Timor-Leste Demographic and Health Survey 2009-2010

Preliminary Report

National Statistics Directorate
Ministry of Finance
Democratic Republic of Timor-Leste
Dili, Timor-Leste

MEASURE DHS
ICF Macro
Calverton, Maryland, U.S.A.

TIMOR-LESTE
DEMOGRAPHIC AND HEALTH SURVEY
2009-2010

PRELIMINARY REPORT

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FOREWORD (DRAFT)

The Timor-Leste Demographic and Health Survey (TLDHS) 2009-2010 is the first national level population and health survey conducted as part of the global Demographic and Health Surveys (DHS) program. This study is conducted under the aegis of the Ministry of Health (MOH) by the National Statistic Directorate of the Ministry of Finance. Technical support for this survey is provided by ICF Macro and financial support provided through the United States Agency for International Development (USAID), the Government of Australia, the Government of Ireland, the United Nations Fund for Population Activities (UNFPA), the United Nations Children's Fund (UNICEF), the United Nations Development Fund (UNDP), the World Health Organization, and the United Nations Development Fund for Women (UNIFEM).

The purpose of this study is to generate recent and reliable information on fertility, family planning, infant and child mortality, maternal and child health, nutrition, domestic violence and knowledge of HIV and AIDS, and to monitor progress through time. The study was initiated in January 2009 and data collection was carried out between August 2009 and February 2010.

The information provided in this report will help in the formulation of population and health policies and programs. The TLDHS 2009-2010 final report containing more detailed findings will be published in late 2010.

I would like to extend my appreciation to all the persons involved in the TLDHS 2009-2010 in the timely completion of the fieldwork and the publication of this preliminary report.

PLEASE MODIFY AS APPROPRIATE

                                        Name, designation and affiliation of responsible person

INTRODUCTION

The 2009-2010 Timor-Leste Demographic and Health Survey (TLDHS) is the first nationally representative comprehensive survey conducted as part of the worldwide Demographic and Health Surveys (DHS) project. It was sponsored by the Ministry of Health. The survey was implemented by the National Statistics Directorate (NSD), Ministry of Finance. ICF Macro provided technical assistance through its MEASURE DHS project. Funding for the survey came from the United States Agency for International Development (USAID) through its mission in Timor-Leste, the Government of Australia, the Government of Ireland, the United Nations Fund for Population Activities (UNFPA), the United Nations Children's Fund (UNICEF), the United Nations Development Fund (UNDP), the World Health Organization, and the United Nations Development Fund for Women (UNIFEM). The Government of Timor-Leste contributed to the survey by providing full-time salaried staff to administer the survey, and office space for the entire duration of the survey.

The principal objective of the 2009-2010 TLDHS is to provide current and reliable data on fertility and family planning, child mortality, maternal and adult mortality, children's nutritional status, the utilization of maternal and child health services, domestic violence and knowledge of HIV/AIDS. The TLDHS also provides population-based information on the prevalence of anemia among women age 15-49 and children age 6-59 months. Information from the survey is essential for informed policy decisions, planning, and monitoring and evaluation of programs on health in general and reproductive health in particular at both the national and district levels.

A long-term objective of the survey is to strengthen the technical capacity of local organizations to plan, conduct, process, and analyze data from complex national population and health surveys. Moreover, the TLDHS is comparable to similar surveys conducted in other developing countries, and affords a national and international comparison. The 2009-2010 TLDHS also adds to the vast and growing international database on demographic and health-related variables.

The TLDHS collected demographic and health information from a nationally representative sample of 11,463 households, which yielded completed interviews with 13,137 women in all selected households and 4,076 men in every third household in the reproductive age groups of 15-49.

This report presents initial findings from the TLDHS on a number of key topics of interest to program managers and policy makers. These preliminary results are intended to facilitate an early evaluation of existing programs and assist in designing new strategies for improving population and health programs in Timor-Leste. A more detailed final report will be published in late 2010. Although the figures in this preliminary report are not expected to differ much from the findings to be presented in the final report, the results shown here should be considered provisional and interpreted with caution.

Wherever possible the results from the 2009-2010 TLDHS are compared with findings from the 2003 Demographic and Health Survey (MOH et. al, 2004). These comparisons have to be interpreted with caution, however, because of differences in the sampling methodologies, sample size, sampled population, sampling frame, survey tools, and the extent and content of technical input in fielding the survey. These differences will be discussed in greater detail in the final report.

SURVEY IMPLEMENTATION

A.   Sample Design

The primary focus of the 2009-2010 TLDHS was to provide estimates of key population and health indicators, including fertility and mortality rates, for the country as a whole and for urban and rural areas separately. In addition, the sample was designed to provide estimates of most key variables for the 13 districts (Aileu, Ainaro, Baucau, Bobonaro, Cova Lima, Dili, Ermera, Lautem, Liquica, Manufahi, Manatuto, Oecussi, and Viqueque).

Sampling Frame

The TLDHS used the sampling frame provided by the list of census enumeration areas (EAs) with population and household information from the 2004 Population and Housing Census (PHC). Administratively, Timor-Leste is divided into 13 districts. Stratification is achieved by separating each of the 13 districts into urban and rural areas. In total 26 sampling strata were created. Samples were selected independently in every stratum, through a two-stage selection process. Implicit stratifications was achieved at each of the lower administrative levels by sorting the sampling frame before sample selection, according to administrative units and by using a probability proportional to size selection at the first stage of sampling. The implicit stratification also allowed for the proportional allocation of sample points at each of the lower administrative level.

Sample Selection

At the first stage of sampling, 455 enumeration areas (116 in urban areas and 339 in rural areas) were selected with probability proportional to the EA size, which is the number of households residing in the EA at the time of the census. A complete household listing operation in all the selected EAs is the usual procedure to provide a sampling frame for the second stage selection of households. A complete household listing was only carried out in select clusters in Dili, Ermera and Viqueque where more than 20 percent of the households had been destroyed. In all other clusters, a complete household listing was not possible because the country does not have boundary maps for clusters. Instead using the GPS coordinate locations for structures in each selected cluster as provided for by the 2004 PHC, households were randomly selected using their GIS location identification in the central office. A map for each cluster was then generated, marking the households to be surveyed with its location identification. The maps also contained all the other households, roads, rivers and major landmarks for easier location of selected households in the field. In order to provide statistically reliable estimates of key demographic and health variables and to cater for non-response, 27 households were selected in each of those EAs that were listed and 24 households each in all other EAs.

The survey was designed to cover a nationally representative sample of 11,000 residential households, taking into account non-response, to obtain completed interviews of 10,540 women age 15-49 in every selected household, and 3,440 men in the same age group in every third selected household. In addition, males age 15-49 in every third household were interviewed.

B.   Questionnaires

Three questionnaires were administered in the TLDHS: the Household Questionnaire, the Woman's Questionnaire, and the Man's Questionnaire. These questionnaires were adapted from the standard DHS core questionnaires to reflect the population and health issues relevant to Timor-Leste at a series of 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

questionnaire design workshop organized by NSD on 10th March 2009 in Dili. These questionnaires were then translated from English into the two main local languages−Tetum and Bahasa with training for the pretest and fieldwork from April 27 to May 23, 2009.

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 age 18, survival status of the parents was determined. The main purpose of the Household Questionnaire was to identify women and men who were eligible for the individual interview. The Household Questionnaire also collected information on characteristics of the household's dwelling unit, such as the source of water, type of toilet facilities, materials used for the floor of the house, ownership of various durable goods, and ownership of mosquito nets. Additionally, the Household Questionnaire was used to record height and weight measurements for women age 15-49 and children under age five, and hemoglobin measurements for women age 15-49 and children age 6-59 months.

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

- Background characteristics (education, residential history, media exposure, etc.)
- Birth history and childhood mortality
- Knowledge and use of family planning methods
- Fertility preferences
- Antenatal, delivery and postnatal care
- Breastfeeding and infant feeding practices
- Vaccinations and childhood illnesses
- Marriage and sexual activity
- Woman's work and husband's background characteristics
- Awareness and behavior regarding AIDS and other sexually transmitted infections (STIs)
- Maternal mortality
- Domestic violence

The Man's Questionnaire was administered to all men age 15-49 living in every third household. The Man's Questionnaire collected much of the same information found in the Woman's Questionnaire, but was shorter because it did not contain a detailed reproductive history or questions on maternal and child health or nutrition.

C.   Training of Field Staff

NSD in close coordination with the MOH, recruited and trained 101 persons for the fieldwork to serve as supervisors, field editors, male and female interviewers, quality control staff and reserves. They participated in the main training held in Dili from July 13 – August 8, 2009. Staff from MOH, NSD, and ICF Macro led the four-week training which was conducted mainly in Tetum and included lectures, presentations, practical demonstrations, and practice interviewing in small groups, as well as several days of field practice. The participants also received anthropometric training and training in hemoglobin testing.

D.   Fieldwork

Data collection began on August 10, 2009 by 13 data collection teams consisting of three female interviewers, one male interviewer, a male supervisor and a female field editor. Fieldwork was completed on February 7, 2010. Fieldwork supervision was coordinated at NSD; 6 quality control teams made up of

one male and one female member each monitored data quality. Additionally, close contact between NSD and the teams was maintained through field visits by senior staff, members of the steering committee and ICF Macro staff. Regular communication was also maintained through cell phones.

