

# Ghana - Ghana Maternal Health Survey 2007

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## Overview

### Identification

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ID NUMBER  
GHA-GSS-GMHS-2007

### Version

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VERSION DESCRIPTION  
v2.0 - Public use dataset and other documentation on the Ghana Maternal Health Survey.

PRODUCTION DATE  
2012-07-09

NOTES  
This is the first time the Maternal Health Survey has been implemented in the country. The project started with the name Maternal Mortality Survey before it was changed to Maternal Health Survey

## Overview

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### ABSTRACT

The principal objective of the 2007 Ghana Maternal Health Survey (GMHS) is intended to serve as a source of data on maternal health and maternal death for policymakers and the research community involved in the Reducing Maternal Morbidity and Mortality (R3M) program.

Specifically, the data collected in the GMHS is intended to help the Government of Ghana and the consortium of organizations participating in the R3M program to launch a series of collaborative efforts to significantly expand women's access to modern family planning services and comprehensive abortion care (CAC), reduce unwanted fertility, and reduce severe complications and deaths resulting from unsafe abortion.

The GMHS collected data from a nationally representative sample of households and women of reproductive age (15-49). The data were collected in two phases. The primary objectives of the 2007 GMHS were:

- To collect data at the national level that will allow an assessment of the level of maternal mortality in Ghana for the country as a whole, for the R3M program regions (Greater Accra, Ashanti and Eastern Regions), and for the non-program regions;
- To identify specific causes of maternal and non-maternal deaths, and specifically to be able to identify deaths due to abortion-related causes, among adult women;
- To collect data on women's perceptions and experience with antenatal, maternity, and emergency obstetrical care, especially with regard to care received before, during, and after the termination or abortion of a pregnancy;
- To measure indicators of the utilization of maternal health services and especially post-abortion care services in Ghana; and
- To provide baseline data for the R3M program and for follow-on studies and surveys that will be used to observe possible reductions in maternal mortality as well as reductions in abortion-related mortality. It also contributes to the ever-growing international database on maternal health-related information.

The pregnancy-related mortality ratio (PRMR) for the 7-year period preceding the survey, calculated from the sibling history data, is 451 deaths per 100,000 live births and for the 5-year period preceding the survey is 378 deaths per 100,000 live births. Induced

abortion accounts for more than one in ten maternal deaths and the obstetric risk from induced abortion is highest among

young women age 15-24. Although almost all women seek antenatal care from a health professional, only one in two women deliver in a health facility, and three in four women seek postnatal care. Despite the emphasis on continuity of care, less than one in two women receive all three maternity care components (antenatal care, delivery care, and postnatal care) from a skilled provider. Clearly, Ghana has a long way to go towards achieving the MDG-5 target.

#### KIND OF DATA

Sample survey data [ssd]

#### UNITS OF ANALYSIS

Individual

## Scope

#### NOTES

The survey gathered information on maternal health in two phases. Phase I was fielded

in some 240,000 households to obtain information on deaths in the households and more specifically female deaths. Phase II followed with a verbal autopsy on the causes of deaths for 4,203 women age 12-49 identified in Phase I. In addition, a woman's questionnaire fielded in Phase II in a sub-sample of households collected information from 10,370 women age 15-49 on a wide range of maternal health-related issues pertaining to pregnancies, live births, abortions and miscarriages, and utilization of health services in relation to these events. Also included in this questionnaire was a sibling history that allowed for the calculation of maternal mortality in

Ghana. The GMHS was conducted to serve as a source of baseline information for the Reducing Maternal Morbidity and Mortality (R3M) program initiated in 2006 in three regions in Ghana: Greater Accra, Ashanti, and Eastern regions. The primary aim of the R3M program was to increase the contraceptive prevalence rate (CPR) by making contraceptive methods and comprehensive abortion care services more available and more highly utilized at all levels of the public and private sectors of the health care system, and to reduce morbidity and mortality due to unsafe abortions.

