

# St. Lucia - Multiple Indicator Cluster Survey 2012

**Ministry of Social Transformation, Local Government and Community  
Empowerment - Government of Saint Lucia, Central Statistics Office - Government  
of Saint Lucia, United Nations Children's Fund**

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# Sampling

## Sampling Procedure

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The primary objective of the sample design for the Saint Lucia Multiple Indicator Cluster Survey (MICS) was to produce statistically reliable estimates of most indicators both at the national level and for urban and rural areas.

There are 10 geographic districts in Saint Lucia. Five of these districts contain less than 3,000 households: Canaries (786 households), Anse la Raye (2,162 households), Soufriere (2,875 households), Choiseul (2,069 households) and Laborie (2,180 households). Due to the small size of so many districts it is not realistic to provide estimates at the district level. There is no obvious grouping of districts into a smaller sub-set of three or four regions, which would have made sampling more manageable. Thus urban and rural population were selected as the sampling strata for the purpose of the MICS.

The 2010 Population and Household Census is used as the sample frame for the Saint Lucia MICS and census EDs are defined as the primary sampling units (PSUs)/ clusters. These were selected from each of the sampling strata by using systematic pps (probability proportional to size) sampling procedures based on the estimated sizes of the enumeration districts (clusters) from the 2010 Census.

There were no obvious sources of data that could provide indicative values of some of the key MICS indicators. The CSO has not conducted any previous surveys of this nature, although the Core Wealth Indicator Questionnaire Survey (CWIQ) conducted in 2004 provided estimates showed almost 100 percent coverage for prenatal care and for professional attendance at delivery.

The average number of households selected per cluster was determined as 20 households based on a number of considerations including the design effect, the budget available and the time that would be needed per team to complete one cluster. Dividing the total number of households (2,000) by the number of sample households per cluster, it was calculated that 100 sample clusters would be selected.

The 2010 Population and Household Census was used as the sample frame for the selection of clusters. Census ED/clusters were defined as primary sampling units (PSUs) and selected from each of the sampling strata by using systematic pps sampling procedures, based on the estimated sizes of the enumeration areas from the 2010 Census.

To select the sample of clusters, EDs/clusters within each stratum were listed in order by district and by ED/cluster number within each district. In cases where larger EDs/clusters had been subdivided previously, these parts were listed next to each other (even if they did not have adjacent ED numbers). EDs/clusters with less than 20 households were combined with the ED/cluster immediately preceding them in the list, and if the small ED/cluster was the first ED/cluster shown in a district it was combined with the next ED/cluster on the list. The first stage of sampling was completed by selecting the required number of EDs/clusters from each stratum (urban and rural).

The sampling procedures are more fully described in "Multiple Indicator Cluster Survey 2012 - Final Report" pp.122-125.

## Response Rate

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The 2,000 households selected were found to contain 2,009 households. All the households were visited and 1,800 were found to be occupied. Of these, 1,718 households were successfully interviewed, yielding a household response rate of 95 percent. In the interviewed households, 1,341 eligible women (aged 15-49 years) were identified. Of these, 1,253 women were successfully interviewed, yielding a response rate of 93 percent within interviewed households. There were 300 eligible children under age 5 listed in the household questionnaire, and questionnaires were completed for 291 of these children (a response rate of 97 percent). Overall response rates of 89 and 93 percent were calculated for the women's and under-5's interviews respectively. The response rates were similar for both the urban and rural areas, yielding rates of over 90 percent for the household, women and children under 5.

## Weighting

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The Saint Lucia MICS sample is not self-weighting. Essentially, by allocating equal numbers of households to each of the clusters, different sampling fractions were used in each cluster since the size of the clusters varied. For this reason, sample weights were calculated and these were used in the subsequent analyses of the survey data.

The major component of the weight is the reciprocal of the sampling fraction employed in selecting the number of sample households in that particular sampling stratum (h) and PSU(i). The term  $f_{hi}$ , the sampling fraction for the i-th sample PSU in the h-th stratum, is the product of probabilities of selection at every stage in each sampling stratum. Where  $p_{shi}$  is the probability of selection of the sampling unit at stage s for the i-th sample PSU in the h-th sampling stratum.

