Zambia Demographic and Health Survey 2013-14

Preliminary Report

Central Statistical Office
Lusaka, Zambia

Ministry of Health
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Tropical Diseases Research Centre
Ndola, Zambia

University Teaching Hospital Virology Laboratory
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University of Zambia
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The DHS Program, ICF International
Rockville, Maryland, USA

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The 2013-14 Zambia Demographic and Health Survey (2013-14 ZDHS) was implemented by the Central Statistical Office (CSO) in partnership with the Ministry of Health as well as the University Teaching Hospital (UTH)-Virology Laboratory, the Tropical Diseases Research Centre (TDRC) and the Department of Population Studies at the University of Zambia (UNZA) under the overall guidance of the National Steering Committee from August 2013 to April 2014. The government, through the Ministry of Health and the Ministry of Finance, provided funding for the survey. ICF International provided technical assistance as well as funding to the project through The DHS Program, a USAID-funded project providing support and technical assistance in the implementation of population and health surveys in countries worldwide. Additional funding for the ZDHS was provided by the United States Agency for International Development (USAID), the Centers for Disease Control and Prevention (CDC), the United Nations Population Fund (UNFPA), and the United Nations Children's Fund (UNICEF).

Additional information about the 2013-14 ZDHS may be obtained from the Central Statistical Office, P. O. Box 31908, Lusaka, Zambia, Telephone: (260-211) 251377/85; Fax: (260-211) 1253468; E-mail: Info@zamstats.gov.zm; http:www.zamstats gov.zm.

Information about The DHS Program may be obtained from The DHS Program, ICF International, 530 Gaither Road, Suite 500, Rockville, MD, USA; Telephone: 301-407-6500, Fax: 301-407-6501, E-mail: reports@dhsprogram.com, Internet: http://www.dhsprogram.com.

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ACRONYMS

ACT	artemisinin combination therapy
AIDS	acquired immunodeficiency syndrome
ANC	antenatal care
ARI	acute respiratory infection
ASFR	age-specific fertility rate
BCG	bacille Calmette-Guerin
CDC	Centers for Disease Control and Prevention
CSO	Central Statistical Office
CSPro	Census and Survey Processing System
DBS	dry blood spot
EA	enumeration area
GPS	global positioning system
HIV	human immunodeficiency virus
IPTp	intermitted preventive treatment during pregnancy
IRS	indoor residual spraying
ITN	insecticide treated net
IUD	intrauterine device
LAM	lactational amenorrhoea method
LLIN	long-lasting insecticidal net
MoH	Ministry of Health
ORS	oral rehydration salt
ORT	oral rehydration therapy
PAHO	Pan-American Health Organisation
RHF	recommended home fluid
SDM	standard days method
TDRC	Tropical Diseases Research Centre
TFR	total fertility rate
UNDP	United Nations Development Programme
UNFPA	United Nations Population Fund
UNICEF	United Nations Children's Fund
UNZA	University of Zambia
USAID	United States Agency for International Development
UTH	University Teaching Hospital
VCT	voluntary counselling and testing
WHO	World Health Organisation
ZDHS	Zambia Demographic and Health Survey

1. INTRODUCTION

The 2013-14 Zambia Demographic and Health Survey (ZDHS) is the fifth in a series of Demographic and Health Surveys conducted in Zambia. Previous surveys were conducted in 1992, 1996, 2001-02, and 2007. As with previous surveys, the 2013-14 ZDHS was designed to provide data to monitor population and health in Zambia. The ZDHS provides an opportunity to inform policy and provide data for planning, implementation, and monitoring and evaluation of national health programmes. The ZDHS also updates national and international health indicators that Zambia has committed to report on.

The 2013-14 ZDHS was implemented by the Central Statistical Office (CSO) of Zambia in collaboration with the Ministry of Health (MoH), University Teaching Hospital (UTH)-Virology Laboratory, Tropical Diseases Research Centre (TDRC) and the Department of Population Studies at the University of Zambia (UNZA) under the overall guidance of the National Steering Committee. A technical committee provided technical guidance to the survey. The TDRC and UTH Virology Laboratory provided technical support in the implementation of HIV testing. The government through the Ministry of Health and the Ministry of Finance provided funding for the survey. Cooperating partners namely the US Centers for Disease Control and Prevention (CDC), the United Nations Children's Fund (UNICEF), and the United Nations Population Fund (UNFPA) provided additional funds. The USAID-funded Demographic and Health Surveys Program at ICF International provided technical assistance in the areas of survey design, sample design, questionnaire design, interviewer training, fieldwork logistics, blood specimen collection, laboratory testing, data processing, and analysis. The CDC provided technical assistance with protocol development, as well as technical support to TDRC and UTH during laboratory testing.

This preliminary report presents selected key findings of the survey. Although the figures in this preliminary report are not expected to differ much from the findings to be presented in the final report, the results shown here should be considered provisional and interpreted with caution. A comprehensive final survey report will be released in the last quarter of 2014.

The 2013-14 ZDHS is the third survey to measure human immunodeficiency virus (HIV) prevalence in Zambia and the first to measure HIV incidence. The 2013-14 ZDHS also collected information on fertility levels, fertility preferences, awareness and use of family planning methods, child feeding practices, nutritional status of women and children, awareness and attitudes regarding HIV and acquired immunodeficiency syndrome (AIDS), sexual behaviour and condom use, maternal and child health, adult and childhood mortality, and domestic violence. This information is intended to assist policy makers and programme managers in evaluating and designing programmes and strategies for improving health and family planning services in the country.

2. SURVEY IMPLEMENTATION

2.1 Sample Design

The sample for the 2013-14 Zambia DHS was designed to provide estimates at national and provincial levels, as well as rural and urban. This is the first time that the ZDHS has been designed to provide estimates at such low levels. The updated list of enumeration areas (EAs) for the 2010 Census provided the sampling frame for the survey. For each EA, information is available on its location, type of residence (rural or urban), number of households and total population. Each EA has a cartographical map with delimited boundaries and main landmarks of the area.

The survey used a two-stage stratified cluster sample design with EAs (or clusters) selected during the first stage and households selected during the second stage. In the first stage, 722 EAs were selected with

probability proportional to size, 305 in urban areas and 417 in rural areas. Prior to selection, EAs were stratified by province and then into urban and rural. A complete listing of households in each selected cluster, along with a mapping exercise, was conducted from November 2012 to January 2013 by listers and mappers from the CSO Geographic Information Branch. Geographic coordinates were recorded for each sampled cluster by the listing teams using global positioning system (GPS) receivers.

In the second stage, a complete list of households served as the sampling frame for the selection of households for enumeration. An average of 25 households was selected in every EA. During the second stage of selection, a representative sample of 18,052 households was selected.

All women age 15-49 and men age 15-59 who were either permanent residents of the households or visitors present in the households on the night before the survey were eligible to be interviewed using the individual questionnaire. In addition, a sub-sample of one eligible woman in each household was randomly selected to be asked additional questions on domestic violence.

All women and men who were eligible for interviews were asked if they would voluntarily give a finger prick blood sample for the HIV prevalence estimation from dried blood spots (DBS). If they consented to DBS collection, they were also offered home-based counselling and testing for HIV with rapid HIV tests. Venous blood was also collected for CD4 count. The venous blood was processed in the field laboratory and the respondent was given their CD4 count results. Both DBS and venous blood samples were transferred to either UTH or TDRC laboratories for HIV prevalence and incidence testing. Results of HIV testing are not included in this report, but will be reported in the final survey report. Height and weight measurements were taken for all children age 0-59 months and women age 15-49 years who were usual residents or visitors in the household to measure nutritional status.

2.2 QUESTIONNAIRES

Three questionnaires were used: 1) a household questionnaire, 2) an individual questionnaire for women and 3) an individual questionnaire for men. The three instruments were based on the questionnaires developed by the DHS Program and adapted to Zambia's specific data needs. The questionnaires were translated into seven major languages: Bemba, Kaonde, Lozi, Lunda, Luvale, Nyanja, and Tonga. Questionnaires and field procedures were pretested prior to implementation of the main survey.

The Household Questionnaire was used to collect data pertaining to the household such as the following:

- age, sex, marital status, and education of all usual members and visitors
- current school attendance and survivorship of parents among children under age 18
- characteristics of the structural dwelling/housing unit
- water and sanitation
- ownership of durable goods, land, livestock
- ownership and use of mosquito nets

The Household Questionnaire was also used to record biomarker data, including height and weight data of children and women, and HIV and CD4 testing information for women and men. Data on age and sex of household members in the Household Questionnaire was used to identify the women and men who were eligible for the individual interview.

The Woman's Questionnaire was used to collect information from all women age 15-49.

Women were asked questions on the following main topics:

- Background characteristics (age, religion, education, literacy, media exposure, etc.)
- Reproductive history
- Knowledge, source and use of family planning methods
- Fertility preferences
- Maternal health (antenatal, delivery and postnatal care)
- Fistula
- Breastfeeding and infant feeding practices
- Child immunisation and childhood illnesses
- Treatment of malaria
- Child mortality
- Marriage and sexual activity
- Woman's work and husband's background characteristics
- Awareness about AIDS and other sexually transmitted infections (STIs)
- Other health issues (e.g. tuberculosis, injection safety, and smoking)
- Maternal mortality
- Domestic violence

The Man's Questionnaire collected information from all men age 15-59. The data collected was the same as the Woman's Questionnaire except the Man's Questionnaire was shorter because it did not contain a detailed reproductive history and questions on maternal and child health or nutrition.

2.3 FIELD STAFF COMPOSITION, RECRUITMENT AND TRAINING

A total of 306 participants were recruited by MoH and CSO. MoH provided nurses, HIV counsellors and laboratory technicians, while CSO provided non-medical interviewers and data processing staff. The training was conducted over a five-week period, from 22 May to 23 June 2013, by resource persons that included professionals from the University of Zambia (UNZA), CSO, Tropical Diseases Research Centre (TDRC), University Teaching Hospital-Virology Laboratory, MoH, and ICF International. The training comprised instruction on fieldwork procedures and interviewing skills, a thorough discussion of the questionnaires and front-of-class mock interviews. HIV and CD4 testing instructions and practicals on weight and height measurements were also done. Field practice was done in selected clusters outside the main ZDHS sample. Field supervisors and editors had additional training in field work management and coordination, questionnaire editing, and other data quality control measures.

The survey was undertaken by 24 field teams. Each team comprised 10 people: a supervisor, a field editor, three female interviewers, two male interviewers, two HIV counsellors, a field laboratory technician, and a driver.

2.4 FIELDWORK

Community Awareness

A mass media information campaign was conducted to raise people's awareness on the survey. In addition, prior to the start of the survey in each area, the team supervisors met with local administration and community leaders to talk about the survey and specifically about the purpose and procedures for blood collection and anonymity of results. Community awareness continued throughout the data collection period in

a phased approach. Publicity teams went ahead of field teams raising awareness through door-to-door sensitisation using local community health workers. Community radio stations and public address systems were also used.

Data Collection

Data collection was done over an eight-month period from August 2013 to April 2014. Deployment to the first clusters for each team was done under the close supervision of field monitors. Field monitors and coordinators were drawn from UNZA, CSO, TDRC, UTH Virology Laboratory, and MoH. Questionnaires for completed clusters were collected by monitors on a regular basis and returned to the CSO central office in Lusaka for data processing. The corresponding blood samples for the completed clusters were also collected and later dispatched to the respective laboratory (TDRC or UTH) after being logged in at the CSO central office.

2.5 DATA PROCESSING

Data processing consisted of office editing, coding of open-ended questions, data entry, and editing of computer-identified errors. Data processing staff included two data processing supervisors, 24 data entry clerks, five office editors, four secondary editors, one questionnaire administrator and one biomarker administrator.

The processing of the data began concurrently with the fieldwork. This offered an advantage because data was consistently checked and feedback given to field teams, thereby improving data quality. Before being dispatched to the data processing centre in Lusaka, completed questionnaires were edited in the field by the field editors and checked by the supervisors. At the processing centre, data were edited and coded by office editors. Data were then entered using the Census and Survey Processing System (CSPro) computer package. All data were entered twice for 100 percent verification. The double entry of data enabled easy comparison and identification of errors and inconsistencies. Inconsistencies were resolved by tallying with the paper questionnaire entries. Further inconsistencies that were identified were resolved through secondary editing of the data. The data files (excluding the HIV testing data conducted in the laboratories) were finalised in June 2014 after data cleaning.

3. RESULTS OF THE SURVEY

3.1 Response Rates

The household and individual response rates for the 2013-14 ZDHS are shown in Table 1. A total of 18,052 households were selected from 722 clusters, of which 16,258 were occupied at the time of the fieldwork. Of the occupied households, 15,920 were successfully interviewed, yielding a household response rate of 98 percent.

In the interviewed households, a total of 17,064 women age 15-49 were identified as eligible for individual interviews, and 96 percent were successfully interviewed. A total of 16,209 men age 15-59 were identified as eligible for individual interviews, and 91 percent were successfully interviewed. The response rates were slightly lower among individuals in urban areas than in rural areas.