#### TOPICS

Topic	Vocabulary	URI
Childbearing, Family Planning and Abortion [8.2]	CESSDA	<a href="http://www.nesstar.org/rdf/common">http://www.nesstar.org/rdf/common</a>

#### KEYWORDS

Mortality

## Coverage

#### GEOGRAPHIC COVERAGE

National

#### GEOGRAPHIC UNIT

Regional

#### UNIVERSE

1. All women age 12-49 years in households and residents in Ghana

## Producers and Sponsors

#### PRIMARY INVESTIGATOR(S)

Name	Affiliation
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Name	Affiliation
Ghana Statistical Service	Autonomous

## OTHER PRODUCER(S)

Name	Affiliation	Role
Ministry of Health/Ghana Health Service	GOG	Releasing staff for secretariat and field work
ICF Macro	USAID	Offered Technical Assistance

## FUNDING

Name	Abbreviation	Role
United States Agency for International Development	USAID	Provided funds for the survey

## Metadata Production

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## METADATA PRODUCED BY

Name	Abbreviation	Affiliation	Role
Ghana Statistical Service	GSS		Lead documenting institution

## DATE OF METADATA PRODUCTION

2012-07-09

## DDI DOCUMENT VERSION

version 2.0 (January 2013) This document has been reviewed

## DDI DOCUMENT ID

DDI-GHA-GSS-GMHS-2007-v1.0

## Sampling

### Sampling Procedure

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To achieve the above-mentioned objectives and to obtain an accurate measure of the causes of maternal mortality at the national level, and for the Reducing Maternal Morbidity and Mortality( R3M) regions (Greater Accra, Ashanti and Eastern regions) and other regions (Western, Central, Volta, Brong Ahafo, Northern, Upper East and Upper West), 1600 primary sampling units were selected (half from the R3M regions and half from the other regions) within the 10 administrative regions of the country, across urban and rural areas. The primary sampling units consisted of wards or subwards drawn from the 2000 Population Census. This sample size was estimated from information in the 2003 Ghana DHS survey; it was expected that each primary sampling unit would yield, on average, 150 households. GSS and GHS enumerators carried out a complete mapping and listing of the 1600 selected clusters. This first phase of data collection yielded a total of 227,715 households.

A short household questionnaire was administered to identify deaths that occurred in the five years preceding the survey to women age 12-49 in each household listed in the selected cluster. In the second phase of data collection a verbal autopsy questionnaire was administered in all households identified in the first phase as having experienced the death of a woman age 12-49. This yielded a total of 4,203 completed verbal autopsy questionnaires.

In the second phase of fieldwork, 400 clusters were randomly selected from the 1600 clusters identified in the first phase. Households with women age 15-49 were selected from these 400 clusters (half from the R3M regions and half from the other regions) and were stratified by region and urban-rural residence to yield 10,858 completed household interviews and 10,370 individual women's interviews. These households were selected randomly and independently from the households identified in the first phase as having experienced a female death.

Institutional populations (those in hospitals, army barracks, etc.) and households residing in refugee camps were excluded from the GMHS sample.

### Deviations from Sample Design

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No deviation of the original sample design was made

### Response Rate

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A total of 11,579 households were selected for the sample, of which 10,994 were occupied at the time of the survey and 10,858 (or 99 percent) were successfully interviewed. The difference is primarily due to dwellings being vacant or the inhabitants being gone for an extended period at the time of the survey. In the interviewed households, 10,627 women were identified as eligible for the individual interview (women age 15-49), and interviews were completed for 10,370, or 98 percent. The principal reason for nonresponse among eligible women was the failure to find them at home, despite repeated visits to the household. The refusal rate was low in both urban and rural areas.