E.   Data Processing

The processing of the TLDHS results began soon after the start of fieldwork. Completed questionnaires were returned periodically from the field to the NSD data processing center in Dili, where they were entered and edited by 13 data processing personnel who were specially trained for this task. The data processing personnel included a supervisor, a questionnaire administrator, 2 office editors and 13 data entry operators. The concurrent processing of the data was an advantage since field check tables were generated to monitor various data quality parameters. As a result, specific feedback was given to the teams to improve performance. The data entry and editing phase of the survey was completed by the end of February, 2010.

PRELIMINARY FINDINGS

A.   Response Rates

Table 1 shows household and individual response rates for the TLDHS. A total of 12,128 households were selected for the sample, of which 11,671 were found to be occupied during data collection. Of these existing households, 11,463 were successfully interviewed, giving a household response rate of 98 percent.

In these households, 13,796 women were identified as eligible for the individual interview. Interviews were completed with 13,137 women, yielding a response rate of 95 percent. Of the 4,421 eligible men identified in the selected sub-sample of households, 4,067 or 92 percent were successfully interviewed. Response rates were higher in rural than urban areas, with the rural-urban difference in response rates most marked among eligible men than women. The preliminary tabulations in the next section summarize the main demographic and health findings from interviews with these eligible women and men.

Throughout the rest of this report, numbers in the tables reflect weighted numbers. To ensure statistical reliability, percentages based on fewer than 25 unweighted cases are not shown in the tables, and percentages based on 25-49 unweighted cases are shown within parentheses.

Table 1   Results of the household and individual interviews

Number of households, number of interviews, and response rates, according to residence (unweighted), Timor-Leste 2009-2010

	Residence		
Result	Urban	Rural	Total
Household interviews			
Households selected	3,012	9,116	12,128
Households occupied	2,851	8,820	11,671
Households interviewed	2,745	8,718	11,463
Household response rate[1]	96.3	98.8	98.2
Individual interviews: women 15-49			
Number of eligible women	3,625	10,171	13,796
Number of eligible women interviewed	3,233	9,904	13,137
Eligible women response rate[2]	89.2	97.4	95.2
Individual interviews: men 15-49			
Number of eligible men	1,183	3,238	4,421
Number of eligible men interviewed	1,015	3,061	4,076
Eligible men response rate[2]	85.8	94.5	92.2

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

B.   Characteristics of Respondents

The distribution of women and men age 15-49 by background characteristics is shown in Table 2. More than half of women (56 percent) and men (54 percent) are below age 30, reflecting the young age structure of the Timorese population.

Table 2 Background Characteristics of Respondents

Percent distribution of women and men age 15-49 by background characteristics, Timor-Leste 2009-2010

Background characteristic	Women			Men		
	Weighted percent	Weighted number	Unweighted number	Weighted percent	Weighted number	Unweighted number
Age						
15-19	23.8	3,131	3,243	24.1	981	1,009
20-24	17.7	2,322	2,323	15.8	643	643
25-29	14.4	1,895	1,877	14.4	586	575
30-34	12.0	1,572	1,478	11.1	452	437
35-39	12.9	1,694	1,722	13.6	553	544
40-44	10.5	1,377	1,358	11.5	467	460
45-49	8.7	1,145	1,136	9.7	394	408
Marital status						
Never married	35.5	4,661	4,706	45.5	1,855	1,869
Married	57.9	7,611	7,548	49.1	2,003	1,993
Living together	2.4	311	329	4.1	166	159
Divorced/separated	1.7	228	219	0.4	18	18
Widowed	2.5	326	335	0.8	34	37
Residence						
Urban	25.6	3,367	3,233	26.5	1,078	1,015
Rural	74.4	9,770	9,904	73.5	2,998	3,061
Region						
Aileu	4.1	542	1,036	4.3	177	298
Ainaro	4.6	606	841	5.2	213	296
Baucau	10.5	1,379	1,007	10.0	406	297
Bobonaro	9.4	1,236	1,062	8.6	349	319
Cova Lima	5.8	765	989	5.7	231	297
Dili	18.4	2,414	1,227	19.1	780	403
Ermera	12.0	1,573	1,082	12.3	502	355
Lautem	6.4	846	1,023	7.4	301	366
Liquica	6.0	785	1,069	6.0	246	315
Manatutu	4.5	591	1,135	4.6	186	366
Manufahi	3.5	461	791	3.3	134	228
Oecussi	6.6	866	1,000	5.6	230	271
Viqueque	8.2	1,074	875	7.9	321	265
Education						
No education	29.3	3,853	3,922	19.1	780	798
Primary	22.9	3,010	3,112	25.7	1,049	1,070
Presecondary	19.9	2,619	2,696	19.3	787	845
Secondary	24.5	3,216	3,108	30.0	1,224	1,180
More than secondary	3.3	439	299	5.8	237	183
Religion						
Roman Catholic	97.8	12,844	12,833	98.2	4,004	4,006
Muslim	0.2	21	20	0.3	14	5
Protestant	1.9	251	264	1.3	52	56
Hindu	0.2	20	18	0.1	4	6
Missing	0.0	1	2	0.0	0	0
Total	100.0	13,137	13,137	100.0	4,076	4,076

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

About three in five women (60 percent) and just over one in two men (53 percent) are currently married or living together. Thirty-six percent of women in the sample have never been married compared to 46 percent of men. This is because men tend to marry later in life than women. Women are four times more likely than men to be divorced, separated or widowed.

The large majority (more than 70 percent) of respondents live in rural areas. Nearly one in five respondents live in Dili, and about one in ten live in Baucau and Ermera districts. Respondents are least likely to reside in Manufahi.

Women are disadvantaged in terms of educational attainment. This is observed at all levels of education with the exception of presecondary schooling. The female-male difference is especially obvious among those with no education and those with secondary or higher levels of education.

The vast majority of respondents are Roman Catholic (98 percent), while 1-2 percent of women and men are Protestant.

C.   Fertility

All female respondents were asked about their reproductive histories in the TLDHS. Each woman was first asked to report on the number of sons and daughters living with her, the number living elsewhere, the number who had died, and the number of pregnancies that did not result in a live birth. For each pregnancy ending in a live birth, the mother was asked to report on the child's name, sex, age (if alive) or age at death (if deceased) and whether the child was living with her. She was also asked to report her pregnancy outcome and the year of pregnancy termination if she ever had a pregnancy that did not end in a live birth. These data are used to calculate two of the most widely used 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.

According to the results of the TLDHS, the TFR calculated for the three years preceding the survey is 5.7 births per woman age 15-49 (Table 3). The overall age pattern of fertility as reflected in the age-specific fertility rates (ASFR) indicates that childbearing begins early. Fertility is low among adolescents and increases to a peak of 275 births per 1,000 among women age 25-29 and then declines thereafter.

Table 3 Current Fertility

Age-specific and cumulative fertility rates, the general fertility rate, and the crude birth rate for the three years preceding the survey, by urban-rural residence, Timor-Leste 2009-2010

| Age group | Residence | | Total |
	Urban	Rural	
15-19	35	57	51
20-24	187	237	222
25-29	251	285	275
30-34	235	260	254
35-39	171	203	196
40-44	64	95	88
45-49	33	50	46
TFR	4.9	5.9	5.7
GFR	153	184	176

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
GFR: General fertility rate (births divided by the number of women age 15-44), expressed per 1,000 women
CBR: Crude birth rate, expressed per 1,000 population

Urban-rural differentials in Timor-Leste are obvious with rural women having an average of one child more than urban women. As the ASFRs show this pattern of higher rural fertility is prevalent in all age groups (Figure 1).

There has been a more than 2-child decline in fertility over the 7 years between the 2003 DHS and the 2009-2010 TLDHS.

Figure 1 **Age-specific fertility rates by urban-rural residence**

Births per 1,000 women
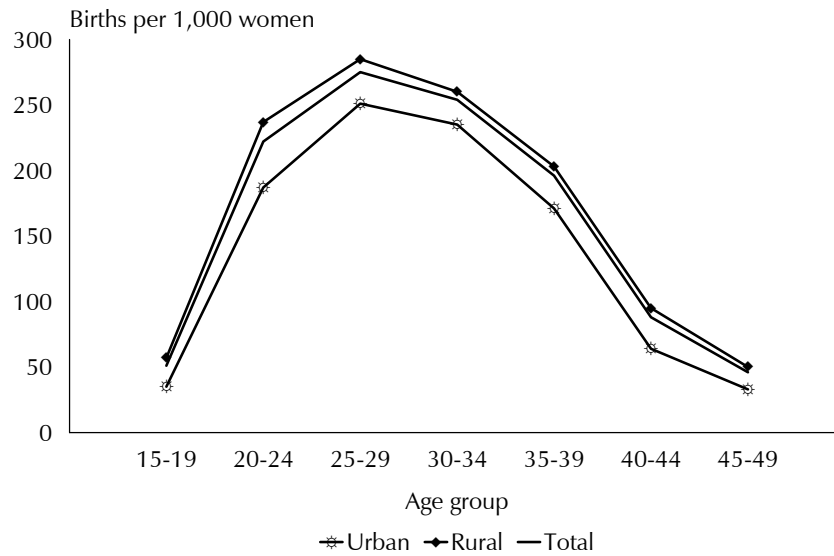
D. Family Planning

Information about knowledge and use of contraceptive methods was collected from female and male respondents by asking them to mention any ways or methods by which a couple can delay or avoid a pregnancy. When the respondent failed to mention a method spontaneously, the interviewer described the method and then asked if the respondent knew it. For each method known, the respondent was asked if she or he had ever used it. Finally, women were asked if they (or their partner) were currently using a method. For analytical purposes, contraceptive methods are grouped into two types in the table: modern and traditional. Modern methods include female sterilization, pill, IUD, injectables, implants, the male condom, standard days method and Lactational Amenorrhea Method (LAM). Traditional methods include periodic abstinence, withdrawal, and folk methods.

