MICS

Sierra Leone

Multiple Indicator Cluster Survey

2010

Final Report

December 2011

unicef

Sierra Leone
Multiple Indicator Cluster Survey
2010

Statistics Sierra Leone

UNICEF
United Nations Children's Fund

December 2011

The Sierra Leone Multiple Indicator Cluster Survey (MICS) was carried out in 2010 by Statistics Sierra Leone. The United Nations Children's Fund (UNICEF) provided financial and technical support.

MICS is an international household survey programme developed by UNICEF. The Sierra Leone MICS was conducted as part of the fourth global round of MICS surveys (MICS4). MICS provides up-to-date information on the situation of children and women and measures key indicators that allow countries to monitor progress towards the Millennium Development Goals (MDGs) and other internationally agreed-upon commitments. An additional objective of the MICS4 survey in Sierra Leone is for the survey effort to contribute to the development of the national statistical system, data and monitoring systems, and to strengthen national capacity in the design, implementation, and analysis of such monitoring systems. Additional information on the global MICS project may be obtained from www.childinfo.org.

Suggested citation:
Statistics Sierra Leone and UNICEF-Sierra Leone. 2011. Sierra Leone Multiple Indicator Cluster Survey 2010, Final Report. Freetown, Sierra Leone: Statistics Sierra Leone and UNICEF-Sierra Leone.

Summary Table of Findings

Multiple Indicator Cluster Survey (MICS4) and Millennium Development Goals (MDG) Indicators, Sierra Leone, 2010

Topic	MICS4 Indicator Number	MDG Indicator Number	Indicator	Value	
CHILD MORTALITY					
Child mortality	1.1	*4.1*	Under-five mortality rate	217	per thousand
	1.2	*4.2*	Infant mortality rate	128	per thousand
NUTRITION					
Nutritional status		*1.8*	Underweight prevalence		
	2.1a		Moderate and Severe (- 2 SD)	22	percent
	2.1b		Severe (- 3 SD)	8	percent
			Stunting prevalence		
	2.2a		Moderate and Severe (- 2 SD)	44	percent
	2.2b		Severe (- 3 SD)	24	percent
			Wasting prevalence		
	2.3a		Moderate and Severe (- 2 SD)	8	percent
	2.3b		Severe (- 3 SD)	3	percent
Breastfeeding and infant feeding	2.4		Children ever breastfed	95	percent
	2.5		Early initiation of breastfeeding	45	percent
	2.6		Exclusive breastfeeding under 6 months	32	percent
	2.7		Continued breastfeeding at 1 year	84	percent
	2.8		Continued breastfeeding at 2 years	48	percent
	2.9		Duration (median) of predominant breastfeeding (children 0-36 months)	5.5	months
	2.10		Duration (median) of exclusive breastfeeding	0.7	months
	2.11		Bottle feeding	10	percent
	2.12		Introduction of solid, semi-solid or soft foods	25	percent
	2.13		Minimum meal frequency	20	percent
	2.14		Age-appropriate breastfeeding	40	percent
	2.15		(Adequate) milk feeding frequency for non-breastfed children	18	percent
Salt iodization	2.16		Iodized salt consumption	63	percent
Vitamin A	2.17		Vitamin A supplementation (children under age 5)	91	percent
Low birth weight	2.18		Low-birth weight infants	10	percent
	2.19		Infants weighed at birth	40	percent
CHILD HEALTH					
Vaccinations (among 12-23 month old children vaccinated at any time before the survey)	3.1		Tuberculosis immunization coverage	96	percent
	3.2		Polio immunization coverage (OPV3)	63	percent
	3.3		Immunization coverage for diphtheria, pertussis and tetanus (DPT1)	92	percent
	3.4	*4.3*	Measles immunization coverage	82	percent
	3.5		Hepatitis B immunization coverage (HepB3)	69	percent
	3.6		Yellow fever immunization coverage	82	percent
Tetanus toxoid	3.7		Neonatal tetanus protection	87	percent
Care of illness	3.8		Oral rehydration therapy with continued feeding	55	percent
	3.9		Care seeking for suspected pneumonia	74	percent
	3.10		Antibiotic treatment of suspected pneumonia	58	percent
Solid fuel use	3.11		Solid fuels	99	percent

Topic	MICS4 Indicator Number	MDG Indicator Number	Indicator	Value	
Malaria	3.12		Household availability of insecticide-treated nets (ITNs)	36	percent
	3.13		Households protected by a vector control method	37	percent
	3.14		Children under age 5 sleeping under any mosquito net	32	percent
	3.15	*6.7*	Children under age 5 sleeping under insecticide-treated nets (ITNs)	30	percent
	3.16		Malaria diagnostics usage	26	percent
	3.17		Anti-malarial treatment of children under 5 the same or next day	50	percent
	3.18	*6.8*	Anti-malarial treatment of children under age 5	62	percent
	3.19		Pregnant women sleeping under insecticide-treated nets (ITNs)	28	percent
	3.20		Intermittent preventive treatment for malaria	41	percent
WATER AND SANITATION					
Water and sanitation	4.1	*7.8*	Use of improved drinking water sources	57	percent
	4.2		Water treatment	2	percent
	4.3	*7.9*	Use of improved sanitation facilities	40	percent
	4.4		Safe disposal of child's faeces	54	Percent
	4.5		Place for Handwashing	20	Percent
	4.6		Availability of Soap	42	Percent
REPRODUCTIVE HEALTH					
Contraception and unmet need	5.1	*5.4*	Adolescent fertility rate	122	per 1,000
	5.2		Early childbearing	38	percent
	5.3	*5.3*	Contraceptive prevalence rate	11	percent
	5.4	*5.6*	Unmet need	27	Percent
Maternal and newborn health		*5.5*	Antenatal care coverage		
	5.5a		At least once by skilled personnel	93	percent
	5.5b		At least four times by any provider	75	percent
	5.6		Content of antenatal care	50	percent
	5.7	*5.2*	Skilled attendant at delivery	62	percent
	5.8		Institutional deliveries	50	percent
	5.9		Caesarean section	4	percent
CHILD DEVELOPMENT					
Child development	6.1		Support for learning	54	percent
	6.2		Father's support for learning	42	percent
	6.3		Learning materials: children’s books	2	percent
	6.4		Learning materials: playthings	35	percent
	6.5		Inadequate care	32	percent
	6.6		Early child development index	45	percent
	6.7		Attendance to early childhood education	14	percent

Topic	MICS4 Indicator Number	MDG Indicator Number	Indicator	Value	
EDUCATION					
Literacy and education	7.1	*2.3*	Literacy rate among young women aged 15-24 years	48	percent
	7.2		School readiness	6	percent
	7.3		Net intake rate in primary education	45	percent
	7.4	*2.1*	Primary school net attendance rate (adjusted)	74	percent
	7.5		Secondary school net attendance rate (adjusted)	37	percent
	7.6	*2.2*	Children reaching last grade of primary	92	percent
	7.7		Primary completion rate	117	percent
	7.9		Gender parity index (primary school)	1.04	ratio
	7.10		Gender parity index (secondary school)	0.83	ratio
CHILD PROTECTION					
Birth registration	8.1		Birth registration	78	percent
Child labour	8.2		Child labour	50	percent
	8.3		School attendance among child labourers	76	percent
	8.4		Child labour among students	52	percent
Child discipline	8.5		Violent discipline	82	percent
Early marriage and polygyny	8.6		Marriage before age 15	16	percent
	8.7		Marriage before age 18	50	percent
	8.8		Young women age 15-19 currently married or in union	23	percent
	8.9		Polygyny	34	percent
			Spousal age difference		
	8.10a		Women age 15-19	35	percent
	8.10b		Women age 20-24	36	percent
Female genital mutilation/ Cutting	8.11		Approval for female genital mutilation/cutting (FGM/C)	72	percent
	8.12		Prevalence of female genital mutilation/cutting (FGM/C) among women	88	percent
	8.13		Prevalence of female genital mutilation/cutting (FGM/C) among daughters	10	percent
Domestic violence	8.14		Attitudes towards domestic violence	73	percent

Topic	MICS4 Indicator Number	MDG Indicator Number	Indicator	Value	
HIV/AIDS, SEXUAL BEHAVIOUR, AND ORPHANHOOD					
HIV/AIDS knowledge and attitudes	9.1		Comprehensive knowledge about HIV prevention	20	percent
	9.2	*6.3*	Comprehensive knowledge about HIV prevention among young people	23	percent
	9.3		Knowledge of mother-to-child transmission of HIV	46	percent
	9.4		Accepting attitude towards people with HIV	6	percent
	9.5		Women who know where to be tested for HIV	46	percent
	9.6		Women who have been tested for HIV and know the results	8	percent
	9.7		Sexually active young women who have been tested for HIV and know the results	9	percent
	9.8		HIV counselling during antenatal care	41	percent
	9.9		HIV testing during antenatal care	26	percent
Sexual behaviour	9.10		Never-married women (aged 15-24 years) who have had sex	65	percent
	9.11		Sex before age 15 among young women	24	percent
	9.12		Age-mixing among sexual partners	26	percent
	9.13		Sex with multiple partners	8	percent
	9.14		Condom use during sex with multiple partners	10	percent
	9.15		Sex with non-regular partners	37	percent
	9.16	*6.2*	Condom use with non-regular partners	12	percent
Orphaned children	9.17		Children not living with biological parent	22	percent
	9.18		Prevalence of children with at least one parent dead	13	percent
	9.19	*6.4*	School attendance of orphans	74	percent
	9.20	*6.4*	School attendance of non-orphans	84	percent

Table of Contents

List of Tables

List of Figures

List of Abbreviations

ABR	Adolescent birth rate
ABC	Abstinence, Be faithful, use a Condom
ACT	Artemisinin combination therapy
AIDS	Acquired Immune Deficiency Syndrome
ANC	Antenatal care
ARI	Acute respiratory infection
BCG	Bacillis-Cereus-Geuerin (Tuberculosis)
CB-IMCI	Community-Based Integrated Management of Childhood Illnesses
CHV	Community health volunteer
CLTS	Community-led total sanitation
CMAM	Community-based management of acute malnutrition
DD	Diarrhoeal disease
DPT	Diphtheria Pertussis Tetanus
EA	Enumeration area
ECDI	Early child development index
EPI	Expanded Programme on Immunization
FGM/C	Female genital mutilation / cutting
FHCI	Free health care initiative
FSU	Family support unit
GoSL	Government of Sierra Leone
GPI	Gender parity index
HepB	Hepatitis B
Hib	Haemophilus influenzae type b
HIV	Human Immunodeficiency Virus
IDD	Iodine deficiency disorders
IMCI	Integrated Management of Childhood Illnesses
IMR	Infant mortality rate
IPT	Intermittent preventive treatment (for malaria)
IRS	Indoor residual spraying
ITN	Insecticide-treated net
IUD	Intrauterine device
IYCF	Infant and young child feeding
JMP	WHO/UNICEF Joint Monitoring Program
LAM	Lactation amenorrhea method
LBW	Low birth weight
MCH	Maternal and child health
MDG	Millennium Development Goals
MICS	Multiple Indicator Cluster Survey
MICS4	Multiple Indicator Cluster Survey – Round 4
MMR	Maternal mortality ratio
MoH	Ministry of Health
NAR	Net attendance rate
NGO	Non-governmental organization
ORS	Oral rehydration solution
ORT	Oral rehydration therapy
OPV	Oral polio vaccine
PHU	Peripheral health unit
PMTCT	Prevention of mother-to-child transmission
ppm	Parts per million
PRSP2	Poverty Reduction Strategy Paper – 2
RHF	Recommended home fluid
SP	Fansidar (combination of sulfadoxine and pyrimethamine)

SPSS	Statistical Package for Social Sciences
SSL	Statistics Sierra Leone
SWC	The State of the World's Children 2011
TFR	Total fertility rate
U5MR	Under-five mortality rate
UNFPA	United Nations Population Fund
UNGASS	United Nations General Assembly Special Session on HIV/AIDS
UNICEF	United Nations Children's Fund
WASH	Water, Sanitation and Hygiene
WFFC	World Fit For Children
WHO	World Health Organization

Acknowledgements

The people of Sierra Leone are acknowledged for all that they gave so generously to the survey effort: their invaluable time, personal information, hospitality to the field workers, and other assistance as was required.

The surveyors, supervisors and other members of the support team are acknowledged for the long hours they spent working and their dedication to making the MICS4 survey the best possible.

Colleagues in the UNICEF country, regional and headquarters offices and the external consultant are acknowledged for their efforts to design, conduct, and document the MICS4 survey.

Many other institutions contributed to the success of the MICS4 survey effort. Statistics Sierra Leone and UNICEF Sierra Leone acknowledge the following organizations and agencies for the support that they provided to the MICS4 survey:

Government of Sierra Leone
Ministry of Finance and Economic Development
Ministry of Education, Science and Technology
Ministry of Energy and Water Resources (Water Division)
Ministry of Health and Sanitation
Ministry of Information and Communications
Ministry of Local Government and Rural Development
Ministry of Social Welfare, Gender and Children's Affairs

United Nations Agencies and other multilateral institutions
UNFPA
WFP
WHO
World Bank

Executive Summary

The 2010 Sierra Leone Multiple Indicator Cluster Survey (MICS4) is a nationally representative survey of households, women, and children. The main objectives of the survey are (i) to provide current information for assessing the present situation of women and children in Sierra Leone—including the identification of vulnerable groups and of disparities among groups—in order to inform policies and interventions; (ii) to produce data to monitor progress toward the achievement of targets and goals that include the Millennium Development Goals (MDGs) and World Fit For Children; and, (iii) to contribute to the improvement of national statistical, data and monitoring systems in Sierra Leone and to strengthen national capacity and technical expertise in the design and implementation of such systems. Interviews were successfully completed in 11,394 households drawn from all districts of Sierra Leone. The main results from the survey are summarized below.

Child Mortality

The MICS4 survey measured child mortality through the use of a methodology that produced retrospective estimates (for the year 2008) of the infant mortality rate (IMR) and under-five mortality rate (U5MR). The survey estimated the IMR to be 128 per 1000 live births and the U5MR to be 217 per 1000 live births. These estimates suggest that the IMR and U5MR have decreased notably between 2002 and 2008 (MICS3 estimates: IMR = 267, U5MR = 158 in 2002), although they remain high. Mortality rates are equally high in the Northern, Eastern and Southern Provinces and are notably lower in the West.

Nutrition

Nutritional Status

Twenty-two percent of children under age five in Sierra Leone are *underweight*, or too thin for their age. Forty-four percent of children are *stunted*, or too short for their age, while eight percent are *wasted*, or too thin for their height. The prevalence of undernourished children in Sierra Leone is similar to norms in West and Central Africa as documented in The State of the World's Children 2011 (SWC).

Breastfeeding

Forty-five percent of newborns are given breast milk within one hour of birth while 32 percent of children less than six months of age are exclusively breastfed. Only 24 percent of children receive soft, and solid or semi-solid foods at this key age of 6-8 months when supplementary foods must be given to complement breast milk. Continued breastfeeding rates are 84 and 48 percent among children 12-15 months and 20-23 months of age, respectively, which represents a slight decrease from MICS3. Only 20 percent of children aged 6-23 months receive a minimum adequate diet. Taken together, these indicators suggest that infant and young child feeding practices in Sierra Leone are grossly deficient and contribute to its children's poor nutritional status.

Salt Iodization

The percentage of households that consume adequately iodized salt in Sierra Leone continues to increase. The MICS4 survey found that 63 percent of households consume salt that is adequately iodized. Challenges to the achievement of universal salt iodization in Sierra Leone include the local production and high utilization of non-iodized salt in some districts, difficulties monitoring the import of non-iodized salt from neighbouring countries, and a weak national monitoring and surveillance system.

Vitamin A Supplementation

There has been a dramatic surge in the coverage of the vitamin A supplementation program in Sierra Leone. Ninety-one percent of children aged 6-59 months were found to have received a high dose vitamin A supplement during the six months prior to the MICS4 survey, almost double the 49 percent coverage that was estimated in MICS3 and higher than the regional average of 84 percent (SWC). Vitamin A supplementation coverage is moderately lower in the Southern Province as compared to other regions; Moyamba (80 percent) and Pujehun (86 percent) are the districts with the lowest levels of supplementation. Coverage is lowest among children aged 6-11 months (76 percent) and is relatively constant at a level above 90 percent for all other age groups.

Low Birth Weight

Weight at birth is an excellent indicator of both a mother's health and nutritional status and also a newborn's chances for survival, growth, long-term health and psychosocial development. Ten percent of newborns in Sierra Leone are estimated to weigh less than 2500 grams at birth and thus be classified as low birth weight.

Child Health

Immunization

Ninety-six percent of children aged 12-23 months were found to have received BCG vaccination by their first birthday. Vaccination coverage for these same children at age 12 months (i.e., timely vaccination) was 67 percent for DPT3, 58 percent for OPV3, 68 percent for measles, and 68 percent for yellow fever. Comparison of these findings with MICS3 results shows modest increases in timely vaccination status of children in Sierra Leone during the past five years. Vaccination rates are still far short of the goal of 90 percent of children fully immunized at one year of age. Vaccination rates for BCG and the DPT series show that the program is successful in delivering the early vaccinations in the series but does not do as well in completing vaccine series due to substantial drop-out. The Sierra Leone EPI program provides good access to its services but needs to be strengthened if the goal of achieving high levels of timely vaccination of all antigens is to be achieved.

Tetanus Toxoid

Eighty-three percent of surveyed women who gave birth during the year prior to the MICS4 survey received at least two doses of tetanus toxoid (TT) vaccine during their pregnancy while an additional four percent were protected against neonatal tetanus due to previous TT vaccinations. This encouraging result represents an almost ten percent increase in TT coverage over the past five years and is almost ten percent higher than the regional average (SWC).

Oral Rehydration Treatment

Approximately 84 percent of children with diarrhoea in the two weeks prior to the survey received oral rehydration solution (ORS) and/or a recommended home fluid and/or increased fluids—a 24 percent increase compared to the MICS3 result. Fifty-five percent of children with diarrhoea received home treatment as recommended (a 24 percent increase over MICS3): that is, they either received ORT or increased their fluid intake, while continuing feeding at the same time. These improvements in diarrhoea management are part of a general trend of strengthened household management of major childhood diseases—diarrhoea, pneumonia and malaria—as compared to 2005.

Care Seeking and Antibiotic Treatment of Pneumonia

Seventy-four percent of surveyed children with suspected pneumonia during the two weeks preceding the survey were taken to an appropriate provider while 58 percent were treated with an antibiotic. Almost all children who were seen by an appropriate provider were seen at a government health facility. Children with suspected pneumonia were somewhat more likely to be seen by an appropriate provider if their mothers were uneducated, if they were from a younger age category, or if they were from households in the mid-level wealth quintiles. Only eight percent of surveyed mothers knew the two key danger signs of pneumonia—fast and difficult breathing. The introduction of the Community-Based Integrated Management of Childhood Illnesses (CB-IMCI) program has led to more effective community-based treatment of child illnesses using a holistic approach. The success of this approach is reflected in the increased treatment rates of suspected pneumonia.

Malaria

The MICS4 survey was conducted just before a mass distribution of insecticide-treated mosquito nets (ITNs) to every household in Sierra Leone that took place in December 2010. The results presented here represent the situation with respect to ITN availability and use just prior to the distribution campaign. MICS4 findings indicate that 30 percent of children under the age of five slept under an ITN the night prior to the survey. Thirty-seven percent of surveyed children aged 0-59 months were ill with fever in the two weeks prior to the MICS4. Among these children, 50 percent were treated with an anti-malarial drug within 24 hours of onset of symptoms and an additional 12 percent were treated at a later time.

Solid Fuel Use

Households in Sierra Leone make nearly universal (99 percent) use of solid fuels—primarily wood—for cooking purposes. Eighty-four percent of households cook either in a structure separate from their home or outdoors.

Water and Sanitation

The MICS4 estimates of the Sierra Leonean population's access to improved sources of drinking water (57 percent) and improved sanitation facilities (40 percent) represent improvement in access compared to past studies in recent years. Only ten percent of households have both an improved source of drinking water and improved sanitation facilities where the latter are not shared with other households. Differences in the level of this indicator vary widely among provinces, ranging from seven percent in the East and North to 28 percent in the West.

Reproductive Health

Contraception

Current use of modern contraception was reported by ten percent of surveyed women who were married or in union while one percent reported using a traditional method; Sierra Leone lags behind an already low regional contraceptive prevalence rate of 17 percent (SWC). The only methods with a notable level of use are the pill (four percent) and injections (five percent). Unmet need for spacing is 18 percent and unmet need for limiting is ten percent, yielding a total unmet need for contraception of 27 percent (total does not add to 28 due to rounding). Total unmet need varies little across the background variables that were measured in MICS4.

Antenatal Care

Ninety-three percent of pregnant women in Sierra Leone receive antenatal care (ANC) from a skilled health provider (i.e., a doctor, nurse, or midwife) at least once during their pregnancies; this estimate is approximately 20 percentage points higher than the regional estimate (SWC). Among women who gave birth during the two years preceding the survey, 66 percent reported that a blood sample was taken during ANC, 82 percent reported that their blood pressure was checked and 56 percent reported that a urine specimen was taken; 50 percent of respondents reported that they received all three services during ANC. Coverage of ANC is high in Sierra Leone but concerns remain regarding its quality.

Assistance at Delivery

About 62 percent of births in Sierra Leone that occurred during the two years prior to the MICS4 survey were delivered by skilled personnel—that is, a doctor, nurse, or MCH Aide—which represents a twenty percent increase during the past five years. This increase has taken place entirely in the provinces, as the level of this indicator in the West remains unchanged since 2005. Fifty percent of deliveries in Sierra Leone take place in health facilities—a 31 percent increase since 2005.

Child Development

For slightly over half (54 percent) of children aged 36-59 months, an adult household member engaged in four or more activities that promote learning and school readiness during the three days preceding the survey. The average number of activities that adults engaged in during those three days with children was 3.4. Fathers' involvement in such activities was somewhat limited; 42 percent of children engaged in activities with their fathers and the average number of activities that fathers engaged in was 0.9. In Sierra Leone, two percent of children aged 0-59 months live in households where at least three children's books are present. Thirty-two percent of children were left with inadequate care during the week preceding the survey, either by being left alone or in the care of another child.

Literacy and Education

Adult Literacy

The MICS4 found that 48 percent of women in Sierra Leone aged 15-24 are literate. Women aged 15-19 years had a much higher level of literacy (59 percent) than did women aged 20-24 (36 percent). Women's literacy status is positively associated with urban residence, higher levels of education, and higher household wealth. Only 143 out of 866 respondents who had attended some level of primary school could read a simple statement and were thus classified as "literate", raising concern about the quality of primary school education in Sierra Leone.

Pre-School Attendance and School Readiness

Fourteen percent of children aged 36-59 months in Sierra Leone attend pre-school. Among children who were aged six years and also attended the first grade of primary school at the time of the survey, merely six percent attended pre-school the previous year. These levels do not suggest that the increases in school attendance as documented below have had a corresponding effect on pre-school attendance.

Primary and Secondary School Participation

The majority of children of primary school age in Sierra Leone are attending school (74 percent). Only 45 percent of children in Sierra Leone begin to attend primary school at the stipulated school entry age (six years), foreshadowing the delayed educational status of many children. Ninety-two percent of children who enter the first grade of primary school eventually reach grade five. The picture regarding secondary education in Sierra Leone is less promising. Only 37 percent of children of secondary school age (12-17 years) attend secondary school while another 37 percent attend primary school although they are of secondary school age. The ratio of girls to boys attending primary school at the national level is 104:100. However, the indicator drops to 83:100 for secondary education.

Child Protection

Birth Registration

The births of 78 percent of children under five years of age in Sierra Leone have been registered. The percentage of children whose births have been registered increases with increasing age of child and increasing levels of mother's education and household wealth.

Child Labour

According to the definition of "child labour" that was used in MICS4, a child aged 5-11 years was considered to be involved in child labour activities if s/he, during the week preceding the survey, performed at least one hour of economic work or 28 hours or more of domestic work per week. For a child aged 12-14 years the cut-off points to be considered a "child labourer" were at least 14 hours of economic work or 28 hours or more of domestic work per week. Fifty percent of children aged 5-14 were found to be involved in child labor—63 percent of children aged 5-11 years and 15 percent of children aged 12-14 years. Among children aged 5-11 years, the overwhelming majority that perform child labour are classified as such due to performing one or more hours of economic work per week. Similarly, almost all children aged 12-14 who perform child labour are classified as such due to performing more than 14 hours of economic work per week. Given that school attendance is higher among child labourers (76 percent) than among non-labourers (71 percent), it is difficult to argue that child labour has a dramatically negative effect on school attendance in Sierra Leone.

Child Discipline

MICS4 found that 82 percent of children aged 2-14 years in Sierra Leone were subjected to at least one form of psychological or physical punishment by household members in the month prior to the survey. More importantly, 65 percent of children were subjected to some type (minor and/or severe) of physical punishment while 19 percent of children were subjected to severe physical punishment.

There are virtually no differences across all of the background variables for any of the discipline-related indicators, indicating a high degree of uniformity in the practice of child discipline across different strata of Sierra Leonean society. Although only 42 percent of respondents stated that it is necessary to physically punish children in order to raise them properly, in practice 65 percent of children receive physical punishment.

Early Marriage and Polygyny

Early marriage, polygyny, and large spousal age differences are common in Sierra Leone although their prevalence appears to be decreasing. Sixteen percent of respondents (women aged 15-49) first married before the age of 15 while 50 percent of respondents (aged 18-49) were married before the age of 18. Among women aged 15-19 who are married or in union, 35 percent are with a man who is ten or more years senior to them. One in three women (34 percent) aged 15-49 years is in a

polygynous union. Indicators of early marriage are highest in the north and lowest in the West. Higher levels of early marriage are associated with rural residence and lower levels of women's education and household wealth.

Membership in Secret Societies

The practice of female genital mutilation / cutting (FGM/C) is deeply entrenched in societal norms in Sierra Leone. Eighty-eight percent of female respondents aged 15-49 years reported having undergone some form of female genital mutilation. The practice appears to be more common in rural areas, in the Northern Province, among households in the poorest three quintiles and among uneducated women. Respondents reported that ten per cent of their daughters aged 0-14 years had undergone FGM/C. Higher levels of the practice of FGM/C on daughters are correlated with lower levels of household wealth and mother's education, higher age of child, mothers who have had FGM/C performed on them, and residence in the Northern Province. Seventy-two percent of women state that the practice of FGM/C should be continued while 22 percent believe it should be discontinued.

Domestic Violence

Women aged 15-49 years were asked whether husbands are justified in hitting or beating their wives or partners according to five different scenarios. Researchers have found that women who agree that their partners are justified in beating them tend to themselves be victims of domestic violence. For each of the five situations that were described, over one-third of the respondents said that beating is justified; the percentage who felt this ranged from 34 percent for "if she burns the food" to 62 percent for "if she neglects the children." A full 73 percent of respondents felt that beating was justified under one or more of the scenarios.

HIV/AIDS, Sexual Behaviour, and Orphanhood

Knowledge of HIV Transmission and Utilization of HIV Testing Services

Eighty percent of women in Sierra Leone aged 15-49 years have heard of AIDS. Only 20 percent have "comprehensive correct knowledge of HIV": that is, they correctly identify two ways of avoiding HIV infection and reject three common misconceptions about HIV transmission. Sixty-four percent of respondents know that HIV can be transmitted from mother to child while 46 percent know all three ways that transmission can occur. Ninety-four percent of respondents agreed with at least one of four discriminatory statements regarding people living with HIV/AIDS (PLHA), a sign of high levels of discrimination towards PLHA. Apart from the percentage of respondents who have heard of AIDS, none of these indicators have changed notably in the last five years.

Forty-six percent of women could identify a HIV test site while 28 percent reported that they have been tested for HIV at some point during their lives. Forty-one percent of women who gave birth in the two years preceding the survey received HIV counselling during antenatal care while 26 percent were offered an HIV test, were then tested for HIV during antenatal care and received the results.

Sexual Behaviour Related to HIV Transmission

Young women in Sierra Leone are at substantial risk of contracting HIV. Premarital sex at a young age is common; sixty-five percent of never-married women aged 15-24 in Sierra Leone have had sex. Twenty-four percent of women aged 15-24 report that they first had sex before the age of 15.