A second component in the calculation of sample weights takes into account the level of non-response for the household and individual interviews. The adjustment for household non-response is equal to the inverse value of:  $RR_h = \text{Number of interviewed households in stratum } h / \text{Number of occupied households listed in stratum } h$

After the completion of fieldwork, response rates were calculated for each sampling stratum. These were used to adjust the sample weights calculated for each cluster.

Similarly, the adjustment for non-response at the individual level (women and under-5 children) for each stratum is equal to the inverse value of:

$RR_h = \text{Completed women's (or under-5's) questionnaires in stratum } h / \text{Eligible women (or under-5s) in stratum } h$

The non-response adjustment factors for the women's and under-5's questionnaires are applied to the adjusted household weights. Numbers of eligible women and under-5 children were obtained from the roster of household members from the household questionnaire where interviews were completed.

The design weights for the households were calculated by multiplying the above factors for each enumeration area. These weights were then standardized (or normalized), one purpose of which is to make the weighted sum of the interviewed sample units equal the total sample size at the national level. Normalization is performed by dividing the aforementioned design weights by the average design weight at the national level. This involves multiplying the sample weights by a constant factor equal to the unweighted number of households at the national level divided by the weighted total number of households (using the full sample weights adjusted for non-response). A similar standardization procedure was followed in obtaining standardized weights for the women's and under-5's questionnaires. Adjusted (normalized) weights varied between 0.477712 and 1.603220 in the 100 sample enumeration areas (clusters).

Sample weights were appended to all data sets and analyses were performed by weighting each household, woman or under-5 with these.

# Questionnaires

## Overview

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The questionnaires for the Generic MICS were structured questionnaires based on the MICS4 model questionnaire with some modifications and additions. Household questionnaires were administered in each household, which collected various information on household members including sex, age and relationship. The household questionnaire includes household listing form, education, water and sanitation, household characteristics, child labour, child discipline, hand washing and salt iodization.

In addition to a household questionnaire, questionnaires were administered in each household for women age 15-49 and children under age five. For children, the questionnaire was administered to the mother or primary caretaker of the child.

The women's questionnaire includes woman's background, access to mass media and use of information and communications technology, child mortality without birth history (abridged module used to calculate births in the last 2 years), desire for last birth, maternal and newborn health, post-natal health checks, contraception, unmet need for contraception, attitudes toward domestic violence, marriage/union, sexual behavior, HIV/AIDS, alcohol use.

The children's questionnaire includes child's age, birth registration, early childhood development, breastfeeding, care of illness, and anthropometry.

# Data Collection

## Data Collection Dates

Start	End	Cycle
2012-03	2012-05	N/A

## Data Collection Mode

Face-to-face [f2f]

### DATA COLLECTION NOTES

Training for the fieldwork was conducted for 10 days during the month of March 2012. Training included lectures on interviewing techniques and the contents of the questionnaires as well as mock interviews between trainees for them to gain experience in asking questions. Towards the end of the training period, trainees spent two days in practice interviews in six enumeration areas: three urban (Vieux Fort Town, Entrepot and Anse la Raye Village) and three rural (Augier, Monchy and Coolie Town).

There were also two data processing training workshops. The first was conducted for two days to familiarize all MICS project staff who would be involved in the administration of the MICS with the procedures for data processing. It was also attended by some members of the technical committee (this training ran simultaneously with the two days of practice interviewing during the fieldwork training). The second data processing workshop was conducted for five days and was attended by the data entry operators.

The MICS survey data were collected by four teams. Each team was comprised of four interviewers, one driver, one editor, one measurer and a supervisor. Fieldwork began in March 2012 and ended in May 2012.

## Data Collectors

Name	Abbreviation	Affiliation
Statistical Office of the Republic of Serbia	SORS	

### SUPERVISION

There is one supervisor for each of the 4 data collection teams in the field.

# Data Processing

## Data Editing

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Data were entered on four desktop computers using the Census and Survey Processing System (CSPro) software by four data entry operators, one questionnaire administrator, one secondary editor and a data entry supervisor. In order to ensure quality control, all questionnaires were double entered (entered and verified) and internal consistency checks were performed. Procedures and standard programmes developed under the global MICS4 programme and adapted to the Saint Lucia questionnaire were used throughout. Data processing began simultaneously with data collection in April 2012 and was completed in June 2012. Data were analysed using the Statistical Package for Social Sciences (SPSS) software program, Version 18, and the model syntax and tabulation plans developed by UNICEF were used for this purpose.