Table 4 shows key differentials in the current use of contraception by method according to selected background characteristics as reported by currently married women.

Overall, the TLDHS found that 22 percent of currently married women age 15-49 are using some method of contraception. Nearly all users rely on a modern method, with traditional methods accounting for just 1 percent. Use of modern contraceptive methods has more than doubled from 10 percent of currently married women in the 2003 DHS to 21 percent in the 2009-2010 TLDHS. Injectables are by far the most popular modern method used by 16 percent of currently married women.

Contraceptive use also varies markedly by residence (Figure 2). For example, use of modern methods among urban women is twice as high as among rural women. This pattern is also reflected in use of contraception by districts. Use of modern contraceptive methods is highest in Cova Lima (43 percent) and lowest in Baucau (8 percent). Nearly one in three women in Dili uses a modern method of contraception.

Table 4 Current use of contraception

Percent distribution of currently married women by contraceptive method currently used, according to background characteristics, Timor-Leste 2009-2010

| Background characteristic	Any method	Any modern method	Female sterili-zation	Modern method							Any tradi-tional method	Traditional method			Not currently using	Total	Number of women
				Pill	IUD	Inject-ables	Im-plants	Male condom	Standard days	LAM		Periodi c absti-nence	With-drawal	Folk method			
Age																	
15-19	7.9	6.8	0.0	0.9	0.0	5.9	0.0	0.0	0.0	0.0	1.0	0.0	1.0	0.0	92.1	100.0	238
20-24	15.8	14.7	0.0	1.4	0.2	12.2	0.6	0.0	0.3	0.0	0.7	0.4	0.7	0.0	84.2	100.0	1,087
25-29	24.0	23.3	0.1	1.7	0.9	19.2	0.8	0.4	0.2	0.0	0.7	0.3	0.3	0.1	76.0	100.0	1,517
30-34	27.2	26.2	0.8	1.6	2.5	18.9	0.9	0.8	0.6	0.0	1.0	0.6	0.4	0.1	72.8	100.0	1,393
35-39	27.4	26.3	1.1	2.1	1.6	20.0	0.8	0.0	0.6	0.1	1.1	0.6	0.4	0.1	72.6	100.0	1,526
40-44	24.7	22.3	0.9	2.6	1.5	15.1	1.4	0.2	0.6	0.0	2.4	1.3	0.3	0.9	75.3	100.0	1,201
45-49	13.2	12.1	2.1	0.4	0.8	7.9	0.6	0.0	0.2	0.1	1.1	0.2	0.2	0.6	86.8	100.0	960
Residence																	
Urban	30.4	28.2	1.7	3.7	2.6	17.7	0.6	1.0	0.8	0.1	2.2	1.6	0.6	0.0	69.6	100.0	1,983
Rural	19.7	18.9	0.5	1.0	0.9	15.3	0.9	0.0	0.3	0.0	0.9	0.2	0.3	0.4	80.3	100.0	5,939
Region																	
Aileu	20.7	19.5	0.2	1.6	0.7	16.3	0.5	0.0	0.0	0.2	1.2	1.2	0.0	0.0	79.3	100.0	293
Ainaro	14.1	13.8	0.2	0.9	0.8	10.7	0.8	0.0	0.4	0.0	0.3	0.0	0.0	0.4	85.9	100.0	374
Baucau	8.0	7.6	1.0	1.2	0.7	3.5	0.6	0.0	0.6	0.0	0.4	0.2	0.0	0.2	92.0	100.0	835
Bobonaro	20.4	20.4	0.8	1.0	0.8	16.1	1.5	0.0	0.2	0.0	0.0	0.0	0.0	0.0	79.6	100.0	724
Cova Lima	43.8	43.2	0.9	1.4	0.6	38.6	1.3	0.0	0.4	0.0	0.6	0.6	0.0	0.0	56.2	100.0	449
Dili	33.2	30.5	2.1	4.5	2.7	18.2	0.6	1.3	0.9	0.2	2.7	2.0	0.6	0.0	66.8	100.0	1,428
Ermera	19.6	16.2	0.0	0.4	0.6	14.9	0.3	0.0	0.0	0.0	3.4	0.0	1.7	1.7	80.4	100.0	896
Lautem	17.7	17.5	0.3	1.6	1.9	13.4	0.2	0.0	0.1	0.0	0.2	0.2	0.0	0.0	82.3	100.0	530
Liquica	24.5	23.8	1.1	2.8	1.6	16.9	1.0	0.0	0.5	0.0	1.2	0.0	0.0	0.7	75.5	100.0	451
Manatutu	20.7	20.0	0.8	1.8	2.2	15.2	0.2	0.0	0.0	0.0	0.7	0.4	0.2	0.2	79.3	100.0	345
Manufahi	25.3	24.3	0.2	1.1	1.6	19.1	1.7	0.0	0.6	0.0	1.0	0.0	1.0	0.0	74.7	100.0	313
Oecussi	24.1	23.4	0.2	0.1	0.6	19.4	2.5	0.1	0.5	0.0	0.6	0.3	0.3	0.2	75.9	100.0	591
Viqueque	15.1	14.8	0.0	0.3	0.8	12.9	0.3	0.0	0.6	0.0	0.3	0.3	0.0	0.0	84.9	100.0	695
Education																	
No education	15.9	14.7	0.6	0.5	0.8	11.9	0.8	0.0	0.1	0.1	1.2	0.1	0.4	0.7	84.1	100.0	2,904
Primary	26.2	25.6	0.7	1.0	1.1	21.4	1.2	0.0	0.2	0.0	0.6	0.3	0.3	0.1	73.8	100.0	2,037
Presecondary	23.7	22.5	0.8	2.7	0.7	17.3	0.7	0.0	0.2	0.0	1.3	1.0	0.2	0.0	76.3	100.0	1,239
Secondary	27.1	25.4	0.9	3.9	2.6	15.6	0.6	0.6	1.3	0.0	1.7	1.2	0.4	0.0	72.9	100.0	1,516
More than secondary	32.8	29.4	2.3	1.8	3.8	13.8	0.3	4.6	1.9	0.9	3.4	1.6	1.7	0.0	67.2	100.0	226
Living Children																	
0	0.7	0.2	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.5	0.0	0.5	0.0	99.3	100.0	463
1-2	16.7	16.1	0.3	1.4	0.6	12.5	0.6	0.5	0.3	0.0	0.7	0.3	0.4	0.0	83.3	100.0	2,102
3-4	26.6	25.6	0.8	2.5	1.5	18.7	1.0	0.3	0.6	0.1	1.0	0.6	0.4	0.1	73.4	100.0	2,432
5+	26.4	24.7	1.2	1.5	1.8	18.6	1.0	0.0	0.5	0.1	1.7	0.8	0.4	0.7	73.6	100.0	2,925
Total	22.4	21.2	0.8	1.7	1.3	15.9	0.8	0.2	0.4	0.0	1.2	0.5	0.4	0.3	77.6	100.0	7,922

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

Education exerts an important influence on contraceptive use, with use rising from 15 percent among women with no education to 26 percent among women with primary education, with the difference in use among women in the various levels of education not as marked. More than one in five women with primary education use injectables.

Use of modern contraception increases with the number of living children from less than 1 percent among women with no children to 26 percent among women with 3-4 children and then falls slightly to 25 percent among women with 5 or more children.

Figure 2 **Current use of any modern method of contraception**

Percent of currently married women
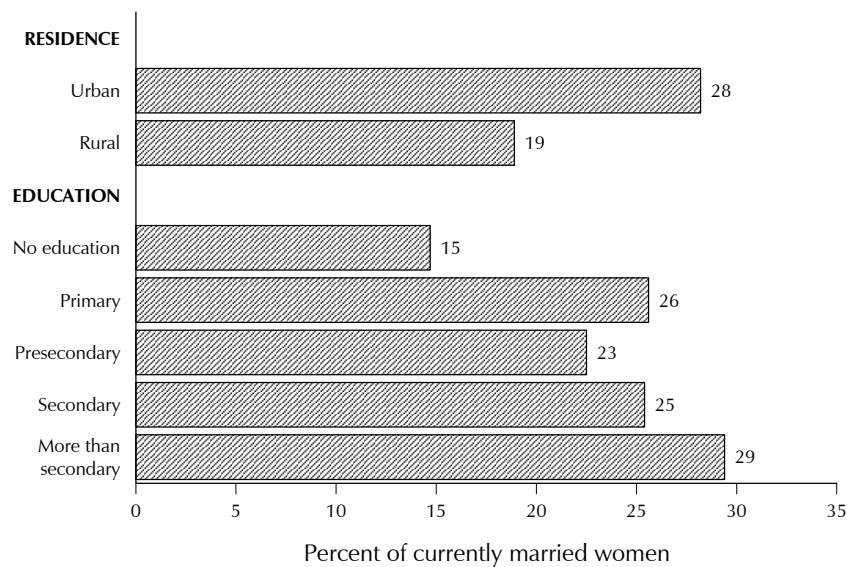
E. Fertility Preferences

Several questions were asked in the survey concerning a woman'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 72 percent of married women say that they either want to delay the birth of their next child or want no more children (including those sterilized). This is more than double the percentage reported in the 2003 DHS (35 percent). Fertility preferences are closely related to the number of living children a woman has. In general, as the number of living children increases, the desire to want another child decreases. For example, 76 percent of currently married women with 5 living children say they want to have no more children or have been sterilized, in contrast to 9 percent of women with no children.