The practice of high-risk sex by young women is also common. Twenty-six percent of women aged 15-24 report that they had sex in the previous 12 months with a man ten or more years older. Eight percent of women 15-49 years of age—and nine percent of women aged 15-24—reported having had sex with more than one partner during the year prior to the MICS4 survey. Among these two

groups of women, only ten and twelve percent, respectively, reported using a condom the last time they had sex. Thirty-seven percent of women aged 15-24 years report that they had sex with a non-marital, non-cohabiting partner in the previous year. Among these women, only twelve percent reported that a condom was used the last time they had sex with such a partner.

Orphanhood

The MICS4 survey found that 13 percent of children aged 0-17 years are orphans (i.e., one or both parents dead) while 22 percent do not live with a biological parent. A key measure that has been developed to assess the status of orphaned children relative to their peers compares the school attendance of children aged 10-14 years for children who have lost both parents versus children whose parents are alive (and who live with at least one of their parents). In Sierra Leone, 2.5 percent of children aged 10-14 have lost both parents, and 74 percent of these orphans are currently attending school. Among children aged 10-14 years who have not lost a parent and who live with at least one parent, 84 percent are attending school. These two statistics can be combined to calculate an orphan: non-orphan school attendance ratio of 0.88 (74/84). This finding suggests that orphans are somewhat disadvantaged in terms of school attendance compared to the non-orphaned children.

I. Introduction

Background

This report is based on the Sierra Leone Multiple Indicator Cluster Survey (MICS4), conducted in 2010 by Statistics Sierra Leone. The survey provides valuable information on the situation of children and women in Sierra Leone and was based, in large part, on the need to monitor progress towards goals and targets emanating from recent international agreements that include (i) the Millennium Declaration, adopted by all 191 United Nations Member States in September 2000 and (ii) the Plan of Action of A World Fit For Children, adopted by 189 Member States at the United Nations Special Session on Children in May 2002. Both of these commitments build upon promises made by the international community at the 1990 World Summit for Children.

In signing these international agreements, governments committed themselves to improving conditions for children in their countries and monitoring progress towards that end. UNICEF was assigned a supporting role in this task (see box below).

A Commitment to Action: National and International Reporting Responsibilities

The governments that signed the Millennium Declaration and the World Fit for Children Declaration and Plan of Action also committed themselves to monitoring progress towards the goals and objectives they contained:

*"We will monitor regularly at the national level and, where appropriate, at the regional level and assess progress towards the goals and targets of the present Plan of Action at the national, regional and global levels. Accordingly, we will strengthen our national statistical capacity to collect, analyse and disaggregate data, including by sex, age and other relevant factors that may lead to disparities, and support a wide range of child-focused research. We will enhance international cooperation to support statistical capacity-building efforts and build community capacity for monitoring, assessment and planning." (**A World Fit for Children**, paragraph 60)*

*"…We will conduct periodic reviews at the national and sub-national levels of progress in order to address obstacles more effectively and accelerate actions…." (**A World Fit for Children**, paragraph 61)*

The Plan of Action (paragraph 61) also calls for the specific involvement of UNICEF in the preparation of periodic progress reports:

"… As the world's lead agency for children, the United Nations Children's Fund is requested to continue to prepare and disseminate, in close collaboration with governments, relevant funds, programmes and the specialized agencies of the United Nations system, and all other relevant actors, as appropriate, information on the progress made in the implementation of the Declaration and the Plan of Action."

Similarly, the **Millennium Declaration** (paragraph 31) calls for periodic reporting on progress:

"…We request the General Assembly to review on a regular basis the progress made in implementing the provisions of this Declaration, and ask the Secretary-General to issue periodic reports for consideration by the General Assembly and as a basis for further action."

To address the above commitments, Sierra Leone has progressively implemented development programmes during the past two decades that have been aligned to the millennium development goals. These programmes have been underpinned by development and strategic plans that include the First and Second Generation Poverty Reduction Strategy Papers that have addressed social development challenges in the spheres of health, education and child protection.

Four rounds of MICS surveys have been carried out in Sierra Leone (in 1995, 2000 2005 and 2010). The fourth round of MICS (MICS4) is the subject of this report and is focused on providing a monitoring tool for the World Fit for Children, the Millennium Development Goals (MDGs), as well as for other major international commitments, such as the UNGASS on HIV/AIDS and the Abuja targets for malaria. Roughly 20 of the 48 MDG indicators have been measured in MICS4, offering the largest single source of data for MDG monitoring. Results from MICS4 will be used to fill data gaps for national MDG reporting as well as to develop a monitoring and evaluation system for Sierra Leone's the Second Generation Poverty Reduction Strategy Paper (PRSP2), document was developed in 2009 and is dubbed "Agenda for Change" in Sierra Leone.

Survey Objectives

The 2010 Sierra Leone Multiple Indicator Cluster Survey has the following primary objectives:

- To provide up-to-date information for assessing the current situation of children and women in Sierra Leone—including the identification of vulnerable groups and of disparities among groups—to inform policies and interventions;

- To furnish data needed for monitoring progress toward goals established in the Millennium Declaration and other internationally agreed upon goals such as World Fit For Children (WFFC), as a basis for future action; and,

- To contribute to the improvement of the national statistical, data and monitoring systems in Sierra Leone and to strengthen national capacity and technical expertise in the design and implementation of such systems.

II. Sample and Survey Methodology

Sample Design

The sample for Round Four of the Sierra Leone Multiple Indicator Cluster Survey (MICS4) was designed to provide estimates for a large number of indicators that describe the situation of children and women at the national level, in urban and rural areas, and in the four provinces of Sierra Leone and the 14 districts that lie within them. In order to produce district-level estimates of moderate precision, a minimum of 30 enumeration areas (EAs) were selected in each district, resulting in a sample that was not self-weighting. The urban and rural areas within each district were identified as the main sampling strata and the sample was selected in two stages. In the first stage, within each stratum, a specified number of EAs were selected systematically with probability proportional to size. In the second stage, after a household listing was carried out within the selected enumeration areas, a systematic sample of 25 households was drawn in each selected EA. All of the selected EAs were visited during the fieldwork period. The sample was thus stratified by district and then by urban / rural areas. For reporting national and regional-level results, sample weights are used. A more detailed description of the sample design can be found in Appendix A.

Questionnaires

Three sets of questionnaires were used in the survey: 1) a household questionnaire that was used to collect information on all *de jure* household members (i.e., usual residents of the household), the household, and the dwelling; 2) a women's questionnaire administered in each household to all women aged 15-49 years; and, 3) an under-5 questionnaire, administered to mothers or caretakers for all children under 5 years of age living in the household. The content of the three questionnaires is described below.

The Household Questionnaire includes the following modules:

- Household Listing Form
- Education
- Water and Sanitation
- Household Characteristics
- Insecticide-Treated Nets
- Indoor Residual Spraying
- Child Labour
- Child Discipline
- Handwashing
- Salt Iodization

The Questionnaire for Individual Women was administered to all women aged 15-49 years living in the sampled households and includes the following modules:

- Women's Background
- Child Mortality
- Tetanus Toxoid
- Desire for Last Birth
- Maternal and Newborn Health
- Illness Symptoms
- Contraception
- Unmet Need
- Female Genital Mutilation/Cutting

- Attitudes Towards Domestic Violence
- Marriage/Union
- Sexual Behaviour
- HIV/AIDS

The Questionnaire for Children Under Five was administered to mothers or caretakers of children under 5 years of age[1] living in the households. Normally, the questionnaire was administered to mothers of under-5 children; in cases when the mother was not listed in the household roster, a primary caretaker for the child was identified and interviewed. The questionnaire includes the following modules:

- Age
- Birth Registration
- Early Childhood Development
- Breastfeeding
- Care of Illness
- Malaria
- Immunization
- Anthropometry

The questionnaires are based on the English version of the MICS4 model questionnaire[2]. The questionnaires were pre-tested in Freetown and its rural environs during June 2010. Based on the results of the pre-test, modifications were made to the wording of the questionnaires. A copy of the Sierra Leone MICS questionnaires is provided in Appendix F.

In addition to the administration of questionnaires, fieldwork teams tested the salt used for cooking in the households for iodine content, observed the place where household members usually wash their hands, and measured the weights and heights of children age under 5 years. Details and findings of these measurements are provided in the respective sections of this report.

Training and Fieldwork

Supervisors and enumerators participated in separate trainings prior to the MICS4 fieldwork. The three-day training of supervisors was conducted in September 2010. All supervisors then participated as trainers in the nine-day training of enumerators. Training included lectures on interviewing techniques and the contents of the questionnaires, interviews of respondents by groups of trainees to gain practice in asking questions, and then community-level interviews with actual respondents. Towards the end of the training period, trainees spent a full day conducting practice interviews in the rural West outside of Freetown.

Actual survey data were collected by 24 teams; each team was comprised of four enumerators, one driver and a supervisor. Fieldwork began in early October 2010 and concluded in December 2010.

[1] The terms “children under 5”, “children age 0-4 years”, and “children aged 0-59 months” are used interchangeably in this report.

[2] The model MICS4 questionnaires can be found at www.childinfo.org .

Data Processing

Data were entered using CSPro software. Data processing was carried out by 30 data entry operators and 2 data entry supervisors. In order to ensure quality control, all questionnaires were double-entered and internal consistency checks were performed. Procedures and standard programs developed under the global MICS programme and adapted to the Sierra Leone questionnaire were used throughout. Data processing began simultaneously with data collection in October 2010 and was completed in June 2011. Data were analysed using the Statistical Package for Social Sciences (SPSS) software program (Version 18). The analysis was carried out using the model syntax and tabulation plans developed by UNICEF.

III. Sample Coverage and the Characteristics of Households and Respondents

Sample Coverage

Of the 11,923 households selected for the sample, 11,578 were found to be occupied. Of these, 11,394 were successfully interviewed for a household response rate of 98.4 percent. In the interviewed households, 14,068 women (age 15-49 years) were identified. Of these, 13,359 were successfully interviewed, yielding a response rate of 95.0 percent within interviewed households. In addition, 8,799 children under age five were listed in the household questionnaire. Questionnaires were completed for 8,600 of these children, which corresponds to a response rate of 97.7 percent within interviewed households. Overall response rates of 93.5 and 96.2 percent are calculated for the women's and under-5's interviews respectively (Table HH.1).

Ninety-seven percent of sampled households were found to be occupied. The household response rate was slightly lower in the West as compared to other provinces, primarily due to difficulties finding household members at home in Freetown. Response rates for women and children were very similar across provinces and areas of residence. Overall response rates were at an acceptable level.

Table HH.1: Results of household, women's and under-five interviews
Numbers of households, women and children under 5 by results of the household, women's and under-5's interviews, and household, women's and under-5's response rates, Sierra Leone, 2010

	Area		Region				District														
	Urban	Rural	East	North	South	West	Kailahun	Kenema	Kono	Bombali	Kambia	Koinadugu	Port Loko	Tonkolili	Bo	Bonthe	Moyamba	Pujehun	Western Rural	Western Urban	Total
Households Sampled	4077	7846	2610	3771	3163	2379	795	1065	750	748	734	746	793	750	921	750	743	749	747	1632	11923
Households Occupied	3948	7630	2512	3688	3061	2317	780	1015	717	721	705	739	777	746	892	729	692	748	729	1588	11578
Households Interviewed	3856	7538	2486	3665	3006	2237	778	1002	706	711	696	736	777	745	872	715	672	747	706	1531	11394
Household response rate	97.7	98.8	99.0	99.4	98.2	96.5	99.7	98.7	98.5	98.6	98.7	99.6	100.0	99.9	97.8	98.1	97.1	99.9	96.8	96.4	98.4
Women Eligible	5166	8902	3005	4629	3531	2903	974	1187	844	948	1035	862	1002	782	1131	886	720	794	831	2072	14068
Women Interviewed	4892	8467	2831	4435	3359	2734	938	1129	764	927	968	811	982	747	1057	858	677	767	799	1935	13359
Women's response rate	94.7	95.1	94.2	95.8	95.1	94.2	96.3	95.1	90.5	97.8	93.5	94.1	98.0	95.5	93.5	96.8	94.0	96.6	96.1	93.4	95.0
Women's overall response rate	92.5	94.0	93.2	95.2	93.4	90.9	96.1	93.9	89.1	96.4	92.3	93.7	98.0	95.4	91.4	95.0	91.3	96.5	93.1	90.0	93.5
Children under 5 Eligible	2555	6244	1942	3310	2410	1137	661	726	555	615	802	612	711	570	691	657	526	536	439	698	8799
Children under 5 Mother/Caretaker Interviewed	2490	6110	1896	3250	2356	1098	654	715	527	609	778	595	706	562	667	647	518	524	429	669	8600
Under-5's response rate	97.5	97.9	97.6	98.2	97.8	96.6	98.9	98.5	95.0	99.0	97.0	97.2	99.3	98.6	96.5	98.5	98.5	97.8	97.7	95.8	97.7
Under-5's overall response rate	95.2	96.7	96.6	97.6	96.0	93.2	98.7	97.2	93.5	97.7	95.8	96.8	99.3	98.5	94.4	96.6	95.6	97.6	94.6	92.4	96.2

Characteristics of Households

The weighted distribution of the survey population, stratified by age and sex, is provided in Table HH.2. In the 11,394 households that were successfully interviewed in the survey, 66,707 household members were listed. Of these, 33,176 were males, 33,507 were females, and 23 were of unknown gender. These numbers do not add to the total due to rounding.

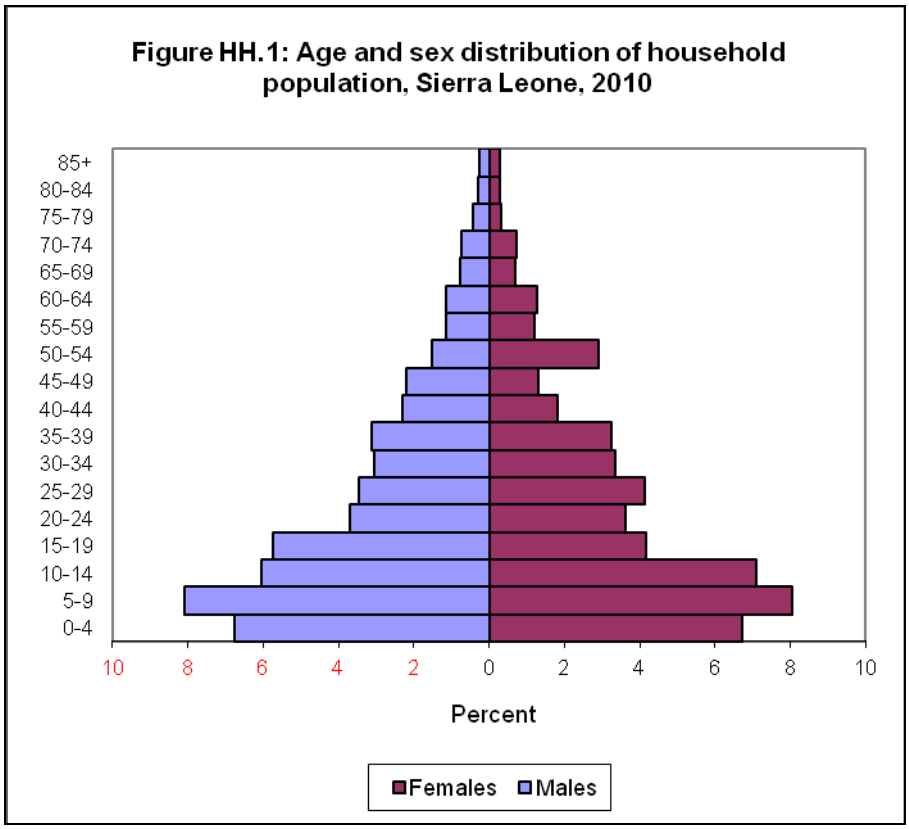
Table HH.2: Household age distribution by sex
Percent and frequency distribution of the household population by five-year age groups, dependency age groups, and by child (age 0-17 years) and adult populations (age 18 or more), by sex, Sierra Leone, 2010

		Males		Females		Missing		Total	
		Number	Percent	Number	Percent	Number	Percent	Number	Percent
Age group	0-4	4418	13.3	4389	13.1	4	16.1	8811	13.2
	5-9	5293	16.0	5257	15.7	1	6.0	10552	15.8
	10-14	3952	11.9	4650	13.9	2	6.9	8605	12.9
	15-19	3746	11.3	2724	8.1	2	7.5	6472	9.7
	20-24	2408	7.3	2366	7.1	0	.0	4774	7.2
	25-29	2258	6.8	2698	8.1	2	9.0	4958	7.4
	30-34	1984	6.0	2190	6.5	1	4.5	4175	6.3
	35-39	2029	6.1	2119	6.3	0	.0	4149	6.2
	40-44	1500	4.5	1181	3.5	0	1.1	2681	4.0
	45-49	1436	4.3	854	2.5	2	7.2	2292	3.4
	50-54	995	3.0	1911	5.7	1	3.7	2907	4.4
	55-59	748	2.3	797	2.4	0	.0	1544	2.3
	60-64	756	2.3	830	2.5	1	2.5	1587	2.4
	65-69	500	1.5	466	1.4	0	.0	966	1.4
	70-74	480	1.4	470	1.4	0	.0	950	1.4
	75-79	291	.9	201	.6	0	.0	491	.7
	80-84	191	.6	192	.6	0	.0	382	.6
	85+	167	.5	188	.6	0	.0	355	.5
	Missing/DK	24	*	24	*	8	35.6	56	.1
Dependency age groups	0-14	13664	41.2	14296	42.7	7	28.9	27967	41.9
	15-64	17860	53.8	17671	52.7	8	35.4	35539	53.3
	65+	1628	4.9	1517	4.5	0	.0	3145	4.7
	Missing/DK	24	*	24	*	8	35.6	56	.1
Children and adult populations	Children age 0-17 years	15983	48.2	15816	47.2	7	28.9	31806	47.7
	Adults age 18+ years	17169	51.8	17668	52.7	8	35.4	34845	52.2
	Missing/DK	24	*	24	*	8	35.6	56	.1
Total		**33176**	**100.0**	**33507**	**100.0**	**23**	**100.0**	**66707**	**100.0**

[*] Based on less than 25 unweighted cases and has been suppressed.

Data from Table HH.2 are used to create the population pyramid in Figure HH.1. Examination of this figure reveals that females aged 40-49 are underrepresented or "missing" while there is a large bulge of women aged 50-54. Children aged 5-9 of both genders appear to be overrepresented. This suggests that enumerators may have introduced data quality errors by overstating the age of children aged under five years and women aged 40-49, possibly in order to minimize the number of interviews that they had to conduct.

Children aged 0-17 years comprise 47.7[3] percent of the MICS4 survey population, indicating the young nature of the population in Sierra Leone.



The table below compares the composition of the MICS4 survey sample with that from the MICS3 survey and the 2004 Sierra Leone Census. Similarities in the population age distribution among the three surveys suggest that the MICS4 survey is a representative sample of the population of Sierra Leone.

TABLE HH.2.1: POPULATION AGE DISTRIBUTION (PERCENT) OF MICS4 AND MICS3 SURVEYS AND 2004 SIERRA LEONE CENSUS

Age	MICS4 (2010)			MICS3 (2005)			2004 Census		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
0-14	41.9	42.7	41.9	44.4	43.1	43.7	43.2	40.3	41.8
15-64	53.3	52.7	53.3	50.3	52.3	51.3	52.5	55.2	54.0
65+	4.7	4.5	4.7	4.5	3.9	4.2	4.3	4.5	4.2
Missing	0.1	0.1	0.1	0.8	0.7	0.7	0	0	0
Total	**100**	**100**	**100**	**100**	**100**	**99.9**	**100**	**100**	**100**

Tables HH.3 - HH.5 provide basic information about the households, female respondents aged 15-49, and children under-5 that served as respondents in MICS4. Information on the basic characteristics of households, women and children under-5 who were interviewed in the survey is essential for the interpretation of findings presented later in the report and also can provide an indication of the

[3] The 2004 Sierra Leone Census and the MICS3 survey found that 44.9 percent and 49.3 percent of the total population was aged 0-17 years, respectively.

degree to which the survey is representative. The remaining tables in this report are presented using only weighted numbers. See Appendix A for more details about how the weighting of MICS4 results was carried out.

Table HH.3: Household composition
Percent distribution of households by selected characteristics, Sierra Leone, 2010

		Weighted percent	Number of households	
			Weighted	Unweighted
Sex of household head	Male	77.3	8809	8680
	Female	22.7	2585	2714
Region	East	27.0	3072	2486
	North	33.0	3761	3665
	South	24.2	2760	3006
	West	15.8	1801	2237
District	Kailahun	8.7	991	778
	Kenema	11.3	1287	1002
	Kono	7.0	793	706
	Bombali	7.5	849	711
	Kambia	3.6	411	696
	Koinadugu	4.5	517	736
	Port Loko	8.5	971	777
	Tonkolili	8.9	1013	745
	Bo	9.7	1100	872
	Bonthe	4.1	466	715
	Moyamba	5.0	569	672
	Pujehun	5.5	625	747
	Western Rural	3.1	355	706
	Western Urban	12.7	1447	1531
Area	Urban	31.7	3608	3856
	Rural	68.3	7786	7538
Number of household members	1	3.3	376	396
	2	5.6	633	657
	3	11.5	1307	1332
	4	15.7	1783	1763
	5	17.4	1986	1919
	6	12.8	1463	1448
	7	10.3	1174	1189
	8	7.6	867	862
	9	4.5	513	521
	10+	11.3	1291	1307
Education of household head	None	65.5	7460	7392
	Primary	9.3	1056	1033
	Secondary +	25.1	2864	2953
	Missing/DK	*	14	16
Total		**100.0**	**11394**	**11394**

[*] Based on less than 25 unweighted cases and has been suppressed.

Table HH.3 provides basic background information on the surveyed households. Within households, the sex of the household head, region, district, area, number of household members, education of household head, and ethnicity[4] of the household head are shown in the table. These background characteristics are used in subsequent tables in this report; the figures in the table are also intended to show the numbers of observations by major categories of analysis in the report. The weighted and unweighted numbers of households are equal, since sample weights were normalized (See Appendix A). The head of household is male in 77 percent of surveyed households. The Eastern, Northern, and Southern Provinces and West comprise 27, 33, 24 and 16 percent of the surveyed households, respectively. Sixty-eight percent of surveyed households are located in rural locations while the two most predominant ethnic groups are Mende and Temne which comprise 44 and 34 percent of heads of households, respectively.

[4] This was determined by asking the respondent two key questions: (i) what is the mother tongue of the head of this household and (ii) to what ethnic group does the head of this household belong?

Table HH.3.1: Household composition
Percent distribution of households by selected characteristics, Sierra Leone, 2010

	Number of households		
	Weighted percent	Weighted	Unweighted
Households with at least: one child age 0-4 years	55.1	11,394	11,394
Households with at least: one child age 0-17 years	88.1	11,394	11,394
Households with at least: one woman age 15-49 years	82.6	11,394	11,394
Mean household size (persons)	5.9	11,394	11,394

Table HH.3.1 shows the proportions of households with at least one child under 18, at least one child under 5, and at least one eligible woman aged 15-49 years. The table also shows the weighted average household size as estimated by the survey. The table shows that 88 percent of surveyed households had at least one child under 18, 55 percent had at least one child under 5, and at least one eligible woman age 15-49 was found in 83 percent of surveyed households. The mean household size was found to be 5.9 persons.

Characteristics of Female Respondents 15-49 Years of Age and Children Under-5

Tables HH.4 and HH.5 provide information on the background characteristics of female respondents 15-49 years of age and of children under age 5. In both tables, the total numbers of weighted and unweighted observations are equal[5], since sample weights have been normalized (standardized). In addition to providing useful information on the background characteristics of women and children, the tables are also intended to show the numbers of observations in each background category. These categories are used in the subsequent tabulations found in this report.

[5] Any differences are due to rounding errors.

Table HH.4: Women's background characteristics
Percent and frequency distribution of women age 15-49 years by selected characteristics, Sierra Leone, 2010

		Weighted percent	Number of women	
			Weighted	Unweighted
Region	East	25.9	3459	2831
	North	33.9	4531	4435
	South	23.5	3137	3359
	West	16.7	2232	2734
District	Kailahun	8.8	1177	938
	Kenema	10.6	1412	1129
	Kono	6.5	870	764
	Bombali	8.3	1102	927
	Kambia	4.3	570	968
	Koinadugu	4.5	597	811
	Port Loko	9.2	1231	982
	Tonkolili	7.7	1031	747
	Bo	10.2	1368	1057
	Bonthe	4.2	565	858
	Moyamba	4.3	569	677
	Pujehun	4.7	634	767
	Western Rural	2.9	390	799
	Western Urban	13.8	1842	1935
Area	Urban	34.9	4658	4892
	Rural	65.1	8701	8467
Age	15-19	19.1	2549	2611
	20-24	16.9	2263	2237
	25-29	19.2	2571	2570
	30-34	15.6	2086	2026
	35-39	15.0	1997	2020
	40-44	8.3	1115	1117
	45-49	5.8	777	778
Marital/Union status	Currently married/in union	67.5	9012	8912
	Widowed	2.9	383	381
	Divorced	.7	92	81
	Separated	4.3	576	628
	Never married/in union	24.6	3292	3351
	Missing	*	4	6
Motherhood status	Ever gave birth	77.4	10335	10290
	Never gave birth	22.6	3024	3069
Births in last two years	Had a birth in last two years	25.9	3460	3414
	Had no birth in last two years	73.8	9863	9913
	Missing	(.3)	36	32
Education	None	60.7	8108	7958
	Primary	13.2	1765	1724
	Secondary +	26.1	3486	3677
Total		**100.0**	**13,359**	**13,359**

[*] Based on less than 25 unweighted cases and has been suppressed.

Table HH.4 provides background characteristics of female respondents 15-49 years of age. The table includes information on the distribution of women according to region, district, area, age, marital status, motherhood status, births in last two years, education[6], and ethnicity. Sixty-eight percent of sampled women are married or in union and 77 percent have given birth to at least one child. Sixty-one percent of MICS4 respondents are uneducated while 13 and 26 percent have completed primary and secondary education, respectively. The large differences between weighted and unweighted numbers for region and district are due to the oversampling of smaller districts as described in Chapter Two.

[6] Unless otherwise stated, "education" refers to educational level attended by the respondent throughout this report when it is used as a background variable.

Table HH.5: Under-5's background characteristics
Percent and frequency distribution of children under five years of age by selected characteristics, Sierra Leone, 2010

		Weighted percent	Number of children	
			Weighted	Unweighted
Sex	Male	49.9	4288	4276
	Female	50.1	4306	4319
	Missing	*	4	3
Region	East	27.6	2371	1895
	North	37.4	3218	3250
	South	24.8	2132	2356
	West	10.2	877	1097
District	Kailahun	9.7	837	654
	Kenema	10.6	908	715
	Kono	7.3	627	526
	Bombali	8.2	705	609
	Kambia	5.3	460	778
	Koinadugu	4.9	424	595
	Port Loko	10.1	873	706
	Tonkolili	8.8	757	562
	Bo	9.9	851	667
	Bonthe	4.8	411	647
	Moyamba	5.0	431	518
	Pujehun	5.1	440	524
	Western Rural	2.7	233	428
	Western Urban	7.5	644	669
Area	Urban	27.4	2359	2489
	Rural	72.6	6240	6109
Age	0-5	9.9	848	831
	6-11	11.3	975	987
	12-23	17.5	1502	1455
	24-35	18.8	1621	1632
	36-47	22.9	1970	1978
	48-59	19.4	1666	1701
	Missing	*	16	14
Mother's education	None	73.1	6289	6271
	Primary	13.2	1133	1089
	Secondary	13.7	1176	1238
Wealth index quintiles	Poorest	22.7	1951	1983
	Second	22.3	1916	1817
	Middle	20.7	1783	1721
	Fourth	19.5	1677	1678
	Richest	14.8	1271	1399
Total		**100.0**	**8598**	**8598**

[*] Based on less than 25 unweighted cases and has been suppressed.