### Weighting

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Sample weights were calculated for each of the data files. Sample weights for the household data, women data and sister answered data were computed as the inverse of the probability of selection of the household, women and sistered answered data computed at the sampling domain (urban/rural within each region). The weights were adjusted for non-response at the domain level and were then normalized by a constant factor so that the total weighted number of cases equals the total unweighted number of cases.



# Questionnaires

## Overview

The GMHS used four questionnaires: (1) a Phase I short household questionnaire administered at the time of listing; (2) a Phase II verbal autopsy questionnaire administered in households identified at listing as having experienced the death of a female household member age 12-49; (3) a Phase II long-form household questionnaire administered in independently selected households chosen for the individual woman's interview, and (4) a Phase II questionnaire for individual women age 15-49 in the same phase two selected households. The primary purpose of the short household questionnaire administered at the time of listing during Phase I was to identify deaths to women age 12-49, for administering the verbal autopsy questionnaire on the causes of female deaths, particularly maternal deaths and abortion-related deaths. Unique identifiers for households in phase one and households in phase two were not maintained; therefore households cannot be matched across both phases of the survey.

During the first phase of the survey, all households in each selected cluster were listed and administered the short household questionnaire. This questionnaire was administered to identify households that experienced the death of a female [regular] household member in the five years preceding the survey. The verbal autopsy questionnaire (VAQ) was administered during the second phase of fieldwork in those households in which the female who died was age 12-49. The VAQ was designed to collect as much information as possible on the causes of all female deaths, to inform the subsequent categorization of maternal deaths, and facilitate specific identification of abortion-related deaths. During the second phase of fieldwork, a longer household questionnaire was administered in the independent subsample of households, to identify eligible women age 15-49 for the individual woman's questionnaire and to obtain some background information on the socioeconomic status of these women. The individual questionnaire included the maternal mortality module, which allows for the calculation of direct estimates of pregnancy-related mortality rates and ratios based on the sibling history. The individual questionnaire also gathered information on abortions and miscarriages, the utilization of maternal health services and post-abortion care, women's knowledge of the legality of abortion in Ghana, the services they have utilized for abortion and if not, the reasons they have not been able to access professional health care for abortions, the places that offer abortion-related care, the persons offering such services, and other related questions.

During the design of these questionnaires, input was sought from a variety of organizations that are expected to use the resulting data. After preparation of the questionnaires in English, they were translated into three languages: Akan, Ga, and Ewe. Back translations into English were carried out by people other than the initial translators to verify the accuracy of the translations in the three languages to be used. All problems arising during the translations were resolved before the pretest.

The translated questionnaires were pretested to detect any problems in the translations or the flow of the questionnaire, as well as to gauge the length of time required for interviews. GSS and GHS engaged 20 interviewers for approximately two weeks for the pretest (with proficiency in each of the local languages used in the survey). All the pretest interviewers were trained for two weeks. The pretest interviewing took about one week to complete, during which approximately 30 women were interviewed in each of the local languages. The pretest results were used to modify the survey instruments as necessary. All changes in the questionnaire after the pretest were agreed to by GSS, GHS, and Macro. GSS and GHS were responsible for producing a sufficient number of the various questionnaires for the main fieldwork.

During the pretest and main survey training, experts in the areas of health and family planning were identified by GSS and GHS to provide guidance in the presentation of topics in their fields, as they relate to the GMHS questionnaires.

Other technical documents that were finalized include:

- Household listing manual, listing forms and cartographic materials;
- Interviewer's manual;
- Supervisor's manual;
- Interviewer and Supervisor's assignment sheets.

## Data Collection

### Data Collection Dates

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Start	End	Cycle
2007-10-01	2007-12-31	-

### Data Collection Mode

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Face-to-face [f2f]

### Data Collection Notes

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Ten days training was organized for field staff comprising of 19 supervisor trainees, 58 editor/interviewer trainees for women questionnaires (WQ) and 25 editor/interviewer trainees (nurses) for verbal autopsy questionnaires (VAQ).

