KINGDOM OF CAMBODIA
NATION RELIGION KING

Cambodia
Demographic and Health Survey
2010

Preliminary Report

National Institute of Statistics
Ministry of Planning
Phnom Penh, Cambodia

Directorate General for Health
Ministry of Health
Phnom Penh, Cambodia

MEASURE DHS
ICF Macro
Calverton, Maryland, USA

March 2011

Sponsored by USAID, UNFPA, UNICEF, JICA, and HSSP-2

This report presents preliminary findings of the 2010 Cambodia Demographic and Health Survey (CDHS) which was conducted by the National Institute of Statistics of the Ministry of Planning and the Directorate General for Health of the Ministry of Health of Cambodia. ICF Macro provided technical assistance. The 2010 CDHS is part of the worldwide MEASURE DHS project which assists countries in the collection of data to monitor and evaluate population, health, and nutrition programs. Funding was provided by the United States Agency for International Development (USAID) the United Nations Population Fund (UNFPA), the United Nations Children's Fund (UNICEF), the Japan International Cooperation Agency (JICA), and the Health Sector Support Program – Second Phase (HSSP-2).

Additional information about the survey can be obtained from the National Institute of Statistics; 386 Monivong Boulevard, Sangkat Beong Keng Kang 1, Chamkar Mon, Phnom Penh, Cambodia; Telephone: (855) 23213650; E-mail: sythan@forum.org.kh; Internet: www.nis.gov.kh and the Directorate General for Health, Ministry of Health 151-153 Kampuchea Krom Boulevard, Phnom Penh, Cambodia; Telephone: (855) 23722873; E-mail: webmaster@moh.gov.kh; Internet: www.moh.gov,kh.

Additional information about the MEASURE DHS project can be obtained from ICF Macro, 11785 Beltsville Drive, Calverton, MD 20705 USA; Telephone: 301-572-0200, Fax: 301-572-0999, E-mail: info@measuredhs.com, Internet: http://www.measuredhs.com.

Cambodia
Demographic and Health Survey
2010

Preliminary Report

National Institute of Statistics
Ministry of Planning
Phnom Penh, Cambodia

Directorate General for Health
Ministry of Health
Phnom Penh, Cambodia

MEASURE DHS
ICF Macro
Calverton, Maryland, USA

March 2011

CONTENTS

PREFACE

This report presents the preliminary findings from the 2010 Cambodia Demographic and Health Survey (CDHS). Survey findings will be used by policy makers to evaluate the demographic and health status of the Cambodian population in order to formulate appropriate population and health policies and programs in Cambodia. The forthcoming final report and summary report of the CDHS will contain more detailed findings.

This survey was sponsored by the United States Agency for International Development (USAID), the United Nations Population Fund (UNFPA), the United Nations Children's Fund (UNICEF), the Japan International Cooperation Agency **(**JICA**),** and the Health Sector Support Program – Second Phase (HSSP-2). Technical assistance was provided by ICF Macro through the Demographic and Health Surveys program (MEASURE DHS). The Directorate General for Health (DGH) of the Ministry of Health and the National Institute of Statistics (NIS) of the Ministry of Planning were the implementing agencies of the survey. The fieldwork for the CDHS took place for about six months from July 23, 2010 to January 20, 2011; and the data processing took place from August 26, 2010 to February 5, 2011.

The main objective of the 2010 CDHS was to obtain current information on demography, family planning, maternal mortality, infant and child mortality, and health related information such as breastfeeding, antenatal care, delivery, children's immunization, childhood diseases, and HIV/AIDS. In addition, the survey was designed to evaluate the nutritional status of mothers and children and to measure the prevalence of anemia.

We thank USAID, UNFPA, UNICEF, JICA, and HSSP-2 for financing the project. We gratefully acknowledge the support and encouragement extended by H.E. Prof. Eng Huot, Secretary of State, Ministry of Health, H.E. Ouk Chay, Secretary of State, Ministry of Planning, and other members of the Executive Committee and Technical Committee who contributed to the successful implementation of the survey.

We wish to express great appreciation of the work carried out by all persons involved in the CDHS and especially the NIS staff at the central and provincial offices and the DGH staff who worked with dedication and enthusiasm to make the survey a success.

Finally, we would like to express our special thanks to all the local authorities involved and all study participants who gave their valuable time to make this survey possible.

His Excellency San Sy Than
Director General
National Institute of Statistics

Professor Sann Chan Sœung
Deputy Director General for Health
Directorate General for Health

I. INTRODUCTION

The Cambodia Demographic and Health Survey of 2010 (CDHS) was carried out by the National Institute of Statistics (NIS) and the Directorate General for Health (DGH). ICF Macro provided technical assistance to the project through the MEASURE Demographic and Health Surveys program (MEASURE DHS). The survey was funded by the United States Agency for International Development (USAID), the United Nations Population Fund (UNFPA), the United Nations Children's Fund (UNICEF), the Japan International Cooperation Agency **(**JICA**)**, and the Health Sector Support Program – Second Phase (HSSP-2). Data collection was conducted from July 23, 2010 to January 20, 2011 on a nationally representative sample of 16,344 households. All women age 15-49 in these households and all men age 15-49 in a sub-sample of one-half of the households were eligible to be individually interviewed.

The 2010 CDHS, the third of its kind, follows the surveys that were successfully conducted in 2000 (the 2000 CDHS) and in 2005 (the 2005 CDHS). The 2010 CDHS provides data to monitor the population and health situation in Cambodia. Specifically, the 2010 CDHS collected information on a broad range of demographic, health, and social issues such as household characteristics, utilization of health services, maternal and child health, breastfeeding practices, early childhood mortality, maternal mortality, nutritional status of women and young children, fertility levels, marriage, fertility preferences, awareness and use of family planning methods, sexual activity, and awareness and behavior regarding AIDS and other sexually transmitted infections.

This preliminary report presents only a sub-set of results of the 2010 CDHS. A comprehensive analysis of the data is forthcoming. While considered provisional, the results presented here are not expected to differ significantly from those to be presented in the final report.

II. SURVEY IMPLEMENTATION

A. Sample Design

The sample was designed such that resulting statistics can be calculated for the country as a whole and for urban and rural areas. Survey estimates can also be reported for 19 study domains. Fourteen of the 19 domains are individual provinces: Banteay Mean Chey, Kampong Cham, Kampong Chhnang, Kampong Speu, Kampong Thom, Kandal, Kratie, Phnom Penh, Prey Veng, Pursat, Siem Reap, Svay Rieng, Takeo and Otdar Mean Chey, while the remaining ten provinces are paired into 5 groups of provinces:

Group 1: Battambang, and Pailin;
Group 2: Kampot and Kep;
Group 3: Preah Sihanouk and Koh Kong;
Group 4: Preah Vihear and Steung Treng;
Group 5: Mondol Kiri and Rattanak Kiri.

It should be noted that the domains are defined the same to the domains defined in the 2005 CDHS report.

A representative sample of 16,344 households was selected for the 2010 CDHS. The sample was selected in two stages. In the first stage, 611 villages (also known as clusters or enumeration areas) were selected with probability proportional to the village size. The village size is the number of households residing in the village. Then, a complete mapping and listing of all households existing in the selected villages was conducted. The resulting lists of households served as the sampling frame for the second stage of sample selection. Households were systematically selected from those lists for participation in the survey.

All women age 15-49 who were either permanent residents of the households or visitors present in the household on the night before the survey were eligible to be interviewed. In addition, in a sub-sample of one-half of all households selected for the survey, all men age 15-49 were eligible to be interviewed if they were either permanent residents or visitors present in the household on the night before the survey.

B. Questionnaires

Three questionnaires were used for the 2010 CDHS: the Household Questionnaire, the Woman Questionnaire, and the Man Questionnaire. The questionnaires are based on the questionnaires developed by the worldwide Demographic and Health Surveys (DHS) program and on the questionnaires used during the 2005 CDHS survey. To reflect relevant issues in population and health in Cambodia, the questionnaires were adapted during a series of technical meetings with various stakeholders from government ministries and agencies, non-governmental organizations and international donors. The final draft of the questionnaires was discussed at a stakeholders' meeting organized by the NIS. The adapted questionnaires were translated from English into Khmer and pre-tested in April – May 2010.

The Household Questionnaire was used to list all the usual members and visitors in the selected households. Some basic information was collected on the characteristics of each person listed, including age, sex, education, and relationship to the head of the household. For children under 18, survival status of the parents was determined. The Household Questionnaire also collected information on the following topics:

- Dwelling characteristics
- Accidental death and injury
- Physical impairment

• Utilization of health services and health expenditures for recent illness and injury
• Possession of iodized salt
• Height and weight of women and children
• Hemoglobin measurement of women and children

The Household Questionnaire was used for identifying women and men eligible for the individual interview. The Woman Questionnaire was used to collect information from all women age 15-49 and was organized into the following sections:

• Respondent background characteristics
• Reproduction, including a complete birth and death history of respondents' children, and information on abortion
• Contraception
• Pregnancy, postnatal care and children's nutrition
• Immunization, health and women's nutrition
• Marriage and sexual activity
• Fertility preferences
• Husband's background and woman's work
• HIV/AIDS and other sexually transmitted infections
• Maternal mortality

The Man Questionnaire was administered to all men age 15-49 living in every other household in the CDHS sample. The Man Questionnaire was organized into the following sections:

• Respondent background characteristics
• Reproduction
• Marriage and sexual activity
• HIV/AIDS
• Other reproductive health issues

Administration of Questionnaires to Respondents

Not all sections of the three questionnaires were administered to all households or to all respondents. Men were interviewed in every other household. This same half of the sample also included anthropometric measurement (height and weight) of women age 15-49 and children under age 5 years. This same half also included drawing blood from women age 15-49 and children age 6-59 months for measurement of hemoglobin in the field. The other half of the sample did not include interviews with men, anthropometry, or hemoglobin measurement. The entire sample was comprised of over 16,000 households, resulting in interviews with 15,667 households, 18,754 women, and 8,239 men.

C. Training of Field Staff

All aspects of data collection were pre-tested in April – May 2010. Forty two women and men were trained from April 19, 2010 to May 3, 2010 in the administration of the CDHS survey instruments, anthropometric measurement and hemoglobin testing. Six days of fieldwork were followed by one day of interviewer debriefing and examination. Pre-test fieldwork was conducted in 88 households in two rural and two urban villages. The majority of pretest participants also attended the full training for the main survey and served as field editors and team leaders for the main survey.

The main training was conducted from June 21, 2010 to July 20, 2010. The objective was to produce 114 field personnel to staff 19 teams; 109 field personnel were retained at the end of training. Fourteen teams were comprised of a team leader, a field editor, three female interviewers, a male interviewer, and a driver. Five of the 19 teams had two female interviewers instead of the expected three. Training of field teams included classroom training and four days of field practice.

D. Hemoglobin Testing

Hemoglobin testing is the primary method of anemia diagnosis. The 2010 CDHS included anemia testing of children 6 to 59 months old and women age 15-49 in the same one-half of CDHS households that were selected for men interview. A consent statement was read to the eligible respondent or to the parent or responsible adult for children and young 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.

Anemia levels were determined by measuring the level of hemoglobin in the blood, a decreased concentration characterizes anemia. The concentration of hemoglobin in the blood was measured in the field using the HemoCue system. The HemoCue instrument is a special purpose photometer designed specifically for the determination of hemoglobin levels. A capillary blood sample was taken from the palm side of the end of a finger, punctured with a sterile, non-reusable, self-retractable lancet. The blood drop was collected in a HemoCue microcuvette, which serves as a measuring tool, and placed in the HemoCue photometer to determine the level of hemoglobin in the blood. A pamphlet was given to each respondent, explaining symptoms of anemia, prevention methods, and the individual results of the hemoglobin measurement of the respondent and any children for whom she gave permission to be measured. Each person whose hemoglobin level was lower than the recommended cutoff point (testing severely anemic) was advised to visit a health facility for follow-up with a health professional.

E. Fieldwork

Fieldwork was launched immediately upon the conclusion of field staff training. Each of the 19 teams was assigned to one of the 19 sampling domains. Fieldwork supervision was conducted by NIS, DGH, and ICF Macro through regular visits to teams to review their work and monitor data quality. Additional contact between the central office and the teams was maintained through cell phones. In most teams, the team leader was the same person who had implemented the mapping and listing of households in the 2010 CDHS selected clusters, and thus was well acquainted with the data collection sites assigned to their team. Fieldwork was conducted from July 23, 2010 to January 20, 2011. Questionnaires were regularly delivered to NIS headquarters.

F. Data Processing

The processing of the CDHS 2010 data began as soon as questionnaires were received from the field. Completed questionnaires were returned from the field to NIS headquarters, where they were entered and edited by data processing personnel who were specially trained for this task, and had also attended questionnaire training of field staff. Processing the data concurrently with data collection allowed for regular monitoring of team performance and data quality. Field check tables were generated regularly during the data processing to check various data quality parameters. As a result, feedback was given on a regular basis, encouraging teams to continue in areas of high quality and to correct areas of needed improvement. Feedback was individually tailored to each team. Data entry, which included 100 percent double entry to minimize keying error and data editing, was completed on February 5, 2011. Data cleaning and finalization was completed on February 25, 2011.