# Data Appraisal

## Estimates of Sampling Error

Sampling errors are a measure of the variability between the estimates from all possible samples. The extent of variability is not known exactly but can be estimated statistically from the survey data.

The following sampling error measures are presented in this appendix for each of the selected indicators:

- Standard error (se): Sampling errors are usually measured in terms of standard errors for particular indicators (means, proportions, etc). Standard error is the square root of the variance of the estimate. The Taylor linearization method is used for the estimation of standard errors.
- Coefficient of variation (se/r) is the ratio of the standard error to the value of the indicator and is a measure of the relative sampling error.
- Design effect (deff) is the ratio of the actual variance of an indicator, under the sampling method used in the survey, to the variance calculated under the assumption of simple random sampling. The square root of the design effect (deft) is used to show the efficiency of the sample design in relation to the precision. A deft value of 1.0 indicates that the sample design is as efficient as a simple random sample, while a deft value above 1.0 indicates an increase in the standard error due to the use of a more complex sample design.
- Confidence limits are calculated to show the interval within which the true value for the population can be reasonably assumed to fall, with a specified level of confidence. For any given statistic calculated from the survey, the value of that statistic will fall within a range of plus or minus two times the standard error ( $r + 2.se$  or  $r - 2.se$ ) of the statistic in 95 percent of all possible samples of identical size and design.

For the calculation of sampling errors from MICS data, SPSS Version 18 Complex Samples module has been used. The results are shown in the tables that follow. In addition to the sampling error measures described above, the tables also include weighted and unweighted counts of denominators for each indicator.

Sampling errors are calculated for indicators of primary interest, for the national level and for urban and rural areas. One of the selected indicators is based on households, 7 are based on household members, 19 are based on women and 8 are based on children under 5. All indicators presented here are in the form of proportions.

## Other forms of Data Appraisal

A series of data quality tables are available to review the quality of the data and include the following:

- Age distribution of the household population
- Age distribution of eligible and interviewed women
- Age distribution of under-5s in household and under-5 questionnaires
- Women's completion rates by socio-economic characteristics of households
- Completion rates for under-5 questionnaires by socio-economic characteristics of households
- Completeness of reporting
- Completeness of information for anthropometric indicators
- Heaping in anthropometric measurements
- Observation of places for hand washing
- Observation of women's health cards
- Observation of under-5s birth certificates
- Presence of mother in the household and the person interviewed for the under-5 questionnaire
- Selection of children aged 2-14 years for the child discipline module
- School attendance by single age

The results of each of these data quality tables are shown in appendix D in document "Multiple Indicator Cluster Survey 2012 - Final Report" pp.140-147.





## Related Materials

### Questionnaires

#### St. Lucia Multiple Indicator Cluster Survey 2012 - Questionnaire

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Title	St. Lucia Multiple Indicator Cluster Survey 2012 - Questionnaire
Country	St. Lucia
Language	English
Table of contents	Household questionnaire modules Household member questionnaire modules Women questionnaire modules Children questionnaire modules
Filename	MICS4_St._Lucia_2012_Questionnaire.pdf

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#### MICS4 Changes To Questionnaires v2.1 to v3.0

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Title	MICS4 Changes To Questionnaires v2.1 to v3.0
Language	English
Filename	<a href="http://www.childinfo.org/mics4_questionnaire.html">http://www.childinfo.org/mics4_questionnaire.html</a>

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#### MICS4 Questionnaire Form For Child Disability v3.0

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Title	MICS4 Questionnaire Form For Child Disability v3.0
Language	English
Filename	<a href="http://www.childinfo.org/mics4_questionnaire.html">http://www.childinfo.org/mics4_questionnaire.html</a>

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#### MICS4 Questionnaire Form For Vaccinations At Health Facility v3.0

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Title	MICS4 Questionnaire Form For Vaccinations At Health Facility v3.0
Language	English
Filename	<a href="http://www.childinfo.org/mics4_questionnaire.html">http://www.childinfo.org/mics4_questionnaire.html</a>