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, Timor-Leste 2009-2010

Desire for children	Number of living children[1]							Total
	0	1	2	3	4	5	6+	
Have another soon[2]	27.6	15.5	10.8	11.6	6.7	4.6	2.0	8.5
Have another later[3]	4.3	59.8	55.3	47.0	36.0	26.8	12.8	35.1
Have another, undecided when	2.1	2.1	1.6	1.1	0.6	1.0	0.7	1.2
Undecided	21.8	15.2	17.4	17.3	16.7	18.0	16.9	17.1
Want no more	2.2	5.4	13.2	21.1	38.2	47.6	65.4	34.7
Sterilized[4]	0.0	0.2	0.3	0.7	0.9	0.8	1.4	0.8
Declare infecund	41.9	1.8	1.4	1.3	0.9	1.1	0.9	2.7
Missing	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Number of women	298	933	1,168	1,273	1,238	987	2,026	7,922

[1] Includes current pregnancy. For pregnant women the desire for children refers to a subsequent child, not the child she is currently expecting.
[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. In the TLDHS, 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 or iron supplements during pregnancy. For each birth in the same period, the mothers were also asked what type of assistance they received at the time of delivery and where the delivery took place. Table 6 presents information on these key maternal care indicators.

Antenatal Care

Antenatal care from a trained provider is important in order to monitor the pregnancy and reduce the risks for the mother and child during pregnancy and at delivery. According to the TLDHS, 86 percent of women who gave birth in the 5 years preceding the survey received antenatal care for the last live birth from a health professional, that is, a doctor or nurse/midwife, at least once. Ninety-three percent of women in urban areas and 84 percent of women from rural areas received antenatal care at least once during their pregnancy. Antenatal care for the last live birth in the five years before the survey ranges from a low of 71 percent in Ermera to a high of 96 percent in Dili. Education which has a direct impact on access to antenatal care from a health professional, ranges from 76 percent among women with no education to 100 percent among those with more than secondary education. Compared to 2003, the percentage receiving antenatal care from a doctor or nurse/midwife increased by 42 percent in 2009-2010 (MOH et. al, 2004).

Tetanus Toxoid

Tetanus toxoid injections are given during pregnancy to prevent neonatal tetanus, an important cause of infant deaths.

Table 6 indicates that 80 percent of women had their last birth protected against neonatal tetanus. Urban-rural differences are not large with 84 percent of urban women receiving tetanus toxoid compared with 78 percent of rural women. Tetanus toxoid coverage increases from 70 percent among women with no education to 95 percent among women in the highest education category.

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. Although 86 percent of mothers received antenatal care from a doctor or nurse/midwife for their most recent birth, only 30 percent of babies are delivered by a doctor or, nurse/midwife, and 22 percent are delivered at a health facility (Table 6). However, it is encouraging to note that the proportion of babies delivered by a health professional over the last seven years has increased by 61 percent from 18 percent in 2003 while the proportion of babies delivered in a health facility has more than doubled from 10 percent in 2003 (MOH et. al, 2004).

Women's utilization of delivery services varies markedly by place of residence. Delivery by health professionals is nearly three times higher in urban (59 percent) than rural (21 percent) areas and is far higher in Dili (69 percent) than in any other district. Delivery by health professionals is lowest in Oecussi (10 percent). A similar pattern is seen for place of delivery as well where it ranges from a low of 4 percent in Ermera to a high of 63 percent in Dili.

Delivery by health professionals increases significantly with education. For example, 14 percent of births to women with no education were attended during delivery by a doctor or nurse/midwife compared to 88 percent of births to women with more than secondary education.

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, Timor-Leste 2009-2010

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[2]	Percentage delivered in a health facility	Number of births
Mother's age at birth						
<20	86.1	79.4	352	32.9	24.4	733
20-34	88.4	81.8	4,006	31.1	23.2	6,848
35+	80.3	74.2	1,681	24.1	17.0	2,280
Residence						
Urban	93.2	83.6	1,453	59.1	52.8	2,304
Rural	83.7	78.2	4,586	20.6	12.4	7,557
District						
Aileu	92.8	90.3	216	23.8	11.7	352
Ainaro	74.4	65.7	311	10.5	7.2	567
Baucau	87.4	82.4	586	27.5	21.1	950
Bobonaro	87.8	78.1	574	25.6	16.1	915
Cova Lima	92.3	88.9	315	40.6	28.2	444
Dili	96.1	86.4	1,021	68.9	63.3	1,618
Ermera	71.4	65.6	736	11.9	3.4	1,284
Lautem	85.6	79.6	435	25.9	20.7	742
Liquica	96.4	84.3	350	23.4	13.1	570
Manatutu	93.9	94.8	259	36.9	25.4	424
Manufahi	75.7	70.8	233	19.0	11.1	384
Oecussi	83.9	75.3	482	9.8	4.6	767
Viqueque	79.6	79.0	521	23.8	14.3	844
Education						
No education	76.4	69.9	1,973	13.5	7.2	3,289
Primary	86.2	80.7	1,668	22.3	15.4	2,779
Presecondary	90.9	85.2	1,018	34.4	25.8	1,677
Secondary	95.4	86.9	1,229	57.3	47.3	1,902
More than secondary	100.0	94.8	151	87.5	75.3	214
Total	86.0	79.5	6,039	29.6	21.9	9,860

[1] Doctor, nurse, midwife, or auxiliary midwife
[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

G.   Child Health

The TLDHS 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.

Vaccination of Children

According to the World Health Organization, a child is considered fully immunized if he or she has received a BCG vaccination against tuberculosis; three doses of the DPT vaccine to prevent diphtheria, pertussis, and tetanus; at least three doses of the polio vaccine; and one dose of the measles vaccine. These vaccinations should be received during the first year of life. The TLDHS collected information on the coverage for these vaccinations among all children under age five.

The information on vaccination coverage was obtained in two ways—from health cards and from mother's verbal reports. All mothers were asked to show the interviewer the health cards (LISIO) on which the child(ren)'s immunization record was recorded. If the card was available, the interviewer copied 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, DPT and measles. If she indicated that the child had received the polio or DPT vaccines, she was asked about the number of doses each that the child had received.

Table 7 presents information on vaccination coverage for children 12-23 months, who should have been fully immunized against the major preventable childhood illnesses. At the time of the interview, more than one in two children (53 percent) was fully immunized. About three in four children received BCG, DPT 1, and polio 1. However, the proportion of children receiving the third dose of DPT and polio is lower (68 percent and 57 percent, respectively), as is the proportion receiving the measles vaccination (68 percent).

Male children are slightly more likely to be fully immunized than female children (55 percent and 52 percent, respectively). Surprisingly full immunization coverage of children in urban areas is 13 percent lower than coverage in rural areas (48 percent and 55 percent, respectively), with coverage among children in Dili (and Manufahi) the lowest among all districts. More in-depth analysis of the coverage and reasons for this unusual pattern will be explored in the final report. Full immunization coverage is highest among children in Aileu.

As expected, full immunization coverage varies by mother's education from 47 percent among children of mothers with no education to 59 among children of mothers with secondary education.

Immunization coverage of children 12-23 months increased substantially over the last seven years as shown in Figure 3.