III. PRELIMINARY FINDINGS

A. Response Rates

Table 1 shows household and individual response rates for the 2010 CDHS. A total of 16,344 households were selected for the sample, of which 15,829 were found to be occupied during data collection. Of the 15,829 occupied households, 15,667 were successfully interviewed, yielding a household response rate of 99 percent.

In these interviewed households, 19,237 women were identified as eligible for the individual interview. Interviews were completed with 98 percent of them. Of the 8,665 eligible men identified in every other household, 95 percent were successfully interviewed. There is little variation in response rates by urban-rural residence.

Table 1. Results of the household and individual interviews

Number of households, number of interviews, and response rates, according to residence, Cambodia 2010

Result	Residence		
	Urban	Rural	Total
Household interviews			
Households selected	4,584	11,760	16,344
Households occupied	4,435	11,394	15,829
Households interviewed	4,385	11,282	15,667
Household response rate	98.9	99.0	99.0
Individual interviews: women			
Number of eligible women	6,228	13,009	19,237
Number of eligible women interviewed	6,077	12,677	18,754
Eligible women response rate	97.6	97.4	97.5
Individual interviews: men			
Number of eligible men	2,722	5,943	8,665
Number of eligible men interviewed	2,606	5,633	8,239
Eligible men response rate	95.7	94.8	95.1

B. Characteristics of Respondents

The distribution of women age 15-49 and men age 15-49 by background characteristics is shown in Table 2. The distribution by age shows a decline in numbers of women and men with increasing age. About 37 percent of women and 40 percent of men are age 15-24. Sixty-two percent of women are currently married or living with a man as married as are 59 percent of men. Because men tend to marry later in life than women, 39 percent of men in the sample have never been married as opposed to 31 percent of women. A higher percentage of women (7 percent) are divorced, separated or widowed, as opposed to three percent of men.

Table 2. Background Characteristics of Respondents

Percent distribution of women and men by background characteristics, Cambodia 2010

Background characteristic	Women			Men		
	Weighted percent	Weighted number	Unweighted number	Weighted percent	Weighted number	Unweighted number
Age						
15-19	19.9	3,734	3,915	22.6	1,863	1,859
20-24	16.8	3,155	3,172	17.0	1,402	1,428
25-29	17.4	3,262	3,209	16.7	1,377	1,370
30-34	11.6	2,167	2,178	12.3	1,014	1,017
35-39	10.9	2,044	1,995	10.1	835	819
40-44	12.3	2,300	2,225	11.6	956	932
45-49	11.2	2,093	2,060	9.6	792	814
Marital status						
Never married	30.8	5,783	5,926	38.6	3,181	3,247
Married	61.4	11,515	11,439	58.4	4,815	4,755
Living together	0.6	112	97	0.4	37	40
Divorced/separated	4.2	781	738	1.8	152	147
Widowed	3.0	564	554	0.7	54	50
Residence						
Urban	21.0	3,936	6,077	20.6	1,697	2,606
Rural	79.0	14,818	12,677	79.4	6,542	5,633
Province						
Banteay Mean Chey	3.8	719	919	3.3	275	355
Kampong Cham	11.3	2,111	909	12.0	990	403
Kampong Chhnang	3.9	739	1,132	4.1	341	497
Kampong Speu	5.7	1,060	958	5.7	468	399
Kampong Thom	5.0	935	969	4.7	390	407
Kandal	10.2	1,920	992	9.7	796	418
Kratie	2.3	438	937	2.3	191	413
Phnom Penh	11.6	2,183	1,376	11.5	945	592
Prey Veng	7.1	1,341	874	7.3	598	388
Pursat	2.8	534	847	3.1	256	397
Siem Reap	6.6	1,233	985	6.3	517	424
Svay Rieng	4.0	753	991	4.0	331	425
Takeo	6.3	1,175	901	6.4	525	399
Otdar Mean Chey	1.3	252	947	1.5	122	459
Battambang & Pailin	7.0	1,320	879	7.3	603	390
Kampot & Kep	4.8	891	910	4.4	362	381
Preah Sihanouk & Koh Kong	2.3	439	1,088	2.5	203	526
Preah Vihear & Steung Treng	2.3	430	1,054	2.3	193	476
Mondol Kiri & Rattanak Kiri	1.5	281	1,086	1.6	132	490
Education						
No education	15.9	2,973	3,203	7.8	641	676
Primary	49.4	9,265	8,796	41.2	3,394	3,354
Secondary or higher	34.7	6,516	6,755	51.0	4,205	4,209
Total	100.0	18,754	18,754	100.0	8,239	8,239

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

Cambodia's population is predominantly rural, with four in five Cambodians living in rural areas. Twenty-one percent of the population lives in urban areas. Overall, 49 percent of women and 41 percent of men have attended some primary school without having gone on to secondary school. One in every two men has attended secondary or higher education and more than one-third of women have done so. But school experience is not universal; 8 percent of men and 16 percent of women have never attended school.

C. Fertility

Fertility data were collected by asking each of the women interviewed for a complete history of her births. Information obtained about each woman's births included the month and year of the birth. These data are used to calculate the measures of current fertility, the total fertility rate (TFR) and its component age-specific fertility rates. The TFR, which is the sum of the age-specific fertility rates, is interpreted as the number of children the average woman would bear in her lifetime if she experienced the currently observed age-specific fertility rates throughout her reproductive years.

The TFR in Cambodia is 3.0 children per woman (Table 3). On average, rural women would give birth to approximately 3.3 children during their reproductive years, while urban women would give birth to only 2.2 children during their reproductive years if they were to follow current levels of fertility throughout their life. Fertility has declined over the past decade: according to the 2000 CDHS, TFR was 4.0 children per woman, and it was estimated at 3.4 by the 2005 CDHS (Figure1).

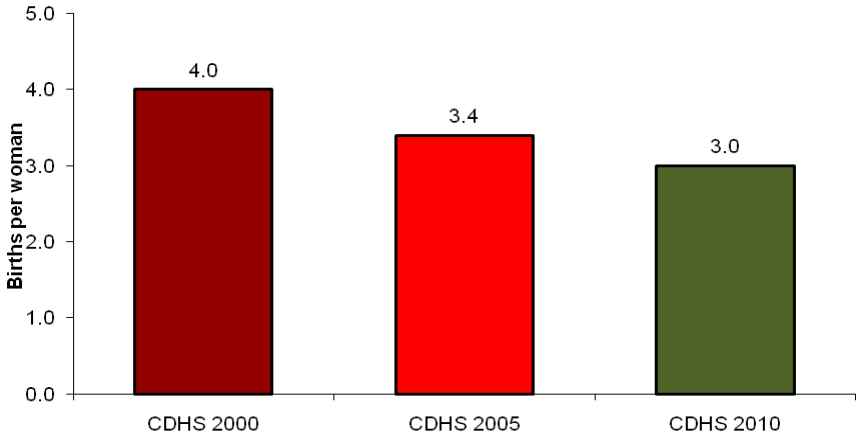
Table 3. Current Fertility

Age-specific and cumulative fertility rates and the crude birth rate for the three years preceding the survey, by urban-rural residence, Cambodia 2010

	Residence		
Age group	Urban	Rural	Total
15-19	26	52	46
20-24	108	195	173
25-29	125	178	167
30-34	124	120	121
35-39	46	76	71
40-44	11	31	28
45-49	4	4	4
TFR	2.2	3.3	3.0
CBR	21.0	25.0	24.2

Note: Rates for age group 45-49 may be slightly biased due to truncation.
TFR: Total fertility rate for ages 15-49, expressed per woman.
CBR: Crude birth rate, expressed per 1,000 population.

Figure 1. Total fertility rates from CDHS 2000, CDHS 2005, and CDHS 2010



D. Family Planning

Information about use of contraceptive methods was collected from female respondents by asking them if they (or their partner) were currently using a method. Contraceptive methods are grouped into two types in the table: modern and traditional. Modern methods include female sterilization, male sterilization, pill, monthly pill, IUD, injectables, implants, male condom, and lactational amenorrhea method (LAM). Traditional methods include periodic abstinence, withdrawal, and folk methods.

Figure 2. Contraceptive prevalence among currently married women age 15-49

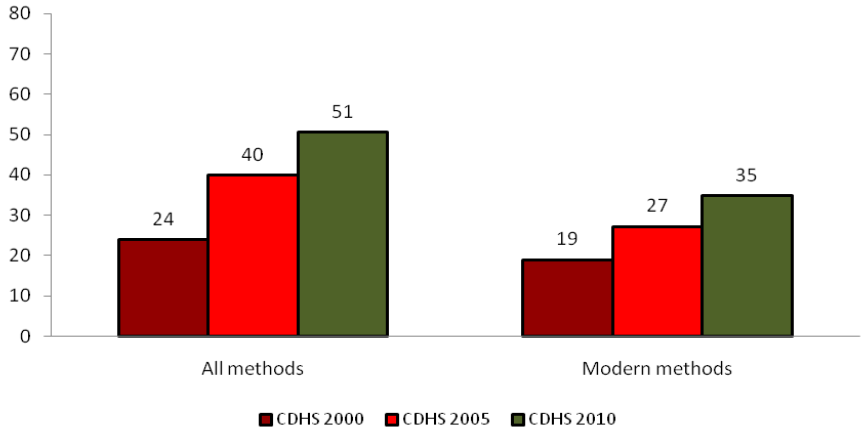


Table 4 shows the level and key differentials in the current use of contraception by method as reported by currently married women. Overall, one of every two currently married women is using some method of contraception. The majority of users rely on a modern method. Use of modern contraceptive methods has increased over the past five years from 27 percent of currently married women using a modern method in 2005, to 35 percent in 2010. The most commonly used modern methods are the pill and injectables (15 percent and 10 percent, respectively). In addition, 12 percent of women report using withdrawal.

The use of contraception increases with increasing education. Fifty-seven percent of women with at least some secondary education use a contraceptive method, in contrast to 43 percent of women with no education. In general, women do not begin to use contraception until they have had at least one child. Two out of five currently married women with three or four children are currently using a modern method of contraception.

The use of modern methods is low for women age 15-19 (19 percent) but increases regularly as age increases and peaks at ages 30-34 (43 percent) and 35-39 (45 percent) before dropping off in the older age groups. The use of modern methods is higher in the rural areas than in the urban areas (36 versus 31 percent). In contrast, the use of traditional methods is higher in the urban areas than in the rural areas (24 versus 14 percent). Method use varies across the provinces.

Table 4. Current use of contraception

Percent distribution of currently married women by contraceptive method currently used, according to background characteristics, Cambodia 2010