Some background characteristics of children under 5 are presented in Table HH.5. These include the distribution of children by several attributes: sex, region, district and area, age, mother's or caretaker's education, wealth, and ethnicity of household head. 50.1 percent of the children represented in the MICS4 survey are female. The percentage of children aged 0, 1, 2, 3, and 4 years in the sample is 21, 18, 19, 23, and 19, respectively. Only 15 percent of children live in households in the wealthiest quintile while 23 percent of children live in households in the least wealthy quintile.

IV. Child Mortality

One of the overarching goals among the Millennium Development Goals (MDGs) is the reduction of infant and under-five mortality. Specifically, the MDGs call for a two-thirds reduction in under-five mortality between 1990 and 2015. Monitoring progress towards this goal is an important but difficult objective. The use of direct techniques to measure child mortality through the collection of birth histories is time consuming, more expensive, and requires greater attention to training and supervision. Alternatively, indirect methods developed to measure child mortality produce robust estimates that are comparable with estimates obtained from other sources. Indirect methods minimize the pitfalls of memory lapses, inexact or misinterpreted definitions, and poor interviewing technique.

Table CM.1: Children ever born, children surviving and proportion dead
Mean and total numbers of children ever born, children surviving and proportion dead by age of women, Sierra Leone, 2010 (Total)

		Mean number of children ever born	Total number of children ever born	Mean number children surviving	Total number of children surviving	Proportion dead	Number of women
Age	15-19	.342	872	.282	718	.185	2549
	20-24	1.380	3124	1.143	2587	.178	2263
	25-29	2.631	6765	2.108	5418	.199	2571
	30-34	3.813	7955	2.966	6189	.223	2086
	35-39	4.986	9960	3.772	7535	.244	1997
	40-44	5.576	6219	4.052	4519	.273	1115
	45-49	5.992	4653	4.395	3413	.266	777
Total		2.960	39547	2.274	30380	.233	13359

The infant mortality rate is defined as the probability of dying before the first birthday. The under-five mortality rate is the probability of dying before the fifth birthday. In MICS surveys, infant and under-five mortality rates are calculated based on an indirect estimation technique known as the Brass method (United Nations, 1983; 1990a; 1990b). The data used in these estimations are the mean number of children ever born for five year age groups of women from age 15 to 49, and the proportion of these children who are dead, also for five-year age groups of women (Table CM.1). The technique converts the proportions dead among children of women in each age group into probabilities of dying by taking into account the approximate length of exposure of children to the risk of dying, assuming a particular model of the age pattern of mortality. Based on previous information on mortality in Sierra Leone, the North model life table was selected as most appropriate for MICS4.

Table CM.2: Child mortality
Infant and under-five mortality rates, Sierra Leone, 2010

		Infant Mortality Rate [1]	Under-five Mortality Rate [2]
Sex	Male	137	225
	Female	118	206
Region	East	133	224
	North	129	219
	South	133	224
	West	92	150
District	Kailahun	104	172
	Kenema	160	269
	Kono	121	202
	Bombali	160	269
	Kambia	138	233
	Koinadugu	106	175
	Port Loko	105	173
	Tonkolili	135	227
	Bo	144	243
	Bonthe	99	163
	Moyamba	99	163
	Pujehun	146	247
	Western Rural	83	133
	Western Urban	94	153
Area	Urban	120	202
	Rural	130	220
Mother's education	None	128	216
	Primary	126	213
	Secondary+	102	168
Wealth index quintiles	Poorest	131	221
	Second	137	232
	Middle	132	222
	Fourth	117	196
	Richest	110	182
Wealth index quintiles	Poorest 60%	133	226
	Richest 40%	114	190
Total		**128**	**217**

[1] MICS indicator 1.2; MDG indicator 4.2
[2] MICS indicator 1.1; MDG indicator 4.1

Table CM.2 provides estimates of child mortality from MICS4. The infant mortality rate (IMR) is estimated at 128 per thousand live births, while the probability of dying under age 5 (U5MR) is 217 per thousand live births. These estimates have been calculated by averaging mortality estimates obtained from women age 25-29 and 30-34, and refer to mid-2008. The IMR and U5MR are 16 and 9 percent higher, respectively, for males as compared to females. The IMR and U5MR differ little between the Eastern, Southern and Northern provinces, but are approximately 30 percent lower in the West as compared to the other provinces. Mortality rates are lower among the wealthiest 40 percent of the population and among children whose mothers have achieved a secondary education.

Differentials in under-5 mortality rates by selected background characteristics are shown in Figure CM.1.

Figure CM.1 Under-5 mortality rates by background characteristics, Sierra Leone, 2010

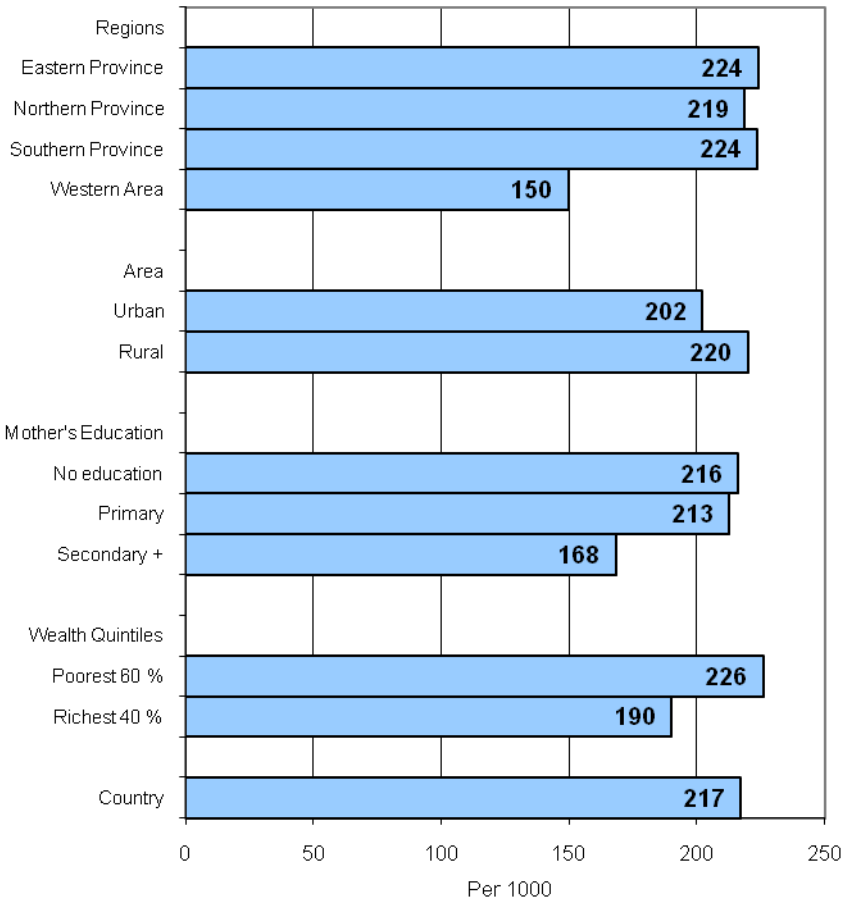
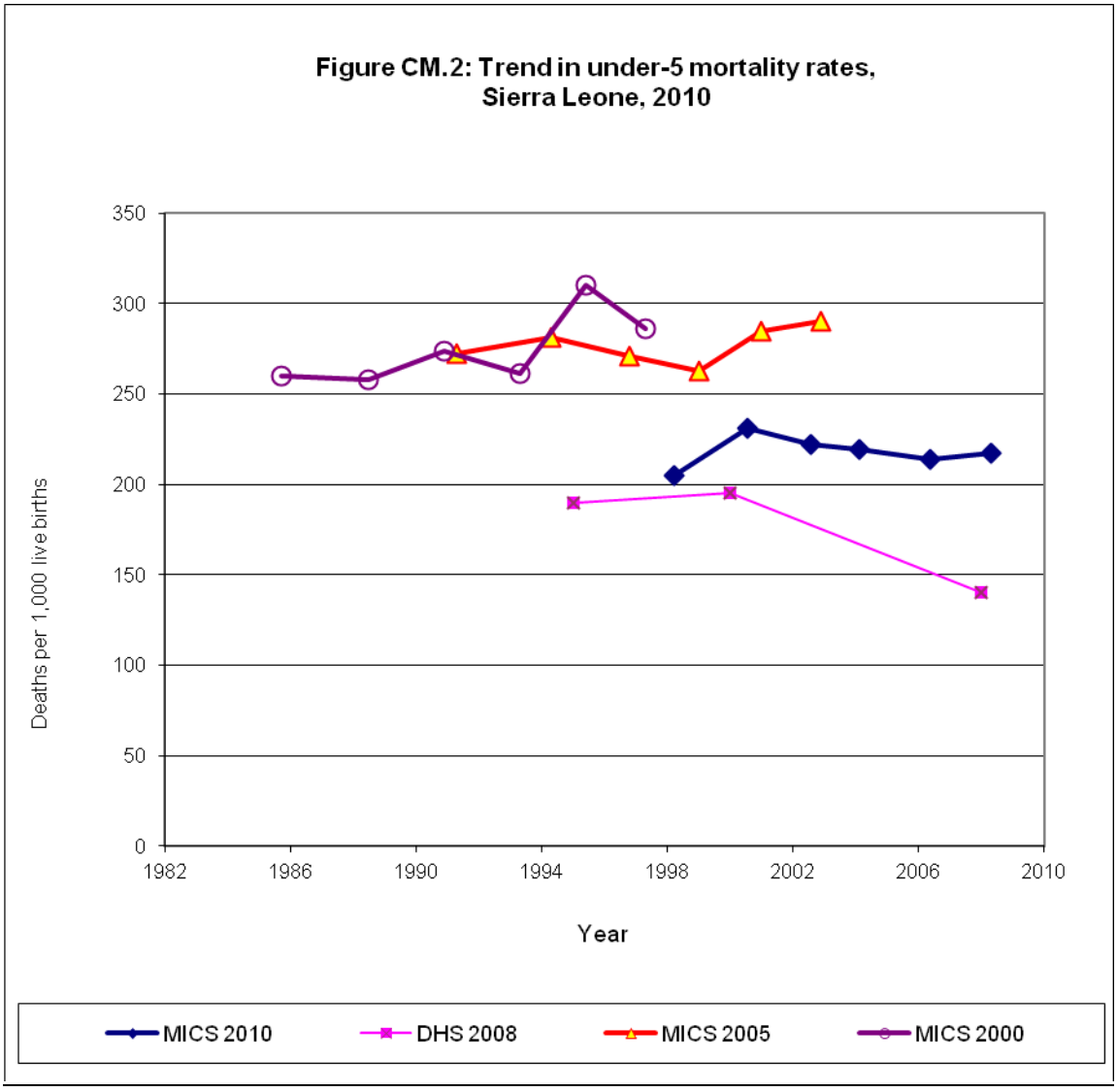


Figure CM.2 shows the series of U5MR estimates over time as calculated using MICS4 data. As described above, these estimates are based on responses of women from different age groups and refer to various points in time. These data can thus be used to show the estimated trend in U5MR in Sierra Leone over the past 30 years. Similar data are included from the DHS 2008, MICS2 and MICS3 surveys; it should be noted that the DHS calculates mortality estimates using direct estimation techniques (through the completion of a birth history for each respondent), unlike the MICS surveys. Taken together, these data suggest that the U5MR in Sierra Leone rose gradually until the late 1990s (coinciding with the height of the internal conflict) and have gradually declined since then. Further research is required to interpret trends in infant and child mortality in Sierra Leone and to better understand differences between findings from different studies.

Figure CM.2: Trend in under-5 mortality rates, Sierra Leone, 2010



V. Nutrition

Nutritional Status

Children's nutritional status is a reflection of their overall health. When children have access to an adequate food supply, are not exposed to repeated illness, and are well cared for, they reach their growth potential and are considered to be well-nourished.

Malnutrition is associated with more than half of all child deaths worldwide. Undernourished children are more likely to die from common childhood ailments and—among those who survive—to suffer from recurring illnesses and faltering growth. Three-quarters of the children who die from causes related to malnutrition are only mildly or moderately malnourished and show no outward sign of their vulnerability. The Millennium Development target is to reduce by half the proportion of people who suffer from hunger between 1990 and 2015. A reduction in the prevalence of malnutrition will also assist in the goal to reduce child mortality.

In a well-nourished population, there is a reference distribution of height and weight for children under age five. Under-nourishment in a population can be gauged by comparing children to a reference population. The reference population used in this report is based on new WHO growth standards[7]. Each of the three nutritional status indicators can be expressed in standard deviation units (z-scores) from the median of the reference population.

Weight-for-age is a measure of both acute and chronic malnutrition. Children whose weight-for-age is more than two standard deviations below the median of the reference population are considered *moderately or severely underweight* while those whose weight-for-age is more than three standard deviations below the median are classified as *severely underweight.*

Height-for-age is a measure of linear growth. Children whose height-for-age is more than two standard deviations below the median of the reference population are considered short for their age and are classified as *moderately or severely stunted.* Those whose height-for-age is more than three standard deviations below the median are classified as *severely stunted.* Stunting is a reflection of chronic malnutrition as a result of failure to receive adequate nutrition over a long period and/or recurrent or chronic illness.

Finally, children whose *weight-for-height* is more than two standard deviations below the median of the reference population are classified as *moderately or severely wasted,* while those who fall more than three standard deviations below the median are classified as *severely wasted*. Wasting is usually the result of a recent nutritional deficiency. The indicator may exhibit significant seasonal shifts associated with changes in the availability of food or disease prevalence.

In MICS, weights and heights of all children under 5 years of age were measured using anthropometric equipment recommended by UNICEF (www.childinfo.org). Findings in this section are based on the results of these measurements.

[7] http://www.who.int/childgrowth/standards/second_set/technical_report_2.pdf

Table NU.1: Nutritional status of children

Percentage of children under age 5 by nutritional status according to three anthropometric indices: weight for age, height for age, and weight for height, Sierra Leone, 2010

		Weight for age: % below -2 sd [1]	Weight for age: % below -3 sd [2]	Weight for age: Mean Z-Score (SD)	Weight for age: Number of children	Height for age: % below -2 sd [3]	Height for age: % below -3 sd [4]	Height for age: Mean Z-Score (SD)	Height for age: Number of children	Weight for height: % below -2 sd [5]	Weight for height: % below -3 sd [6]	Weight for height: % above +2 sd	Weight for height: Mean Z-Score (SD)	Weight for height: Number of children
Sex	Male	23.6	9.3	-1.1	4054	47.2	26.8	-1.8	3854	9.6	3.9	9.4	.0	3953
	Female	19.8	7.3	-.9	4046	41.7	21.9	-1.6	3876	7.4	2.5	9.8	.1	3999
	Missing	.	.	.	0	.	.	.	0	.	.	.	.	0
Area	Urban	20.1	8.7	-.9	2211	40.9	22.2	-1.6	2110	9.6	3.5	10.4	.1	2136
	Rural	22.3	8.2	-1.1	5889	45.7	25.2	-1.8	5620	8.1	3.1	9.3	.1	5816
Region	East	22.0	8.8	-1.1	2199	41.5	21.5	-1.7	2068	7.9	3.2	7.3	.1	2167
	North	24.6	9.2	-1.1	3040	48.6	28.5	-1.9	2930	9.6	3.7	9.5	.0	3065
	South	18.6	6.5	-.9	2046	42.7	22.3	-1.7	1944	6.7	2.5	10.3	.1	1961
	West	17.7	8.2	-.8	816	40.4	21.4	-1.5	788	10.1	3.1	14.9	.2	759
District	Kailahun	22.0	8.3	-1.1	789	39.5	20.1	-1.7	758	8.6	3.1	5.7	-.1	767
	Kenema	22.1	8.8	-1.2	863	46.3	23.6	-1.8	816	6.7	2.8	7.3	.1	855
	Kono	21.8	9.4	-1.0	548	36.6	20.1	-1.4	494	8.7	3.9	9.5	.2	545
	Bombali	19.4	7.2	-1.0	646	46.7	24.4	-1.7	619	8.5	3.3	9.5	.1	661
	Kambia	24.9	7.6	-1.2	426	45.3	22.2	-1.7	411	7.5	2.3	5.8	-.1	439
	Koinadugu	16.5	7.1	-.8	404	50.8	29.3	-1.9	381	5.0	1.6	21.1	.7	397
	Port Loko	31.5	12.2	-1.3	839	50.6	32.4	-2.0	828	13.2	5.8	8.1	-.2	853
	Tonkolili	25.6	9.7	-1.3	725	48.9	31.0	-1.9	691	10.3	3.3	6.8	-.1	715
	Bo	18.4	5.9	-.9	811	37.9	17.3	-1.5	790	4.8	1.0	3.6	-.1	792
	Bonthe	15.9	5.9	-.6	401	50.4	29.8	-2.0	364	5.8	2.1	21.1	.7	364
	Moyamba	24.2	8.9	-1.0	406	43.5	25.6	-1.7	393	12.2	6.8	11.3	.0	404
	Pujehun	16.0	6.1	-.9	428	44.4	22.3	-1.7	397	5.9	1.3	12.8	.1	402
	Western Rural	27.9	15.3	-1.2	226	56.7	31.9	-2.2	221	11.4	6.3	19.4	.2	220
	Western Urban	13.7	5.5	-.7	590	34.1	17.4	-1.3	567	9.5	1.9	13.1	.2	539
Age	0-5	12.3	4.6	-.4	795	21.2	9.5	-.6	743	10.9	4.1	12.0	.0	719
	6-11	24.1	9.7	-1.0	936	24.6	13.1	-.9	881	16.5	5.0	7.8	-.4	888
	12-23	25.0	9.9	-1.0	1454	43.7	25.2	-1.6	1374	12.6	4.4	7.9	-.2	1403
	24-35	22.0	8.5	-1.0	1543	51.5	29.1	-2.1	1478	6.0	2.7	9.5	.2	1522
	36-47	21.0	8.1	-1.1	1838	52.8	29.8	-2.1	1773	5.2	1.8	9.7	.3	1846
	48-59	22.3	8.0	-1.2	1534	51.3	26.7	-2.1	1481	5.5	2.7	11.0	.2	1560
	Missing	.	.	.	0	.	.	.	0	*	*	*	.6	16
Mother's education	None	22.6	8.4	-1.1	5911	46.5	25.7	-1.8	5645	8.6	3.3	9.9	.1	5850
	Primary	19.2	8.4	-.9	1080	40.3	22.9	-1.6	1024	8.1	2.8	8.3	.1	1034
	Secondary	19.3	7.6	-.9	1108	37.3	18.6	-1.5	1061	8.0	3.2	9.3	.1	1067
Wealth index quintiles	Poorest	21.5	8.6	-1.0	1837	46.8	28.1	-1.8	1725	8.3	3.4	11.4	.1	1788
	Second	24.8	9.0	-1.2	1817	48.9	28.4	-2.0	1744	8.3	2.8	9.2	.1	1804
	Middle	24.4	9.6	-1.1	1696	47.8	25.8	-1.9	1612	9.1	3.3	8.9	.0	1669
	Fourth	20.4	7.3	-1.0	1565	41.5	20.6	-1.6	1520	7.8	3.0	7.1	.0	1561
	Richest	14.9	6.3	-.7	1185	32.8	15.4	-1.3	1129	9.0	3.5	11.9	.1	1130
Total		21.7	8.3	-1.0	8100	44.4	24.4	-1.7	7730	8.5	3.2	9.6	.1	7952

[1] MICS indicator 2.1a and MDG indicator 1.8

[2] MICS indicator 2.1b

[3] MICS indicator 2.2a, [4] MICS indicator 2.2b

[5] MICS indicator 2.3a, [6] MICS indicator 2.3b

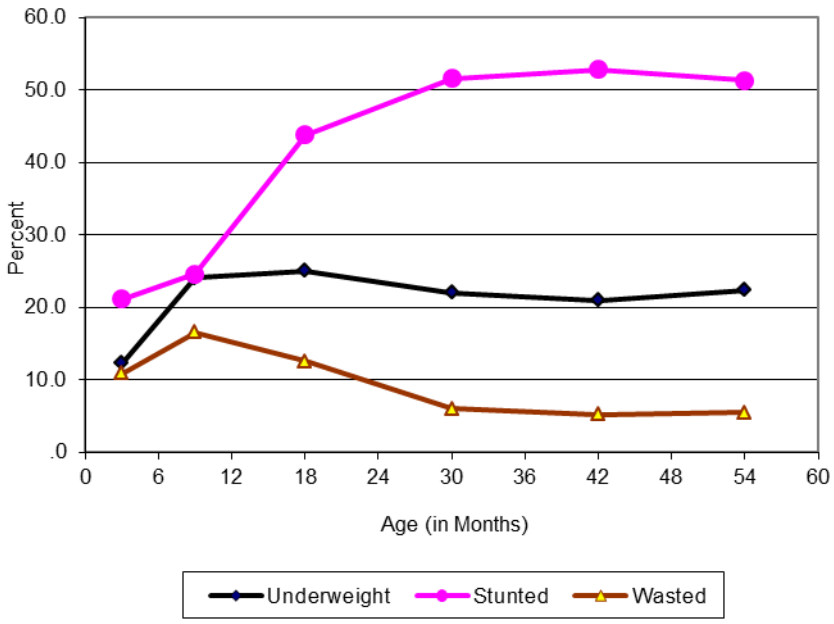
[*] Based on less than 25 unweighted cases and has been suppressed.

Table NU.1 shows percentages of children classified into each of these categories, based on the anthropometric measurements that were taken during fieldwork. Additionally, the table includes the percentage of children who are overweight, which takes into account those children whose weight for height is greater than 2 standard deviations from the median of the reference population.

Children whose full birth date (month and year) was not obtained and children whose measurements are outside a plausible range are excluded from Table NU.1. Children are excluded from one or more of the anthropometric indicators—whichever is applicable—when their weights and heights have not been measured. For example, if a child has been weighed but his/her height has not been measured, the child is included in underweight calculations, but not in the calculations for stunting and wasting. Percentages of children by age and reasons for exclusion are shown in the data quality tables DQ.6 and DQ.7 (Appendix D). Overall 98.1 percent of children had both their weights and heights measured (Table DQ.6). This compares favourably with other surveys that were conducted in Sierra Leone; for example, in the DHS 2008 survey, 94.8 percent of children had both height and weight measured. Table DQ.7 shows that due to incomplete dates of birth, implausible measurements, and missing weight and/or height, 5.7 percent of children have been excluded from calculations of the weight-for-age indicator, while the figures are 10.0 percent for the height-for-age indicator, and 10.0 percent for the weight-for-height indicator.

Almost one in four children under the age of five in Sierra Leone is moderately or severely underweight (22 percent) and eight percent are classified as severely underweight (Table NU.1). Almost one in two children (44 percent) is moderately or severely stunted (i.e., too short for his age) and eight percent are moderately or severely wasted (i.e., too thin for their height).

Figure NU.1: Percentage of children under age 5 who are underweight, stunted and wasted, Sierra Leone, 2010



Children in the Northern Province are more likely to be malnourished than children from other regions. Those children whose mothers have secondary or higher education are generally less likely to be malnourished compared to children of mothers with only primary or no education. Boys are

more likely to be underweight, stunted, and wasted than girls. The age pattern shows that the highest levels of wasting are found among children aged 6-11 months, the highest levels of underweight exist in children aged 12-23 months, while the highest levels of stunting are found among children aged 36-47 months (Figure NU.1). It is not unusual for levels of malnutrition to rise among children above five months of age; this pattern is expected and is related to the age at which the recommended introduction of complementary (solid, semi-solid or soft) foods begins. The food that is given to the infant is often inadequate in terms of quality (dietary diversity, minimum acceptable diet) and quantity (frequency) and the infant can be exposed to contamination as a result of poor food hygiene practices; all of these issues can result in malnutrition. However, the peaking of wasting and near-peaking of underweight among children aged 6-11 months is unusual and of significant concern and is supported by the finding (reported below) of extremely low levels of consumption of solid, semi-solid or soft foods among children aged 6-8 months. Levels of wasting are relatively equal across children from all wealth quintiles while lower levels of stunting and underweight are prevalent among children from the wealthiest 40 percent of households.

Discussion: Nutritional status of children

MICS data were collected at the end of the monsoon in the so-called "hungry season" in Sierra Leone; this may partially explain the high levels of wasting and underweight, both of which are affected by acute malnutrition. Child malnutrition is recognized by the government of Sierra Leone as a serious problem that requires a multi-sectoral response; the REACH (Renewed Effort Against Child Hunger—Ending Child Hunger and Under-Nutrition) initiative is an example of a current inter-sectoral effort to reduce nutritional deficiencies. National nutrition policy is being revised to include high-impact interventions and to intensify efforts in the area of infant and young-child feeding (IYCF). Community-Based Management of Acute Malnutrition (CMAM) activities have been introduced in Peripheral Health Units (PHU) for children with severe acute malnutrition. Recent data show that coverage of CMAM activities was not as high as originally thought and efforts are being intensified to improve quality and increase coverage of the intervention. Policy makers and program managers are also working to develop a response to the high level of children with moderate malnutrition.

Breastfeeding and Infant and Young Child Feeding

Breastfeeding for the first few years of life protects children from infection, provides an ideal source of nutrients, and is economical and safe. However, many mothers stop breastfeeding too soon; there are often pressures to introduce other liquids and soft foods, and also to switch to infant formula, which can contribute to growth faltering and micronutrient malnutrition and is unsafe if clean water is not readily available.

WHO/UNICEF have the following feeding recommendations:

- Exclusive breastfeeding for first six months
- Continued breastfeeding for two years or more
- Safe, appropriate and adequate complementary foods beginning at 6 months
- Frequency of complementary feeding: 2 times per day for 6-8 month olds; 3 times per day for 9-11 month olds

It is also recommended that breastfeeding be initiated within one hour of birth.

The MICS4 indicators that are related to recommended child feeding practices are as follows:

- Early initiation of breastfeeding (within 1 hour of birth)
- Exclusive breastfeeding rate (< 6 months)

- Predominant breastfeeding (< 6 months)
- Continued breastfeeding rate (at 1 year and at 2 years)
- Duration of breastfeeding
- Age-appropriate breastfeeding (0-23 months)
- Introduction of solid, semi-solid and soft foods (6-8 months)
- Minimum meal frequency (6-23 months)
- Milk feeding frequency for non-breastfeeding children (6-23 months)
- Bottle feeding (0-23 months)

Table NU.2 describes the proportion of children born in the last two years who were ever breastfed, those who were first breastfed within one hour and one day of birth, and those who received a pre-lacteal feed. Ninety-five percent of children have been breastfed and this percentage is similarly high across all strata. Initiating breastfeeding as soon as possible after birth is a very important step in the management of lactation and the establishment of a physical and emotional relationship between the baby and mother and is also an important method for controlling the newborn's temperature and preventing hypothermia, especially for the low birth weight babies. However, only 45 percent of babies in Sierra Leone are breastfed for the first time within one hour of birth, while 86 percent of newborns start breastfeeding within one day of birth. The timely initiation of breastfeeding is higher in the Northern Province as compared to other provinces (Figure NU.2); lower maternal educational levels and rural location are also associated with higher levels of timely initiation. This indicator demonstrates an increasing trend as evidenced by the comparison of timely initiation of breastfeeding among children aged 0-11 months versus those aged 12-23 months.

