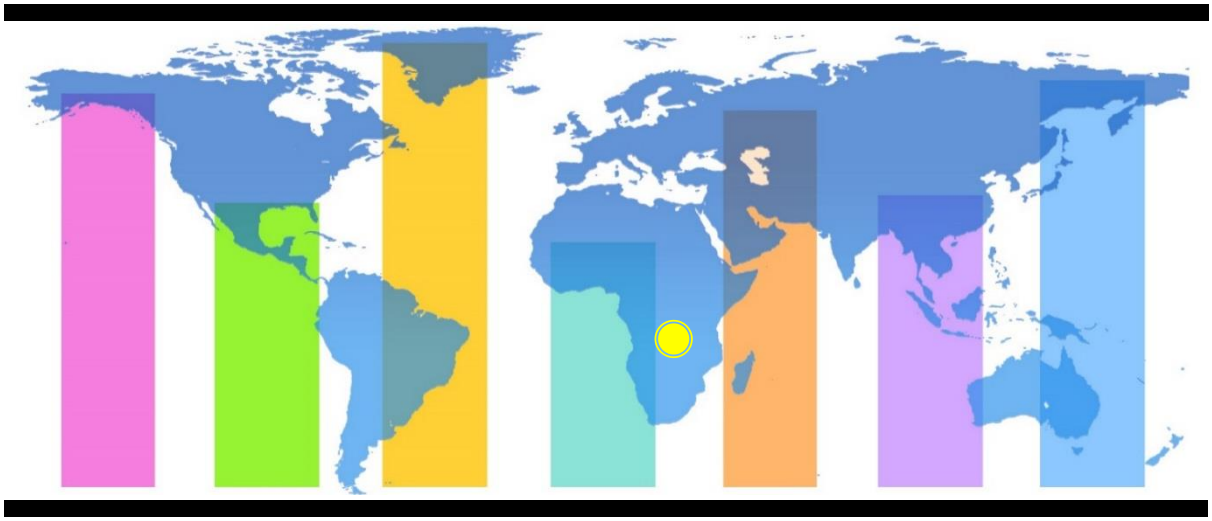
Zambia



Demographic and Health Survey 2018

Key Indicators

Zambia

Demographic and Health Survey 2018

Key Indicators Report

Central Statistical Office
Lusaka, Zambia

Ministry of Health
Lusaka, Zambia

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The DHS Program
ICF
Rockville, Maryland, USA

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The 2018 Zambia Demographic and Health Survey (2018 ZDHS) was implemented by the Central Statistical Office (CSO) in partnership with the Ministry of Health; the University Teaching Hospital–Virology Laboratory (UTH-VL); and the Department of Population Studies at the University of Zambia (UNZA) under the overall guidance of the National Steering Committee. Data collection lasted from July 2018 to January 2019. Funding for the 2018 ZDHS was provided by the United States Agency for International Development (USAID). Additional funding was provided by the Global Fund, the Department for International Development (DFID), and the United Nations Population Fund (UNFPA). ICF provided technical assistance 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 information about the 2018 ZDHS may be obtained from the Central Statistical Office, P.O. Box 31908, Lusaka, Zambia; telephone: (260-211) 251377/85 257604/05; fax: (260-211) 253468; email: Info@ zamstats.gov.zm; internet: http:www.zamstats.gov.zm; data portal: http://zambia.opendataforafrica.org/.

Information about The DHS Program may be obtained from ICF, 530 Gaither Road, Suite 500, Rockville, MD 20850, USA; telephone: +1-301-407-6500; fax: +1-301-407-6501; email: info@DHSprogram.com; internet: www.DHSprogram.com.

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FOREWORD

The Government of Zambia, through the Central Statistical Office and the Ministry of Health together with its cooperating partners, conducted the 2018 Zambia Demographic and Health Survey (2018 ZDHS). The ZDHS provides an opportunity to inform policy and provide data for planning, implementation, and monitoring and evaluation of national health programmes. It is designed to provide up-to-date information on health indicators, including fertility levels, nuptiality, sexual activity, fertility preferences, awareness and use of family planning methods, breastfeeding practices, nutritional status of children, early childhood and maternal mortality, maternal and child health, awareness and behaviours regarding HIV/AIDS and other sexually transmitted infections, and prevalence of HIV.

This report presents the preliminary results of the 2018 ZDHS, which is the sixth in a series of Demographic and Health Surveys conducted in Zambia. Previous surveys were conducted in 1992, 1996, 2001-02, 2007, and 2013-14.

The Central Statistical Office wishes to express its appreciation to those involved in the implementation of the 2018 ZDHS through financial and technical support and the preparation of this Key Indicators Report.

Particular thanks go to the following:

- U.S. Agency for International Development in Zambia, for providing the funding for organising and conducting the 2018 Zambia DHS
- The Global Fund, the Department for International Development (DFID), and the United Nations Population Fund (UNFPA), Zambia Country Office, for providing additional funds
- University Teaching Hospital-Virology Laboratory (UTH-VL) and The Tropical Diseases Research Centre (TDRC), for providing technical support in the implementation of biomarker collection and HIV testing
- ICF, for providing technical support, training of fieldwork staff, consultations, recommendations, and analyses of the data collected

The survey would not have been possible without the good work and dedication of the project staff at various levels. In particular, we wish to express our appreciation to the provincial coordinators, supervisors, interviewers, biomarker technicians, and drivers for their active participation in and contribution to this work.

Above all, we appreciate the cooperation of all of the survey respondents countrywide who have made the 2018 ZDHS a success.

Goodson Sinyenga
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1 INTRODUCTION

The 2018 Zambia Demographic and Health Survey (ZDHS) is the sixth Demographic and Health Survey to be conducted in Zambia. It was implemented by the Central Statistical Office (CSO) in collaboration with the Ministry of Health (MOH) of Zambia. Data collection took place from July 18, 2018, to January 24, 2019. Funding was provided by the United States Agency for International Development (USAID). The Global Fund (GF), the Department for International Development (DFID) in Zambia, and the United Nations Population Fund (UNFPA) provided additional funds for the survey. ICF provided technical assistance through The DHS Program, a USAID-funded project providing support and technical assistance in the implementation of population and health surveys in countries worldwide.

This Key Indicators Report presents preliminary selected findings of the 2018 ZDHS. A comprehensive analysis of the data will be presented in a final report later in 2019.

1.1 SURVEY OBJECTIVES

The primary objective of the 2018 ZDHS is to provide up-to-date estimates of key demographic and health indicators necessary for programme managers, policymakers, and implementers to monitor and evaluate the impact of existing policies and programmes and to design new initiatives for health policies in Zambia. This survey is considered a key resource for the new sixth National Health Strategic Plan (NHSP) 2017–2021.

Specifically, the main objectives of the survey are:

- To collect high quality data on fertility levels and preferences; contraceptive use; maternal and child health; infant, child, and neonatal mortality levels; maternal mortality; and gender, nutrition, and awareness regarding HIV/AIDS and other health issues relevant to the achievement of the Sustainable Development Goals (SDGs)
- To measure maternal and neonatal morbidity and mortality and its associated factors (i.e., antenatal and delivery care, pregnancy care, and so on.)
- Provide information to address evaluation/monitoring needs of maternal and child health and family planning programmes for evidence-based planning
- Provide information on availability, access, and use of mosquito nets as part of the national malaria eradication programmes
- To collect information on health-related matters such as breastfeeding, maternal and child care (antenatal, delivery, and postnatal), children's immunisations, and childhood diseases
- To measure the anaemia prevalence in women 15-49 and children 6-59 months
- To assess the nutritional status of children under age 5 by measuring weight and height
- To measure HIV prevalence levels in men 15-59 and women 15-49 and to collect data on behavioural risk factors related to HIV
- To assess the current environment regarding violence against women and girls.

2 SURVEY IMPLEMENTATION

2.1 SAMPLE DESIGN

The sampling frame used for the 2018 ZDHS is based on the Census of Population and Housing (CPH) of the Republic of Zambia, conducted in 2010 by the Central Statistical Office (CSO). Zambia is divided into ten provinces. Each province is subdivided into districts, each district into constituencies, and each constituency into wards. In addition to these administrative units, during the 2010 CPH each ward was divided into convenient areas called census supervisory areas (CSAs), and in turn each CSA was divided into enumeration areas (EAs). An enumeration area is a geographical area assigned to an enumerator for the purpose of conducting a census count; according to the Zambian census frame each EA consists of an average of 110 households.

The current version of the EAs frame of the 2010 CPH was updated to accommodate all the changes in districts and constituencies that happened between 2010 and 2017. The list of EAs has census information on households and population counts. Each EA has a cartographic map delineating its boundaries, with identification information and a measure of size, which is the number of residential households enumerated in the 2010 CPH. This list of EAs was used as the sampling frame for the 2018 ZDHS.

The 2018 ZDHS followed a stratified two-stage sample design. The first stage involved selecting sample points (clusters) consisting of EAs. EAs were drawn with a probability proportional to their size within each sampling stratum. A total of 545 clusters were selected.

The second stage involved systematic sampling of households. A household listing operation was undertaken in all of the selected clusters. During the listing, an average of 133 households were found in each cluster, from which a fixed number of 25 households was selected with an equal probability systematic selection process, for a total sample size of 13,625 households. Results from this sample will be representative at the national, urban, and rural levels, including each of the 10 provinces.

All women age 15-49 and men age 15-59, who were either permanent residents of the selected households or visitors who stayed in the households the night before the survey were eligible to be interviewed. All adult women and men, age 18-49 and age 18-59, respectively, as well as young women and men, age 15-17, who either are emancipated or received parental or guardian consent were eligible for HIV testing. HIV testing was conducted in two ways: rapid diagnostic testing (RDT) and dried blood spot collection (DBS). RDT provided respondents with an immediate HIV status, while DBS samples were sent for laboratory testing to produce a more precise national HIV prevalence estimate. Haemoglobin testing for anaemia was performed in each household, among eligible women age 18-49 and young emancipated women age 15-17 who consented to being tested. With the parent or guardian's consent, children age 6-59 months and young non-emancipated women age 15-17 were also tested for anaemia in each household. In addition, height and weight information was collected from children age 0-59 months in all households. Finally, a sample of one eligible woman in each household was randomly selected to be asked additional questions about domestic violence.

2.2 QUESTIONNAIRES

Five questionnaires were used for the 2018 ZDHS: the Household Questionnaire, Woman's Questionnaire, Man's Questionnaire, Biomarker Questionnaire, and Fieldworker Questionnaire. These questionnaires, based on The DHS Program's standard questionnaires, were adapted to reflect the population and health issues relevant to Zambia. Suggestions were solicited from various stakeholders representing government ministries and agencies, nongovernmental organisations, and international donors. After all questionnaires were finalised in English, they were translated into seven local languages, including Bemba, Kaonde, Lozi, Lunda, Luvale, Nyanja, and Tonga.

The Household Questionnaire listed all members of and visitors to selected households. Basic demographic information was collected on each person listed, including age, sex, marital status, education, and relationship to head of household. For children under age 18, survival status of parents was determined. The data on age and sex of household members were used to identify women and men eligible for individual interviews. The Household Questionnaire also collected information on characteristics of the household's housing unit, such as source of water, type of toilet facilities, materials used for flooring, external walls and roofing, ownership of various household goods, access to and use of mosquito nets, and testing on iodine content in household salt.

The Woman's Questionnaire was used to collect information from all eligible women age 15-49. These women were asked questions on the following topics:

- Background characteristics (including age, education, and media exposure)
- Reproduction and child mortality
- Contraception
- Antenatal, delivery, and postnatal care
- Vaccinations and childhood illnesses
- Maternal and child health and nutrition
- Marriage and sexual activity
- Fertility preferences
- Women's work and husbands' background characteristics
- Knowledge, awareness, and behaviour regarding HIV/AIDS and other sexually transmitted infections (STIs)
- Knowledge, attitudes, and behaviour related to other health issues (e.g., injections, smoking, childhood illnesses, and pregnancy and childbirth)
- Fistula
- Adult and maternal mortality
- Domestic violence

The Man's Questionnaire was used to collect information from all eligible men age 15-59. These men were asked questions on the following topics:

- Respondent's background
- Reproduction
- Contraception
- Marriage and sexual activity
- Fertility preferences
- Employment and gender roles
- HIV/AIDS
- Other health issues

In addition, the Biomarker Questionnaire was used to record the results of the anthropometry measurements and haemoglobin and HIV testing.

The Fieldworker Questionnaire served as a tool in conducting analyses of data quality. Distribution and collection by the CSO after final selection of fieldworkers was done before the fieldworkers entered the field. Fieldworkers filled out a 2-page self-administered questionnaire on their general background characteristics. No personal identifiers are attached to the Zambia DHS fieldworkers' data file.

2.3 ANTHROPOMETRY, HAEMOGLOBIN, AND HIV TESTING

The 2018 ZDHS incorporated three biomarkers: anthropometry, haemoglobin, and HIV testing. All data related to the coverage of the anthropometric measures and the result of the haemoglobin and HIV testing were recorded in the Biomarker Questionnaire. Data on HIV was collected through two methods, RDT,

which provided respondents with immediate feedback regarding their HIV status, and through the collection of DBS samples. After collection, the samples were sent for laboratory testing, and will be used to produce a national HIV prevalence estimate. The protocols for biomarker measurements, survey methodology, and all instruments were approved by institutional review boards at ICF and the Tropical Diseases Research Centre (TDRC) in Zambia.

Anthropometry Measurements

In all households, height and weight measurements were recorded for children age 0-59 months. Weight measurements were obtained using lightweight, electronic SECA 878 scales with a digital screen and the mother and child function. Height measurements were carried out with measuring boards made by Shorr Productions. Children younger than age 24 months were measured while lying down (recumbent) on the board, while standing height was measured for older children.

Anaemia Testing

Blood specimens were collected from all children age 6-59 months and women age 15-49 who consented to testing for anaemia. A consent statement was read to all eligible respondents or to the parent or adult responsible for children and young non-emancipated women age 15-17. This statement explained the purpose of the test, informed them that the results would be made available as soon as the test was completed, and requested permission for the test to be carried out.

Blood samples were drawn from a drop of blood taken from a finger prick (or a heel prick for young children with small fingers) and collected in a microcuvette. Haemoglobin analysis was carried out on-site using a battery-operated portable HemoCue 201+ analyser, which produces a result in less than 1 minute. Results were given verbally and in writing. Parents of children with a haemoglobin level below 7 g/dl were advised to take the child to a health facility for follow-up care. Likewise, non-pregnant women and pregnant women were referred for follow-up care if their haemoglobin level was below 7 g/dl and 9 g/dl, respectively. All households in which anthropometry, anaemia testing, or both were conducted were given a brochure explaining the causes and ways to prevent anaemia.

Lancets and other supplies and equipment used during sample collections (a HemoCue microcuvette, gloves, gauze, alcohol swab, bandage packaging, and waste collection bag) were disposed of safely, usually by taking the materials to a nearby health facility that uses proper protocols for the disposal of biohazardous waste.

HIV Testing

All women and men interviewed on the individual questionnaire were eligible for HIV testing. The survey featured a parallel system for HIV testing, in which RDT was performed in the household according to a national HIV testing algorithm for respondents who wished to be informed of their status, and DBS specimens were collected and transported to a central lab for anonymised testing. HIV prevalence for the survey will be based on the laboratory test results.

The national algorithm for the RDT in Zambia consists of a screening test (Determine® HIV 1/2), followed by confirmation of reactive specimens with a second rapid test (Uni-gold HIV 1/2). To test respondents using an RDT, a blood sample was collected directly from a finger prick using a sample collection device supplied with the RDT kit.

Dedicated nurse counsellors who provided pre- and post-test counselling conducted HIV rapid testing. Pretest counselling included an explanation of HIV infection and transmission, the meaning of test results, risks associated with sexual behaviours, and how to prevent and treat HIV and sexually transmitted infections. Post-test counselling messages were tailored to the participant's HIV results and risk profiles.

The testing and delivery of results at home was done after creating the conditions that would guarantee the confidentiality of the respondents. All participants with HIV seropositive or indeterminate results were referred to the nearest health facility with a referral form, to liaise with the health provider for further care and treatment.

For HIV testing using DBS samples, at the time of collection of the blood sample, a unique and random barcoded identification number was assigned to each participant who consented to testing. Sheets of peel-off labels with the unique barcodes were pre-printed for use in the field. Matching barcode labels were affixed to the Biomarker Questionnaire, a fresh filter paper card, and a blood sample transmittal sheet.

Approximately every 2 weeks, or more frequently, all DBS samples and transmittal sheets from the same clusters were picked up from teams in the field by central office supervisors and transported to University Teaching Hospital Virology Laboratory (UTH-VL) for processing and registration. Each specimen was then assigned a unique, serial laboratory number during the registration process at the lab before being stored in a freezer for preservation. The DBS laboratory testing is scheduled to be conducted at UTH-VL from April to September 2019.

2.4 PRETEST

Thirty participants (20 females and 10 males) took part in a training to pretest the ZDHS survey questionnaires over a 4-week period from April 3 to April 28, 2018. The first 2 weeks featured classroom training focused on questionnaire content. From April 17-22, participants were instructed on using the computer-assisted personal interviewing (CAPI) system, an electronic data capture system programmed on tablet computers that the participants used to implement the survey. CSO personnel led the training in English, with support from The DHS Program staff. Further, specialists from the MOH were invited to make short presentations on programmes in Zambia that provide services in the areas of family planning and reproductive health, HIV/AIDS and other STIs, childhood immunisation, and child health and nutrition. A guest speaker from the Young Women's Christian Association (YWCA), an organisation that provides support to victims of domestic violence, was also invited to deliver a lecture on gender-based violence in Zambia.

Eight participants (seven females and one male) attended the biomarker-training portion of the pretest, which ran from April 16-28. The training utilised a variety of different learning tools such as formal lectures on the technical aspects of biomarker collection, informal discussion on various practice scenarios, videos to demonstrate the process of biomarker collection, and hands-on demonstrations. In addition to the aforementioned training, the biomarker technicians participated in an anthropometry standardisation exercise, a health clinic visit, and 3 days of field practice.

From April 25-27, interviewers and biomarker technicians conducted practice fieldwork to solidify skills learned during pretest training, and to provide a simulated fieldwork experience to test survey materials. The participants worked in four teams that mirrored the team composition proposed for the actual fieldwork (1 male supervisor, 3 female interviewers, 1 male interviewer, and 2 biomarker technicians). The practice occurred in two enumeration areas (EAs), one urban and one rural that were both not far from the training venue. Each area contained 26 selected households, but these were cut in half to create four practice clusters (one for each team) of 13 households. To complete the fieldwork, each interviewer had to complete at least one household interview per day. While the interviewers recorded responses on tablet computers using CAPI, the biomarker questionnaires were first filled out on paper and later entered into the CAPI system by the interviewers. All the interviews were conducted in either Bemba, English, Nyanja, or Tonga. Over the course of field practice, 52 households were interviewed. Of the 61 eligible women, 50 were interviewed. For men, of the 71 eligible for interview, 38 interviews were completed. At the end of each day, both during and after the pretest fieldwork, debriefing sessions were held, and questionnaires were modified based on lessons drawn from the exercise.

2.5 TRAINING OF FIELD STAFF

One hundred twenty-three people, including 24 supervisors (21 male and 3 female) and 99 interviewers (27 male and 72 female), attended the training on the questionnaire content, which consisted of lectures, demonstrations, and practice interviews. Fifty-three biomarker technicians (26 male and 27 female) attended a parallel training course on conducting biomarker tests.

A Training of Trainers (TOT) was conducted from June 11-12, 2018, for the master trainers. The purpose of the TOT was to prepare the master trainers for the main training. Fifteen trainers (7 women and 8 men) were selected. The trainers were employed through CSO and MOH and later served as the team supervisors and provincial coordinators during the ZDHS data collection

The main fieldwork training was conducted from June 13 to July 11, 2018, and was led by the master trainers and backstopped by The DHS Program staff. The interviewer training was conducted in English, and sessions discussed concepts, procedures, and methodology of conducting the survey. Participants were guided through the questionnaires. In addition, senior subject specialists from the MOH were invited to make short presentations on programmes in Zambia that provide services in the areas of family planning and reproductive health, HIV/AIDS and other STIs, childhood immunisation, child health and nutrition, and fistula. The training included presentations, lectures, hands-on exercises, mock interviews, role-plays, group work, and quizzes. In-class exercises included probing for age, checking age consistencies, copying information from the vaccination cards, completing the reproductive calendar, and practicing interviews. All participants also received training on how to test household salt for iodine.