			Modern method												Traditional method					
Background characteristic	Any method	Any modern method	Female sterili-zation	Male sterili-zation	Daily pill	Monthly pill	IUD	Injec-tables	Im-plants	Male condom	Female condom	LAM	Other modern	Any tradi-tional method	Periodic absti-nence	With-drawal	Other tradi-tional	Not currently using	Total	Number of women
Age																				
15-19	27.1	18.8	0.0	0.0	10.8	0.1	0.4	5.6	0.1	1.9	0.0	0.0	0.0	8.2	0.5	7.8	0.0	72.9	100.0	382
20-24	43.2	31.4	0.2	0.0	15.4	0.2	3.1	9.7	0.3	2.4	0.0	0.0	0.0	11.8	1.5	10.4	0.0	56.8	100.0	1,679
25-29	53.6	39.1	0.8	0.0	18.4	0.3	3.7	11.7	0.6	3.6	0.0	0.0	0.0	14.5	2.7	11.8	0.0	46.4	100.0	2,572
30-34	61.9	43.0	3.0	0.0	19.8	0.4	3.8	12.8	0.9	2.3	0.0	0.0	0.0	19.0	4.4	14.6	0.0	38.1	100.0	1,811
35-39	64.5	45.1	5.1	0.1	18.8	0.4	3.9	12.9	0.6	3.4	0.0	0.0	0.0	19.5	6.1	13.2	0.1	35.5	100.0	1,747
40-44	52.2	33.7	3.6	0.2	13.1	0.7	2.5	10.9	0.3	2.3	0.1	0.0	0.0	18.5	5.1	13.3	0.1	47.8	100.0	1,861
45-49	28.4	16.4	2.9	0.0	5.4	0.3	1.6	4.3	0.0	1.9	0.0	0.0	0.0	12.1	4.9	7.0	0.2	71.6	100.0	1,574
Residence																				
Urban	54.8	30.7	2.9	0.0	12.4	0.4	5.3	3.9	0.5	5.1	0.0	0.0	0.0	24.1	9.2	14.8	0.1	45.2	100.0	2,069
Rural	49.6	35.8	2.3	0.0	16.0	0.3	2.6	11.8	0.4	2.2	0.0	0.0	0.0	13.8	2.7	11.0	0.1	50.4	100.0	9,557
Province																				
Banteay Mean Chey	51.4	43.3	2.5	0.0	26.4	0.1	1.7	9.8	0.2	2.4	0.0	0.0	0.0	8.2	1.2	7.0	0.0	48.6	100.0	454
Kampong Cham	51.8	28.3	1.8	0.0	11.2	0.4	1.6	10.2	0.2	2.8	0.0	0.0	0.0	23.6	6.1	17.2	0.2	48.2	100.0	1,411
Kampong Chhnang	39.7	26.5	2.6	0.0	11.9	0.3	1.0	9.4	0.2	1.1	0.0	0.0	0.0	13.2	2.5	10.5	0.2	60.3	100.0	450
Kampong Speu	53.3	41.5	3.6	0.3	19.3	0.2	4.4	10.8	0.8	2.1	0.0	0.0	0.0	11.9	1.5	10.4	0.0	46.7	100.0	698
Kampong Thom	52.0	39.6	1.3	0.0	15.5	0.8	3.2	13.5	2.9	2.3	0.0	0.0	0.0	12.5	2.6	9.8	0.0	48.0	100.0	569
Kandal	61.8	38.0	3.7	0.0	13.5	0.3	5.1	12.0	0.0	3.0	0.2	0.0	0.0	23.8	4.2	19.6	0.0	38.2	100.0	1,109
Kratie	39.6	23.9	2.0	0.0	10.6	0.4	0.9	7.7	0.0	2.2	0.2	0.0	0.0	15.7	4.3	11.4	0.0	60.4	100.0	287
Phnom Penh	56.4	29.3	2.1	0.0	11.9	0.4	5.1	3.2	0.3	6.4	0.0	0.0	0.0	27.1	11.1	15.8	0.2	43.6	100.0	1,099
Prey Veng	48.5	41.3	3.9	0.0	18.1	0.4	2.6	13.5	0.0	2.9	0.0	0.0	0.0	7.2	0.9	6.4	0.0	51.5	100.0	961
Pursat	40.6	34.3	1.3	0.1	13.7	1.2	1.1	15.3	0.1	1.5	0.0	0.0	0.0	6.3	1.1	5.3	0.0	59.4	100.0	328
Siem Reap	44.7	33.0	1.6	0.0	16.9	0.1	3.1	8.0	0.1	3.2	0.0	0.0	0.0	11.7	1.3	10.4	0.0	55.3	100.0	754
Svay Rieng	50.5	35.5	2.4	0.2	14.8	0.2	4.0	12.9	0.4	0.6	0.0	0.0	0.0	14.9	6.6	8.3	0.0	49.5	100.0	505
Takeo	47.2	37.9	2.7	0.0	19.3	0.0	3.8	9.6	0.2	2.3	0.0	0.0	0.0	9.3	0.6	8.7	0.0	52.8	100.0	778
Otdar Mean Chey	47.2	43.9	1.7	0.0	25.7	0.1	2.1	11.9	0.2	2.0	0.0	0.1	0.0	3.3	1.1	2.0	0.2	52.8	100.0	154
Battambang & Pailin	50.9	36.5	2.1	0.3	17.6	0.6	2.7	10.6	0.0	2.4	0.0	0.0	0.1	14.3	4.6	9.8	0.0	49.1	100.0	776
Kampot & Kep	52.8	33.3	2.0	0.0	12.5	0.1	3.7	12.4	1.7	1.0	0.0	0.0	0.0	19.4	4.5	14.7	0.2	47.2	100.0	568
Preah Sihanouk & Koh Kong	51.2	34.3	2.2	0.1	14.4	0.6	2.4	8.1	2.6	3.9	0.0	0.0	0.0	16.9	6.1	10.8	0.0	48.8	100.0	265
Preah Vihear & Steung Treng	37.3	32.3	0.9	0.0	13.2	0.6	0.8	14.8	0.1	1.7	0.1	0.0	0.0	5.1	1.5	3.6	0.0	62.7	100.0	261
Mondol Kiri & Rattanak Kiri	43.1	32.7	0.8	0.0	16.1	0.3	1.1	13.8	0.1	0.6	0.0	0.0	0.0	10.4	0.3	10.0	0.1	56.9	100.0	197
Education																				
No education	42.5	33.8	2.7	0.1	16.0	0.4	1.8	11.1	0.2	1.4	0.0	0.0	0.0	8.7	1.3	7.4	0.0	57.5	100.0	2,221
Primary	50.2	35.6	2.2	0.0	15.5	0.4	2.9	11.9	0.5	2.2	0.0	0.0	0.0	14.7	2.6	11.9	0.1	49.8	100.0	6,489
Secondary or higher	57.3	34.2	2.6	0.1	14.7	0.3	4.5	6.6	0.5	4.9	0.0	0.0	0.0	23.2	8.7	14.5	0.0	42.7	100.0	2,917
Number of living children																				
0	8.8	3.6	0.2	0.0	1.6	0.1	0.3	0.7	0.0	0.7	0.0	0.0	0.0	5.1	1.5	3.6	0.0	91.2	100.0	860
1-2	53.9	37.3	1.1	0.0	18.3	0.2	3.2	10.4	0.5	3.5	0.1	0.0	0.0	16.6	3.7	13.0	0.0	46.1	100.0	5,404
3-4	58.5	41.6	4.5	0.1	16.1	0.6	3.8	13.1	0.6	2.9	0.0	0.0	0.0	16.9	4.7	12.2	0.0	41.5	100.0	3,632
5+	44.0	28.6	3.1	0.1	11.6	0.4	2.4	10.0	0.2	0.8	0.0	0.0	0.0	15.4	4.2	10.8	0.4	56.0	100.0	1,731
Total	50.5	34.9	2.4	0.0	15.4	0.4	3.1	10.4	0.4	2.7	0.0	0.0	0.0	15.7	3.9	11.7	0.1	49.5	100.0	11,626

Note: If more than one method is used, only the most effective method is considered in this tabulation.
LAM = Lactational amenorrhea method.

E. Fertility Preferences

Several questions were asked to determine women's fertility preferences. These questions included: a) whether the respondent wanted another child and b) if so, when she would like to have the next child. The answers to these questions allow an estimation of the potential demand for family planning services either to limit or space births.

Table 5 indicates that over half (54 percent) of currently married women do not want to bear any more children. These women and the women who want to delay the birth of their next child are considered in need of family planning. Seventy-nine percent of married women say that they either want to delay the birth of their next child or want to have no more children at all. Fertility preferences are closely related to the number of living children a woman already has. In general, as the number of living children increases, the desire to stop childbearing increases substantially. For example, about half of currently married women with 2 living children (49 percent) say they do not want to have more children compared to nearly three out of every four married women who have three children (73 percent). On the other hand, most married women with no children want to have a child; three-quarters say that they want to have a child soon.

Table 5. Fertility preferences by number of living children

Percent distribution of currently married women by desire for children, according to number of living children, Cambodia 2010

	Number of living children[1]							
Desire for children	0	1	2	3	4	5	6+	Total
Have another soon[2]	76.0	16.8	8.2	4.0	3.5	1.1	0.6	10.4
Have another later[3]	11.5	64.6	30.5	11.5	3.4	0.8	0.3	25.2
Have another, undecided when	2.6	3.3	3.9	1.8	0.4	0.1	0.2	2.3
Undecided	1.9	2.6	4.4	3.5	2.3	0.8	1.1	2.9
Want no more	2.8	10.8	49.2	73.4	80.6	90.2	88.2	53.8
Sterilized[4]	0.4	0.7	1.4	3.1	6.3	3.4	3.0	2.4
Declared infecund	4.8	1.3	2.3	2.7	3.4	3.5	6.6	2.8
Missing	0.0	0.0	0.0	0.1	0.2	0.1	0.0	0.1
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Number of women	508	2,462	3,122	2,312	1,468	858	897	11,626

[1] Includes current pregnancy. For pregnant woman the desire for children refers to a subsequent child, not the child currently being expected.
[2] Wants next birth within 2 years.
[3] Wants to delay next birth for 2 or more years.
[4] Includes both male and female sterilization.

F. Maternal Care

Proper care during pregnancy and delivery are important for the health of both the mother and the baby. Women who had given birth in the five years preceding the survey were asked a number of questions about maternal health care. For the last live birth in that period, mothers were asked whether they had obtained antenatal care during the pregnancy and whether they had received tetanus toxoid injections. For each birth in the same period, mothers were also asked what type of assistance they received at the time of delivery and where the delivery took place. Table 6 presents the information on these key maternal care indicators.

Antenatal Care

Antenatal care from a trained professional is important for monitoring the pregnancy to reduce potential risks for the mother and child during pregnancy and delivery. Nearly nine out of ten women (89 percent) who gave birth in the 5 years preceding the survey received antenatal care at least once from a health professional (doctor, nurse, or midwife). The percentage of women who saw a health professional for antenatal care is different by the level of education, with the proportion seeing someone for antenatal care increasing steadily with rising education level.

Prevention Neonatal Tetanus

Mothers are given tetanus toxoid injections during pregnancy to prevent neonatal tetanus, a potential cause of death among infants. Figures in Table 6 on tetanus toxoid coverage come from respondent verbal reports of receiving tetanus toxoid injection during pregnancy. To ensure protection for the newborn, the mother must have at least two tetanus toxoid injections during pregnancy or a single one if she has already received an injection during the preceding pregnancy. The figure includes mothers with two injections during the pregnancy of the last live 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 live birth), or four or more injections (the last within ten years of the last live birth), or five or more injections prior to the last live birth.

Eighty-five percent of mothers received protection against tetanus for their newborns. Differential in receiving protection against tetanus vary across level of mother's education and residence in patterns similar to that seen for women receiving antenatal care. The percentage of women protected against tetanus during pregnancy increases substantially with increasing level of education. The percentage of women receiving protection against tetanus for their newborns is higher in the urban area than in the rural area.

Delivery Care

Proper medical attention and hygienic conditions during delivery can reduce the risk of complications and infections that can cause the death or serious illness of the mother and/or the baby. The percent of babies delivered by a health professional has increased substantially in the recent past, from 44 percent in 2005 CDHS to 71 percent in the 2010 CDHS. The proportion of babies delivered at a health facility increases more than two-fold during the same period, from 22 percent in 2005 to 54 percent in 2010. As expected there are significant regional variations in whether or not births are delivered in a health facility, and 86 percent of births to urban women were delivered in a health facility compared to less than half of births to rural women. The percentage of births delivered in a health facility increases steadily with increasing education of the mother. One in three births to women with no education were delivered in a health facility, one in two births born to women with at least some primary education were delivered in a health facility, and three in four births born to women with at least some secondary schooling were delivered in a health facility.

Table 6. Maternal care indicators

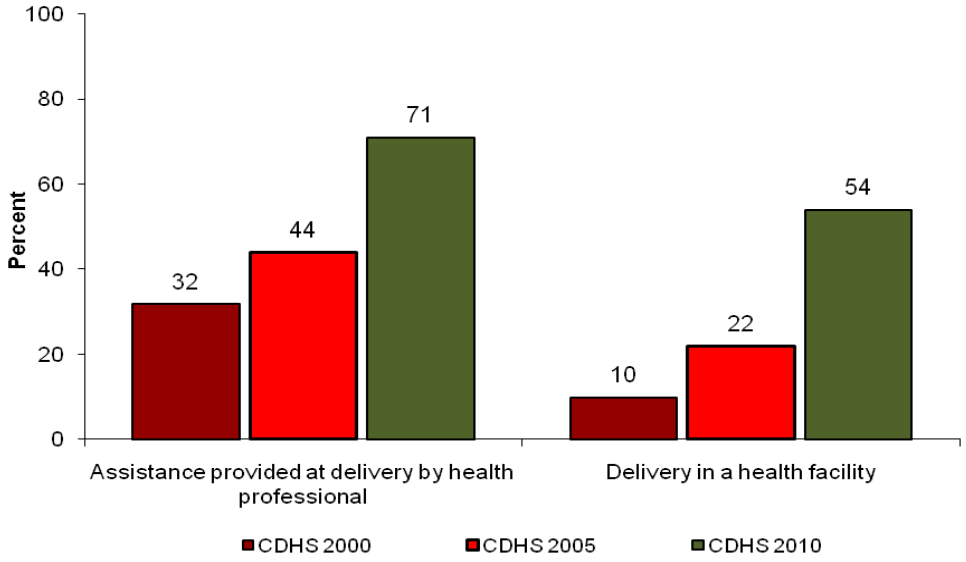
Percentage of women who had a live birth in the five years preceding the survey who received antenatal care from a health professional for the last live birth and whose last live birth was protected against neonatal tetanus, and among all live births in the five years before the survey, percentage delivered by a health professional and percentage delivered in a health facility, by background characteristics, Cambodia 2010

Background characteristic	Percentage with antenatal care from a health professional[1]	Percentage whose last live birth was protected against neonatal tetanus[2]	Number of women	Percentage delivered by a health professional	Percentage delivered in a health facility	Number of births
Mother's age at birth						
< 20	91.8	85.0	555	73.1	57.4	807
20-34	90.7	86.5	4,917	72.2	54.8	6,258
35-49	79.9	74.8	999	63.0	45.6	1,135
Residence						
Urban	97.0	93.1	1,050	94.7	85.8	1,281
Rural	87.6	82.9	5,421	66.6	47.8	6,919
Province						
Banteay Mean Chey	88.3	89.7	243	69.0	55.7	297
Kampong Cham	88.1	78.0	795	67.9	45.8	1,008
Kampong Chhnang	89.6	92.5	285	59.8	54.0	380
Kampong Speu	90.3	89.1	392	68.2	47.3	485
Kampong Thom	85.4	73.9	332	47.7	36.1	432
Kandal	89.0	90.1	628	87.0	65.2	809
Kratie	65.2	74.4	176	44.4	25.8	246
Phnom Penh	99.1	96.4	538	98.8	93.3	647
Prey Veng	92.1	89.5	514	59.2	41.1	614
Pursat	90.2	87.9	206	73.9	48.8	278
Siem Reap	92.9	79.4	441	72.7	68.8	580
Svay Rieng	93.3	87.2	233	89.6	44.6	280
Takeo	96.7	87.0	417	85.4	71.6	522
Otdar Mean Chey	91.1	93.0	86	64.4	57.3	105
Battambang & Pailin	91.1	79.2	451	78.1	51.5	575
Kampot & Kep	86.0	77.4	296	66.5	42.2	365
Preah Sihanouk & Koh Kong	88.1	89.6	144	79.2	56.6	181
Preah Vihear & Steung Treng	66.9	76.6	170	28.2	21.2	226
Mondol Kiri & Rattanak Kiri	61.8	60.5	124	38.4	30.1	171
Mother's education						
No education	76.7	71.2	1,133	46.9	33.9	1,522
Primary	89.0	84.6	3,635	70.4	51.0	4,638
Secondary or higher	97.5	93.3	1,703	90.5	74.9	2,040
Total	89.1	84.5	6,472	71.0	53.8	8,200

[1] Doctor, midwife or nurse.