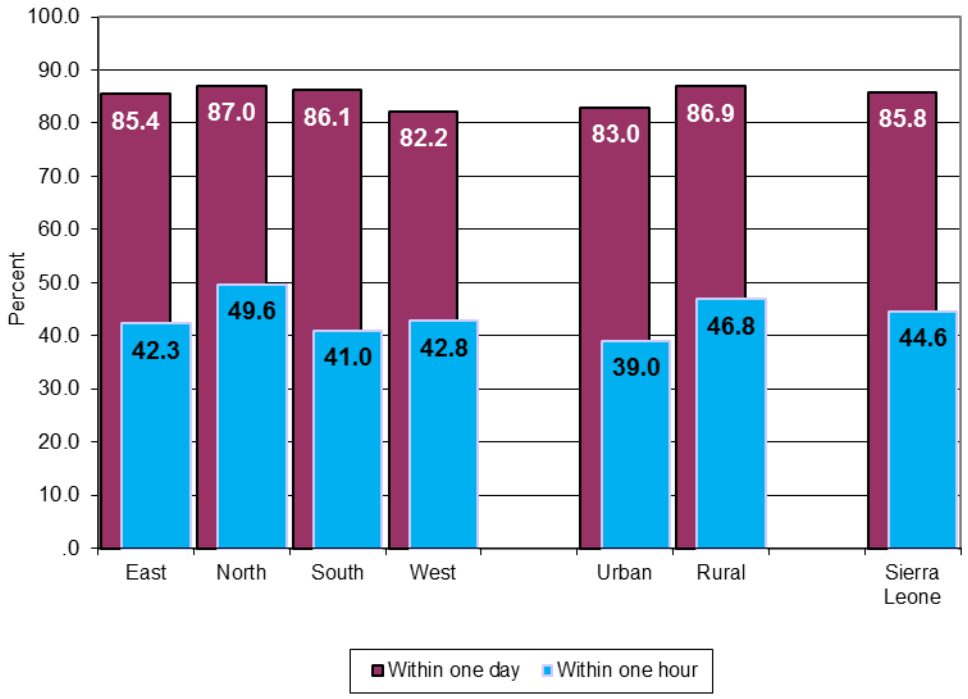
Table NU.2: Initial breastfeeding
Percentage of last-born children in the 2 years preceding the survey who were ever breastfed, percentage who were breastfed within one hour of birth and within one day of birth, and percentage who received a pre-lacteal feed, Sierra Leone, 2010

		Percentage ever breastfed [1]	Percentage who were first breastfed: Within one hour of birth [2]	Percentage who were first breastfed: Within one day of birth	Percentage who received a pre-lacteal feed	Number of last-born children in the two years preceding the survey
Region	East	95.1	42.2	85.4	13.7	1005
	North	96.4	49.8	87.0	31.2	1219
	South	93.6	40.7	86.1	21.5	885
	West	92.7	42.8	82.2	49.2	351
Area	Urban	92.9	38.9	83.0	33.1	970
	Rural	95.7	46.8	86.9	22.5	2491
Months since last birth	0-11 months	95.7	45.7	86.4	23.1	1815
	12-23 months	94.6	43.0	85.4	28.6	1523
Assistance at delivery	Skilled attendant	95.4	46.5	86.6	23.5	2164
	Traditional birth attendant	97.4	42.7	87.4	30.0	1239
	Other/Missing	25.9	11.7	20.6	2.7	58
Place of delivery	Public sector health facility	96.0	48.0	87.5	20.3	1615
	Private sector health facility	88.3	28.1	73.3	35.0	119
	Home	97.1	44.1	87.7	30.6	1658
	Other/Missing	27.2	4.9	21.5	6.0	68
Mother's education	None	96.1	46.5	87.4	24.9	2345
	Primary	94.9	41.2	84.8	27.7	511
	Secondary +	90.6	39.8	80.5	26.0	604
Wealth index quintiles	Poorest	96.2	42.2	87.9	29.3	756
	Second	96.7	49.5	88.0	22.6	752
	Middle	93.6	45.5	84.9	19.4	762
	Fourth	94.6	42.2	85.3	22.4	663
	Richest	93.1	42.5	81.7	36.7	527
Total		**94.9**	**44.6**	**85.8**	**25.5**	**3460**

[1] MICS indicator 2.4
[2] MICS indicator 2.5

Twenty-six percent of children are given something other than breast milk to eat or drink during the first three days of life (i.e., were given a pre-lacteal feed); although this indicator is undesirably high it is decreasing with age as shown by the comparison of children aged 0-11 and 12-23 months. Higher levels of this indicator are associated with living in the Northern Province or West, urban location, and living in a household in the poorest or richest quintiles. It appears that private sector facilities are not effectively promoting good breastfeeding practices, as the level of all indicators related to breastfeeding is better in public sector facilities as compared to private facilities.

Figure NU.2 Percentage of mothers who started breastfeeding within one hour and within one day of birth, Sierra Leone, 2010



Indicators of breastfeeding status that are reported in Table NU.3 are based on the reports of mothers/caretakers regarding children's consumption of food and fluids in the 24 hours prior to the interview. *Exclusively breastfed* refers to infants who received only breast milk (and vitamins, mineral supplements, or medicine). The table displays estimates of rates of exclusive breastfeeding of infants during the first six months of life, as well as continued breastfeeding of children at 12-15 and 20-23 months of age.

Table NU.3: Breastfeeding
Percentage of living children according to breastfeeding status at selected age groups, Sierra Leone, 2010

		Children 0-5 months		Children 12-15 months			Children 20-23 months	
		Percent exclusively breastfed [1]	Percent predominantly breastfed [2]	Number of children	Percent breastfed (Continued breast feeding at 1 year) [3]	Number of children	Percent breastfed (Continued breast feeding at 2 years) [4]	Number of children
Sex	Male	31.4	71.6	440	87.0	236	55.5	244
	Female	32.0	74.6	407	80.9	250	40.3	227
	Missing	*	*	1	.	0	.	0
Region	East	42.3	77.3	290	81.5	136	57.1	134
	North	29.7	75.8	300	90.2	163	61.8	169
	South	27.6	70.0	189	82.7	127	29.8	123
	West	6.1	50.6	69	74.3	60	(20.9)	46
District	Kailahun	40.0	80.9	97	(80.8)	49	(59.5)	49
	Kenema	37.1	70.8	116	73.1	57	(52.6)	49
	Kono	53.1	82.6	77	(98.1)	31	(60.1)	36
	Bombali	42.2	72.2	76	(95.6)	37	(56.3)	29
	Kambia	(17.8)	(84.7)	41	*	18	*	19
	Koinadugu	(30.8)	(84.9)	27	*	18	*	16
	Port Loko	16.4	84.7	78	(92.9)	44	61.9	50
	Tonkolili	36.7	62.4	78	(87.3)	47	59.1	54
	Bo	23.7	66.9	83	88.4	61	(22.6)	47
	Bonthe	(31.7)	(74.5)	32	*	23	(32.7)	28
	Moyamba	(30.5)	(73.0)	42	(85.8)	27	*	24
	Pujehun	(29.9)	(69.5)	32	*	16	*	24
	Western Rural	*	*	15	*	14	*	9
	Western Urban	5.4	49.1	54	(69.7)	47	(15.6)	(37)
Area	Urban	27.3	64.7	222	82.3	141	38.7	135
	Rural	33.2	75.9	625	84.5	346	52.0	337
Mother's education	None	31.6	75.7	592	82.8	334	52.1	327
	Primary	33.0	71.6	121	87.8	78	52.2	61
	Secondary	30.5	62.0	134	84.7	75	29.9	83
Wealth index quintiles	Poorest	26.7	75.3	197	84.6	108	56.4	87
	Second	40.8	82.6	183	84.3	112	55.3	129
	Middle	36.8	77.6	183	84.5	81	54.6	115
	Fourth	31.9	69.7	172	88.2	112	42.7	78
	Richest	16.8	50.9	113	74.8	73	16.9	62
Total		**31.6**	**73.0**	**848**	**83.9**	**486**	**48.2**	**471**

[1] MICS indicator 2.6
[2] MICS indicator 2.9
[3] MICS indicator 2.7
[4] MICS indicator 2.8
[*] Based on less than 25 unweighted cases and has been suppressed.

Approximately 32 percent of children aged less than six months are exclusively breastfed. By age 12-15 months, 84 percent of children are still being breastfed and by age 20-23 months, 48 percent are still breastfed. Girls and boys are equally likely to be exclusively breastfed. Rates of exclusive breastfeeding are highest in the Eastern Province and lowest in the West, moderately higher in rural locations, and highest among mid-level wealth quintiles. In contrast, rates of continued breastfeeding are high in the Northern Province and lowest in the West, generally higher among less wealthy households, and—specifically for continued breastfeeding at two years of age—higher in rural locations and among children of mothers with lower educational levels.

Figure NU.3 shows the detailed pattern of breastfeeding by the child's age in months. Even at the earliest ages, the majority of children are receiving liquids or foods other than breast milk. By the end of the sixth month, the percentage of children exclusively breastfed is below eleven percent. Only about 38 percent of children are receiving breast milk after 2 years.

Figure NU 3. Percent distribution of children under age 2 by feeding pattern by age group, Sierra Leone, 2010

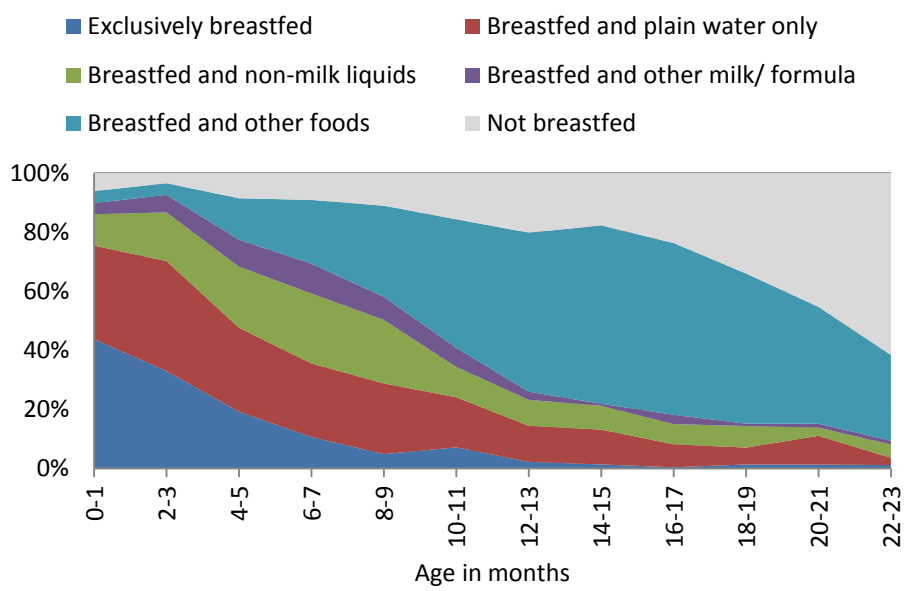


Table NU.4 shows the median duration of breastfeeding by selected background characteristics. Among children under the age of three years, the median duration is 21.0 months for any breastfeeding, 0.7 months for exclusive breastfeeding, and 5.5 months for predominant breastfeeding. While the median duration of exclusive breastfeeding is higher in the Eastern Province, the duration of predominant breastfeeding is higher in the Northern Province. As noted above for other breastfeeding-related indicators, desired practices are generally higher in rural locations, among children of mothers with lower educational levels, and among less wealthy households.

Table NU.4: Duration of breastfeeding
Median duration of any breastfeeding, exclusive breastfeeding, and predominant breastfeeding among children age 0-35 months, Sierra Leone, 2010

		Median duration (in months) of			
		Any breastfeeding [1]	Exclusive breastfeeding	Predominant breastfeeding	Number of children age 0-35 months
Sex	Male	21.8	.7	5.3	2464
	Female	20.4	.6	5.8	2480
Region	East	21.6	1.9	5.8	1422
	North	22.3	.6	7.6	1795
	South	19.3	.6	5.0	1224
	West	17.6	.4	2.6	505
District	Kailahun	21.5	1.9	5.9	511
	Kenema	21.4	1.3	5.2	554
	Kono	22.3	2.9	6.4	358
	Bombali	21.6	1.6	6.7	389
	Kambia	23.0	.5	7.7	265
	Koinadugu	23.0	.6	7.9	201
	Port Loko	22.4	.5	11.6	520
	Tonkolili	22.9	.9	6.5	421
	Bo	19.3	.5	4.7	520
	Bonthe	15.4	1.1	6.4	222
	Moyamba	20.2	.6	4.8	256
	Pujehun	19.4	1.2	5.0	226
	Western Rural	19.8	.	3.2	116
	Western Urban	16.8	.4	2.4	390
Area	Urban	19.7	.6	4.2	1388
	Rural	21.4	.7	6.0	3558
Mother's education	None	21.4	.6	6.1	3509
	Primary	21.4	1.1	4.9	677
	Secondary+	18.4	.7	4.0	759
Wealth index quintile	Poorest	21.7	.6	7.1	1063
	Second	21.5	1.7	6.9	1089
	Middle	21.7	.7	5.7	1046
	Fourth	20.6	.7	5.4	987
	Richest	17.7	.5	2.6	761
Median		21.0	.7	5.5	4946
Mean for all children (0-35 months)		20.4	2.4	7.6	4946

[1] MICS indicator 2.10

The level of appropriate feeding of children less than 24 months of age is provided in Table NU.5. Different criteria of appropriate feeding are used depending on the age of the child. For infants aged 0-5 months, exclusive breastfeeding is considered as appropriate feeding, while infants aged 6-23 months are considered to be appropriately fed if they are receiving breast milk and solid, semi-solid or soft food. Overall, 40 percent of children aged 0-23 months are appropriately breastfed. Among these children, 42 percent of those aged 6-23 months are being appropriately fed while 32 percent of infants aged 0-5 months are appropriately fed. Background variables that are associated with the practice of exclusive breastfeeding have been described above and mirror the associations with appropriate breastfeeding; correct practices are highest in the Eastern Province, in rural locations, among mothers with lower levels of education, and among less wealthy households.

Table NU.5: Age-appropriate breastfeeding

Percentage of children age 0-23 months who were appropriately breastfed during the previous day, Sierra Leone, 2010

		Children age 0-5 months		Children age 6-23 months		Children age 0-23 months	
		Percent exclusively breastfed [1]	Number of children	Percent currently breastfeeding and receiving solid, semi-solid or soft foods	Number of children	Percent appropriately breastfed [2]	Number of children
Sex	Male	31.3	440	44.2	1229	40.8	1670
	Female	31.9	407	40.4	1246	38.3	1654
	Missing	*	1	*	1	*	1
Region	East	42.4	287	48.9	672	47.0	958
	North	29.7	302	40.1	882	37.5	1185
	South	27.3	190	41.0	640	37.9	830
	West	6.1	69	36.1	283	30.2	352
District	Kailahun	40.2	97	49.6	229	46.8	326
	Kenema	37.1	114	47.5	268	44.4	383
	Kono	53.1	76	50.2	174	51.1	250
	Bombali	42.1	76	44.8	172	44.0	248
	Kambia	(17.8)	40	40.7	132	35.4	172
	Koinadugu	*	28	47.2	92	43.4	120
	Port Loko	16.4	79	37.2	275	32.6	353
	Tonkolili	36.7	80	36.6	212	36.6	292
	Bo	23.7	83	48.4	264	42.5	347
	Bonthe	(30.0)	34	24.3	122	25.5	155
	Moyamba	(30.5)	41	37.0	140	35.5	181
	Pujehun	(29.9)	33	46.8	114	43.0	147
	Western Rural	*	15	36.7	60	31.2	75
	Western Urban	5.4	54	35.9	223	29.9	277
Area	Urban	27.2	223	38.1	713	35.5	935
	Rural	33.1	626	44.0	1764	41.1	2390
Mother's education	None	31.5	594	43.7	1698	40.6	2291
	Primary	32.9	121	41.4	378	39.3	498
	Secondary	30.5	134	37.0	402	35.4	536
Wealth index quintiles	Poorest	26.6	197	43.0	522	38.5	719
	Second	41.1	182	41.8	555	41.6	737
	Middle	36.3	184	44.8	532	42.6	716
	Fourth	31.7	172	45.9	470	42.1	642
	Richest	16.7	113	34.5	398	30.6	511
Total		**31.5**	**848**	**42.3**	**2477**	**39.5**	**3325**

[1] MICS indicator 2.6

[2] MICS indicator 2.14

[*] Based on less than 25 unweighted cases and has been suppressed.

Adequate complementary feeding of children from 6 months to two years of age is particularly important for growth and development and the prevention of under-nutrition. Continued breastfeeding beyond six months should be accompanied by the consumption of nutritionally adequate, safe and appropriate complementary foods that help meet nutritional requirements when breast milk is no longer sufficient. Children who are breastfed should receive two or more meals per day of solid, semi-solid or soft foods if they are 6-8 months old and three or more meals if they are 9-23 months of age. Children who are not breastfed and who are aged between 6-23 months require four or more meals daily of solid, semi-solid or soft foods or milk feeds.

Overall, 25 percent of infants aged 6-8 months receive solid, semi-solid, or soft foods (Table NU.6). Twenty-four percent of currently breastfeeding infants receive solid, semi-solid, or soft foods while 78 percent of infants who are not currently breastfeeding receive them. There are no meaningful associations between the level of this indicator among breastfeeding children and location. The sample size of children who are not currently breastfeeding is too small to make any statements about associations with location.

Table NU.6: Introduction of solid, semi-solid or soft food
Percentage of infants age 6-8 months who received solid, semi-solid or soft foods during the previous day, Sierra Leone, 2010

		Currently breastfeeding		Currently not breastfeeding		All	
		Percent receiving solid, semi-solid or soft foods	Number of children age 6-8 months	Percent receiving solid, semi-solid or soft foods	Number of children age 6-8 months	Percent receiving solid, semi-solid or soft foods [1]	Number of children age 6-8 months
Sex	Male	25.2	241	*	4	26.1	247
	Female	22.9	229	*	7	24.1	240
Area	Urban	24.0	115	*	4	24.6	123
	Rural	24.1	354	*	8	25.2	364
Total		**24.1**	**470**	*****	**12**	**25.1**	**487**

[*] Based on less than 25 unweighted cases and has been suppressed.

Table NU.7 presents the proportion of children aged 6-23 months who received semi-solid or soft foods the minimum number of times or more during the previous day according to breastfeeding status (see the note in Table NU.7 for a definition of minimum number of times for different age groups). Overall, only one in five children aged 6-23 months (20 percent) receive solid, semi-solid and soft foods the minimum number of times. The level of this indicator varies little among children who are currently breastfeeding and those who are not breastfeeding. Among children currently breastfeeding, the percentage that receives at least minimum amounts of supplementary food is low across all strata although it is somewhat higher among older children and in the Southern Province. Among children who are not currently breastfeeding, the percentage that at least receives minimum amounts is highest among younger children, among children in the West and in urban locations, among children whose mothers are more highly educated, and among children residing in wealthier households.

Table NU.7: Minimum meal frequency

Percentage of children aged 6-23 months who received solid, semi-solid, or soft foods (and milk feeds for non-breastfeeding children) the minimum number of times or more during the previous day, according to breastfeeding status, Sierra Leone, 2010

		Currently breastfeeding		Currently not breastfeeding			All	
		Percent receiving solid, semi-solid and soft foods the minimum number of times	Number of children age 6-23 months	Percent receiving at least 2 milk feeds [1]	Percent receiving solid, semi-solid and soft foods or milk feeds 4 times or more	Number of children age 6-23 months	Percent with minimum meal frequency [2]	Number of children age 6-23 months
Sex	Male	20.7	994	19.2	22.0	235	21.0	1229
	Female	19.2	946	16.8	19.4	301	19.3	1246
	Missing	*	1	.	.	0	*	1
Age	6-8 months	16.3	470	50.1	*	17	17.1	487
	9-11 months	11.3	446	26.6	(23.5)	42	12.3	488
	12-17 months	24.3	609	17.5	19.4	139	23.4	748
	18-23 months	27.2	416	15.2	19.7	338	23.8	754
Region	East	22.4	537	11.0	11.4	135	20.2	672
	North	13.5	744	9.1	19.9	139	14.5	882
	South	28.2	471	9.1	13.6	169	24.3	640
	West	18.3	190	56.4	47.4	93	27.9	283
District	Kailahun	22.9	177	4.0	2.2	52	18.1	229
	Kenema	29.2	217	8.0	12.2	51	26.0	268
	Kono	11.4	143	27.6	(25.3)	31	13.9	174
	Bombali	7.9	147	7.1	(11.4)	25	8.4	172
	Kambia	11.0	118	19.3	*	14	11.6	132
	Koinadugu	10.3	76	9.8	*	16	13.3	92
	Port Loko	17.5	238	6.0	(25.8)	37	18.6	275
	Tonkolili	15.9	165	9.3	(18.1)	48	16.4	212
	Bo	31.9	198	21.1	31.3	66	31.7	264
	Bonthe	12.6	76	3.0	(3.0)	46	9.0	122
	Moyamba	24.4	114	.0	(3.2)	26	20.4	140
	Pujehun	38.7	83	.0	(.0)	31	28.2	114
	Western Rural	(14.9)	48	26.2	*	13	15.6	60
	Western Urban	19.4	142	61.3	52.1	80	31.2	223
Area	Urban	18.5	518	36.8	37.1	194	23.6	713
	Rural	20.5	1423	7.0	11.1	341	18.7	1764
Mother's education	None	20.6	1359	9.1	13.2	339	19.1	1698
	Primary	17.6	304	17.3	19.9	74	18.0	378
	Secondary	19.8	279	42.1	41.2	123	26.3	402
Wealth index quintiles	Poorest	20.8	434	.0	1.4	89	17.5	522
	Second	18.4	440	5.3	13.1	115	17.3	555
	Middle	21.3	430	8.5	15.1	102	20.1	532
	Fourth	20.5	369	7.7	15.7	101	19.5	470
	Richest	18.4	268	56.2	48.3	130	28.2	398
Total		**20.0**	**1941**	**17.8**	**20.5**	**536**	**20.1**	**2477**

[1] MICS indicator 2.15

[2] MICS indicator 2.13

[*] Based on less than 25 unweighted cases and has been suppressed.

The continued practice of bottle-feeding children is a concern because of the possible contamination due to unsafe water and lack of hygiene in preparation. Table NU.8 shows that bottle-feeding is moderately prevalent in Sierra Leone. Twelve percent of children aged less than six months are fed using a bottle with a nipple while ten percent of children aged 0-23 months are fed using a bottle with a nipple. Levels of bottle-feeding are highest among children aged 6-11 months, children living in urban locations and in the West, among children whose mothers are more highly educated, and among children residing in wealthier households.

Table NU.8: Bottle feeding
Percentage of children age 0-23 months who were fed with a bottle with a nipple during the previous day, Sierra Leone, 2010

		Percentage of children age 0-23 months fed with a bottle with a nipple [1]	Number of children age 0-23 months:
Sex	Male	10.8	1670
	Female	10.2	1654
	Missing	*	2
Age	0-5 months	12.3	848
	6-11 months	16.2	975
	12-23 months	5.7	1502
Region	East	4.2	958
	North	8.1	1185
	South	8.0	830
	West	41.5	352
District	Kailahun	6.3	326
	Kenema	3.0	383
	Kono	3.3	250
	Bombali	3.7	248
	Kambia	5.6	172
	Koinadugu	7.2	120
	Port Loko	15.8	353
	Tonkolili	4.3	292
	Bo	11.3	347
	Bonthe	6.3	155
	Moyamba	7.2	181
	Pujehun	3.1	147
	Western Rural	21.9	75
	Western Urban	46.8	277
Area	Urban	20.7	935
	Rural	6.5	2390
Mother's education	None	7.6	2291
	Primary	10.5	498
	Secondary	22.8	536
Wealth index quintiles	Poorest	3.8	719
	Second	5.7	737
	Middle	5.2	716
	Fourth	9.9	642
	Richest	35.0	511
Total		**10.5**	**3325**

[1] MICS indicator 2.11

Discussion: Breastfeeding and infant and young child feeding

There has been a major national-level effort from 2008 to 2010 to increase levels of exclusive breastfeeding. Much of the effort has been made through community-based mother-to-mother support groups. While the results presented above suggest that these efforts have achieved positive results, the extremely low levels of introduction of foods to children aged 6-8 months suggests that messages on exclusive breastfeeding may have crowded out messages on the introduction of foods to children above the age of six months, resulting in low levels of complementary feeding. A general trend that is seen across most of the IYCF indicators presented above is higher levels of correct feeding practice among rural populations, less-wealthy households and among children of women with lower educational levels.

A national strategy for infant and young child feeding (IYCF) is currently being developed. This strategy will provide clear guidelines for nutrition programming and guide the effort to train 2700 counselors for community-level counseling on IYCF. Health facility staff will also be trained as part of this effort. A policy to prevent the harmful promotion of breast milk substitutes is also under development.

Salt Iodization

Iodine Deficiency Disorder (IDD) is the world's leading cause of preventable mental retardation and impaired psychomotor development in young children. In its most extreme form, iodine deficiency causes cretinism. It also increases the risks of stillbirth and miscarriage in pregnant women. Iodine deficiency is most commonly and visibly associated with goitre. IDD takes its greatest toll in impaired mental growth and development, contributing in turn to poor school performance, reduced intellectual ability and impaired work performance. The international goal is to achieve sustainable elimination of iodine deficiency by 2005. The indicator is the percentage of households consuming adequately iodized salt ($\geq$15 parts per million).

In Sierra Leone, concerted efforts to increase the use and consumption of iodized salt began in 2003-04. Challenges to the achievement of universal salt iodization include the local production and high utilization of non-iodized salt in some districts, difficulties monitoring the import of non-iodized salt from neighbouring countries, and a weak national monitoring and surveillance system. Current activities to strengthen the national salt iodization program include the conduct of ongoing assessments of the prevalence of iodized salt in markets and households, strengthened monitoring of the iodization status of imported salt, sensitizing the population regarding the importance of consuming iodized salt, and the development of a national policy on salt iodization by the Sierra Leone Standards Bureau.

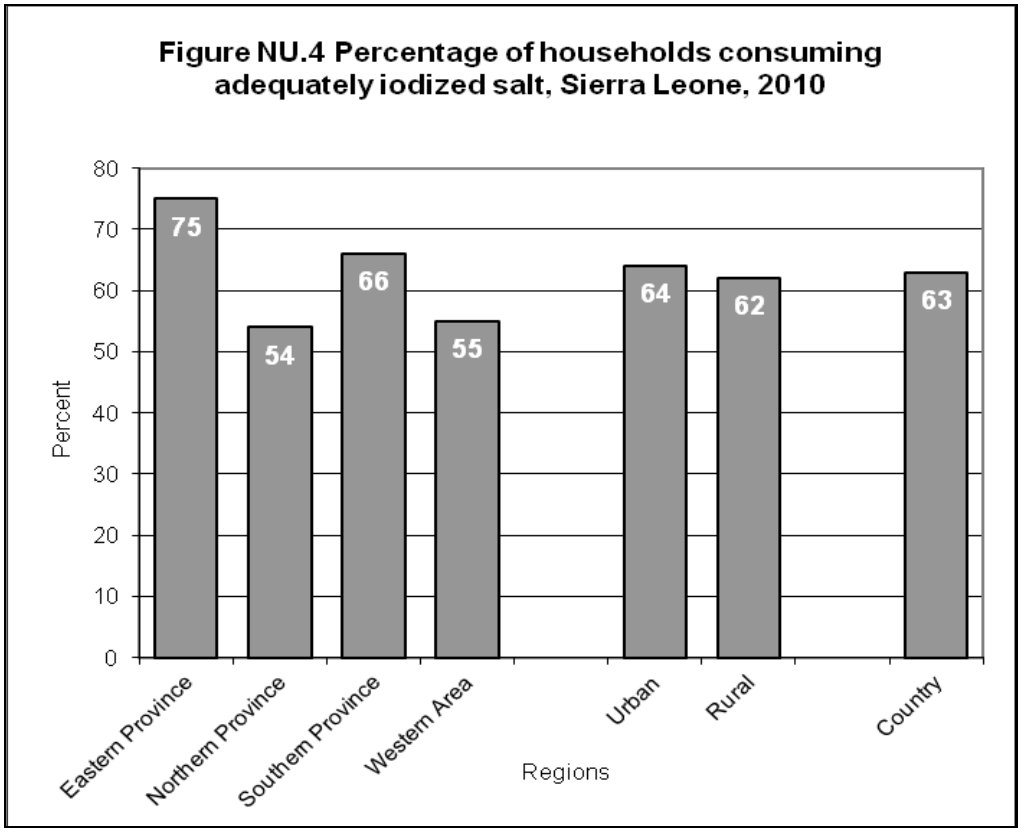
Salt used for cooking was tested for iodine content in about 92 percent of surveyed households by using salt test kits. The table above shows that salt was found to be adequately iodized for household consumption in 63 percent of households. Use of iodized salt was lowest in the Northern Province (54 percent) and highest in the Eastern Province (75 percent). There was little difference between urban and rural areas in the percentage of households found to be using adequately iodized salt (Figure NU.4). The districts of Kambia (6 percent), Port Loko (21 percent), Moyamba (35 percent) and Western Rural (33 percent) stood out for the low levels of consumption of iodized salt. There was a ten percent difference between the richest and poorest households (66 percent versus 56 percent, respectively) in terms of iodized salt consumption.