Figure 3 **Immunization coverage of children 12-23 months**

Percent of children 12-23 months

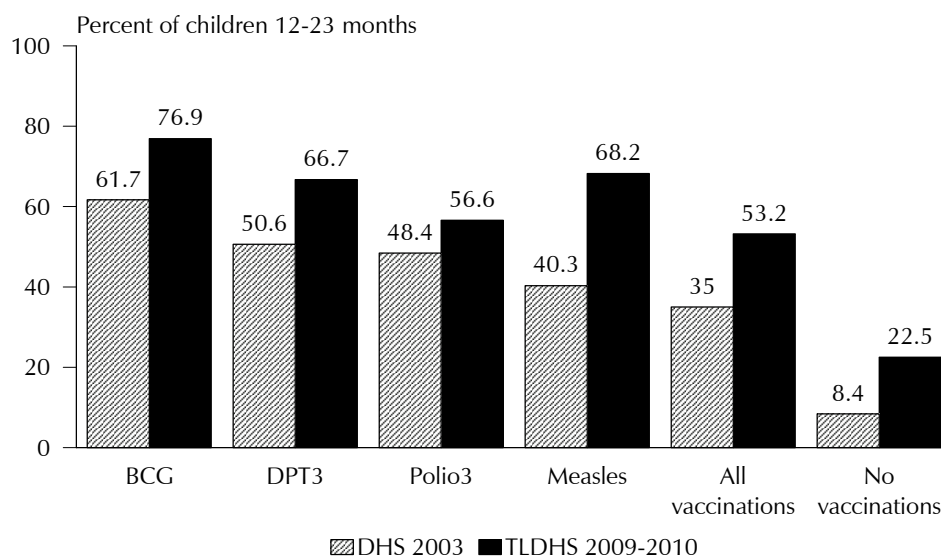|	BCG	DPT3	Polio3	Measles	All vaccinations	No vaccinations
DHS 2003	61.7	50.6	48.4	40.3	35	8.4
TLDHS 2009-2010	76.9	66.7	56.6	68.2	53.2	22.5

DHS 2003   TLDHS 2009-2010

Table 7 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, Timor-Leste 2009-2010

Background characteristic	BCG	DPT 1	DPT 2	DPT 3	Polio 0[1]	Polio 1	Polio 2	Polio 3	Measles	All[2]	No vacci-nations	Percentage with a vaccination card	Number of children
Sex													
Male	77.8	76.4	72.6	68.6	66.1	76.1	70.7	58.6	69.3	54.7	21.6	51.2	898
Female	76.1	74.2	70.5	64.7	64.7	73.8	68.3	54.6	67.0	51.6	23.4	47.9	854
Residence													
Urban	85.3	81.1	77.3	70.9	74.3	80.7	73.3	49.2	74.3	47.7	14.5	43.7	416
Rural	74.4	73.5	69.8	65.4	62.7	73.2	68.4	58.9	66.3	54.8	25.0	51.4	1,336
District													
Aileu	88.0	87.2	87.2	86.4	77.7	88.0	88.0	83.2	83.3	79.2	12.0	73.6	65
Ainaro	59.3	56.7	54.6	52.0	57.9	57.2	54.1	51.7	50.4	46.1	40.7	32.3	110
Baucau	58.2	58.2	53.0	51.8	49.4	59.1	52.7	50.7	52.0	47.1	40.9	48.0	176
Bobonaro	82.4	82.4	82.4	81.5	74.7	82.4	82.4	56.1	79.8	55.2	17.6	49.7	154
Cova Lima	91.2	88.5	84.5	81.2	57.0	87.2	85.9	71.4	79.7	61.9	8.8	41.2	68
Dili	86.6	81.7	77.6	70.7	76.3	81.0	72.9	44.1	73.3	43.4	13.4	40.5	275
Ermera	66.5	64.0	58.5	54.0	54.5	65.5	55.3	52.8	56.6	47.5	33.5	48.0	206
Lautem	86.8	87.5	86.0	80.9	80.1	86.4	84.6	75.4	80.1	74.6	12.1	73.8	137
Liquica	85.6	80.6	70.6	59.4	66.9	80.6	67.1	50.2	66.3	43.7	14.4	52.2	104
Manatutu	71.8	71.8	71.2	69.3	66.8	71.2	69.3	59.9	64.9	53.6	28.2	48.9	85
Manufahi	69.2	69.1	60.2	53.2	58.9	69.7	60.5	46.4	68.4	42.8	28.6	39.1	78
Oecussi	85.9	86.8	83.4	74.1	65.4	86.8	80.7	63.8	74.8	60.0	10.3	64.2	140
Viqueque	75.5	74.4	71.7	65.5	62.0	69.4	68.1	62.0	69.2	59.5	24.5	44.4	153
Education													
No education	68.2	67.2	61.8	57.0	56.4	67.1	58.9	50.9	59.0	47.1	30.7	45.6	564
Primary	76.9	75.7	71.8	66.0	63.1	74.0	69.8	57.4	66.9	54.1	22.8	50.3	480
Presecondary	79.7	76.8	74.4	71.5	70.8	76.6	73.5	61.7	72.1	57.8	20.3	55.4	302
Secondary	85.7	84.5	82.0	76.3	75.1	84.2	80.5	62.4	78.3	59.1	13.7	51.6	364
More than secondary	(100.0)	(90.5)	(90.5)	(86.8)	(90.5)	(100.0)	(86.8)	(39.0)	(90.5)	(39.0)	(0.0)	(34.2)	42
Total	76.9	75.3	71.6	66.7	65.4	75.0	69.5	56.6	68.2	53.2	22.5	49.6	1,752

Note: Figures in parentheses are based on 25-49 unweighted cases.
[1] Polio 0 is the polio vaccination given at birth.
[2] BCG, measles and three doses each of DPT and polio vaccine (excluding polio vaccine given at birth)

Childhood Illnesses

Acute respiratory illness (ARI) and dehydration from severe diarrhea are major causes of childhood mortality. Prompt medical attention for children experiencing symptoms of these illnesses is, therefore, crucial in reducing child deaths. To obtain information on how childhood illnesses are treated, mothers were asked (for each child under five years) whether in the two weeks before the survey the child had experienced cough with short, rapid breathing (symptoms of ARI), fever, and diarrhea.

Data from the TLDHS show that 2 percent of children under five years had symptoms of ARI, 19 percent had fever and 15 percent had diarrhea in the two weeks preceding the survey (data not shown separately in a table). The data also show that 71 percent of children with symptoms of ARI were taken to a health facility or provider.

Table 8 shows that 73 percent of children with fever were taken to a health facility or provider for treatment. Children age two and four, children living in urban areas, and children of educated mothers are more likely than other children to be taken to a facility or provider for treatment. Children living in Viqueque are most likely to be taken to a facility or provider for treatment of fever (83 percent), whereas children living in Ainaro, the least likely (39 percent).

The administration of oral rehydration therapy (ORT) is a simple means of counteracting the effect of dehydration. During ORT, the child is given a solution either prepared by mixing water with the powder in a commercially prepared oral rehydration packet (ORS), or homemade fluid, or by simply increasing the amount of fluids given to children. In the TLDHS, mothers were asked whether children under five

had diarrhea in the two weeks preceding the survey. For children with diarrhea, mothers were asked what had been done to treat the diarrhea.

Table 8 shows treatment practices for children who had diarrhea in the two weeks preceding the survey. Nearly three-quarters of children (73 percent) with diarrhea were taken to a facility or provider. The data indicate that treatment at home is just as common. Seventy-one percent of children were given a solution prepared from an ORS packet and 79 percent were given ORT.

Table 8 Treatment for fever, and diarrhea

Among children under five years who were sick with fever in the two weeks preceding the survey, percentage for whom treatment was sought from a health facility or provider, and among children under five years who were sick with 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 prepackaged ORS liquids, and percentage given any oral rehydration therapy (ORT) by background characteristics, Timor-Leste 2009-2010

	Children with fever		Children with diarrhea			
Background characteristic	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[2]	Percentage given any ORT[3]	Number with diarrhea
Age in months						
<6	63.4	142	58.7	49.9	60.6	76
6-11	75.0	264	73.6	74.4	81.0	207
12-23	72.2	402	74.3	75.0	79.9	437
24-35	75.7	414	70.9	71.7	78.5	331
36-47	71.4	336	70.8	67.7	77.0	242
48-59	76.0	209	79.3	71.8	82.1	145
Sex						
Male	73.5	872	72.9	68.1	75.7	684
Female	72.5	895	72.2	74.1	81.0	754
Residence						
Urban	77.5	535	69.3	65.0	73.0	420
Rural	71.0	1,232	73.8	73.9	80.7	1,018
Region						
Aileu	80.8	50	81.1	79.9	86.0	42
Ainaro	(38.8)	26	(56.4)	(58.4)	(70.3)	20
Baucau	80.5	137	85.0	92.1	95.5	139
Bobonaro	78.7	229	83.6	78.3	85.3	174
Cova Lima	79.8	83	63.7	68.9	75.9	75
Dili	79.3	384	67.3	62.4	71.0	308
Ermera	71.0	154	79.6	74.8	81.1	162
Lautem	66.9	208	61.0	61.5	65.5	153
Liquica	66.7	182	68.9	63.6	69.6	136
Manatutu	81.3	79	81.9	84.6	90.7	49
Manufahi	55.7	41	49.4	59.0	74.2	30
Oecussi	56.1	148	68.8	73.0	85.6	120
Viqueque	(83.0)	46	(86.0)	(76.7)	(86.9)	29
Education						
No education	68.9	551	68.8	72.2	79.9	426
Primary	70.3	527	72.1	71.2	77.9	410
Presecondary	74.5	305	72.5	69.9	78.2	288
Secondary	80.7	335	77.5	69.4	76.4	275
More than secondary	(86.6)	50	(83.0)	(85.3)	(85.3)	39
Total	73.0	1,767	72.5	71.3	78.5	1,439

Note: Figures in parentheses are based on 25-49 unweighted cases.
[1] Excludes pharmacy, shop, and traditional practitioner
[2] Includes ORS from packets and prepackaged ORS liquids
[3] Includes ORS from packets, prepackaged ORS liquids, and recommended home fluid

There are significant differentials in treatment practices by background characteristics. Children under six months are much less likely to be treated for diarrhea than older children, who generally are also more susceptible to food contamination than very young children who are more likely to be breastfed. There is little difference in treatment from a facility or provider by urban-rural residence, but children living in

rural areas are much more likely than urban children to receive home-based treatment. Treatment from a health facility or provider is lowest in Manufahi where less than one in two children were treated. Highly educated mothers are more likely to take their children to a health facility or provider, whereas lesser educated mothers are more likely to provide home-based treatment.