Once training on use of paper questionnaires concluded, The DHS Program data processing staff and information technology (IT) personnel from CSO conducted a weeklong training on computer-assisted personal interviewing (CAPI). From July 24-29, participants learned about features of the data collection system, different scenarios and technical issues typically encountered during fieldwork, and ways to resolve issues.

The biomarker classroom portion of the training commenced on June 18 and continued through July 9. This training was led by The DHS Program staff with assistance from staff members from CSO, MOH, TDRC, and UTH-VL. Biomarker training included classroom instruction that focused on anthropometry measurements, anaemia and HIV testing, appropriate procedures for obtaining informed consent, recording of biomarker information in the Biomarker Questionnaire, reporting test results back to the respondents with referrals as needed, and pre- and post-test counselling for HIV. The facilitators used learning tools similar to those used during the pretest, including an anthropometry standardisation exercise, a health clinic visit, and 3 days of field practice.

To improve team coordination, a joint classroom session of the biomarker technicians with the interviewers was also organised. All participants were given an overview of biomarker collection in the 2018 ZDHS. This described eligibility for biomarker collection, use of the Household and Biomarker Questionnaires to record data, appropriate procedures for obtaining informed consent, supply packing and transportation logistics, and how to facilitate intra-team coordination and cooperation. Furthermore, all interviewers and supervisors were trained over 2 days to assist the biomarker technicians in taking anthropometry measurements, by helping to hold children steady for measurement and recording results. This ensured the availability of qualified assistants for the biomarker technicians, thus resulting in more standardised results.

Throughout the training, participants were evaluated through in-class exercises, quizzes, and observations made during field practice. At the end of the training, the teams were formed by selecting supervisors, interviewers, and biomarker technicians. The supervisors received additional training and covered the roles and responsibilities of supervisors, including how they should organise fieldwork, monitor interviews, and conduct quality control checks on both paper and CAPI questionnaires.

From July 6-8, interviewers and biomarker technicians conducted practice fieldwork to solidify skills learned during the training, and to provide a simulated fieldwork experience to test survey materials. The practice occurred in six EAs, three in the urban locality of Chawama and three in the rural locality of Shimabala, that were close to the training venue. Each area contained 52 selected households, but they were divided in 4 mini-clusters of 13 households (creating 24 mini-clusters).

To complete the fieldwork, each interviewer had to complete at least one household per day. All the interviewers/supervisors had the opportunity to practice household and individual interviews; while the biomarker technicians practiced testing and measuring eligible household members. On average, each interviewer interviewed 2.6 households, female interviewers completed 3.9 woman interviews, and male interviewers completed 3.7 man interviews.

2.6 FIELDWORK

Data collection was carried out by 22 teams, with each team consisting of six members, typically featuring the following composition: one supervisor, three female interviewers, one male interviewer, and two biomarker technicians.

Fieldwork monitoring was an integral part of the ZDHS. Senior technical staff from CSO, the Department of Population Studies at the University of Zambia (Department of Population Studies), UTH, and TDRC, visited teams regularly to review the work and monitor data quality. CSO organised three groups of fieldwork monitors. The first group consisted of 10 provincial coordinators, each one responsible for supervising the work of the teams in one province. They assisted teams to resolve any issues that arose in accessing clusters or while conducting their work, and they supported the technical work of the interviewers. The second group consisted of five biomarker monitors, each responsible for two provinces, who supervised the work of the biomarker technicians. The final supervisory group consisted of three IT staff, who were deployed to teams on an as needed basis to fix CAPI- related issues. Three DHS Program representatives each independently visited teams to monitor data collection and biomarker collection. These visits occurred July 17-21, September 17-October 1, and October 2-5.

During field visits, monitors provided the teams they visited with critical feedback to improve their performance. All monitors used the ZDHS field-check tables, based on data from the completed clusters, to illustrate problems specific to each team visited.

2.7 DATA PROCESSING

All electronic data files were transferred via a secure internet file streaming system to the CSO central office in Lusaka, where they were stored on a password-protected computer. The data processing operation included secondary editing, which required resolution of computer-identified inconsistencies and coding of open-ended questions. The data were processed by two IT specialists and one secondary editor who took part in the main fieldwork training; they were supervised remotely by The DHS Program staff. Data editing was accomplished using CSPro software. During the fieldwork, field-check tables were generated to check various data quality parameters, and specific feedback was given to the teams to improve performance. Secondary editing and data processing were initiated in July 2018 and completed in March 2019.

3 KEY FINDINGS

3.1 RESPONSE RATES

Table 1 shows response rates for the 2018 ZDHS. All 13,595 households in the selected housing units were eligible for the survey, of which 12,943 were occupied. Of the occupied households, 12,831 were successfully interviewed, yielding a response rate of 99%. Of the households successfully interviewed, 12,505 were completed in 2018, and 326 were completed in 2019. As the large majority of households were interviewed in 2018 and the year for reference indicators is 2018, this report is still considered the 2018 ZDHS.

In the interviewed households, 14,189 women age 15-49 were identified for individual interviews; interviews were completed for 13,683 women, yielding a response rate of 96%, which is the same response rate achieved in the 2013-14 survey. Among men, 13,251 were eligible for individual interviews, of which 12,132 completed an interview, thus producing a response rate of 92%, a one percentage point increase from the previous survey.

Table 1 Results of the household and individual interviews

Number of households, number of interviews, and response rates, according to residence (unweighted), Zambia DHS 2018

	Residence		
Result	Urban	Rural	Total
Household interviews			
Households selected	4,944	8,651	13,595
Households occupied	4,768	8,175	12,943
Households interviewed	4,714	8,117	12,831
Household response rate[1]	98.9	99.3	99.1
Interviews with women age 15-49			
Number of eligible women	5,766	8,423	14,189
Number of eligible women interviewed	5,513	8,170	13,683
Eligible women response rate[2]	95.6	97.0	96.4
Interviews with men age 15-59			
Number of eligible men	5,078	8,173	13,251
Number of eligible men interviewed	4,498	7,634	12,132
Eligible men response rate[2]	88.6	93.4	91.6

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

3.2 CHARACTERISTICS OF RESPONDENTS

Table 2 shows the distribution of women and men age 15-49 interviewed in the 2018 ZDHS, by background characteristics. For the most part, the female and male populations have similar distributions. In both populations, the proportion of women and men in each age group decreases with increasing age, reflecting the comparatively young age structure of the population in Zambia.

The vast majority of women (81%) and men (80%) are Protestant. Seventeen percent of women and 19% of men are Catholic, while 1% of women and less than 1% of men are Muslim.

Table 2 shows that about 3 in 10 women (31%) and more than 4 in 10 men (46%) have never been married (a slight increase from 28% and 44%, respectively, in 2013-14). The majority of women (55%) and men (50%) are currently married; 1% of women and less than 1% of men are living with someone as if married. The data further show that female respondents are more likely than male respondents to be divorced or separated (10% versus 4%) or widowed (3% versus less than 1%). More than half of women and men (53% and 55%, respectively) live in rural areas. By province, the largest proportion of female and male respondents (20% and 19%, respectively) live in Lusaka, while the smallest proportion of women reside in North Western and the smallest proportion of men reside in North Western, Western, and Muchinga (5% each).

Only 8% of women and 4% of men age 15-49 in Zambia have no formal education (this has remained constant since 2013-14). Forty-four percent of women and 38% of men have a primary education, and 48% of women and 58% of men have a secondary education or higher (an increase from 45% and 57%, respectively, since 2013-14).

Table 2 Background characteristics of respondents

Percent distribution of women and men age 15-49 by selected background characteristics, Zambia DHS 2018

	Women			Men		
Background characteristic	Weighted percent	Weighted number	Unweighted number	Weighted percent	Weighted number	Unweighted number
Age						
15-19	21.9	3,000	3,112	24.9	2,781	2,852
20-24	20.0	2,733	2,687	18.2	2,032	1,994
25-29	16.4	2,237	2,166	15.4	1,721	1,630
30-34	13.6	1,862	1,864	12.4	1,383	1,357
35-39	12.4	1,697	1,622	11.5	1,280	1,282
40-44	9.2	1,253	1,280	9.8	1,097	1,096
45-49	6.6	900	952	7.9	883	893
Religion						
Catholic	17.2	2,354	2,351	18.7	2,089	2,048
Protestant	81.1	11,098	11,138	79.8	8,917	8,889
Muslim	0.5	64	61	0.4	48	54
Other	1.2	167	133	1.1	123	113
Marital status						
Never married	31.2	4,272	4,321	46.0	5,142	5,129
Married	55.4	7,580	7,544	49.6	5,545	5,497
Living together	0.5	68	53	0.2	27	37
Divorced/separated	10.0	1,370	1,366	3.7	418	404
Widowed	2.9	392	399	0.4	45	37
Residence						
Urban	46.6	6,374	5,513	44.8	5,013	4,191
Rural	53.4	7,309	8,170	55.2	6,165	6,913
Province						
Central	8.5	1,165	1,397	8.8	979	1,211
Copperbelt	16.1	2,201	1,615	15.5	1,727	1,313
Eastern	11.7	1,605	1,536	13.2	1,476	1,346
Luapula	7.8	1,071	1,414	7.6	849	1,140
Lusaka	20.0	2,733	1,775	19.4	2,166	1,415
Muchinga	5.5	754	1,183	5.4	599	968
Northern	7.7	1,054	1,239	7.7	855	976
North Western	5.2	718	1,081	5.0	556	847
Southern	11.5	1,574	1,347	12.5	1,395	1,117
Western	5.9	808	1,096	5.1	574	771
Education						
No education	7.7	1,054	1,145	4.0	446	450
Primary	44.3	6,059	6,217	37.6	4,206	4,399
Secondary	42.5	5,816	5,556	50.3	5,618	5,387
Higher	5.5	755	765	8.1	907	868
Wealth quintile						
Lowest	17.8	2,442	2,844	16.3	1,827	2,133
Second	17.4	2,387	2,677	17.5	1,952	2,214
Middle	18.1	2,477	2,683	19.8	2,218	2,391
Fourth	22.0	3,011	2,559	22.8	2,552	2,090
Highest	24.6	3,367	2,920	23.5	2,629	2,276
Total 15-49	100.0	13,683	13,683	100.0	11,177	11,104
50-59	na	na	na	na	955	1,028
Total 15-59	na	na	na	na	12,132	12,132

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

3.3 FERTILITY

Women who were interviewed in the 2018 ZDHS were asked to report the total number of sons and daughters they had given birth to during their lifetime. To ensure complete reporting, women were asked separately about children living at home, those living elsewhere, and children who had died. A complete birth history was obtained from each respondent, including information on the sex, date of birth, and survival status of each child. Age-specific and total fertility rates (TFRs) were calculated directly from the birth history data.

Table 3 Current fertility

Age-specific and total fertility rates, the general fertility rate, and the crude birth rate for the 3 years preceding the survey, according to residence, Zambia DHS 2018

Age group	Residence		Total
	Urban	Rural	
10-14	1	4	3
15-19	88	174	135
20-24	144	260	203
25-29	153	245	199
30-34	153	222	187
35-39	107	164	138
40-44	33	86	63
45-49	5	16	12
TFR (15-49)	3.4	5.8	4.7
GFR	120	201	163
CBR	30.9	38.4	35.3

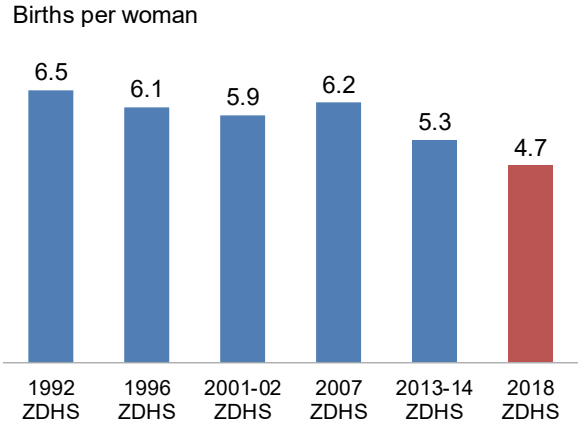
Notes: Age-specific fertility rates are per 1,000 women. Estimates in brackets are truncated. Rates are for the period 1-36 months preceding the interview. Rates for the 10-14 age group are based on retrospective data from women age 15-17.
TFR: Total fertility rate expressed per woman
GFR: General fertility rate expressed per 1,000 women age 15-44
CBR: Crude birth rate, expressed per 1,000 population

Table 3 shows age-specific fertility rates among women by 5-year age groups for the 3-year period preceding the survey, which were calculated directly from the birth history data. Also present in the table is the total fertility rate (TFR), which is a summary measure of the level of fertility and serves as an estimate for the number of children a woman would have by the end of her childbearing years if she were to pass through those years bearing children at the current observed age-specific rates. If fertility were to remain constant at current levels, a woman from Zambia would bear an average of 4.7 children in her lifetime. The TFR for rural areas (5.8 births per woman) is more than two children higher than that for urban areas (3.4 births). Across the various age groups, fertility is consistently higher among rural than urban women. However, while TFR peaks among rural women in the 20-24 age group, urban women's fertility peaks slightly later, in the 25-29 and 30-34 age groups.

Figure 1 presents trends in the TFR since the 1992 ZDHS. The overall fertility rate in Zambia has declined over the past 26 years, falling from 6.5 births per women in 1992 to 4.7 births in 2018.

3.4 TEENAGE PREGNANCY AND MOTHERHOOD

Figure 1 **Trends in total fertility rate, 1992-2018**



The issue of adolescent fertility is important on both health and social grounds. Children born to very young mothers are at increased risk of sickness and death. Teenage mothers are more likely to experience adverse pregnancy outcomes and are more constrained in their ability to pursue educational opportunities than young women who delay childbearing.

Table 4 shows the percentage of women age 15-19 who have given birth or were pregnant with their first child at the time of the survey, according to background characteristics. Overall, 29% of women age 15-19 have begun childbearing: 24% had had a live birth, and 5% were pregnant with their first child at the time of the interview. Six percent of women have already begun childbearing at age 15, but the proportion having children increases rapidly with age, reaching 53% among women age 19. Rural teenagers tend to

start childbearing earlier than other teenagers. Early childbearing among teenagers is more common in Southern Province (43%) than in other areas, especially Lusaka (15%). Teenagers with no education or only primary schooling (42% and 36%, respectively) are more likely to have started childbearing compared with the 29% national average or 23% among teenagers with a secondary education. Childbearing is also most common among women in the lowest wealth quintile (46%).

In trends at the national level, there is a decline in overall adolescent fertility, particularly between the 2001-02 ZDHS and the 2018 ZDHS. However, this decline was less than the decline of the total fertility.

Table 4 Teenage pregnancy and motherhood

Percentage of women age 15-19 who have had a live birth or who are pregnant with their first child, and percentage who have begun childbearing, according to background characteristics, Zambia DHS 2018

Background characteristic	Percentage of women age 15-19 who: Have had a live birth	Are pregnant with first child	Percentage who have begun childbearing	Number of women
Age				
15	4.0	2.3	6.4	653
16	12.6	2.6	15.1	530
17	22.8	7.2	30.0	552
18	35.2	6.7	41.9	722
19	46.2	6.6	52.9	543
Residence				
Urban	16.7	2.6	19.3	1,323
Rural	30.0	7.1	37.0	1,677
Province				
Central	26.4	4.2	30.6	297
Copperbelt	18.8	2.2	21.0	491
Eastern	32.4	7.1	39.5	342
Luapula	23.0	6.0	29.0	253
Lusaka	11.5	3.4	14.9	475
Muchinga	22.3	7.0	29.3	191
Northern	21.6	4.3	25.9	248
North Western	30.5	5.3	35.7	186
Southern	34.7	7.8	42.5	327
Western	33.1	8.1	41.2	190
Education				
No education	33.5	8.4	41.9	99
Primary	30.3	6.0	36.3	1,283
Secondary	18.7	4.2	22.8	1,609
Higher	*	*	*	9
Wealth quintile				
Lowest	37.1	9.1	46.2	510
Second	32.8	5.2	38.0	541
Middle	27.8	7.2	35.0	585
Fourth	23.3	3.6	27.0	655
Highest	5.8	1.8	7.6	709
Total	24.1	5.1	29.2	3,000

Notes: Education categories refer to the highest level of education attended, whether or not that level was completed. An asterisk denotes a figure based on fewer than 25 unweighted cases that has been suppressed.

3.5 FERTILITY PREFERENCES

Information on fertility preferences is used to assess the potential demand for family planning services for the purposes of spacing or limiting future childbearing. To elicit information on fertility preferences, several questions were asked of currently married women (pregnant or not) regarding whether they wanted to have a/another child and, if so, how soon.

Table 5 shows that the majority of married Zambian women express a desire to control their future fertility. More than a third of women (37%) do not want to have any more children or are sterilised. The desire to limit fertility markedly increases by number of living children. For example, nearly 88% of respondents with no children want to have a child; 81% say that they want to have a child soon, while 6% want to have a child later or are undecided when. On the other hand, nearly a third of women with three children say that they want no more, as do more than half of women with five or more children.

Table 5 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 DHS 2018

	Number of living children[1]							
Desire for children	0	1	2	3	4	5	6+	Total
Have another soon[2]	81.4	29.5	21.9	17.9	10.4	8.7	3.8	17.0
Have another later[3]	3.6	58.5	53.3	42.2	32.4	23.5	8.0	35.3
Have another, undecided when	2.6	4.7	4.9	3.6	3.7	2.2	0.7	3.3
Undecided	2.3	1.1	3.9	5.4	8.3	6.7	6.7	5.2
Want no more	2.5	4.4	14.1	29.0	41.7	55.0	75.1	35.9
Sterilised[4]	0.3	0.4	0.6	0.8	1.9	1.7	3.7	1.5
Declared infecund	7.3	1.3	1.2	1.1	1.6	2.2	2.0	1.7
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Number of women	198	1,136	1,524	1,246	1,112	860	1,573	7,648

[1] The number of living children includes the 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

The proportion of women who say that they want to stop childbearing or are sterilised has remained stable at 36%-37% since the 2001-02 ZDHS. The proportion of women who want to have another child soon has slightly increased in relation to the two previous surveys (15% in 2007, 14% in 2013-14, and 17% in 2018). However, the proportion of women who want to wait 2 or more years before having a child decreased from 39% in 2007 and 41% in 2013-14, to 35% in 2018. The percentage of women who say that they cannot conceive has remained stable at 1%-2% over the same period.

3.6 FAMILY PLANNING

Family planning refers to a conscious effort by a couple to use contraceptives to limit or space the number of children they have. Contraceptive methods are classified as modern or traditional. Modern methods include female sterilisation, male sterilisation, intrauterine contraceptive device (IUD), implants, injectables, the pill, condoms, standard days method, and lactational amenorrhoea method (LAM). Other methods such as rhythm, withdrawal, and folk methods are grouped as traditional.

Table 6 shows the percent distribution of currently married women by the family planning method they use, according to background characteristics. Half of all married women of reproductive age are using a method of contraception (50%). Among married women, use of modern methods (48%) is far more common than use of traditional methods (2%). The most widely used method is injectables (26%), followed by the pill and implants (8% each).

The use of any contraceptive rises with age, peaking at 54% among currently married women age 25-29 and 30-34, and then declining to 37% among women age 45-49.

In general, women in Zambia do not begin to use contraception until they have had at least one child. Fifty-four percent of married women residing in urban areas use contraception compared with 46% of women in rural areas. There is considerable variation in contraceptive use by region. Women from Western and Luapula provinces are the least likely to use any method of contraception (31% and 39%, respectively). Muchinga and Lusaka provinces have the highest rates of use of any method (58% and 57%, respectively). As expected, contraceptive use generally increases with educational attainment and wealth

Injectables are the most popular contraceptive method across all subgroups; irrespective of background characteristic, roughly a quarter of current users rely on injectables to prevent pregnancy. Injectables are most popular among users with one to four children, users in Eastern Province, and users age 20-24.

Use of any contraceptive method has not changed much in the past 5 years; 49% of currently married women age 15-49 reported using a method in the 2013-14 ZDHS compared with 50% in the 2018 ZDHS. However, the proportion of currently married women who use modern contraceptive methods increased to 48% from 45% in 2013-14. The percentage of women using injectables has increased, from 19% in 2013-14 to 26% in 2018, whereas the use of the pill fell from 12% to 8%.

Among sexually active unmarried women, 44% are using a contraceptive method: 43% are using a modern method, and 1% are using a traditional method. The most commonly used methods among sexually active unmarried women are injectables (21%), implants (9%), and male condoms (7%).