Table 1 Results of the household and individual interviews

Number of households, number of interviews, and response rates, according to residence (unweighted), Zambia, 2013-14

Result	Residence		Total
	Urban	Rural	
Household interviews			
Households selected	7,637	10,415	18,052
Households occupied	7,063	9,195	16,258
Households interviewed	6,957	8,963	15,920
Household response rate[1]	98.5	97.5	97.9
Interviews with women age 15-49			
Number of eligible women	8,212	8,852	17,064
Number of eligible women interviewed	7,871	8,540	16,411
Eligible women response rate[2]	95.8	96.5	96.2
Interviews with men age 15-59			
Number of eligible men	7,660	8,549	16,209
Number of eligible men interviewed	6,828	7,945	14,773
Eligible men response rate[2]	89.1	92.9	91.1

[1] Households interviewed/households occupied
[2] Respondents interviewed/eligible respondents

3.2 CHARACTERISTICS OF RESPONDENTS

The distribution of women and men age 15-49 by background characteristics is shown in Table 2. The table shows a high proportion of people in the younger age group (age 15-19); thereafter the proportions of both women and men declined, reflecting a young age structure of the Zambian population. Among women and men age 15-49, 22 percent of women and 25 percent of men were age 15-19.

About 60 percent of women and 51 percent of men were currently married. More men than women had never been married (44 percent and 28 percent, respectively). The proportions of men who were widowed, divorced/separated were lower than that of women.

Forty-six percent of women and 47 percent of men lived in urban areas. Twenty percent of women and 21 percent of men resided in Lusaka Province, while 17 percent of women and 18 percent of men resided in Copperbelt Province. North Western Province had the lowest percentages at 4 percent for both males and females.

The majority of respondents reported having had some education, 92 percent of women and 96 percent of men. However, the level of educational attainment varied by sex. More men than women had at least some secondary education (57 percent and 45 percent, respectively).

Table 2 Background characteristics of respondents

Percent distribution of women and men age 15-49 by selected background characteristics, Zambia, 2013-14

Background characteristic	Women			Men		
	Weighted percent	Weighted number	Unweighted number	Weighted percent	Weighted number	Unweighted number
Age						
15-19	22.1	3,625	3,686	24.6	3,337	3,344
20-24	18.3	3,006	3,040	17.2	2,335	2,306
25-29	17.1	2,813	2,789	14.3	1,944	1,934
30-34	15.1	2,475	2,435	14.2	1,927	1,894
35-39	12.2	2,009	1,975	12.3	1,664	1,671
40-44	8.9	1,464	1,466	10.2	1,384	1,387
45-49	6.2	1,018	1,020	7.1	970	994
Religion						
Catholic	18.2	2,988	2,895	19.7	2,671	2,650
Protestant	80.4	13,191	13,298	78.2	10,599	10,592
Muslim	0.6	101	79	0.8	105	96
Other	0.6	94	98	1.0	136	137
Missing	0.2	38	41	0.4	50	55
Marital status						
Never married	27.9	4,572	4,753	44.1	5,985	5,908
Married	59.5	9,759	9,552	51.4	6,965	7,020
Living together	0.6	100	97	0.5	70	80
Divorced/separated	8.6	1,406	1,438	3.6	488	476
Widowed	3.5	574	571	0.4	54	46
Residence						
Urban	46.2	7,585	7,871	46.6	6,326	6,337
Rural	53.8	8,826	8,540	53.4	7,235	7,193
Province						
Central	8.9	1,467	1,401	8.5	1,153	1,088
Copperbelt	17.3	2,836	1,770	17.7	2,395	1,488
Eastern	11.8	1,930	2,035	12.6	1,710	1,820
Luapula	7.0	1,143	1,585	6.3	855	1,259
Lusaka	19.9	3,266	1,913	21.0	2,844	1,722
Muchinga	5.3	868	1,455	5.0	680	1,144
Northern	7.3	1,200	1,580	6.9	929	1,301
North Western	4.3	713	1,570	4.1	557	1,234
Southern	12.2	2,007	1,732	13.1	1,771	1,548
Western	6.0	980	1,370	4.9	668	926
Education						
No education	8.4	1,375	1,360	3.7	500	492
Primary	46.8	7,677	7,651	39.5	5,361	5,371
Secondary	39.7	6,517	6,543	48.9	6,633	6,601
More than secondary	5.1	830	847	7.8	1,058	1,058
Missing	0.1	12	10	0.1	9	8
Total 15-49	100.0	16,411	16,411	100.0	13,561	13,530
Men 50-59	na	na	na	na	1,212	1,243
Total 15-59	na	na	na	na	14,773	14,773

Note: Education categories refer to the highest level of education attended, whether or not that level was completed.
na = Not applicable

3.3 FERTILITY

Fertility data were collected in the survey by asking women interviewed for a history of all their live births. The information obtained for each of the women's births included the month and year of each birth. These data were used to calculate two of the most widely used measures of current fertility: the total fertility rate (TFR) and the age-specific fertility rates for the three years preceding the survey. The TFR, which is the sum of the age-specific fertility rates, is interpreted as the number of children the average woman would bear in her lifetime if she experienced the currently observed age-specific fertility rates throughout her reproductive years.

Table 3 shows that the total fertility rate was 5.3. This means that, on average, a Zambian woman who is at the beginning of her childbearing years would give birth to 5.3 children by the end of her reproductive period if fertility levels remained constant at the level observed in the three-year period prior to the survey.

The overall age pattern of fertility as reflected in the age-specific fertility rates (ASFRs) indicates that childbearing begins early. Fertility was low among adolescents (141 births per 1,000 women), peaked at 239 births per 1,000 women among those age 20-24, and decreased thereafter. The TFR in rural areas (6.6 births) was higher than in urban areas (3.7 births). Age-specific fertility rates were higher in rural areas than in urban areas for all age groups (Figure 1).

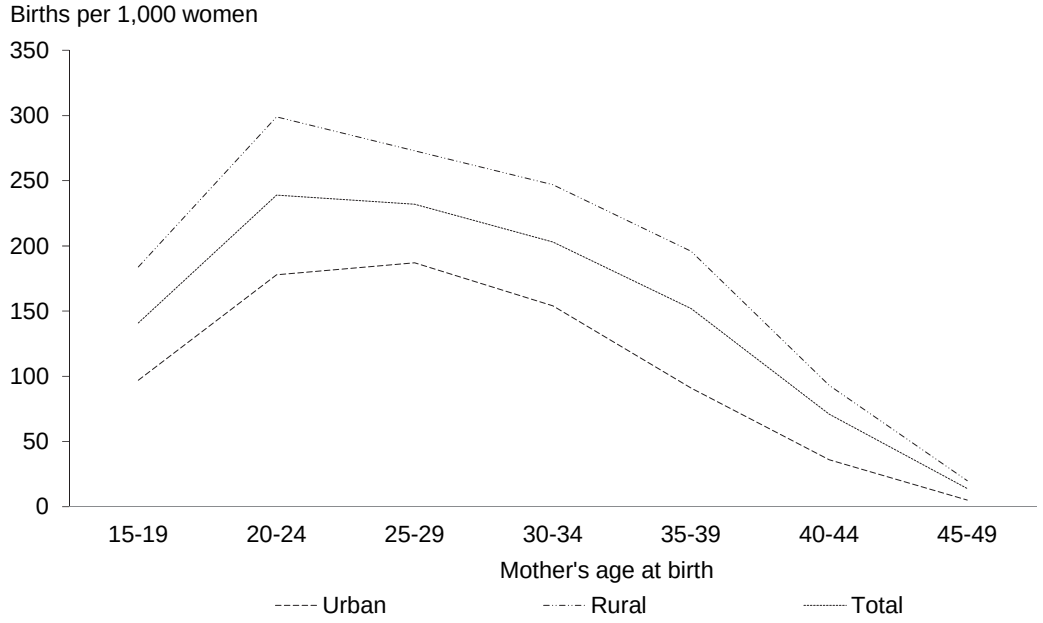
Table 3 Current fertility

Age-Specific Fertility Rates and Total Fertility Rate, General Fertility Rate, and Crude Birth Rate for the three years preceding the survey, by residence, Zambia, 2013-14

	Residence		
Age group	Urban	Rural	Total
15-19	97	184	141
20-24	178	299	239
25-29	187	273	232
30-34	154	247	203
35-39	91	196	152
40-44	36	93	71
45-49	5	20	14
TFR (15-49)	3.7	6.6	5.3
GFR	135	226	184
CBR	32	40	37

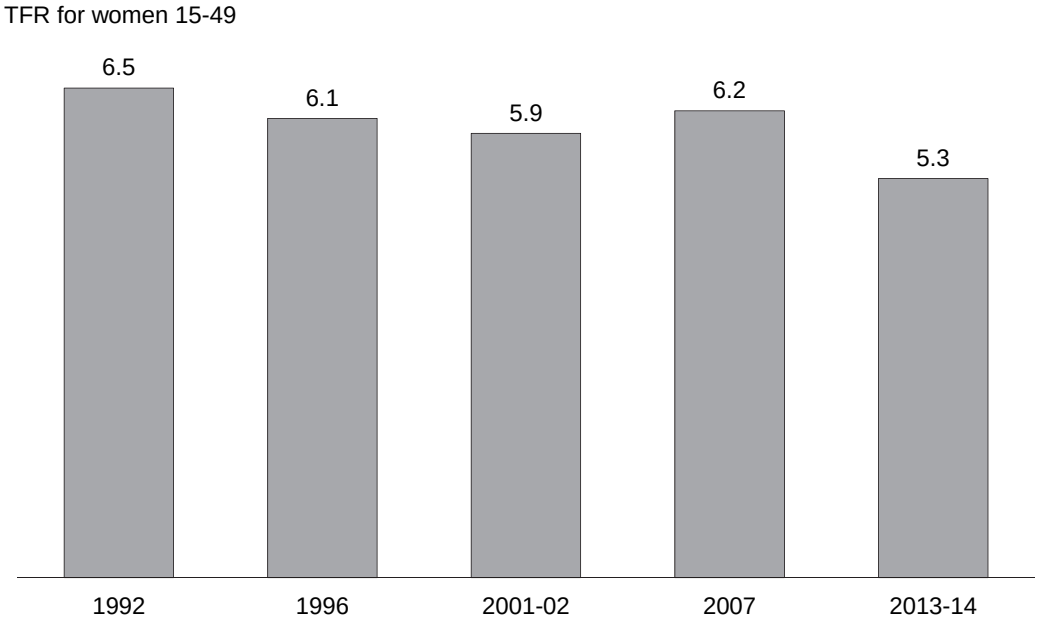
Notes: Age-specific fertility rates are per 1,000 women. Rates for age group 45-49 may be slightly biased due to truncation. Rates are for the period 1-36 months prior to interview.
TFR: total fertility rate expressed per woman
GFR: general fertility rate expressed per 1,000 women age 15-44
CBR: crude birth rate, expressed per 1,000 population

Figure 1 **Age specific fertility rates**



Fertility is gradually declining in Zambia. Figure 2 shows the decrease in the TFR from 6.5 births per woman as estimated in the 1992 ZDHS to 5.3 births per woman in the 2013-14 ZDHS.

Figure 2 **Trends in the total fertility rate, ZDHS 1992-2014**



3.4 FERTILITY PREFERENCES

Information on fertility preferences is used to assess the potential demand for family planning services for the purpose of spacing or limiting childbearing. To obtain information on fertility preferences, several questions were asked of women (pregnant or not) about whether they wanted to have another child and, if so, how soon. Table 4 shows that 14 percent of women age 15-49 wanted to have another child soon (within two years) and 41 percent wanted to have another child later (after two or more years). Thirty-seven percent of women wanted no more children or were sterilised.

Table 4 Fertility preferences by number of living children

Percent distribution of currently married women age 15-49 by desire for children, according to number of living children, Zambia, 2013-14

	Number of living children[1]							
Desire for children	0	1	2	3	4	5	6+	Total
Have another soon[2]	82.3	25.2	17.9	12.4	9.0	6.4	2.6	13.8
Have another later[3]	2.2	63.2	60.9	53.4	40.6	32.3	12.7	41.0
Have another, undecided when	2.2	3.1	1.2	3.0	2.0	1.0	0.6	1.7
Undecided	1.5	2.0	3.3	5.1	6.5	6.8	5.4	4.7
Want no more	2.5	4.4	14.3	23.2	39.6	49.3	72.7	35.0
Sterilised[4]	0.0	0.2	0.9	1.6	2.0	2.7	3.8	1.9
Declare infecund	8.3	1.6	1.3	1.2	0.3	0.8	2.1	1.5
Missing	1.0	0.3	0.3	0.2	0.1	0.6	0.2	0.3
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Number of women	290	1,345	1,734	1,654	1,453	1,184	2,198	9,859

[1] The number of living children includes current pregnancy
[2] Wants next birth within 2 years
[3] Wants to delay next birth for 2 or more years
[4] Includes both female and male sterilisation

Fertility preference is closely related to the number of living children. Eighty-two percent of married women with no living children wanted a child soon compared with three percent of women with six or more children. The more children a woman has, the higher the likelihood that she does not want another child. The proportion of women who either wanted no more children or were sterilised increased with the number of

living children, from 5 percent among women with one child to 25 percent among women with three children and 77 percent among women with six or more children.