Infant and Child Mortality

Information on infant and child mortality is important for the improvement of child survival programs and for identifying those segments of the child population that are most vulnerable. Caution should be exercised in interpreting mortality information, however, since its reliability is dependent on the quality of information collected in the birth history section of the Woman's Questionnaire. Because women are generally reluctant to talk about their dead children it is subject to a greater degree of misreporting. Mortality data are also generally subject to large sampling errors. The issue of data quality will be examined in greater depth in the final report.

Neonatal, postneonatal, infant, child and under-five mortality rates are shown in Table 9 for cohorts of children born in three consecutive five-year periods before the survey. Under-five mortality for the most recent period (0-4 years before the survey or 2004/2005 – 2008/2009) is 64 deaths per 1,000 live births. This means that one in 16 children born in Timor-Leste dies before the fifth birthday. Sixty-nine percent of deaths among children under five occur during the first year of life: infant mortality is 44 deaths per 1,000 live births. During infancy, the risk of neonatal deaths and postneonatal deaths is 22 percent each per 1,000 live births, respectively.

Table 9 Early childhood mortality rates

Neonatal, postneonatal, infant, child, and under-five mortality rates for five-year periods preceding the survey, Timor-Leste 2009-2010

Years preceding the survey	Approximate calendar years	Neonatal mortality (NN)	Postneonatal mortality (PNN)[1]	Infant mortality ($_1q_0$)	Child mortality ($_4q_1$)	Under-five mortality ($_5q_0$)
0-4	2004/2005-2008/2009	22	22	44	20	64
5-9	1998/1999-2002/2003	30	38	68	32	98
10-14	1992/1993-1996/1997	35	47	82	36	115

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

Data from the TLDHS indicate a decline in childhood mortality. For example, infant mortality estimates show a decline from 82 in the 10-14 years preceding the survey to 68 in the 5-9 year period preceding the survey and to 44 during the most recent five-year period. A similar trend is seen for all the five mortality indicators.

Comparison of the TLDHS mortality data with the 2003 DHS confirms a declining trend in mortality (Figure 4). For example, infant mortality declined from 60 per 1,000 live births during the period 1999-2003 (MOH et al., 2004) to 44 per 1,000 live births during the period 2004/2005-2008/2009.

Table 10 shows differentials in childhood mortality by child's sex, place of residence, district and mother's education. To minimize the sampling errors associated with mortality estimates and to ensure a sufficient number of cases for statistical reliability, the mortality rates shown in this table are calculated for a ten-year period.

The table shows that under-five mortality is higher among male than female children for all the various mortality measures. Children residing in rural areas are at higher risk of dying young than urban children. Under-five mortality ranges from a low of 42 deaths per 1,000 live births in Baucau to a high of 102 deaths in Ermera district. Mother's education has a positive impact in lowering child deaths. Under-five

mortality is three times higher among mothers with no education than among mothers with more than secondary education.

Figure 4 Early childhood mortality rates for the period 0-4 years preceding the survey, 2003 DHS and 2009-2010 TLDHS
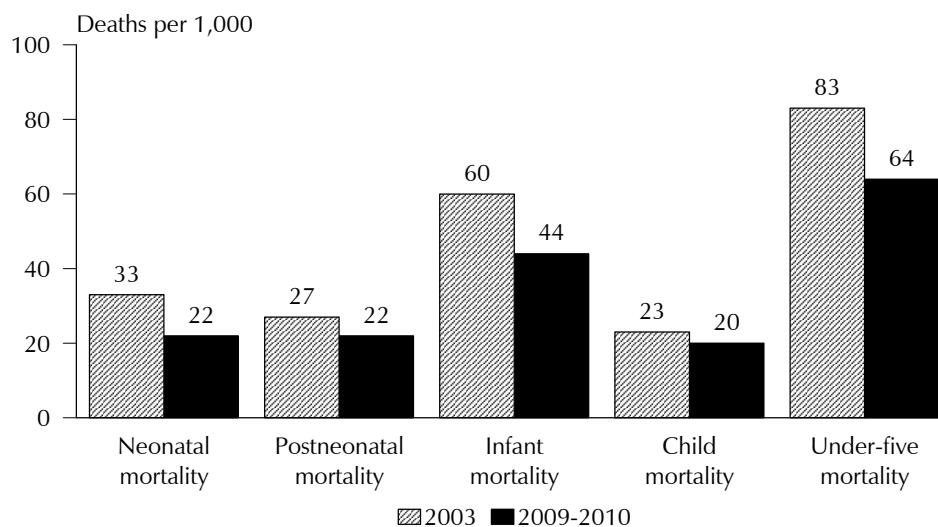
Table 10 Early childhood mortality rates by socioeconomic characteristics

Neonatal, postneonatal, infant, child, and under-five mortality rates for the 10-year period preceding the survey, by background characteristic, Timor-Leste 2009-2010

Background characteristic	Neonatal mortality (NN)	Postneonatal mortality (PNN)[1]	Infant mortality ($_1q_0$)	Child mortality ($_4q_1$)	Under-five mortality ($_5q_0$)
Child's sex					
Male	28	31	59	28	85
Female	24	29	53	24	75
Residence					
Urban	21	21	42	20	61
Rural	28	33	60	28	86
District					
Aileu	27	29	56	21	76
Ainaro	31	46	77	22	97
Baucau	11	18	30	12	42
Bobonaro	27	23	50	36	85
Cova Lima	37	38	76	21	95
Dili	21	18	39	22	60
Ermera	24	46	70	34	102
Lautem	36	33	69	31	98
Liquica	31	37	68	35	101
Manatutu	31	19	50	20	69
Manufahi	44	19	62	25	86
Oecussi	25	41	66	27	92
Viqueque	23	29	52	24	74
Mother's education					
No education	27	34	60	32	90
Primary	27	32	58	26	83
Pre-secondary	24	31	55	24	78
Secondary	28	21	48	14	62
More than secondary	9	12	21	8	28

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

H. Malaria

Malaria is a public health concern in Timor-Leste, especially among pregnant women and children under the age of five. The use of mosquito nets, particularly insecticide-treated nets (ITN), is a primary health intervention to reduce malaria transmission.

Table 11 shows selected malaria indicators for the country as a whole and for urban and rural areas separately. Nearly half (46 percent) of Timorese households own at least one, treated or untreated, mosquito net. Most of these nets (42 percent) are Insecticide Treated Nets (ITN). Ownership of any type of net is higher in urban than rural areas. More than two-fifths (42 percent) of children under age five and pregnant women (42 percent) slept under an ITN the night before the interview.

Since the major manifestation of malaria is fever, mothers were asked whether their children under age five had a fever in the two weeks preceding the survey. If fever was reported, the mother was asked if the child was given any antimalarial drugs. Six percent of children below age five were reported to have had fever in the two weeks preceding the interview. Among children who had fever in the two weeks preceding the survey, 3 percent took an antimalarial drug. Prevalence of fever and treatment with antimalarials is higher in rural than urban areas.

Table 11 Malaria indicators

Possession and use of mosquito nets, preventive malaria treatment during pregnancy, and treatment of children with fever using antimalarial drugs, by urban-rural residence, Timor-Leste 2009-2010

Malaria indicators	Urban		Rural		Total	
	Percentage	Number	Percentage	Number	Percentage	Number
Mosquito nets						
Percentage of households with at least one mosquito net (treated or untreated)	60.6	2,627	41.4	8,836	45.8	11,463
Percentage of households with at least one Insecticide Treated Net (ITN)[1]	52.3	2,627	38.7	8,836	41.8	11,463
Percentage of children under 5 who slept under a mosquito net the night before the survey	60.1	2,270	41.1	7,823	45.4	10,093
Percentage of children under 5 who slept under an Insecticide Treated Net (ITN) the night before the interview[1]	51.6	2,270	39.2	7,823	42.0	10,093
Percentage of pregnant women age 15-49 who slept under a mosquito net the night before the interview	59.2	227	41.2	686	45.7	912
Percentage of pregnant women age 15-49 who slept under an Insecticide Treated Net (ITN) the night before the interview [1]	50.0	227	38.9	686	41.7	912
Treatment of fever						
Among children under age 5 with fever in the two weeks preceding the survey, percentage who took antimalarial drugs	5.3	531	6.3	1,236	6.0	1,767
Among children under age 5 with fever in the two weeks preceding the survey, percentage who took antimalarial drugs the same day/next day after developing fever	1.9	531	2.7	1,236	2.5	1,767

[1] An Insecticide Treated Net (ITN) is a permanent net that does not require any treatment, a pretreated net obtained within the last 12 months or a net that has been soaked with insecticide within the past 12 months.

I.   Nutrition

Breastfeeding

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 diseases as well as provides all of the nutrients that a baby requires.

Table 12 shows that although, more than 70 percent of children less than two months of age, are exclusively breastfed, this percentage drops sharply at subsequent ages. In contrast to recommendations, only 52 percent of children below six months of age are exclusively breastfed.

Bottle-feeding rises with age to peak at nearly 20 percent among children 12-17 months old.

