

# Kenya - Kenya Malaria Indicator Survey 2015

**Kenya National Bureau of Statistics, ICF International, National Malaria Control  
Programme, Ministry of Health**

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# Overview

## Identification

ID NUMBER  
KEN-KNBS-KMIS-2015-V0.1

## Version

### VERSION DESCRIPTION

- v1.0: Data captured as it was collected from the field, Cleaned data and validated data

### NOTES

Initially the data was captured using MS-ACCESS, exported to CSpro 4.

1 and then exported to SPSS for Analysis

## Overview

### ABSTRACT

Malaria is a significant public health problem in Kenya. More than 70 percent of the population live in malaria risk areas, including those most vulnerable to the disease: children and pregnant women. In the last 5 years, tremendous efforts have been made to combat malaria with prevention and treatment interventions such as mass and routine mosquito net distribution programs to attain universal coverage, intermittent preventive treatment for malaria during pregnancy, and parasitological diagnosis and management of malaria cases.

The Kenya Malaria Indicator Survey is one of the key performance monitoring tools that are periodically used to provide an in-depth assessment of malaria control over time. This is the third survey undertaken; the previous two were in 2007 and in 2010.

This report provides information on the performance of the key malaria control interventions as experienced by communities across the country. The results contained in this report are crucial to the evaluation of interventions, planning for the future, and understanding the dynamics that affect malaria control programme efforts.

The report shows that with concerted efforts and effective partnerships we can reduce the impact of malaria in the country. A clear indication of this is the overall reduction in malaria prevalence in Kenya as compared with the 2010 survey results. Other key results include the increased uptake in ownership and use of nets as well as improved availability of recommended medicines for the treatment of malaria. The survey results are similar to those for malaria control indicators reported by the 2014 Kenya Demographic Health Survey.

The report has come at an opportune time, and the government urges stakeholders at all levels to embrace the report, assess its implications on malaria control, and chart the way forward. The report will form the platform for our malaria control strategy in the coming years. It is clear that with continued investments we can make substantial progress toward the objective of eliminating communicable diseases, and thus the Ministry of Health is committed to further reducing the malaria burden in the coming years. A malaria-free Kenya is possible.

KIND OF DATA  
Sample survey data [ssd]

## Coverage

GEOGRAPHIC COVERAGE  
It was a National survey

The survey used National Sample Survey and Evaluation Programme (NASSEP) V sampling frame, the frame was nationally representative and was developed by the KNBS after the 2009 Census.

## Producers and Sponsors

### PRIMARY INVESTIGATOR(S)

Name	Affiliation
Kenya National Bureau of Statistics	
ICF International	
National Malaria Control Programme, Ministry of Health	

### OTHER PRODUCER(S)

Name	Affiliation	Role
Kenya National Bureau of Stataistics		Data collection logistics
National Malaria Control Programme, Ministry of Health	Ministry of Health	Funding and logistics
ICF International		Technical Assistance

### FUNDING

Name	Abbreviation	Role
ICF International		
Kenya National Bureau of Statistics		
National Malaria Control Programme, Ministry of Health		

## Metadata Production

### METADATA PRODUCED BY

Name	Abbreviation	Affiliation	Role
National Malaria Control Programme, Ministry of Health	NMCP	Ministry of Public Health	Funding and logistics
Kenya National Bureau of Statistics	KNBS		Funding and logistics
ICF International	ICFI		Technical Assistance

### DATE OF METADATA PRODUCTION

2016-04-08

### DDI DOCUMENT ID

KMIS-2015

# Sampling

## Sampling Procedure

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The estimates from a sample survey are affected by two types of errors: nonsampling errors and 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 correct household, misunderstanding of the questions by either the interviewer or the respondent, and data entry errors. Although numerous efforts were made during the implementation of the 2015 Kenya Malaria Indicator Survey (KMIS) 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 2015 KMIS is only one of many samples that could have been selected from the same population, using the same design and expected size. Each of these samples would yield results that differ somewhat from the results of the actual sample selected.

Sampling errors are a measure of the variability among all possible samples. Although the degree of variability is not known exactly, it can be estimated from the survey results.

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 2015 KMIS sample is the result of a multi-stage stratified design, and, consequently, it was necessary to use more complex formulas. Sampling errors are computed in either ISSA or SAS, using programs developed by ICF International. These programs use the Taylor linearization method of variance estimation for survey estimates that are means, proportions, or ratios.

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. The variance of  $r$  is computed using a formula, with the standard error being the square root of the variance:

The 2015 KMIS sample was designed to produce estimates for key indicators for the country as a whole, for urban and rural areas separately, and for each of the malaria epidemiologic zones: highland epidemic; lake endemic; coast endemic; semi-arid, seasonal; and low risk.

The sampling frame used for the 2015 KMIS was the Fifth National Sample Survey and Evaluation Program (NASSEP V) master sampling frame, which is created and maintained by KNBS for household-based surveys in Kenya. Development of the frame started in 2012. It contains a list of all enumeration areas (EAs) created for the 2009 census and covers the entire country. The frame is split into four equal subsamples, from one of which the 2015 KMIS sample was drawn. Kenya is administratively divided into 47 counties, created in the 2010 Constitution; within the frame, each county is stratified into urban and rural areas and is contained within one or two of the five malaria endemic zones.

The survey used a two-stage stratified cluster sampling design. In the first stage, 246 clusters (131 rural, 115 urban) were selected with equal probability from the NASSEP V. The second stage involved selection of a uniform sample of 30 households using systematic sampling from each of the selected clusters. Prior to household selection, all the clusters were updated by KNBS. This entailed undertaking a household listing in each of the selected clusters in order to update the list of residential households within it. As part of the listing, KNBS also updated the necessary maps and recorded the geographic coordinates of each cluster. Only selected households were interviewed, and replacement of nonresponding households was not allowed.

## Response Rate

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A total of 7,313 households were selected for the study, of which 6,667 were occupied at the time of fieldwork. Of these, 6,481 households were successfully interviewed, yielding an overall household response rate of 97 percent.

## Questionnaires

No content available

## Data Collection

### Data Collection Dates

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Start	End	Cycle
2015-07-06	2015-08-15	N/A

### Data Collection Mode

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Computer Assisted Personal Interview [capi]

# Data Processing

## Data Editing

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The 2015 KMIS used ASUS Transformer T100 tablet computers with data entry programs developed in CSPro by The DHS Program at ICF International. Tablets were Bluetooth-enabled to facilitate the electronic transfer of household assignment among field team members and the transfer of completed questionnaires to team supervisors for transfer to the central office. Code division multiple access wireless technology via Internet File Streaming System (IFSS) developed by The DHS Program was used to transfer encrypted data from the field to the central office in Nairobi. Each tablet was fitted with a micro-SD card for encrypted data back-up.

To facilitate communication and monitoring, each field worker was assigned a unique identification number. In the central office, data received from the field team supervisors' tablets were registered and checked against any inconsistencies and outliers. Data editing and cleaning included range checks and structural and internal consistency checks. Any anomalies were communicated to the respective team through their team supervisor. The corrected results were re-sent to the central processing office.

## Data Appraisal

No content available