Table NU.9: Iodized salt consumption

Percent distribution of households by consumption of iodized salt, Sierra Leone, 2010

		Percent of households in which salt was tested	Number of households	Percent of households with no salt	Percent of households with salt test result			Total	Number of households in which salt was tested or with no salt
					Not iodized 0 PPM	>0 and <15 PPM	15+ PPM [1]		
Region	East	89.9	3072	8.2	2.9	14.3	74.7	100.0	3008
	North	95.3	3761	3.5	30.2	12.3	54.0	100.0	3714
	South	92.1	2760	5.8	14.7	13.4	66.0	100.0	2698
	West	86.6	1801	11.6	12.0	21.3	55.0	100.0	1765
District	Kailahun	93.7	991	4.6	1.8	7.4	86.1	100.0	974
	Kenema	87.4	1287	10.9	3.0	17.4	68.7	100.0	1264
	Kono	89.1	793	8.3	4.0	17.8	69.9	100.0	770
	Bombali	93.9	849	3.6	3.1	7.6	85.7	100.0	828
	Kambia	91.0	411	8.5	83.6	2.3	5.6	100.0	409
	Koinadugu	96.4	517	2.1	31.5	5.3	61.1	100.0	509
	Port Loko	96.7	971	2.5	56.6	19.8	21.1	100.0	963
	Tonkolili	96.4	1013	2.8	4.9	16.7	75.6	100.0	1005
	Bo	90.2	1100	7.3	2.0	17.5	73.2	100.0	1070
	Bonthe	96.2	466	1.7	26.4	9.5	62.5	100.0	455
	Moyamba	89.5	569	10.3	43.5	11.5	34.8	100.0	567
	Pujehun	94.7	625	2.2	1.4	10.9	85.5	100.0	606
	Western Rural	93.2	355	5.5	39.3	21.9	33.3	100.0	350
	Western Urban	85.0	1447	13.1	5.3	21.2	60.4	100.0	1416
Area	Urban	89.6	3608	8.7	11.3	16.6	63.4	100.0	3540
	Rural	92.7	7786	5.6	18.5	13.6	62.3	100.0	7645
Wealth index quintiles	Poorest	93.0	2481	5.3	24.3	13.8	56.6	100.0	2435
	Second	92.5	2322	5.3	17.8	14.3	62.6	100.0	2268
	Middle	91.7	2180	6.8	18.1	11.4	63.8	100.0	2143
	Fourth	92.8	2088	5.7	14.7	15.3	64.3	100.0	2055
	Richest	88.6	2323	9.9	5.8	17.8	66.5	100.0	2285
Total		**91.7**	**11394**	**6.6**	**16.3**	**14.5**	**62.6**	**100.0**	**11185**

[1] MICS indicator 2.16



Children's Vitamin A Supplementation

Vitamin A is essential for eye health and proper functioning of the immune system. It is found in foods such as milk, liver, eggs, red and orange fruits, red palm oil and green leafy vegetables, although the amount of vitamin A readily available to the body from these sources varies widely. In developing areas of the world, where vitamin A is largely consumed in the form of fruits and vegetables, daily per capita intake is often insufficient to meet dietary requirements. Inadequate intakes are further compromised by increased requirements for the vitamin as children grow or during periods of illness, as well as by increased losses of vitamin A reserves during common childhood infections. As a result, vitamin A deficiency is quite prevalent in the developing world and particularly in countries with the highest burden of under-five deaths.

The 1990 World Summit for Children set the goal of virtual elimination of vitamin A deficiency and its consequences, including blindness, by the year 2000. This goal was also endorsed at the Policy Conference on Ending Hidden Hunger in 1991, the 1992 International Conference on Nutrition, and the UN General Assembly's Special Session on Children in 2002. The critical role of vitamin A for child health and immune function also makes control of deficiency a primary component of child survival efforts, and therefore critical to the achievement of the fourth Millennium Development Goal: a two-thirds reduction in under-five mortality by the year 2015.

For countries with vitamin A deficiency problems, current international recommendations call for high-dose vitamin A supplementation every four to six months, targeted to all children between the ages of six to 59 months living in affected areas. Providing young children with two high-dose vitamin A capsules a year is a safe, cost-effective, efficient strategy for eliminating vitamin A deficiency and improving child survival. Giving vitamin A to new mothers who are breastfeeding helps protect their children during the first months of life and helps to replenish the mother's stores of vitamin A, which are depleted during pregnancy and lactation. For countries with vitamin A supplementation programs, the definition of the indicator is the percentage of children 6-59 months of age receiving at least one high-dose vitamin A supplement in the last six months.

Based on UNICEF/WHO guidelines, the Sierra Leone Ministry of Health recommends that children aged 6-59 months be given a high-dose vitamin A capsule every 6 months. In some parts of the country, Vitamin A capsules are linked to immunization services and are given when the child has contact with these services after six months of age. It is also recommended that mothers take a Vitamin A supplement within eight weeks of giving birth due to increased Vitamin A requirements during pregnancy and lactation.

Within the six months prior to the MICS, 91 percent of children aged 6-59 months received a high dose Vitamin A supplement (Table NU.10). Vitamin A supplementation coverage is moderately lower in the Southern Province as compared to other regions; Moyamba (80 percent) and Pujehun (86 percent) are the districts with the lowest levels of supplementation. The age pattern of Vitamin A supplementation shows that supplementation in the last six months rises from 76 percent among children aged 6-11 months to 91 percent among children aged 12-23 months and then maintains that level among older children. Gender, location, mother's education and household wealth status are not associated with supplementation levels.

Table NU.10: Children's vitamin A supplementation
Percent distribution of children age 6-59 months by receipt of a high dose vitamin A supplement in the last 6 months, Sierra Leone, 2010

		Percentage who received Vitamin A according to:		Percentage of children who received Vitamin A during the last 6 months [1]	Number of children age 6-59 months
		Child health book / card / vaccination card	Mother's report		
Sex	Male	4.1	90.0	90.1	3840
	Female	4.2	90.9	91.1	3891
	Missing	*	*	*	3
Region	East	7.6	92.1	92.4	2075
	North	1.7	91.0	91.2	2909
	South	4.6	86.9	87.0	1942
	West	2.6	92.5	92.6	807
District	Kailahun	14.8	94.6	95.0	740
	Kenema	5.7	91.5	91.8	789
	Kono	.6	89.6	89.7	546
	Bombali	3.7	88.2	89.2	627
	Kambia	.4	92.5	92.5	420
	Koinadugu	.1	91.8	91.8	396
	Port Loko	1.4	91.9	91.9	793
	Tonkolili	2.1	91.0	91.0	674
	Bo	4.8	89.6	89.6	768
	Bonthe	4.7	90.4	90.4	377
	Moyamba	4.3	79.7	79.9	390
	Pujehun	4.3	85.6	85.8	407
	Western Rural	2.1	93.0	93.0	218
	Western Urban	2.8	92.3	92.5	589
Area	Urban	3.7	91.1	91.3	2132
	Rural	4.3	90.2	90.3	5601
Age in Months	6-11	8.3	75.4	76.0	975
	12-23	10.3	90.4	91.0	1502
	24-35	2.6	92.6	92.8	1621
	36-47	1.2	93.9	93.9	1970
	48-59	1.0	92.9	92.9	1666
Mother's education	None	3.9	90.0	90.2	5682
	Primary	4.5	91.6	91.7	1010
	Secondary	4.9	91.3	91.6	1042
Wealth index quintiles	Poorest	3.9	88.0	88.1	1750
	Second	4.4	89.7	90.0	1731
	Middle	4.2	90.5	90.8	1595
	Fourth	4.7	92.3	92.5	1501
	Richest	3.0	92.5	92.6	1157
Total		**4.1**	**90.4**	**90.6**	**7734**

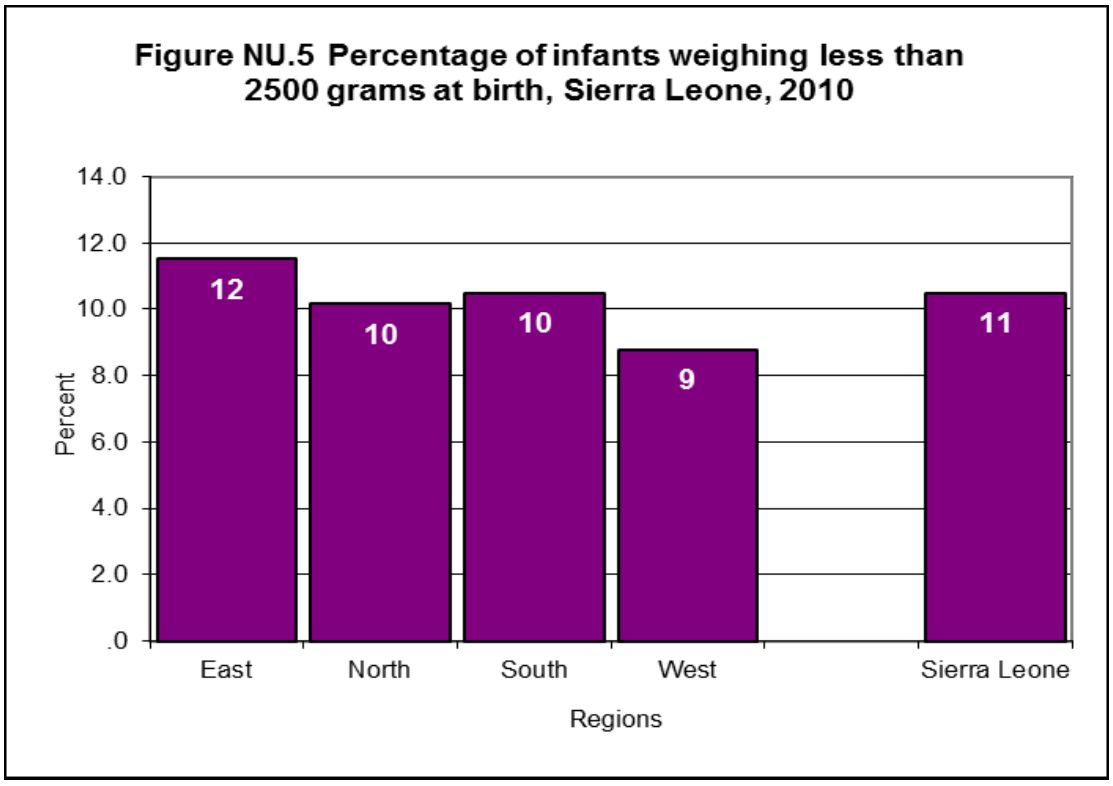
[1] MICS indicator 2.17
[*] Based on less than 25 unweighted cases and has been suppressed.

Low Birth Weight

Weight at birth is a good indicator of both a mother's health and nutritional status and also the newborn's chances for survival, growth, long-term health and psychosocial development. Low birth weight (less than 2,500 grams) carries a range of grave health risks for children. Babies who were undernourished in the womb face a greatly increased risk of dying during their early months and years. Those who survive have impaired immune function and increased risk of disease; they are likely to remain undernourished, with reduced muscle strength, throughout their lives, and suffer a higher incidence of diabetes and heart disease in later life. Children born underweight also tend to have a lower IQ and cognitive disabilities, affecting their performance in school and their job opportunities as adults.

In the developing world, low birth weight stems primarily from the mother's poor health and nutrition. Three factors have the highest impact: the mother's poor nutritional status before conception, short stature (due mostly to under-nutrition and infections during her childhood), and poor nutrition during the pregnancy. Inadequate weight gain during pregnancy is particularly important since it accounts for a large proportion of foetal growth retardation. Moreover, diseases such as diarrhoea and malaria, which are common in many developing countries, can significantly impair foetal growth if the mother becomes infected while pregnant.

In the industrialized world, cigarette smoking during pregnancy is the leading cause of low birth weight. In developed and developing countries alike, teenagers who give birth when their own bodies have yet to finish growing run the risk of bearing underweight babies.



One of the major challenges in measuring the incidence of low birth weight is the fact that more than half of infants in the developing world are not weighed. In the past, most estimates of low birth weight for developing countries were based on data compiled from health facilities. However, these estimates are biased for most developing countries because the majority of new-borns are not delivered in facilities, and those who are usually represent a highly selective sample of all births.
Because many infants are not weighed at birth and those who are weighed may represent a biased sample of all births, the reported birth weights usually cannot be used to estimate the prevalence of low birth weight among all children. Therefore, the percentage of births weighing below 2500 grams is estimated from two items in the questionnaire: the mother's assessment of the child's size at birth (i.e., very small, smaller than average, average, larger than average, very large) and the mother's recall of the child's weight or the weight as recorded on a health card if the child was weighed at birth[8] .

Overall, 40 percent of newborns were weighed at birth and approximately ten percent of newborns are estimated to have weighed less than 2500 grams at birth (Table NU.11). The percentage of low birth weight infants varies little across regions (Figure NU.5) or by any of the other background variables.

Table NU.11: Low birth weight infants
Percentage of last-born children in the 2 years preceding the survey that are estimated to have weighed below 2500 grams at birth and percentage of live births weighed at birth, Sierra Leone, 2010

		Percent of live births:		Number of live births in the last 2 years
		Below 2500 grams [1]	Weighed at birth [2]	
Region	East	11.5	46.8	993
	North	10.2	27.9	1230
	South	10.5	42.8	885
	West	8.8	54.3	353
Area	Urban	9.8	42.5	971
	Rural	10.8	38.8	2491
Education	None	10.4	36.7	2348
	Primary	10.8	44.8	511
	Secondary +	10.4	47.8	603
Wealth index quintiles	Poorest	10.7	32.3	757
	Second	11.6	37.1	750
	Middle	10.5	39.8	765
	Fourth	10.0	41.8	663
	Richest	9.1	52.3	526
Total		**10.5**	**39.9**	**3462**

[1] MICS indicator 2.18
[2] MICS indicator 2.19

[8] For a detailed description of the methodology, see Boerma, Weinstein, Rutstein and Sommerfelt, 1996.

VI. Child Health

Vaccinations

The Millennium Development Goal 4 (MDG4) is to reduce child mortality by two-thirds between 1990 and 2015. Immunization plays a key part in achieving this goal. Immunizations have saved the lives of millions of children in the three decades since the launch of the Expanded Programme on Immunization (EPI) in 1974. Worldwide there are still 27 million children overlooked by routine immunization; as a result, vaccine-preventable diseases cause more than 2 million deaths every year.

A World Fit for Children goal is to ensure full immunization of 90 percent of children under one year of age at the national level, with at least 80 percent coverage in every district or equivalent administrative unit.

According to UNICEF and WHO guidelines, a child should receive a BCG vaccination to protect against tuberculosis, three doses of DPT to protect against diphtheria, pertussis, and tetanus, three doses of polio vaccine, and a measles vaccination—all by the age of 12 months. All of these vaccinations are provided in Sierra Leone through the Ministry of Health (MoH) along with the Hepatitis B, Hib and yellow fever vaccines and together form the country's basic EPI package. DPT, Hepatitis B and the Hib vaccines are delivered together through the "penta" combination vaccine. The vaccine schedule in Sierra Leone is described in the chart below.

CHART: EPI PACKAGE AND SCHEDULE IN SIERRA LEONE

Vaccine	Age at vaccination
BCG	At birth
OPV 0	At birth
OPV1 & Penta-1 (DPT1 / HepB1 and Hib1)	6 weeks after birth
OPV2 & Penta-2 (DPT2 / HepB2 and Hib2)	10 weeks after birth
OPV3 & Penta-3 (DPT3 / HepB3 and Hib3)	14 weeks after birth
Measles	9 months after birth
Yellow fever	9 months after birth

During the MICS4 survey, mothers / caretakers were asked to provide vaccination cards for their children under the age of five. Interviewers copied vaccination information from the cards onto the MICS questionnaire. If the child did not have a card, the mother / caretaker was asked to recall whether or not the child had received each of the vaccinations and, for DPT, polio, Hepatitis B and Penta, how many times.

Table CH.1: Vaccinations in first year of life
Percentage of children age 12-23 months immunized against childhood diseases at any time before the survey and before the first birthday, Sierra Leone, 2010

	Vaccinated at any time before the survey according to: Vaccination card	Vaccinated at any time before the survey according to: Mother's report	Vaccinated at any time before the survey according to: Either	Vaccinated by 12 months of age
BCG [1]	66.9	28.6	95.5	94.8
Polio 0	66.3	19.9	86.2	85.6
Polio 1	60.6	27.2	87.8	85.8
Polio 2	58.8	20.8	79.5	76.2
Polio 3 [2]	54.0	8.9	62.9	58.3
DPT 1/Penta	63.9	28.0	91.9	88.8
DPT 2/Penta	61.9	25.6	87.5	83.2
DPT 3/Penta [3]	58.4	13.4	71.8	66.6
Measles [4]	52.5	29.3	81.8	67.9
HepB 1 / Hib 1	60.5	25.5	86.1	83.2
HepB 2 / Hib 2	59.2	20.8	79.9	75.0
HepB 3 [5] / Hib 3	55.9	13.2	69.1	63.7
Yellow fever [6]	52.3	29.3	81.7	67.5
No vaccinations	.0	2.9	2.9	2.9
Number of children age 12-23 months	1502	1502	1502	1502

[1] MICS indicator 3.1
[2] MICS indicator 3.2
[3] MICS indicator 3.3
[4] MICS indicator 3.4; MDG indicator 4.3
[5] MICS indicator 3.5
[6] MICS indicator 3.6

Overall, 68 percent of children had health cards (Table CH.2). The percentage of children age 12 to 23 months who received each of the vaccinations is shown in Table CH.1. The denominator for the table is comprised of children age 12-23 months, those who are old enough to be fully vaccinated. In the fourth column from the left, the numerator includes all children who were vaccinated at any time before the survey according to the vaccination card or the mother's report. In the column on the far right, only those who were vaccinated before their first birthday, as recommended, are included in the numerator; the calculation of this indicator is based only on children who have vaccination cards. For children without vaccination cards, the proportion of vaccinations given before the first birthday is assumed to be the same as for children with vaccination cards.

Approximately 95 percent of children age 12-23 months received a BCG vaccination by the age of 12 months and the first dose of DPT was given to 89 percent. The percentage declines for subsequent doses of DPT to 83 percent for the second dose, and 67 percent for the third dose (Figure CH.1). Eighty-six percent of children received Polio 1 by age 12 months and this declines to 58 percent by the third dose. The coverage for measles vaccine by 12 months is 68 percent.

Figure CH.1 Percentage of children aged 12-23 months who received the recommended vaccinations by 12 months, Sierra Leone, 2010

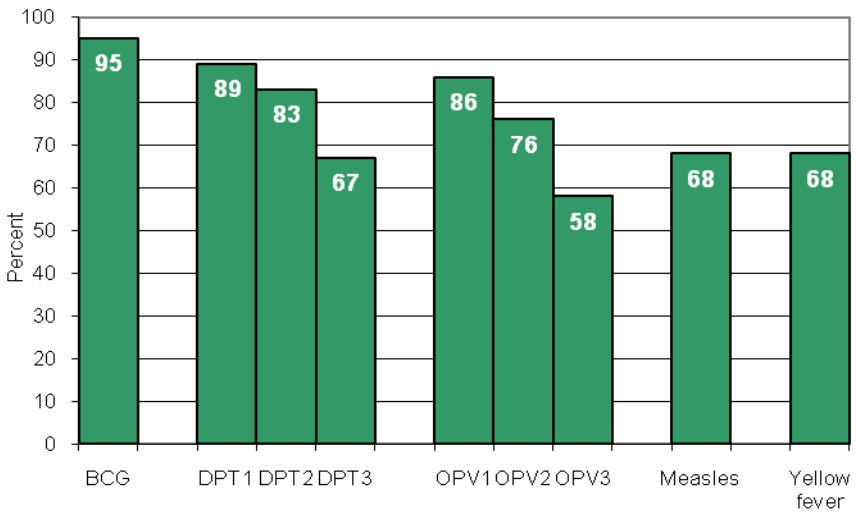


Table CH.2 shows vaccination coverage rates among children 12-23 months by background characteristics. The figures indicate children receiving the vaccinations at any time up to the date of the survey and are based on information from both the vaccination cards and mothers'/caretakers' reports. Vaccination rates do vary somewhat by background variables but they do not however follow any discernible pattern.

Discussion: Vaccinations

The high rate of BCG vaccination indicates that the population has a high level of access to vaccination services in Sierra Leone. Vaccination rates for the DPT series highlight the population's utilization of the EPI program and show that the program is successful in delivering the early vaccinations in the series but does not do as well in completing it due to substantial drop-out. The measles vaccination rate is generally interpreted as an indicator of the overall strength of the EPI program. The timely measles vaccination rate of 66 percent is lower than desired and the overall rate of 82 percent is also less than the goal of 90 percent national coverage. The secondary goal of achieving at least 80 percent measles coverage in every district has not been met as five districts—Kailahun, Kenema, Kono, Kambia and Port Loko—all have estimated measles vaccination rates below 80 percent.

Viewed in this light, the Sierra Leone EPI program appears to be successful in providing access to its services but needs to be strengthened if the goal of achieving high levels of timely vaccination of all antigens is to be achieved.

Table CH.2: Vaccinations by background characteristics

Percentage of children age 12-23 months currently vaccinated against childhood diseases, Sierra Leone, 2010

		Percentage of children who received:														Percentage with vaccination card seen	Number of children age 12-23 months
		BCG	Polio at birth	Polio 1	Polio 2	Polio 3	DPT 1	DPT 2	DPT 3	Measles	HepB 1 / Hib 1	HepB 2 / Hib 2	HepB 3 / Hib 3	Yellow fever	None	All	
Sex	Male	95.6	85.6	87.0	78.2	64.8	91.8	86.9	72.4	84.4	86.4	79.7	71.4	84.4	2.9	48.2	69.2	750
	Female	95.4	86.8	88.6	80.8	61.0	92.1	88.2	71.3	79.2	85.8	80.1	67.0	79.0	2.9	44.3	66.3	752
Region	East	95.8	90.0	84.8	76.1	61.5	92.1	86.2	70.3	74.8	89.6	83.3	71.0	75.5	3.2	46.6	73.2	429
	North	94.4	78.8	89.9	80.0	62.4	90.8	86.0	65.3	80.3	86.2	78.3	68.2	80.2	3.5	45.0	61.7	522
	South	96.0	88.9	87.0	82.8	67.1	91.3	89.4	78.1	89.8	79.2	75.0	67.1	88.6	1.8	47.2	74.5	394
	West	97.1	93.5	91.4	79.2	57.7	96.9	91.8	81.5	86.2	93.6	88.3	72.6	86.2	2.1	47.0	55.8	156
District	Kailahun	96.4	88.1	85.2	77.0	62.0	92.9	86.2	72.1	76.6	89.8	80.3	70.0	75.0	2.8	46.0	73.2	150
	Kenema	96.7	94.8	82.2	74.7	68.5	94.4	88.3	80.0	79.0	94.3	90.5	81.7	79.2	2.5	56.4	82.0	170
	Kono	93.5	85.4	88.4	76.9	50.1	87.3	83.0	53.0	65.7	81.7	76.2	54.9	70.3	5.0	32.0	59.7	109
	Bombali	94.3	87.8	84.9	74.8	50.3	93.0	89.0	69.9	81.1	85.9	79.0	65.1	81.1	5.7	44.5	60.7	96
	Kambia	96.0	83.2	86.9	74.4	54.5	91.8	84.2	66.4	78.7	84.8	77.4	64.4	78.9	1.4	38.9	56.6	70
	Koinadugu	92.8	47.3	93.0	89.6	71.4	83.7	80.4	37.3	81.6	78.9	80.2	71.9	82.8	7.0	27.7	32.5	58
	Port Loko	90.8	82.4	91.8	76.6	62.9	91.5	85.8	63.7	75.9	89.0	73.4	62.7	74.9	5.2	48.1	65.3	153
	Tonkolili	98.4	79.6	91.2	85.9	70.1	90.8	87.0	73.7	84.6	87.0	82.9	76.6	84.6	.0	51.5	72.7	145
	Bo	97.2	89.6	84.4	81.5	62.5	94.2	92.9	80.4	92.7	80.2	75.4	69.1	91.0	.7	43.4	76.0	167
	Bonthe	96.7	91.3	90.9	90.6	70.6	95.2	92.7	83.6	88.2	92.4	92.1	80.5	88.0	2.5	64.2	75.3	76
	Moyamba	90.3	80.3	86.4	78.1	71.7	89.4	87.1	77.1	81.3	79.3	75.1	67.5	79.7	3.7	51.4	71.4	79
	Pujehun	98.3	94.4	89.4	82.9	69.0	82.6	80.2	68.3	93.6	62.8	55.9	47.6	93.6	1.7	33.5	73.4	72
	Western Rural	(96.2)	(95.1)	(88.0)	(68.9)	(57.6)	(93.3)	(93.3)	(76.4)	(79.5)	(93.3)	(91.1)	(74.5)	(76.8)	(2.2)	(40.7)	(57.9)	33
	Western Urban	97.3	93.1	92.3	81.9	57.7	97.8	91.4	82.8	88.0	93.6	87.6	72.1	88.8	2.1	48.7	55.2	124
Area	Urban	94.9	88.7	83.4	73.4	56.7	93.1	88.6	76.3	86.5	87.8	80.8	71.1	86.9	3.0	44.8	61.7	433
	Rural	95.7	85.2	89.6	82.0	65.4	91.5	87.1	70.1	79.9	85.4	79.6	68.3	79.6	2.8	46.8	70.2	1068
Mother's education	None	94.9	85.4	88.1	79.8	63.1	90.5	86.5	69.1	80.9	84.8	78.3	67.7	80.9	3.4	46.0	68.6	1042
	Primary	97.5	88.1	88.0	80.0	63.8	95.4	88.6	75.4	84.4	88.9	83.3	73.6	82.6	2.2	49.4	70.1	218
	Secondary	96.4	88.1	86.4	78.1	61.1	94.9	91.3	80.4	83.4	88.9	83.6	71.5	84.1	.9	44.5	62.0	242
Wealth index quintiles	Poorest	94.0	84.2	86.8	77.7	64.1	89.1	86.2	72.8	82.8	82.2	76.6	69.9	82.8	3.1	45.8	68.4	311
	Second	95.3	84.2	89.2	82.0	66.0	88.9	85.2	69.3	79.4	84.0	78.1	66.1	79.1	3.6	46.8	69.9	352
	Middle	95.8	85.2	90.5	79.9	63.7	93.8	87.6	68.6	80.0	89.3	78.7	69.1	79.2	2.8	46.5	67.9	329
	Fourth	95.2	87.5	86.7	80.0	59.3	93.7	91.3	73.1	82.3	86.5	85.8	70.6	82.3	2.8	44.7	69.3	297
	Richest	97.9	92.2	84.5	77.0	59.8	95.8	88.2	77.9	86.6	89.6	81.5	71.3	87.4	1.5	47.5	60.8	214
Total		**95.5**	**86.2**	**87.8**	**79.5**	**62.9**	**91.9**	**87.5**	**71.8**	**81.8**	**86.1**	**79.9**	**69.1**	**81.7**	**2.9**	**46.2**	**67.7**	**1502**

Neonatal Tetanus Protection

MDG 5 aims to reduce the maternal mortality ratio by three quarters. The elimination of maternal tetanus is one of the primary strategies for achieving this goal. Another MDG target is to reduce the incidence of neonatal tetanus to less than one case of neonatal tetanus per 1000 live births in every district.

Prevention of maternal and neonatal tetanus can be assured if a woman receives at least two doses of tetanus toxoid vaccine during her pregnancy at least two weeks before delivery. Alternatively, a woman and her newborn are also considered to be protected if any one of the following conditions is met:

- Received at least two doses of tetanus toxoid vaccine, the last within the previous 3 years;
- Received at least 3 doses, the last within the previous 5 years;
- Received at least 4 doses, the last within 10 years;
- Received at least 5 doses during lifetime.

