaire. A specialized team is trained in anthropometry and collection of a blood specimen. Trainers and supervisors provide feedback on the practice interviews. Specific issues noted during observation of the practice interviews are discussed with the whole group.

Field training sessions are initiated in the last days of the training period. Household teams and anthropometry teams spend multiple days in the field collecting data. This field practice provides the interviewers with an opportunity to become aware of any issues with the survey that they did not previously understand. The field training sessions also provide an opportunity to conduct cognitive testing of the survey among target respondents. At the end of each day, the trainers and trainees review the questionnaires and discuss any problems that arise. Minor revisions to the questionnaires may be implemented based on feedback from the field training sessions.

All field staff are evaluated on survey concepts and procedures by means of short, periodic quizzes and tests following completion of the classroom training sessions and field training sessions. In addition to these evaluations, all field staff are observed by the trainers in order to fully assess their ability to administer the questionnaires.

4.1.2 Training for Health Facility Survey

Training sessions and health facility pilot surveys are conducted in Panama over a three-day period. Approximately thirteen surveyors with a medical background undergo training. The training includes an introduction to the initiative, proper conduct of survey, in depth view of the instrument, and hands-on training on the CAPI software. Training is followed by a multi-day pilot at health facilities.

4.2 Data Monitoring

Information that is collected by each survey component is monitored by both field supervisors and analysts at IHME to ensure data quality and adherence to survey protocols. Data files are uploaded to a secure FTP site where they can be accessed by the data analysis team at IHME. After census, household, and health facility data is received, data is rigorously reviewed for quality with regards to consistency, clarity, and completeness. Prompt evaluation of data quality allows for clarification from data collectors regarding inadequacies and irregularities, and rapid correction of procedural errors.

4.2.1 Household Survey

For quality assurance, the data collected during the SM2015 Census are compared to data from the 2010 Panama Population Census on an ongoing basis. When 20% fewer than expected households or people are captured on the SM2015 Baseline Census, or when more than 5% of households are classified as “absent”, field staff are instructed to return to segments and attempt to capture missing households. In most cases, households considered occupied on the 2010 Census but not captured on the SM2015 Baseline Census are unoccupied because former residents had relocated for work.

To assure completeness of the sample for the SM2015-Panama Household Survey, field staff are instructed to return to selected households up to three times (on different days, and at different times during the day) in an attempt to complete the Household Characteristics Questionnaire, the Maternal and Child Health Questionnaire, and the Physical Measurements Module. Supervisors are responsible for reviewing all questionnaires for quality and consistency prior to departing each segment.

4.2.2 Health Facility Survey

Data collection for facility surveys is done by physicians, given the familiarity required with medical equipment and procedures in the observation checklist and medical record review. Data is collected using computer netbooks equipped with CAPI software. A lead surveyor monitors conduction of the facility survey and reports feedback. Data collection using CAPI allows data to be transferred instantaneously once a survey is completed via a secure link to IHME. IHME monitors collected data on a continuous basis and provides feedback. Suggestions, surveyor feedback, and any modifications are incorporated into the health facility instrument and readily transmitted to the field. The new instrument can be ready for use on the following day of data collection.

CHAPTER 5: PLAN FOR ANALYSES

Analyses done by IHME are tailored to evaluate the collaboratively predetermined indicators. These indicators are detailed in Appendix A. Data collection is designed to cover all the initiative indicators, although special care is taken for the measurement of payment indicators.

In the data analysis, frequencies of indicators and variables of interest will be obtained at baseline. Cross-tabulations with some demographic characteristics (education, age, etc.)

will be also calculated for selected variables. Baseline information will be used later to assess changes when comparing against data collected at 18 and 36 months, and estimating the effect of interventions.

All analyses are performed by IHME using STATA Version 11.2 (StataCorp, College Station, Texas), incorporating survey weights developed by IHME and robust standard errors to account for intra-class correlation within clusters (segments).

CHAPTER 6: REPORTS

A report will be published in the middle point and end of baseline, 18 month and 36 month SM2015-Panama survey waves. These reports will highlight the status of the survey, data quality measures, and indicators of interest.