3.5 FAMILY PLANNING

Family planning refers to a conscious effort by a couple to limit or space the number of children they want to have through the use of contraceptive methods. Information on knowledge and use of family planning methods was obtained from women by asking them to mention any ways or methods by which a couple could delay or avoid pregnancy. Respondents were asked whether they were using a method at the time of the survey.

Contraceptive methods are classified as either modern or traditional methods. Modern methods include female sterilisation, male sterilisation, the pill, intra-uterine device (IUD), injectables, implants, male condom, female condom, standard days method (SDM), and lactational amenorrhoea method (LAM). Methods such as rhythm (periodic abstinence) and withdrawal are grouped as traditional methods.

Table 5 shows that overall, 49 percent of currently married women age 15-49 in Zambia were using a contraceptive method. Forty-five percent of currently married women were using a modern contraceptive method while four percent were using a traditional method. Of the women using traditional methods, three percent were using the withdrawal method. Of the modern methods, injectables (19 percent), birth-control pills (12 percent), implants (6 percent), and male condoms (4 percent) were the commonly used methods.

Table 5 also shows that the use of contraceptives varies by women's background characteristics. The proportion of currently married women who were currently using any method of contraception increased with age from 38 percent among women age 15-19 to 52 percent among women age 40-44. Of the modern methods, injectables were the most commonly used contraception among women of all ages except those age 45-49, who were more likely to use the pill than other methods. Currently married women in urban areas were more likely to use any modern method of contraception (53 percent) than those in rural areas (39 percent).

Table 5 Current use of contraception by background characteristics

Percent distribution of currently married women age 15-49 by contraceptive method currently used, according to background characteristics, Zambia, 2013-14

Background characteristic	Any method	Any modern method	Modern method: Female sterilisation	Male sterilisation	Pill	IUD	Injectables	Implants	Male condom	Female condom	Standard days	LAM	Other	Any traditional method	Traditional method: Rhythm	Withdrawal	Other	Not currently using	Total	Number of women
Age																				
15-19	37.5	35.8	0.0	0.0	6.4	0.0	20.9	2.6	4.4	0.3	0.0	1.2	0.0	1.7	0.0	1.7	0.0	62.5	100.0	613
20-24	46.8	44.1	0.0	0.0	9.4	0.2	25.3	5.3	2.9	0.0	0.0	1.0	0.0	2.7	0.2	2.2	0.2	53.2	100.0	1,684
25-29	52.5	48.6	0.2	0.0	12.5	1.0	24.1	5.7	3.6	0.0	0.1	1.2	0.1	4.0	0.5	3.4	0.1	47.5	100.0	2,181
30-34	52.5	48.7	0.9	0.1	15.1	1.7	19.8	6.0	4.1	0.0	0.0	0.6	0.2	3.8	0.5	3.1	0.2	47.5	100.0	1,976
35-39	52.0	47.1	2.5	0.0	13.1	2.0	16.4	7.0	5.4	0.2	0.0	0.5	0.0	4.9	0.9	3.5	0.5	48.0	100.0	1,572
40-44	52.0	44.2	6.2	0.0	11.5	1.5	13.2	5.7	4.8	0.2	0.7	0.4	0.0	7.8	1.8	5.0	1.1	48.0	100.0	1,102
45-49	32.9	27.5	7.3	0.2	7.9	1.3	4.3	3.2	3.1	0.1	0.0	0.1	0.0	5.3	1.0	2.5	1.9	67.1	100.0	730
Residence																				
Urban	56.6	53.4	2.2	0.1	15.9	2.0	19.0	7.6	5.3	0.1	0.1	0.8	0.2	3.2	0.8	2.2	0.2	43.4	100.0	3,953
Rural	43.9	39.0	1.6	0.0	9.0	0.6	19.6	4.1	3.1	0.1	0.1	0.8	0.0	5.0	0.5	3.8	0.6	56.1	100.0	5,905
Province																				
Central	42.8	41.3	0.6	0.0	11.0	0.2	23.5	4.4	1.5	0.0	0.0	0.1	0.0	1.5	0.3	0.8	0.5	57.2	100.0	895
Copperbelt	53.5	50.8	2.8	0.3	14.6	1.6	18.3	6.9	5.0	0.0	0.0	1.0	0.3	2.7	0.8	1.9	0.0	46.5	100.0	1,477
Eastern	53.5	49.8	3.3	0.0	9.8	0.8	25.8	3.6	5.3	0.1	0.1	1.1	0.0	3.7	0.1	3.4	0.2	46.5	100.0	1,304
Luapula	34.5	33.1	1.5	0.0	4.9	0.3	19.4	5.1	1.0	0.2	0.3	0.4	0.0	1.4	0.2	0.0	1.2	65.5	100.0	740
Lusaka	57.8	54.7	2.0	0.0	17.1	2.9	17.6	8.3	5.3	0.1	0.3	1.0	0.1	3.1	0.8	1.9	0.3	42.2	100.0	1,780
Muchinga	45.0	34.3	1.2	0.0	7.5	0.5	14.5	6.3	3.9	0.0	0.2	0.1	0.0	10.8	0.9	9.7	0.2	55.0	100.0	575
Northern	48.2	32.5	1.3	0.0	7.1	0.8	13.4	6.9	3.1	0.0	0.0	0.0	0.0	15.7	0.3	13.9	1.5	51.8	100.0	820
North Western	40.1	36.7	4.1	0.0	4.7	0.1	20.9	3.7	2.3	0.0	0.2	0.8	0.0	3.4	0.9	2.0	0.6	59.9	100.0	407
Southern	51.2	48.2	0.7	0.0	15.4	1.2	20.3	3.9	4.7	0.2	0.0	1.7	0.0	3.0	1.6	1.1	0.3	48.8	100.0	1,351
Western	33.1	31.7	0.9	0.1	9.3	0.2	16.0	2.1	3.1	0.0	0.0	0.0	0.0	1.4	0.1	1.0	0.4	66.9	100.0	511
Education																				
No education	37.4	32.6	2.3	0.0	9.4	0.1	14.1	3.1	2.5	0.1	0.1	0.9	0.0	4.9	0.3	3.7	0.9	62.6	100.0	1,081
Primary	46.7	41.8	1.8	0.0	10.1	1.2	19.3	5.2	3.6	0.1	0.1	0.6	0.0	4.8	0.7	3.6	0.5	53.3	100.0	5,417
Secondary	55.6	52.8	1.5	0.1	14.8	1.5	22.2	7.1	3.9	0.1	0.2	1.2	0.2	2.8	0.5	2.1	0.2	44.4	100.0	2,903
More than secondary	63.4	58.1	4.6	0.4	17.9	2.2	14.4	5.0	12.6	0.0	0.6	0.4	0.0	5.3	2.4	2.9	0.0	36.6	100.0	451
Number of living children																				
0	3.8	3.8	0.0	0.0	0.4	0.0	0.8	0.2	2.1	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	96.2	100.0	487
1-2	48.3	45.3	0.5	0.0	11.3	0.5	22.7	4.3	4.9	0.0	0.2	0.9	0.0	3.0	0.6	2.2	0.2	51.7	100.0	3,090
3-4	54.0	49.9	1.7	0.1	14.5	1.5	20.8	5.6	4.5	0.0	0.1	0.9	0.2	4.1	0.6	3.3	0.2	46.0	100.0	3,051
5+	51.8	45.5	3.6	0.0	11.3	1.7	17.6	7.4	3.1	0.2	0.1	0.6	0.0	6.3	0.9	4.4	1.0	48.2	100.0	3,231
Total	49.0	44.8	1.9	0.0	11.8	1.2	19.3	5.5	4.0	0.1	0.1	0.8	0.1	4.3	0.7	3.2	0.4	51.0	100.0	9,859

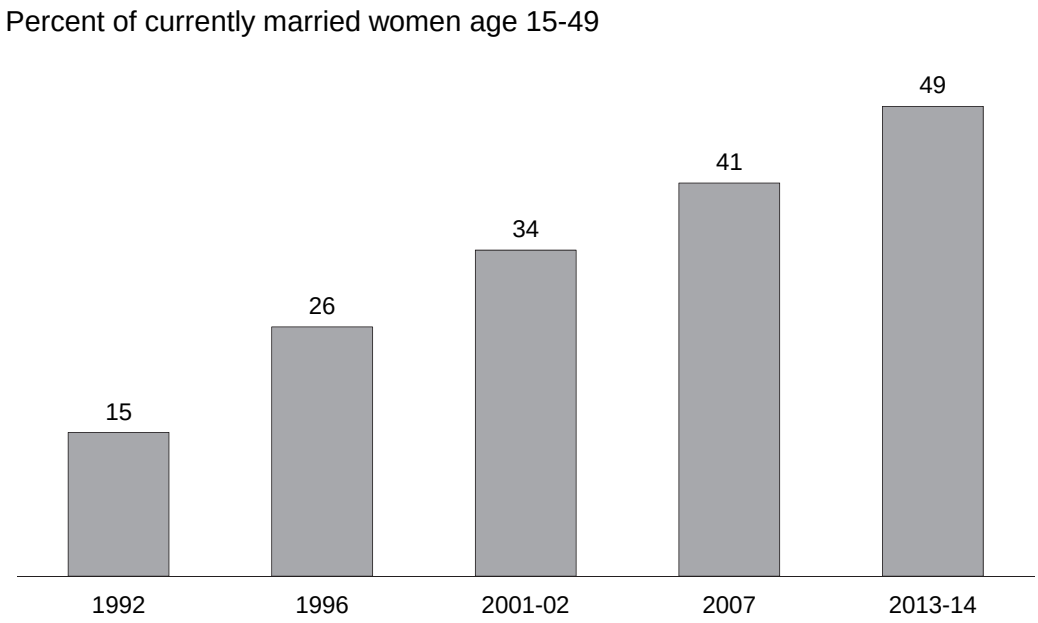
Note: Total includes 7 women with information missing for education who are not shown separately. If more than one method is used, only the most effective method is considered in this tabulation.
LAM = lactational amenorrhoea method

Contraceptive use among currently married women was highest in Lusaka Province (58 percent), followed by Copperbelt and Eastern provinces (54 percent each). Contraceptive use was lowest in Western Province (33 percent). Traditional method use was higher in Northern (16 percent) and Muchinga (11 percent) provinces.

The use of contraception rises with the educational attainment of women. The table shows that 37 percent of women with no education used a method of contraception compared with 47 percent with primary education, 56 percent with secondary education, and 63 percent with more than secondary education. In general, currently married women do not begin to use contraception until they have had at least one child. Four percent of currently married women who had no children were using family-planning methods compared with 48 percent of currently married women with one to two children. Contraceptive use was highest at 54 percent among women with three to four children followed by 52 percent among those with five or more children.

Figure 3 shows trends in contraceptive prevalence rates from 1992 to 2014. Contraceptive use among currently married women has steadily increased in Zambia over the past two decades. The contraceptive prevalence rate has increased from 15 percent in the 1992 to 49 percent in the 2014.

Figure 3 **Trends in the contraceptive prevalence rate, ZDHS 1992-2014**



3.6 INFANT AND CHILD MORTALITY

Infant and child mortality rates are some of the basic indicators of a country's socioeconomic situation and quality of life (UNDP, 2007). Estimates of childhood mortality are based on information collected in the birth history section of the questionnaire administered to individual women. The section begins with questions on overall childbearing experience of respondents (i.e., the number of sons and daughters who live with their mother, the number who live elsewhere, and the number who have died), followed by data on the date of birth, survival status, and current age or age at death for each live birth. Table 6 presents estimates for three successive five-year periods prior to the 2013-14 ZDHS. The rates are estimated directly from the birth history information. This information is used to derive direct estimates of the following five mortality rates:

Neonatal mortality: the probability of dying within the first month of life

Post-neonatal mortality: the difference between infant and neonatal mortality

Infant mortality: the probability of dying before the first birthday

Child mortality: the probability of dying between the first and fifth birthday

Under-five mortality: the probability of dying between birth and the fifth birthday

All rates are expressed per 1,000 live births, except for child mortality, which is expressed per 1,000 children surviving to 12 months of age. Table 6 presents infant and under-5 mortality estimates based on the data from the 2013-14 ZDHS for the five years immediately preceding the survey (calendar years 2009-2013). The under-five mortality rate was 75 deaths per 1,000 live births during the five-year period before the survey. The infant mortality rate was 45 deaths per 1,000 live births.

