



Institute for Health Metrics and Evaluation

Data Release Information Sheet

Data Summary

Dataset name: Nicaragua Salud Mesoamérica Initiative Third Follow-Up Health Facility Survey 2022

Project name: Salud Mesoamérica Initiative Evaluation

Date of release: October 23, 2023

Summary: 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 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 financing (RBF) 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.

IHME serves as the independent evaluation partner for SMI. Surveys were conducted in both households and health facilities in order to assess coverage of health services, barriers to care, and population health outcomes, alongside health system infrastructure and service delivery components. In Nicaragua, baseline (2013), second operation (2017), and third operation (2022) data were collected at households and health facilities in intervention and comparison areas. First operation (2014) measurement data collection took place at health facilities in intervention areas only. Third operation measurements were also conducted in Belize, El Salvador, and Honduras.

The SMI health facility survey is designed to assess facility conditions, evaluate service provision and utilization, and measure quality of care. Patient medical records are examined to evaluate facilities' treatment practices retrospectively over the course of the evaluation period. Health facility data collection aims to capture changes produced by interventions at the level of the health services access point, which may foretell changes in population health outcomes.

The SMI health facility survey includes three components: the Interview Questionnaire, the Observation Checklist, and Medical Record Review (MRR).

The Interview 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, contraceptive services, and maternal, antenatal, delivery, and postpartum care.

The Observation Checklist captures the surveyors' direct observations of equipment and medications at the time of the survey and includes the review of administrative records to determine the inventory of certain inputs in the three months prior to the survey.

The MRR extracts data from patient medical records to assess a variety of treatment and care practices related to maternal and child health, including obstetric and neonatal complications, routine antenatal care, uncomplicated delivery care, postpartum care, and cervical cancer screening.

Acknowledgements

Contributing organizations:

- Institute for Health Metrics and Evaluation
- UNIMER

Funders:

- Bill & Melinda Gates Foundation
- Carlos Slim Foundation
- Global Affairs Canada
- Spanish Agency for International Development Cooperation
- Inter-American Development Bank

File Inventory

File Name	Description	Date Produced	Data structure
IHME_SMI_NIC_HFS_2022_HFQ_Y2023M08D17.CSV	Nicaragua health facility questionnaire and observation	August 17, 2023	Each row represents one health facility. Unique identifier: "facility_level_identifier"
IHME_SMI_NIC_HFS_2022_MATCOMP_Y2023M08D17.CSV	Nicaragua maternal complications medical record review	August 17, 2023	Each row represents one record. Unique identifier: "record_level_identifier"
IHME_SMI_NIC_HFS_2022_NEOCOMP_Y2023M08D17.CSV	Nicaragua neonatal complications medical record review	August 17, 2023	Each row represents one record. Unique identifier: "record_level_identifier"

File Name	Description	Date Produced	Data structure
IHME_SMI_NIC_HFS_2022_N OCOMP_Y2023M08D17.CSV	Nicaragua antenatal care, uncomplicated delivery, and postpartum medical record review	August 17, 2023	Each row represents one record. This record contains either ANC visits, delivery care, postpartum care, or any combination of the three. Unique identifier: "record_level_identifier"
IHME_SMI_NIC_HFS_2022_C ACX_Y2023M08D17.CSV	Nicaragua cervical cancer screening record review	August 17, 2023	Each row represents one record. Unique identifier: "record_level_identifier"
IHME_SMI_NIC_HFS_2022_C ODEBOOK_[MODULE NAME]_Y2023M08D17.CSV	Codebook (1 per data file)	August 17, 2023	
IHME_SMI_NIC_HFS_2022_Q UESTIONNAIRE_Y2023M08D 17.PDF	Questionnaire	August 17, 2023	
IHME_SMI_NIC_HFS_2022_Q UESTIONNAIRE_OBS_Y2023 M08D17.PDF	Observation checklist	August 17, 2023	
IHME_SMI_NIC_HFS_2022_ MRR_[MODULE NAME]_Y2023M08D17.PDF	Medical records review (1 per data file)	August 17, 2023	
IHME_SMI_NIC_HFS_2022_D ATA_RELEASE_INFORMATION N_SHEET_Y2023M08D17.PDF	Data Release Information Sheet	August 17, 2023	

Methodological statement

Data Collection

Data collection for the SMI-Nicaragua third operation measurement was conducted by UNIMER. All surveys were conducted using a computer-assisted personal interview (CAPI). The CAPI was programmed using SurveyCTO and installed onto touchscreen tablets. 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.

Surveys were developed by IHME in collaboration with IDB and including input from relevant health authorities of the region.

The SMI-Nicaragua health facility survey, including facility interviews, observations, and medical record review, was carried out between August 25, 2022 and October 12, 2022 in the third operation measurement. Data collection was carried out by qualified health care professionals.

The research protocol was approved by the Internal Review Board of the University of Washington. All data collection instruments and procedures were approved by the Nicaragua Ministry of Health.

Sampling/Population

The study design for the SMI-Nicaragua health facility survey provides representative estimates of the coverage of key health interventions and indicators for a geographic area that approximates the lowest wealth quintile of the population of Nicaragua.

IDB identified intervention municipalities in Nicaragua in which to conduct the SMI health facility survey for the Initiative based on their high concentration of residents in the country's lowest wealth quintile; comparison municipalities with similar socioeconomic characteristics and ethnic composition were also identified.

Health facility sample

For the third operation measurement, a sample of 42 intervention-area health facilities were selected from a list of all facilities serving the municipalities covered by the SMI initiative. In addition, 21 comparison-area health facilities were selected from the corresponding comparison area municipalities. Facilities are grouped according to three levels of Essential Obstetric and Neonatal Care (EONC) services provided: ambulatory, basic, and complete. Ambulatory facilities provide outpatient care, basic facilities are able to attend uncomplicated deliveries and provide immediate emergency obstetric and neonatal care, and complete facilities have surgical capacity in addition to the services above and have capacity to attend complicated deliveries.