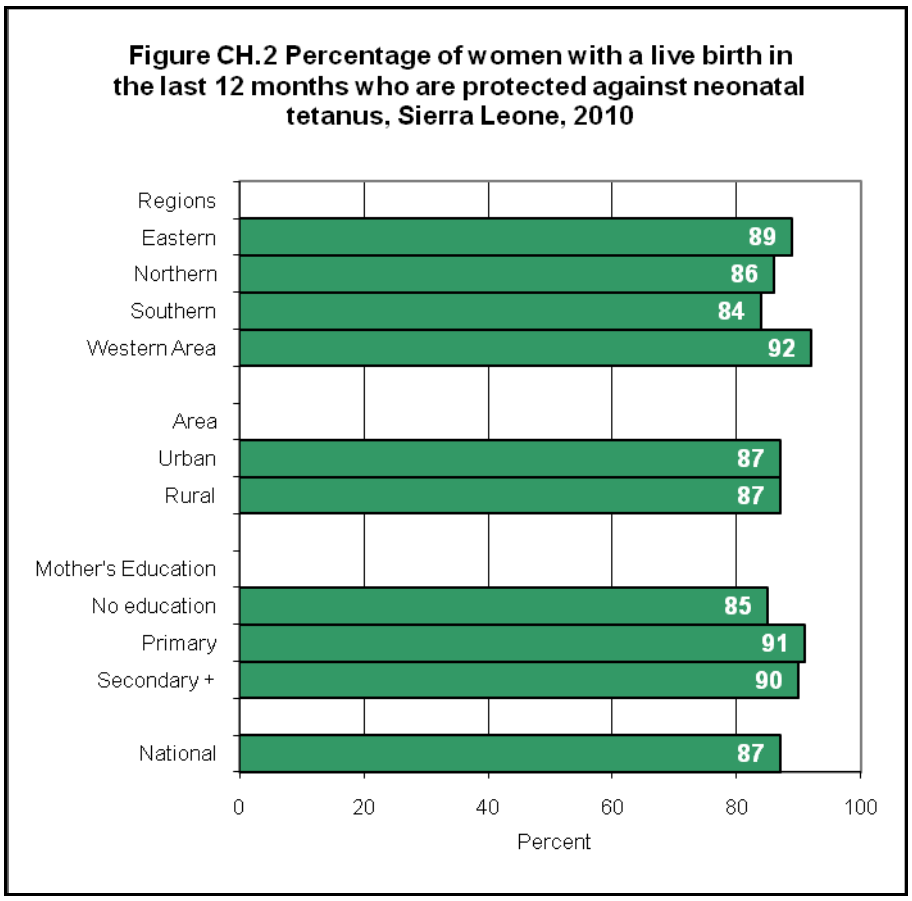
Table CH.3 shows the status of women's protection from tetanus among women who have had a live birth within the last 2 years. Figure CH.2 shows the status of women's protection from tetanus by major background characteristics. Overall, 87 percent of pregnant women in Sierra Leone are protected against tetanus. By far the predominant form of protection (83 percent) comes from receiving two doses of vaccine during the most recent pregnancy. Higher levels of mother's education and higher levels of household wealth have only very modest positive associations with higher levels of protection. There is no difference between rural and urban areas with regards to protection levels but some differences do exist among regions—these are highest in the West and East and modestly lower in the North and South.

Table CH.3: Neonatal tetanus protection

Percentage of women age 15-49 years with a live birth in the last 2 years protected against neonatal tetanus, Sierra Leone, 2010

		Percentage of women who received at least 2 doses during last pregnancy	Percentage of women who did not receive two or more doses during last pregnancy but received:				Protected against tetanus [1]	Number of women with a live birth in the last 2 years
			2 doses, the last within prior 3 years	3 doses, the last within prior 5 years	4 doses, the last within prior 10 years	5 or more doses during lifetime		
Area	Urban	82.5	4.5	.0	.0	.0	87.0	971
	Rural	83.0	3.7	.1	.0	.0	86.8	2491
Region	East	86.3	2.8	.0	.0	.0	89.1	993
	North	80.6	4.9	.0	.0	.0	85.5	1230
	South	80.4	3.6	.2	.0	.0	84.2	885
	West	87.1	4.5	.0	.0	.0	91.7	353
District	Kailahun	88.0	2.2	.0	.0	.0	90.2	330
	Kenema	89.1	2.8	.0	.0	.0	92.0	391
	Kono	80.2	3.6	.0	.0	.0	83.8	272
	Bombali	82.1	6.8	.0	.0	.0	88.9	269
	Kambia	71.1	9.0	.0	.0	.0	80.1	171
	Koinadugu	75.1	3.2	.0	.0	.0	78.2	129
	Port Loko	79.4	4.8	.0	.0	.0	84.2	360
	Tonkolili	88.5	1.8	.0	.0	.0	90.3	302
	Bo	82.4	4.3	.4	.0	.0	87.1	378
	Bonthe	76.4	4.6	.0	.0	.0	81.0	158
	Moyamba	77.3	3.1	.0	.0	.0	80.4	188
	Pujehun	83.5	1.6	.0	.0	.0	85.2	161
	Western Rural	86.4	1.8	.0	.0	.0	88.2	73
	Western Urban	87.4	5.2	.0	.0	.0	92.6	281
Education	None	81.2	3.9	.0	.0	.0	85.1	2348
	Primary	86.6	4.1	.3	.0	.0	91.0	511
	Secondary +	86.3	3.8	.0	.0	.0	90.1	603
Wealth index quintiles	Poorest	81.1	3.0	.0	.0	.0	84.1	757
	Second	82.4	3.3	.0	.0	.0	85.6	750
	Middle	80.8	5.2	.2	.0	.0	86.1	765
	Fourth	85.8	3.3	.0	.0	.0	89.1	663
	Richest	85.5	5.3	.0	.0	.0	90.8	526
Total		**82.9**	**3.9**	**.0**	**.0**	**.0**	**86.9**	**3462**

[1] MICS indicator 3.7



Oral Rehydration Treatment

Diarrhoea is the second leading cause of death worldwide among children under five. Most diarrhoea-related deaths in children are due to dehydration from the loss of large quantities of water and electrolytes from the body. Management of diarrhoea—either through intake of oral rehydration salts (ORS) or a recommended home fluid (RHF)—can prevent many of these deaths. Preventing dehydration and malnutrition by increasing overall fluid intake and continuing to feed the child are also important strategies for managing diarrhoea.

Goals that relate to the management of diarrhoea in children include 1) the reduction by fifty percent of deaths among children under five due to diarrhoea by 2010 compared to 2000 (A World Fit for Children); and 2) the two-thirds reduction of the mortality rate due to diarrhoea among children under five by 2015 compared to 1990 (Millennium Development Goals).

The indicators that are measured in the MICS4 survey regarding the management of diarrhoea are related to:

- Prevalence of diarrhoea
- Use of oral rehydration therapy (ORT) to manage diarrhoea
- Home management of diarrhoea
- Management of diarrhoea using ORT with continued feeding

In the MICS questionnaire, mothers/caretakers were asked to report whether their child had diarrhoea in the two weeks prior to the survey. Mothers of children who had experienced diarrhoea were asked a series of questions about what the child had to drink and eat during the episode and whether this was more or less than the child usually ate and drank.

Overall, 16 percent of under five children had diarrhoea in the two weeks preceding the survey (Table CH.4). Diarrhoea prevalence was highest (18%) in the north and lowest (11.4%) in the south. The highest level of diarrhoea occurs in the weaning period, among children aged 12-23 months.

Table CH.4: Oral rehydration solutions and recommended homemade fluids
Percentage of children age 0-59 months with diarrhoea in the last two weeks, and treatment with oral rehydration solutions and recommended homemade fluids, Sierra Leone, 2010

				Children with diarrhoea who received:					
					Recommended homemade fluids				
		Had diarrhoea in last two weeks	Number of children age 0-59 months	ORS (Fluid from ORS packet or pre-packaged ORS fluid)	Pre-pack ORS fluid with zinc	Gov't recommended homemade SSS fluid	Any recommended homemade fluid	ORS or any recommended homemade fluid	Number of children aged 0-59 months with diarrhoea
Sex	Male	16.1	4288	72.2	6.7	9.6	15.2	77.9	690
	Female	14.8	4306	72.9	5.4	9.4	13.7	78.6	639
	Missing	*	4	100.0	*	*	*	*	2
Region	East	16.2	2371	69.5	5.0	8.5	11.9	74.6	383
	North	18.0	3218	77.0	4.6	11.3	15.1	79.6	579
	South	11.4	2132	69.0	8.9	7.0	15.9	80.9	243
	West	14.4	877	68.8	10.6	9.1	16.7	78.4	126
District	Kailahun	13.0	837	62.0	9.0	5.2	13.1	67.4	108
	Kenema	19.1	908	72.8	2.9	7.2	9.4	78.0	173
	Kono	16.2	627	71.7	4.2	14.4	14.9	76.4	101
	Bombali	14.0	705	77.2	8.3	7.8	14.5	83.1	99
	Kambia	32.6	460	74.5	1.8	25.7	26.7	75.1	150
	Koinadugu	16.2	424	75.3	4.0	9.5	12.5	84.5	68
	Port Loko	14.1	873	70.2	.0	.0	.0	70.2	123
	Tonkolili	18.2	757	86.4	9.5	9.1	17.6	87.8	138
	Bo	11.2	851	60.9	15.6	11.1	26.6	84.9	95
	Bonthe	13.2	411	73.9	.0	3.3	3.3	77.2	54
	Moyamba	10.7	431	(67.9)	(5.3)	(9.1)	(14.3)	(76.0)	46
	Pujehun	10.8	440	(80.8)	(9.0)	(1.3)	(10.3)	(82.1)	48
	Western Rural	15.4	233	(57.8)	(19.1)	(6.0)	(25.1)	(77.9)	36
	Western Urban	14.0	644	73.1	7.2	10.3	13.4	78.6	90
Area	Urban	14.2	2359	65.9	8.2	11.8	18.6	76.9	334
	Rural	16.0	6240	74.8	5.3	8.7	13.1	78.7	997
Age	0-11	14.5	1824	67.8	10.3	4.0	13.7	73.8	264
	12-23	19.4	1502	75.1	5.5	6.2	11.1	79.9	292
	24-35	17.7	1621	71.4	4.3	9.8	12.5	78.7	286
	36-47	14.4	1970	78.3	4.2	9.2	12.8	80.9	283
	48-59	12.2	1666	69.4	6.4	21.5	25.6	78.1	204
	DK/Missing	*	16	*	*	*	*	*	1
Mother's education	None	15.4	6289	73.6	5.9	9.9	14.9	78.8	971
	Primary	17.0	1133	70.5	7.2	6.1	12.5	77.1	193
	Secondary	14.2	1176	68.9	5.4	10.9	14.3	76.4	167
Wealth index quintiles	Poorest	15.7	1951	74.5	6.9	7.0	13.7	78.5	306
	Second	16.1	1916	72.7	5.2	10.8	14.7	77.1	309
	Middle	17.4	1783	69.9	3.8	9.0	11.9	74.0	310
	Fourth	13.8	1677	75.7	6.3	11.7	17.3	84.7	232
	Richest	13.7	1271	69.5	9.8	9.5	16.4	78.9	174
Total		**15.5**	**8598**	**72.6**	**6.1**	**9.5**	**14.5**	**78.3**	**1331**

[*] Based on less than 25 unweighted cases and has been suppressed.

Table CH.4 also shows the percentage of children receiving various types of recommended liquids during the episode of diarrhoea. Since mothers were able to name more than one type of liquid, the percentages do not necessarily add to 100. About 73 percent received fluids from ORS packets or pre-packaged ORS fluids and 14 percent received recommended homemade fluids. Approximately 78 percent of children with diarrhoea received one or more of the recommended home treatments (i.e., were treated with ORS or any recommended homemade fluid), while 22 percent received no treatment. Only minor differences were observed in the management of diarrhoea among the various background characteristics of respondents.

Slightly less than one-third (32 percent) of under five children with diarrhoea drank more than usual while 68 percent drank the same or less (Table CH.5). Sixty-five percent ate somewhat less, same or more (continued feeding), while 35 percent ate much less or nothing. Children with diarrhoea were more likely to be given more to drink than usual if they lived in the east or if their mothers were

uneducated; the level of this indicator was very low in the West. The pattern for continued feeding is somewhat different; it is highest in the West and lowest in the east, is positively associated with increasing levels of mother's education, and is highest among households in the highest wealth quintile.

Figure CH.3 Percentage of children under age 5 with diarrhoea who received oral rehydration treatment, Sierra Leone, 2010

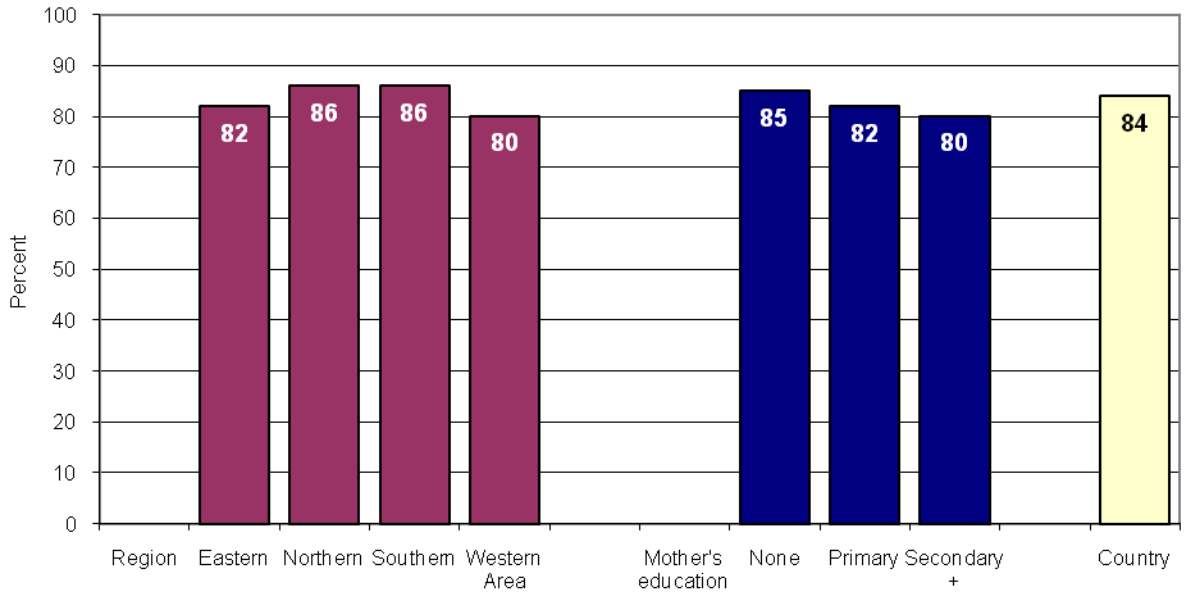


Table CH.5: Feeding practices during diarrhoea

Percent distribution of children age 0-59 months with diarrhoea in the last two weeks by amount of liquids and food given during episode of diarrhoea, Sierra Leone, 2010

				Drinking practices during diarrhoea:							Eating practices during diarrhoea:								Number of children aged 0-59 months with diarrhoea
		Had diarrhoea in last two weeks	Number of children age 0-59 months	Given much less to drink	Given somewhat less to drink	Given about the same to drink	Given more to drink	Given nothing to drink	Missing/ DK	Total	Given much less to eat	Given somewhat less to eat	Given about the same to eat	Given more to eat	Stopped food	Had never been given food	Missing/ DK	Total	
Sex	Male	16.1	4288	24.0	18.7	22.2	32.8	1.6	.5	100	28.5	29.3	25.5	9.7	5.4	1.6	.1	100	690
	Female	14.8	4306	20.7	23.8	21.6	31.4	1.8	.7	100	25.6	33.4	21.7	9.9	6.3	2.6	.5	100	639
	Missing	*	4	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	2
Region	East	16.2	2371	23.3	16.2	16.9	40.2	2.7	.7	100	28.8	35.0	17.8	6.9	9.0	2.0	.5	100	383
	North	18.0	3218	22.2	22.9	22.1	31.4	1.2	.2	100	26.8	29.6	23.4	12.9	5.0	2.3	.0	100	579
	South	11.4	2132	23.4	22.1	23.6	27.9	2.1	.9	100	27.0	33.1	22.6	9.3	5.8	2.0	.2	100	243
	West	14.4	877	18.6	26.5	33.9	19.5	.0	1.5	100	23.5	23.6	45.3	5.2	.2	1.4	.8	100	126
District	Kailahun	13.0	837	36.4	18.9	10.9	29.5	3.5	.8	100	30.9	45.0	16.7	3.9	3.5	.0	.0	100	108
	Kenema	19.1	908	22.9	14.7	12.5	49.0	.9	.0	100	31.0	40.4	12.2	7.1	8.4	.9	.0	100	173
	Kono	16.2	627	10.0	15.7	30.6	36.8	5.0	1.9	100	22.9	15.0	28.6	9.9	15.7	5.9	1.9	100	101
	Bombali	14.0	705	32.2	21.0	26.2	20.6	.0	.0	100	24.5	21.8	36.7	5.0	9.4	2.6	.0	100	99
	Kambia	32.6	460	16.3	14.9	20.3	45.2	2.9	.4	100	28.2	27.3	17.1	19.3	4.3	3.9	.0	100	150
	Koinadugu	16.2	424	16.9	16.3	29.4	34.1	2.3	1.0	100	28.2	15.2	41.1	7.4	5.0	3.1	.0	100	68
	Port Loko	14.1	873	19.4	23.9	26.5	30.2	.0	.0	100	13.7	40.6	26.2	11.6	5.8	2.1	.0	100	123
	Tonkolili	18.2	757	26.4	35.3	13.7	23.8	.8	.0	100	38.1	35.0	9.5	15.4	2.0	.0	.0	100	138
	Bo	11.2	851	34.6	26.8	13.3	25.3	.0	.0	100	28.1	39.5	20.5	5.2	6.7	.0	.0	100	95
	Bonthe	13.2	411	12.0	17.8	42.5	26.8	.9	.0	100	29.1	30.7	26.9	8.1	2.2	2.9	.0	100	54
	Moyamba	10.7	431	(27.8)	(22.1)	(28.2)	(15.5)	(1.9)	(4.5)	(100)	(19.3)	(26.9)	(27.9)	(17.4)	(4.0)	(3.3)	(1.2)	100	46
	Pujehun	10.8	440	(9.7)	(17.6)	(18.2)	(46.5)	(8.1)	(.0)	(100)	(29.6)	(29.0)	(16.9)	(10.8)	(10.0)	(3.7)	(.0)	100	48
	Western Rural	15.4	233	(29.4)	(26.2)	(33.2)	(11.2)	(.0)	(.0)	(100)	(32.3)	(15.4)	(40.5)	(6.1)	(.7)	(5.0)	(.0)	100	36
	Western Urban	14.0	644	14.3	26.7	34.1	22.9	.0	2.0	100	20.0	26.8	47.2	4.8	.0	.0	1.1	100	90
Area	Urban	14.2	2359	17.5	22.9	21.1	35.1	2.4	1.0	100	23.5	27.5	29.5	10.4	7.2	1.4	.5	100	334
	Rural	16.0	6240	24.0	20.6	22.3	31.2	1.5	.5	100	28.3	32.5	21.8	9.6	5.4	2.3	.2	100	997
Age	0-11	14.5	1824	24.4	21.6	20.0	30.8	2.4	.9	100	24.8	30.5	23.5	10.3	2.3	7.7	.9	100	264
	12-23	19.4	1502	22.5	18.3	23.3	33.3	2.3	.2	100	30.8	32.7	20.2	9.2	6.2	1.0	.0	100	292
	24-35	17.7	1621	21.5	21.4	22.8	32.2	1.3	.8	100	25.7	31.5	25.5	9.2	8.1	.0	.0	100	286
	36-47	14.4	1970	22.1	18.7	22.2	35.2	1.3	.5	100	29.3	27.1	26.6	10.0	6.3	.8	.0	100	283
	48-59	12.2	1666	21.6	27.9	20.5	28.4	1.1	.5	100	24.1	35.5	22.7	10.6	5.5	1.0	.5	100	204
	DK/Missing	*	16	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	1
Mother's education	None	15.4	6289	23.2	19.8	21.1	33.6	1.7	.7	100	28.7	30.1	22.1	10.8	6.4	1.7	.3	100	971
	Primary	17.0	1133	23.2	23.5	22.7	28.2	2.4	.0	100	24.1	36.9	24.6	5.2	6.3	2.9	.0	100	193
	Secondary	14.2	1176	17.0	26.4	26.2	28.7	1.2	.6	100	21.2	31.3	32.2	9.1	2.3	3.3	.6	100	167
Wealth index quintiles	Poorest	15.7	1951	21.4	23.4	21.4	30.0	3.1	.7	100	30.7	31.4	20.2	10.7	5.1	1.7	.2	100	306
	Second	16.1	1916	26.3	20.1	21.9	29.4	1.2	1.0	100	25.1	33.1	21.7	10.6	7.7	1.3	.6	100	309
	Middle	17.4	1783	22.4	18.0	21.5	36.2	1.6	.3	100	29.1	30.1	25.4	9.7	3.1	2.5	.0	100	310
	Fourth	13.8	1677	21.6	22.5	18.3	35.6	2.0	.0	100	25.5	34.8	19.3	8.1	9.1	3.1	.0	100	232
	Richest	13.7	1271	18.1	23.0	28.7	29.1	.0	1.0	100	23.1	24.8	36.3	9.0	4.4	1.8	.6	100	174
Total		**15.5**	**8598**	**22.4**	**21.2**	**22.0**	**32.2**	**1.7**	**.6**	100	**27.1**	**31.2**	**23.7**	**9.8**	**5.8**	**2.1**	**.3**	100	100

[*] Based on less than 25 unweighted cases and has been suppressed.

Table CH.6 describes the percentage of children age 0-59 months with diarrhoea in the last two weeks who received oral rehydration therapy (ORT), the percentage who received ORT with continued feeding, and percentage of children who received other treatments. Overall, 80 percent of children with diarrhoea received ORS or increased fluids while 84 percent received ORT (defined as ORS or recommended homemade fluids or increased fluids). Figure CH.3 displays the percentage of children with diarrhoea who received ORT by several key background characteristics.

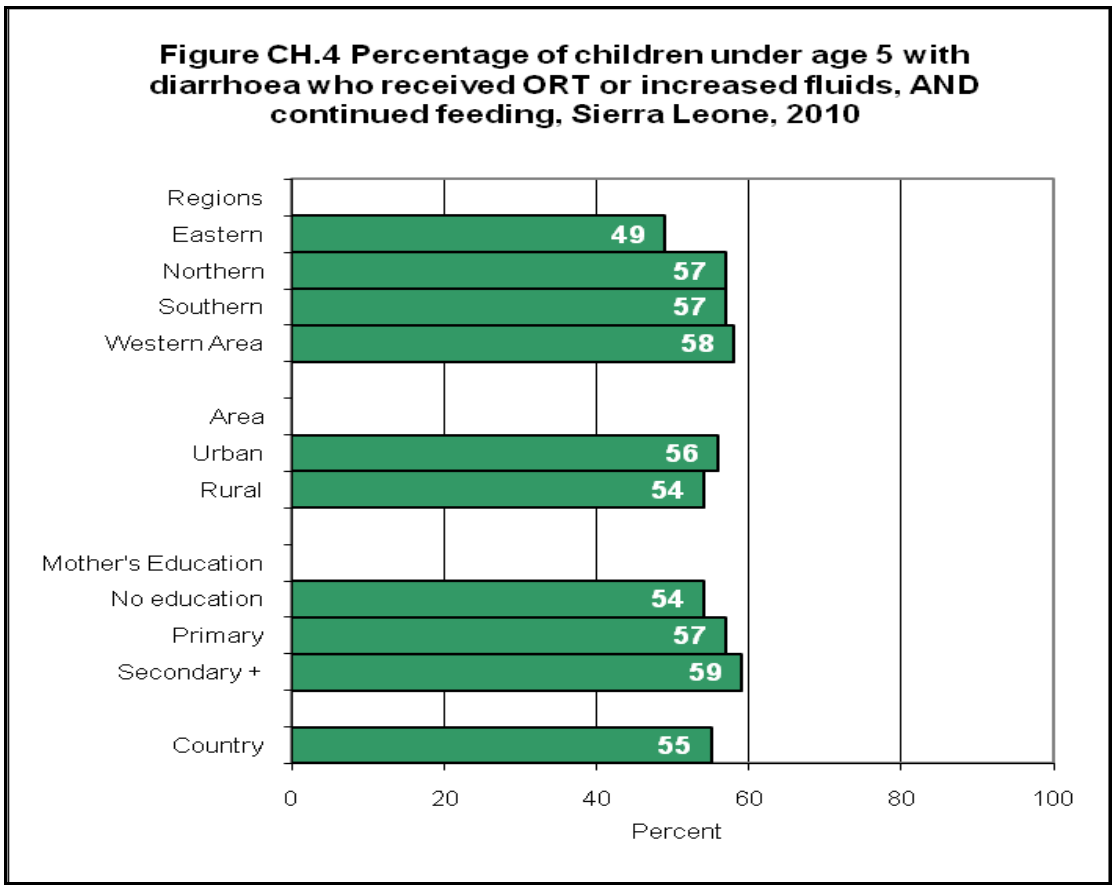
Combining the information in Table CH.5 with data from Table CH.4 on oral rehydration therapy, it is observed that 55 percent of children received ORT and, at the same time, feeding was continued, as is the recommendation. Management of diarrhoea with ORT and continued feeding was lower in the east and roughly the same in the other three regions. Higher levels of recommended management of diarrhoea are slightly associated with increasing levels of mother's education (see Figure CH.4).