Table 6 Early childhood mortality rates

Neonatal, postneonatal, infant, child, and under-five mortality rates for five-year periods preceding the survey, Zambia 2013-14

Years preceding the survey	Approximate time period of estimated rated	Neonatal mortality (NN)	Post-neonatal mortality (PNN)[1]	Infant mortality (1q0)	Child mortality (4q1)	Under-five mortality (5q0)
0-4	2009-2013	24	20	45	31	75
5-9	2004-2008	26	26	52	37	88
10-14	1999-2003	29	47	76	57	128

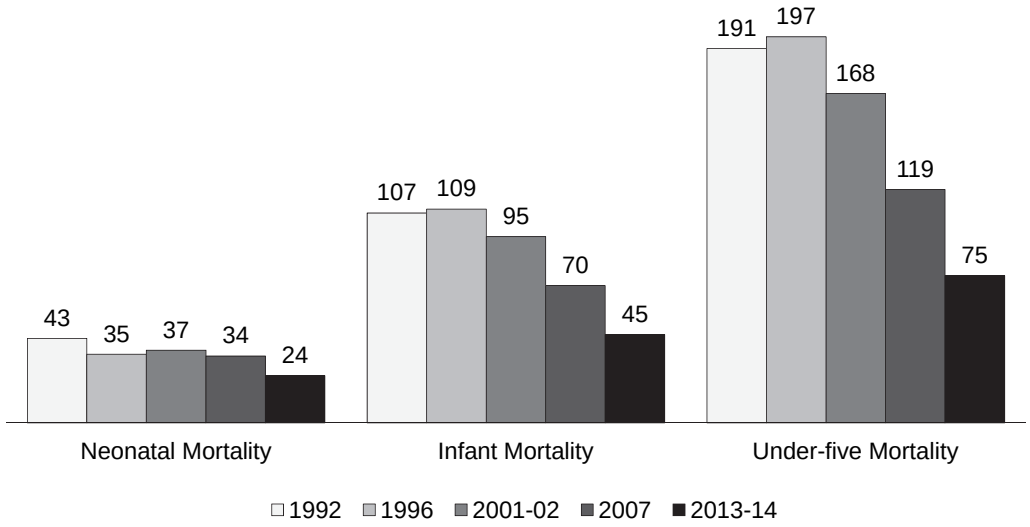
[1] Computed as the difference between the infant and neonatal mortality rates

Data from the 2013-14 ZDHS indicate a decline in childhood mortality. Infant mortality declined from 76 deaths per 1,000 live births during the period 10-14 years preceding the survey to 52 deaths in the 5-9 year period preceding the survey and to 45 deaths in the most recent five-year period.

Figure 4 shows trends in childhood mortality data from the 1992 to the 2013-14 ZDHS. The figure indicates that there has been a decline in mortality in all categories since the 1996 survey. The under-five mortality rate decreased from 197 deaths per 1,000 live births in 1996 ZDHS to 75 deaths per 1,000 live births in the 2013-14 ZDHS. The estimated infant mortality rate for the five years preceding the 1996 ZDHS was 109 deaths per 1,000 live births, which decreased to 70 deaths per 1,000 live births in the 2007 ZDHS and further to 45 deaths per 1,000 live births in the 2013-14 ZDHS.

Figure 4 **Trends in childhood mortality, ZDHS 1992-2014**

Deaths per 1,000 live births for the 5-year period before the survey



3.7 MATERNAL HEALTH

Proper care during pregnancy and delivery is important for the health of both the mother and the baby. In the 2013-14 ZDHS, women who gave birth in the five years preceding the survey were asked a number of questions about maternal and child health care. For the last live birth in that period, mothers were asked whether they had obtained antenatal care during the pregnancy and whether they had received tetanus toxoid injections while pregnant. For each birth in the same period, mothers were also asked what type of assistance they received at the time of delivery. Table 7 presents the results of key maternal health indicators.

Antenatal Care

Antenatal care (ANC) from a trained provider is important in order to monitor the pregnancy and reduce morbidity and mortality risks for the mother and child during pregnancy and delivery. Ninety-six percent reported consulting a skilled health provider (doctor, clinical officer, nurse, or midwife) at least once for antenatal care for the most recent birth in the five-year period before the survey. Coverage is higher in urban areas (99 percent) than rural areas (94 percent). At the provincial level, the proportion of mothers reporting that they received antenatal care from a skilled provider was highest in Lusaka at 99 percent, followed by Copperbelt (97 percent). Western Province had the lowest proportion at 90 percent. Antenatal care utilisation was highest among women with more than secondary education (99 percent) and lowest among women with no education (91 percent).

Tetanus Toxoid

Tetanus toxoid injections are given during pregnancy to prevent neonatal tetanus, which continues to be one of the causes of infant deaths. Table 7 indicates that tetanus toxoid coverage is not yet universal among pregnant women in Zambia, with 82 percent of the last births in the five years preceding the survey being protected against neonatal tetanus.

Children whose mothers were age 20-49 were more likely to be protected against neonatal tetanus (84 percent) than children of younger women (71 percent). Children born to mothers in urban areas were more

likely to be protected against neonatal tetanus (86 percent) than children born to mothers living in rural areas (79 percent). Copperbelt Province had the highest number of children protected against neonatal tetanus at 89 percent, while Luapula had the lowest at 67 percent.

Delivery Care

Proper medical attention and hygienic conditions during delivery can reduce the risk of complications and infections that could cause the death or serious illness of the mother and/or the infant (Van Lerberghe and De Brouwere, 2001; WHO, 2006). Table 7 shows that 64 percent of births in Zambia were delivered by a skilled health provider. The proportion of deliveries that took place in health facilities was 67 percent.

Younger women were more likely to be assisted by a skilled provider during delivery (70 percent). More women in urban areas (89 percent) reported being assisted by a skilled provider during delivery than women in rural areas (52 percent). The percentage of women assisted by a skilled provider was highest in Lusaka Province (89 percent) and lowest in Northern (45 percent). Assistance by a skilled provider during delivery was highest among women with more than secondary education (96 percent) and lowest among women with no education (46 percent). Younger women were more likely to deliver in a health facility (74 percent). Women in urban areas (89 percent) were more likely to deliver in a health facility than women in rural areas (56 percent). The percentage of women who delivered in a health facility was highest in Lusaka Province (90 percent) and lowest in Central and Northern provinces at 48 percent each. Delivery in a health facility was highest among women with more than secondary education (97 percent) and lowest among women with no education (51 percent).

Table 7 Maternal care indicators

Among women age 15-49 who had a live birth in the five years preceding the survey, percentage who received antenatal care from a skilled provider for the last live birth and percentage whose last live birth was protected against neonatal tetanus, and among all live births in the five years before the survey, percentage delivered by a skilled provider and percentage delivered in a health facility, by background characteristics, Zambia, 2013-14

Background characteristic	Percentage with antenatal care from a skilled provider[1]	Percentage whose last live birth was protected against neonatal tetanus[2]	Number of women	Percentage delivered by a skilled provider[1]	Percentage delivered in a health facility	Number of births
Mother's age at birth						
<20	95.1	70.8	1,600	70.1	73.5	2,480
20-34	96.3	84.2	6,186	64.6	67.7	8,997
35+	94.3	84.2	1,538	54.8	58.5	1,906
Residence						
Urban	98.6	86.1	3,528	88.5	88.9	4,574
Rural	94.0	79.3	5,796	51.6	56.3	8,809
Province						
Central	95.6	84.3	875	45.7	47.9	1,308
Copperbelt	97.1	89.2	1,305	81.0	82.5	1,732
Eastern	95.5	82.2	1,188	65.0	70.7	1,737
Luapula	94.6	66.5	765	59.4	68.4	1,189
Lusaka	99.4	83.2	1,522	88.9	89.9	1,961
Muchinga	94.4	84.4	544	56.7	60.8	815
Northern	92.7	81.5	803	45.3	48.0	1,270
North Western	95.9	85.8	443	70.3	74.7	670
Southern	96.3	76.9	1,263	55.0	55.9	1,842
Western	90.0	84.4	616	57.2	61.7	859
Mother's education						
No education	90.9	77.0	961	46.2	50.7	1,482
Primary	95.4	80.2	4,989	56.8	60.3	7,511
Secondary	97.5	85.1	2,996	81.7	84.1	3,907
More than secondary	99.3	92.1	368	95.6	96.5	470
Total	95.7	81.9	9,324	64.2	67.4	13,383

Note: Total includes 10 women and 12 births with information missing for mother's education who are not shown separately.
[1] Skilled provider includes doctor, clinical officer, nurse, or midwife
[2] Includes mothers with two injections during the pregnancy of her last live birth, two or more injections (the last within 3 years of the last live birth), three or more injections (the last within 5 years of the last live birth), four or more injections (the last within ten years of the last live birth), or five or more injections at any time prior to the last live birth

3.8 CHILD HEALTH AND NUTRITION

Vaccination of Children

According to WHO, a child is considered fully vaccinated if he or she has received a bacille Calmette-Guerin (BCG) vaccination against tuberculosis; three doses of vaccine to prevent diphtheria, pertussis, and tetanus (DPT); at least three doses of polio vaccine; and one dose of measles vaccine. These vaccinations should be received during the first year of life. The 2013-14 ZDHS collected information on the coverage for these vaccinations among all children born in the five years preceding the survey.

The information on vaccination coverage was obtained in two ways—from under-five cards and from mothers' verbal reports. All mothers were asked to show the interviewer the under-five card used to record the child's vaccinations. If the card was available, the interviewer copied the dates of each vaccination received. If a vaccination was not recorded on the card as being given, the mother was asked to recall whether that particular vaccination had been given. If the mother was not able to present a card for a child at all, she was asked to recall whether the child had received BCG, polio, DPT-HepB-Hib, and measles vaccinations. If she indicated that the child had received the polio or DPT-HepB-Hib, she was asked the number of doses that the child received.

Table 8 presents information on vaccination coverage for children age 12-23 months. The results are based both on the under-five card record and information provided by the mother. The table shows that under-five cards were available for 80 percent of the children. Overall, 68 percent of children age 12-23 months were fully vaccinated with BCG, measles, and three doses each of DPT-HepB-Hib and polio vaccines. Coverage for specific vaccines shows that 95 percent of children received the BCG vaccination, 96 percent the first DPT-HepB-Hib dose, and 96 percent Polio 1.

Coverage decreased for subsequent doses, with 86 percent of children receiving the recommended three doses of DPT-HepB-Hib and 78 percent receiving all three doses of polio vaccine. Eighty-five percent of children received the measles vaccine. Only two percent of children received no vaccinations at all.

Table 8 shows that the proportion of children who were fully vaccinated was lower in rural areas (65 percent) than in urban areas (76 percent). At the provincial level, the proportion of children who were fully vaccinated was highest in Copperbelt Province at 81 percent and lowest in Luapula Province at 60 percent. The percentage of children who did not receive any vaccinations was highest in Central Province (8 percent), followed by Western Province (4 percent). Children whose mothers had no education had the lowest percentage of full vaccinations at 52 percent while children whose mothers had more than secondary education had the highest at 81 percent.

Table 8 Vaccinations by background characteristics

Percentage of children age 12-23 months who received specific vaccines at any time before the survey by source of information (under-five card or the mother's report), and percentage with an under-five card, by background characteristics, Zambia, 2013-14

Background characteristic	BCG	DPT- HepB- Hib 1	DPT- HepB- Hib 2	DPT- HepB- Hib 3	Polio 0[1]	Polio 1	Polio 2	Polio 3	Polio 4	Measles	All basic vaccina-tions[2]	No vac-cinations	Percent-age with a vaccination card	Number of children
Sex														
Male	95.0	95.8	93.5	86.4	49.9	96.6	91.6	78.9	25.9	84.4	68.9	2.4	80.2	1,290
Female	94.7	96.1	92.8	85.3	50.1	96.0	91.3	76.2	21.7	85.5	67.7	2.2	80.5	1,286
Residence														
Urban	97.2	98.1	97.0	92.4	73.4	97.8	95.0	83.1	15.0	89.3	75.9	1.5	76.6	852
Rural	93.7	94.9	91.3	82.6	38.4	95.6	89.7	74.8	28.1	82.8	64.5	2.7	82.2	1,723
Province														
Central	89.2	90.8	88.8	82.7	37.9	91.9	87.5	73.5	19.5	80.6	66.3	7.6	77.1	246
Copperbelt	97.8	98.7	97.8	94.4	71.5	98.2	95.2	85.9	14.5	91.2	81.1	1.0	74.3	328
Eastern	97.6	96.5	94.8	87.8	42.2	97.9	92.6	73.4	23.2	86.4	63.6	1.3	84.4	322
Luapula	92.9	95.5	91.1	79.2	51.4	96.4	91.1	75.9	38.5	78.0	59.5	0.8	82.0	239
Lusaka	97.3	97.8	96.7	91.0	75.1	97.3	94.7	79.7	12.0	87.6	72.1	1.7	79.0	370
Muchinga	95.5	95.0	91.4	79.4	34.8	96.4	90.3	72.1	19.8	83.2	60.8	1.5	76.8	158
Northern	94.6	97.2	92.5	86.6	27.4	98.3	92.5	81.3	29.5	87.7	72.2	1.5	81.9	241
North Western	97.1	96.1	92.5	82.8	45.6	96.4	90.2	77.6	21.0	84.5	62.8	0.8	81.8	132
Southern	92.2	95.8	91.2	83.3	45.8	94.7	88.7	77.4	37.9	86.0	69.0	3.1	84.8	361
Western	93.5	93.0	90.0	81.2	42.7	94.3	87.8	73.0	22.3	76.1	63.5	3.9	80.2	178
Mother's education														
No education	88.1	88.9	85.5	75.3	38.3	91.9	83.1	65.4	21.0	75.6	51.6	5.6	77.7	283
Primary	94.6	96.2	92.9	84.3	44.5	96.3	91.5	76.5	25.5	83.7	66.7	2.1	80.4	1,419
Secondary	97.3	97.7	96.1	91.1	61.3	97.7	94.1	82.9	22.1	89.7	75.8	1.6	81.2	769
More than secondary	98.1	98.1	97.3	96.4	73.9	97.3	94.8	85.9	20.9	91.5	80.9	1.9	80.7	104
Total	94.9	95.9	93.2	85.8	50.0	96.3	91.5	77.6	23.8	84.9	68.3	2.3	80.4	2,575

Note: Total includes 2 children with information missing for mother's education who are not shown separately.
[1] Polio 0 is the polio vaccination given at birth.
[2] BCG, measles, and three doses each of DPT-HepB-Hib and polio vaccine, excluding polio vaccine given at birth and polio 4

The percentage of children in Zambia who are fully vaccinated has not changed since the 2007 ZDHS. There is no apparent trend in vaccination coverage across the five ZDHS surveys (Table 9). The coverage of DPT (or DPT-HepB-Hib) 3 and measles vaccinations has increased since the 1992 ZDHS, but the coverage of complete vaccination has remained almost the same.