Table 6 Current use of contraception according to background characteristics

Percent distribution of currently married women and sexually active unmarried women age 15-49, by contraceptive method currently used, according to background characteristics, Zambia DHS 2018

Background characteristic	Any method	Any modern method	Modern method									Any tradi-tional method	Traditional method			Not currently using	Total	Number of women
			Female sterili-sation	Pill	IUD	Inject-ables	Implants	Male condom	SDM	LAM	Other[1]		Rhythm	With-drawal	Other			
CURRENTLY MARRIED WOMEN																		
Number of living children																		
0	4.5	4.5	0.0	0.9	0.0	2.3	0.0	1.1	0.0	0.0	0.2	0.0	0.0	0.0	0.0	95.5	100.0	327
1-2	47.7	46.8	0.5	7.0	0.3	28.1	6.7	3.4	0.1	0.6	0.1	1.0	0.2	0.7	0.0	52.3	100.0	2,689
3-4	57.0	54.7	1.4	10.8	0.7	27.5	9.2	3.4	0.7	0.9	0.1	2.3	0.2	2.1	0.1	43.0	100.0	2,282
5+	50.8	47.3	3.1	6.2	1.3	24.0	9.2	2.5	0.3	0.8	0.0	3.5	0.6	2.7	0.3	49.2	100.0	2,349
Age																		
15-19	38.3	37.8	0.0	4.0	0.0	26.7	4.3	2.3	0.0	0.6	0.0	0.4	0.2	0.2	0.0	61.7	100.0	437
20-24	48.6	47.4	0.0	5.2	0.0	31.8	7.9	1.6	0.0	0.7	0.1	1.2	0.0	1.1	0.0	51.4	100.0	1,438
25-29	54.2	52.7	0.0	8.2	0.6	30.2	9.2	2.8	0.7	1.0	0.0	1.5	0.2	1.4	0.0	45.8	100.0	1,544
30-34	54.0	51.9	0.7	8.9	0.6	29.2	8.0	3.5	0.4	0.6	0.0	2.1	0.2	1.9	0.1	46.0	100.0	1,396
35-39	52.5	50.3	2.2	9.8	1.3	23.3	8.4	4.3	0.3	0.7	0.0	2.3	0.5	1.7	0.1	47.5	100.0	1,307
40-44	46.2	42.6	4.5	8.3	1.3	16.3	8.1	3.2	0.0	0.8	0.2	3.5	0.4	2.9	0.3	53.8	100.0	908
45-49	37.4	32.7	6.0	5.9	1.5	8.8	6.2	3.2	1.1	0.0	0.1	4.6	1.2	2.9	0.6	62.6	100.0	618
Residence																		
Urban	54.3	52.6	1.2	10.7	1.2	24.4	9.5	4.6	0.4	0.5	0.1	1.7	0.4	1.2	0.1	45.7	100.0	3,080
Rural	46.4	44.0	1.8	5.6	0.4	26.4	6.9	2.0	0.3	0.8	0.0	2.4	0.2	2.0	0.1	53.6	100.0	4,568
Province																		
Central	50.9	49.7	0.3	7.3	0.7	27.0	8.4	3.5	0.2	2.3	0.1	1.2	0.1	1.1	0.0	49.1	100.0	654
Copperbelt	53.5	52.8	0.7	9.6	1.1	26.4	10.0	4.4	0.1	0.4	0.0	0.7	0.3	0.5	0.0	46.5	100.0	1,043
Eastern	55.0	53.7	4.1	5.2	0.5	32.8	8.1	2.6	0.1	0.4	0.0	1.3	0.0	1.2	0.1	45.0	100.0	1,075
Luapula	39.1	38.6	1.5	3.8	0.4	24.1	7.1	1.0	0.0	0.6	0.1	0.5	0.3	0.1	0.1	60.9	100.0	611
Lusaka	56.5	54.3	1.4	11.7	1.6	24.6	8.4	4.8	0.6	1.0	0.3	2.1	0.5	1.6	0.0	43.5	100.0	1,384
Muchinga	58.0	52.0	1.7	6.9	0.5	23.5	13.5	3.5	0.1	2.3	0.0	6.0	0.3	5.5	0.3	42.0	100.0	470
Northern	43.9	36.5	0.3	5.4	0.5	22.8	6.1	1.1	0.1	0.1	0.0	7.4	0.0	7.1	0.3	56.1	100.0	668
North Western	46.8	45.9	4.9	6.6	0.1	25.0	7.8	1.4	0.1	0.0	0.0	0.9	0.0	0.5	0.4	53.2	100.0	359
Southern	43.9	42.4	0.7	7.8	0.4	23.7	5.7	2.7	1.2	0.2	0.0	1.5	0.9	0.3	0.2	56.1	100.0	993
Western	31.2	30.0	0.1	6.3	0.0	19.4	2.8	1.4	0.0	0.0	0.0	1.2	0.0	1.0	0.1	68.8	100.0	392
Education																		
No education	37.7	35.9	2.7	3.6	0.3	19.7	7.2	1.5	0.0	1.0	0.0	1.8	0.0	1.6	0.2	62.3	100.0	743
Primary	48.8	46.1	1.5	6.8	0.6	26.7	7.5	2.0	0.3	0.7	0.1	2.7	0.2	2.3	0.2	51.2	100.0	3,881
Secondary	54.2	52.9	1.2	9.0	0.9	27.3	9.4	4.2	0.3	0.6	0.1	1.3	0.3	0.9	0.0	45.8	100.0	2,635
Higher	49.1	46.6	2.4	14.5	1.5	14.0	3.3	7.4	2.0	1.5	0.1	2.5	1.2	1.3	0.0	50.9	100.0	389
Wealth quintile																		
Lowest	40.8	38.0	0.9	4.1	0.3	24.1	6.3	1.4	0.1	0.6	0.0	2.8	0.1	2.5	0.2	59.2	100.0	1,553
Second	45.9	43.4	2.0	4.8	0.3	26.4	6.4	2.2	0.3	1.0	0.0	2.5	0.4	1.9	0.2	54.1	100.0	1,509
Middle	53.0	51.1	1.9	7.1	0.5	28.5	9.9	1.9	0.4	0.8	0.0	1.9	0.2	1.6	0.0	47.0	100.0	1,468
Fourth	54.6	53.6	0.7	8.4	1.1	29.9	9.7	3.3	0.0	0.4	0.1	0.9	0.1	0.8	0.1	45.4	100.0	1,620
Highest	53.8	51.3	2.3	13.8	1.3	18.7	7.3	6.1	0.8	0.8	0.2	2.5	0.7	1.8	0.0	46.2	100.0	1,499
Total	49.6	47.5	1.5	7.6	0.7	25.6	7.9	3.0	0.3	0.7	0.1	2.1	0.3	1.7	0.1	50.4	100.0	7,648

Continued...

Table 6—*Continued*

Background characteristic	Any method	Any modern method	Modern method: Female sterilisation	Pill	IUD	Injectables	Implants	Male condom	SDM	LAM	Other[1]	Any traditional method	Traditional method: Rhythm	Withdrawal	Other	Not currently using	Total	Number of women
								SEXUALLY ACTIVE UNMARRIED WOMEN[2]										
Residence																		
Urban	47.6	46.7	0.0	6.7	1.2	17.0	10.2	9.6	0.2	0.2	1.6	0.9	0.0	0.8	0.1	52.4	100.0	437
Rural	39.9	39.2	0.0	3.2	0.0	24.8	7.4	3.7	0.0	0.0	0.1	0.7	0.1	0.3	0.2	60.1	100.0	399
Total	43.9	43.1	0.0	5.0	0.6	20.7	8.8	6.8	0.1	0.1	0.9	0.8	0.1	0.6	0.2	56.1	100.0	835

Note: If more than one method is used, only the most effective method is considered in this tabulation.
SDM = Standard days method
LAM = Lactational amenorrhoea method
[1] Other modern includes male sterilisation, female condom, and emergency contraception
[2] Women who have had sexual intercourse within 30 days preceding the survey

3.7 NEED AND DEMAND FOR FAMILY PLANNING

Unmet need for family planning refers to fecund women (currently married or in union), who are not using contraception, but who wish to postpone their next birth (spacing) or stop childbearing altogether (limiting). An estimate of the size and composition of the population of women who have an unmet need for family planning services is useful for planning purposes in reproductive health programmes.

The criteria used within the DHS Program to identify women with an unmet need for family planning has followed the Bradley et al. 2012 definition over the past several years. This definition was employed in determining the percentage of women who have an unmet need for family planning (Table 7).

Specifically, women are considered to have an unmet need for spacing if they are:

- At risk of becoming pregnant, not using contraception, and either do not want to become pregnant within the next 2 years or are unsure if or when they want to become pregnant
- Pregnant with a mistimed pregnancy
- Postpartum amenorrhoeic for up to 2 years following a mistimed birth and not using contraception

Women are considered to have an unmet need for limiting if they are:

- At risk of becoming pregnant, not using contraception, and want no (more) children
- Pregnant with an unwanted pregnancy
- Postpartum amenorrhoeic for up to 2 years following an unwanted birth and not using contraception

Women who are classified as infecund have no unmet need because they are not at risk of becoming pregnant.

Women using contraception are considered to have a met need. Women using contraception who say they want no (more) children are considered to have a met need for limiting, and women who are using contraception and say they want to delay having a child or are unsure if or when they want a (another) child are considered to have a met need for spacing.

Finally, total demand, percentage of demand satisfied, and percentage of demand satisfied by modern methods are defined as follows:

- **Total demand for family planning:** the sum of unmet need (for spacing and limiting) and total contraceptive use
- **Percentage of demand satisfied:** total contraceptive use divided by the sum of unmet need and total contraceptive use
- **Percentage of demand satisfied by modern methods:** use of modern contraceptive methods divided by the sum of unmet need and total contraceptive use

Table 7 presents data on unmet need, met need, and total demand for family planning services for currently married women. Overall, 20% of currently married women have an unmet need for family planning. Fifty percent of married women have a met need for family planning—that is, they are currently using a contraceptive method—and this has remained relatively consistent since 2013-14, when 49% of women had a met need for family planning. The total demand for family planning among currently married women is 69%, and the total demand satisfied is 72%, almost entirely by modern methods (69%). Thus, if all married

women who said they want to space or limit their children were to use family planning methods, the contraceptive prevalence rate (CPR) would increase from 50% to 69%.

The level of unmet need varies by background characteristics. Unmet need is highest among married women age 40-44 (24%). Total unmet need among urban married women (17%) is lower than among rural married women (21%). Across provinces, unmet need is highest in Western (27%) and lowest in Muchinga (15%). Women with lower levels of education and wealth generally have higher levels of unmet need than their more educated and wealthier counterparts.

Table 7 Need and demand for family planning among currently married women and sexually active unmarried women

Percentage of currently married women and sexually active unmarried women age 15-49 with unmet need for family planning, percentage with met need for family planning, percentage with met need for family planning who are using modern methods, percentage with demand for family planning, percentage of the demand for family planning that is satisfied, and percentage of the demand for family planning that is satisfied with modern methods, according to background characteristics, Zambia DHS 2018

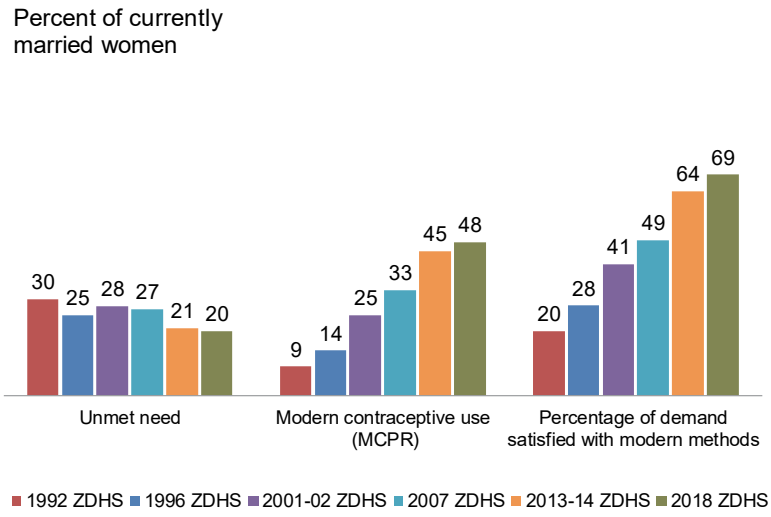
Background characteristic	Unmet need for family planning	Met need for family planning (currently using)		Total demand for family planning[3]	Number of women	Percentage of demand satisfied[1]	
		All methods	Modern methods[2]			All methods	Modern methods[2]
CURRENTLY MARRIED WOMEN							
Age							
15-19	21.5	38.3	37.8	59.8	437	64.0	63.3
20-24	19.3	48.6	47.4	67.9	1,438	71.6	69.8
25-29	15.7	54.2	52.7	69.8	1,544	77.6	75.4
30-34	18.8	54.0	51.9	72.9	1,396	74.2	71.2
35-39	23.3	52.5	50.3	75.9	1,307	69.3	66.3
40-44	24.2	46.2	42.6	70.4	908	65.6	60.5
45-49	16.7	37.4	32.7	54.0	618	69.1	60.6
Residence							
Urban	17.4	54.3	52.6	71.7	3,080	75.8	73.4
Rural	21.2	46.4	44.0	67.7	4,568	68.6	65.1
Province							
Central	17.0	50.9	49.7	67.9	654	74.9	73.2
Copperbelt	19.4	53.5	52.8	73.0	1,043	73.4	72.3
Eastern	19.8	55.0	53.7	74.8	1,075	73.5	71.8
Luapula	25.7	39.1	38.6	64.7	611	60.4	59.6
Lusaka	16.4	56.5	54.3	72.8	1,384	77.5	74.6
Muchinga	14.8	58.0	52.0	72.9	470	79.6	71.4
Northern	18.8	43.9	36.5	62.8	668	70.0	58.1
North Western	20.9	46.8	45.9	67.7	359	69.1	67.8
Southern	22.1	43.9	42.4	66.0	993	66.5	64.2
Western	26.6	31.2	30.0	57.8	392	54.0	52.0
Education							
No education	24.2	37.7	35.9	61.9	743	60.9	58.0
Primary	21.5	48.8	46.1	70.3	3,881	69.5	65.6
Secondary	16.5	54.2	52.9	70.6	2,635	76.7	74.9
Higher	14.8	49.1	46.6	63.9	389	76.9	73.0
Wealth quintile							
Lowest	23.0	40.8	38.0	63.8	1,553	63.9	59.5
Second	22.9	45.9	43.4	68.7	1,509	66.7	63.1
Middle	18.2	53.0	51.1	71.2	1,468	74.4	71.7
Fourth	17.4	54.6	53.6	72.0	1,620	75.8	74.5
Highest	16.9	53.8	51.3	70.7	1,499	76.2	72.6
Total	19.7	49.6	47.5	69.3	7,648	71.6	68.5
SEXUALLY ACTIVE UNMARRIED WOMEN[4]							
Residence							
Urban	41.0	47.6	46.7	88.7	437	53.7	52.7
Rural	43.2	39.9	39.2	83.0	399	48.0	47.2
Total	42.0	43.9	43.1	86.0	835	51.1	50.2

Note: Numbers in this table correspond to the revised definition of unmet need described in Bradley et al. 2012.
[1] Percentage of demand satisfied is met need divided by total demand.
[2] Modern methods include female sterilisation, male sterilisation, pill, IUD, injectables, implants, male condom, female condom, emergency contraception, standard days method (SDM), lactational amenorrhoea method (LAM), and other modern methods.
[3] Total demand is the sum of unmet need and met need.
[4] Women who have had sexual intercourse within 30 days preceding the survey

Figure 2 shows trends in unmet need, modern contraceptive use, and percentage of demand met with modern methods. Overall, unmet need has generally declined, particularly since the 2001-02 ZDHS, from 28% to 20%. Modern contraceptive use and percentage of demand satisfied with modern methods have both increased since the 1992 ZDHS (from 9% and 20% to 48% and 69%, respectively).

3.8 EARLY CHILDHOOD MORTALITY

Figure 2 **Trends in unmet need, modern contraceptive use, and percentage of demand satisfied with modern methods, 1992-2018**



Infant and child mortality rates are 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 Woman's Questionnaire, which includes questions about women's childbearing experience including the number of sons and daughters who live with their mother, the number who live elsewhere, and the number who have died. For each live birth reported in the birth history, information was collected on the name, date of birth, sex, whether the birth was single or multiple, and survivorship. For living children, information was also collected on age at last birthday and whether the child resided with the mother. For children who had died, the respondent was asked to provide the age at death. Mortality rates for specific periods preceding the survey were calculated using direct estimation procedures and are shown in Table 8.

This information is used to directly estimate the following five mortality rates:

- **Neonatal mortality:** the probability of dying within the first month of life
- **Postneonatal mortality:** the probability of dying after the first month of life, but before the first birthday (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 the fifth birthday
- **Under-5 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 age 12 months.

Table 8 presents early childhood mortality rates for the 15 years preceding the survey. Under-5 mortality for the period 0-4 years before the survey (which corresponds approximately to the calendar years 2014-2018) is 61 deaths per 1,000 births. Most of the mortality occurs during the first year of life, as the infant mortality rate is 42 deaths per 1,000 births, while mortality between the first and the fifth birthday is only 19 deaths per 1,000 children surviving to their first birthday. Mortality during the first month (neonatal mortality), is higher than postneonatal mortality (27 deaths per 1,000 births versus 14 deaths per 1,000 births) and accounts for 64% of the overall infant mortality.

Table 8 Early childhood mortality rates

Neonatal, postneonatal, infant, child, and under-5 mortality rates for 5-year periods preceding the survey, Zambia DHS 2018

	Neonatal mortality (NN)	Postneonatal mortality (PNN)[1]	Infant mortality ($_1q_0$)	Child mortality ($_4q_1$)	Under-5 mortality ($_5q_0$)
Years preceding the survey					
0-4	27	14	42	19	61
5-9	22	20	43	27	68
10-14	21	27	48	42	88

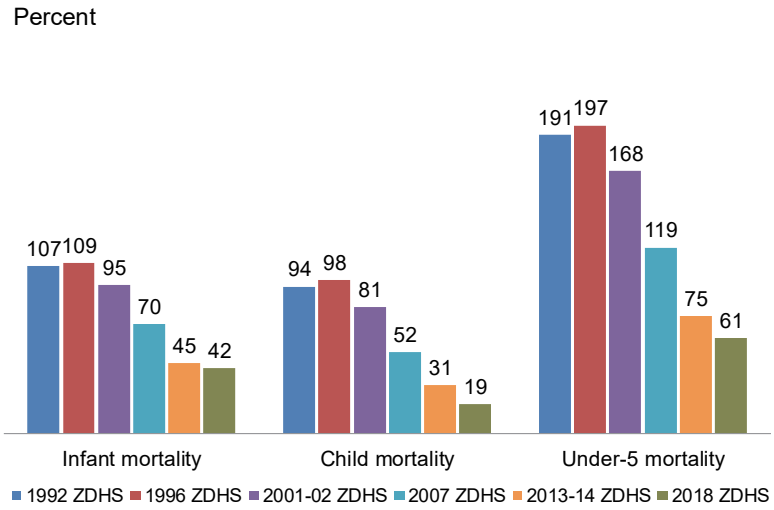
[1] Computed as the difference between the infant and neonatal mortality rates

Another way to look at trends in mortality levels involves the comparison of estimates from surveys conducted at different points in time. Results from the 2018 ZDHS and the previous five ZDHS surveys are presented in Figure 3. Except for rates from the 1996 survey, trends from the previous surveys show a continuous decline in infant, child, and under-5 mortality within the range of 0-4 years preceding each respective survey.

3.9 MATERNAL CARE

Proper care during pregnancy and delivery is important for the health of both the mother and the baby. In the 2018 ZDHS, women who had given live birth in the 5 years preceding the survey were asked a number of questions about maternal care. Mothers were asked whether they had obtained antenatal care during the pregnancy for their most recent live birth in the 5 years preceding the survey. For each live birth over the same period, mothers were also asked what type of assistance they received at the time of delivery. Questions were asked about postnatal care for the most recent birth. Table 9 summarises information on the coverage of these maternal health services.

***Figure 3* Trends in childhood mortality, 1992-2018**



Antenatal Care

Antenatal care (ANC) from a skilled provider is important to monitor pregnancy and reduce morbidity and mortality risks for the mother and child during pregnancy, at delivery, and during the postnatal period (within 42 days after delivery). In Zambia, skilled providers trained to assist during delivery included doctors, nurses, midwives, and clinical officers.

