

Uganda - Malaria Indicator Survey 2014-2015

**Uganda Bureau of Statistics (UBOS) - Government of Uganda, National Malaria
Control Programme (NMCP) - Uganda Ministry of Health**

Report generated on: June 16, 2017

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Sampling

Sampling Procedure

The sample for the 2014-15 Uganda Malaria Indicator Survey (2014-15 UMIS) was designed to provide most of the key malaria indicators for the country as a whole, for urban and rural areas, and for 10 survey regions.

In addition, three study domains based on malaria endemicity were created to provide selected malaria indicators addressing NMCP/MOH programmatic needs: 1) to evaluate the effect of interventions such as indoor residual spraying (IRS) in the 10 districts in the north, 2) to provide baseline indicators for the 14 districts planned for future IRS programmes, and 3) provide estimates separately for high altitude areas with low malaria burden.

The three study domains are arranged as follows:

Domain 1: ten (10) districts in which IRS programmes are currently implemented;

Domain 2: fourteen (14) districts planned for future IRS programmes (to provide baseline estimates);

Domain 3: ten (10) high-altitude districts (low malaria burden areas).

Apart from the three study domains above, the region of Karamoja was over-sampled in order to be comparable to a DHS region, and the urban areas of Wakiso and Mukono districts, together with Kampala, were combined to form a special 'Greater Kampala' zone.

Each of the 10 regions and the 3 study domains comprise multiple administrative districts that share a similar malaria burden or have specific malaria prevention efforts. The capital city, Kampala, comprises its own district and is entirely urban.

The sampling frame used for the 2014-15 UMIS was the preparatory frame for the Uganda Population and Housing Census, which was conducted in August 2014. Provided by the Uganda Bureau of Statistics (UBOS), the sampling frame excluded nomadic and institutional populations such as persons in hotels, barracks, and prisons.

The 2014-15 UMIS sample was selected using a stratified two-stage cluster design consisting of 210 clusters, with 44 in urban areas and 166 in rural areas. In the first stage, 20 sampling strata were created and clusters were selected independently from each stratum by a probability-proportional-to-size selection. In the selected clusters, a complete listing of households and a mapping exercise was conducted from 25 October to 20 November 2014, with the resulting list of households serving as the sampling frame for the selection of households in the second stage.

In the second stage of the selection process, 28 households were selected in each cluster by equal probability systematic sampling. Because of the nonproportional allocation of the sample to the different regions and study domains, the sample is not self-weighting. Weighting factors have been added to the data file so that the results will be representative at the national and regional level as well as the survey domain level.

All women age 15-49 who were either permanent residents of the households in the 2014-15 UMIS sample or visitors present in the households on the night before the survey were eligible to be interviewed. In addition, all children age 0-59 months who were either permanent residents of the sampled households or visitors present in the households on the night before the survey were eligible to be tested for malaria and anaemia.

For further details on sample design, see Appendix A of the final report.

Response Rate

A total of 5,802 households were selected for the sample, of which 5,494 were occupied. Of the occupied households, 5,345 were successfully interviewed, yielding a response rate of 97 percent. The response rate among households in rural areas was slightly higher (98 percent) than the response rate in urban areas (96 percent).

In the interviewed households, 5,494 women were identified as eligible for the individual interview; interviews were completed with 5,322 women, yielding a response rate of 97 percent. The eligible women's response rate does not differ by urban or rural residence. The principal reason for non-response among eligible women was failure to find individuals at home despite repeated visits to the household.

Questionnaires

Overview

The 2014 UMIS used two questionnaires: a Household Questionnaire and a Woman's Questionnaire for women age 15-49 in the selected households. Both of these instruments were based on the model Malaria Indicator Survey questionnaires developed by the Roll Back Malaria Monitoring and Evaluation Research Group, as well as other questionnaires from previous surveys conducted in Uganda, including the 2009 UMIS. The Technical Working Group organised stakeholders' meetings in Kampala to review the draft questionnaires. Stakeholders comprised a range of potential users, including government institutions, nongovernmental organisations, and interested donor groups. The questionnaires were translated from English into six local languages (Ateso/Karamajong, Luganda, Lugbara, Luo, Runyankole/Rukiga, and Runyoro/Rutoro).