[2] Includes mothers with two injections during the pregnancy of the last live 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 live birth), or four or more injections (the last within ten years of the last live birth), or five or more injections prior to the last live birth.

Figure 3. Assistance provided at delivery by health professional and delivery in a health facility



G. Child Health

The CDHS obtained information on a number of key child health indicators, including childhood mortality rates, immunization of young children, and treatment practices when a child is ill.

Levels of Childhood Mortality

An important objective of the CDHS was to measure the level and trend of mortality among children. Estimates of childhood mortality are based on information from the birth history section of the questionnaire administered to individual women. The section began with questions about the aggregate childbearing experience of respondents (i.e., the number of sons and daughters who live with the mother, the number who live elsewhere, and the number who have died). For each of these births, information was then collected on sex, month and year of birth, survivorship status and current age, or, if the child had died, age at death. This information is used to directly estimate the following five mortality rates:

- Neonatal mortality (NN): the probability of dying within the first month of life;
- Post-neonatal mortality (PNN): the difference between infant and neonatal mortality;
- Infant mortality (1q0): the probability of dying before the first birthday;
- Child mortality (4q1): the probability of dying between the first and fifth birthday;
- Under-five mortality (5q0): the probability of dying between birth and the fifth birthday.

All rates are expressed per 1,000 live births.

Table 7. Early childhood mortality rates

Neonatal, post-neonatal, infant, child, and under-five mortality rates for five-year periods preceding the survey, Cambodia 2010

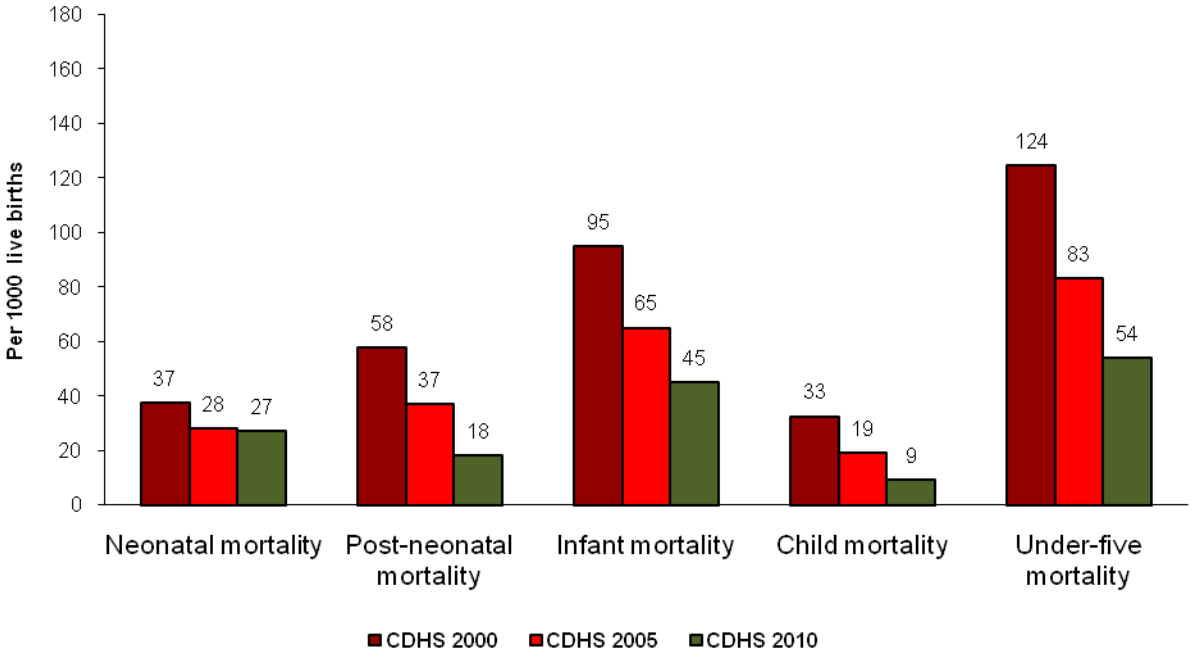
Years preceding the survey	Neonatal mortality (NN)	Post-neonatal mortality (PNN)[1]	Infant mortality (1q0)	Child mortality (4q1)	Under-five mortality (5q0)
0-4	27	18	45	9	54
5-9	36	35	71	13	83
10-14	38	57	95	23	116

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

Table 7 presents early childhood mortality rates for the 14 years preceding the survey. Under-five mortality for the period 0-4 years before the survey (which roughly corresponds to the years 2006-2010) is 54 per 1,000. This means that about one in twenty children born in Cambodia dies before reaching their fifth birthday. Most of the mortality occurs during the first year of life: infant mortality is 45 deaths per 1,000, while mortality between the first and fifth birthday is 9 per 1,000. Mortality during the first month, or neonatal mortality, is 27 per 1,000; while post-neonatal mortality (between the first month and the first birthday) is 18 per 1,000.

Figure 4 compares the mortality rates of the 2010 CDHS to those of the 2005 CDHS and the 2000 CDHS. All figures refer to the five years before each survey; therefore, the 2010 CDHS measures mortality during the period since the CDHS 2005.

Figure 4. Trend in infant and under-five mortality rates



Vaccination of Children

According to the World Health Organization a child is considered fully vaccinated if he or she has received a BCG vaccination against tuberculosis; three doses of DTC vaccine to prevent diphtheria, tetanus, and pertussis; at least three doses of polio vaccine; and one dose of measles vaccine. These vaccinations should be received during the first year of life. Since 2006, the Cambodian National Immunization Program has replaced DTC vaccines with a tetravalent vaccine that includes DTC and Hemophilus Influenza type b vaccine (Hib) and a pentavalent vaccine that includes DTC, Hib, and Hepatitis type b vaccine (HepB). The 2010 CDHS collected information on the coverage for these vaccinations among all children under age five.

Table 8. Vaccinations by background characteristics

Percentage of children age 12-23 months who received specific vaccines at any time before the survey (according to a vaccination card or the mother's report), and percentage with a vaccination card seen, by background characteristics, Cambodia 2010

		Tetravalent/ Pentavalent				Polio							
Background characteristic	BCG	1	2	3	HB 0[1]	1	2	3	Measles	All[2]	No vacci-nations	Percentage with a vacc-ination card seen	Number of children
Sex													
Male	94.5	93.9	90.7	84.6	72.5	94.6	91.4	84.7	80.5	77.1	3.2	79.3	823
Female	94.1	92.4	89.6	85.1	73.5	92.5	89.9	85.4	83.2	80.5	5.4	75.4	791
Residence													
Urban	97.1	95.1	93.6	90.4	89.9	95.2	94.0	90.6	86.5	85.5	2.6	77.1	278
Rural	93.8	92.7	89.5	83.7	69.5	93.2	89.9	83.9	80.9	77.4	4.6	77.5	1,335
Province													
Banteay Mean Chey	100.0	97.9	97.3	95.6	79.9	97.9	97.3	95.6	95.1	93.0	0.0	87.9	63
Kampong Cham	95.6	97.6	96.5	89.9	85.7	97.6	96.5	91.9	87.9	85.4	2.4	81.4	165
Kampong Chhnang	95.5	93.4	87.0	81.7	73.6	93.4	87.0	81.7	78.5	76.0	4.5	72.8	63
Kampong Speu	94.7	97.5	92.9	91.9	78.4	97.5	93.2	91.9	89.1	89.1	2.5	76.2	104
Kampong Thom	95.3	90.8	87.2	76.7	57.0	90.8	87.2	76.7	77.9	74.6	4.7	80.4	69
Kandal	99.5	95.8	94.7	85.9	75.1	95.8	95.8	84.8	80.4	77.1	0.5	95.1	161
Kratie	84.5	85.7	82.0	73.9	57.8	83.4	80.9	73.9	73.9	71.4	13.0	62.8	46
Phnom Penh	96.6	93.7	92.1	90.2	91.5	93.7	92.1	90.2	84.2	84.2	3.4	76.6	148
Prey Veng	90.3	89.6	87.2	84.7	47.5	88.7	87.2	84.7	76.2	76.2	8.8	71.5	135
Pursat	95.2	92.5	86.9	79.5	75.2	93.9	89.8	80.8	83.8	73.6	4.8	66.2	54
Siem Reap	96.7	97.4	94.2	94.2	85.2	97.4	94.2	94.2	90.5	89.1	1.9	85.4	120
Svay Rieng	92.9	92.9	89.4	82.3	81.8	92.9	91.3	82.3	81.3	75.3	7.1	81.0	58
Takeo	97.1	90.7	90.7	90.7	70.6	93.3	93.3	92.2	87.0	84.0	1.4	84.0	107
Otdar Mean Chey	93.5	95.4	95.4	88.1	76.9	95.4	95.4	88.1	83.3	77.6	4.6	84.5	21
Battambang & Pailin	94.0	96.1	93.0	85.1	70.8	96.1	93.0	85.1	82.5	78.8	3.0	71.3	124
Kampot & Kep	87.7	84.5	80.3	64.3	67.2	88.3	81.9	64.9	65.0	57.4	9.4	73.2	65
Preah Sihanouk & Koh Kong	92.2	92.6	88.0	77.5	82.6	93.2	87.6	77.5	80.4	74.2	5.3	60.4	38
Preah Vihear & Steung Treng	93.5	88.3	82.1	77.0	28.5	90.0	81.1	75.5	70.6	65.7	5.9	55.1	39
Mondol Kiri & Rattanak Kiri	68.9	66.5	50.2	40.0	46.7	73.1	49.1	39.3	44.3	28.4	22.0	41.0	33
Mother's education													
No education	83.5	84.4	78.0	66.7	55.5	86.4	79.2	67.2	65.2	58.4	12.1	60.8	253
Primary	95.7	93.9	91.1	86.2	72.2	93.9	91.2	86.3	82.5	80.1	3.4	80.8	913
Secondary or higher	97.7	96.5	95.2	92.2	84.5	96.9	96.0	92.5	89.9	87.6	1.7	79.9	448
Total	94.3	93.1	90.2	84.8	73.0	93.6	90.6	85.0	81.9	78.8	4.3	77.4	1,614

[1] HB 0 is the hepatitis vaccination given at birth.
[2] BCG, measles and three doses each of Tetravalent or Pentavalent and polio vaccine.

Information on vaccination coverage was obtained in two ways—from health cards and from verbal reports of mothers. All mothers were asked by interviewers to show the health cards on which their children's vaccinations are recorded. If the card was available, the interviewer copied into the questionnaire the dates on which each vaccination was received. If a vaccination was not recorded on the health card, the mother was asked to recall whether that particular vaccination had been given. If the mother was not able to present a health card for her child, she was asked to recall whether the child had received BCG, polio, tetravalent/pentavalent and measles. If she indicated that the child had

received the polio or tetravalent/pentavalent vaccines, she was asked about the number of doses that the child received.

Taking into consideration the vaccination schedule, Table 8 presents information on vaccination coverage for children age 12-23 months. The percentage of data coming directly from health cards is 77 percent (the 2005 CDHS fieldwork recorded dates directly from health cards for 67 percent of children age 12-23). By this age, children should be fully vaccinated against the major preventable childhood illnesses. Coverage levels include data from both health cards and verbal reports of mothers. Four out of five children aged 12-23 months (79 percent) are fully vaccinated. This is an increase in coverage over the recent past, as the 2005 CDHS found 67 percent of children age 12-23 to be fully vaccinated. Ninety percent or more of children receive BCG, two doses of tetravalent or pentavalent, and two doses of polio vaccines. The proportions of children receiving the third doses of tetravalent or pentavalent and polio are 85 percent. Only 82 percent of the children received measles vaccination.