Table 9 shows that 97% of mothers reported seeing a health professional at least once for antenatal care for the most recent birth in the 5-year period before the survey, which is basically unchanged from the 96% reported in the 2013-14 ZDHS. This indicator is almost uniformly high among mothers regardless of background characteristics. Nevertheless, women with no education, those in the poorest wealth quintile, and those living in Luapula and Muchinga provinces are somewhat less likely to report receiving antenatal care from a skilled provider than other women.

Overall, 64% of women had four or more ANC visits, a noticeable increase from the 56% in the 2013-14 ZDHS. Rural women were slightly more likely than urban women to have made four or more ANC visits (65% and 61%, respectively). Among the provinces, 70% of women in the North Western Province had four or more ANC visits compared with 59% of women residing in Lusaka and Western provinces. The likelihood of having made four or more ANC visits generally increases with the mother's education level. Fifty-nine percent of mothers with no education had four or more ANC visits compared with 79% of mothers with higher education. There is no clear relationship between receiving four or more ANC visits and wealth.

Tetanus Toxoid Vaccination

Tetanus toxoid injections are given to women during pregnancy to protect infants from neonatal tetanus, a cause of infant death due primarily to unsanitary conditions at childbirth. Full protection is considered to be provided to an infant if the mother received two injections during the pregnancy of her last birth, or two or more injections (the last within 3 years of the last live birth), or three or more injections (the last within 5 years of the last birth), or four or more injections (the last within 10 years of the last live birth), or five or more injections prior to the last birth. Seventy-nine percent of women received the number of tetanus toxoid injections required to provide full protection at their most recent birth in the 5 years preceding the survey. Women in urban areas are more likely to receive full protection against tetanus than are women in rural areas (84% versus 75%). At the provincial level, women in Copperbelt and Lusaka were most likely to have received full protection (88% and 86%, respectively), whereas those in Western Province were least likely (66%). There is a positive relationship between the probability of receiving tetanus vaccinations and rising levels of wealth.

Table 9 Maternal care indicators

Among women age 15-49 who had a live birth in the 5 years preceding the survey, percentage who received antenatal care from a skilled provider for the most recent live birth, percentage with four or more ANC visits for the most recent live birth, and percentage whose most recent live birth was protected against neonatal tetanus; among all live births in the 5 years before the survey, percentage delivered by a skilled provider and percentage delivered in a health facility; and among women age 15-49 who had a live birth in the 2 years preceding the survey, percentage who received a postnatal check during the first 2 days after giving birth, according to background characteristics, Zambia DHS 2018

	Women who had a live birth in the 5 years preceding the survey				Live births in the 5 years preceding the survey			Women who had a live birth in the 2 years preceding the survey	
Background characteristic	Percentage receiving antenatal care from a skilled provider[1]	Percentage with 4+ ANC visits	Percentage whose most recent 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	Percentage of women with a postnatal check during the first 2 days after birth[3]	Number of women
Mother's age at birth									
<20	97.6	58.5	65.3	1,417	84.0	87.4	2,022	65.7	828
20-34	96.9	64.6	81.5	4,747	80.3	83.7	6,430	71.3	2,476
35-49	96.0	65.0	82.6	1,160	75.7	79.3	1,389	68.9	602
Residence									
Urban	99.2	60.7	84.4	2,811	93.1	93.2	3,489	81.5	1,340
Rural	95.5	65.3	75.0	4,513	73.4	78.7	6,352	63.6	2,564
Province									
Central	97.2	60.0	73.0	640	71.3	72.0	855	61.2	343
Copperbelt	99.4	60.3	88.2	969	90.7	90.5	1,209	83.1	473
Eastern	96.4	65.1	69.8	983	84.2	90.3	1,321	69.6	569
Luapula	91.4	64.7	73.3	640	72.4	88.1	950	69.4	375
Lusaka	98.6	58.5	86.1	1,219	90.8	91.2	1,532	83.6	558
Muchinga	93.0	68.8	78.2	433	74.9	76.0	605	69.2	227
Northern	98.4	66.8	77.4	615	70.0	72.2	890	54.4	347
North Western	97.2	69.8	85.2	404	79.0	87.8	531	70.7	219
Southern	98.1	68.0	79.9	946	81.3	82.1	1,308	65.0	525
Western	94.4	59.2	66.2	477	71.1	73.7	641	57.6	269
Mother's education									
No education	91.1	58.8	67.8	689	62.2	66.4	996	50.3	371
Primary	96.6	63.8	76.7	3,595	76.2	80.5	5,008	66.1	1,970
Secondary	98.4	62.4	82.5	2,726	89.8	92.0	3,448	78.5	1,410
Higher	99.8	79.4	88.9	316	98.6	98.9	389	83.5	153

Continued...

Table 9—*Continued*

Background characteristic	Women who had a live birth in the 5 years preceding the survey				Live births in the 5 years preceding the survey			Women who had a live birth in the 2 years preceding the survey	
	Percentage receiving antenatal care from a skilled provider[1]	Percentage with 4+ ANC visits	Percentage whose most recent 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	Percentage of women with a postnatal check during the first 2 days after birth[3]	Number of women
Wealth quintile									
Lowest	93.7	64.9	72.0	1,676	67.4	72.5	2,466	57.1	1,002
Second	96.1	65.0	75.0	1,527	73.7	80.2	2,168	66.0	873
Middle	97.2	63.7	78.1	1,390	82.0	85.0	1,823	68.4	738
Fourth	98.9	58.5	81.8	1,471	91.2	92.0	1,840	81.7	672
Highest	99.6	65.4	88.4	1,262	95.9	95.9	1,545	84.0	620
Total	96.9	63.5	78.6	7,325	80.4	83.8	9,841	69.7	3,905

Note: If more than one source of assistance was mentioned, only the provider with the highest qualifications is considered in this tabulation.
[1] Skilled provider includes doctor, nurse, midwife, clinical officer.
[2] Includes mothers with two injections during the pregnancy of her most recent live birth, or two or more injections (the last within 3 years of the most recent live birth), or three or more injections (the last within 5 years of the most recent live birth), or four or more injections (the last within 10 years of the most recent live birth), or five or more injections at any time prior to the last live birth
[3] Includes women who received a check from a doctor, midwife, nurse, clinical officer, community health assistant, community health worker, or traditional birth attendant

Delivery Care

Access to proper medical attention and hygienic conditions during delivery can reduce the risk of complications and infections that may lead to death or serious illness for the mother and/or baby (Van Lerberghe and De Brouwere 2001; WHO 2006). Table 9 shows that a majority of births (80%) in Zambia are assisted by a skilled medical professional. Assistance at delivery by a skilled provider is far higher in urban (93%) than rural (73%) areas. There is a good deal of variation between provinces, with Lusaka and Copperbelt having the highest percentage (91%) and Northern having the lowest (70%). As expected, there is a positive relationship between mother's education and assistance at delivery, rising from 62% among mothers with no education, to 99% among those with higher education. Wealth follows a similar pattern to mother's education, rising from 67% among women in the lowest wealth quintile to 96% among women in the highest.

Table 9 also shows that 84% of births occur in health facilities. This is an increase from the 2013-14 ZDHS, when only 67% of births took place in a health facility. There is variation in percentage of facility deliveries across residence and province. Overall, urban areas have a greater percentage of facility deliveries than rural areas (93% compared with 79%, respectively). Among provinces, facility deliveries are least common in Central and Northern (72% each) and most common in Lusaka and Copperbelt (91% each). Mother's level of education ostensibly relates to the likelihood that a birth is delivered in a health facility. A relatively low 66% of births to women with no education take place in a health facility compared with 99% of those to women with higher education. Place of delivery also seemingly correlates positively with wealth quintile; 73% of births to women in the lowest quintile take place in a health facility compared with 96% of births to women in the highest quintile.

Postnatal Care for the Mother

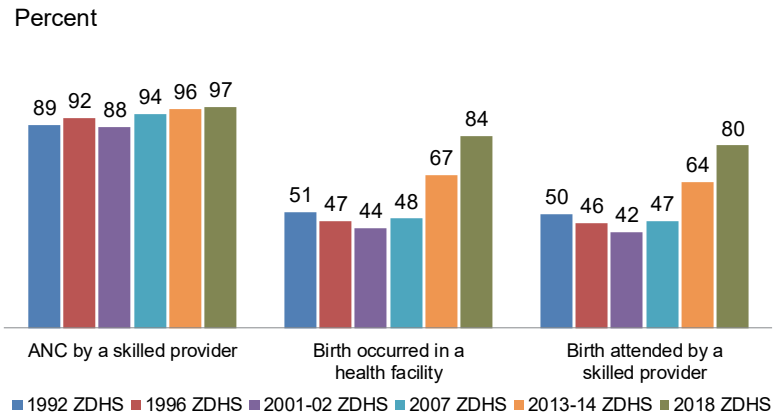
A large proportion of maternal and neonatal deaths occur during the first 48 hours after delivery. Thus, prompt postnatal care (PNC) for both the mother and the child is important to treat any complications arising from the delivery, as well as to provide the mother with important information on how to care for herself and her child. Safe motherhood programmes recommend that all women receive a check of their health within 2 days after delivery.

Overall, 70% of women with a birth in the 2 years preceding the survey received postnatal care within 2 days after delivery. As shown in Table 9, there is a large gap between women in urban (82%) and rural (64%) areas in receiving timely postnatal care. Lusaka Province had the highest percentage of women receiving timely postnatal care (84%) relative to the other provinces. Northern Province had the lowest proportion of women receiving postnatal care (54%). The percentage also rises with increasing education, from only 50% of women with no education to 84% of those with a higher education. Similar patterns are observed by household wealth, rising from 57% in the lowest wealth quintile, to 84% in the highest.

Figure 4 shows trends in maternal health care from the 1992 ZDHS to the 2018 ZDHS. The percentage of women receiving ANC from a skilled provider has increased from 89% in 1992 to 97% in 2018. The proportion of women whose births occurred in a health facility has increased from 51% in 1992 to 84% in 2018. Similarly, the proportion of women whose births were attended by a skilled provider has risen from 50% to 80% over the same period. For these last two indicators, most of the progress was made since the 2001-02 ZDHS.

3.10 CHILD HEALTH AND NUTRITION OF CHILDREN AND WOMEN

Figure 4 **Trends in maternal health care, 1992-2018**



The 2018 ZDHS collected data on a number of key child health indicators, including vaccinations of young children, infant feeding practices, and treatment practices when a child is ill.

Vaccination of Children

Universal immunisation of children against common vaccine-preventable diseases is crucial to reducing infant and child mortality. In Zambia, routine childhood vaccines include BCG vaccine (tuberculosis), DPT-HepB-Hib or pentavalent vaccine (diphtheria, tetanus, pertussis, hepatitis B and *Haemophilus influenzae* type b), oral polio vaccine or OPV (poliomyelitis), PCV vaccine (pneumococcal), rotavirus or RV vaccine, and measles and rubella or MR vaccine.[1]

In Zambia, the BCG vaccine is usually given after birth. The first dose of the oral polio vaccine (polio-0) is given within the first 13 days after birth, while the first two doses of pentavalent, PCV, RV, and polio vaccines (excluding polio vaccine given at birth) are given approximately at age 6 and 10 weeks. The third doses of pentavalent, PCV, and polio are given at 14 weeks. Another dose of OPV (polio-4) may be given at 9 months if a birth dose of OPV was not given. A first MR vaccination should be given at or soon after age 9 months, while a second dose is also to be given at 18 months, unless symptomatic with HIV.

The 2018 ZDHS collected information on vaccinations for all children born in the 3 years before the survey. For each of these children, mothers were asked whether they had a health card for the child, and if so, whether the interviewer could see it. When a mother was able to show the health card to the interviewer, the dates of vaccinations received were copied from the card to the questionnaire. If a child never received a health card or if the mother was unable to show the card to the interviewer, the mother was asked specific questions about whether the child had received each vaccine. In the 2018 ZDHS, the health card was observed for 77% of the children age 12-23 months and 68% of the children age 24-35 months for whom vaccination data were

[1] Zambia introduced inactivated polio vaccine in mid-2018 immediately prior to the start of data collection. As the age cohorts for tabulation exceed the age of the children who would have received the vaccine, it was excluded from data collection.

obtained (data not shown). Thus, the information presented below on vaccination coverage is based on both the information taken from the health cards and the information obtained from the mothers' reports.

According to the guidelines developed by the World Health Organization, children are considered to have received all basic vaccinations when they have received BCG vaccination, three doses of DPT vaccine (given as pentavalent), three doses of polio vaccine (excluding the polio vaccine given at birth), and a vaccination against measles (given as measles and rubella).

A second critical measure of vaccination coverage is the proportion of children age 12-23 months and 24-35 months who have received "all age-appropriate" vaccinations. The Zambian immunisation programme considers a child age 12-23 months to have received all age-appropriate vaccinations if the child has all basic vaccines along with a fourth dose of OPV, three doses of pneumococcal vaccine, and two doses of rotavirus vaccine. Whereas a child age 24-35 months has received all age-appropriate vaccinations if the child has received all age-appropriate vaccines relevant for a child age 12-23 months, plus a second dose of MR.

Table 10 presents data on vaccination coverage among children age 12-23 months and 24-35 months, by background information. The table shows that 75% of children 12-23 months received all basic vaccinations, but only 46% received all age-appropriate vaccinations. For both basic and age-appropriate vaccinations, coverage is higher in urban than rural areas. However, the gap between urban and rural areas is more severe for age-appropriate vaccinations (60% to 38%, respectively) than for basic vaccinations (77% to 74%, respectively). For both indicators, coverage was higher among those whose vaccination card was seen (89% for basic and 55% for age-appropriate) than for those whose card was not seen (30% for basic and 17% for age-appropriate). Coverage at the provincial level for basic vaccines was highest in Copperbelt (83%), followed by Central and Eastern (each 79%) and lowest in Luapula (67%). In contrast, while age-appropriate vaccination coverage was also highest in Copperbelt (69%) it was lowest in Southern (29%). In both cases, coverage rates generally increased with mother's education and wealth. In addition, coverage rates declined for subsequent doses for all multi-dose vaccines.

Table 10 Vaccinations by background characteristics

Percentage of children age 12-23 months and children age 24-35 months who received specific vaccines at any time before the survey (according to a vaccination card or the mother's report), percentage with all basic vaccinations, and percentage with all age-appropriate vaccinations, according to background characteristics, Zambia DHS 2018

		DPT-HepB-Hib[1]			Polio[2]				Pneumococcal			Rotavirus						Children age 24-35 months:		
Background characteristic	BCG	1	2	3	0 (birth dose)	1	2	3	1	2	3	1	2	MR1	All basic vaccinations[3]	All age appropriate vaccinations[4]	No vaccinations	Number of children	MR2	All age appropriate vaccinations[5]	Number of children
Sex																					
Male	97.4	98.2	96.5	91.6	66.1	96.5	93.2	81.7	97.8	95.5	89.7	95.7	91.0	91.7	75.9	46.9	1.1	961	66.5	34.1	907
Female	97.5	97.6	95.4	92.6	66.8	96.5	93.5	80.7	97.5	95.4	89.9	95.2	90.3	90.1	74.1	45.1	1.5	930	61.2	32.2	955
Vaccination card																					
Seen	98.9	99.6	98.8	96.2	64.4	99.5	98.5	94.9	99.5	98.5	93.9	98.3	94.8	93.5	88.6	54.8	0.1	1,450	67.2	40.8	1,258
Not seen/no card	92.6	92.3	86.4	78.6	73.2	86.5	76.4	36.0	91.5	85.3	76.3	86.2	76.7	82.6	30.2	16.9	5.4	440	56.8	17.2	604
Residence																					
Urban	99.6	98.5	97.0	94.7	85.5	96.8	94.7	82.4	98.6	96.8	91.5	97.0	92.7	91.8	77.0	60.1	0.2	666	64.1	43.4	658
Rural	96.3	97.6	95.3	90.7	56.1	96.4	92.6	80.6	97.1	94.7	88.9	94.6	89.4	90.5	73.9	38.3	1.9	1,225	63.6	27.5	1,204
Province																					
Central	98.9	99.3	99.0	93.5	67.6	99.3	97.9	85.8	99.3	98.5	92.8	97.4	92.1	91.6	78.8	48.3	0.3	171	74.7	27.5	156
Copperbelt	98.9	98.2	96.6	95.6	87.9	96.8	94.3	91.4	98.2	95.7	93.3	96.8	92.2	88.2	82.6	69.1	0.0	241	68.5	49.8	215
Eastern	97.1	98.5	97.0	94.4	55.5	98.3	95.4	84.6	98.7	97.1	92.1	98.0	93.8	93.2	79.1	42.4	1.2	274	70.7	35.5	232
Luapula	97.3	98.5	97.5	91.3	70.5	98.6	95.3	76.4	97.9	96.3	90.3	95.3	88.5	90.8	66.7	42.5	1.0	174	66.2	30.8	176
Lusaka	99.7	98.2	96.7	94.6	90.6	95.7	93.1	76.6	99.3	97.8	89.1	98.0	93.7	94.7	72.9	58.4	0.3	267	68.7	46.9	304
Muchinga	93.4	95.2	92.3	86.8	51.2	93.7	88.4	76.0	95.1	91.1	86.3	91.1	88.4	85.4	67.9	33.9	4.3	113	59.9	27.6	123
Northern	96.2	96.2	93.2	88.7	53.8	97.0	92.9	81.7	95.7	92.8	85.8	94.4	88.7	88.5	76.2	43.0	3.0	155	51.5	24.6	176
North Western	98.1	98.1	94.7	90.6	66.0	96.4	91.7	81.3	96.3	92.9	88.3	92.6	90.8	87.2	74.7	43.7	1.9	109	59.2	23.8	102
Southern	98.0	98.9	98.1	93.0	51.8	95.0	93.9	79.0	98.8	96.8	90.9	97.4	91.4	94.5	74.9	29.4	0.8	257	57.6	26.7	263
Western	92.4	95.1	88.1	82.6	50.5	92.3	84.5	73.4	91.3	87.9	82.2	83.4	78.1	86.8	68.1	35.8	3.6	130	51.3	14.0	116
Mother's education																					
No education	89.7	92.1	89.2	83.2	47.6	90.7	87.9	75.2	91.3	89.7	82.4	88.5	84.5	80.3	66.2	31.3	7.3	182	48.9	18.5	196
Primary	97.4	98.1	95.2	90.7	60.6	96.1	92.4	80.7	97.7	94.5	88.8	95.3	88.8	90.1	73.3	40.0	1.0	966	60.7	29.3	952
Secondary	99.4	99.0	98.3	95.7	77.4	98.4	95.7	82.8	99.0	98.1	92.6	97.2	94.4	94.2	78.5	55.5	0.3	670	70.7	39.7	658
Higher	100.0	100.0	100.0	99.1	90.6	98.1	98.1	88.0	99.3	97.4	95.3	98.5	94.8	98.1	88.0	74.5	0.0	73	87.9	72.2	55

Continued…

Table 10—*Continued*

Background characteristic	BCG	DPT-HepB-Hib[1]			Polio[2]				Pneumococcal			Rotavirus		MR1	All basic vaccinations[3]	All age appropriate vaccinations[4]	No vaccinations	Number of children	Children age 24-35 months:		
		1	2	3	0 (birth dose)	1	2	3	1	2	3	1	2						MR2	All age appropriate vaccinations[5]	Number of children
Wealth quintile																					
Lowest	94.7	96.9	94.1	88.4	51.5	95.7	90.9	78.3	95.4	93.6	87.7	93.9	88.5	88.5	71.6	35.5	2.5	483	53.2	19.7	479
Second	97.3	97.5	95.3	90.6	54.8	96.4	94.2	81.2	97.4	95.0	89.0	94.7	90.5	91.0	74.2	35.7	2.1	414	67.6	34.2	369
Middle	97.2	98.2	96.4	93.0	65.0	96.8	93.3	84.5	98.4	95.5	88.8	94.6	87.7	90.7	77.5	46.4	1.1	342	65.3	28.7	355
Fourth	99.8	98.4	98.4	94.6	81.4	98.1	95.6	83.9	98.4	97.7	94.3	97.7	94.3	90.5	76.3	57.6	0.0	348	64.5	38.7	375
Highest	99.6	99.0	96.4	96.0	90.5	95.8	93.7	79.2	99.5	96.5	90.4	97.4	93.2	95.6	77.3	62.9	0.1	304	74.1	52.6	284
Total	97.5	97.9	95.9	92.1	66.4	96.5	93.4	81.2	97.6	95.5	89.8	95.4	90.6	90.9	75.0	46.0	1.3	1,891	63.8	33.1	1,862

BCG = Bacille Calmette-Guérin
DPT = Diphtheria-pertussis-tetanus
HepB = Hepatitis B
Hib = *Haemophilus influenzae* type b
Notes: Children are considered to have received the vaccine if it was either written on the child's vaccination card or reported by the mother. For children whose vaccination information is based on the mother's report, date of vaccination is not collected. The proportions of vaccinations given during the first and second years of life are assumed to be the same as for children with a written record of vaccination.
[1] DPT-HepB-Hib is sometimes referred to as Pentavalent.
[2] Polio 0 is the polio vaccination given at birth.
[3] Basic vaccinations are defined as: BCG, three doses of DPT-HepB-Hib, three doses of oral polio vaccine (excluding polio vaccine given at birth), and one dose of measles and rubella (MR) vaccine.
[4] Age appropriate vaccinations for those age 12-23 months are defined as BCG, three doses of DPT-HepB-Hib, four doses of oral polio vaccine, three doses of pneumococcal vaccine, two doses of rotavirus vaccine, and one dose of measles and rubella (MR) vaccine.
[5] Age appropriate vaccinations for those age 24-35 months are defined as BCG, three doses of DPT-HepB-Hib, four doses of oral polio vaccine, three doses of pneumococcal vaccine, two doses of rotavirus vaccine, and two doses of measles and rubella (MR) vaccine.