Table CH.6: Oral rehydration therapy with continued feeding and other treatments
Percentage of children age 0-59 months with diarrhoea in the last two weeks who received oral rehydration therapy with continued feeding, and percentage of children with diarrhoea who received other treatments, Sierra Leone, 2010

		Children with diarrhoea who received:			Other treatment:											Not given any treatment or drug	Number of children aged 0-59 months with diarrhoea
		ORS or increased fluids	ORT (ORS or recommended homemade fluids or increased fluids)	ORT with continued feeding [1]	Pill or syrup: Antibiotic	Pill or syrup: Antimotility	Pill or syrup: Zinc	Pill or syrup: Other	Pill or syrup: Unknown	Injection: Antibiotic	Injection: Non-antibiotic	Injection: Unknown	Intravenous	Home remedy/Herbal medicine	Other		
Sex	Male	79.5	83.6	54.8	37.6	2.4	.7	1.0	10.8	5.7	1.1	2.0	.0	10.0	14.0	7.0	690
	Female	80.1	84.8	54.8	31.7	2.8	1.9	.5	11.7	6.7	.4	2.2	.3	8.2	15.6	5.7	639
	Missing	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	2
Region	East	78.8	81.6	48.8	34.3	5.0	1.5	.2	10.4	3.8	.1	1.8	.0	6.7	19.7	7.8	383
	North	84.0	86.2	57.1	33.8	1.4	1.4	1.3	15.0	6.7	1.3	2.5	.2	10.7	11.1	6.9	579
	South	75.6	85.9	56.9	32.5	2.1	.8	.0	4.5	5.9	.0	2.0	.0	11.4	16.3	3.7	243
	West	71.7	79.6	58.2	45.1	1.7	1.3	1.2	9.0	11.6	1.6	1.7	.9	4.5	13.7	4.5	126
District	Kailahun	65.7	71.1	49.3	39.1	.9	.0	.0	12.9	4.4	.0	3.0	.0	4.1	23.5	12.2	108
	Kenema	88.2	89.0	52.8	25.7	6.7	.0	.0	12.2	4.3	.0	2.1	.0	10.7	23.6	4.3	173
	Kono	76.9	80.0	41.5	43.8	6.4	5.6	.6	4.7	2.2	.4	.0	.0	2.6	9.0	9.0	101
	Bombali	82.3	88.2	55.0	28.2	.0	.0	1.4	13.0	1.4	.0	1.6	.0	6.4	20.1	1.7	99
	Kambia	85.3	85.7	56.2	26.1	2.9	2.8	1.0	9.2	6.3	.0	1.8	.6	18.4	6.4	6.6	150
	Koinadugu	84.8	91.2	61.2	41.4	.0	.5	.0	12.9	1.0	.0	.8	.0	7.1	7.2	5.2	68
	Port Loko	77.7	77.7	58.7	33.0	3.1	1.2	1.4	16.2	11.8	1.8	2.7	.0	3.7	7.1	11.5	123
	Tonkolili	89.1	90.5	56.0	43.3	.0	1.4	2.3	22.8	9.4	3.9	4.4	.0	13.5	15.2	7.6	138
	Bo	68.8	88.8	60.1	41.2	4.1	1.4	.0	4.3	3.9	.0	.0	.0	9.9	23.4	.0	95
	Bonthe	78.5	81.7	52.8	30.7	2.1	1.0	.0	3.7	3.0	.0	3.7	.0	13.5	8.2	4.6	54
	Moyamba	(72.4)	(80.5)	(58.4)	(26.5)	(.0)	(.0)	(.0)	(2.1)	(12.0)	(.0)	(3.8)	(.0)	(17.0)	(16.7)	(12.8)	46
	Pujehun	(89.0)	(90.3)	(53.8)	(23.0)	(.0)	(.0)	(.0)	(8.3)	(7.3)	(.0)	(2.2)	(.0)	(6.4)	(10.7)	(1.2)	48
	Western Rural	(59.7)	(79.8)	(48.9)	(30.8)	(.0)	(1.4)	(2.5)	(9.0)	(23.1)	(3.3)	(5.8)	(.9)	(12.2)	(10.1)	(5.3)	36
	Western Urban	76.5	79.5	61.9	50.8	2.4	1.2	.7	9.1	7.1	.9	.0	.9	1.5	15.1	4.1	90
Area	Urban	74.2	82.3	55.8	37.5	2.4	1.1	1.0	9.0	6.9	.7	1.6	.3	6.2	16.3	4.9	334
	Rural	81.7	84.8	54.4	33.9	2.6	1.3	.7	12.0	5.9	.8	2.3	.1	10.1	14.3	6.8	997
Age in months	0-11	76.2	81.8	52.9	31.6	2.2	2.3	2.5	14.5	5.3	.4	2.3	.1	5.7	9.9	9.2	264
	12-23	82.2	84.9	51.8	35.3	1.7	.9	.5	13.8	5.0	.6	2.1	.0	7.2	19.5	5.9	292
	24-35	79.2	85.4	57.7	34.7	3.7	.5	.0	9.5	7.9	.7	1.3	.3	8.6	15.1	5.9	286
	36-47	84.9	86.2	55.6	32.2	4.4	.7	.6	11.0	7.1	.6	2.6	.1	12.4	14.6	5.2	283
	48-59	75.5	82.4	56.7	41.3	.5	2.3	.0	6.3	5.4	1.7	2.3	.4	12.3	14.1	5.7	204
	DK/Missing	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	1
Mother's education	None	81.6	85.4	53.6	33.0	2.8	1.2	.9	10.9	5.8	.9	2.5	.1	10.1	14.1	6.4	971
	Primary	76.3	81.8	57.0	37.0	3.1	1.9	.0	14.4	8.4	.0	1.2	.4	6.1	13.2	5.3	193
	Secondary	73.7	80.1	59.3	42.6	1.0	1.3	.9	9.4	6.1	.9	.9	.0	6.8	20.4	7.0	167
Wealth index quintiles	Poorest	82.5	84.3	53.5	30.7	3.3	.9	1.4	9.7	4.1	.0	3.2	.0	9.6	14.9	8.4	306
	Second	78.9	82.0	53.4	38.0	2.3	2.1	.4	11.1	4.8	1.3	1.1	.1	11.2	13.8	8.7	309
	Middle	77.9	81.6	54.5	27.3	2.9	.7	.5	15.0	5.3	.9	2.9	.3	12.6	15.0	5.7	310
	Fourth	83.3	90.7	57.6	42.2	1.2	1.0	.4	9.1	11.9	1.0	1.3	.1	4.5	15.7	3.5	232
	Richest	75.7	83.9	56.2	39.9	3.3	2.0	1.2	10.5	6.2	.5	1.7	.5	4.5	14.4	3.2	174
Total		**79.8**	**84.2**	**54.8**	**34.8**	**2.6**	**1.3**	**.8**	**11.2**	**6.2**	**.7**	**2.1**	**.2**	**9.1**	**14.8**	**6.3**	**1331**

[1] MICS indicator 3.8

[*] Based on less than 25 unweighted cases and has been suppressed.



Care Seeking and Antibiotic Treatment of Pneumonia

Pneumonia is the leading global cause of death in children. The use of antibiotics to treat under-5s for suspected pneumonia is a key intervention to reduce pneumonia-associated child mortality. In the MICS4 survey, children with suspected pneumonia are defined as those who had an illness with a cough accompanied by rapid or difficult breathing within the two weeks prior to the survey and whose symptoms were NOT due to a problem in the chest or a blocked nose.

The indicators measured in the MICS4 Survey that are related to care seeking behaviour of mothers for antibiotic treatment of pneumonia include the following:

- Prevalence of suspected pneumonia
- Care seeking for suspected pneumonia
- Antibiotic treatment for suspected pneumonia
- Knowledge of the danger signs of pneumonia

Table CH.7: Care seeking for suspected pneumonia and antibiotic use during suspected pneumonia

Percentage of children age 0-59 months with suspected pneumonia in the last two weeks who were taken to a health provider and percentage of children who were given antibiotics, Sierra Leone, 2010

		Had suspected pneumonia in the last two weeks	Number of children age 0-59 months	Children with suspected pneumonia who were taken to:															Any appropriate provider [1]	Percentage of children with suspected pneumonia who received antibiotics in the last two weeks [2]	Number of children age 0-59 months with suspected pneumonia in the last two weeks
				Public sector: Government hospital	Public sector: Government health center	Public sector: Government health post	Public sector: Village health worker	Public sector: Mobile / Outreach clinic	Other public	Private hospital / clinic	Private physician	Private pharmacy	Mobile clinic	Other private medical	Relative / Friend	Shop	Traditional practitioner	Other			
Sex	Male	8.3	4288	7.8	40.8	13.0	6.6	.6	.0	3.6	.3	3.9	.6	.4	5.0	.8	1.6	.3	72.2	55.2	357
	Female	9.1	4306	12.7	45.1	10.8	2.7	.4	.8	2.4	1.7	2.3	.9	.8	2.4	.4	.5	1.5	75.4	59.8	393
	Missing	*	4	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	2
Region	East	12.7	2371	10.0	42.1	16.4	4.2	.8	.0	1.8	2.0	2.9	1.8	.0	4.3	1.1	2.2	.7	75.4	58.2	300
	North	8.3	3218	8.0	48.3	11.8	4.2	.0	.0	2.0	.2	3.5	.2	.2	2.6	.5	.2	.0	74.6	60.1	266
	South	6.8	2132	13.5	39.3	5.6	7.0	.4	.9	3.1	.0	1.5	.0	1.3	4.7	.0	.5	1.9	68.9	45.1	146
	West	4.6	877	(17.2)	(27.9)	(.0)	(.0)	(1.8)	(4.3)	(17.8)	(2.6)	(6.2)	(.0)	(5.2)	(1.8)	(.0)	(.0)	(5.8)	(73.0)	(80.1)	40
District	Kailahun	11.0	837	9.1	46.3	23.5	6.6	.0	.0	.0	1.2	6.6	5.8	.0	1.5	.4	2.4	2.2	83.6	71.4	92
	Kenema	15.1	908	6.0	43.2	18.4	2.9	.8	.0	.0	3.6	1.6	.0	.0	3.8	2.1	2.1	.0	72.7	53.8	137
	Kono	11.3	627	18.7	34.5	3.5	3.8	1.8	.0	7.8	.0	.8	.0	.0	8.7	.0	2.1	.0	70.2	49.7	71
	Bombali	4.1	705	(19.9)	(36.6)	(22.9)	(2.8)	(.0)	(.0)	(2.0)	(.0)	(.0)	(.0)	(.0)	(.0)	(.0)	(.0)	(.0)	(84.1)	(83.8)	29
	Kambia	10.1	460	(.0)	(47.1)	(29.8)	(1.2)	(.0)	(.0)	(1.3)	(.0)	(.0)	(1.3)	(1.2)	(.0)	(2.6)	(.0)	(.0)	(80.8)	(60.2)	46
	Koinadugu	2.7	424	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	12
	Port Loko	4.7	873	(6.9)	(50.4)	(12.0)	(7.6)	(.0)	(.0)	(.0)	(1.2)	(.9)	(.0)	(.0)	(.0)	(.0)	(1.2)	(.0)	(78.2)	(57.3)	41
	Tonkolili	18.3	757	7.9	51.1	4.2	4.3	.0	.0	2.9	.0	6.2	.0	.0	5.0	.0	.0	.0	70.4	54.6	139
	Bo	10.0	851	14.7	37.6	.0	5.1	.0	1.6	4.1	.0	1.4	.0	2.3	8.1	.0	.0	2.8	63.7	40.3	85
	Bonthe	3.7	411	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	15
	Moyamba	5.0	431	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	21
	Pujehun	5.5	440	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	24
	Western Rural	7.1	233	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	17
	Western Urban	3.6	644	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	23
Area	Urban	7.7	2359	16.0	29.3	12.1	3.7	2.0	.9	7.4	.6	2.8	.3	2.1	2.2	.2	.6	2.8	72.0	63.4	182
	Rural	9.1	6240	8.5	47.3	11.7	4.8	.0	.2	1.6	1.2	3.1	.9	.1	4.1	.7	1.2	.3	74.3	55.6	569
Age	0-11	9.4	1824	12.7	44.4	15.5	4.6	.8	.0	4.1	3.2	1.4	.0	.7	1.4	.0	.3	.7	81.8	69.4	171
	12-23	9.9	1502	11.8	41.9	9.8	3.2	.0	2.1	2.8	.2	3.6	2.3	.5	4.8	.2	1.0	1.8	71.8	59.0	149
	24-35	9.1	1621	7.7	52.2	8.2	2.8	1.2	.0	4.2	1.1	2.3	1.7	1.0	1.7	.5	1.5	2.1	77.5	56.9	148
	36-47	8.3	1970	7.7	40.6	13.4	3.7	.0	.0	1.7	.2	2.8	.0	.4	6.4	.9	.5	.0	67.4	46.5	163
	48-59	6.9	1666	12.5	33.4	11.9	8.7	.5	.0	1.9	.0	6.0	.0	.5	2.9	.4	2.5	.0	68.4	56.1	115
	DK/Missing	*	16	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	6
Mother's education	None	9.1	6289	8.5	46.2	13.2	3.9	.5	.5	1.5	.7	3.2	.4	.8	3.0	.5	1.4	1.0	74.9	58.0	571
	Primary	9.0	1133	13.9	35.5	9.6	8.5	.0	.0	4.5	3.7	2.6	.0	.0	4.6	.0	.0	1.6	72.3	57.6	102
	Secondary	6.7	1176	19.0	29.2	4.6	3.8	.9	.0	11.7	.0	2.3	4.3	.0	6.6	2.2	.0	.0	67.3	53.5	79
Wealth index quintiles	Poorest	8.8	1951	8.2	47.3	8.8	6.1	.0	.0	.0	1.5	2.6	1.5	.0	6.0	.2	2.6	.2	71.9	60.2	171
	Second	10.2	1916	5.6	45.1	19.4	4.8	.3	.0	.9	.1	2.9	.0	.3	2.5	.0	1.5	.0	74.9	54.2	195
	Middle	9.6	1783	11.5	40.8	13.1	6.6	.0	.8	3.7	.9	2.3	.0	.6	3.1	.2	.3	2.3	76.1	57.3	171
	Fourth	9.1	1677	12.3	48.2	7.3	2.0	1.2	.0	4.0	1.7	4.4	2.2	1.5	3.5	2.4	.0	.8	76.0	55.0	153
	Richest	4.9	1271	23.6	17.3	3.6	.0	2.2	2.8	13.2	1.2	3.3	.0	1.3	2.3	.0	.0	2.6	63.0	66.8	62
Total		**8.7**	**8598**	**10.3**	**43.0**	**11.8**	**4.5**	**.5**	**.4**	**3.0**	**1.0**	**3.0**	**.8**	**.6**	**3.6**	**.6**	**1.0**	**.9**	**73.7**	**57.5**	**752**

[1] MICS indicator 3.9

[2] MICS indicator 3.10

[*] Based on less than 25 unweighted cases and has been suppressed.

Table CH.7 presents the prevalence of suspected pneumonia and—if care was sought outside the home—the site of care. Nine percent of children aged 0-59 months were reported to have had symptoms of pneumonia during the two weeks preceding the survey. Of these children, 74 percent were taken to an appropriate provider. The vast majority of children seen by an appropriate provider were seen at a government health facility. Children with suspected pneumonia were somewhat more likely to be seen by an appropriate provider if their mothers were uneducated, if they were from a younger age category, or if they were from households in the mid-level wealth quintiles.

Table CH.7 also presents the use of antibiotics for the treatment of suspected pneumonia in under-5s by sex, age, region, residence, age, and socioeconomic factors. In Sierra Leone, 58 percent of under-5 children with suspected pneumonia had received an antibiotic during the two weeks prior to the survey. The percentage was somewhat higher in urban areas and varies dramatically across regions; eighty percent of children with suspected pneumonia in the West were treated with antibiotics while only 45 percent of children in the south received this standard of care. The table also shows that treatment of suspected pneumonia with antibiotics varied modestly and inconsistently by household wealth level and was moderately higher among children whose mothers/caretakers had a primary education or were uneducated. The use of antibiotics decreases with the increasing age of the child.

Issues related to knowledge of danger signs of pneumonia are presented in Table CH.8. Mothers' knowledge of danger signs is usually an important determinant of care-seeking behaviour. Overall, only eight percent of respondents could state both of the danger signs of pneumonia – fast and difficult breathing. The most commonly identified symptom for taking a child to a health facility is "develops a fever" (stated by 85 percent of respondents). Nineteen percent of mothers identified fast breathing and 21 percent of mothers identified difficult breathing as symptoms for taking children immediately to a health care provider. There is notable variation across regions regarding the percentage of mothers who correctly recognize the two danger signs of pneumonia, ranging from two percent in the east to thirteen percent in the south. There are no apparent associations between correct knowledge and other background variables.

Table CH.8: Knowledge of the two danger signs of pneumonia
Percentage of mothers and caretakers of children age 0-59 months by symptoms that would cause them to take the child immediately to a health facility, and percentage of mothers who recognize fast and difficult breathing as signs for seeking care immediately, Sierra Leone, 2010

		Percentage of mothers/caretakers who think that a child should be taken immediately to a health facility if the child:								Mothers/ caretakers who recognize the two danger signs of pneumonia	Number of mothers/ caretakers of children age 0-59 months
		Is not able to drink or breastfeed	Become s sicker	Develops a fever	Has fast breathing	Has difficulty breathing	Has blood in stool	Is drinking poorly	Has other symptoms		
Region	East	15.5	36.1	87.5	9.9	12.9	12.1	3.7	33.6	2.4	1647
	North	17.9	45.3	81.6	22.2	24.0	18.6	4.0	25.8	7.9	2262
	South	13.1	49.2	87.3	21.7	24.3	24.8	7.0	24.4	13.3	1471
	West	20.7	50.9	81.9	24.7	25.6	20.6	10.6	18.7	11.6	677
Area	Urban	15.2	44.4	84.7	18.3	21.6	20.4	7.0	29.8	7.6	1694
	Rural	16.8	44.3	84.5	19.3	21.1	17.8	4.8	25.6	8.4	4364
Education	None	16.0	45.3	84.2	19.2	22.1	18.6	5.0	25.1	8.3	4349
	Primary	17.7	41.3	86.0	17.6	16.2	15.5	5.5	33.6	6.7	771
	Secondary +	17.1	42.4	85.1	19.2	21.3	20.9	7.2	29.1	8.6	938
Wealth index quintiles	Poorest	15.1	52.1	83.5	19.7	23.6	21.7	4.4	22.2	9.9	1352
	Second	16.7	43.5	85.3	20.2	22.0	17.6	6.0	25.3	8.9	1298
	Middle	18.9	41.1	85.0	18.4	20.2	16.6	4.3	28.5	7.1	1247
	Fourth	15.3	39.7	85.8	18.2	17.8	17.5	4.6	30.8	6.2	1191
	Richest	15.9	44.5	83.1	18.2	22.3	19.1	8.3	27.9	8.3	971
Total		**16.4**	**44.4**	**84.6**	**19.0**	**21.2**	**18.5**	**5.4**	**26.8**	**8.1**	**6058**

Discussion: Care-seeking and antibiotic treatment of pneumonia

The MICS4 survey has documented higher rates of treatment of suspected pneumonia with antibiotics than were measured in previous surveys. Child health experts in Sierra Leone note that prior to the introduction of the Integrated Management of Childhood Illnesses (IMCI) program in Sierra Leone, children with fever were presumed to have malaria and were often prescribed anti-malarials and not examined carefully for ARI. The introduction of IMCI has led to more effective community-based treatment of child illnesses using a holistic approach. The success of this approach is reflected in the increased treatment rates of suspected pneumonia.

Pilot efforts are underway in Sierra Leone to make the treatment of childhood illness at the community level more horizontal through cadres of community health volunteers (CHVs). This effort is currently emerging and the duties of some CHVs remain vertically oriented. The government has drafted a policy on the role of CHVs in the treatment of childhood illnesses that is to be validated in the near future.

Solid Fuel Use

More than 3 billion people around the world rely on solid fuels (biomass and coal) for their basic energy needs, including cooking and heating. Cooking and heating with solid fuels can lead to high levels of indoor smoke which contains a complex mix of health-damaging pollutants.

Table CH.9: Solid fuel use
Percent distribution of household members according to type of cooking fuel used by the household, and percentage of household members living in households using solid fuels for cooking, Sierra Leone, 2010

		Percentage of household members who use:					Use of solid fuel for cooking [1]	Number of household members
		Petroleum products***	Charcoal	Wood	Others	Total		
Region	East	0	7.4	91.9	0.6	100	99.6	16922
	North	0	3.6	96	0.4	100	99.8	24355
	South	0.1	3.1	96.3	0.4	100	99.6	15865
	West	0.7	69.8	27.7	1.7	100	97.6	9565
District	Kailahun	0	1	98.7	0.4	100	99.6	5627
	Kenema	0	8	91	0.9	100	99.5	6960
	Kono	0.2	14.9	84.6	0.4	100	99.6	4336
	Bombali	0	5	94.8	0.2	100	99.9	5511
	Kambia	0	1.4	97.4	1.2	100	99.6	3208
	Koinadugu	0.1	3.6	96	0.3	100	99.7	3365
	Port Loko	0	6.1	93.8	0	100	100	6703
	Tonkolili	0.1	0.4	99.1	0.2	100	99.7	5568
	Bo	0.1	6.1	93.5	0.3	100	99.7	6477
	Bonthe	0	0.7	99.3	0	100	100	2841
	Moyamba	0	1.1	98.1	0.8	100	99.3	3175
	Pujehun	0.4	1.3	97.5	0.8	100	99.2	3372
	Western Rural	0.3	31.2	67.6	0.9	100	99.1	1982
	Western Urban	0.9	79.9	17.3	1.8	100	97.3	7584
Area	Urban	0.3	38.7	59.9	1.1	100	98.6	21153
	Rural	0.1	2.5	97.1	0.4	100	99.7	45554
Education of household head	None	0.1	7.9	91.5	0.5	100	99.6	44900
	Primary	0	12.3	87	0.7	100	99.3	6093
	Secondary +	0.4	32	66.6	0.8	100	98.7	15640
	Missing/DK	0	26.2	73.8	0	100	100	75
Wealth index quintiles	Poorest	0.1	0	99.8	0	100	99.9	13342
	Second	0	0.4	99.2	0.4	100	99.8	13347
	Middle	0.1	1.4	97.9	0.6	100	99.5	13338
	Fourth	0.1	4.7	94.5	0.8	100	99.4	13343
	Richest	0.6	63.4	34.8	1.2	100	98.2	13336
Total		0.2	**14**	**85.3**	0.6	**100**	**99.4**	**66707**

[1] MICS indicator 3.11
[***] Petroleum products include electricity, bio gas, kerosene, coal etc
Others include Straw, agricultural crop, others and missing

The main problem with the use of solid fuels is that products of incomplete combustion—including CO, polyaromatic hydrocarbons, SO_2, and other toxic elements—remain in the air indoors and are inhaled by all household members. The use of solid fuels increases the risks of acute respiratory illness, pneumonia, chronic obstructive lung disease, cancer, low birth weight, cataracts, asthma, and possibly tuberculosis. The primary indicator that was measured in the MICS4 survey regarding the use of solid fuel is the proportion of the population using solid fuels as the primary source of energy for cooking.

The use of solid fuel for cooking is universal (99 percent) across Sierra Leone. The population essentially uses two types of fuel for cooking: wood and charcoal. The only significant variation in solid fuel use is among the percentage of households that use charcoal for cooking versus wood. The use of charcoal is higher in urban areas as compared to rural areas and is much higher in the West than in other regions. Higher levels of use of charcoal are associated with higher levels of household wealth and higher education levels of the household head.

Table CH.10: Solid fuel use by place of cooking
Percent distribution of household members in households using solid fuels by place of cooking, Sierra Leone, 2010

		Place of cooking:							Number of household members in households using solid fuels for cooking
		In a separate room used as kitchen	Elsewhere in the house	In a separate building	Outdoors	Other	Missing	Total	
Region	East	5.7	5.6	37.5	50.8	.2	.2	100.0	16851
	North	6.2	9.2	42.3	41.7	.2	.4	100.0	24309
	South	6.3	8.3	48.8	36.0	.4	.1	100.0	15797
	West	16.2	5.3	23.4	54.3	.4	.4	100.0	9339
District	Kailahun	1.8	2.8	46.8	48.3	.0	.3	100.0	5606
	Kenema	6.0	6.6	42.3	44.8	.2	.1	100.0	6926
	Kono	10.3	7.7	17.6	63.7	.5	.3	100.0	4319
	Bombali	5.0	1.9	44.4	47.3	.4	.9	100.0	5506
	Kambia	2.1	1.7	73.4	21.8	.0	.9	100.0	3195
	Koinadugu	7.6	7.0	24.1	60.5	.3	.5	100.0	3356
	Port Loko	5.4	13.6	39.0	42.0	.0	.0	100.0	6701
	Tonkolili	9.9	16.9	37.1	35.9	.2	.0	100.0	5552
	Bo	1.3	10.4	57.8	30.3	.2	.1	100.0	6460
	Bonthe	2.4	3.7	43.4	50.2	.3	.0	100.0	2841
	Moyamba	7.6	8.6	45.6	37.3	.9	.1	100.0	3151
	Pujehun	18.2	7.9	38.9	33.8	.7	.5	100.0	3344
	Western Rural	10.0	9.2	39.2	41.2	.5	.0	100.0	1963
	Western Urban	17.9	4.3	19.2	57.8	.4	.5	100.0	7376
Area	Urban	10.0	5.8	35.0	48.7	.3	.3	100.0	20865
	Rural	6.4	8.3	42.2	42.5	.3	.3	100.0	45431
Education of household head	None	6.4	7.9	40.3	44.8	.3	.3	100.0	44737
	Primary	6.7	6.6	43.6	42.7	.3	.2	100.0	6051
	Secondary +	11.0	6.7	37.6	44.0	.4	.3	100.0	15433
	Missing/DK	14.3	3.9	36.7	45.2	.0	.0	100.0	75
Wealth index quintiles	Poorest	5.7	12.2	31.3	50.2	.4	.3	100.0	13331
	Second	5.3	7.9	37.2	49.1	.4	.2	100.0	13323
	Middle	6.6	6.0	48.6	38.2	.2	.4	100.0	13277
	Fourth	6.2	5.0	51.4	36.9	.3	.2	100.0	13267
	Richest	14.0	6.4	31.1	47.8	.3	.4	100.0	13097
Total		**7.5**	**7.5**	**39.9**	**44.4**	**.3**	**.3**	**100.0**	**66296**

Solid fuel use alone is a poor proxy for indoor air pollution, since the concentration of the pollutants is different when the same fuel is burnt in different types of stoves or fires. Use of closed stoves with chimneys minimizes indoor pollution, while an open stove or fire with no chimney or hood means that there is no protection from the harmful effects of solid fuels. The places where Sierra Leoneans perform domestic cooking are depicted in Table CH.10. Eighty-four percent of households in Sierra Leone cook either in a separate building or outdoors. There is not much variation in this figure across the various background characteristics except in the West and among the richest wealth quintile, where there is a higher use of a separate room within the main house as a kitchen.

Malaria

Malaria is a leading cause of death of children under age five in Sierra Leone. It also contributes to anaemia in children and is a common cause of school absenteeism. Preventive measures, especially the use of mosquito nets treated with insecticide (ITNs), can dramatically reduce malaria mortality rates among children. In areas where malaria is common, international recommendations suggest treating any fever in children as if it were malaria and immediately giving the child a full course of recommended anti-malarial tablets. Children with severe malaria symptoms, such as extremely high fever or convulsions, should be taken to a health facility. Also, children recovering from malaria should be given extra liquids and food and, for younger children, should continue breastfeeding.

Table CH.11: Household availability of insecticide treated nets and protection by a vector control methods
Percentage of households with at least one mosquito net, percentage of households with at least one long-lasting treated net, percentage of households with at least one insecticide treated net (ITN) and percentage of households which either have at least one ITN or have received spraying through an indoor residual spraying (IRS) campaign in the last 12 months, Sierra Leone, 2010

		Percentage of households with at least one mosquito net	Percentage of households with at least one long-lasting treated net	Percentage of households with at least one ITN [1]	Percentage of households with at least one ITN or received IRS during the last 12 months [2]	Number of households
Region	East	36.0	33.2	35.1	35.3	3072
	North	40.9	37.3	38.5	38.7	3761
	South	43.2	38.5	40.2	40.3	2760
	West	26.1	24.7	25.0	33.7	1801
District	Kailahun	38.0	36.4	37.5	37.5	991
	Kenema	32.4	30.7	31.2	31.4	1287
	Kono	39.3	33.4	38.5	38.7	793
	Bombali	50.0	47.0	47.9	48.1	849
	Kambia	45.7	37.9	41.8	42.3	411
	Koinadugu	40.2	28.2	30.9	31.3	517
	Port Loko	36.5	35.4	36.0	36.1	971
	Tonkolili	36.0	35.6	35.6	35.8	1013
	Bo	47.0	42.1	42.6	42.6	1100
	Bonthe	42.6	37.1	41.2	41.2	466
	Moyamba	38.5	33.8	35.5	35.8	569
	Pujehun	41.4	37.6	39.6	39.6	625
	Western Rural	30.7	27.5	28.7	29.2	355
	Western Urban	24.9	24.0	24.2	34.9	1447
Area	Urban	34.3	31.4	32.5	36.9	3608
	Rural	39.4	36.0	37.5	37.6	7786
Education of household head	None	35.7	32.4	33.9	34.5	7460
	Primary	41.6	38.7	39.4	40.8	1056
	Secondary +	42.1	38.5	39.8	43.8	2864
	Missing/DK	*	*	*	*	14
Wealth index quintiles	Poorest	30.6	27.5	28.9	28.9	2481
	Second	37.3	33.9	35.2	35.5	2322
	Middle	44.8	41.2	43.2	43.4	2180
	Fourth	42.3	38.3	39.7	40.1	2088
	Richest	35.4	33.0	33.6	40.3	2323
Total		**37.8**	**34.5**	**35.9**	**37.4**	**11394**

[1] MICS indicator 3.12, [2] MICS indicator 3.13
[*] Based on less than 25 unweighted cases and has been suppressed.