Table 9 Trends in vaccination coverage among children 12-23 months, 1992-2014

	Vaccination Type					
Year	BCG	DPT/DPT-HepB-Hib (third dose)	Polio (third dose)	Measles	All basic vaccinations	None
1992	95	77	76	77	67	4
1996	97	86	84	87	78	2
2001-02	94	80	80	84	70	3
2007	92	80	77	85	68	6
2013-14	95	86	78	85	68	2

Treatment of Childhood Illnesses

Acute respiratory infection (ARI), fever, and dehydration caused by severe diarrhoea are major causes of childhood mortality in developing countries (WHO, 2003). Early diagnosis and treatment of the symptoms of these illnesses is, therefore, crucial in reducing childhood deaths. To obtain information on how childhood illnesses are treated, the mothers of children under age 5 were asked whether the child had experienced the following symptoms in the two weeks preceding the survey: cough with short, rapid breathing (symptoms of an acute respiratory infection); fever; and diarrhoea.

Overall, 4 percent of children under five had symptoms of ARI in the two weeks preceding the survey, 21 percent had fever, and 16 percent had diarrhoea (Figure 5).

Figure 5 **Prevalence of symptoms of acute respiratory infection, fever, and diarrhoea**

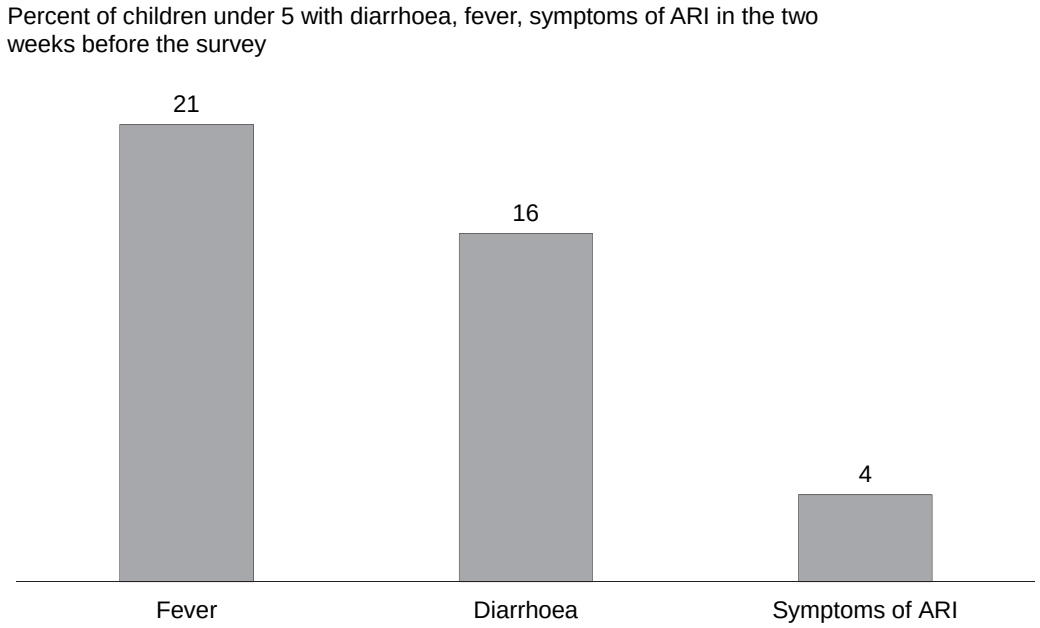


Table 10 shows that treatment from a health facility or provider was sought for 68 percent of the children with ARI symptoms and 70 percent of the children with fever symptoms. A higher percentage of male children with symptoms of ARI were taken to a health facility for treatment (71 percent) than female children

(66 percent). Treatment for symptoms of ARI and fever was higher in urban areas (78 percent and 77 percent, respectively) than rural areas (64 percent and 67 percent, respectively). Treatment for fever increased with higher levels of mother's education, from 63 percent among children whose mothers had no education to 81 percent among children whose mother had more than a secondary education.

Table 10 also shows information on treatment of diarrhoeal illness. Sixty-five percent of children who had diarrhoea were taken for treatment to a health facility or health provider. By province, the percentage of children with diarrhoea who were taken for treatment ranged from 56 percent in Muchinga to 72 percent in Eastern.

Table 10 Treatment for acute respiratory infection, fever, and diarrhoea

Among children under five years who had symptoms of acute respiratory infection (ARI) or were sick with fever in the two weeks preceding the survey, percentage for whom treatment was sought from a health facility or provider and among children under five years who were sick with diarrhoea during the two weeks preceding the survey, percentage for whom treatment was sought from a health facility or provider, percentage given a solution made from oral rehydration salt (ORS) packets or given prepackaged ORS liquids, and percentage given any oral rehydration therapy (ORT), by background characteristics, Zambia, 2013-14

	Children with symptoms of ARI[1]		Children with fever		Children with diarrhoea			
Background characteristic	Percent- age for whom treatment was sought from a health facility/ provider[2]	Number with symptoms of ARI	Percent- age for whom treatment was sought from a health facility/ provider[2]	Number with fever	Percent- age for whom treatment was sought from a health facility/ provider[2]	Percent- age given solution from ORS packet	Percent- age given any ORT[3]	Number with diarrhoea
Age in months								
<6	(52.9)	28	70.8	151	56.9	47.6	52.7	75
6-11	75.9	65	74.1	322	67.1	68.4	72.2	354
12-23	68.0	125	72.9	699	70.7	70.9	75.2	711
24-35	74.5	97	71.2	599	63.0	57.9	67.5	442
36-47	66.8	78	66.9	487	53.6	58.9	65.3	279
48-59	61.3	75	64.1	397	61.0	59.0	65.9	169
Sex								
Male	71.1	231	70.7	1,307	64.4	64.2	69.9	1,058
Female	65.5	238	69.6	1,348	65.1	64.1	70.1	972
Residence								
Urban	78.1	136	76.5	802	64.1	67.7	73.2	772
Rural	64.2	333	67.4	1,853	65.1	61.9	68.1	1,258
Province								
Central	(60.0)	38	62.0	230	58.0	58.8	65.3	166
Copperbelt	72.4	78	76.6	319	57.1	62.6	71.3	328
Eastern	74.9	78	70.5	362	71.8	65.6	69.2	241
Luapula	(57.4)	27	76.5	257	70.7	72.5	78.7	163
Lusaka	*	43	76.5	283	66.0	73.8	78.6	287
Muchinga	61.9	32	63.6	175	56.4	51.4	60.0	129
Northern	58.4	55	67.2	312	63.5	53.6	60.1	191
North Western	(65.8)	15	69.1	149	66.4	65.7	67.3	97
Southern	69.1	71	69.5	371	70.7	64.7	71.0	315
Western	(69.9)	31	63.3	195	63.3	65.8	68.9	113
Mother's education								
No education	69.4	56	63.3	335	58.9	47.9	55.3	223
Primary	63.0	260	68.8	1,499	66.0	65.4	71.4	1,116
Secondary	75.5	144	74.8	747	64.9	67.2	72.6	629
More than secondary	*	8	81.2	71	62.0	69.8	74.1	61
Total	68.3	469	70.1	2,655	64.7	64.1	70.0	2,030

Notes: Total includes 3 children with fever and 2 children with diarrhoea with information missing for mother's education who are not shown separately. Figures in parentheses are based on 25-49 unweighted cases. An asterisk indicates that a figure is based on fewer than 25 unweighted cases and has been suppressed.

[1] Symptoms of ARI (cough accompanied by short, rapid breathing which was chest-related and/or by difficult breathing which was chest-related) are considered a proxy for pneumonia.

[2] Excludes pharmacy, shop, and traditional practitioner

[3] ORT includes fluid prepared from oral rehydration salt (ORS) packets and recommended home fluid (RHF).

Oral rehydration therapy (ORT), which involves increasing the intake of fluids in children, includes oral rehydration salts (ORS) from packets and/or a recommended home fluid (RHF). This is a simple and effective response to diarrhoeal illness. Mothers reported that 70 percent of the children with diarrhoea were treated with oral rehydration therapy (ORT), and 64 percent were given a solution prepared using a packet of ORS. The use of ORT to treat diarrhoea was least common among children under age 6 months at 53 percent and those whose mothers had no education at 55 percent.

Breastfeeding and Supplementation

Breastfeeding practices and introduction of complementary foods are important determinants of the nutritional status of children, particularly those under age 2. With improved nutritional status, the risk of mortality for children under age 5 can be reduced and their psychomotor development enhanced. Breast milk is uncontaminated and contains all the nutrients needed by children in the first six months of life. Supplementing breast milk before age 6 months is unnecessary and discouraged because of the likelihood of contamination, which may result in the risk of diarrhoeal diseases. After age 6 months, breast milk should be complemented by other solid or mushy food to provide adequate nutrition for the child (PAHO, 2002).

The 2013-14 ZDHS collected information on infant feeding for the youngest child under age 2 who was living with the mother, using a 24-hour recall period. Table 11 shows that after the first 6 months, the percentage of children breastfed decreased steadily with age. Ninety-nine percent of children age 0-5 months were breastfed, compared with 96 percent of children age 9-11 months and 51 percent of children age 18-23 months.

The recommendation to exclusively breastfeed children for the first six months of life was met for 73 percent of children. The results also indicate that complementary foods are often introduced early in Zambia, with 17 percent of children under age 6 months and 39 percent of children age 4-5 months consuming solid or semi-solid foods in addition to breast milk.

Bottle feeding, which is not recommended, was used by 6 percent of children age 12-17 months.

Nutritional Status of Children

The 2013-14 ZDHS included anthropometry, in which all children under age six and all women age 15-49 in the household had weight and height measurements taken. The anthropometric measurements of children in the survey population were compared with the World Health Organization (WHO) Child Growth Standards, which are based on an international sample (from Brazil, Ghana, India, Norway, Oman, and the United States) of ethnically, culturally, and genetically diverse healthy children living under optimum conditions conducive to achieving a child's full genetic growth potential (WHO Multicentre Growth Reference Study Group, 2006). The WHO Child Growth Standards identify the breastfed child as the normative model for growth and development, and document how children should grow under optimum conditions, infant feeding, and child health practices.

Table 11 Breastfeeding status by age

Percent distribution of youngest children under two years who are living with their mother, by breastfeeding status and the percentage currently breastfeeding; and the percentage of all children under two years using a bottle with a nipple, according to age in months, Zambia, 2013-14

	Percent distribution of youngest children under two living with their mother by breastfeeding status										
Age in months	Not breastfeeding	Exclusively breastfed	Breastfeeding and consuming plain water only	Breastfeeding and consuming non-milk liquids[1]	Breastfeeding and consuming other milk	Breastfeeding and comple-mentary foods	Total	Percentage currently breast-feeding	Number of youngest children under two years	Percentage using a bottle with a nipple	Number of all children under two years
0-1	1.2	94.3	3.0	0.4	0.6	0.5	100.0	98.8	307	1.1	310
2-3	1.2	85.1	4.5	0.8	1.5	7.0	100.0	98.8	434	3.7	442
4-5	1.6	45.2	10.5	2.5	0.8	39.3	100.0	98.4	444	6.8	453
6-8	2.6	6.5	7.3	2.2	1.0	80.4	100.0	97.4	624	6.1	631
9-11	4.3	0.7	2.1	1.0	0.4	91.6	100.0	95.7	626	5.9	643
12-17	10.3	0.6	2.1	0.6	0.3	86.0	100.0	89.7	1,299	6.1	1,336
18-23	48.6	0.2	0.9	0.3	0.0	50.0	100.0	51.4	1,153	3.1	1,240
0-3	1.2	88.9	3.9	0.7	1.1	4.3	100.0	98.8	741	2.7	752
0-5	1.3	72.5	6.4	1.3	1.0	17.4	100.0	98.7	1,185	4.2	1,204
6-9	3.3	5.2	5.8	2.0	0.8	82.9	100.0	96.7	814	6.2	826
12-15	8.0	0.8	2.2	0.8	0.4	87.8	100.0	92.0	879	7.0	898
12-23	28.3	0.4	1.5	0.5	0.2	69.0	100.0	71.7	2,453	4.7	2,575
20-23	58.2	0.1	0.5	0.2	0.0	41.0	100.0	41.8	743	2.9	814

Note: Breastfeeding status refers to a "24-hour" period (yesterday and last night). Children who are classified as breastfeeding and consuming plain water only consumed no liquid or solid supplements. The categories of not breastfeeding, exclusively breastfed, breastfeeding and consuming plain water, breastfeeding and consuming non-milk liquids/juice, breastfeeding and consuming other milk, and breastfeeding and consuming complementary foods (solids and semi-solids) are hierarchical and mutually exclusive, and their percentages add to 100 percent. Thus children who receive breast milk and non-milk liquids and who do not receive other milk and who do not receive complementary foods are classified in the non-milk liquid category even though they may also get plain water. Any children who get complementary food are classified in that category as long as they are breastfeeding as well.