Table 12 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, Timor-Leste 2009-2010

| Age in months | Breastfeeding and consuming: | | | | | | 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 |
	Not breast-feeding	Exclusively breastfed	Plain water only	Other milk	Comple-mentary foods	Total				
0-1	1.7	71.0	6.0	15.3	5.9	100.0	98.3	268	3.0	273
2-3	2.6	54.4	6.8	16.9	19.3	100.0	97.4	315	8.4	318
4-5	1.7	35.4	7.2	11.9	43.8	100.0	98.3	379	9.4	381
6-8	4.4	9.4	1.1	7.3	77.7	100.0	95.6	458	15.1	466
9-11	7.8	2.8	0.9	1.4	87.1	100.0	92.2	461	13.1	469
12-17	33.1	0.5	0.0	0.4	66.0	100.0	66.9	913	18.7	951
18-23	58.6	0.1	0.1	0.0	41.1	100.0	41.4	701	16.9	801
24-35	84.9	0.0	0.0	0.0	15.1	100.0	15.1	1,205	12.5	1,985
0-3	2.2	62.0	6.4	16.2	13.2	100.0	97.8	584	5.9	591
0-5	2.0	51.6	6.7	14.5	25.2	100.0	98.0	963	7.3	973
6-9	5.0	7.8	1.1	6.2	79.9	100.0	95.0	620	14.0	630
12-15	29.6	0.4	0.0	0.1	69.9	100.0	70.4	622	19.5	652
12-23	44.2	0.3	0.1	0.2	55.2	100.0	55.8	1,614	17.9	1,752
20-23	66.7	0.0	0.2	0.0	33.1	100.0	33.3	425	16.6	501

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. 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

Nutritional Status of Children

Undernutrition places children at increased risk of morbidity and mortality and is also associated with 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 before the TLDHS. 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. Children who fall more than two standard deviations (-2 SD) below the reference median are regarded as undernourished, while those who fall 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.

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, Timor-Leste 2009-2010

Background characteristic	Height-for-age		Weight-for-height		Weight-for-age		Number of children
	Percentage below -3 SD	Percentage below -2 SD[1]	Percentage below -3 SD	Percentage below -2 SD[1]	Percentage below -3 SD	Percentage below -2 SD[1]	
Age in months							
<6	15.2	26.1	8.8	19.7	4.8	14.9	551
6-8	17.2	34.4	7.1	18.3	7.7	24.8	347
9-11	18.6	36.9	6.5	16.9	10.8	29.2	391
12-17	33.2	59.9	8.2	22.3	14.9	41.0	822
18-23	45.0	68.7	6.3	15.5	17.5	47.3	686
24-35	38.9	63.9	7.3	17.7	15.9	49.1	1,769
36-47	36.4	66.5	6.0	17.4	18.0	49.3	1,871
48-59	28.6	57.5	7.2	21.3	17.6	53.6	1,730
Sex							
Male	34.3	60.1	7.8	20.5	16.3	45.5	4,116
Female	30.9	55.9	6.2	17.1	14.5	44.1	4,053
Residence							
Urban	21.5	49.2	4.5	14.9	9.7	34.9	1,749
Rural	35.6	60.4	7.7	19.9	17.0	47.5	6,419
District							
Aileu	16.7	31.4	29.8	49.4	12.0	41.2	264
Ainaro	43.7	68.8	6.7	18.2	17.0	47.5	470
Baucau	39.6	58.1	5.5	21.6	17.5	43.0	670
Bobonaro	45.0	72.6	6.8	15.3	18.8	52.5	773
Cova Lima	36.8	64.7	4.4	13.8	13.2	47.4	364
Dili	16.1	43.9	4.1	14.5	7.9	30.1	1,256
Ermera	48.7	68.2	6.6	20.1	23.4	57.4	1,111
Lautem	18.7	51.0	2.9	9.6	6.7	32.1	696
Liquica	34.7	56.6	5.1	15.1	14.6	41.1	444
Manatutu	21.2	46.7	10.8	19.6	8.7	34.3	419
Manufahi	37.1	64.7	5.6	14.9	13.5	43.7	289
Oecussi	40.4	69.0	9.0	27.0	28.3	62.9	691
Viqueque	22.7	51.7	9.4	21.7	13.3	46.7	721
Mother's Education[2]							
No education	38.6	62.5	8.1	21.1	19.1	49.0	2,714
Primary	33.3	60.0	6.7	18.5	15.7	46.5	2,181
Presecondary	29.4	54.9	7.5	19.7	13.5	42.0	1,300
Secondary	23.1	50.2	4.7	14.5	9.9	36.7	1,439
More than secondary	15.9	41.6	4.7	10.5	6.5	32.0	156
Mother's status							
Mother interviewed	32.3	57.9	6.9	18.7	15.4	44.6	7,576
Mother not interviewed, but in household	32.1	56.1	6.6	18.1	12.1	40.3	214
Mother not interviewed, not in household [3]	39.6	61.5	9.5	20.7	18.8	51.6	378
Total	32.6	58.0	7.0	18.8	15.4	44.8	8,168

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

Children whose height-for-age is below minus two standard deviations from 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. Fifty-eight percent of children under five are short for their age; and 33 percent are severely stunted.

Children whose weight-for-height is below minus two standard deviations from 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 Timor-Leste, 19 percent of children were wasted at the time of the survey; and 7 percent were severely wasted.

Children whose weight-for-age is below minus two standard deviations from the median of the reference population are considered underweight. The measure reflects the effects of both acute and chronic undernutrition. Nearly one in two children (45 percent) are underweight; and 15 percent are severely underweight.

Nutritional status varies by background characteristics. The impact of weaning can be seen in younger children: the nutritional status of children deteriorates after 6 months of age, when children are usually given complementary foods. Male children are somewhat more likely to be nutritionally disadvantaged than female children. Especially striking are differences by place of residence and mother's education. For example, rural children are more likely to be at a nutritional disadvantage in terms of all three measures than urban children. Nearly three-quarters of children in Bobonaro are stunted; almost half of the children in Aileu are wasted; and more than three-fifths of children in Oecussi are undernourished. Children whose mothers have no education are more likely to be stunted, wasted or underweight than children of mothers with at least some education.

Anemia

Anemia is a major problem in Timor-Leste, especially among young children and pregnant women. Causes of anemia are malaria—which is endemic in some parts of the country—as well as dietary deficiencies and parasitic infections.

Anemia levels were determined by measuring the level of hemoglobin in the blood, a decreased concentration of which characterizes anemia. For hemoglobin measurement, capillary blood was taken from the finger using sterile, one-time use lancets that allowed a relatively painless puncture. The concentration of hemoglobin in the blood was measured in the field using the HemoCue system. Selected interviewers were specially trained for this procedure. Prior to participating in the study, each respondent, and her parent or guardian in the case of an unmarried minor, was asked for their consent to participate in the anemia testing. Levels of anemia were classified as severe, moderate, or mild according to criteria developed by the World Health Organization (DeMaeyer et al., 1989).

Table 14 presents anemia levels for children age 6-59 months and for women age 15-49. Anemia is common among children in Timor-Leste. The majority of children who suffer from anemia are classified as having mild or moderate anemia (25 and 14 percent, respectively) while less than 1 percent are severely anemic. Anemia is less common among women; 22 percent show any evidence of anemia, and the majority of women are mildly anemic. The prevalence of anemia among both children and women varies by residence and is especially prevalent in rural areas where two in five children and nearly one in four women have some degree of anemia. Children and women living in Manatutu are most likely to have some degree of anemia.

Table 14 Anemia among children and women					
Percentage of children age 6-59 months and women age 15-49 years classified as having iron-deficiency anemia, by background characteristics, Timor-Leste 2009-2010					
Background characteristic	Any anemia	Mild anemia	Moderate anemia	Severe anemia	Number
CHILDREN					
Residence					
Urban	33.1	20.7	12.3	0.1	498
Rural	40.2	25.5	14.2	0.4	2,066
District					
Aileu	42.7	21.4	19.2	2.1	100
Ainaro	32.6	21.4	10.7	0.5	157
Baucau	52.5	36.5	16.0	0.0	246
Bobonaro	44.1	30.2	13.9	0.0	249
Cova Lima	37.0	20.6	15.6	0.8	105
Dili	25.3	17.6	7.7	0.0	356
Ermera	16.5	11.5	5.0	0.0	330
Lautem	46.7	30.0	16.2	0.4	240
Liquica	40.5	25.9	14.0	0.5	139
Manatutu	68.0	31.3	36.3	0.4	127
Manufahi	37.7	30.0	7.7	0.0	75
Oecussi	45.7	30.6	14.6	0.5	213
Viqueque	43.3	22.9	19.2	1.2	227
Total	38.8	24.6	13.9	0.4	2,564
WOMEN					
Residence					
Urban	19.2	14.7	4.4	0.1	905
Rural	22.7	19.0	3.3	0.4	3,169
District					
Aileu	28.2	24.7	3.5	0.0	179
Ainaro	10.9	9.8	1.0	0.0	209
Baucau	18.4	17.4	1.0	0.0	431
Bobonaro	25.6	18.8	6.8	0.0	377
Cova Lima	25.5	19.1	5.8	0.6	232
Dili	16.5	12.3	4.1	0.0	629
Ermera	21.5	19.6	1.6	0.3	522
Lautem	25.9	22.4	3.0	0.5	287
Liquica	20.7	15.8	4.6	0.3	238
Manatutu	33.5	30.0	3.5	0.0	200
Manufahi	13.0	9.5	2.6	0.9	134
Oecussi	23.2	17.6	4.9	0.7	288
Viqueque	26.8	21.4	3.8	1.7	347
Total	21.9	18.0	3.5	0.3	4,074

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.