The Household Questionnaire captured data on all usual members and visitors in the selected households. Basic information was collected on the characteristics of each person listed, including age, sex, and relationship to the head of the household. The main purpose of the Household Questionnaire was to identify women who were eligible for the individual interview and children eligible for anaemia and malaria testing. The Household Questionnaire was also used to collect responses on indicators of ownership and use of mosquito bed nets. In addition, the Household Questionnaire collected data on housing conditions and assets to calculate the measures of household wealth.

The Woman's Questionnaire was used to collect data from women age 15-49 years, including: background characteristics (age, education, etc.); reproductive history (number of births, survival of births, etc.); current pregnancy status, intermittent preventive treatment for malaria during recent pregnancies; and antimalarial treatment for children under five with recent fever). It also collected information on knowledge about malaria.

Data Collection

Data Collection Dates

Start	End	Cycle
2014-12	2015-01	N/A

Data Collection Mode

Face-to-face [f2f]

DATA COLLECTION NOTES

Training of Field Staff

UBOS and NMCP recruited and trained 88 people to serve as interviewers and supervisors for the fieldwork. The training was conducted during a two-week period in November 2014. The training course consisted of instruction regarding interviewing techniques and field procedures, a detailed review of questionnaire content, instruction for administering and obtaining informed consent, mock interviews between trainees in the classroom, and practice interviews with real respondents in areas outside the 2014-15 UMIS sample. Thirty-eight health technicians underwent two weeks of instruction and practice in obtaining informed consent and collecting blood samples from children age 0-59 months. Seventeen nurses who were trained as interviewers were also trained to offer and administer treatment to children with positive RDTs. Seventeen team supervisors underwent additional training in field editing, data quality control procedures, and fieldwork coordination. Seventeen supervisors, 51 interviewers (of whom 17 were nurses), and 34 health technicians were selected for the 17 field teams.

Fieldwork

Seventeen interviewing teams carried out data collection for the 2014-15 UMIS. Each team consisted of one supervisor, three interviewers (one of whom was a nurse), two health technicians, and one driver. Senior staff members from UBOS, NMCP, and the UMSP Laboratory coordinated and supervised fieldwork activities. Two ICF International staff also monitored fieldwork. Data collection took place from 1 December 2014 through the end of January 2015.

Data Collectors

Name	Abbreviation	Affiliation
Uganda Bureau of Statistics	UBOS	Government of Uganda

Data Processing

Data Editing

All questionnaires for the 2014-15 UMIS were returned to the data processing centre at the UBOS headquarters in Kampala. Activities performed included office editing, data entry, and editing of computeridentified inconsistencies. The data were processed by a team consisting of one data entry supervisor, one assistant supervisor, 24 data entry operators, and 7 staff who performed tasks related to questionnaire administration, office editing, and secondary editing. Data entry and editing were accomplished using CPro software. The process of office editing and data processing was initiated in January 2015 and completed in mid- February 2015.

Data Appraisal

Estimates of Sampling Error

The estimates from a sample survey are affected by two types of errors: (1) nonsampling errors, and (2) sampling errors. Nonsampling errors are the results of mistakes made in implementing data collection and data processing, such as failure to locate and interview the selected household, misunderstanding of the questions on the part of either the interviewer or the respondent, and data entry errors. Although numerous efforts were made during the implementation of the 2014-15 Uganda Malaria Indicator Survey (2014-15 UMIS) to minimize this type of error, nonsampling errors are impossible to avoid and difficult to evaluate statistically.

Sampling errors, on the other hand, can be evaluated statistically. The sample of respondents selected in the 2014-15 UMIS is only one of many samples that could have been selected from the same population, using the same design and identical size. Each of these samples would yield results that differ somewhat from the results of the actual sample selected. Sampling error is a measure of the variability between all possible samples. Although the degree of variability is not known exactly, it can be estimated from the survey results.