[1] Non-milk liquids include juice, juice drinks, clear broth, and other liquids.

The use of the WHO Child Growth Standards is based on the findings that well-nourished children of all population groups for which data exist follow similar growth patterns before puberty. The internationally based standard population serves as a point of comparison, facilitating the examination of differences in the anthropometric status of subgroups in a population and of changes in nutritional status over time. Three standard indices of physical growth that describe the nutritional status of children are presented:

- height-for-age (stunting)
- weight-for-height (wasting)
- weight-for-age (underweight)

Each of these indices gives different information about growth and body composition that can be used to assess nutritional status.

Height-for-age is a measure of linear growth. A child who is below minus two standard deviations (-2 SD) from the median of the WHO reference population in terms of height-for-age is considered short for his/her age, or *stunted*, a condition reflecting the cumulative effect of chronic malnutrition. If the child is below minus three standard deviations (-3 SD) from the reference median, then the child is considered to be severely stunted. A child between -2 SD and -3 SD is considered to be moderately stunted.

Weight-for-height describes current nutritional status. A child who is below minus two standard deviations (-2 SD) from the reference median for weight-for-height is considered to be too thin for his/her height, or *wasted*, a condition reflecting acute or recent nutritional deficit. As with stunting, wasting is considered severe if the child is minus three standard deviations (-3 SD) or more below the reference mean. Severe wasting is closely linked to mortality risk.

Weight-for-age is a composite index of weight-for-height and height-for-age, and thus does not distinguish between acute malnutrition (wasting) and chronic malnutrition (stunting). A child can be underweight for his age because he is stunted or wasted or both. Weight-for-age is a good overall indicator of a population's nutritional health.

Z-score means are also calculated as summary statistics representing the nutritional status of children in a population. These mean scores describe the nutritional status of the entire population without the use of a cut off. A mean Z-score of less than 0 (i.e., a negative mean value for stunting, wasting, or underweight) suggests that the distribution of an index has shifted downward and the population, on average, is less well-nourished than the reference population.

In the 2013-14 ZDHS, all children under age six years who were listed in the household were eligible for height and weight measurement. The following analysis focuses on the 12,328 children age 0-59 months for whom complete and plausible anthropometric data were collected. Table 12 shows the percentage of children classified as malnourished according to height-for-age, weight-for-height, and weight-for-age indices, by age and selected background characteristics.

Table 12 Nutritional status of children

Percentage of children under five years classified as malnourished according to three anthropometric indices of nutritional status: height-for-age, weight-for-height, and weight-for-age, by background characteristics, Zambia, 2013-14

Background characteristic	Height-for-age[1]			Weight-for-height				Weight-for-age				Number of children
	Percentage below -3 SD	Percentage below -2 SD[2]	Mean Z-score (SD)	Percentage below -3 SD	Percentage below -2 SD[2]	Percentage above +2 SD	Mean Z-score (SD)	Percentage below -3 SD	Percentage below -2 SD[2]	Percentage above +2 SD	Mean Z-Score (SD)	
Age in months												
<6	5.3	13.6	-0.4	3.1	8.0	15.4	0.3	0.9	5.8	2.5	-0.2	1,032
6-8	9.6	25.1	-1.0	2.5	9.0	11.6	0.1	3.9	11.4	1.6	-0.6	585
9-11	17.6	38.5	-1.5	2.3	10.1	10.4	0.0	5.7	17.4	1.7	-0.9	606
12-17	19.6	43.1	-1.5	2.3	7.6	6.1	-0.1	2.2	13.5	1.2	-0.8	1,300
18-23	25.4	54.0	-2.0	2.2	6.1	5.7	0.0	4.1	17.8	1.2	-1.0	1,206
24-35	24.8	51.0	-2.0	2.2	5.2	4.0	0.0	3.9	17.1	0.5	-1.0	2,450
36-47	16.4	41.6	-1.7	1.9	5.1	3.4	0.0	2.8	15.2	0.4	-1.0	2,496
48-59	12.3	34.6	-1.6	1.8	4.5	3.3	-0.1	2.8	14.9	0.2	-1.1	2,653
Sex												
Male	19.0	42.4	-1.7	2.5	6.2	6.1	0.0	3.5	16.0	0.9	-0.9	6,188
Female	15.4	37.6	-1.5	1.8	5.8	5.4	0.0	2.8	13.5	0.8	-0.9	6,140
Residence												
Urban	15.7	36.0	-1.4	2.3	6.4	6.5	0.0	2.6	12.9	1.3	-0.8	4,140
Rural	18.0	42.1	-1.7	2.1	5.9	5.4	0.0	3.4	15.7	0.6	-1.0	8,188
Province												
Central	19.1	42.5	-1.7	1.6	4.6	6.7	0.1	2.2	15.3	0.4	-0.9	1,166
Copperbelt	14.4	36.2	-1.5	2.5	5.8	5.2	0.0	2.9	14.1	1.2	-0.9	1,561
Eastern	17.4	43.3	-1.7	1.4	5.1	6.0	0.2	2.2	12.8	0.5	-0.8	1,576
Luapula	22.8	43.0	-1.5	5.9	13.1	4.9	-0.3	6.8	21.2	0.8	-1.1	1,076
Lusaka	15.8	35.7	-1.3	2.3	7.0	8.0	0.1	2.3	11.0	1.6	-0.7	1,801
Muchinga	16.2	43.6	-1.8	1.0	4.1	5.2	0.0	3.6	15.6	0.8	-1.0	765
Northern	23.6	48.5	-1.9	1.4	3.7	5.3	0.1	4.2	19.0	0.6	-1.1	1,197
North Western	15.9	36.9	-1.5	2.9	8.2	7.4	0.0	2.2	13.8	1.1	-0.9	633
Southern	14.1	37.2	-1.6	1.0	4.2	4.6	0.0	2.3	13.1	0.6	-0.9	1,777
Western	14.5	36.2	-1.6	2.5	6.5	3.1	-0.2	3.8	16.2	0.4	-1.0	777
Mother's education[3]												
No education	23.1	44.7	-1.8	2.0	7.0	5.9	-0.1	4.9	19.9	0.5	-1.1	1,307
Primary	18.3	42.0	-1.7	2.2	5.8	5.5	0.0	3.1	15.5	0.7	-1.0	6,518
Secondary	13.7	36.9	-1.4	1.9	6.1	5.9	0.0	2.4	11.9	1.0	-0.8	3,334
More than secondary	7.8	18.1	-0.8	2.6	5.1	9.2	0.2	0.9	4.6	3.8	-0.3	407
Mother's interview status												
Mother interviewed	17.1	39.9	-1.6	2.1	6.0	5.9	0.0	3.1	14.6	0.8	-0.9	11,312
Mother not interviewed, but in household	21.1	44.6	-1.7	1.9	5.1	3.7	0.2	2.7	13.1	1.5	-0.9	263
Mother not interviewed, not in household[4]	18.0	40.7	-1.7	3.1	6.4	4.7	0.0	4.5	16.9	0.5	-1.0	752
Total	17.2	40.1	-1.6	2.2	6.0	5.7	0.0	3.1	14.8	0.8	-0.9	12,328

Notes: Table is based on children who spent the night before the interview in the household. Each of the indices is expressed in standard deviation units (SD) from the median of the WHO Child Growth Standards adopted in 2006. The indices in this table are NOT comparable to those based on the previously used 1977 NCHS/CDC/WHO Reference. Table is based on children with valid dates of birth (month and year) and valid measurement of both height and weight. Total includes 8 children with information missing for mother's education who are not shown separately.

[1] Recumbent length is measured for children under age 2; standing height is measured for all other children.

[2] Includes children who are below -3 standard deviations (SD) from the WHO Growth Standards population median

[3] For women who are not interviewed, information is taken from the Household Questionnaire. Excludes children whose mothers are not listed in the Household Questionnaire.

[4] Includes children whose mothers are deceased

The data show that 40 percent of children under age 5 were considered to be stunted, while 17 percent were severely stunted (below -3SD). The prevalence of stunting increased with age from 14 percent for children under age 6 months to 54 percent for children age 18-23 months. The prevalence reduced to 35 percent among children age 48-59 months. Males were more likely to be stunted than females at 42 and 38 percent, respectively.

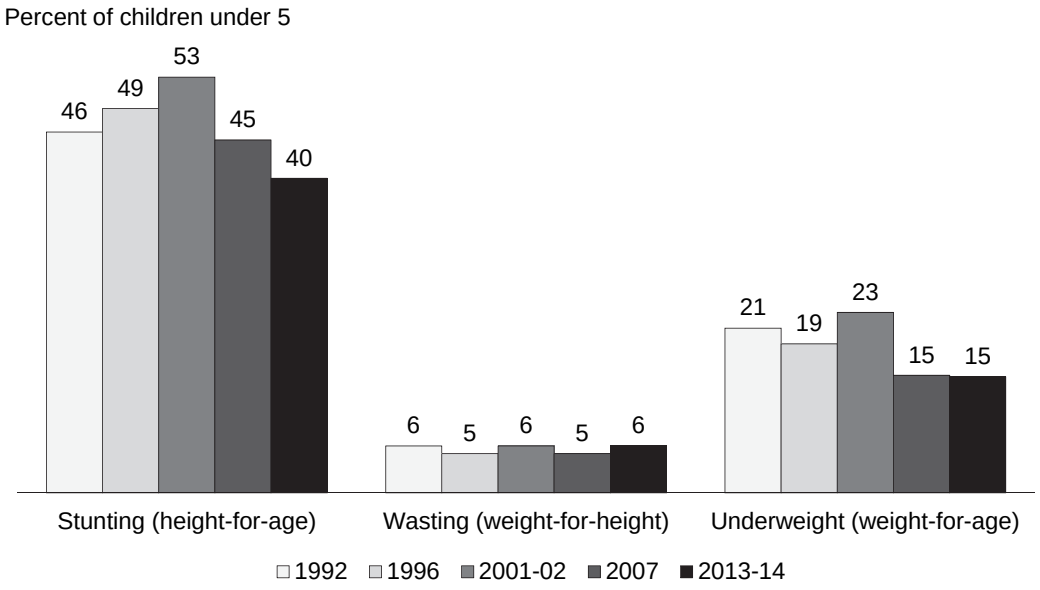
Stunting was more common in rural areas (42 percent) than urban areas (36 percent). Stunting was highest in Northern Province (49 percent) followed by Muchinga Province (44 percent). Copperbelt, Lusaka, and Western provinces had the lowest percentages of stunted children at 36 percent each. There were more stunted children among mothers with no education (45 percent) than among mothers who had completed more than secondary education (18 percent).

Six percent of children were considered to be wasted while 2 percent were severely wasted. Wasting was highest among children age 9-11 months (10 percent). At the provincial level, wasting was highest in Luapula Province at 13 percent and lowest in Northern Province at 4 percent.

Fifteen percent of children were underweight (low weight-for-age), and 3 percent were severely underweight. The proportion of children who were underweight was highest in the age group 18-23 months (18 percent).

The anthropometric data from the five ZDHS surveys are presented in Figure 6, which is based on the WHO Child Growth Standards adopted in 2006. The percentage of children who were stunted increased from 46 percent in the 1992 ZDHS to 53 percent in the 2001-02 ZDHS and declined to 40 percent in the 2013-14 ZDHS. In the 2013-14 ZDHS, the levels of wasting increased by one percentage point from 5 percent in 2007 ZDHS to 6 percent in the 2013-14 ZDHS. The levels of underweight children remained constant at 15 percent for the 2007 and 2013-14 ZDHS surveys.

Figure 6 **Trends in nutritional status of children under five years, ZDHS 1992-2014**



Note: The data are based on the WHO Child Growth standards adopted in 2006

3.9 MALARIA

The 2013-14 ZDHS captured information on various methods to prevent and treat malaria, such as insecticide-treated mosquito nets (ITNs), indoor residual spraying (IRS), intermittent preventive treatment during pregnancy (IPTp), and treatment of children under age 5 with malaria symptoms. ITNs can be common mosquito nets that were treated with insecticide after purchase or long-lasting insecticidal nets (LLINs), whose threads were treated prior to the manufacturing of the net so that they do not require additional treatment.