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### Reports

#### St. Lucia Multiple Indicator Cluster Survey 2012 - Report

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Title	St. Lucia Multiple Indicator Cluster Survey 2012 - Report
Author(s)	United Nations Children's Fund (UNICEF) Government of Saint Lucia Ministry of Social Transformation, Local Government and Community Empowerment Central Statistics Office
Date	2014-04-01
Country	St. Lucia
Language	English
Filename	<a href="http://www.childinfo.org/files/MICS4_St._Lucia_FinalReport_2012.pdf">http://www.childinfo.org/files/MICS4_St._Lucia_FinalReport_2012.pdf</a>

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### Technical documents

## Changes to MICS Tabulation Plan, Data Quality Tabulations, and Sampling Error Tables since Version 2.1

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Title Changes to MICS Tabulation Plan, Data Quality Tabulations, and Sampling Error Tables since Version 2.1  
 Language English  
 Filename [http://www.childinfo.org/mics4\\_plan.html](http://www.childinfo.org/mics4_plan.html)

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### MICS4 01 Household Sample and Survey Characteristics (HH)

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Title MICS4 01 Household Sample and Survey Characteristics (HH)  
 Language English  
 Filename [http://www.childinfo.org/mics4\\_plan.html](http://www.childinfo.org/mics4_plan.html)

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### MICS4 02 Child Mortality (CM)

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Title MICS4 02 Child Mortality (CM)  
 Language English  
 Filename [http://www.childinfo.org/mics4\\_plan.html](http://www.childinfo.org/mics4_plan.html)

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### MICS4 03 Nutrition (NU)

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Title MICS4 03 Nutrition (NU)  
 Language English  
 Filename [http://www.childinfo.org/mics4\\_plan.html](http://www.childinfo.org/mics4_plan.html)

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### MICS4 04 Child Health (CH)

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Title MICS4 04 Child Health (CH)  
 Language English  
 Filename [http://www.childinfo.org/mics4\\_plan.html](http://www.childinfo.org/mics4_plan.html)

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### MICS4 05 Water and Sanitation (WS)

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Title MICS4 05 Water and Sanitation (WS)  
 Language English  
 Filename [http://www.childinfo.org/mics4\\_plan.html](http://www.childinfo.org/mics4_plan.html)

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### MICS4 06 Reproductive Health (RH)

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Title MICS4 06 Reproductive Health (RH)  
 Language English  
 Filename [http://www.childinfo.org/mics4\\_plan.html](http://www.childinfo.org/mics4_plan.html)

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### MICS4 07 Child Development (CD)

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Title MICS4 07 Child Development (CD)  
 Language English  
 Filename [http://www.childinfo.org/mics4\\_plan.html](http://www.childinfo.org/mics4_plan.html)

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### MICS4 08 Education (ED)

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Title MICS4 08 Education (ED)  
 Language English  
 Filename [http://www.childinfo.org/mics4\\_plan.html](http://www.childinfo.org/mics4_plan.html)

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## MICS4 09 Child Protection (CP)

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Title MICS4 09 Child Protection (CP)  
 Language English  
 Filename [http://www.childinfo.org/mics4\\_plan.html](http://www.childinfo.org/mics4_plan.html)

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## MICS4 10 HIV-AIDS, Sexual Behaviour and Orphanhood (HA)

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Title MICS4 10 HIV-AIDS, Sexual Behaviour and Orphanhood (HA)  
 Language English  
 Filename [http://www.childinfo.org/mics4\\_plan.html](http://www.childinfo.org/mics4_plan.html)

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## MICS4 11 Access to Mass Media and ICT Technology (MT)

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Title MICS4 11 Access to Mass Media and ICT Technology (MT)  
 Language English  
 Filename [http://www.childinfo.org/mics4\\_plan.html](http://www.childinfo.org/mics4_plan.html)

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## MICS4 12 Subjective Well-Being (SW)

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Title MICS4 12 Subjective Well-Being (SW)  
 Language English  
 Filename [http://www.childinfo.org/mics4\\_plan.html](http://www.childinfo.org/mics4_plan.html)

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## MICS4 13 Tobacco and Alcohol Use (TA)