A sampling error is usually measured in terms of the standard error for a particular statistic (mean, percentage, etc.), which is the square root of the variance. The standard error can be used to calculate confidence intervals within which the true value for the population can reasonably be assumed to fall. For example, for any given statistic calculated from a sample survey, the value of that statistic will fall within a range of plus or minus two times the standard error of that statistic in 95 percent of all possible samples of identical size and design.

If the sample of respondents had been selected as a simple random sample, it would have been possible to use straightforward formulas for calculating sampling errors. However, the 2014-15 UMIS sample is the result of a multi-stage stratified design, and, consequently, it was necessary to use more complex formulae. The computer software used to calculate sampling errors for the 2014-15 UMIS is a SAS program. This program used the Taylor linearization method for variance estimation for survey estimates that are means or proportions.

The Taylor linearization method treats any percentage or average as a ratio estimate, $r = y/x$, where y represents the total sample value for variable y , and x represents the total number of cases in the group or subgroup under consideration.

Note: A more detailed description of estimate of sampling error is presented in APPENDIX B of the survey report.

Other forms of Data Appraisal

Data Quality Tables

- Household age distribution
- Age distribution of eligible and interviewed women
- Completeness of reporting

Note: See detailed data quality tables in APPENDIX C of the report.

Related Materials

Questionnaires

Uganda Malaria Indicator Survey 2014-2015, Household Questionnaire

Title Uganda Malaria Indicator Survey 2014-2015, Household Questionnaire
 Author(s) Infectious Diseases Research Collaboration (IDRC) Uganda Bureau of Statistics (UBOS) Ministry of Health (MOH)
 Date 2014-11-01
 Country Uganda
 Language English
 Filename UGA_2014_MIS_hh_questionnaire.pdf

Uganda Malaria Indicator Survey 2014-2015, Woman's Questionnaire

Title Uganda Malaria Indicator Survey 2014-2015, Woman's Questionnaire
 Author(s) Infectious Diseases Research Collaboration (IDRC) Uganda Bureau of Statistics (UBOS) Ministry of Health (MOH)
 Date 2014-11-01
 Country Uganda
 Language English
 Filename UGA_2014_MIS_women_questionnaire.pdf

Reports

Uganda Malaria Indicator Survey 2014-2015, Report

Title Uganda Malaria Indicator Survey 2014-2015, Report
 Author(s) Uganda Bureau of Statistics, Kampala, Uganda National Malaria Control Programme, Uganda Ministry of Health, Kampala, Uganda Uganda Malaria Surveillance Project Molecular Laboratory, Mulago Hospital, Kampala, Uganda ICF International, Rockville, Maryland
 Date 2015-10-01
 Country Uganda
 Language English

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Filename <http://dhsprogram.com/pubs/pdf/MIS21/MIS21.pdf>

Uganda Malaria Indicator Survey 2014-2015, Key Findings

Title Uganda Malaria Indicator Survey 2014-2015, Key Findings
Author(s) Uganda Bureau of Statistics, Kampala, Uganda National Malaria Control Programme, Uganda Ministry of Health, Kampala, Uganda Uganda Malaria Surveillance Project Molecular Laboratory, Mulago Hospital, Kampala, Uganda ICF International, Rockville, Maryland
Date 2015-08-01
Country Uganda
Language English
Filename UGA_2014_MIS_key_indicators_PR64.pdf

Other materials

Fast Facts from The 2014-2015 Uganda Malaria Indicator Survey, Malaria Prevalence

Title Fast Facts from The 2014-2015 Uganda Malaria Indicator Survey, Malaria Prevalence
Author(s) The DHS Program
Date 2015-10-01
Country Uganda
Language English
Filename <http://dhsprogram.com/pubs/pdf/DM72/DM72.pdf>

Uganda Malaria Indicator Survey 2014-2015, Fact Sheet

Title Uganda Malaria Indicator Survey 2014-2015, Fact Sheet
Author(s) The DHS Program
Date 2015-10-01
Country Uganda
Language English
Filename <http://dhsprogram.com/pubs/pdf/MF13/MF13.pdf>