The training took place between 16th and 27th September 2007, 15 teams were constituted for data collection. In all 15 teams were formed, 10 for WQ and 5 for VAQ of which a team is made up of a supervisor, an editor and four interviewers. Interviews were conducted in both english and local languages (Akan, Ga & Ewe)

Effective field monitoring was planned and executed.

There was a pre-test of the questionnaire to fine-tune the questionnaires before the main survey.

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- Interviewer and Supervisor's assignment sheets.

## Data Collectors

Name	Abbreviation	Affiliation
Ghana Statistical Service	GSS	Autonomous
Ghana Health Service	GHS	MOH

## Supervision

Quality control was assured through supervision and monitoring of teams during fieldwork. Team supervisors and editors were responsible for the performance of their teams. Work sessions were held frequently within each team (on a daily basis during fieldwork), with the goal of reinforcing the training received and correcting data collection errors. In addition to the internal supervision of each field team (by the team supervisor and editor), the GSS and GHS Field Coordinators maintained close contact with the teams under their responsibility. Several Macro staff also travelled to Ghana over the course of the fieldwork to observe the progress and to monitor the quality of data collection. In addition, a set of field control tables (data quality tables) were run at GSS every two weeks on the questionnaires that had been captured into the computers as of that time. These tables were specially designed to detect systematic errors made by individual interviewers and specific interviewing teams. Data collection errors detected during fieldwork were discussed with the appropriate interviewers and interviewing teams to ensure that the problems did not persist.

# Data Processing

## Data Editing

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Data editing took place at a number of stages throughout the processing, including

- a) office editing and coding
- b) during data entry
- c) structure checking and completeness
- d) secondary editing
- e) structure checking of SPSS data files

Detailed documentation of the editing of the data can be found in the edit guidelines documents provided as an external resource.

The editing guidelines presented in this chapter are concerned only with those checks that must be carried out to verify the internal consistency of responses to questions in the GMMS questionnaires. The specifications do not cover range or skip checks. Most of the simpler consistency checks were handled at the data entry stage. However, the majority of the more complex consistency checks were carried out during a secondary stage of machine editing. Some checks were repeated both in the data entry and editing stages. During data entry these checks were used primarily to look for data entry errors.

The consistency edit guidelines included instructions on the steps to take to resolve inconsistencies detected during the editing process as well as the action to take if the inconsistencies cannot be resolved through an examination of the responses to other pertinent questions. While editing data, the supervisor, the data entry clerk and secondary editor were to REVIEW ALL OF THE PERTINENT QUESTIONS INVOLVED IN A SKIP ERROR OR AN INCONSISTENCY before making a change. Changes were never be made in a rote manner without a thorough review of all relevant responses.

When an error message appears during data entry, the data entry operator checked the question entered and the preceding questions, going back to previous pages and ensuring no data entry error had been made. The operator also went back to the related questions mentioned in the error message, to verify that no typing mistake was made in any question. If no keying error was made, the operator request that the data entry supervisor to resolve the problem.

During the data-editing phase, the process was organized in such a way as to maximize consistency in the correcting process. Care was taken to ensure that all procedures were followed in a standard manner. Each of the editing rules was applied in accordance with the guidelines. All of the computer outputs specifying the errors detected at this stage were retained.

The editing staff made sure that all changes made to the data file on the computer were noted in the questionnaire with a GREEN pen. Use of green pens allowed corrections made by office staff to be distinguished from those made by the interviewers (blue/black pen) and the field editors (red pen). All corrections to the data were noted on the original questionnaire by crossing through the original response with a single line and writing the new response next to it.

The editing phase of the machine processing of the GMMS data began immediately after the verification of the questionnaires has been completed for a particular sample point. The editing process was then be repeated for the sample point until no further errors were detected.