Among children age 24-35 months, 64% have received the second dose of MR vaccine. Overall, the data show that 33% of children age 24-35 months had received all age-appropriate vaccinations by the date of the interview. The proportion with all age-appropriate vaccinations is higher for those living in urban areas than in rural areas (43% versus 28%). Coverage is lowest in Western (14%) and highest in Copperbelt (50%) provinces.

Overall, basic vaccination coverage among children age 12-23 months has improved since the 2013-14 ZDHS, rising seven percentage points from 68% to 75%. Furthermore, coverage of each of the basic vaccinations and doses have also increased over the last 5 years. Age-appropriate vaccination information for both age cohorts is not available for comparison from the previous survey.

Treatment of Childhood Illnesses

Pneumonia and other acute respiratory infections (ARIs), fever, and dehydration from diarrhoea are important contributing causes of childhood morbidity and mortality in developing countries (WHO 2003). Prompt medical attention when a child has the symptoms of these illnesses is, therefore, crucial in reducing child deaths. To obtain information on health-seeking behaviours surrounding these common childhood illnesses, mothers were asked if any of their children under age 5 had experienced the following symptoms in the 2 weeks preceding the survey: a cough accompanied by short, rapid breathing or difficulty breathing as a result of a chest-related problem (symptoms of an acute respiratory infection); a fever; or an episode of diarrhoea. Mothers who indicated that their child had experienced such symptoms were then asked if treatment or advice was sought from a health facility or provider. For children with diarrhoea, the mother was asked additional questions about treatment given to the child. Note that the morbidity data collected are subjective, that is, they are based on the mother's perception of illness with no validation from medical personnel. In addition, the prevalence of these illnesses may fluctuate with changes of seasons. Overall, 2% of children under age 5 showed symptoms of an ARI, 16% exhibited fever, and 15% experienced diarrhoea in the 2 weeks preceding the survey (data not shown).

Table 11 shows that treatment from a health facility or provider was sought for 77% of the children with fever symptoms and 69% of the children with diarrhoea. Sixty-seven percent of children with diarrhoea received fluid from an oral rehydration salt (ORS) packet, 39% were given zinc supplements, and 34% were given both ORS and zinc supplements. In addition, treatment from a health facility or provider was sought for 76% of children with symptoms of an ARI.[2] However, due to the low number of cases, information regarding ARIs was excluded from Table 11.

[2] Symptoms of an ARI include short, rapid breathing, which is chest-related, and/or difficult breathing, which is chest-related.

Table 11 Treatment for fever and diarrhoea

Among children under age 5 who had a fever in the 2 weeks preceding the survey, percentage for whom advice or treatment was sought, and among children under age 5 who had diarrhoea during the 2 weeks preceding the survey, percentage for whom advice or treatment was sought, percentage given a fluid made from oral rehydration salt (ORS) packets, percentage given zinc, and percentage given ORS and zinc, according to background characteristics, Zambia DHS 2018

	Children with fever		Children with diarrhoea				
Background characteristic	Percentage for whom advice or treatment was sought[1]	Number of children	Percentage for whom advice or treatment was sought[1]	Percentage given fluid from ORS packet	Percentage given zinc	Percentage given ORS and zinc	Number of children
Age in months							
<6	76.7	106	50.9	38.2	21.7	16.5	108
6-11	80.5	230	73.7	65.7	40.1	35.4	275
12-23	74.5	385	76.5	72.4	41.0	35.9	528
24-35	80.6	333	62.9	69.8	42.8	36.8	291
36-47	76.4	240	64.2	63.6	35.8	31.3	144
48-59	73.8	184	64.0	66.9	28.4	26.5	77
Sex							
Male	79.4	766	68.5	67.7	39.0	34.6	719
Female	74.9	712	70.1	65.8	38.0	32.4	703
Residence							
Urban	75.9	426	60.9	69.8	41.5	38.5	493
Rural	77.7	1,052	73.8	65.2	36.9	30.9	929
Province							
Central	77.6	90	78.5	68.8	52.4	44.1	88
Copperbelt	72.0	177	66.9	66.9	37.9	35.1	164
Eastern	84.9	256	78.5	66.4	39.5	32.9	186
Luapula	85.5	264	80.0	71.3	49.1	43.3	152
Lusaka	71.8	130	61.3	80.7	49.7	46.8	200
Muchinga	79.3	81	61.6	54.4	31.3	25.6	105
Northern	66.9	150	69.3	66.7	25.8	23.1	118
North Western	83.4	76	75.2	62.3	35.4	30.9	78
Southern	71.3	124	56.6	55.0	29.3	22.7	192
Western	70.0	131	74.0	69.1	32.3	27.4	139
Mother's education							
No education	77.5	164	60.3	60.0	32.2	28.9	163
Primary	75.0	806	72.9	65.9	36.2	30.1	703
Secondary	81.3	456	66.9	70.2	42.1	38.0	521
Higher	74.2	53	(75.0)	(64.9)	(61.8)	(57.9)	34
Wealth quintile							
Lowest	73.6	476	73.5	64.1	39.4	30.7	403
Second	79.4	372	74.6	67.8	32.3	30.0	311
Middle	84.2	222	68.3	62.1	34.6	30.6	262
Fourth	75.4	236	61.8	67.6	38.2	32.9	256
Highest	75.7	172	63.3	76.2	52.5	50.2	190
Total	77.2	1,478	69.3	66.8	38.5	33.5	1,422

Note: Figures in parentheses are based on 25-49 unweighted cases.
[1] Includes advice or treatment from the following sources: public medical sector, private medical sector, shop, market, itinerant drug seller, and other. Excludes advice or treatment from a traditional practitioner.

Whether advice or treatment was sought varied by background characteristic and symptoms. For fever, children of urban mothers were just as likely as those of rural mothers to seek treatment from a health facility or health provider (76% and 78%, respectively). However, for diarrhoea, urban mothers were much less likely to take their children for treatment than their rural counterparts (61% versus 74%). There is little difference between treatments by sex; for fever, 79% of boys and 75% of girls were brought for treatment; for diarrhoea, 69% of boys and 70% of girls. Use of ORS and/or zinc supplements generally increases with the education and wealth of the mother. However, differences by background characteristics for some categories should be interpreted with caution as the estimates are based on small numbers of children who were sick with symptoms of fever or diarrhoea.

Nutritional Status of Children

Anthropometric indicators for young children based on weight (kg) and height/length (cm) were collected in the 2018 ZDHS to provide outcome measures of nutritional status. As recommended by WHO, evaluation of nutritional status in this report is based on a comparison between three indices for the children in this survey with indices reported for a reference population of well-nourished children. The three indices (height-

for-age, weight-for-height, and weight-for-age) are expressed as standard deviation (SD) units from the median for the reference group (WHO Multicentre Growth Reference Study Group 2006).

A total of 10,094 children (unweighted) under age 5 were eligible for weight and height measurements. For some of the eligible children, however, complete and credible data on height, weight, and/or age were not obtained. In this report, height-for-age and weight-for-height data are based on 95% of eligible children, while weight-for-age is based on 96% of eligible children.

Table 12 and Figure 5 show nutritional status for children under age 5, according to the three anthropometric indices. Height-for-age is a measure of linear growth. Children whose height-for-age is below minus 2 standard deviations (-2 SD) from the median of the reference population are considered short for their age, or stunted, which is a condition that reflects the cumulative effects of chronic malnutrition. Children whose height-for-age falls below minus 3 standard deviations (-3 SD) from the median of the reference population are considered severely stunted. The data show that 35% of children under age 5 are considered to be stunted (below -2 SD), and 12% are severely stunted (below -3 SD). Boys are more likely to be stunted (38%) than girls (31%). Children residing in urban areas are slightly less likely to be stunted than children living in rural areas (32% and 36%, respectively). There are some provincial variations. Stunting ranges from a high of 46% in Northern Province to a low of 29% in both Western and Southern provinces. The prevalence of stunting decreases with increasing levels of the mother's education and wealth.

Children whose weight-for-height is below minus 2 standard deviations (-2 SD) from the median of the reference population are considered wasted (or thin). Children whose weight-for-height falls below minus 3 (-3SD) from the median of the reference population are considered severely wasted, which is typically the result of inadequate food intake or from a recent episode of illness or infection causing weight loss. Four percent of Zambian children are wasted, and 2% are severely wasted (-3 SD). Wasting is similar among children in urban areas (5%) and rural areas (4%). There is also little difference in wasting between boys (5%) and girls (4%). The proportion of children who are wasted generally remains steady across increasing levels of the mother's education and wealth.

Table 12 also shows the proportion of children whose weight-for-height is more than plus 2 standard deviations (+2 SD) above the reference median. These children are considered overweight, which is a measure of overnutrition and results from an imbalance between energy consumed (too much) and energy expended (too little). Five percent of children under age 5 fall into this category. While there is generally little difference between the proportions of children who are heavy for their height across the various background characteristics, there is some provincial variation. For instance, Lusaka and Northern provinces have the highest percentage of children who are overweight (each 8%), while North Western and Western provinces have the lowest (each 3%).

Children whose weight-for-age is below minus 2 standard deviations (-2 SD) from the median of the reference population are considered underweight and those below minus 3 (-3SD) from the median of the reference population are considered severely underweight. The measure reflects the effects of both acute and chronic malnutrition. As shown in Table 12, 12% of Zambian children are underweight, with 2% classified as severely underweight. The proportion of underweight children varies by sex, with 14% of boys, but only 10% of girls, being underweight. By province, the proportion ranges from a high of 15% in both Luapula and Muchinga provinces, to a low of 9% in Eastern Province. In general, mothers with less education and in poorer wealth quintiles have a higher percentage of children underweight.

A comparison of data on anthropometric measures in the 2013-14 and 2018 ZDHS surveys shows that all three nutritional status indices (stunting, wasting, and underweight) have improved in the last 5 years. In this period, stunting decreased from 40% to 35%, wasting decreased from 6% to 4%, and the proportion of underweight children decreased from 15% to 12%. The proportion of overweight (weight-for-height above +2 SD) children has remained relatively stable from 2013-14 to 2018 (6% and 5%, respectively).

Table 12 Nutritional status of children

Percentage of children under age 5 classified as malnourished according to three anthropometric indices of nutritional status: height-for-age, weight-for-height, and weight-for-age, according to background characteristics, Zambia DHS 2018

Background characteristic	Height-for-age[1]				Weight-for-height					Weight-for-age				
	Percent-age below -3 SD	Percent-age below -2 SD[2]	Mean Z-score (SD)	Number of children	Percent-age below -3 SD	Percent-age below -2 SD[2]	Percent-age above +2 SD	Mean Z-score (SD)	Number of children	Percent-age below -3 SD	Percent-age below -2 SD[2]	Percent-age above +2 SD	Mean Z-score (SD)	Number of children
Age in months														
<6	6.7	18.7	-0.8	997	2.4	5.1	15.0	0.5	968	2.1	7.6	3.3	-0.3	1,015
6-8	7.1	22.5	-1.0	459	0.8	3.7	5.9	0.1	454	2.4	10.1	2.0	-0.6	467
9-11	9.8	28.5	-1.2	476	1.2	6.6	5.6	-0.1	476	2.1	12.7	0.8	-0.8	482
12-17	13.6	36.2	-1.5	962	2.3	6.0	5.2	-0.1	964	3.2	13.4	0.6	-0.8	969
18-23	20.0	46.3	-1.8	946	1.2	4.6	5.2	-0.0	949	2.8	15.8	0.8	-0.9	953
24-35	14.6	42.7	-1.7	1,959	1.7	4.2	4.3	0.2	1,959	2.4	12.1	0.5	-0.8	1,980
36-47	11.6	38.0	-1.6	1,983	1.1	2.8	3.7	0.1	1,988	2.7	12.4	0.4	-0.8	1,991
48-59	8.3	28.5	-1.4	1,827	1.3	3.7	2.5	-0.0	1,835	1.4	10.5	0.1	-0.9	1,832
Sex														
Male	13.6	38.3	-1.6	4,750	1.6	4.8	5.4	0.1	4,743	2.7	13.5	0.8	-0.8	4,801
Female	10.1	31.0	-1.3	4,860	1.4	3.7	5.0	0.1	4,850	2.0	10.2	0.8	-0.7	4,889
Mother's interview status														
Interviewed	11.7	34.6	-1.5	8,762	1.5	4.3	5.3	0.1	8,723	2.4	11.9	0.9	-0.8	8,833
Not interviewed, but in household	12.4	34.6	-1.3	205	1.7	2.8	5.1	0.2	207	2.8	11.9	0.0	-0.6	205
Not interviewed, not in household[3]	13.9	33.8	-1.4	642	1.7	4.2	4.2	0.1	663	1.4	10.6	0.9	-0.7	651
Residence														
Urban	10.3	32.1	-1.3	3,320	2.1	5.0	5.7	0.1	3,307	2.2	10.8	0.7	-0.7	3,341
Rural	12.6	35.9	-1.5	6,289	1.2	3.8	5.0	0.1	6,287	2.4	12.4	0.9	-0.8	6,348
Province														
Central	13.5	33.4	-1.3	866	2.2	4.6	3.9	-0.0	860	2.4	11.4	1.2	-0.8	875
Copperbelt	8.9	29.7	-1.2	1,230	2.3	5.4	5.0	0.0	1,226	3.0	12.1	0.5	-0.7	1,236
Eastern	11.1	34.2	-1.5	1,266	0.7	2.2	5.0	0.2	1,262	1.9	9.2	1.0	-0.7	1,269
Luapula	16.9	44.9	-1.8	892	2.2	6.2	5.2	0.1	895	2.9	15.2	0.7	-0.9	904
Lusaka	12.3	35.6	-1.4	1,476	2.2	5.5	8.1	0.2	1,463	1.6	10.6	1.0	-0.6	1,485
Muchinga	10.2	32.1	-1.4	595	3.7	8.2	3.5	-0.2	597	3.4	15.3	0.8	-0.9	604
Northern	19.4	45.8	-1.9	860	0.3	3.1	8.3	0.3	860	2.9	14.1	1.3	-0.9	876
North Western	10.5	31.9	-1.5	536	1.2	2.4	3.3	0.1	536	2.5	10.4	0.5	-0.7	545
Southern	7.9	29.4	-1.4	1,274	0.3	2.3	3.8	0.1	1,278	1.1	9.7	0.6	-0.7	1,279
Western	8.3	29.0	-1.4	615	0.3	3.0	3.0	-0.1	615	3.2	14.1	0.8	-0.9	616
Mother's education[4]														
No education	14.6	38.2	-1.6	907	1.0	4.7	5.3	0.1	911	4.0	15.7	0.8	-0.9	921
Primary	12.8	37.6	-1.6	4,599	1.3	3.6	5.2	0.1	4,572	2.4	12.5	0.7	-0.8	4,625
Secondary	9.8	31.3	-1.3	3,098	1.8	4.9	5.3	0.1	3,082	2.1	10.3	0.9	-0.7	3,125
Higher	5.1	15.4	-0.8	359	2.1	5.0	6.9	0.2	360	1.3	8.6	1.9	-0.3	364
Wealth quintile														
Lowest	15.2	40.1	-1.7	2,352	1.3	4.3	5.8	0.0	2,352	3.3	15.0	0.7	-0.9	2,370
Second	12.5	36.6	-1.6	2,162	1.3	3.9	4.4	0.1	2,156	2.8	13.2	0.9	-0.8	2,180
Middle	10.1	32.9	-1.4	1,831	1.1	3.0	4.5	0.1	1,831	1.4	9.3	0.7	-0.7	1,851
Fourth	12.0	35.3	-1.4	1,792	2.1	4.8	5.6	0.1	1,788	2.1	10.8	0.7	-0.7	1,801
Highest	7.2	23.9	-1.1	1,472	1.9	5.6	6.1	0.1	1,466	1.6	9.1	1.3	-0.5	1,487
Total	11.8	34.6	-1.5	9,609	1.5	4.2	5.2	0.1	9,593	2.3	11.8	0.8	-0.8	9,689

Note: Each of the indices is expressed in standard deviation units (SD) from the median of the WHO Child Growth Standards. Total includes four children (five unweighted) for whom information on mother's education is missing.

[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] Includes children whose mothers are deceased

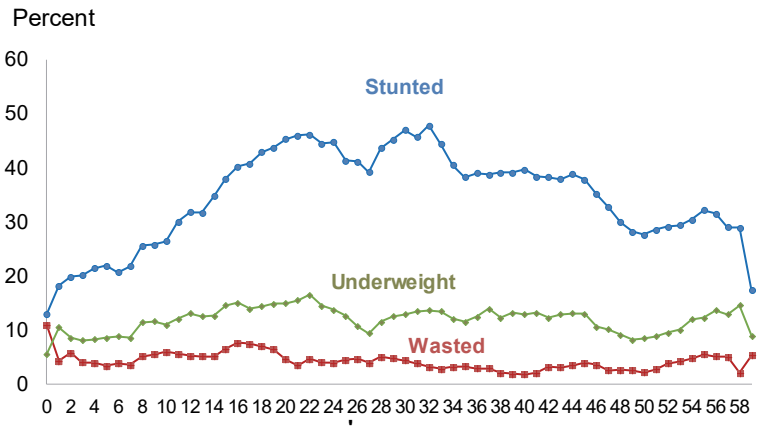
[4] For women who are not interviewed, information is taken from the Household Questionnaire. Children of mothers not listed in the Household Questionnaire are excluded.

The nutritional status of children varies with age, as shown in Figure 5. For the first 22 months of life the prevalence of stunting increases, there is a slight dip in prevalence before it peaks again at 32 months. Stunting then decreases sharply, before beginning a more gradual decline. There is a final sharp drop in prevalence between the 58th and 59th month. Overall, the prevalence of stunting oscillates between 38% and 45%, from age 15 to 45 months, after which it declines. Relative to stunting, the percentage of children wasted and underweight is lower. Wasting prevalence ranges from 11% to less than 1%, while the prevalence of underweight children ranges from 19% to 3%.

Infant and Young Child Feeding Practices

Appropriate infant and young child feeding (IYCF) practices include early initiation of breastfeeding within the first hour of life, exclusive breastfeeding in the first 6 months of life, continued breastfeeding up to age 2 or beyond, introduction of a range of safe solid and semisolid foods at age 6 months, and gradual increases in the amount of food given and frequency of feeding as the child gets older. It is also important for children to receive a diverse diet—eating foods from different food groups to ensure macronutrient and micronutrient requirements are met (WHO 2008).

Figure 5 **Nutritional status of children by age**



Note: *Stunting* reflects chronic malnutrition; *wasting* reflects acute malnutrition; *underweight* reflects chronic or acute malnutrition or a combination of both. Plotted values are smoothed by a five-month moving average.

The 2018 ZDHS collected data on infant and young child feeding (IYCF) practices for all children born in the 2 years preceding the survey. Table 13 shows breastfeeding practices by child's age. Contrary to the recommendation that children under age 6 months be exclusively breastfed, only 70% of the infants under age 6 months were found to be exclusively breastfed. In addition to breast milk, 6% of infants consume plain water, 3% consume non-milk liquids, 2% consume other milk, and 17% consume complementary foods. Seven percent of infants under age 6 months are fed using a bottle with a nipple, a practice that is discouraged because of the risk of illness to the child. Ninety-one percent of children age 6-8 months receive timely complementary foods, and 60% of children age 18-23 months have been weaned.