LLINs are considered effective regardless of date of acquisition. Other nets are considered ITNs only if they were treated or re-treated with insecticide in the 12 months preceding the survey. The Household questionnaire used in the ZDHS included a number of questions to ascertain the type and brand of nets. Interviewers were instructed to observe the nets if the respondent allowed. The observation and information offered by the respondent were used to classify the mosquito nets as an ITN or not.

3.9.1 Ownership and Use of Mosquito Nets

Table 13 shows that 73 percent of households nationwide own at least one mosquito net (any type), and 68 percent of households own at least one ITN. Households in rural areas were more likely to possess at least one net and at least one ITN than households in urban areas.

Children under age 5 and pregnant women are especially vulnerable to malaria and prone to experiencing severe malaria symptoms. To assess the use of ITNs, the 2013-14 ZDHS asked which household members slept under mosquito nets the night preceding the interview. Table 13 shows that overall 41 percent each of pregnant women and children under age 5 slept under an ITN the night preceding the interview. In households possessing an ITN, 57 percent of children under age 5 and 62 percent of pregnant women slept under an ITN the night before the interview. There were more women (45 percent) and children (42 percent) in rural areas who slept under an ITN than women (35 percent) and children (37 percent) in urban areas.

3.9.2 Indoor Residual Spraying

IRS consists of spraying the walls inside the housing units (dwellings) to kill the female adult mosquitoes to interrupt the transmission cycle. The information on use of IRS was captured by asking respondents if their houses had been sprayed by specialised technicians during the 12 months preceding the survey. Table 13 shows that 34 percent of housing units (dwellings) in urban areas and 24 percent in rural areas underwent IRS in the 12 months preceding the survey. Fifty-six percent of children slept under an ITN the night before the interview or lived in a house sprayed to protect against mosquitoes. Among pregnant women, 51 percent in urban areas and 55 percent in rural areas slept under an ITN the night before the interview or lived in a house sprayed to protect against mosquitoes.

3.9.3 Preventive Malaria Treatment during Pregnancy

Prophylactic treatment with sulfadoxine/pyrimethamine (SP) can significantly diminish the symptoms and the consequences of malaria among pregnant women who become infected. Information on the use of IPTp was obtained by asking women who had given birth in the two years preceding the survey if they had taken preventive anti-malarial medication during the last pregnancy and whether they had taken the medication during an ANC visit. Women who reported to have taken SP/Fansidar twice during pregnancy for prevention of malaria were considered to have received IPTp.

Table 13 Malaria indicators

Possession and use of mosquito nets, preventive malaria treatment during pregnancy, and treatment of children with fever using antimalarial drugs, by urban-rural residence, Zambia, 2013-14

	Residence				Total	
	Urban		Rural			
Malaria indicators	Percentage	Number	Percentage	Number	Percentage	Number
Mosquito nets						
Percentage of households with at least one mosquito net (treated or untreated)	68.2	6,640	76.3	9,280	72.9	15,920
Percentage of households with at least one insecticide-treated net (ITN)[1]	62.3	6,640	71.5	9,280	67.7	15,920
Percentage of children under age 5 who slept under a mosquito net (treated or untreated) last night	40.0	4,616	44.9	8,934	43.3	13,551
Percentage of children under age 5 who slept under an ITN last night[1]	37.4	4,616	42.2	8,934	40.6	13,551
Percentage of children under age 5 who slept under an ITN last night in households with an ITN [1]	56.4	3,064	57.6	6,545	57.2	9,609
Percentage of pregnant women age 15-49 who slept under a mosquito net (treated or untreated) last night	36.3	548	48.3	883	43.7	1,431
Percentage of pregnant women age 15-49 who slept under an ITN last night[1]	34.7	548	44.9	883	41.0	1,431
Percentage of pregnant women age 15-49 who slept under an ITN last night in households with an ITN[1]	55.5	343	64.9	611	61.5	954
Indoor residual insecticide spraying (IRS)						
Percentage of households sprayed with a residual insecticide in the last 12 months	34.2	6,640	24.3	9,280	28.4	15,920
Percentage of children under age 5 who slept under an ITN last night or in household sprayed with IRS in the past 12 months[1]	56.6	4,616	55.6	8,934	55.9	13,551
Percentage of pregnant women who slept under an ITN last night or in a household sprayed with IRS in the past 12 months[1]	50.9	548	55.1	883	53.5	1,431
Preventive malaria treatment during pregnancy						
Percentage of last births in the 2 years preceding the survey for which the mother took antimalarial drugs for prevention during the pregnancy	96.0	1,711	91.8	3,363	93.2	5,074
Percentage of last births in the two years preceding the survey for which the mother took 2+ doses of SP/Fansidar during pregnancy (IPTp) and received at least one dose during an antenatal visit[2]	80.7	1,711	68.6	3,363	72.7	5,074
Among children under age 5 with fever in the two weeks preceding the survey, percentage who took:						
Any antimalarial drug	28.9	802	44.6	1,853	39.9	2,655
SP/Fansidar	4.7	802	1.9	1,853	2.8	2,655
Chloroquine	0.0	802	0.1	1,853	0.0	2,655
Amodiaquine	0.1	802	0.0	1,853	0.0	2,655
Quinine	0.8	802	0.9	1,853	0.9	2,655
Coartem/ACT	23.1	802	41.6	1,853	36.0	2,655
Artemether	0.2	802	0.0	1,853	0.1	2,655
Asunate/Artesunate	0.0	802	0.0	1,853	0.0	2,655
Arteether	0.0	802	0.0	1,853	0.0	2,655
Other anti-malarial	0.1	802	0.3	1,853	0.2	2,655
Among children under age 5 with fever in the two weeks preceding the survey, percentage who took on the same day/next day after developing fever:						
Any antimalarial drug	14.2	802	23.3	1,853	20.5	2,655
SP/Fansidar	2.7	802	0.8	1,853	1.4	2,655
Chloroquine	0.0	802	0.0	1,853	0.0	2,655
Amodiaquine	0.1	802	0.0	1,853	0.0	2,655
Quinine	0.6	802	0.5	1,853	0.5	2,655
Coartem/ACT	10.6	802	21.8	1,853	18.4	2,655
Artemether	0.1	802	0.0	1,853	0.0	2,655
Asunate/Artesunate	0.0	802	0.0	1,853	0.0	2,655
Arteether	0.0	802	0.0	1,853	0.0	2,655
Other anti-malarial	0.1	802	0.2	1,853	0.2	2,655

[1] An Insecticide Treated Net (ITN) is a permanent net that does not require any treatment or a net that has been soaked with insecticide within the past 12 months.
[2]IPTp: Intermittent preventive treatment during pregnancy is preventive treatment with two or more doses of SP/Fansidar

Table 13 shows the percentage of women who had a birth in the two years preceding the survey and received IPTp and at least one dose of SP/Fansidar during an ANC visit. The table shows that 73 percent of women received IPTp and at least one dose of SP/Fansidar during ANC. Sixty-nine percent of women in rural areas and 81 percent of women in urban areas received IPTp and at least one dose of SP/Fansidar during ANC. Of all women who gave birth in the past two years, 93 percent took preventive malarial medication during pregnancy.

3.9.4 Malaria Treatment for Children with Fever

Fever is the main symptom of malaria among children under age 5, even though the occurrence of fever may be related to other illnesses. Delays in treating children could have serious consequences, especially in cases of severe infection. It is recommended that children be treated with anti-malarial drugs within the first 24 hours of the onset of fever. Therapies that combine artemisinin with some other anti-malarial drug—known as artemisinin combination therapy (ACT) are the preferred treatment for malaria. Table 4 shows that 40 percent of children who had fever in the two weeks preceding the survey received any anti-malarial drug. Regarding the recommended ACT treatment of artemisinin in combination, 23 percent of children in urban areas and 42 percent of children in rural areas received this treatment. Among children under age 5 with fever in the two weeks preceding the survey, 11 percent in urban areas and 22 percent in rural areas received treatment the same day or the next day after the onset of fever.

3.10 HIV/AIDS

3.10.1 Knowledge of HIV/AIDS

The 2013-14 ZDHS included a series of questions that inquired about men's and women's knowledge of AIDS and their awareness of modes of transmission of the human immunodeficiency virus that causes AIDS. Table 14 shows that awareness of AIDS is nearly universal in Zambia. There was little variation by background characteristics of women and men.

Table 14 Knowledge of AIDS

Percentage of women and men age 15-49 who have heard of AIDS, by background characteristics, Zambia, 2013-14

Background characteristic	Women		Men	
	Have heard of AIDS	Number of women	Have heard of AIDS	Number of men
Age				
15-24	99.0	6,631	99.2	5,672
15-19	98.6	3,625	98.8	3,337
20-24	99.5	3,006	99.8	2,335
25-29	99.6	2,813	99.7	1,944
30-39	99.8	4,484	99.9	3,591
40-49	99.6	2,482	100.0	2,354
Marital status				
Never married	98.9	4,572	99.2	5,985
Ever had sex	99.7	2,370	99.8	3,835
Never had sex	98.0	2,203	98.3	2,150
Married or living together	99.6	9,859	99.9	7,035
Divorced/separated/ widowed	99.7	1,980	99.6	542
Residence				
Urban	99.8	7,585	99.7	6,326
Rural	99.1	8,826	99.5	7,235
Province				
Central	99.6	1,467	98.5	1,153
Copperbelt	99.7	2,836	99.9	2,395
Eastern	99.4	1,930	99.6	1,710
Luapula	96.6	1,143	99.5	855
Lusaka	99.8	3,266	99.5	2,844
Muchinga	99.1	868	99.6	680
Northern	99.5	1,200	99.6	929
North Western	99.6	713	99.8	557
Southern	99.8	2,007	99.9	1,771
Western	99.6	980	99.8	668
Education				
No education	98.0	1,375	99.6	500
Primary	99.2	7,677	99.2	5,361
Secondary	99.9	6,517	99.8	6,633
More than secondary	100.0	830	100.0	1,058
Total 15-49	99.4	16,411	99.6	13,561
Men 50-59	na	na	99.7	1,212
Total 15-59	na	na	99.6	14,773

Note: Total includes 12 women and 9 men with information missing for education who are not shown separately.
na = Not applicable

3.10.2 Awareness of Ways to Prevent HIV/AIDS

Table 15 shows the percentages of women and men who had knowledge of several ways to avoid HIV. The table shows that 82 percent of women and 85 percent of men knew that the risk of getting HIV can be reduced by using condoms every time they have sexual intercourse. Ninety-two percent of women and 95 percent of men knew that a person can reduce the risk of acquiring HIV by limiting sexual intercourse to one

uninfected partner. Seventy-nine percent of women and 83 percent of men were aware that using condoms and limiting sex to one uninfected partner reduce the risk of contracting HIV.

Table 15 Knowledge of HIV prevention methods

Percentage of women and men age 15-49 who, in response to prompted questions, say that people can reduce the risk of getting the AIDS virus by using condoms every time they have sexual intercourse and by having one partner who is not infected and has no other partners, by background characteristics, Zambia, 2013-14

	Percentage of women who say HIV can be prevented by the following:				Percentage of men who say HIV can be prevented by the following:			
Background characteristic	Using condoms[1]	Limiting sexual intercourse to one uninfected partner[2]	Using condoms and limiting sexual intercourse to one uninfected partner[1,2]	Number of women	Using condoms[1]	Limiting sexual intercourse to one uninfected partner[2]	Using condoms and limiting sexual intercourse to one uninfected partner[1,2]	Number of men
Age								
15-24	79.7	90.3	75.8	6,631	82.9	93.6	80.0	5,672
..15-19	77.0	88.7	72.6	3,625	81.1	92.2	77.9	3,337
..20-24	82.9	92.1	79.6	3,006	85.6	95.6	83.2	2,335
25-29	83.9	93.5	80.5	2,813	86.8	96.0	84.7	1,944
30-39	85.2	93.3	81.9	4,484	87.9	96.3	85.9	3,591
40-49	82.9	94.2	80.8	2,482	86.2	96.3	84.5	2,354
Marital status								
Never married	79.4	89.7	75.2	4,572	83.3	93.3	80.4	5,985
..Ever had sex	84.3	90.8	79.8	2,370	86.8	94.9	83.9	3,835
..Never had sex	74.2	88.5	70.1	2,203	77.1	90.5	74.1	2,150
Married or living together	83.6	93.3	80.7	9,859	87.0	96.8	85.2	7,035
Divorced/separated/widowed	83.6	93.1	79.8	1,980	87.4	93.1	83.8	542
Residence								
Urban	84.8	93.5	81.6	7,585	86.0	95.4	83.9	6,326
Rural	80.4	91.2	76.8	8,826	84.8	94.9	82.3	7,235
Province								
Central	83.8	95.3	81.5	1,467	89.1	91.2	84.2	1,153
Copperbelt	87.5	93.9	83.8	2,836	88.1	96.5	86.2	2,395
Eastern	73.4	86.1	68.2	1,930	84.4	94.7	81.5	1,710
Luapula	85.2	90.2	81.0	1,143	87.6	97.1	86.3	855
Lusaka	80.3	91.3	77.0	3,266	83.4	93.4	80.9	2,844
Muchinga	78.7	94.6	76.9	868	73.0	92.4	70.0	680
Northern	73.0	93.5	70.4	1,200	80.8	96.2	78.6	929
North Western	87.1	92.2	81.9	713	87.3	94.5	83.5	557
Southern	88.7	94.6	86.4	2,007	89.1	98.9	88.6	1,771
Western	85.6	92.0	82.3	980	84.7	94.6	82.1	668
Education								
No education	74.9	85.9	70.1	1,375	85.1	93.3	81.4	500
Primary	81.4	91.8	77.8	7,677	83.4	94.4	80.9	5,361
Secondary	84.3	93.5	81.2	6,517	86.5	95.8	84.3	6,633
More than secondary	89.9	96.4	87.9	830	88.4	95.5	86.4	1,058
Total 15-49	82.4	92.3	79.0	16,411	85.4	95.1	83.0	13,561
Men 50-59	na	na	na	na	84.9	96.5	82.8	1,212
Total 15-59	na	na	na	na	85.3	95.2	83.0	14,773

Note: Total includes 12 women and 9 men with information missing for education who are not shown separately.
na = Not applicable
[1] Using condoms every time they have sexual intercourse
[2] Partner who has no other partners

Both women and men who have never had sex were least likely to know that using condoms and limiting sexual intercourse to one uninfected partner reduce the risk of HIV transmission (70 percent of women and 74 percent of men), while those who were married were most likely to know (81 percent of women and 85 percent of men).