Full vaccination coverage varies by mother's education, increasing from 58 percent among children of mothers with no education, to 80 percent among children of mothers with primary education, to 88 percent among mothers with secondary and higher education. Full coverage is higher in urban areas (86 percent) than in rural areas (77 percent).

Treatment of Childhood Illnesses

Acute respiratory illness, fever, and dehydration from severe diarrhea are major causes of childhood morbidity and mortality. Prompt medical attention for children experiencing the symptoms of these illnesses is, therefore, crucial in increasing child well-being and reducing child deaths. To obtain information on how childhood illnesses are treated, mothers were asked (for each child under the age of five years) whether in the two weeks before the survey the child had experienced cough with short, rapid breathing or difficulty breathing due to chest congestion (symptoms of acute respiratory infection ARI), fever, and diarrhea. The percentage of children having experienced each of these illnesses within the two weeks before the survey is shown in Figure 5.

Figure 5. Prevalence of ARI, fever and diarrhea in the two weeks prior to survey among children under age 5

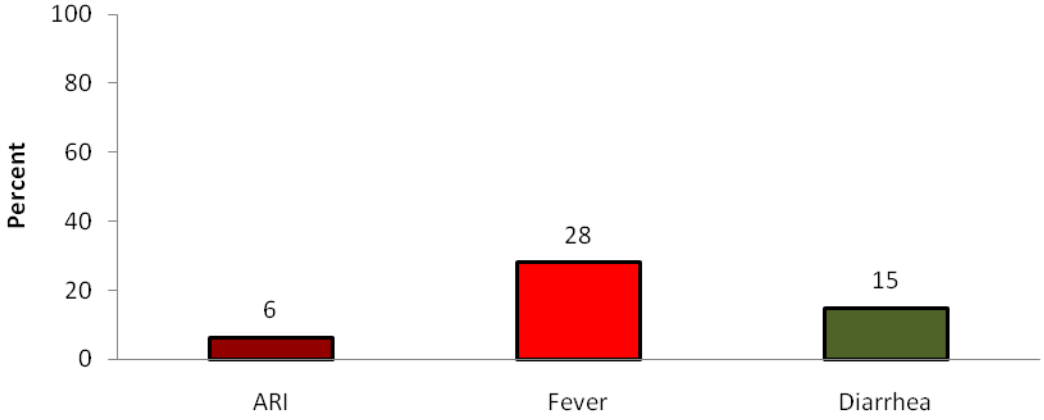


Table 9. Treatment for acute respiratory infection, fever, and diarrhea

Among children under five years who were sick with a cough accompanied by short, rapid breathing or with difficulty breathing due to chest congestion (symptoms of acute respiratory infection-ARI) or with fever in the two weeks preceding the survey, percentage for whom treatment was sought from a health facility or provider, and among children under five years who were sick with diarrhea during the two weeks preceding the survey, percentage for whom treatment was sought from a health facility or provider, percentage given a solution made from oral rehydration salt (ORS) packets or given ORS in tablets, Cambodia 2010

	Children with ARI symptoms		Children with fever		Children with diarrhea		
Background characteristic	Percentage for whom treatment was sought from a health facility/ provider[1]	Number with ARI	Percentage for whom treatment was sought from a health facility/ provider[1]	Number with fever	Percentage for whom treatment was sought from a health facility/ provider[1]	Percentage given solution from ORS packet or ORS tablet[2]	Number with diarrhea
Age in months							
<6	*	24	58.4	151	51.5	20.9	101
6-11	59.4	64	63.3	345	64.4	34.9	219
12-23	71.7	138	64.2	563	66.6	40.4	340
24-35	65.4	116	64.3	449	58.3	33.5	221
36-47	60.3	95	61.8	384	49.5	27.8	148
48-59	54.7	61	61.0	303	47.4	34.2	132
Sex							
Male	62.7	277	62.0	1,130	57.1	33.6	643
Female	66.0	221	63.6	1,064	61.2	34.6	518
Residence							
Urban	67.7	41	57.4	318	58.1	33.0	131
Rural	63.8	457	63.7	1,877	59.0	34.2	1,029
Province							
Banteay Mean Chey	*	17	59.0	85	51.4	34.7	43
Kampong Cham	(61.0)	119	69.6	311	61.9	17.0	172
Kampong Chhnang	*	6	72.9	69	66.7	(30.1)	34
Kampong Speu	*	7	74.2	81	58.1	(34.4)	34
Kampong Thom	*	21	62.1	99	48.7	27.4	74
Kandal	*	13	62.3	232	72.9	(35.2)	83
Kratie	(78.5)	14	58.9	69	51.5	33.3	24
Phnom Penh	*	8	53.2	155	59.5	37.7	74
Prey Veng	*	36	70.8	159	70.7	34.7	100
Pursat	(74.1)	35	70.9	108	60.6	61.0	51
Siem Reap	*	13	57.2	185	52.6	45.5	112
Svay Rieng	(83.4)	22	72.4	94	65.2	39.7	58
Takeo	*	26	65.7	101	50.5	(36.6)	65
Otdar Mean Chey	*	2	45.8	17	67.8	(63.6)	9
Battambang & Pailin	48.9	86	52.7	208	52.0	32.8	94
Kampot & Kep	(59.8)	33	59.2	97	43.7	(20.3)	45
Preah Sihanouk & Koh Kong	(70.6)	19	58.6	42	66.1	44.5	30
Preah Vihear & Steung Treng	*	7	44.7	21	59.1	(24.0)	20
Mondol Kiri & Rattanak Kiri	(62.1)	15	54.5	62	58.5	43.0	38
Mother's education							
No education	51.7	102	54.3	416	55.5	30.6	248
Primary	67.4	306	63.9	1,294	58.8	35.2	693
Secondary or higher	67.2	90	67.1	485	63.0	34.4	220
Total	64.2	498	62.8	2,194	58.9	34.1	1,161

[1] Excludes pharmacy, shop, traditional practitioner and other.
[2] Includes ORS from packets in form of powder and ORS in form of tablet.
* Figure based on fewer than 25 unweighted cases and has been suppressed.
( ) Figure in parentheses based on 25-49 unweighted cases.

Table 9 shows treatment sought for children with these illnesses. Treatment may have been sought from either the public medical sector or the private medical sector. Treatment was sought from a health facility or a health provider for nearly two-thirds (64 percent) of the children with ARI

symptoms. A treatment was sought from a health facility or health provider for 63 percent of children with fever and for 59 percent of children with diarrhea. When left untreated, the dehydrating effect of diarrhea can and often does lead to death in young children. The administration of oral rehydration therapy (ORT) is a simple means of counteracting the effects of dehydration. Effective therapy can be achieved by administering either a solution prepared by mixing with water a commercially prepared packet of oral rehydration salts (ORS), in the form of powder or tablet. Mothers with children who had experienced diarrhea in the two weeks before the survey were asked what if they gave the children a solution made from ORS powder or ORS tablet to treat the diarrhea. One in three children with diarrhea was given fluids made from ORS powder or ORS tablet. While the percent of children who receive ORS fluid is similar in urban and rural areas, it varies substantially across provinces.

H. Nutrition

Breastfeeding and supplementation

Breast milk is the optimal source of nutrients for infants. Children who are exclusively breastfed receive only breast milk. Exclusive breastfeeding is recommended during the first 6 months of a child's life because it limits exposure to disease agents as well as providing all of the nutrients that a baby requires. Table 10 shows the breastfeeding practices of mothers of children under three years of age.

Breastfeeding is universal in Cambodia, 97 percent of children under six months are breastfed. Breastfeeding is also of fairly long duration. Fifty percent of children age 18-23 months are still breastfeeding and one in five children is still breastfeeding at two years of age.

Figure 6. Exclusive breastfeeding by child's age

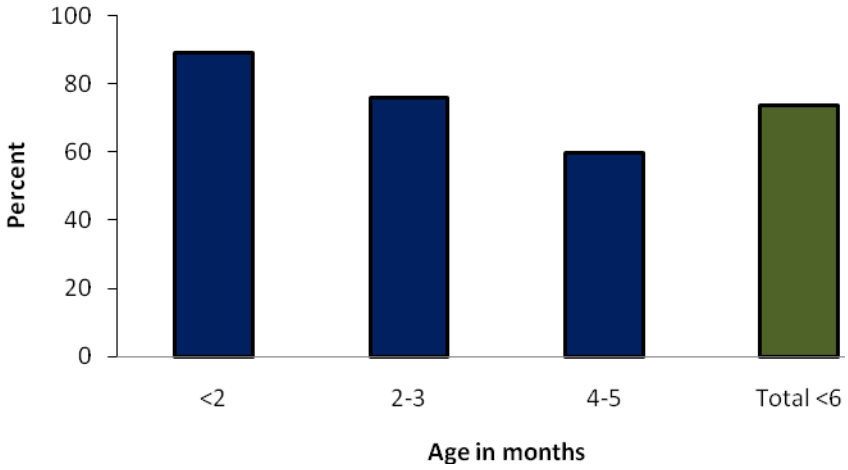


Table 10. Breastfeeding status by age

Among youngest children under three years living with their mother, percent distribution by breastfeeding status and the percentage currently breastfeeding; and among all children under three years, percentage using a bottle with a nipple, according to age in months, Cambodia 2010

Age in months	Breastfeeding and consuming: Not breast-feeding	Exclusively breastfed	Plain water only	Non-milk liquids/ juice	Other milk	Comple-mentary food	Total	Percentage currently breast-feeding	Number of youngest children under three years	Percentage using a bottle with a nipple[1]	Number of all children under three years
0-1	1.9	89.1	3.8	0.0	4.5	0.7	100.0	98.1	190	6.5	193
2-3	3.2	76.0	12.9	1.8	5.4	0.7	100.0	96.8	255	9.4	257
4-5	4.1	59.6	9.4	2.3	6.1	18.4	100.0	95.9	260	23.0	261
6-8	6.0	6.8	4.3	0.0	0.7	82.3	100.0	94.0	411	26.9	414
9-11	6.2	0.3	1.9	0.6	0.0	91.0	100.0	93.8	410	31.3	413
12-17	19.5	0.1	0.3	0.0	0.0	80.1	100.0	80.5	804	27.8	817
18-23	49.6	0.1	0.1	0.0	0.0	50.2	100.0	50.4	747	21.5	797
24-35	80.8	1.7	0.0	0.0	0.0	17.5	100.0	19.2	1,343	18.0	1,610
0-3	2.7	81.6	9.0	1.0	5.0	0.7	100.0	97.3	444	8.1	450
0-5	3.2	73.5	9.2	1.5	5.4	7.2	100.0	96.8	704	13.6	711
6-9	5.5	5.1	3.9	0.4	0.5	84.6	100.0	94.5	555	29.1	560
12-15	16.7	0.1	0.4	0.0	0.0	82.8	100.0	83.3	552	25.6	560
12-23	34.0	0.1	0.2	0.0	0.0	65.7	100.0	66.0	1,551	24.7	1,614
20-23	56.6	0.0	0.0	0.0	0.0	43.4	100.0	43.4	496	21.7	530

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

[1] Based on all children under three years.

Exclusive breastfeeding is becoming a more common practice in Cambodia, with 74 percent of children under age 6 months being exclusively breastfed. This is a significant increase in the practice of exclusive feeding, as 2005 CDHS found that about 60 percent of children under six months were exclusively breastfed. The remainder of breastfed infants consumes water, water-based liquids or juice, other milk, or complementary foods; only 3 percent of infants under age 6 months are not being breastfed. Nearly all children are breastfed through the first year of life, but by age 6 to 9 months, most breastfed children are also receiving complementary foods in addition to breast milk. Bottle feeding is not very common in Cambodia but has slightly increased since 2005: 14 percent of children under six months has been fed with a bottle, compared to 11 percent in 2005.

Early initiation of breastfeeding stimulates breast milk production and facilitates the release of oxytocin, which helps the contraction of the uterus and reduces postpartum blood loss. It also fosters bonding between mother and child. Colostrum in the first breast is highly nutritious and has antibodies that protect the newborn from diseases.

Breastfeeding is nearly universal in Cambodia, with 95 percent of children born in the five years preceding the survey having been breastfed at some time. As shown in Table 11, the proportion of children ever breastfed ranges from a low of 87 percent in Mondol Kiri & Rattanak Kiri to a high of 99 percent in Svay Rieng. About two-thirds of breasted children are breastfed within one hour of birth (65 percent) and 89 percent within one day of birth. One in five breastfed children is given a prelacteal feed, that is, something other than breast milk during the first three days of life. Early initiation of breastfeeding is more common among children whose mothers were assisted at delivery

by a health professional than among children delivered at home. Regional differences are evident in the initial breastfeeding practices. Differences in early breastfeeding by mother's education are small (Table 11).