Exclusive breastfeeding among children younger than age 6 months has remained relatively stable over the last 5 years: 73% in 2013-14 versus 70% in 2018. The proportion of children under 6 months who are not breastfeeding also stayed relatively stable from 2013-14 to 2018 (1% to 3%, respectively).

Table 13 Breastfeeding status by age

Percent distribution of youngest children under age 2 who are living with their mother, by breastfeeding status and the percentage currently breastfeeding; and percentage of all children under age 2 using a bottle with a nipple, according to age in months, Zambia DHS 2018

	Breastfeeding status										
Age in months	Not breast-feeding	Exclusively breast-feeding	Breast-feeding and consuming plain water only	Breast-feeding and consuming non-milk liquids[1]	Breast-feeding and consuming other milk	Breast-feeding and consuming comple-mentary foods	Total	Percentage currently breast-feeding	Number of youngest children under age 2 living with the mother	Percentage using a bottle with a nipple	Number of all children under age 2
0-1	4.3	90.6	1.8	0.9	1.2	1.2	100.0	95.7	366	4.1	373
2-3	3.5	76.4	7.9	1.2	1.8	9.2	100.0	96.5	308	4.9	313
4-5	2.2	42.1	8.6	5.6	1.5	40.0	100.0	97.8	345	11.8	350
6-8	2.9	3.0	2.3	0.7	0.2	90.9	100.0	97.1	445	7.0	452
9-11	7.7	0.8	5.2	0.8	0.0	85.5	100.0	92.3	468	4.8	472
12-17	15.2	0.3	1.4	0.5	0.1	82.4	100.0	84.8	931	6.2	957
18-23	59.8	0.0	0.9	0.0	0.0	39.3	100.0	40.2	886	4.5	934
0-3	3.9	84.1	4.6	1.0	1.5	4.9	100.0	96.1	674	4.5	686
0-5	3.4	69.9	6.0	2.6	1.5	16.8	100.0	96.6	1,020	6.9	1,036
6-9	5.0	2.5	3.2	0.8	0.2	88.3	100.0	95.0	615	7.1	625
12-15	10.2	0.5	1.8	0.3	0.2	87.1	100.0	89.8	633	5.6	649
12-23	37.0	0.2	1.1	0.3	0.1	61.4	100.0	63.0	1,817	5.4	1,891
20-23	69.6	0.0	0.8	0.0	0.0	29.6	100.0	30.4	588	4.5	629

Notes: 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 breastfeeding, breastfeeding and consuming plain water, non-milk liquids, other milk, and 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, 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, or other liquids.

The minimum acceptable diet indicator is used to assess the proportion of children age 6-23 months who meet minimum standards with respect to IYCF practices (WHO 2017). Specifically, children age 6-23 months who have a minimum acceptable diet meet all three IYCF criteria below:

1. Breastfeeding, or not breastfeeding and receiving two or more feedings of commercial infant formula; fresh, tinned, or powdered animal milk; or yogurt.

2. Fed with foods from five or more out of the following eight groups: (a) breastmilk; (b) grains, roots, and tubers, including porridge and fortified baby food from grains; (c) legumes and nuts; (d) dairy products (milk, yogurt, cheese); (e) eggs; (f) meat, poultry, fish, and shellfish (and organ meats); (g) vitamin A-rich fruits and vegetables (and red palm oil); and (h) other fruits and vegetables.

3. Fed the minimum recommended number of times per day, according to age and breastfeeding status

   (a) For breastfed children, minimum meal frequency is receiving solid, semisolid, or soft food at least twice a day for infants age 6-8 months and at least three times a day for children age 9-23 months.

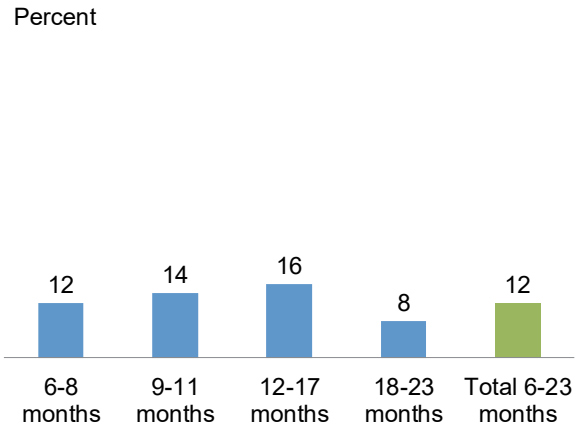
   (b) For nonbreastfed children age 6-23 months, minimum meal frequency is receiving solid, semisolid, or soft food, or milk feeds, at least four times a day. At least one of the feeds must be a solid, semisolid, or soft food.

Figure 6 shows the percentage of children being fed the minimum acceptable diet, by age. In total, only 12% of children age 6-23 months have met the criteria for a minimum acceptable diet. Children age 18-23 months (8%) are much less likely than children in other age groups to consume an acceptable diet (12%-16%).

3.11 ANAEMIA PREVALENCE IN CHILDREN AND WOMEN

Anaemia is a condition that is marked by low levels of haemoglobin in the blood. Iron is a key component of haemoglobin, and iron deficiency is estimated to be responsible for half of all anaemia, globally. Other causes of anaemia include malaria, hookworm, and other helminths, other nutritional deficiencies, chronic infections, and genetic conditions. Anaemia is a serious concern for children because it can impair cognitive development, stunt growth, and increase morbidity from infectious diseases. In addition to causing weakness, frequent tiredness, and lowered resistance to disease, anaemia can be a particularly serious problem for pregnant women, leading to premature delivery and low birth weight.

Figure 6 **Minimum acceptable diet according to age, in months**



The 2018 ZDHS includes direct measurement of haemoglobin levels using the HemoCue system. This system consists of a battery-operated photometer and a disposable microcuvette coated with a dried reagent that serves as the blood collection device. For the test, a drop of capillary blood taken from a child's fingertip or heel is drawn into the microcuvette. The blood in the microcuvette is analysed using the photometer, which electronically displays the haemoglobin concentration.

Haemoglobin testing was carried out among children age 6-59 months. During the fieldwork, parents or guardians were immediately given the results of their child's test. In cases where the haemoglobin reading was below 7.0 g/dl, the parent or guardian was referred to MOH facilities for follow-up. Ninety-five percent of eligible children were tested for anaemia (data not shown).

Table 14 presents anaemia levels for children 6-59 months, by selected background characteristics. Prevalence of anaemia, based on haemoglobin levels, is adjusted for altitude using CDC formulas (CDC 1998). Children with <7.0 g/dl of haemoglobin are classified as having severe anaemia, those with 7.0-9.9 g/dl as having moderate anaemia, and those with 10.0-10.9 g/dl as having mild anaemia. Children with <11.0 g/dl are classified as having anaemia. Overall, 58% of children suffered from some degree of anaemia. Twenty-nine percent of children were classified as mildly anaemic, 28% were moderately anaemic, and 2% were severely anaemic. Anaemia is more prevalent among children less than age 24 months than among older children, with it being most prevalent among children age 9-11 months and 12-17 months (both 77%). Anaemia prevalence varies by province, from a low of 50% in Central to a high of 71% in Luapula. Boys were more likely to be anaemic than girls (60% and 57%, respectively). In addition, while there is a relatively negative association between anaemia and increasing levels of the mother's education, such a relationship is not clearly found when comparing wealth quintiles.

Table 14 Prevalence of anaemia in children

Percentage of children age 6-59 months classified as having anaemia, according to background characteristics, Zambia DHS 2018

Background characteristic	Anaemia status by haemoglobin level				Number of children age 6-59 months
	Any anaemia (<11.0 g/dl)	Mild anaemia (10.0-10.9 g/dl)	Moderate anaemia (7.0-9.9 g/dl)	Severe anaemia (<7.0 g/dl)	
Age in months					
6-8	73.1	28.8	42.2	2.2	451
9-11	77.1	25.4	48.8	3.0	479
12-17	76.6	30.9	43.1	2.6	960
18-23	71.8	33.8	36.8	1.2	944
24-35	59.1	30.3	27.3	1.5	1,968
36-47	49.5	28.6	19.4	1.5	1,988
48-59	41.1	24.0	16.8	0.3	1,834
Sex					
Male	59.7	28.4	29.5	1.8	4,268
Female	56.6	28.9	26.5	1.2	4,355
Residence					
Urban	58.1	27.8	28.7	1.6	2,982
Rural	58.2	29.1	27.6	1.4	5,641
Province					
Central	50.0	28.4	21.2	0.3	773
Copperbelt	57.2	26.1	29.7	1.4	1,104
Eastern	55.9	28.9	25.8	1.2	1,134
Luapula	70.7	29.7	38.2	2.8	796
Lusaka	57.9	28.7	27.7	1.5	1,334
Muchinga	53.5	27.4	25.1	0.9	535
Northern	61.3	29.0	29.5	2.7	773
North Western	61.6	31.7	28.8	1.1	492
Southern	55.7	28.6	25.9	1.1	1,145
Western	60.9	30.2	29.1	1.6	537
Mother's education					
No education	63.9	27.7	32.9	3.3	815
Primary	57.5	29.3	26.8	1.4	4,081
Secondary	59.9	27.9	30.9	1.1	2,742
Higher	52.8	32.3	19.2	1.3	314
Wealth quintile					
Lowest	61.0	30.0	29.2	1.9	2,088
Second	57.4	27.0	28.9	1.4	1,933
Middle	57.8	30.7	25.8	1.3	1,646
Fourth	56.8	26.5	29.1	1.2	1,628
Highest	56.8	29.0	26.4	1.5	1,327
Total	58.1	28.7	28.0	1.5	8,623

Notes: Table is based on children who stayed in the household on the night before the interview and who were tested for anaemia. Prevalence of anaemia, based on haemoglobin levels, is adjusted for altitude using formulas (CDC 1998). Haemoglobin is in grams per decilitre (g/dl). Total includes four children (five unweighted) for whom information on mother's education is missing.

Table 15 presents anaemia levels for women age 15-49 by selected background characteristics. Levels of anaemia were classified as severe, moderate, and mild based on the haemoglobin concentration in the blood, according to criteria developed by WHO (DeMaeyer et al. 1989), and whether the woman was pregnant or not. Non-pregnant women with <12.0 g/dl are considered anaemic. More specifically, non-pregnant women with <8.0 g/dl of haemoglobin are classified as having severe anaemia, those with 8.0-10.9 g/dl as having moderate anaemia, and those with 11.0-11.9 g/dl as having mild anaemia. For pregnant women, those with <11.0 g/dl are considered to be anaemic. Those with <7.0 g/dl are considered to be severely anaemic, those with 7.0-9.9 g/dl are moderately anaemic, and those with 10.0-10.9 g/dl are mildly anaemic.

Among all eligible women age 15-49, 97% were tested for anaemia (data not shown). Prevalence of anaemia, based on haemoglobin levels, is adjusted for altitude and smoking using CDC formulas (CDC 1998). Overall, 31% of women in Zambia suffer from anaemia, with 16% being classified as mildly anaemic, 14% as moderately anaemic, and 1% as severely anaemic. By province, the prevalence of any anaemia ranges from 24% in Central to 38% in Western. There are no strong associations between anaemia and education or wealth. Pregnant women (41%) are more likely to suffer from anaemia than their breastfeeding (28%) and nonbreastfeeding/non-pregnant counterparts (31%).

Table 15 Prevalence of anaemia in women

Percentage of women age 15-49 with anaemia, according to background characteristics, Zambia DHS 2018

Background characteristic	Not pregnant / Pregnant	Anaemia status by haemoglobin level: Any	Mild	Moderate	Severe	Number of women
		(<12.0 g/dl) / <11.0 g/dl	(11.0-11.9 g/dl) / (10.0-10.9 g/dl)	(8.0-10.9 g/dl) / (7.0-9.9 g/dl)	(<8.0 g/dl) / (<7.0 g/dl)	
Age						
5-19		33.4	19.0	13.1	1.3	2,903
20-29		28.6	15.6	11.7	1.3	4,815
30-39		31.3	15.6	14.2	1.5	3,435
40-49		33.1	14.5	17.0	1.7	2,082
Number of living children						
0		34.7	18.8	13.8	2.1	3,233
1		32.9	16.2	15.1	1.6	2,236
2-3		28.8	14.7	13.0	1.0	3,324
4-5		30.2	15.9	13.5	0.8	2,254
6+		28.1	14.6	12.1	1.4	2,187
Maternity status						
Pregnant		41.2	21.3	19.1	0.8	1,083
Breastfeeding		27.6	16.5	10.3	0.8	2,985
Neither		31.0	15.4	13.9	1.7	9,166
Residence						
Urban		32.1	15.4	15.0	1.8	6,131
Rural		30.2	16.8	12.2	1.1	7,104
Province						
Central		23.8	12.6	10.5	0.7	1,145
Copperbelt		29.2	15.6	12.0	1.5	2,114
Eastern		27.6	16.0	11.0	0.6	1,555
Luapula		29.8	17.5	11.3	1.0	978
Lusaka		35.6	15.7	17.7	2.2	2,686
Muchinga		27.6	15.5	11.6	0.5	745
Northern		28.0	17.0	10.4	0.6	1,048
North Western		32.2	17.1	13.7	1.5	696
Southern		35.3	18.3	14.7	2.3	1,501
Western		37.9	17.2	18.8	1.9	767
Education						
No education		30.7	15.8	13.9	0.9	1,004
Primary		30.6	16.7	12.6	1.3	5,895
Secondary		31.1	15.5	14.1	1.6	5,622
Higher		35.1	17.4	16.1	1.5	713
Wealth quintile						
Lowest		30.2	16.4	13.2	0.7	2,358
Second		30.6	18.1	11.3	1.2	2,320
Middle		30.5	16.2	12.9	1.4	2,406
Fourth		30.6	14.4	14.2	1.9	2,945
Highest		32.8	16.1	15.0	1.7	3,205
Total		31.1	16.2	13.5	1.4	13,235

Note: Prevalence is adjusted for altitude and for smoking status, if known, using formulas (CDC 1998).

3.12 OWNERSHIP AND USE OF MOSQUITO NETS

The use of insecticide-treated mosquito nets is a primary health intervention designed to reduce malaria transmission in Zambia. An insecticide-treated net (ITN) is a factory-treated net that does not require any further treatment.

All households in the 2018 ZDHS were asked if they owned mosquito nets and if so, what type and how many. Table 16 presents the percentage of households with at least one ITN, the average number of nets per household, and the percentage of households with at least one ITN for each two persons who stayed in the household the previous night, according to background characteristics. Among all households in Zambia, 72% possess at least one ITN. On average, there are 1.6 ITNs per household.

Household ownership of at least one ITN is highest in Muchinga Province (85%) and lowest in Lusaka (50%). The percentage of households that own at least one ITN generally decreases with increasing wealth, from 76% of households in the lowest quintile to 64% of households in the highest quintile.

Over a third (37%) of households in Zambia had at least one ITN for every two persons who stayed in the household the night before the survey. The percentage of households with at least one ITN for every two persons who stayed in the household the night before the survey is roughly the same among urban households (36%) as in rural households (37%). By province, the percentage of households with at least one ITN for every two persons who stayed in the household the night before the survey is highest in Southern Province (43%) and lowest in Lusaka (26%). The percentage of households with at least one ITN for every two persons increases with increasing wealth, from a low of 34% in the lowest wealth quintile to a high of 39% in the highest quintile.

Table 16 Household possession of insecticide-treated nets

Percentage of households with at least one insecticide-treated net (ITN); average number of ITNs per household; and percentage of households with at least one ITN per two persons who stayed in the household last night, according to background characteristics, Zambia DHS 2018

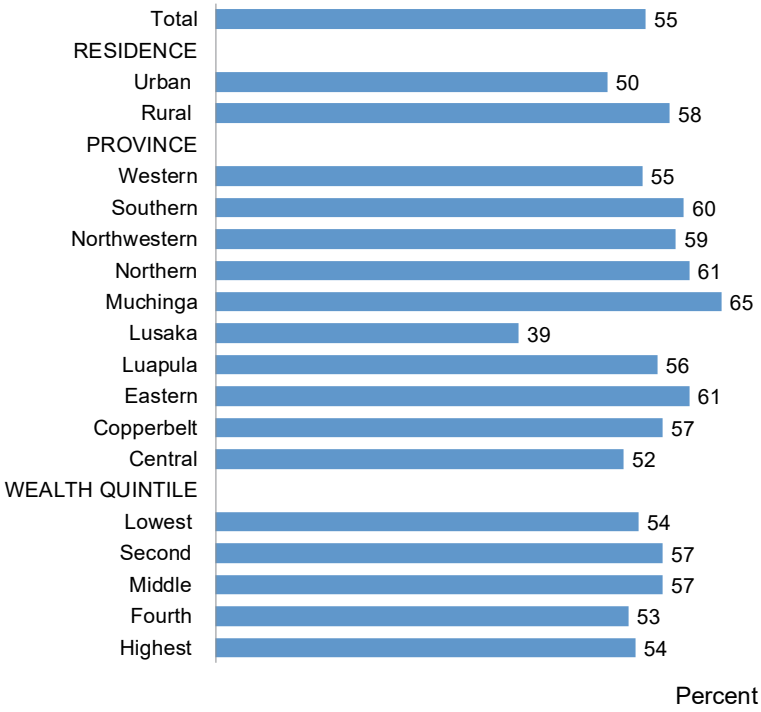
Background characteristic	Percentage of households with at least one insecticide-treated net (ITN)[1]	Average number of insecticide-treated nets (ITNs)[1] per household	Number of households	Percentage of households with at least one insecticide-treated net (ITN)[1] for every two persons who stayed in the household last night[2]	Number of households with at least one person who stayed in the household last night
Residence					
Urban	62.7	1.4	5,441	36.1	5,432
Rural	78.1	1.7	7,390	37.4	7,364
Province					
Central	70.0	1.5	1,134	36.8	1,133
Copperbelt	69.6	1.7	1,863	40.9	1,862
Eastern	80.9	1.8	1,556	37.2	1,551
Luapula	76.6	1.7	1,049	36.3	1,043
Lusaka	50.0	1.1	2,328	26.0	2,322
Muchinga	85.1	1.9	710	40.4	710
Northern	79.1	1.8	1,081	37.7	1,076
North Western	76.4	1.8	685	41.9	678
Southern	77.3	1.7	1,579	43.4	1,579
Western	78.0	1.5	846	37.4	841
Wealth quintile					
Lowest	75.9	1.4	2,651	33.6	2,639
Second	78.3	1.7	2,440	35.0	2,431
Middle	75.1	1.7	2,452	38.0	2,446
Fourth	64.7	1.5	2,758	38.4	2,753
Highest	64.5	1.7	2,530	39.2	2,526
Total	71.5	1.6	12,831	36.8	12,796

[1] An insecticide-treated net (ITN) is a factory-treated net that does not require any further treatment. In the 2013-14 ZDHS, this was known as a long-lasting insecticidal net (LLIN).
[2] De facto household members

Figure 7 shows the percentage of the de facto population with access to an ITN. Overall, 55% of the household population has access to an ITN, which means that all de facto household members could sleep under an ITN if up to two people used each ITN in the household. This is an increase of 8 percentage points (47%) from the 2013-14 ZDHS. Those living in rural areas (58%), those living in Muchinga (65%), Northern (61%), and Eastern (61%) provinces are the most likely to have access to an ITN. Looking at wealth quintiles, while access is highest in the second and middle quintile, use in all wealth quintiles has grown since 2013-14.

Community-level protection against malaria helps reduce the spread of the disease and offers an additional layer of protection against malaria for those who are most vulnerable: children under age 5 and pregnant women. This section describes the use of mosquito nets among these groups.

Figure 7 **Percentage of the de facto population with access to an ITN in the household**



The percentage of the de facto household population who could sleep under an ITN if each ITN in the household were used by up to 2 people

As shown in Table 17, 48% of children under age 5 slept under an ITN the night before the survey. Children living in rural areas are more likely than children in urban areas to have slept under an ITN (51% and 43%, respectively). The proportion of children who slept under an ITN the night before the survey is highest in Muchinga Province (61%) and lowest in Lusaka (25%). The proportion of children who slept under an ITN the night before the survey generally decreases with increasing wealth quintile, from 53% among children in the lowest quintile to 41% among children in the highest wealth quintile. Among households with at least one ITN, over two-thirds of children (64%) slept under an ITN the night before the survey.

Table 17 also shows that 45% of pregnant women slept under an ITN the night before the survey. Among households with at least one ITN, 65% of pregnant women slept under an ITN the night before the survey.