Respondents residing in urban areas had higher knowledge levels of ways to prevent HIV for both males and females at 84 and 82 percent, respectively. Males (89 percent) and females (86 percent) from

Southern Province had the highest knowledge levels of ways to prevent HIV. Seventy percent of women and 81 percent of men with no education knew that the risk of getting the HIV virus can be reduced by using condoms and limiting sex to one uninfected partner, compared with 88 percent of women and 86 percent of men with more than secondary education.

3.10.3 Multiple Sexual Partnerships and Condom Use

As most HIV infections are contracted through sexual contact, information on sexual behaviour is important in designing and monitoring intervention programmes to control the spread of the infection. In the prevention of HIV, limiting the number of sexual partners and having protected sex are crucial to combating the epidemic. The 2013-14 ZDHS included questions on the respondents' sexual partners during the 12 months preceding the survey.

Information on the use of condoms at the last sexual encounter was also collected. Women and men who had engaged in sexual activity were asked the total number of sexual partners they had in their lifetime.

Table 16.1 shows that two percent of women reported having had more than one sexual partner in the 12 months preceding the survey. Women in urban areas (2 percent) reported having had more than one sexual partner in the 12 months preceding the survey than those in rural areas (1 percent). Divorced/separated/widowed women reported the highest percentage of having had more than one sexual partner in the 12 months preceding the survey at three percent. Women from Copperbelt Province reported the highest percentage of having had more than one sexual partner at three percent. Thirty percent of women with two or more sexual partners reported using a condom at last sexual intercourse in the 12 months preceding the survey. Of the women with two or more sexual partners, condom use was highest among divorced/separated/widowed women. There were more women in urban areas (35 percent) than in rural areas (22 percent) with more than one sexual partner who reported using a condom. The mean number of lifetime sexual partners reported for women was two.

Table 16.1 Multiple sexual partners in the past 12 months: Women

Among all women age 15-49, the percentage who had sexual intercourse with more than one sexual partner in the past 12 months; among those having more than one partner in the past 12 months, the percentage reporting that a condom was used at last intercourse; and the mean number of sexual partners during her lifetime for women who ever had sexual intercourse, by background characteristics, Zambia, 2013-14

	All women		Among women who had 2+ partners in the past 12 months:		Among women who ever had sexual intercourse:	
Background characteristic	Percentage who had 2+ partners in the past 12 months	Number of women	Percentage who reported using a condom during last sexual inter-course	Number of women	Mean number of sexual partners in lifetime[1]	Number of women
Age						
15-24	1.7	6,631	34.0	109	1.8	4,489
..15-19	1.5	3,625	33.0	56	1.6	1,779
..20-24	1.8	3,006	35.0	54	1.9	2,710
25-29	1.8	2,813	(33.2)	52	2.0	2,755
30-39	1.9	4,484	27.3	86	2.2	4,450
40-49	1.2	2,482	*	29	2.2	2,463
Marital status						
Never married	2.3	4,572	43.2	104	1.9	2,360
Married/living together	1.2	9,859	6.5	114	1.9	9,834
Divorced/separated/widowed	2.9	1,980	51.5	57	2.7	1,962
Residence						
Urban	2.2	7,585	34.7	170	2.2	6,212
Rural	1.2	8,826	21.8	106	1.9	7,945

Continued…

Table 16.1—*Continued*

Background characteristic	All women		Among women who had 2+ partners in the past 12 months:		Among women who ever had sexual intercourse:	
	Percentage who had 2+ partners in the past 12 months	Number of women	Percentage who reported using a condom during last sexual inter-course	Number of women	Mean number of sexual partners in lifetime[1]	Number of women
Province						
Central	1.7	1,467	*	25	2.0	1,272
Copperbelt	3.0	2,836	(28.4)	86	2.0	2,251
Eastern	0.9	1,930	(22.9)	18	1.7	1,721
Luapula	1.9	1,143	(16.4)	21	2.0	1,026
Lusaka	1.4	3,266	*	46	2.1	2,695
Muchinga	0.9	868	*	7	1.6	737
Northern	1.1	1,200	*	13	1.6	1,056
North Western	1.1	713	*	8	2.4	653
Southern	2.0	2,007	(26.2)	40	2.2	1,819
Western	1.2	980	*	12	2.6	925
Education						
No education	0.8	1,375	*	10	1.9	1,340
Primary	1.7	7,677	30.1	134	2.0	6,999
Secondary	1.8	6,517	33.7	115	2.1	5,073
More than secondary	1.9	830	*	16	2.2	734
Total	1.7	16,411	29.7	276	2.0	14,157

Note: Total includes 12 women with information missing for education who are not shown separately.
Figures in parentheses are based on 25-49 unweighted cases. An asterisk indicates that a figure is based on fewer than 25 unweighted cases and has been suppressed.
[1] Means are calculated excluding respondents who gave non-numeric responses.

Table 16.2 shows that 16 percent of men age 15-49 reported having had more than one sexual partner in the 12 months preceding the survey.

The percentage of men who reported having had more than one sexual partner was highest among men age 25-29 at 21 percent. Twenty percent of married men reported having had two or more sexual partners in the 12 months preceding the survey. It is important to note, however, that some portion of the multiple sexual partnerships among married men was due to polygynous unions. The percentage of men who reported having had more than one sexual partner was higher in rural (19 percent) than in urban areas (12 percent). The percentage of men who reported having had multiple partners in the 12 months preceding the survey was highest in Western Province at 27 percent and lowest in Copperbelt Province at 10 percent.

Twenty-nine percent of men age 15-49 with multiple partners reported using a condom at last sexual intercourse. Condom use was higher in urban than rural areas at 38 and 24 percent, respectively. Condom use among men increased with education, from 21 percent with no education to 49 percent with more than secondary education.

The mean number of lifetime sexual partners reported for men was 5.9. Men in Luapula Province had the highest mean number of lifetime sexual partners at 8.2, while Muchinga Province had the lowest at 4.2.

Table 16.2 Multiple sexual partners in the past 12 months: Men

Among all men age 15-49, the percentage who had sexual intercourse with more than one sexual partner; among those having more than one partner in the past 12 months, the percentage reporting that a condom was used at last sexual intercourse; and the mean number of sexual partners during his lifetime for men who ever had sexual intercourse, by background characteristics, Zambia, 2013-14

	All men		Among men who had 2+ partners in the past 12 months:		Among men who ever had sexual intercourse:	
Background characteristic	Percentage who had 2+ partners in the past 12 months	Number of men	Percentage who reported using a condom during last sexual inter-course	Number of men	Mean number of sexual partners in lifetime[1]	Number of men
Age						
15-24	10.6	5,672	40.2	602	3.8	3,583
..15-19	7.5	3,337	37.7	250	3.1	1,583
..20-24	15.1	2,335	41.9	353	4.3	2,000
25-29	20.6	1,944	33.7	400	5.9	1,881
30-39	20.0	3,591	25.6	719	6.7	3,531
40-49	17.1	2,354	13.6	402	7.8	2,325
Marital status						
Never married	10.7	5,985	47.8	642	4.1	3,807
Married/living together	19.7	7,035	19.6	1,389	6.6	6,986
Divorced/separated/widowed	17.1	542	38.1	93	9.6	526
Residence						
Urban	12.2	6,326	38.4	775	5.7	5,058
Rural	18.6	7,235	23.6	1,349	6.0	6,262
Province						
Central	14.1	1,153	28.8	163	6.8	963
Copperbelt	10.1	2,395	31.8	242	4.9	1,874
Eastern	21.0	1,710	28.7	359	5.1	1,513
Luapula	11.7	855	15.2	100	8.2	782
Lusaka	11.7	2,844	43.0	333	5.9	2,238
Muchinga	13.5	680	20.4	92	4.2	526
Northern	15.4	929	15.2	143	4.8	802
North Western	12.3	557	22.2	69	6.4	493
Southern	25.0	1,771	23.2	443	6.6	1,510
Western	26.8	668	39.8	179	7.3	619
Education						
No education	18.7	500	21.0	93	5.6	465
Primary	17.1	5,361	25.3	914	6.2	4,532
Secondary	14.5	6,633	30.1	962	5.7	5,332
More than secondary	14.5	1,058	48.5	153	5.4	983
Total 15-49	15.7	13,561	29.0	2,123	5.9	11,320
Men 50-59	15.5	1,212	9.1	188	8.6	1,187
Total 15-59	15.6	14,773	27.4	2,311	6.1	12,507

Note: Total includes 9 men with information missing for education who are not shown separately.
[1] Means are calculated excluding respondents who gave non-numeric responses.

3.11 ESTIMATES OF MATERNAL MORTALITY

Table 17 presents direct estimates of maternal mortality for the seven-year period preceding the survey (2006-07 to 2013-14), which is long enough to generate a robust estimate (the mid-point of the time period to which the maternal mortality estimates refer is 2010). The maternal mortality rate among women age 15-49 is 0.74 maternal deaths per 1,000 woman-years of exposure. By five-year age groups, the maternal mortality rate is highest among women age 30-34 (1.52 maternal deaths per 1,000 woman-years of exposure).

Table 17 Maternal mortality

Direct estimates of maternal mortality rates for the seven years preceding the survey, by five-year age groups, Zambia 2013-14

Age	Percentage of female deaths that are maternal	Maternal deaths	Exposure years	Maternal mortality rate[1]
15-19	4.2	4	37,435	0.10
20-24	13.4	22	41,815	0.53
25-29	7.0	17	40,132	0.41
30-34	14.1	52	34,265	1.52
35-39	9.6	32	24,651	1.31
40-44	5.9	14	15,162	0.92
45-49	6.9	10	8,586	1.18
15-49	9.5	151	202,044	0.74

General fertility rate (GFR)[2]	185[a]	
Maternal mortality ratio (MMR)[3]	398	(CI : 323 - 474)
Lifetime risk of maternal death[4]	0.023	

CI: Confidence interval
[1] Expressed per 1,000 woman-years of exposure
[2] Expressed per 1,000 woman age 15-49
[3] Expressed per 100,000 live births; calculated as the age-adjusted maternal mortality rate times 100 divided by the age-adjusted general fertility rate
[4] Calculated as $1-(1-MMR)^{TFR}$ where TFR represents the total fertility rate for the seven years preceding the survey
[a] Age-adjusted rate

The maternal mortality rate can be converted to a maternal mortality ratio (MMR—expressed as deaths per 100,000 live births) by dividing the maternal mortality rate by the general fertility rate (GFR) of 185 that prevailed during the same time period and multiplying the result by 100,000. The maternal mortality ratio (MMR) during the seven-year-period preceding the survey is 398 deaths per 100,000 live births. In other words, for every 1,000 live births in Zambia, four women (3.98) died during pregnancy, during childbirth, or within two months of childbirth during the seven years preceding the 2013-14 ZDHS. The lifetime risk of maternal death (0.023) indicates that about 2 per cent of women died during pregnancy, during childbirth, or within two months of childbirth.

Every survey estimate contains a level of uncertainty. The point MMR estimate of 398 should more appropriately be interpreted as an interval estimate. The 2013-14 ZDHS data estimates with 95 percent certainty that the MMR falls somewhere between 323 and 474 deaths per 100,000 live births during the seven-year-period preceding the survey. The previous estimate of MMR from the 2007 ZDHS is 591 deaths per 100,000 live births. The 2007 ZDHS data estimates with 95 percent certainty that the MMR was somewhere between 450 and 732 deaths per 100,000 live births during the seven year period preceding the 2007 survey. Since the confidence intervals surrounding the two estimates from the two surveys overlap, additional tests will be conducted to confirm whether or not the difference is statistically significant. It can be said with 95 percent confidence that the MMR is significantly lower than it was during the seven years preceding the 2001-02 ZDHS, which produced an estimate of 729 deaths per 100,000 live births.

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