A serious contributor to childhood morbidity and mortality is micronutrient deficiency. Vitamin A is an essential micronutrient for the immune system and plays an important role in maintaining the epithelial tissue in the body. The CDHS collected information on the consumption of foods rich in vitamin A and on the coverage of supplements. Table 12 shows that 83 percent of the youngest children age 6-35 months living with their mother consumed foods rich in vitamin A in the 24-hour period before the survey. Consumption of foods rich in vitamin A increases from 56 percent among children age 6-8 months to 96 percent among children age 18-23 months. There is regional variation in the consumption of foods rich in vitamin A. However, there is little difference by other characteristics.

Eighty percent of children consume foods rich in iron. Differences by background characteristics are similar to those seen for the consumption of foods rich in vitamin A. Seventy-one percent of children age 6-59 months received a vitamin A supplement in the six months before the survey. Receiving a vitamin A supplement increases as the level of mother's education increases. Only 2 percent of children age 6-59 months received an iron supplement in the seven days before the survey; 5 percent in the urban area and only 1 percent in the rural area respectively. Fifty-seven percent of children age 6-59 months and 61 percent of children age 12-59 months received deworming medication in last 6 months respectively.

Inadequate amounts of iodine in the diet are related to serious health risks for young children. The 2010 CDHS results show that 83 percent of children 6-59 months live in households using iodized salt. A substantial increase from 74 percent found in the 2005 CDHS. Children living in Kampong Chhnang, Kampong Speu, Kratie, Phnom Penh, Pursat, Preah Sihanouk & Koh Kong and Mondol Kiri & Rattanak Kiri are more likely to live in households using iodized salt.

Table 11 Initial breastfeeding

Percentage of children born in the five years preceding the survey who were ever breastfed, and for the last children born in the five years preceding the survey ever breastfed, the percentage who started breastfeeding within one hour and within one day of birth and the percentage who received a prelacteal feed, by background characteristics, Cambodia 2010

	Among children under five		Among last born children ever breastfed:			
Background characteristic	Percentage ever breastfed	Number of children born in last five years	Percentage who started breastfeeding within 1 hour of birth	Percentage who started breastfeeding within 1 day of birth[1]	Percentage who received a prelacteal feed[2]	Number of last-born children ever breastfed
Sex						
Male	95.4	4,245	64.3	87.7	22.0	3,234
Female	95.3	3,955	66.1	90.1	19.1	2,989
Residence						
Urban	93.2	1,281	65.0	89.4	21.5	982
Rural	95.7	6,919	65.2	88.7	20.4	5,242
Province						
Banteay Mean Chey	93.6	297	71.1	84.5	31.1	231
Kampong Cham	93.2	1,008	45.4	82.1	27.9	748
Kampong Chhnang	97.6	380	42.9	96.4	14.9	279
Kampong Speu	96.9	485	71.9	93.3	22.8	381
Kampong Thom	96.8	432	69.6	86.3	14.1	325
Kandal	95.0	809	64.0	86.6	24.6	603
Kratie	93.1	246	76.1	91.7	11.4	165
Phnom Penh	94.2	647	64.3	91.3	14.5	508
Prey Veng	97.3	614	71.5	94.8	11.0	508
Pursat	97.1	278	90.5	98.3	10.9	202
Siem Reap	95.1	580	63.1	87.9	12.4	421
Svay Rieng	98.6	280	76.7	92.4	5.8	229
Takeo	96.5	522	68.8	92.8	26.2	410
Otdar Mean Chey	98.2	105	82.8	94.1	12.7	85
Battambang & Pailin	95.1	575	74.8	88.0	31.6	433
Kampot & Kep	94.6	365	54.2	83.0	34.1	286
Preah Sihanouk & Koh Kong	94.0	181	65.5	88.0	34.3	135
Preah Vihear & Steung Treng	97.6	226	79.9	88.2	10.9	165
Mondol Kiri & Rattanak Kiri	86.7	171	50.6	65.8	24.2	110
Mother's education						
No education	95.2	1,522	62.8	86.4	23.9	1,093
Primary	95.9	4,638	64.8	88.3	20.1	3,517
Secondary +	94.1	2,040	67.6	91.8	19.3	1,613
Assistance at delivery						
Health professional [3]	95.0	5,824	68.7	90.9	17.8	4,590
Traditional birth attendant	96.2	2,314	55.6	83.6	28.3	1,599
Other	92.7	22	39.8	50.0	70.1	18
No one	76.5	10	76.4	81.8	0.0	7
Missing	91.9	29	22.6	22.6	0.0	9
Place of delivery						
Health facility	94.3	4,409	70.1	91.3	17.8	3,505
At home	96.6	3,724	59.0	85.9	24.3	2,685
Other	88.2	42	55.0	85.9	23.6	27
Missing	100.0	25	0.0	0.0	0.0	6
Total	95.3	8,200	65.2	88.8	20.6	6,224

Note: Table is based on births in the last five years whether the children are living or dead at the time of interview.
[1] Includes children who started breastfeeding within one hour of birth
[2] Children given something other than breast milk during the first three days of life
[3] Doctor, nurse/midwife, or auxiliary midwife

Table 12. Micronutrient intake among children

Percentage of youngest children age 6-35 months living with their mother who consumed foods rich in vitamin A and iron in the day or night preceding the survey, and percentage of children 6-59 months who received vitamin A supplements in the six months preceding the survey, who received iron supplements in the past seven days, and who received deworming medication in the six months preceding the survey, and who live in households using iodized salt, by background characteristics, Cambodia 2010

	Last born children age 6-35 months:			Children age 6-59 months:				Children age 6-59 months in households with salt tested	
Background characteristic	Percentage who consumed foods rich in vitamin A[1] in past 24 hours	Percentage who consumed foods rich in iron[2] in past 24 hours	Number of children	Percentage who received vitamin A supplements in past 6 months	Percentage who received iron supplements in past 7 days	Percentage who received deworming medication[3] in last 6 months	Number of children	Percentage living in households using iodized salt	Number of children[4]
Age in months									
6-8	55.8	50.8	411	48.0	0.8	14.6	414	85.2	414
9-11	82.1	76.9	410	62.1	2.1	29.7	413	83.5	412
12-17	91.4	87.8	804	72.5	0.9	47.1	817	84.5	816
18-23	96.3	92.7	747	77.8	2.4	61.6	797	82.8	797
24-35	79.0	77.2	1,343	74.2	2.0	65.0	1,610	82.4	1,609
36-47	na	na	na	71.5	1.2	62.2	1,537	83.3	1,536
48-59	na	na	na	70.8	2.0	63.8	1,514	82.2	1,513
12-59	na	na	na	na	na	61.2	6,274	na	na
Sex									
Male	82.5	79.3	1,945	69.3	1.4	54.9	3,692	82.4	3,690
Female	83.5	80.1	1,771	72.6	2.0	58.6	3,409	83.8	3,407
Breastfeeding status									
Breastfeeding	83.4	79.2	2,052	66.7	1.3	42.6	2,125	82.9	2,124
Not breastfeeding	82.3	80.1	1,658	72.7	1.8	62.9	4,956	83.1	4,953
Missing	100.0	100.0	5	57.5	0.0	21.8	20	90.1	20
Residence									
Urban	78.6	75.9	586	69.8	4.7	57.9	1,144	95.5	1,144
Rural	83.8	80.4	3,129	71.1	1.1	56.5	5,956	80.7	5,954
Province									
Banteay Mean Chey	83.1	79.7	139	84.6	0.0	70.7	251	86.2	251
Kampong Cham	83.8	81.6	458	77.0	1.0	55.6	882	76.7	882
Kampong Chhnang	86.0	84.8	164	74.8	0.8	68.7	324	97.5	324
Kampong Speu	82.8	82.7	228	72.6	0.1	67.0	424	98.1	424
Kampong Thom	74.4	72.7	188	68.5	2.2	60.2	375	85.4	375
Kandal	83.9	79.8	337	83.9	0.7	58.8	704	86.3	704
Kratie	73.3	68.1	101	58.2	0.2	41.6	211	92.4	210
Phnom Penh	72.4	69.4	310	66.1	8.5	55.4	589	99.0	589
Prey Veng	85.4	82.8	303	57.5	0.6	46.3	512	62.6	512
Pursat	89.7	85.0	129	81.0	2.6	70.1	233	98.3	233
Siem Reap	91.3	87.3	279	73.0	0.4	61.7	519	88.4	519
Svay Rieng	81.1	75.9	126	68.1	5.3	55.9	238	66.2	238
Takeo	79.1	74.6	233	69.9	0.0	46.8	451	63.7	451
Otdar Mean Chey	91.7	86.1	50	67.7	1.9	61.8	92	74.4	92
Battambang & Pailin	91.4	89.1	264	75.5	1.0	64.1	494	87.2	494
Kampot & Kep	84.3	81.8	165	57.9	3.1	44.4	317	57.5	317
Preah Sihanouk & Koh	79.0	78.2	78	68.5	0.7	58.8	154	94.7	154
Preah Vihear & Steung	78.6	63.9	91	59.9	0.7	49.7	189	83.9	188
Mondol Kiri & Rattanak	78.1	71.7	71	37.4	0.2	23.1	141	91.7	141
Mother's education									
No education	78.0	72.9	628	59.7	1.6	45.1	1,293	81.1	1,292
Primary	83.9	80.8	2,102	72.5	1.2	59.3	4,026	80.7	4,024
Secondary +	83.9	81.5	985	75.2	2.8	59.2	1,781	89.8	1,780
Mother's age at birth									
15-19	72.8	70.9	126	55.8	1.2	32.7	148	82.2	148
20-29	84.2	81.0	2,241	71.5	1.5	57.7	4,014	82.9	4,013
30-39	82.3	78.9	1,105	72.2	2.2	56.5	2,322	84.4	2,320
40-49	79.8	75.4	243	65.4	1.2	57.1	616	79.9	616
Total	82.9	79.7	3,715	70.9	1.7	56.7	7,100	83.1	7,097

Note: Information on vitamin A is based on both mother's recall and the immunization card (where available). Information on iron supplements and deworming medication is based on the mother's recall.

na = Not applicable

[1] Includes meat (and organ meat), fish, poultry, eggs, pumpkin, red or yellow yams or squash, carrots, red sweet potatoes, dark green leafy vegetables, mango, papaya, and other locally grown fruits and vegetables that are rich in vitamin A.

[2] Includes meat, (including organ meat)

[3] Deworming for intestinal parasites is commonly done for helminthes and for schistosomiasis.

[4] Excludes children in households in which salt was not tested.

Nutritional Status of Children

Under-nutrition places children at increased risk of morbidity and mortality and has also been shown to be related to impaired mental development. Anthropometry provides one of the most important indicators of children's nutritional status. Height and weight measurements were obtained for all children born in the five years preceding the CDHS. The height and weight data are used to compute three summary indices of nutritional status: height-for-age; weight-for-height; and weight-for-age. These three indices are expressed as standard deviation units from the median for the international reference population recommended by the World Health Organization (WHO). The Child Growth Standards applied here are new international growth standards adopted by the WHO on 27 April 2006 and are not comparable to those based on the NCHS/CDC/WHO Reference that were in use prior to 2006, and published in the 2000 and 2005 CDHS reports.

Children whose indices of nutritional status are more than two standard deviations below (-2 SD) the reference median are regarded as undernourished, while those whose indices of nutritional status are more than three standard deviations (-3 SD) below the reference median are considered severely undernourished. Table 13 shows the nutritional status among children under five years of age by selected background characteristics.

Children whose height-for-age is more than two standard deviations below the median of the reference population are considered stunted or short for their age. Stunting is the outcome of failure to receive adequate nutrition over an extended period and is also affected by recurrent or chronic illness. Forty percent of children under five are short for their age; of those children, approximately one-third (14 percent of all children) are severely stunted.

Children whose weight-for-height is more than two standard deviations below the median of the reference population are considered wasted or thin. Wasting represents the failure to receive adequate nutrition in the period immediately before the survey, and typically is the result of recent illness episodes, especially diarrhea, or of a rapid deterioration in food supplies. In Cambodia, 11 percent of children were measured to be wasted at the time of the survey.

Children whose weight-for-age is more than two standard deviations below the median of the reference population are considered underweight. The measure reflects the effects of both acute and chronic undernutrition. Nearly three in ten children (28 percent) are underweight.