Table 17 Use of insecticide-treated nets by children and pregnant women

Percentage of children under age 5 who, the night before the survey, slept under an insecticide-treated net (ITN); and among children under age 5 in households with at least one ITN, percentage who slept under an ITN the night before the survey; percentage of pregnant women age 15-49 who, the night before the survey, slept under an ITN; and among pregnant women age 15-49 in households with at least one ITN, percentage who slept under an ITN the night before the survey, according to background characteristics, Zambia DHS 2018

	Children under age 5 in all households		Children under age 5 in households with at least one ITN[1]		Pregnant women age 15-49 in all households		Pregnant women age 15-49 in households with at least one ITN[1]	
Background characteristic	Percentage who slept under an ITN[1] last night	Number of children	Percentage who slept under an ITN[1] last night	Number of children	Percentage who slept under an ITN[1] last night	Number of pregnant women	Percentage who slept under an ITN[1] last night	Number of pregnant women
Residence								
Urban	42.8	3,491	64.0	2,332	36.1	420	64.3	236
Rural	50.9	6,618	63.8	5,281	49.7	745	65.6	565
Province								
Central	38.5	890	54.9	624	38.3	102	57.1	68
Copperbelt	51.6	1,283	68.4	967	53.0	142	77.1	98
Eastern	57.4	1,354	69.1	1,125	53.5	163	66.4	132
Luapula	58.9	978	74.7	771	67.8	109	85.2	86
Lusaka	24.9	1,521	47.6	797	25.4	176	53.9	83
Muchinga	60.5	618	68.7	544	64.5	67	76.1	57
Northern	59.8	907	73.3	740	61.9	90	78.6	71
North Western	48.8	551	63.5	423	37.1	59	56.3	39
Southern	42.7	1,348	52.3	1,100	24.6	188	40.7	114
Western	54.7	659	69.4	520	51.0	70	65.8	54
Wealth quintile								
Lowest	53.1	2,499	67.4	1,968	51.8	266	67.4	204
Second	49.2	2,264	61.4	1,813	49.8	253	67.2	187
Middle	49.9	1,914	64.6	1,478	40.6	224	57.8	157
Fourth	43.7	1,851	63.8	1,269	38.9	257	70.7	142
Highest	41.4	1,580	60.4	1,085	41.0	165	61.3	111
Total	48.1	10,109	63.8	7,613	44.8	1,165	65.2	801

Note: Table is based on children and pregnant women who stayed in the household the night before the interview.
[1] An insecticide-treated net (ITN) is a factory-treated net that does not require any further treatment. In the 2013-14 ZDHS, this was known as a long-lasting insecticidal net (LLIN)

In areas of high malaria transmission, by the time an individual reaches adulthood, she or he has acquired immunity that protects against severe disease. However, pregnant women—especially those pregnant for the first time—frequently regain their susceptibility to malaria. Although malaria in pregnant women may not manifest itself as either febrile illness or severe disease, it is frequently the cause of mild to severe anaemia. In addition, malaria during pregnancy can interfere with the maternal-foetal exchange that occurs at the placenta, leading to the delivery of low birth weight infants.

In the 2018 ZDHS, women who had a live birth in the 2 years preceding the survey were asked if they took any SP/Fansidar during the pregnancy leading to their most recent birth and, if so, how many times they took SP/Fansidar. Women were also asked if the SP/Fansidar was received during an antenatal visit.

Table 18 shows that 94% of women with a live birth in the 2 years preceding the survey reported taking at least one dose of SP/Fansidar; 81% reported taking two or more doses of SP/Fansidar, and 59% reported taking three or more doses of SP/Fansidar. While there is little variation with background characteristics for receiving at least one dose of SP/Fansidar, greater variations are seen for subsequent doses. For instance, the urban to rural gap is only one percentage point (95% to 94%, respectively) among those who received at least one dose. However, this gap increases to six percentage points (85% to 79%) and then nine percentage points (65% to 56%) as the minimum number of doses increases to two and then three. A similar trend is seen among wealth quintiles. Generally, the percentage of women with a live birth in the last 2 years who received SP/Fansidar during pregnancy increases with rising wealth. However, as the minimum number of doses rises, the gap between the lowest and highest wealth quintile increases from five percentage points to 18.

Table 18 Use of intermittent preventive treatment (IPTp) by women during pregnancy

Percentage of women age 15-49 with a live birth in the 2 years preceding the survey who, during the pregnancy that resulted in the last live birth, received one or more doses of SP/Fansidar, received two or more doses of SP/Fansidar, and received three or more doses of SP/Fansidar, according to background characteristics, Zambia DHS 2018

Background characteristic	Percentage who received one or more doses of SP/Fansidar	Percentage who received two or more doses of SP/Fansidar	Percentage who received three or more doses of SP/Fansidar	Number of women with a live birth in the 2 years preceding the survey
Residence				
Urban	94.5	85.3	64.6	1,340
Rural	93.7	78.7	55.7	2,564
Province				
Central	91.9	78.5	60.8	343
Copperbelt	95.9	86.6	69.8	473
Eastern	96.3	84.1	64.5	569
Luapula	94.0	79.3	58.7	375
Lusaka	94.5	86.3	61.8	558
Muchinga	90.3	74.1	52.0	227
Northern	94.6	83.3	63.8	347
North Western	95.7	87.1	64.3	219
Southern	93.5	74.4	41.8	525
Western	89.2	69.5	45.7	269
Education				
No education	86.4	71.8	51.9	371
Primary	94.0	79.6	56.3	1,970
Secondary	95.7	84.4	62.0	1,410
Higher	96.4	89.3	75.7	153
Wealth quintile				
Lowest	91.3	76.4	53.2	1,002
Second	94.9	80.7	56.8	873
Middle	95.8	80.5	58.0	738
Fourth	93.0	82.1	59.0	672
Highest	95.9	88.2	70.9	620
Total	94.0	81.0	58.7	3,905

3.13 PREVALENCE, DIAGNOSIS, AND PROMPT TREATMENT OF FEVER AMONG CHILDREN

In moderately to highly endemic areas of malaria, acute clinical disease is usually confined to young children who suffer high parasite densities. If untreated, this condition can progress very rapidly to severe malaria, which can lead to death. The diagnosis of malaria is based on clinical criteria and supplemented by the detection of parasites in the blood (parasitological or confirmatory diagnosis). Fever is a major manifestation of malaria in young children, although it also accompanies other illnesses. In Zambia, artemisinin-based combination therapy (ACT) is the recommended first-line treatment for uncomplicated malaria.

In the 2018 ZDHS, for each child under age 5, mothers were asked if the child had experienced an episode of fever in the 2 weeks preceding the survey and, if so, whether treatment or advice was sought. Information was also collected about the type and timing of the treatment given.

Table 19 shows the percentage of children under age 5 who had a fever in the 2 weeks preceding the survey. Also shown, among those children with a fever, are the percentage for whom advice or treatment was sought; the percentage of such children who had a drop of blood taken from a finger or heel prick (presumably for a malaria test); and among children who took any antimalarial drug, the percentage who took any ACT.

Sixteen percent of children under age 5 had a fever during the 2 weeks preceding the survey. The prevalence of fever is higher among children in rural areas than children in urban areas (17% and 13%, respectively). Advice or treatment was sought for 77% of children with a fever, and 63% had blood taken from a finger or heel for testing. Advice or treatment for fever is generally just as likely to be sought for children in urban areas and rural areas (76% and 78%, respectively). Nearly all children with a fever who took any antimalarial drug (97%) took an ACT.

Table 19 Prevalence, diagnosis, and prompt treatment of children with fever

Percentage of children under age 5 with fever in the 2 weeks preceding the survey; among children under age 5 with fever, percentage for whom advice or treatment was sought, percentage who had blood taken from a finger or heel; and among children under age 5 with fever who took any antimalarial drug, percentage who took any artemisinin-based combination therapy (ACT), according to background characteristics, Zambia DHS 2018

	Children under age 5		Children under age 5 with fever			Children under age 5 with fever who took any antimalarial drug	
Background characteristic	Percentage with fever in the 2 weeks preceding the survey	Number of children	Percentage for whom advice or treatment was sought[1]	Percentage who had blood taken from a finger or heel for testing	Number of children	Percentage who took any ACT	Number of children
Residence							
Urban	12.9	3,307	75.9	52.0	426	96.7	64
Rural	17.4	6,054	77.7	67.4	1,052	96.9	452
Province							
Central	11.0	819	77.6	58.2	90	*	16
Copperbelt	15.1	1,166	72.0	56.4	177	(100.0)	41
Eastern	20.2	1,266	84.9	75.5	256	96.5	97
Luapula	30.1	877	85.5	79.9	264	98.9	193
Lusaka	9.0	1,446	71.8	42.3	130	*	4
Muchinga	14.2	569	79.3	73.3	81	89.2	40
Northern	17.8	846	66.9	66.6	150	96.8	70
North Western	14.6	517	83.4	73.8	76	97.5	33
Southern	10.0	1,242	71.3	21.3	124	*	5
Western	21.3	613	70.0	59.9	131	*	18
Wealth quintile							
Lowest	20.3	2,343	73.6	67.1	476	98.5	209
Second	17.9	2,079	79.4	69.9	372	96.4	162
Middle	12.8	1,735	84.2	68.5	222	95.9	95
Fourth	13.6	1,733	75.4	47.0	236	(91.2)	29
Highest	11.7	1,469	75.7	51.5	172	*	22
Total	15.8	9,361	77.2	63.0	1,478	96.9	516

Notes: An asterisk denotes a figure based on fewer than 25 unweighted cases that has been suppressed. Figures in parentheses are based on 25-49 unweighted cases.
[1] Includes advice or treatment from the following sources: public medical sector, private medical sector, shop, market, itinerant drug seller, and other. Excludes advice or treatment from a traditional practitioner.

3.14 HIV/AIDS AWARENESS, KNOWLEDGE, AND BEHAVIOUR

Knowledge of ways to reduce HIV transmission is important in the fight against HIV/AIDS. HIV prevention programmes focus their messages and efforts on several important aspects of behaviour to avoid the spread of HIV. These include using condoms and limiting the number of sexual partners to one uninfected partner. To ascertain the depth of knowledge about modes of HIV prevention, the 2018 ZDHS respondents were asked questions about these specific behaviours.

Knowledge of HIV prevention methods among women and men age 15-49 is presented in Table 20. Knowledge is generally high in Zambia where 83% of women and 87% of men know that HIV can be prevented by using condoms during sexual intercourse. Ninety-two percent of women and 94% of men say that limiting sexual intercourse to one uninfected partner can reduce the chances of getting HIV. Overall, 80% of women and 84% of men believe both practices are protective.

Women and men age 15-19 have lower levels of knowledge of these HIV prevention methods than people age 20 and older. Urban women were more knowledgeable about each of these prevention methods than their rural counterparts; however, the opposite is true when comparing rural and urban men. As expected, there is a positive relationship between increasing levels of education and knowledge of HIV prevention methods for both men and women. However, while there is also a positive relationship between wealth and knowledge of HIV prevention methods among women, no clear association is present among men.

Though knowledge of HIV prevention is relatively high, some misconceptions about HIV transmission are still common in Zambia. For instance, 21% of women and 28% of men 15-49 say HIV can be transmitted by mosquito bites. In addition, 13% of men and women believe that HIV can be transmitted by supernatural means (data not shown). These are the two most common misconceptions about HIV in the country.

Table 20 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 HIV by using condoms every time they have sexual intercourse and by having one sex partner who is not infected and has no other partners, according to background characteristics, Zambia DHS 2018

	Percentage of women who say HIV can be prevented by:				Percentage of men who say HIV can be prevented by:			
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	80.3	89.1	75.8	5,733	86.1	91.9	81.6	4,813
15-19	76.4	86.3	71.0	3,000	84.8	91.1	80.1	2,781
20-24	84.6	92.2	81.2	2,733	87.8	93.0	83.6	2,032
25-29	85.1	94.3	83.2	2,237	87.9	95.7	85.5	1,721
30-39	85.9	94.2	83.1	3,559	89.0	95.9	86.9	2,663
40-49	84.5	93.3	81.5	2,153	87.9	96.7	86.1	1,981
Residence								
Urban	86.3	94.2	83.1	6,374	86.9	93.6	83.0	5,013
Rural	80.5	90.0	76.9	7,309	87.8	94.8	85.2	6,165
Province								
Central	88.4	95.1	86.0	1,165	93.8	96.9	92.2	979
Copperbelt	89.6	94.3	85.6	2,201	83.8	94.8	80.9	1,727
Eastern	72.7	86.2	68.5	1,605	79.5	93.8	76.3	1,476
Luapula	83.1	88.8	78.9	1,071	88.6	91.8	84.3	849
Lusaka	85.2	94.2	82.1	2,733	87.3	91.2	82.2	2,166
Muchinga	86.0	95.7	83.9	754	88.4	94.9	86.0	599
Northern	78.4	87.0	75.0	1,054	87.4	95.0	85.0	855
North Western	84.8	87.3	79.2	718	90.0	96.9	89.2	556
Southern	79.7	94.4	77.9	1,574	91.6	95.9	88.7	1,395
Western	81.9	91.3	77.7	808	92.0	96.7	90.1	574
Education								
No education	73.1	84.5	68.8	1,054	81.0	85.1	75.8	446
Primary	81.0	90.6	77.6	6,059	86.4	93.5	83.4	4,206
Secondary	86.0	94.0	82.6	5,816	87.7	95.4	84.6	5,618
Higher	93.3	97.5	91.5	755	92.6	95.7	90.2	907
Wealth quintile								
Lowest	77.5	87.8	73.7	2,442	87.5	94.4	85.0	1,827
Second	80.1	89.3	76.0	2,387	86.5	93.5	83.4	1,952
Middle	82.4	91.9	79.4	2,477	86.8	95.9	84.7	2,218
Fourth	85.8	93.6	82.7	3,011	86.8	94.8	83.9	2,552
Highest	87.8	95.4	84.7	3,367	89.0	92.9	84.2	2,629
Total 15-49	83.2	92.0	79.8	13,683	87.4	94.3	84.2	11,177
50-59	na	na	na	na	87.1	96.0	84.7	955
Total 15-59	na	na	na	na	87.4	94.4	84.3	12,132

na = Not applicable
[1] Using condoms every time they have sexual intercourse
[2] Partner who has no other partners

3.15 COMPREHENSIVE KNOWLEDGE OF HIV PREVENTION AMONG YOUNG PEOPLE

Table 21 shows knowledge of HIV prevention among young people age 15-24. Knowledge of HIV prevention is defined as knowing that both condom use and limiting sexual intercourse to one uninfected partner are HIV prevention methods, knowing that a healthy-looking person can have HIV, and rejecting the two most common local misconceptions about HIV transmission: that HIV can be transmitted by mosquito bites or by supernatural means. Knowledge of how HIV is transmitted is crucial to enabling people to avoid HIV infection, and this is especially true for young people, who are often at greater risk because they may have shorter relationships with more partners or engage in other risky behaviours.

Table 21 shows that 43% of young women and 41% of young men have comprehensive knowledge of HIV prevention. The proportion with comprehensive knowledge generally increases with age and educational attainment. Across provinces, the largest percentage of young women demonstrating comprehensive knowledge is in Central Province (54%), while Luapula has the lowest level (30%). For men, the province with the highest percentage who have comprehensive knowledge is North Western (47%), while the lowest is Northern (29%).

Table 21 Knowledge about HIV prevention among young people

Percentage of young women and young men age 15-24 with comprehensive knowledge about HIV prevention, according to background characteristics, Zambia DHS 2018

Background characteristic	Women age 15-24		Men age 15-24	
	Percentage with knowledge about HIV prevention[1]	Number of women	Percentage with knowledge about HIV prevention[1]	Number of men
Age				
15-19	40.5	3,000	38.6	2,781
15-17	38.8	1,735	38.0	1,619
18-19	42.9	1,265	39.4	1,162
20-24	44.9	2,733	43.2	2,032
20-22	44.2	1,736	43.2	1,310
23-24	46.0	997	43.2	722
Marital status				
Never married	44.9	3,617	41.2	4,289
Ever had sex	46.9	1,888	42.0	2,518
Never had sex	42.6	1,729	40.0	1,771
Ever married	38.7	2,116	35.3	523
Residence				
Urban	51.6	2,635	47.1	2,120
Rural	34.9	3,099	35.4	2,693
Province				
Central	53.5	508	43.4	429
Copperbelt	53.4	931	42.9	737
Eastern	31.3	686	31.1	632
Luapula	30.0	450	40.5	392
Lusaka	50.0	1,064	44.9	844
Muchinga	36.0	323	39.6	268
Northern	37.6	457	28.8	367
North Western	37.1	339	47.0	257
Southern	42.2	638	43.8	618
Western	32.0	337	41.8	270
Education				
No education	16.2	206	16.0	147
Primary	30.9	2,236	28.6	1,837
Secondary	51.3	3,143	48.9	2,690
Higher	69.9	149	62.5	139
Total 15-24	42.6	5,733	40.6	4,813

[1] Comprehensive knowledge about HIV prevention means knowing that consistent use of condoms during sexual intercourse and having just one uninfected faithful partner can reduce the chance of getting HIV, knowing that a healthy-looking person can have HIV, and rejecting the two most common local misconceptions about transmission or prevention of HIV.

Information on sexual behaviour is important in designing and monitoring intervention programmes to control the spread of HIV. The 2018 survey included questions on respondents' sexual partners during the 12 months preceding the survey and during their lifetime. Information was also collected on use of condoms at respondents' last sexual intercourse. These questions are sensitive, and it is recognised that some respondents may have been reluctant to provide information on recent sexual behaviour. Results are shown in Table 22.1 for women and Table 22.2 for men.

Overall, 2% of women age 15-49 reported that they had two or more partners in the past 12 months. Among women who had two or more partners in the past 12 months, 38% reported using a condom during their last sexual intercourse. The mean number of lifetime partners among all women who have ever had sexual intercourse is 2.3.

Fifteen percent of men age 15-49 reported that they had two or more partners in the past 12 months. Among men who had two or more partners in the past 12 months, 28% of them reported using a condom during their last sexual intercourse. The mean number of lifetime partners among all men who have ever had sexual intercourse is 6.5.

Table 22.1 Multiple sexual partners and higher-risk sexual intercourse in the past 12 months: Women

Among all women age 15-49, percentage who had sexual intercourse with more than one sexual partner in the past 12 months, and percentage who had intercourse in the past 12 months with a person who was neither their husband nor lived with them; among those having more than one partner in the past 12 months, percentage reporting that a condom was used during last intercourse; among women age 15-49 who had sexual intercourse in the past 12 months with a person who was neither their husband nor lived with them, percentage who used a condom during last sexual intercourse with such a partner; and among women who ever had sexual intercourse, mean number of sexual partners during their lifetime, according to background characteristics, Zambia DHS 2018

	All women			Women who had 2+ partners in the past 12 months		Women who had intercourse in the past 12 months with a person who was neither their husband nor lived with them		Women who ever had sexual intercourse[1]	
Background characteristic	Percentage who had 2+ partners in the past 12 months	Percentage who had intercourse in the past 12 months with a person who was neither their husband nor lived with them	Number of women	Percentage who reported using a condom during last sexual intercourse	Number of women	Percentage who reported using a condom during last sexual intercourse with such a partner	Number of women	Mean number of sexual partners in lifetime	Number of women
Age									
15-24	1.7	26.5	5,733	39.4	95	33.7	1,520	1.9	4,001
15-19	0.9	26.2	3,000	(36.0)	28	29.6	786	1.6	1,490
20-24	2.4	26.8	2,733	40.9	67	38.1	733	2.1	2,511
25-29	1.6	19.0	2,237	(39.2)	35	36.2	425	2.3	2,189
30-39	1.7	13.1	3,559	36.5	59	34.3	466	2.6	3,526
40-49	0.8	9.8	2,153	*	17	37.5	211	2.5	2,138
Marital status									
Never married	2.3	41.6	4,272	42.0	98	35.4	1,778	2.1	2,474
Married/living together	0.7	1.4	7,648	(20.2)	53	22.8	103	2.2	7,635
Divorced/separated/ widowed	3.1	42.0	1,762	49.2	54	33.9	740	2.9	1,746
Residence									
Urban	1.9	22.1	6,374	46.4	118	41.0	1,410	2.3	5,305
Rural	1.2	16.6	7,309	27.2	88	27.0	1,212	2.3	6,549
Province									
Central	1.3	17.1	1,165	*	15	27.4	199	2.5	1,000
Copperbelt	1.7	19.3	2,201	(32.2)	38	38.3	425	2.2	1,779
Eastern	1.7	17.7	1,605	(34.1)	28	40.4	284	2.1	1,465
Luapula	0.9	15.7	1,071	*	10	29.2	169	2.1	927
Lusaka	1.8	21.2	2,733	(56.0)	48	47.2	581	2.2	2,323
Muchinga	1.6	9.9	754	*	12	26.7	74	2.0	640
Northern	1.5	9.6	1,054	*	16	34.8	101	2.0	900
North Western	1.1	26.0	718	*	8	27.4	187	2.8	634
Southern	0.9	20.7	1,574	*	14	22.8	325	2.5	1,445
Western	2.1	34.2	808	*	17	25.0	276	2.8	740
Education									
No education	1.3	11.3	1,054	*	14	20.3	119	2.1	1,008
Primary	1.4	14.9	6,059	30.8	85	28.7	902	2.3	5,416
Secondary	1.6	24.3	5,816	45.8	93	37.2	1,414	2.3	4,741
Higher	1.9	24.8	755	*	14	51.7	187	2.2	689
Wealth quintile									
Lowest	1.7	15.7	2,442	(30.3)	42	21.9	384	2.2	2,236
Second	1.5	16.7	2,387	(20.7)	36	24.9	400	2.4	2,148
Middle	1.1	19.7	2,477	(42.1)	26	31.6	488	2.5	2,210
Fourth	1.5	20.7	3,011	(41.6)	46	38.3	624	2.2	2,615
Highest	1.6	21.6	3,367	(50.8)	56	45.2	726	2.3	2,645
Total	1.5	19.2	13,683	38.2	206	34.5	2,622	2.3	11,854

Notes: An asterisk denotes a figure based on fewer than 25 unweighted cases that has been suppressed. Figures in parentheses are based on 25-49 unweighted cases.