J.   HIV/AIDS

The TLDHS included a series of questions that addressed women's and men's awareness about the Human Immunodeficiency Virus (HIV) and Acquired Immune Deficiency Syndrome (AIDS). These questions sought information on respondents' source of knowledge, knowledge on ways to avoid the disease, and knowledge and use of condoms for the prevention of sexually transmitted diseases (STDs).

Heard of HIV/AIDS

Awareness of HIV/AIDS is much higher among men than women (Table 15). More than two in five women age 15-49 has heard of AIDS compared with more than three in five men in the same age group.

Knowledge of AIDS is higher among younger than older respondents. Never-married women and men age 15-49 are more likely to have heard about AIDS than ever-married women and men, with knowledge somewhat higher among women and men currently married than among those formerly married. Not surprisingly, knowledge of AIDS is higher among urban than rural respondents, with the urban-rural difference being greater among women than men. Knowledge of AIDS is also higher among residents of Dili than the other districts. Education has a positive impact on AIDS knowledge among all respondents. For example, nearly all women and men with more than secondary education have heard of AIDS compared with 13 percent of women and 22 percent of men with no education.

Table 15 Knowledge of AIDS

Percentage of women and men who have heard of AIDS, by background characteristics, Timor-Leste 2009-2010

Background characteristic	Women		Men	
	Has heard of AIDS	Number	Has heard of AIDS	Number
Age				
15-24	53.0	5,454	62.6	1,624
15-19	51.3	3,131	57.1	981
20-24	55.4	2,322	71.0	643
25-29	47.2	1,895	70.2	586
30-39	37.5	3,266	61.2	1,004
40-49	27.0	2,523	49.8	861
Marital status				
Never married	56.0	4,661	64.1	1,855
Ever had sex	(59.3)	39	83.0	536
Never had sex	56.0	4,621	56.4	1,319
Married or living together	36.9	7,922	58.1	2,170
Divorced/separated/widowed	28.6	554	41.8	51
Residence				
Urban	70.1	3,367	85.1	1,078
Rural	34.1	9,770	51.8	2,998
District				
Aileu	36.2	542	53.2	177
Ainaro	28.8	606	46.4	213
Baucau	54.3	1,379	64.3	406
Bobonaro	39.5	1,236	61.8	349
Cova Lima	48.5	765	77.3	231
Dili	79.7	2,414	92.9	780
Ermera	13.8	1,573	20.9	502
Lautem	36.3	846	58.0	301
Liquica	33.9	785	52.9	246
Manatutu	52.1	591	98.9	186
Manufahi	36.3	461	46.0	134
Oecussi	27.6	866	51.0	230
Viqueque	26.5	1,074	39.4	321
Education				
No education	12.6	3,853	21.9	780
Primary	26.4	3,010	43.3	1,049
Presecondary	51.5	2,619	66.1	787
Secondary	81.9	3,216	89.1	1,224
More than secondary	97.1	439	100.0	237
Total 15-49	43.3	13,137	60.6	4,076

Note: Figures in parentheses are based on 25-49 unweighted cases.

Knowledge of HIV/AIDS Prevention

HIV/AIDS prevention programs focus their messages and efforts on three important aspects of behaviour: delaying sexual debut in young persons (abstinence); limiting the number of sexual encounters to one uninfected partner; and use of condoms (the ABC message). To ascertain whether programs have effectively communicated these messages, the TLDHS respondents were asked specific questions about whether it is possible to reduce the chance of getting the AIDS virus by having just one uninfected sexual partner, using a condom at every sexual encounter, and abstaining from sex.

Table 16 presents levels of knowledge of the various HIV/AIDS prevention methods by background characteristics. Men are generally much more aware of the various prevention methods than women. Women are most aware that the chances of getting the AIDS virus can be reduced by limiting sex to one uninfected partner who has no other partners (35 percent). Knowledge of condoms and the role that they can play in preventing transmission of the AIDS virus is much less common among women than among men (29 percent and 46 percent, respectively).

As Table 16 shows, younger women are generally somewhat more knowledgeable of the various modes of prevention than older women, although this is not the case among men where men age 25-29 are most knowledgeable. Considering the relationship by marital status, knowledge of HIV prevention methods is highest among the never-married group, and particularly among those who have ever had sexual intercourse; and lowest among those who have been formerly married.

Among both women and men, levels of knowledge of preventive methods are higher in urban than in rural areas although the urban-rural difference is more obvious among women than men. There is considerable variability across districts in knowledge of prevention methods. Among women, knowledge is highest in Dili, while among men, knowledge is highest in Manatutu.

Women and men with higher levels of schooling are more likely than those with less schooling to be aware of various preventive methods.

Table 16 Knowledge of HIV prevention methods

Percentage of women and men age 15-49 who, in response to prompted questions, say that people can reduce the risk of getting the AIDS virus by using condoms every time they have sexual intercourse, by having one uninfected sex partner who has no other partners, and by abstaining from sexual intercourse, by background characteristics, Timor-Leste 2009-2010

Background characteristic	Percentage of women who say that HIV can be prevented by:					Percentage of men who say that HIV can be prevented by:				
	Using condoms[1]	Limiting sexual intercourse to one uninfected partner[2]	Using condoms and limiting sexual intercourse to one uninfected partner[1,2]	Abstaining from sexual intercourse	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]	Abstaining from sexual intercourse	Number of men
Age										
15-24	35.9	42.4	32.1	31.0	5,454	45.8	50.5	42.7	34.1	1,624
15-19	35.2	40.3	31.2	30.1	3,131	38.6	43.9	35.0	28.9	981
20-24	36.9	45.2	33.2	32.2	2,322	56.7	60.6	54.5	42.1	643
25-29	31.1	38.6	27.9	28.5	1,895	55.0	56.1	50.0	36.0	586
30-39	26.5	30.9	24.0	22.7	3,266	46.6	50.2	44.5	32.7	1,004
40-49	18.0	22.9	16.8	14.9	2,523	37.1	40.6	34.4	25.1	861
Marital status										
Never married	38.0	44.3	33.9	32.5	4,661	47.4	51.6	44.2	34.9	1,855
Ever had sex	(51.4)	(56.1)	(48.2)	(37.8)	39	75.2	75.9	71.3	47.7	536
Never had sex	37.8	44.2	33.7	32.4	4,621	36.1	41.8	33.2	29.7	1,319
Married or living together	25.0	30.8	22.8	22.1	7,922	44.2	47.5	41.4	30.2	2,170
Divorced/separated/widowed	21.0	22.5	18.3	14.4	554	30.0	29.0	21.7	16.3	51
Residence										
Urban	44.4	55.3	39.6	41.9	3,367	67.0	73.7	62.4	55.4	1,078
Rural	24.3	28.3	22.0	19.8	9,770	37.7	40.3	35.3	23.8	2,998
District										
Aileu	31.1	34.3	30.0	27.1	542	39.6	44.9	38.0	5.0	177
Ainaro	14.8	17.2	11.4	16.6	606	18.6	23.6	12.4	3.1	213
Baucau	35.7	50.2	35.3	10.4	1,379	14.7	22.4	10.7	6.0	406
Bobonaro	24.6	26.0	18.1	23.0	1,236	44.4	47.6	40.5	46.9	349
Cova Lima	36.6	40.4	33.6	18.6	765	71.7	72.2	67.8	70.0	231
Dili	46.9	62.6	42.0	46.5	2,414	73.0	81.4	67.6	59.5	780
Ermera	13.6	13.7	13.5	13.5	1,573	20.8	20.2	20.2	20.4	502
Lautem	26.5	30.3	23.2	24.8	846	51.6	55.9	51.0	42.0	301
Liquica	25.6	28.7	22.4	25.5	785	44.1	47.6	42.1	30.2	246
Manatutu	39.5	41.5	32.9	42.6	591	97.6	98.9	97.6	1.1	186
Manufahi	27.2	31.9	25.6	28.9	461	45.0	44.6	44.2	42.0	134
Oecussi	23.6	24.7	22.1	24.1	866	42.8	45.4	42.1	42.0	230
Viqueque	18.4	18.9	16.9	17.7	1,074	26.9	25.1	22.5	7.1	321
Education										
No education	8.7	10.0	7.9	6.2	3,853	15.7	15.8	13.0	7.7	780
Primary	18.4	21.1	16.8	14.6	3,010	29.7	33.4	27.7	20.6	1,049
Presecondary	33.3	41.1	29.6	29.4	2,619	44.6	50.3	41.0	31.5	787
Secondary	56.2	67.4	50.6	50.7	3,216	69.5	74.6	65.8	51.3	1,224
More than secondary	67.4	83.1	61.8	61.5	439	92.6	93.5	88.7	66.8	237
Total 15-49	29.4	35.3	26.5	25.5	13,137	45.5	49.2	42.4	32.2	4,076

Note: Figures in parentheses are based on 25-49 unweighted cases.
[1] Using condoms every time they have sexual intercourse
[2] Partner who has no other partners

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