All basic and complete facilities in the study area are included in the sample to ensure sufficient sample size for the medical record-derived indicators relating to delivery and postpartum care. To complete the facility sample, a stratified random sample of 30 ambulatory facilities (20 intervention and 10 comparison area facilities) is taken, where 50% are facilities visited in previous measurements and 50% are facilities not visited in previous measurements. Two backup ambulatory facilities per municipality are selected in case sampled facilities cannot be interviewed due to security or logistic concerns.

Medical record review sampling

To complete the medical record portion of the survey, records of care conducted during the evaluation period are randomly selected according to the level of services provided at the facility. Quotas of each type of medical record collected are determined according to the number of applicable facilities within the study sample in order to reach a set total sample size of records for each review module. Records of antenatal care were evaluated in all facilities. Cervical cancer screening records were collected at

ambulatory facilities. Records of delivery, postpartum care, maternal complications and neonatal complications were evaluated at the basic and complete facility level.

Medical record review quotas are set per facility by dividing the total number of records to be reviewed in intervention and comparison areas by the number of facilities in the sample at each level of EONC. Quota calculations take into account the prevalence of each type of record as measured in the SMI baseline, first, and second operation surveys, as well as the statistical power necessary to detect projected differences from baseline through the third operation for performance indicators measuring SMI interventions. Cases of obstetric and neonatal complications were sampled at random from the Nicaragua Ministry of Health registries and, if required, additional cases were sampled using a systematic sampling technique in-facility. For the remaining medical record modules, cases were sampled from attention logs and registries using a systematic sampling technique in-facility.

Weighting

The data are not weighted.

Imputed Variables

There are no imputed variables in the data.

Variable Types

The following 12 variable types are included in the data (question_type column):

- Time: time value
- Date: date value
- Text: text value
- Single response option: The single response options are labeled select_one
- Select multiple item: determines if each individual response item was selected. Uses a binary 1/0 approach to determine if selected or not, labeled as select_multiple_item
- Select multiple summary: a summary of the select multiple question that concatenates of all the response options selected, labeled select_multiple_summary
- Value from: response value from another variable, labeled value_from
- Integer: a response of the integer type
- Decimal: a response of the decimal type
- Calculate: a calculation that took place at the time of survey and includes one or more variables
- Table input: responses for each cell in a table response, labeled table_input
- IHME Generated: variables created by IHME and not included at time of survey

Known Data Quality Issues

- Continuous data have not been cleaned or trimmed for outliers.
- Dates recorded from various points in medical record modules may contain data entry errors.

- Responses from health facility representatives in the questionnaire represent the individual's knowledge and may not align with data captured in the observation module.
- During data collection, challenges emerged in meeting quotas for medical record review. Water damage due to flooding was encountered in multiple medical record storage environments. Surveyors encountered impediments to locating sampled medical records due to deficits in archiving practices and inaccessibility of health facilities resulting in replacements. At the time of data collection, entry errors and typos were common.

Codebooks

Variable names, labels, and value coding can be found in the following files:

IHME_SMI_NIC_HFS_2022_CODEBOOK_HFQ_Y2023M08D17.CSV – This codebook contains variable names pertaining to the health facility questionnaire and observation modules.

IHME_SMI_NIC_HFS_2022_CODEBOOK_MATCOMP_Y2023M08D17.CSV – This codebook contains variable names pertaining to the maternal complications module.

IHME_SMI_NIC_HFS_2022_CODEBOOK_NEOCOMP_Y2023M08D17.CSV – This codebook contains variable names pertaining to the neonatal complications module.

IHME_SMI_NIC_HFS_2022_CODEBOOK_NOCOMP_Y2023M08D17.CSV – This codebook contains variable names pertaining to the no complications module.

IHME_SMI_NIC_HFS_2022_CODEBOOK_CACX_Y2023M08D17.CSV – This codebook contains variable names pertaining to the cervical cancer screening module.

Public Use Dataset Notes

This is a public use dataset. The data have been de-identified. Variables determined to contain identifiable private information, or potentially identifiable private information, for health facilities, health workers, and/or other individuals have been removed in accordance with IHME's microdata release protocol. The protocol's determination for variables that constitute identifiable private information is based primarily on [HIPAA'S De-identification Standard](#).

Additional Information

The data dictionaries contain the most accurate list of variables asked in the survey. The PDF surveys produced do not reflect questions that were hidden from participants and interviewers after the initial survey was published for testing and piloting purposes.

No personally identifiable information was collected for this study, however, this data was stripped of comments and information on who conducted the interview. Some variables in the dataset do not contain data, such as date of birth, because this information was not stored on the survey or sent to IHME. The date of birth was entered into the survey and an internal calculation was done to provide age. The surveys have also been stripped of the facility name, and in particular cases, facility location. Throughout the study, health facilities are guaranteed anonymity and the exact facility name cannot be released.

Diacritics have been removed from the datasets and data dictionaries for Spanish-language survey content.

Terms and Conditions

<http://www.healthdata.org/about/terms-and-conditions>

Contact information

To request further information about the Salud Mesoamérica Initiative (SMI), please contact IHME:

Institute for Health Metrics and Evaluation
Population Health Building/Hans Rosling Center
3980 15th Ave. NE, Seattle, WA 98195 USA
UW Campus Box #351615
USA

Telephone: +1-206-897-2800

Fax: +1-206-897-2899

Email: ihme@healthdata.org

www.healthdata.org

These files may be updated periodically, so we appreciate hearing feedback or additional information about how these data are being used.