CHAPTER 7: ETHICAL ISSUES AND CONFIDENTIALITY

All SM2015-Panama surveys, protocols, and procedures are reviewed by Institutional Review Boards (IRB). IHME activities are monitored by the IRB of the University of Washington; at the national level, FES obtains approval from its own institutional IRB. In addition, authorization from the Ministry of Health has been obtained to collect information from medical units. Previous to data collection, authorization to collect data in the community is also obtained from local authorities. This is especially relevant in the Kuna Yala and Emberá regions of Panama, where some indigenous communities rule themselves by uses and traditions. Signed informed consent letters are obtained from informants prior to collecting any information at the household or health facility level.

The confidentiality of study participants' information is of critical importance. Any personal information captured is treated with the paramount concern for the participant's privacy. Assurance of confidentiality can provide more accurate data from respondents who are certain their personal information will remain secure. Interviewers are trained to present the SM2015-Panama confidentiality agreement and address the concerns of the participants. Participation is completely elective, and efforts are made for each individual to be adequately informed when making the decision to participate. All data that is uploaded to IHME from survey sites lack personally identifiable information; there are no names, dates of birth, or addresses of study participants.

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APPENDIX A: SM2015-PANAMA INDICATORS

Indicator	Months	Source of Verification
Number of maternal deaths per 100,000 live births	0, 36	Vital Records Independent surveys
Number of deaths during the first 28 days of life per 1,000 live births in a given year or period	0, 36	Vital Records Independent surveys
Number of deaths during the first year of life per 1,000 live births in a given year or period	0, 36	Vital Records Independent surveys
Number of deaths of children under five per 1,000 live births in a given year or period	0, 36	Vital Records Independent surveys
Children 6-23 months with hemoglobin <110 g / L	0, 36	Household surveys
Children aged 0-59 months with z score of height for age <-2 SD	0, 36	Household surveys
Number of births per 1,000 women aged 15 to 49 years, in a given year	0, 36	Household surveys Vital Records
Number of births to women aged 15 to 19 years in a year per 1,000 women	0, 36	Vital Records Household surveys
Women of reproductive age (15-49) currently using (or whose partner is using) a modern method of family planning	0, 36	Household surveys
Women of reproductive age (15-49) who did not wish to become pregnant and who were not using / did not have access to family planning methods	0, 36	Household surveys
Women of reproductive age (15-49) who report having stopped using a method of family planning during the previous year	0, 36	Household surveys
Women of reproductive age (15-49) who received at least one prenatal care by a physician or nurse in their most recent pregnancy in the last two years.	0, 36	Household surveys
Women of reproductive age (15-49) who received at least four prenatal care sessions by a physician or nurse in their most recent pregnancy in the last two years	0, 36	Household surveys
Women of reproductive age (15-49) who received four prenatal cares following best practices by a physician or nurse in their most recent pregnancy in the last two years	0, 36	Health facility surveys
Women of reproductive age (15-49) who received their first prenatal visit by doctor or nurse before 12 weeks of gestation in their most recent pregnancy in the last two years	0, 36	Health facility surveys
Women of reproductive age (15-49) whose most recent delivery was performed by qualified personnel in a health unit in the last two years	0, 36	Household surveys
Women of reproductive age (15-49) who received postpartum care by qualified personnel within the first 48 hours in their most recent pregnancy in the last two years	0, 36	Household surveys

Women of reproductive age (15-49) who received postpartum care by qualified personnel within the first 24 hours in their most recent pregnancy in the last two years	0, 36	Household surveys
Women of reproductive age (15-49) who received postpartum care by qualified personnel before seven days after birth for their most recent birth in a health unit in the last two years	0, 36	Household surveys
Women of reproductive age (15-49) who received postnatal check within 24 hours immediately following the birth, an additional check within 7 days and another check before 42 days by qualified health unit for their most recent delivery in the last two years	0, 36	Household surveys
Institutional postpartum patients of reproductive age, evaluated and recorded in clinical records at least every 15 minutes during the first hour and every 30 minutes to complete the two hours and being discharged from the hospital in her most recent birth in the last two years	0, 36	Health facility surveys
Women correctly referred due to an emergency following the partograph in their most recent delivery in the last 2 years	0, 36	Health facility surveys
Infants who developed a complication managed according to standard (sepsis, low birth weight, asphyxia, prematurity) in the last two years	0, 36	Health facility surveys
Women with obstetric complications (hemorrhage, sepsis and severe pre-eclampsia, eclampsia) managed according to standards in their most recent birth in the last two years	0, 36	Health facility surveys
Births in which intramuscular oxytocin (10IU) was given one minute after birth in the most recent birth in the last two years	0, 36	Health facility surveys
Neonates who received neonatal care by skilled personnel in a health unit within the 48 hours following birth in the last 2 years	0, 36	Household surveys
Mothers or caregivers (15-49) that can recognize at least five danger signs in a newborn for most recent birth in the last two years	0, 36	Household surveys
Children 0-59 months fully immunized identified for age	0, 36	Household surveys
Percentage of children 12-23 months old with vaccine for measles, mumps and rubella (MMR)	0, 36	Household surveys
Children aged 12-59 months who received 2 doses of deworming in the last year	0, 36	Household surveys
Children 0-5 months who were fed exclusively on breast milk during the previous day	0, 36	Household surveys
Children born in the last 24 months who were put to breast within the first hour after birth	0, 36	Household surveys
Mothers/care providers who reported administering ORS to their children 0-59 months in the most recent diarrhea episode in the last 2 weeks	0, 36	Household surveys