[1] Means are calculated excluding respondents who gave non-numeric responses.

Table 22.2 Multiple sexual partners and higher-risk sexual intercourse in the past 12 months: Men

Among all men age 15-49, percentage who had sexual intercourse with more than one sexual partner in the past 12 months, and percentage who had intercourse in the past 12 months with a person who was neither their wife nor lived with them; among those having more than one partner in the past 12 months, percentage reporting that a condom was used during last intercourse; among men age 15-49 who had sexual intercourse in the past 12 months with a person who was neither their wife nor lived with them, percentage who used a condom during last sexual intercourse with such a partner; and among men who ever had sexual intercourse, mean number of sexual partners during their lifetime, according to background characteristics, Zambia DHS 2018

	All men			Men who had 2+ partners in the past 12 months		Men who had intercourse in the past 12 months with a person who was neither their wife nor lived with them		Men who ever had sexual intercourse[1]	
Background characteristic	Percentage who had 2+ partners in the past 12 months	Percentage who had intercourse in the past 12 months with a person who was neither their wife nor lived with them	Number of men	Percentage who reported using a condom during last sexual intercourse	Number of men	Percentage who reported using a condom during last sexual intercourse with such a partner	Number of men	Mean number of sexual partners in lifetime	Number of men
Age									
15-24	10.6	41.7	4,813	40.6	508	49.1	2,007	4.5	3,035
15-19	5.9	31.9	2,781	41.0	165	45.6	887	3.4	1,257
20-24	16.9	55.1	2,032	40.3	343	51.9	1,119	5.4	1,779
25-29	21.5	39.8	1,721	34.0	370	62.8	686	6.6	1,653
30-39	18.9	24.8	2,663	19.3	504	60.9	661	7.4	2,609
40-49	16.9	16.6	1,981	14.2	334	46.6	328	8.1	1,912
Marital status									
Never married	10.3	47.6	5,142	50.1	532	50.9	2,450	4.8	3,287
Married/living together	20.0	16.8	5,572	15.9	1,116	62.2	939	7.0	5,470
Divorced/separated/ widowed	14.6	63.3	463	47.9	68	48.1	293	11.3	452
Type of union									
In polygynous union	87.6	15.4	272	11.7	238	(46.2)	42	11.6	271
Not in polygynous union	16.6	16.9	5,300	17.1	878	63.0	897	6.8	5,199
Not currently in union	10.7	48.9	5,605	49.8	600	50.6	2,743	5.6	3,739
Residence									
Urban	11.8	32.1	5,013	36.0	591	57.3	1,609	6.6	3,929
Rural	18.3	33.6	6,165	23.5	1,125	50.6	2,073	6.4	5,281
Province									
Central	12.2	31.2	979	22.7	119	50.5	306	6.3	799
Copperbelt	6.2	25.7	1,727	27.6	107	51.4	444	5.5	1,318
Eastern	24.6	40.6	1,476	26.7	363	60.0	600	5.8	1,338
Luapula	9.0	27.3	849	24.9	76	45.4	231	7.0	701
Lusaka	14.3	31.9	2,166	36.3	310	58.1	690	6.3	1,741
Muchinga	10.8	20.8	599	18.1	64	50.4	125	5.9	472
Northern	11.1	21.2	855	23.3	95	48.5	181	5.9	690
North Western	17.5	40.6	556	27.5	97	51.6	226	7.5	484
Southern	25.4	43.6	1,395	27.1	354	53.4	609	8.0	1,160
Western	22.5	47.1	574	27.2	129	48.2	270	7.2	507
Education									
No education	12.8	24.2	446	18.2	57	36.5	108	6.0	387
Primary	15.7	29.4	4,206	21.5	661	41.9	1,235	6.5	3,412
Secondary	15.4	36.1	5,618	32.4	867	59.8	2,031	6.4	4,572
Higher	14.4	33.9	907	33.1	130	65.4	308	6.8	838
Wealth quintile									
Lowest	15.3	28.2	1,827	19.3	279	43.5	515	6.3	1,622
Second	19.7	33.8	1,952	25.0	385	50.2	660	6.3	1,665
Middle	18.0	34.5	2,218	22.4	398	51.6	764	6.3	1,884
Fourth	13.8	34.6	2,552	31.8	352	57.0	883	7.1	2,029
Highest	11.5	32.7	2,629	41.5	301	60.2	860	6.2	2,010
Total 15-49	15.3	32.9	11,177	27.8	1,716	53.5	3,682	6.5	9,209
50-59	12.5	11.0	955	8.7	120	36.0	105	8.7	937
Total 15-59	15.1	31.2	12,132	26.5	1,835	53.1	3,787	6.7	10,146

Notes: Figures in parentheses are based on 25-49 unweighted cases.
[1] Means are calculated excluding respondents who gave non-numeric responses.

3.16 COVERAGE OF HIV TESTING SERVICES

Knowledge of HIV status helps HIV-negative individuals make specific decisions to reduce risk and increase safer sex practices so that they can remain disease free. Among those who are HIV infected, knowledge of their status allows them to take action to protect their sexual partners, access treatment, and plan for the future.

To assess awareness and coverage of HIV testing services, ZDHS respondents were asked if they had ever been tested for HIV. If they said that they had, they were asked if they had received the results of their last test and where they had been tested. If they had never been tested, they were asked if they knew a place where they could go to be tested.

Tables 23.1 and 23.2 show that the majority of respondents age 15-49 (96% of women and men each) knew of a place where they could get an HIV test. Respondents age 15-19 (89% of women and men each) were less likely than those age 20-49 to know a place where they could go to be tested. Never-married respondents who had never had sex were less likely than others to know a place to get an HIV test (87% of women and men each). For both women and men knowledge of where to get an HIV tests rises with increasing levels of education and wealth.

Tables 23.1 and 23.2 also show coverage of HIV testing services. Among respondents age 15-49, a larger proportion of men (22%) than women (13%) had never been tested. Most of those who had been tested said that they had received the results of the last test they took. Overall, 85% of women and 75% of men had ever been tested and had received the results of their last test. The likelihood of having ever had an HIV test and receiving the results of the last test was lowest in the 15-19 age group (59% of women and 46% of men) and in respondents who had never married and had never had sex (45% of women and 43% of men). While the probability of receiving results after being tested generally rises with both age and wealth for women and men, there is actually a decrease for both groups in the highest wealth quintile. Sixty-four percent of women and 52% of men age 15-49 had been tested in the 12-month period preceding the survey and had been told the results of the last test they took.

Table 23.1 Coverage of prior HIV testing: Women

Percentage of women age 15-49 who know where to get an HIV test, percent distribution of women age 15-49 by testing status and by whether they received the results of the last test, percentage of women ever tested, and percentage of women who were tested in the past 12 months and received the results of the last test, according to background characteristics, Zambia DHS 2018

Background characteristic	Percentage who know where to get an HIV test	Percent distribution of women/men by testing status and by whether they received the results of the last test			Total	Percentage ever tested	Percentage who have been tested for HIV in the past 12 months and received the results of the last test	Number of women
		Ever tested and received results	Ever tested, did not receive results	Never tested[1]				
Age								
15-24	93.2	74.3	1.7	24.0	100.0	76.0	59.3	5,733
15-19	89.3	59.1	1.8	39.1	100.0	60.9	47.4	3,000
20-24	97.4	91.0	1.7	7.3	100.0	92.7	72.4	2,733
25-29	97.7	93.4	1.6	5.0	100.0	95.0	72.0	2,237
30-39	98.5	94.5	1.5	3.9	100.0	96.1	70.3	3,559
40-49	97.7	90.1	1.9	7.9	100.0	92.1	58.1	2,153
Marital status								
Never married	92.6	68.3	1.4	30.3	100.0	69.7	52.8	4,272
Ever had sex	96.5	85.3	1.4	13.3	100.0	86.7	67.5	2,477
Never had sex	87.4	44.9	1.4	53.7	100.0	46.3	32.5	1,796
Married or living together	97.5	93.0	1.8	5.2	100.0	94.8	70.3	7,648
Divorced/separated/widowed	97.6	92.2	1.7	6.1	100.0	93.9	64.3	1,762
Residence								
Urban	97.8	87.9	1.3	10.8	100.0	89.2	67.0	6,374
Rural	94.4	82.8	2.0	15.1	100.0	84.9	61.5	7,309
Province								
Central	97.8	84.0	2.4	13.6	100.0	86.4	65.4	1,165
Copperbelt	98.5	86.5	1.0	12.5	100.0	87.5	62.5	2,201
Eastern	92.1	84.8	1.7	13.4	100.0	86.6	63.3	1,605
Luapula	90.4	76.0	2.8	21.2	100.0	78.8	53.8	1,071
Lusaka	97.7	88.3	1.6	10.1	100.0	89.9	68.8	2,733
Muchinga	96.5	77.1	3.0	19.9	100.0	80.1	47.4	754
Northern	92.4	78.8	1.7	19.5	100.0	80.5	53.7	1,054
North Western	96.2	83.7	1.9	14.3	100.0	85.7	59.3	718
Southern	98.1	92.2	1.1	6.7	100.0	93.3	76.8	1,574
Western	96.1	89.0	1.0	10.0	100.0	90.0	73.8	808
Education								
No education	90.3	78.4	2.0	19.6	100.0	80.4	56.0	1,054
Primary	94.4	83.6	2.0	14.4	100.0	85.6	60.4	6,059
Secondary	98.2	86.8	1.4	11.8	100.0	88.2	68.5	5,816
Higher	100.0	94.9	0.7	4.5	100.0	95.5	70.7	755
Wealth quintile								
Lowest	93.0	80.4	2.1	17.5	100.0	82.5	56.9	2,442
Second	94.1	82.7	2.4	15.0	100.0	85.0	62.1	2,387
Middle	95.9	85.7	1.7	12.6	100.0	87.4	66.3	2,477
Fourth	97.7	89.7	1.4	8.9	100.0	91.1	69.8	3,011
Highest	98.1	86.0	1.1	12.8	100.0	87.2	63.9	3,367
Total	96.0	85.2	1.7	13.1	100.0	86.9	64.1	13,683

[1] Includes *don't know/missing* responses

Table 23.2 Coverage of prior HIV testing: Men

Percentage of men age 15-49 who know where to get an HIV test, percent distribution of men age 15-49 by testing status and by whether they received the results of the last test, percentage of men ever tested, and percentage of men who were tested in the past 12 months and received the results of the last test, according to background characteristics, Zambia DHS 2018

Background characteristic	Percentage who know where to get an HIV test	Percent distribution of women/men by testing status and by whether they received the results of the last test			Total	Percentage ever tested	Percentage who have been tested for HIV in the past 12 months and received the results of the last test	Number of men
		Ever tested and received results	Ever tested, did not receive results	Never tested[1]				
Age								
15-24	92.1	59.2	2.3	38.5	100.0	61.5	43.1	4,813
15-19	88.9	46.0	2.5	51.5	100.0	48.5	31.8	2,781
20-24	96.5	77.3	2.0	20.7	100.0	79.3	58.6	2,032
25-29	98.6	86.9	2.6	10.5	100.0	89.5	64.7	1,721
30-39	98.9	88.5	1.4	10.1	100.0	89.9	59.3	2,663
40-49	99.2	87.3	2.5	10.1	100.0	89.9	54.9	1,981
Marital status								
Never married	92.4	59.6	2.6	37.8	100.0	62.2	43.2	5,142
Ever had sex	95.7	68.7	2.7	28.6	100.0	71.4	50.8	3,303
Never had sex	86.5	43.3	2.4	54.3	100.0	45.7	29.5	1,839
Married or living together	99.1	89.4	1.7	8.8	100.0	91.2	60.7	5,572
Divorced/separated/widowed	98.3	82.5	2.8	14.6	100.0	85.4	54.0	463
Residence								
Urban	97.0	78.7	2.1	19.2	100.0	80.8	55.8	5,013
Rural	95.1	72.8	2.2	25.0	100.0	75.0	49.6	6,165
Province								
Central	97.3	75.5	2.5	22.0	100.0	78.0	53.4	979
Copperbelt	95.4	73.1	1.5	25.4	100.0	74.6	54.3	1,727
Eastern	94.7	77.4	1.5	21.1	100.0	78.9	53.7	1,476
Luapula	94.7	66.2	3.2	30.6	100.0	69.4	41.7	849
Lusaka	96.9	79.3	2.4	18.3	100.0	81.7	54.2	2,166
Muchinga	93.4	63.6	2.4	33.9	100.0	66.1	38.0	599
Northern	95.7	74.0	2.0	24.0	100.0	76.0	43.4	855
North Western	94.7	69.9	3.0	27.2	100.0	72.8	50.4	556
Southern	97.9	82.6	2.4	15.0	100.0	85.0	60.6	1,395
Western	97.2	78.5	1.8	19.7	100.0	80.3	60.7	574
Education								
No education	88.9	66.8	1.2	32.0	100.0	68.0	45.1	446
Primary	93.7	66.9	2.5	30.6	100.0	69.4	45.2	4,206
Secondary	97.8	79.8	2.2	18.0	100.0	82.0	56.3	5,618
Higher	99.2	92.4	0.7	6.9	100.0	93.1	65.1	907
Wealth quintile								
Lowest	94.2	70.4	2.0	27.5	100.0	72.5	43.6	1,827
Second	95.0	70.8	2.7	26.4	100.0	73.6	50.1	1,952
Middle	95.9	77.0	2.0	21.0	100.0	79.0	54.2	2,218
Fourth	96.8	79.0	1.6	19.4	100.0	80.6	56.7	2,552
Highest	97.2	77.5	2.5	20.0	100.0	80.0	54.6	2,629
Total 15-49	96.0	75.4	2.2	22.4	100.0	77.6	52.4	11,177
50-59	98.0	79.3	2.4	18.3	100.0	81.7	47.1	955
Total 15-59	96.1	75.7	2.2	22.1	100.0	77.9	52.0	12,132

[1] Includes *don't know/missing* responses

3.17 MATERNAL MORTALITY

Maternal deaths are a subset of all female deaths that are associated with pregnancy and childbearing. Specifically, a maternal death is any death of a woman during pregnancy, delivery, or the period of 42 days after delivery or the end of pregnancy, excluding deaths due to accidents or violence. Two survey methods are generally used to estimate maternal mortality in developing countries: the indirect sisterhood method (Graham et al. 1989) and a direct variant of the sisterhood method (Rutenberg and Sullivan 1991). In this report, the direct estimation procedure is applied.

Age-specific estimates of maternal mortality from the reported survivorship of sisters are shown in Table 24 for the 7-year period preceding the survey. These rates were calculated by dividing the number of maternal deaths by woman-years of exposure. To remove the effect of truncation bias (the upper boundary for

eligibility among women interviewed in the survey is 49 years), the overall rate for women age 15-49 was standardised by the age distribution of survey respondents.

The results in Table 24 indicate that the rate of mortality associated with pregnancy and childbearing is 0.40 maternal deaths per 1,000 woman-years of exposure. Maternal deaths represent 10% of all deaths among women age 15-49 during the 7-year period preceding the survey (67 maternal deaths divided by 680 female deaths). It should be noted that, for the 2018 ZDHS, only 67 maternal deaths were found. As the number of cases is small, the results should be considered with some caution.

Table 24 Maternal mortality

Direct estimates of maternal mortality rates for the 7 years preceding the survey, by 5-year age groups, Zambia DHS 2018

Age	Percentage of female deaths that are maternal	Maternal deaths[1]	Exposure years	Maternal mortality rate[2]
15-19	3.5	1	29,965	0.04
20-24	19.5	21	32,845	0.63
25-29	15.7	16	30,732	0.52
30-34	9.3	15	26,776	0.57
35-39	3.6	4	19,782	0.18
40-44	3.8	4	12,418	0.32
45-49	9.2	6	7,354	0.84
Total 15-49	9.8	67	159,873	0.40

[1] A maternal death is defined as the death of a woman while pregnant or within 42 days of termination of pregnancy, from any cause except accidents or violence.
[2] Expressed per 1,000 woman-years of exposure

The maternal mortality rate can be converted to a maternal mortality ratio by dividing the rate by the general fertility rate during the 7-year period preceding the 2018 ZDHS. The maternal mortality ratio, shown in Table 25, is expressed per 100,000 live births in order to emphasise the obstetrical risk of pregnancy and childbearing. The estimate of the maternal mortality ratio for the 7-year period preceding the 2018 ZDHS is 252 deaths per 100,000 live births. The 95% confidence interval for the maternal mortality estimate is 158 to 347 deaths per 100,000 live births.

Table 25 Maternal mortality ratio

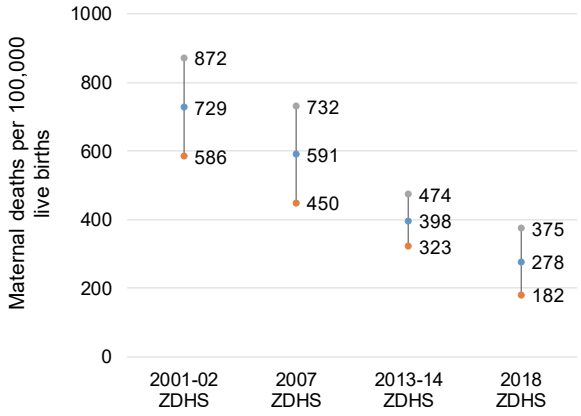
Total fertility rate, general fertility rate, maternal mortality ratio, and lifetime risk of maternal death for the 7 years preceding the survey, Zambia DHS 2018

Total fertility rate (TFR)	5.0
General fertility rate (GFR)[1]	160
Maternal mortality ratio (MMR)[2]	252 CI: (158,347)
Lifetime risk of maternal death[3]	0.012

CI: Confidence interval
[1] Age-adjusted rate expressed per 1,000 women age 15-49
[2] Expressed per 100,000 live births; calculated as the age-adjusted maternal mortality rate (shown in Table 24) times 100 divided by the age-adjusted general fertility rate
[3] Calculated as $1-(1-MMR)^{TFR}$ where TFR represents the total fertility rate for the 7 years preceding the survey

Since the 2013-14 ZDHS, the current definition for maternal mortality was adopted, which, as previously noted, excludes maternal deaths from accidents and injuries in the calculation. The calculation of maternal mortality in previous surveys, which includes these deaths, is now called pregnancy-related mortality. Therefore, to track trends, comparisons between pregnancy-related mortality over time are necessary. Figure 8 tracks these rates and demonstrates a steady decline in pregnancy-related mortality for the 7-year period preceding the surveys (all numbers of deaths are per 100,000 live births): from 729 deaths in the 2001-02 ZDHS, to 591 deaths in the 2007 ZDHS, to 398 deaths in the 2013-14 ZDHS, to 278 deaths in the 2018 ZDHS. The 95% confidence interval for the 2018 pregnancy-related mortality estimate is 182 to 375 deaths.

Figure 8 **Pregnancy-related mortality ratio with confidence intervals for the 7 years preceding the 2001-02, 2007, 2013-14, and 2018 Zambia DHS**



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