Supervision at this stage ensured that the rules outlined below for correcting inconsistencies are applied uniformly and that errors, which recur across questionnaires were corrected in a standardized manner. Again, the primary rule of data editing whether in the field or office were observed: UNDER NO CIRCUMSTANCES SHOULD AN ANSWER BE MADE UP. Changes were made only if there was evidence supporting a modification to the response. If an inconsistent value could not be corrected and a modification was required, the value was replaced with a code signifying inconsistency (7, 97 or 997). Care was taken not to confuse the 7 codes (used to replace an inconsistent response that cannot be corrected) with the 8 (98 or 998) codes (used by the interviewer to indicate that the respondent answered a question with the statement, "I don't know") or with the 9 (99 or 999) codes (used in cases of skip errors where the respondent was not asked a question or refused to answer a question to which she should have responded).

Finally, the editing phase for the GMMS data necessitated close involvement of the survey coordinator as well as other senior project staff. Resolving inconsistencies in the responses, particularly those involving date and interval information, required a detailed understanding of the nature and overall objectives of the survey questionnaire as well as the interrelationships among specific questions. The data processing staff itself ordinarily will not include personnel with this background or expertise. Consequently, the data editing at this phase were organized so as to encourage close interaction

between the survey's technical staff and the data processing personnel.

## Other Processing

The data were processed on microcomputers using CSPro. Data processing, including training of data entry personnel, began in October 2007 and was completed by the end of January 2008. Additional data entry of the first phase household questionnaires was completed in September 2008. The processing operation consisted of office editing, coding of open-ended questions, data entry, and resolving inconsistencies found by the computer edit programs.

Data were processed in clusters, with each cluster being processed as a complete unit through each stage of data processing. Each cluster goes through the following steps:

- 1) Questionnaire reception
- 2) Office editing and coding
- 3) Data entry
- 4) Structure and completeness checking
- 5) Verification entry
- 6) Comparison of verification data
- 7) Back up of raw data
- 8) Secondary editing
- 9) Edited data back up

After all clusters are processed, all data is concatenated together and then the following steps are completed for all data files:

- 10) Export to SPSS in 4 files (hh - household, wm - women, va - verbal autopsy)
- 11) Recoding of variables needed for analysis
- 12) Adding of sample weights
- 13) Calculation of wealth quintiles and merging into data
- 14) Structural checking of SPSS files
- 15) Data quality tabulations
- 16) Production of analysis tabulations

Details of each of these steps can be found in the data processing documentation, data editing guidelines, data processing programs in CSPro and SPSS, and tabulation guidelines.

Data entry was conducted by 12 data entry operators in tow shifts, supervised by 2 data entry supervisors, using a total of 7 computers (6 data entry computers plus one supervisors' computer). All data entry was conducted at the GenCenStat head office using manual data entry. For data entry, CSPro version 4.0 was used with a highly structured data entry program, using system controlled approach that controlled entry of each variable. All range checks and skips were controlled by the program and operators could not override these. A limited set of consistency checks were also included in the data entry program. Open-ended responses in the verbal autopsy questionnaires were recoded, except in rare circumstances where the response matched an existing code in the questionnaire.

Structure and completeness checking ensured that all questionnaires for the cluster had been entered, were structurally sound, and that women's questionnaires existed for each eligible woman.

100% verification of all variables was performed using independent verification, i.e. double entry of data, with separate comparison of data followed by modification of one or both datasets to correct keying errors by original operators who first keyed the files.

After completion of all processing in CSPro, all individual cluster files were backed up before concatenating data together using the CSPro file concatenate utility.

For tabulation and analysis SPSS versions 11.0 used.

After transferring all files to SPSS, certain variables were recoded for use as background characteristics in the tabulation of the data, including grouping age, education, geographic areas as needed for analysis. In the process of recoding ages and dates some random imputation of dates (within calculated constraints) was performed to handle missing or "don't know" ages or dates.

## Data Appraisal

### **Estimates of Sampling Error**

Sampling errors were computed on specific variables. Please refer to pages 141-156 of the main report attached as external resource.