Table 13. Nutritional status of children

Percentage of children under five years classified as malnourished according to three anthropometric indices of nutritional status: height-for-age, weight-for-height, and weight-for-age, by background characteristics, Cambodia 2010

Background characteristic	Height-for-age		Weight-for-height			Weight-for-age			Number of children
	Percentage below -3 SD	Percentage below -2[1] SD	Percentage below -3 SD	Percentage below -2[1] SD	Percentage above +2 SD	Percentage below -3 SD	Percentage below -2[1] SD	Percentage above +2 SD	
Age in months									
<6	5.1	10.4	5.2	16.2	4.0	2.0	12.8	0.2	294
6-8	5.9	20.5	1.6	15.6	3.0	1.6	15.9	0.2	230
9-11	6.2	18.7	3.4	12.4	1.7	3.5	19.0	0.0	191
12-17	9.3	32.0	2.7	14.5	1.5	5.1	21.2	0.4	412
18-23	13.7	46.7	2.3	11.1	2.0	7.3	25.7	0.2	414
24-35	16.5	47.2	2.6	8.4	1.0	6.9	30.8	0.1	836
36-47	15.5	44.8	1.8	10.2	2.0	8.5	34.5	0.2	762
48-59	17.8	49.3	2.1	8.8	0.5	9.0	36.0	0.0	836
Sex									
Male	13.8	41.6	2.3	11.4	1.5	6.4	28.0	0.2	2,048
Female	13.4	38.2	2.7	10.4	1.8	6.9	28.6	0.1	1,927
Residence									
Urban	9.5	27.5	3.3	11.6	2.9	3.5	18.8	0.5	600
Rural	14.3	42.2	2.3	10.8	1.4	7.2	30.0	0.1	3,375
Province									
Banteay Mean Chey	9.0	33.4	1.4	7.3	0.3	4.3	17.1	0.0	177
Kampong Cham	17.4	46.9	2.3	11.8	1.3	5.8	31.3	0.0	477
Kampong Chhnang	14.4	40.3	4.5	11.4	0.6	10.2	30.8	0.0	182
Kampong Speu	15.3	42.1	1.8	10.2	0.6	7.0	34.4	0.0	228
Kampong Thom	19.7	49.9	1.2	11.5	1.7	11.4	34.4	0.0	222
Kandal	7.0	34.9	0.2	9.9	1.5	3.8	24.7	0.2	390
Kratie	18.2	47.6	2.3	7.1	1.4	6.1	30.7	0.0	116
Phnom Penh	12.2	25.1	2.6	11.2	3.3	3.2	18.5	0.5	300
Prey Veng	9.1	34.6	2.7	10.9	0.9	4.7	25.5	0.0	352
Pursat	16.8	44.8	4.3	13.3	4.1	8.0	30.5	0.6	130
Siem Reap	19.9	50.3	5.7	12.3	1.1	12.8	34.9	0.0	266
Svay Rieng	9.4	31.2	4.0	12.2	0.1	5.4	29.7	0.7	138
Takeo	9.1	41.3	1.4	9.5	0.0	6.1	31.1	0.0	249
Otdar Mean Chey	15.8	39.6	6.6	17.6	6.2	6.6	30.5	1.5	45
Battambang & Pailin	6.1	26.5	3.2	14.4	3.5	6.1	22.3	0.2	274
Kampot & Kep	12.4	43.4	1.0	8.9	1.5	6.2	29.9	0.0	169
Preah Sihanouk & Koh Kong	15.6	41.8	2.8	9.1	4.3	6.1	21.8	0.0	85
Preah Vihear & Steung Treng	29.7	56.4	1.5	8.0	1.6	12.8	36.8	1.0	105
Mondol Kiri & Rattanak Kiri	26.7	54.9	3.6	10.3	2.8	7.9	34.3	0.0	74
Mother's education[2]									
No education	20.8	47.6	2.7	11.3	1.4	9.5	34.2	0.1	711
Primary	13.0	40.4	2.7	11.7	1.6	6.6	28.7	0.1	2,072
Secondary or higher	7.4	30.7	1.9	9.7	2.2	4.0	20.7	0.3	897
Missing	19.3	46.1	2.0	8.1	0.9	8.1	34.5	0.0	296
Mother's status									
Interviewed	13.2	39.1	2.6	11.4	1.7	6.5	27.8	0.2	3,597
Not interviewed, but in	11.0	53.4	0.0	1.8	2.7	7.6	27.7	0.0	83
Not interviewed, and not in	19.4	46.2	2.0	8.2	0.9	8.1	34.6	0.0	295
Missing	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1
Total	13.6	39.9	2.5	10.9	1.6	6.7	28.3	0.2	3,975

Note: Table is based on children who stayed in the household the night before the interview. Each of the indices is expressed in standard deviation units (SD) from the median of WHO Child Growth Standards adopted in 2006. The indices in this table are NOT comparable to those based on the previously used NCHS/CDC/WHO Reference.

Table is based on children with valid dates of birth (month and year) and valid measurement of both height and weight.

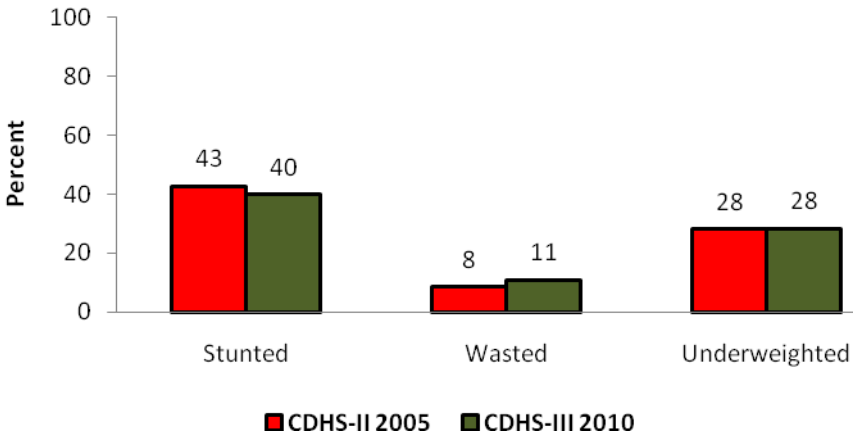
[1] Includes children who are below -3 standard deviations (SD) from the WHO Child Growth Standards population median.

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

[3] Includes children whose mothers are deceased.

The Child Growth Standards applied here are the new international growth standards adopted by the WHO on April 27, 2006. The 2000 CDHS and 2005 CDHS reports assessed nutritional status by comparing the CDHS results against the NCHS/CDC/WHO Reference populations that were in existence prior to 2006, thus, the nutritional status results published in the 2000 and 2005 CDHS reports are not comparable to those published here. We re-calculated the 2005 data applying the new growth standard adopted by WHO in 2006 to be able to compare the 2005 CDHS findings with the 2010 CDHS findings. The results are presented in Figure 7.

Figure 7. Undernourished children 0-59 months, CDHS 2005 and CDHS 2010



Anemia

Anemia is characterized by a low level of hemoglobin in the blood. Hemoglobin is necessary for transporting oxygen from the lungs to other tissues and organs in the body. Anemia can result from a nutritional deficiency of iron, folate, vitamin B12, or some other nutrients. This type of anemia is commonly referred to as iron-deficiency anemia and is the most widespread form of malnutrition in the world. Anemia can also be the result of hemorrhage, chronic disease, malaria, parasitic infection or genetic disorders such as Hemoglobin E trait, beta-Thalassemia and alpha-Thalassemia.

Table 14 presents the anemia levels for children under five years of age (6-59 months) and for women age
15-49 years. Levels of anemia were classified as severe, moderate, or mild according to criteria developed by the World Health Organization (DeMaeyer et al., 1989). Children with < 7.0 g/dl of hemoglobin are classified as having severe anemia, with 7.0 – 9.9 g/dl having moderate anemia, and with 10.0 – 10.9 g/dl having mild anemia. Women with < 7.0 g/dl are classified as having severe anemia, with 7.0 – 9.9 g/dl having moderate anemia, and non-pregnant women with 10.0 – 11.9 g/dl and pregnant women with 10.0 – 10.9 g/dl as having mild anemia.

Anemia is common among children in Cambodia; 55 percent of children are anemic. Nearly all of children who suffer from anemia are moderately anemic (26 percent of all children) or mildly anemic (28 percent of all children). Only one percent of children are severely anemic. Anemia is less common among women; 44 percent show any evidence of anemia, and the majority are mildly anemic (37 percent of all women are mildly anemic). The prevalence of anemia varies by residence and by region among both children and women.

Iodization of Household Salt

Disorders induced by dietary iodine deficiency constitute a major global nutrition concern. A lack of sufficient iodine can lead to goiter, hypothyroidism, impaired mental functions, retarded mental and physical development, and diminished school performance. Iodine deficiency in the fetus leads to increased rates of abortion, stillbirths, congenital anomalies, cretinism, psychomotor defects, and neonatal mortality. Iodine deficiency can be avoided by using salt that has been fortified with iodine (iodized salt). Data presented in Table 15 show the results of household salt samples that were tested with solutions that detect both potassium iodate and potassium iodide (test kits manufactured by MBI Kits International). While the test kits are designed to assess potassium iodate and potassium iodide levels in parts per million, salt testing in the CDHS assessed the present or absent of iodine in the salt, without any determination of parts per million.

Data are based on the 99 percent of households where salt was tested. In Cambodia, the large majority of
households (83 percent) use iodized salt. There are significant differentials across the provinces, with many provinces having over 90 percent of all households using iodized salt, while in Kampot/Kep only 55 percent of households use iodized salt. There is a significant increase from the time of the 2005 CDHS, when 73 percent of households used iodized salt.

Table 14. Anemia among children and women

Percentage of children age 6-59 months and women age 15-49 years classified as having anemia, by background characteristics, Cambodia 2010

Background characteristic	Percentage with anemia: Any anemia	Mild anemia	Moderate anemia	Severe anemia	Number
CHILDREN					
Residence					
Urban	44.7	26.4	17.8	0.5	548
Rural	56.9	28.4	27.5	0.9	3,129
Province					
Banteay Mean Chey	49.9	25.0	24.6	0.3	157
Kampong Cham	54.8	28.8	24.9	1.1	452
Kampong Chhnang	63.5	32.7	30.4	0.4	172
Kampong Speu	53.6	23.1	30.5	0.0	208
Kampong Thom	65.3	28.2	35.3	1.8	197
Kandal	56.4	26.6	29.1	0.7	362
Kratie	60.7	33.9	25.1	1.6	110
Phnom Penh	47.8	31.0	16.4	0.4	282
Prey Veng	52.1	26.6	24.8	0.6	310
Pursat	39.4	21.1	18.3	0.0	122
Siem Reap	60.0	26.8	31.5	1.7	244
Svay Rieng	65.5	34.4	31.1	0.0	129
Takeo	54.3	22.8	31.5	0.0	232
Otdar Mean Chey	61.3	36.8	24.5	0.0	44
Battambang & Pailin	53.8	33.1	19.3	1.4	254
Kampot & Kep	49.2	30.2	16.7	2.4	155
Preah Sihanouk & Koh Kong	57.6	31.6	24.3	1.7	80
Preah Vihear & Steung Treng	54.2	24.1	29.0	1.2	97
Mondol Kiri & Rattanak Kiri	53.9	24.4	28.6	0.9	68
Total	55.1	28.1	26.1	0.9	3,677
WOMEN					
Residence					
Urban	35.0	30.7	4.2	0.1	1,943
Rural	46.9	38.4	8.1	0.4	7,287
Province					
Banteay Mean Chey	38.7	32.3	6.3	0.1	338
Kampong Cham	41.4	35.3	5.3	0.8	1,036
Kampong Chhnang	57.1	45.0	11.0	1.2	373
Kampong Speu	46.5	40.1	6.2	0.3	530
Kampong Thom	53.3	42.8	10.2	0.3	456
Kandal	44.9	38.4	6.1	0.4	911
Kratie	55.1	44.2	10.1	0.8	225
Phnom Penh	33.9	30.4	3.5	0.1	1,110
Prey Veng	41.2	35.0	6.3	0.0	679
Pursat	26.3	22.1	3.7	0.6	269
Siem Reap	46.3	36.1	10.0	0.2	601
Svay Rieng	61.9	49.2	11.9	0.8	361
Takeo	45.1	36.4	8.8	0.0	572
Otdar Mean Chey	46.6	40.8	5.3	0.5	123
Battambang & Pailin	53.2	41.4	11.5	0.3	644
Kampot & Kep	38.6	32.3	6.4	0.0	433
Preah Sihanouk & Koh Kong	38.0	31.3	6.5	0.1	217
Preah Vihear & Steung Treng	46.8	37.9	8.3	0.6	216
Mondol Kiri & Rattanak Kiri	47.0	36.4	10.5	0.1	136
Total	44.4	36.7	7.3	0.4	9,229

Note: Table is based on children and women who stayed in the household the night before the interview. Prevalence is adjusted for altitude (for children and women) and smoking (for women) using CDC formulas (CDC, 1998). Women and children with <7.0 g/dl of hemoglobin have severe anemia, women and children with 7.0-9.9 g/dl have moderate anemia, and non-pregnant women with 10.0-11.9 g/dl and children and pregnant women with 10.0-10.9 g/dl have mild anemia.