Percentage of children aged 12 to 15 months who were breastfed during the previous day	0, 36	Household surveys
Percentage of children 6 to 8 months who received solid or semisolid food the previous day	0, 36	Household surveys
Percentage of children 6 to 23 months who received food from 4 or more food groups during the previous day	0, 36	Household surveys
Breastfed or with complimentary feeding children 6 to 23 months who received solid, semisolid and soft foods (including milk in children not breastfed) in the minimum amount or more: at least 2 times per day (children 6 to 8 months) or 3 times per day (children 9-23 months)	0, 36	Household surveys
Children 6 to 23 months who received a minimum acceptable diet (apart from breast milk) during the previous day	0, 36	Household surveys
Children 6 to 23 months who received iron-rich foods or iron-fortified foods during the previous day	0, 36	Household surveys
Households in the focus area consuming water of adequate quality	0, 36	Household surveys
Women of reproductive age (15-49) who report having had any illness in the last two weeks	0, 36	Household surveys
Mean travel time from home to the closest health care center in the last visit	0, 36	Household surveys
Basic Care Units (UBAs) which have the necessary supplies for childcare (micronutrients, zinc, treatment for parasites, ORS)	0, 18, 36	Health facility services
Basic Care Units (UBAs) with necessary supplies for prenatal care according to the MoH norms, depending on their level of care	0, 18, 36	Health facility services
Basic Care Units (UBAs) with necessary supplies for non-complicated delivery care according to the MoH norms	0, 18, 36	Health facility surveys
Basic Care Units (UBAs) with necessary supply of modern family planning methods (oral, injectables and IUD) according to the operations manual	0, 18, 36	Health facility surveys
Basic Care Units (UBAs) with skilled personnel to attend deliveries 24/7 according to the operations manual	0, 18, 36	Health facility surveys
Zinc inclusion in diarrhea treatment according to the MoH norms	0, 18, 36	External review of MINSA strategic guidelines
People living in communities with a plan for improving community sanitation and water quality	0, 18, 36	Health facility surveys
Basic Care Units (UBAs) with delivery plans for the communities in their coverage area	0, 18, 36	Health facility surveys
Establishment of mechanisms for delivery and supervision of incentives for promoters, health monitors AIN-C, women and partners, community committees, according to the operation rules of the PAISS+N	0, 18, 36	Health facility surveys

APPENDIX B: SAMPLE SIZE CALCULATIONS BY INDICATOR

Indicator	Target time (months)	Baseline (%)	Target (%)	Sample size needed	Relevant age group to determine inclusion	Number of households needed to sample 1 person in this age-sex group	Total households needed
Unmet need for contraception	36	50	44	855	Women 15-49 *(4/3)	1	1,140
ANC4, past 2 years	36	39	54	136	Children 0-2 years *(4/3)	3.1	562
In-facility birth with skilled attendant	36	22	37	113	Children 0-2 years *(4/3)	3.1	467
Postpartum care for woman within 48 hours of birth	36	50	65	133	Children 0-2 years *(4/3)	3.1	550
Prevalence of exclusive breastfeeding during first 6 months of life (children 0-5 months)	36	51	66	132	Children 0-5 months	12.5	1,650
ORS and zinc	36	50	70	73	Children 0-59 months* 1/(0.145)	1.3	654
De-worming treatment	36	50	80	30	Children 1-4 years	1.6	48
Potable water	36	50	65	133	Households	1	0