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Title MICS4 13 Tobacco and Alcohol Use (TA)  
 Language English  
 Filename [http://www.childinfo.org/mics4\\_plan.html](http://www.childinfo.org/mics4_plan.html)

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## MICS4 Data Quality Tabulation Plan (DQ)

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Title MICS4 Data Quality Tabulation Plan (DQ)  
 Language English  
 Filename [http://www.childinfo.org/mics4\\_plan.html](http://www.childinfo.org/mics4_plan.html)

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## MICS4 Sampling Errors (SE)

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Title MICS4 Sampling Errors (SE)  
 Language English  
 Filename [http://www.childinfo.org/mics4\\_plan.html](http://www.childinfo.org/mics4_plan.html)

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## MICS4 Changes To Indicator List v2.1 to v3.0

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Title MICS4 Changes To Indicator List v2.1 to v3.0  
 Language English  
 Filename [http://www.childinfo.org/mics4\\_questionnaire.html](http://www.childinfo.org/mics4_questionnaire.html)

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## MICS4 List of Indicators v3.0

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Title MICS4 List of Indicators v3.0  
 Language English  
 Filename [http://www.childinfo.org/mics4\\_questionnaire.html](http://www.childinfo.org/mics4_questionnaire.html)

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## MICS4 Manual-Anthropometry

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Title MICS4 Manual-Anthropometry  
 Language English  
 Filename [http://www.childinfo.org/mics4\\_manual.html](http://www.childinfo.org/mics4_manual.html)

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## MICS4 Manual-Data Editing Guidelines

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Title MICS4 Manual-Data Editing Guidelines  
 Language English  
 Filename [http://www.childinfo.org/mics4\\_manual.html](http://www.childinfo.org/mics4_manual.html)

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## MICS4 Manual-Designing and Selecting the Sample

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Title MICS4 Manual-Designing and Selecting the Sample  
 Language English  
 Filename [http://www.childinfo.org/mics4\\_manual.html](http://www.childinfo.org/mics4_manual.html)

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## MICS4 Manual-Designing the Questionnaires

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Title MICS4 Manual-Designing the Questionnaires  
 Language English  
 Filename [http://www.childinfo.org/mics4\\_manual.html](http://www.childinfo.org/mics4_manual.html)

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## MICS4 Manual-Getting Started

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Title MICS4 Manual-Getting Started  
 Language English  
 Filename [http://www.childinfo.org/mics4\\_manual.html](http://www.childinfo.org/mics4_manual.html)

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## MICS4 Manual-Global Positioning Systems

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Title MICS4 Manual-Global Positioning Systems  
 Language English  
 Filename [http://www.childinfo.org/mics4\\_manual.html](http://www.childinfo.org/mics4_manual.html)

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## MICS4 Manual-Instructions for Interviewers

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Title MICS4 Manual-Instructions for Interviewers  
 Language English  
 Filename [http://www.childinfo.org/mics4\\_manual.html](http://www.childinfo.org/mics4_manual.html)

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## MICS4 Manual-Instructions for Supervisors Editors and Measurers

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Title MICS4 Manual-Instructions for Supervisors Editors and Measurers

Language English  
Filename [http://www.childinfo.org/mics4\\_manual.html](http://www.childinfo.org/mics4_manual.html)

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## MICS4 Manual-Model Questionnaires

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Title MICS4 Manual-Model Questionnaires  
Language English  
Filename [http://www.childinfo.org/mics4\\_manual.html](http://www.childinfo.org/mics4_manual.html)

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## MICS4 Manual-Preparing for Data Collection and Conducting Fieldwork

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Title MICS4 Manual-Preparing for Data Collection and Conducting Fieldwork  
Language English  
Filename [http://www.childinfo.org/mics4\\_manual.html](http://www.childinfo.org/mics4_manual.html)

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## MICS4 Manual-Processing the Data

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Title MICS4 Manual-Processing the Data  
Language English  
Filename [http://www.childinfo.org/mics4\\_manual.html](http://www.childinfo.org/mics4_manual.html)

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## MICS4 Manual-Salt Iodization Testing

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Title MICS4 Manual-Salt Iodization Testing  
Language English  
Filename [http://www.childinfo.org/mics4\\_manual.html](http://www.childinfo.org/mics4_manual.html)

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