Table 15. Iodization of household salt

Percent distribution of all households by presence of salt that was tested for iodine content, and percent distribution of households with salt tested by presence of iodine in salt, according to background characteristics, Cambodia 2010

	All households						Household with salt tested			
Background characteristic	Percentage with salt not tested	Percentage with salt tested	Percentage with no salt	Missing	Total	Number of households	Percentage with no iodine	Percentage with iodine present	Total	Number of households
Residence										
Urban	0.1	99.2	0.6	0.1	100.0	2,652	4.1	95.9	100.0	2,631
Rural	0.1	98.5	1.3	0.1	100.0	13,015	20.1	79.9	100.0	12,819
Province										
Banteay Mean Chey	0.0	95.7	4.1	0.2	100.0	656	12.7	87.3	100.0	628
Kampong Cham	0.1	98.1	1.7	0.0	100.0	1,913	23.9	76.1	100.0	1,877
Kampong Chhnang	0.0	99.7	0.3	0.0	100.0	621	1.6	98.4	100.0	619
Kampong Speu	0.0	99.1	0.8	0.1	100.0	869	2.0	98.0	100.0	861
Kampong Thom	0.1	98.5	1.3	0.1	100.0	784	9.3	90.7	100.0	772
Kandal	0.0	99.4	0.6	0.0	100.0	1,527	13.7	86.3	100.0	1,518
Kratie	0.1	98.2	0.3	1.4	100.0	373	7.9	92.1	100.0	367
Phnom Penh	0.2	99.6	0.2	0.1	100.0	1,384	0.4	99.6	100.0	1,378
Prey Veng	0.0	99.8	0.2	0.0	100.0	1,338	37.6	62.4	100.0	1,336
Pursat	0.0	99.4	0.1	0.4	100.0	494	1.1	98.9	100.0	491
Siem Reap	0.0	99.9	0.1	0.0	100.0	945	12.6	87.4	100.0	944
Svay Rieng	0.4	98.9	0.8	0.0	100.0	687	30.5	69.5	100.0	680
Takeo	0.0	95.8	4.2	0.0	100.0	1,101	35.8	64.2	100.0	1,055
Otdar Mean Chey	0.0	99.0	0.6	0.4	100.0	200	25.0	75.0	100.0	198
Battambang & Pailin	0.1	98.6	1.3	0.0	100.0	1,141	12.0	88.0	100.0	1,125
Kampot & Kep	0.0	98.7	1.3	0.0	100.0	774	44.6	55.4	100.0	764
Preah Sihanouk & Koh Kong	0.0	99.7	0.3	0.0	100.0	317	5.9	94.1	100.0	316
Preah Vihear & Steung Treng	0.0	95.8	3.6	0.6	100.0	331	12.8	87.2	100.0	317
Mondol Kiri & Rattanak Kiri	0.5	96.9	2.6	0.0	100.0	209	6.2	93.8	100.0	203
Total	0.1	98.6	1.2	0.1	100.0	15,667	17.3	82.7	100.0	15,449

I. HIV/AIDS

The HIV/AIDS epidemic is a serious threat to social and economic development around the world. The CDHS included a series of questions that addressed respondents' knowledge about AIDS and their awareness of modes of transmission of the human immunodeficiency virus that causes AIDS, and of behaviors that can prevent the spread of HIV.

Table 16 shows that virtually all women and men say that they have heard of AIDS (99 percent).

Table 16. Knowledge of AIDS

Percentage of women and men age 15-49 who have heard of AIDS by background characteristics, Cambodia 2010

Background characteristic	Women		Men	
	Has heard of AIDS	Number	Has heard of AIDS	Number
Age				
15-24	98.6	6,889	98.4	3,265
..15-19	98.4	3,734	97.6	1,863
..20-24	98.9	3,155	99.3	1,402
25-29	98.6	3,262	99.5	1,377
30-39	98.4	4,211	99.2	1,849
40-49	98.7	4,393	99.1	1,748
Marital status				
Never married	98.2	5,783	98.4	3,181
..Ever had sex	97.0	13	99.9	437
..Never had sex	98.3	5,770	98.2	2,744
Married/living together	98.7	11,626	99.2	4,852
Divorced/separated/widowed	98.9	1,345	98.5	206
Residence				
Urban	99.6	3,936	99.8	1,697
Rural	98.3	14,818	98.7	6,542
Province				
Banteay Mean Chey	97.3	719	98.3	275
Kampong Cham	98.2	2,111	99.4	990
Kampong Chhnang	99.9	739	100.0	341
Kampong Speu	99.9	1,060	100.0	468
Kampong Thom	99.5	935	98.6	390
Kandal	99.9	1,920	100.0	796
Kratie	96.5	438	98.3	191
Phnom Penh	99.7	2,183	99.5	945
Prey Veng	99.3	1,341	100.0	598
Pursat	100.0	534	97.3	256
Siem Reap	98.7	1,233	96.3	517
Svay Rieng	99.4	753	98.9	331
Takeo	97.0	1,175	97.8	525
Otdar Mean Chey	99.5	252	96.9	122
Battambang & Pailin	98.2	1,320	100.0	603
Kampot & Kep	99.8	891	99.6	362
Preah Sihanouk & Koh Kong	99.6	439	99.5	203
Preah Vihear & Steung Treng	86.2	430	93.3	193
Mondol Kiri & Rattanak Kiri	89.9	281	94.8	132
Education				
No education	96.3	2,973	95.2	641
Primary	98.4	9,265	98.5	3,394
Secondary or higher	99.8	6,516	99.8	4,205
Total 15-49	98.6	18,754	98.9	8,239

Multiple Sexual Partners and Use of Condoms

HIV prevention initiatives focus their messages and efforts on two important aspects of sexual behavior, namely faithfulness (having only one sexual partner) and use of condoms. The CDHS asked a series of questions to women and men related to these behaviors in order to monitor certain HIV/AIDS indicators.

Tables 17 and 18 present information on multiple sexual partners among women and men, condom use during their last sexual encounter with their partners, and the mean number of sexual partners in their lifetime.

Table 17 Multiple sexual partners and higher-risk sexual intercourse in the past 12 months: Women

Among all women age 15-49, the percentage who had sexual intercourse with more than one sexual partner; among those having more than one partner in the past 12 months, the percentage reporting that a condom was used at last intercourse; and the mean number of sexual partners during her lifetime for women who ever had sexual intercourse, by background characteristics, Cambodia 2010

	All respondents		Among respondents who had 2+ partners in the past 12 months:		Among respondents who ever had sexual intercourse	
Background characteristic	Percentage who had 2+ partners in the past 12 months	Number	Percentage who reported using a condom during last sexual intercourse	Number	Mean number of sexual partners in lifetime	Number
Age						
15-24	0.1	6,889	*	5	1.1	2,205
..15-19	0.1	3,734	*	2	1.1	410
..20-24	0.1	3,155	*	2	1.1	1,796
25-29	0.0	3,262	*	0	1.1	2,726
30-39	0.0	4,211	*	0	1.1	3,889
40-49	0.1	4,393	*	3	1.1	4,149
Marital status						
Never married	0.0	5,783	*	1	7.3	13
Married/living together	0.0	11,626	*	1	1.1	11,618
Divorced/separated/widowed	0.4	1,345	*	6	1.2	1,339
Education						
No education	0.0	2,973	*	1	1.1	2,589
Primary	0.0	9,265	*	4	1.1	7,232
Secondary or higher	0.0	6,516	*	3	1.1	3,148
Residence						
Urban	0.1	3,936	*	3	1.2	2,343
Rural	0.0	14,818	*	5	1.1	10,627
Total	0.0	18,754	*	8	1.1	12,970

* Figure based on fewer than 25 unweighted cases and has been suppressed.

Table 18. Multiple sexual partners and higher-risk sexual intercourse in the past 12 months: Men

Among all men age 15-49, the percentage who had sexual intercourse with more than one sexual partner; among those having more than one partner in the past 12 months, the percentage reporting that a condom was used at last intercourse; and the mean number of sexual partners during her lifetime for men who ever had sexual intercourse, by background characteristics, Cambodia 2010

	All respondents		Among respondents who had 2+ partners in the past 12 months:		Among respondents who ever had sexual intercourse	
Background characteristic	Percentage who had 2+ partners in the past 12 months	Number	Percentage who reported using a condom during last sexual intercourse	Number	Mean number of sexual partners in lifetime	Number
Age						
15-24	0.7	3,265	*	22	2.0	736
..15-19	0.3	1,863	*	5	1.9	90
..20-24	1.2	1,402	*	16	2.0	645
25-29	2.6	1,377	(22.2)	36	2.0	1,204
30-39	1.8	1,849	(60.8)	34	2.0	1,811
40-49	2.1	1,748	(13.2)	36	2.0	1,738
Marital status						
Never married	0.7	3,181	(98.3)	24	1.9	437
Married/living together	2.0	4,852	(22.6)	95	2.0	4,847
Divorced/separated/widowed	4.4	206	*	9	1.9	206
Residence						
Urban	1.6	1,697	53.3	28	2.0	1,106
Rural	1.5	6,542	35.7	100	2.0	4,384
Education						
No education	0.5	641	*	3	2.0	551
Primary	1.9	3,394	27.9	64	2.0	2,511
Secondary or higher	1.5	4,205	52.2	61	2.0	2,427
Total 15-49	1.5	8,239	39.5	128	2.0	5,489

* Figure based on fewer than 25 unweighted cases and has been suppressed.
( ) Figure in parentheses based on 25-49 unweighted cases.

REFERENCES

DeMaeyer, E. M., Dallman, P., Gurney, J. M., Hallberg, L., Sood, S. K. & Srikantia, S. G. 1989 Preventing and controlling iron deficiency anaemia through primary health care: a guide for health administrators and programme managers, pp. 5–58. WHO, Geneva, Switzerland.

National Institute of Statistics, Directorate General for Health [Cambodia], and ORC Macro. 2001. Cambodia *Demographic and Health Survey 2000*. Phnom Penh, Cambodia, and Calverton, Maryland USA: National Institute of Statistics, Directorate General for Health, and ORC Macro.

National Institute of Public Health, National Institute of Statistics [Cambodia] and ORC Macro. 2006. *Cambodia Demographic and Health Survey 2005*. Phnom Penh, Cambodia and Calverton, Maryland, USA: National Institute of Public Health, National Institute of Statistics and ORC Macro.

World Health Organization (WHO). 2006, April 27. World Health Organization releases new child growth standards - Standards confirm that all children worldwide have the potential to grow the same. News release. Geneva, Switzerland: WHO. Available at: http://www.who.int/mediacentre/news/releases/ 2006/ pr21/en/index.html

MEASURE DHS PRELIMINARY REPORTS

Chad 2004	February	2006	French
Kenya (SPA) 2004	March	2006	English
Peru Continuous 2004-05	April	2006	Spanish
Tanzania 2004-05	May	2006	English
Uganda (AIS) 2004-05	June	2006	English
Malawi 2004	August	2006	English
Senegal 2006	August	2006	French
Guinea 2006	August	2006	French
Lesotho 2004	September	2006	English
Egypt 2006	September	2006	English
Rwanda 2006	November	2006	French
Ethiopia 2006	November	2006	English
Moldova 2006	November	2006	English/Romanian
Vietnam (AIS) 2006	February	2006	English/Vietnamese
Armenia 2005	March	2006	English
Congo (Brazzaville) 2005	March	2006	French
Côte d'Ivoire (AIS) 2005	June	2006	French
Cambodia 2005	July	2006	English
Haiti 2005-06	July	2006	French
Zimbabwe 2005-06	August	2006	English
Niger 2006	August	2006	French
Niger (Intervention zones) 2006	October	2006	French
Nepal 2006	October	2006	English
Uganda 2006	November	2006	English
Tanzania (SPA) 2006	January	2007	English
Benin 2006	March	2007	French
Azerbaijan 2006	April	2007	English
Mali 2006	April	2007	French
Pakistan 2006-07	June	2007	English
Swaziland 2006-07	June	2007	English
Liberia 2007	July	2007	English
Democratic Rep. Congo 2007	December	2007	French
Bangladesh 2007	December	2007	English
Rwanda (SPA) 2007	December	2007	English/French
Jordan 2007	January	2008	English/Arabic
Uganda (SPA) 2007	March	2008	English
Ukraine 2007	June	2008	English/Ukrainian
Indonesia 2007	July	2008	English
Indonesia (young adult) 2007	July	2008	English
Rwanda (interim) 2007-08	July	2008	English/French
Zambia 2007	July	2008	English
Tanzania (HIV/AIDS and Malaria) 2007-08	July	2008	English
Bolivia 2008	August	2008	Spanish
Egypt 2008	September	2008	English
Sierra Leone 2008	December	2008	English
Philippines 2008	March	2009	English
Ghana 2008	April	2009	English
Senegal (MIS) 2008-09	April	2009	French
Nigeria 2008	May	2009	English
Kenya 2008-09	September	2009	English
Congo (Brazzaville) (AIS) 2009	September	2009	French
São Tomé e Príncipe 2009	September	2009	French
Guyana 2009	September	2009	English
Albania 2008-09	October	2009	English
Madagascar 2008-09	October	2009	French
Jordan 2009	February	2010	English/Arabic
Timor-Leste 2009-10	April	2010	English
Lesotho 2009-10	May	2010	English
Tanzania 2010	August	2010	English

MEASURE DHS Preliminary Reports are distributed to a limited number of recipients needing early access to survey findings and are not available for general distribution. The national implementing agency is responsible for in-country distribution; MEASURE DHS is responsible for external distribution. Publication of MEASURE DHS final survey reports—meant for general distribution—is expected 9 to 12 months after publication of the preliminary report.