The MICS4 questionnaire incorporates questions on the availability and use of bed nets, both at household level as well as among children under five years of age and pregnant women. Other questions address anti-malarial treatment, intermittent preventive therapy for malaria, and indoor residual spraying of households. It should be noted that the MICS4 survey was conducted just before a mass distribution of ITNs to every household in Sierra Leone that took place in December 2010. The results presented here are therefore perhaps best viewed as representing the situation with respect to ITN availability and use just prior to the distribution campaign. The MICS4 survey results indicate that 36 percent of households in Sierra Leone have at least one insecticide treated net (Table CH.11). Only 38 percent of households were found to have at least one mosquito net of any type, suggesting that most available nets are treated. The ownership of at least one ITN was positively associated with increasing education of the household head and rural location. The ITN ownership rate was especially low in the West as compared to other regions.

Table CH.12: Children sleeping under mosquito nets

Percentage of children age 0-59 months who slept under a mosquito net during the previous night, by type of net, Sierra Leone, 2010

		Percentage of children age 0-59 who stayed in the household the previous night	Number of children age 0-59 months	Percentage of children who: Slept under any mosquito net [1]	Percentage of children who: Slept under an insecticide treated net [2]	Number of children age 0-59 months who slept in the household the previous night	Percentage of children who slept under an ITN living in households with at least one ITN	Number of children age 0-59 living in households with at least one ITN
Sex	Male	98.7	4288	31.8	29.9	4234	69.6	1821
	Female	98.3	4306	32.2	30.7	4235	70.6	1844
	Missing	*	4	*	*	4	*	1
Region	East	96.6	2371	30.0	29.1	2290	67.9	982
	North	99.6	3218	32.4	30.8	3205	69.2	1427
	South	98.8	2132	37.9	35.1	2106	75.1	984
	West	99.4	877	21.4	20.2	872	64.2	274
District	Kailahun	95.9	837	33.4	32.8	803	69.1	380
	Kenema	96.0	908	26.1	25.1	871	67.8	322
	Kono	98.3	627	31.1	30.1	616	66.4	279
	Bombali	99.8	705	42.8	41.3	703	72.7	400
	Kambia	99.9	460	31.0	27.0	459	62.3	199
	Koinadugu	99.8	424	23.0	19.5	423	58.7	141
	Port Loko	99.7	873	29.8	29.2	870	70.0	363
	Tonkolili	99.0	757	31.8	31.6	749	72.9	324
	Bo	97.8	851	41.2	37.9	832	73.6	428
	Bonthe	99.2	411	33.1	31.8	407	78.8	165
	Moyamba	99.5	431	33.0	30.8	428	73.7	179
	Pujehun	99.5	440	40.7	37.2	438	76.5	213
	Western Rural	99.7	233	24.6	23.2	232	76.8	70
	Western Urban	99.3	644	20.2	19.1	640	59.9	204
Area	Urban	98.9	2359	28.7	27.0	2334	67.5	933
	Rural	98.4	6240	33.2	31.6	6139	71.0	2733
Age in months	0-11	98.3	1824	39.4	38.2	1792	77.8	878
	12-23	98.9	1502	32.9	30.9	1486	73.6	624
	24-35	98.9	1621	34.3	32.1	1603	74.6	690
	36-47	98.6	1970	29.0	27.4	1943	65.8	809
	48-59	98.0	1666	24.2	23.1	1632	57.3	656
	DK/Missing	*	16	*	*	16	*	9
Mother's education	None	98.6	6289	31.4	29.8	6199	70.0	2639
	Primary	97.7	1133	32.8	31.7	1106	71.5	490
	Secondary	99.2	1176	34.2	31.9	1167	69.3	537
Wealth index quintiles	Poorest	98.5	1951	28.3	26.6	1921	74.2	689
	Second	98.3	1916	29.8	27.8	1884	70.8	741
	Middle	98.5	1783	37.0	35.7	1757	68.1	921
	Fourth	98.3	1677	33.2	31.6	1648	67.3	772
	Richest	99.3	1271	32.3	30.7	1262	71.3	543
Total		**98.5**	**8598**	**32.0**	**30.3**	**8473**	**70.1**	**3666**

[1] MICS indicator 3.14

[2] MICS indicator 3.15; MDG indicator 6.7

[*] Based on less than 25 unweighted cases and has been suppressed.

Other MICS4 results indicate that 32 percent of children under the age of five slept under any mosquito net the night prior to the survey and 30 percent slept under an insecticide treated net (Table CH.12). Among households with at least one ITN, only seventy percent of children slept under an ITN. There were no significant gender disparities in ITN use among children under five. Availability of ITNs and the percentage of children who sleep under them are highest in the south and lowest in the West. The percentage of children who sleep under bed nets decreases with increasing age of child.

Table CH.13 presents the proportion of pregnant women who slept under a mosquito net during the previous night. Twenty-eight percent of pregnant women slept under any mosquito net the night prior to the survey and an equivalent percentage slept under an insecticide treated net. Pregnant women's patterns of use of bed nets were almost identical to those of children under five as described directly above; use was highest in the south and lowest in the West. Among households with at least one ITN, seventy-one percent of pregnant women slept under an ITN.

Table CH.13: Pregnant women sleeping under mosquito nets

Percentage of pregnant women who slept under a mosquito net during the previous night, by type of net, Sierra Leone, 2010

		Percentage of pregnant women who stayed in the household the previous night	Number of pregnant women	Percentage of pregnant women who: Slept under any mosquito net	Percentage of pregnant women who slept under an insecticide treated net [1]	Number of pregnant women who slept in the household the previous night	Percentage of pregnant women who slept under an ITN, living in households with at least one ITN	Number of pregnant women living in households with at least one ITN
Region	East	92.5	400	27.6	27.3	370	72.4	140
	North	98.1	577	26.9	26.1	567	67.4	219
	South	97.1	334	35.3	33.5	325	74.6	146
	West	99.1	120	(19.2)	(19.2)	(119)	(73.2)	31
District	Kailahun	86.7	129	(21.7)	(21.7)	(112)	(61.9)	39
	Kenema	96.1	193	27.1	27.1	186	75.0	67
	Kono	93.2	78	(37.9)	(36.5)	(72)	(79.6)	33
	Bombali	99.2	112	33.6	32.3	111	68.5	52
	Kambia	99.2	58	*	*	*	*	18
	Koinadugu	97.8	63	(28.1)	(27.2)	(61)	(60.3)	28
	Port Loko	98.1	229	28.0	27.4	225	70.1	88
	Tonkolili	96.7	115	(18.9)	(18.9)	(111)	(64.2)	33
	Bo	95.9	131	39.4	36.4	126	74.7	61
	Bonthe	98.3	57	(43.5)	(39.9)	(56)	(69.7)	32
	Moyamba	97.8	59	*	*	*	*	15
	Pujehun	97.8	87	(32.8)	(32.8)	(85)	(74.6)	37
	Western Rural	(99.8)	42	*	*	*	*	9
	Western Urban	98.8	77	*	*	*	*	22
Area	Urban	97.9	395	25.5	24.8	386	68.5	140
	Rural	95.9	1037	29.5	28.6	994	71.9	396
Age	15-19	97.9	198	27.1	27.1	194	63.5	82
	20-24	95.8	295	30.3	28.2	282	69.2	115
	25-29	97.7	403	26.9	26.4	394	72.8	143
	30-34	95.2	280	25.1	24.4	267	73.4	89
	35-39	94.4	188	34.6	33.5	178	76.0	78
	40-44	(100.0)	48	*	*	*	*	21
	45-49	*	19	*	*	*	*	8
Education	None	96.6	1039	27.0	26.3	1004	71.5	369
	Primary	96.1	196	32.9	32.4	188	69.5	88
	Secondary +	95.7	197	31.5	29.4	188	70.2	79
Wealth index quintiles	Poorest	98.1	365	24.0	23.1	358	70.4	117
	Second	96.7	308	31.0	31.0	298	73.9	125
	Middle	94.9	323	33.1	32.2	306	77.4	127
	Fourth	96.1	256	23.6	22.7	246	59.7	93
	Richest	95.7	180	31.6	29.5	172	70.4	72
Total		**96.4**	**1431**	**28.4**	**27.6**	**1380**	**71.0**	**536**

[1] MICS indicator 3.19

[*] Based on less than 25 unweighted cases and has been suppressed.

Questions on the prevalence and treatment of fever were asked for all children under age five. Almost two in five children under five (37 percent) were ill with fever in the two weeks prior to the survey (Table CH.14). Fever prevalence peaked at 40 percent among children aged 13-48 months. Fever is less common among children whose mothers have secondary or higher education than among children of less educated mothers. Fever prevalence varied significantly across regions, from 26 percent in the south to 44 percent in the north. Fever prevalence was somewhat lower among children living in households in the upper wealth quintile as compared to households in other quintiles.

Table CH.14: Anti-malarial treatment of children with anti-malarial drugs

Percentage of children aged 0-59 months who had fever in the last two weeks who received anti-malarial drugs, Sierra Leone, 2010

				Children with a fever in the last two weeks who were treated with:													
		Had a fever in last two weeks	Number of children age 0-59 months	Anti-malarials: SP / Fansidar	Anti-malarials: Chloroquine	Anti-malarials: Armodiaquine	Anti-malarials: Quinine	Anti-malarials: Artemisinin based combinations	Anti-malarials: Other Anti-malarial	Anti-malarials: Any anti-malarial drug [1]	Other medications: Paracetamol /Panadol/Acetaminophan	Other medications : Aspirin	Other medications : Ibuprofen	Other medications : Other	Don't know	Percentage who took an anti-malarial drug same or next day [2]	Number of children with fever in last two weeks
Sex	Male	37.0	4288	16.3	11.2	17.6	1.9	18.1	7.9	61.0	59.4	4.8	.3	17.9	1.7	50.5	1589
	Female	36.7	4306	14.2	10.9	19.5	2.5	20.4	7.5	63.0	61.7	4.6	.3	14.7	1.4	50.1	1580
	Missing	*	4	*	*	*	*	*	*	*	*	*	*	*	*	*	3
Region	East	39.2	2371	18.9	13.7	10.0	2.2	13.4	12.1	62.3	65.1	4.2	.0	18.8	.8	51.8	930
	North	44.2	3218	12.1	10.6	23.8	2.5	24.2	3.1	62.6	61.3	6.5	.5	14.6	2.7	50.2	1423
	South	26.4	2132	16.2	9.5	18.3	1.0	20.8	13.3	63.4	48.5	2.3	.3	17.1	.5	49.9	563
	West	29.0	877	17.6	7.5	22.5	2.8	8.9	4.3	55.4	65.8	1.8	.0	14.8	.4	46.9	254
District	Kailahun	34.4	837	30.7	10.9	10.2	3.2	7.4	15.7	70.6	64.3	6.0	.0	17.0	.3	64.1	287
	Kenema	39.8	908	17.4	9.0	6.6	2.1	16.1	16.3	61.3	67.9	4.1	.0	26.9	.6	50.0	361
	Kono	44.9	627	8.9	22.4	14.1	1.4	16.1	3.1	55.1	62.4	2.4	.0	10.3	1.4	41.5	281
	Bombali	45.9	705	17.0	9.3	7.3	.5	12.3	2.2	44.0	71.0	17.6	.4	14.1	1.9	34.4	323
	Kambia	48.0	460	3.7	11.8	29.9	1.9	37.7	3.7	64.3	60.6	1.0	.0	15.8	2.6	55.5	221
	Koinadugu	29.9	424	20.0	18.7	12.3	3.1	8.3	11.6	62.1	52.3	1.6	.1	10.5	.0	49.8	127
	Port Loko	39.1	873	15.6	7.1	48.4	1.7	10.0	.0	79.3	55.7	3.2	.2	14.3	.6	65.6	341
	Tonkolili	54.3	757	7.3	11.4	16.7	5.0	43.1	3.4	62.4	61.6	5.0	1.2	15.9	6.0	47.0	411
	Bo	28.2	851	8.6	8.4	13.0	.5	16.9	26.2	65.5	51.1	2.9	.5	15.2	.0	49.0	240
	Bonthe	24.3	411	9.8	5.2	46.2	.6	27.6	4.9	66.3	53.9	1.5	.5	24.0	1.1	57.9	100
	Moyamba	27.7	431	24.3	12.6	15.2	1.7	13.0	5.5	53.3	46.2	1.6	.0	22.4	.6	44.9	119
	Pujehun	23.6	440	30.5	12.4	7.3	1.7	31.9	.8	67.1	39.8	2.7	.0	8.6	1.0	50.3	104
	Western Rural	36.7	233	24.0	12.9	27.8	2.6	5.6	.1	59.9	72.1	1.8	.0	10.9	.8	54.3	85
	Western Urban	26.2	644	14.4	4.8	19.8	2.9	10.6	6.5	53.1	62.6	1.7	.0	16.8	.3	43.2	169
Area	Urban	32.5	2359	16.3	10.4	18.6	2.2	14.0	8.2	59.4	60.3	3.5	.2	15.4	1.6	45.9	766
	Rural	38.5	6240	14.9	11.3	18.7	2.2	20.9	7.5	62.9	60.6	5.1	.3	16.6	1.5	51.8	2405
Age	0-11	28.2	1824	12.5	7.7	13.2	2.0	16.4	5.4	49.7	51.2	3.2	.0	8.8	2.9	41.6	514
	12-23	40.3	1502	12.5	12.6	17.2	.8	21.6	9.8	64.2	60.7	6.7	.5	17.4	1.7	53.0	606
	24-35	40.2	1621	20.6	9.9	20.1	2.7	19.1	8.0	65.9	64.2	5.0	.3	17.2	1.8	53.3	651
	36-47	40.6	1970	13.6	13.5	20.1	2.4	18.8	8.2	64.1	62.9	4.3	.4	20.5	.8	50.3	801
	48-59	35.3	1666	16.8	10.0	21.7	2.9	20.0	6.1	63.5	61.6	3.9	.3	15.3	1.2	52.3	589
	DK/Missing	*	16	*	*	*	*	*	*	*	*	*	*	*	*	*	11
Mother's education	None	37.6	6289	15.3	10.5	19.7	2.2	19.0	7.0	61.6	60.0	4.9	.3	16.3	1.9	50.7	2362
	Primary	39.8	1133	12.8	12.7	13.2	1.6	21.6	10.2	61.3	60.1	2.8	.0	15.9	1.2	47.4	451
	Secondary	30.4	1176	17.9	12.6	18.5	2.5	17.9	9.0	65.8	64.8	6.0	.8	16.7	.2	51.4	358
Wealth index quintiles	Poorest	34.2	1951	11.7	10.0	20.2	2.3	20.1	8.8	58.8	55.8	3.1	.6	15.4	2.3	47.2	668
	Second	39.0	1916	14.1	10.7	18.2	2.1	21.0	7.5	62.7	59.1	3.7	.1	14.1	1.6	52.0	747
	Middle	40.5	1783	19.0	11.1	15.9	1.7	19.2	8.0	63.1	61.3	6.6	.4	17.0	1.2	51.0	722
	Fourth	38.8	1677	15.1	13.0	20.6	1.9	18.2	6.2	63.5	63.5	6.4	.2	18.0	1.8	52.4	651
	Richest	30.2	1271	16.9	10.1	18.7	3.6	15.8	7.7	61.9	65.0	3.0	.0	18.0	.5	47.8	384
Total		36.9	8598	15.3	11.1	18.7	2.2	19.2	7.7	62.1	60.5	4.7	.3	16.3	1.6	50.3	3171

[1] MICS indicator 3.18; MDG indicator 6.8

[2] MICS indicator 3.17

[*] Based on less than 25 unweighted cases and has been suppressed.

Mothers / caretakers of children who had a fever in the two weeks prior to the survey were asked to report all of the medicines given to the child to treat the fever, including both medicines given at home and medicines given or prescribed at a health facility. Overall, 62 percent of children with fever in the last two weeks were treated with an anti-malarial drug and 50 percent received an anti-malarial drug within 24 hours of onset of symptoms.

National policy in Sierra Leone is to treat severe malaria using Artemisinin Combination Therapy (ACT) and quinine and to use fansidar (SP) for intermittent preventive treatment (IPT). The use of chloroquine, armodiaquine alone and SP for active case treatment is not considered to be correct according to treatment guidelines in Sierra Leone. Among children with fever who were surveyed in MICS4, 11 percent were given chloroquine, 15 percent were given SP, 19 percent received ACT while another nineteen percent received armodiaquine. Sixty-one percent of children with fever were given paracetemol while 5 percent were given aspirin.

Table CH.15: Malaria diagnostics usage
Percentage of children age 0-59 months who had a fever in the last two weeks and who had a finger or heel stick for malaria testing, Sierra Leone, 2010

		Had a finger or heel stick [1]	Number of children age 0-59 months with fever in the last two weeks
Sex	Male	24.6	4288
	Female	26.4	4306
	Missing	*	4
Region	East	24.1	2371
	North	23.0	3218
	South	35.6	2132
	West	22.3	877
District	Kailahun	28.1	837
	Kenema	21.1	908
	Kono	24.0	627
	Bombali	24.6	705
	Kambia	41.2	460
	Koinadugu	14.6	424
	Port Loko	14.8	873
	Tonkolili	21.4	757
	Bo	46.3	851
	Bonthe	19.6	411
	Moyamba	14.3	431
	Pujehun	50.8	440
	Western Rural	18.6	233
	Western Urban	24.2	644
Area	Urban	27.6	2359
	Rural	24.9	6240
Age in months	0-11	27.0	1824
	12-23	24.4	1502
	24-35	24.7	1621
	36-47	27.8	1970
	48-59	23.2	1666
	DK/Missing	*	16
Mother's education	None	25.0	6289
	Primary	25.1	1133
	Secondary	29.8	1176
Wealth index quintiles	Poorest	25.3	1951
	Second	22.6	1916
	Middle	27.4	1783
	Fourth	25.4	1677
	Richest	28.2	1271
Total		25.5	3171

[1] MICS indicator 3.16
[*] Based on less than 25 unweighted cases and has been suppressed.

Overall, children with fever in the West are somewhat less likely than children in the other three regions to have received an anti-malarial drug (Table CH.14). Rural children are slightly more likely than urban children to be treated with an anti-malarial drug as are children above the age of 12 months. Little difference was noted between boys and girls with regards to treatment patterns.

Table CH.15 describes the percentage of children aged 0-59 months who had a fever in the last two weeks and who had a finger or heel stick for malaria testing. Overall, 26 percent of children with a

fever in the last two weeks had a finger or heel stick. Testing for malaria was higher in the south (36 percent) than in other regions (22-24 percent). Differences in the percentage of children tested among the other background variables assessed in the MICS4 survey were relatively minor.

Pregnant women living in places where malaria is highly prevalent are four times more likely than other adults to get malaria and twice as likely to die of the disease. Once infected, pregnant women risk anemia, premature delivery and stillbirth. Their babies are more likely to be of low birth weight, which makes them less likely to survive their first year of life. For this reason, steps are taken to protect pregnant women and their newborns by distributing insecticide-treated mosquito nets and providing treatment during antenatal check-ups with drugs that prevent malaria infection (intermittent preventive treatment or IPT). In the MICS4 survey in Sierra Leone, women were asked about the preventive antimalarial treatment they had received during their last pregnancy in the 2 years preceding the survey. A woman is considered to have received IPT if she received at least 2 doses of SP/Fansidar during her pregnancy.

Table CH.16: Intermittent preventive treatment for malaria
Percentage of women aged 15-49 years who had a live birth during the two years preceding the survey and who received intermittent preventive treatment (IPT) for malaria during pregnancy at any antenatal care visit, Sierra Leone, 2010

		Percentage of women who received antenatal care (ANC)	Number of women who gave birth in the preceding two years	Percentage of pregnant women who took:			Women who had live birth in last 2 years and who received ANC
				Any medicine to prevent malaria at any ANC visit during pregnancy	SP/Fansidar at least once	SP/Fansidar two or more times [1]	
Region	East	96.7	993	72.7	48.5	35.7	960
	North	88.7	1230	84.6	64.6	44.8	1092
	South	93.0	885	74.6	51.2	38.1	823
	West	97.5	353	83.6	70.9	54.8	345
District	Kailahun	94.9	330	73.0	47.3	36.4	313
	Kenema	97.6	391	77.1	50.4	36.7	381
	Kono	97.6	272	66.0	47.2	33.5	266
	Bombali	97.3	269	86.7	73.3	41.0	261
	Kambia	80.3	171	70.3	54.4	38.3	137
	Koinadugu	85.9	129	83.6	75.3	64.9	111
	Port Loko	78.8	360	83.5	76.7	54.3	284
	Tonkolili	99.0	302	90.6	46.1	34.6	299
	Bo	95.0	378	83.3	49.2	37.0	359
	Bonthe	90.4	158	69.6	58.3	45.5	143
	Moyamba	91.9	188	71.4	52.8	35.1	173
	Pujehun	92.1	161	61.9	47.3	37.1	148
	Western Rural	96.6	73	77.3	61.6	46.8	70
	Western Urban	97.8	281	85.3	73.3	56.9	274
Area	Urban	94.3	971	80.9	62.8	47.1	916
	Rural	92.5	2491	77.4	54.7	39.2	2304
Education	None	92.0	2348	77.2	56.3	40.8	2162
	Primary	94.8	511	78.4	52.3	37.4	484
	Secondary +	95.2	603	82.8	63.9	47.1	574
Wealth index quintiles	Poorest	91.7	757	71.5	49.0	35.3	694
	Second	93.1	750	77.5	56.2	39.8	698
	Middle	91.2	765	79.2	56.2	40.1	697
	Fourth	94.1	663	80.4	56.4	42.1	624
	Richest	96.1	526	85.3	71.2	53.1	506
Total		**93.0**	**3462**	**78.4**	**57.0**	**41.4**	**3220**

[1] MICS indicator 3.20

Data that describe the IPT for malaria that was taken by pregnant women who gave birth in the two years preceding the survey are presented in Table CH.16. Overall, 78 percent of women took any medicine to prevent malaria during an ANC visit but only 41 percent of pregnant women took IPT. Provision of IPT was higher in the West (55 percent) than in other regions (36-45 percent). Pregnant women who live in urban areas, have secondary education or higher, and are from the highest wealth quintile were more likely to receive IPT than other women.

Discussion: Malaria

As noted above, the MICS4 survey was conducted just prior to the mass distribution of (three) ITNs to every household in Sierra Leone. While the results presented above therefore do not reflect the post-campaign situation in Sierra Leone, they do hold some lessons for the ITN program.

Experts who were consulted to interpret the MICS4 results feel that the ITN coverage levels reported above are reasonably good for the pre-campaign scenario. They noted, however, that the percentage of households with at least one ITN (36 percent) was higher than the percentage of children under 5 years who sleep under an ITN (30 percent). Given that ITNs were distributed to families with pregnant women and young children, this suggests that ITNs may have either been mis-targeted and/or are misused at the household level (by not prioritizing their use for children and pregnant women). Even among households with ITNs, only 70 percent of under-five children sleep under them, suggesting that ITNs are not being used appropriately in some households.

While the percentage of children with fever who were treated with an appropriate anti-malarial was reasonably high (62 percent), only 19 percent of children were treated according to national guidelines by being provided Artemisinin Combination Therapy (ACT). There is significant use of other non-approved drugs to treat malaria. Improving the rate of correct treatment among children with fever remains an urgent and as yet unreached goal of the national malaria program in Sierra Leone.

VII. Water and Sanitation

Safe drinking water and adequate sanitation are basic necessities for good health. Unsafe drinking water can be a significant carrier of diseases such as trachoma, cholera, typhoid, schistosomiasis and other pathogens that cause diarrhoea. Drinking water can also be tainted with chemical, physical and radiological contaminants that can have harmful effects on human health. In addition to its association with diseases, access to safe drinking water may be particularly important for women and children who bear the primary responsibility for obtaining and carrying water—tasks that can take a great deal of time due to the long distances and/or waiting times that are often required.

Unsafe means of disposal of excreta and other waste also contribute to the transmission of diseases that lead to child morbidity and mortality. Access to adequate and improved means of basic sanitation is critical to maintain satisfactory levels of hygiene in households and communities and enable healthy practices related to sanitation.

The relevant MDG goal is to achieve a fifty percent reduction in the proportion of people without sustainable access to safe drinking water and basic sanitation between 1990 and 2015. The World Fit for Children goal calls for a reduction in the proportion of households without access to hygienic sanitation facilities and affordable and safe drinking water by at least one-third.

The list of indicators related to water and sanitation that is used in MICS4 is as follows:

Water

- Use of improved drinking water sources
- Use of adequate water treatment method
- Time required to collect drinking water
- Person collecting drinking water

Sanitation

- Use of improved sanitation facilities
- Sanitary disposal of child's faeces

For more details on water and sanitation and to access some reference documents, please visit the UNICEF childinfo website at http://www.childinfo.org/wes.html.

Use of Improved Drinking Water Sources

The distribution of the population of Sierra Leone by source of drinking water is shown in Table WS.1 and Figure WS.1. The population using *improved sources* of drinking water is defined as members of households using water supplied through one of the following ways: piped water (into dwelling, compound, yard or plot), public tap/standpipe, tube well/borehole, protected dug well, protected spring, and rainwater collection. Bottled water is considered as an improved water source only if the household is using an improved water source for other purposes, such as handwashing and cooking.

Overall, 57 percent of the population is using an improved source of drinking water – 76 percent in urban areas and 48 percent in rural areas (Table WS.1). Ninety-one percent of the population in the West gets its drinking water from an improved source, compared to 42 percent in the North.

Table WS.1: Use of improved water sources

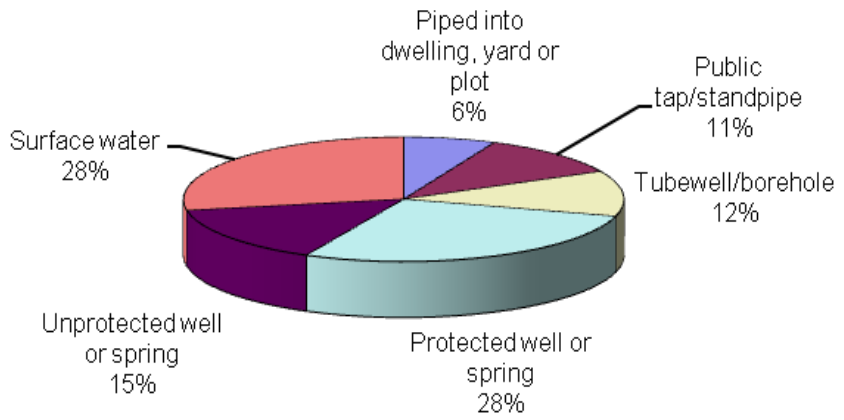
Percent distribution of household population according to main source of drinking water and percentage of household population using improved drinking water sources, Sierra Leone, 2010

		Main source of drinking water																			
		Improved sources									Unimproved sources										
		Piped into dwelling	Piped into compound, yard or plot	Piped to neighbour	Public tap / standpipe	Tube well, Borehole	Protected well	Protected spring	Rainwater collection	Bottled water	Unprotected well	Unprotected spring	Tanker-truck	Cart with small tank / drum	Surface water (river, stream, dam, lake, pond, canal, irrigation channel)	Bottled water	Other	Missing	Total	Percentage using improved sources of drinking water [1]	Number of household members
Region	East	.6	3.3	3.1	5.9	16.3	34.2	1.2	.0	.1	9.1	8.8	.0	.0	17.2	.0	.0	.0	100.0	64.7	16922
	North	.0	.4	.2	4.7	8.6	27.5	.6	.0	.0	11.0	4.6	.0	.2	41.9	.0	.1	.0	100.0	42.1	24355
	South	.0	.2	.2	12.7	16.8	20.7	.9	.0	.0	9.6	5.5	.0	.0	32.9	.0	.3	.1	100.0	51.5	15865
	West	5.6	10.5	15.6	32.4	3.5	20.2	1.4	.0	1.4	3.9	1.7	.3	.2	2.5	.3	.3	.1	100.0	90.7	9565
District	Kailahun	.1	.1	.2	5.2	26.7	37.1	.9	.0	.0	9.0	4.3	.0	.0	16.2	.0	.1	.1	100.0	70.4	5627
	Kenema	1.5	6.7	6.9	7.0	15.6	27.4	1.6	.0	.0	9.1	7.1	.1	.1	17.0	.0	.0	.0	100.0	66.6	6960
	Kono	.0	2.0	.8	5.0	4.0	41.4	.9	.0	.3	9.5	17.5	.0	.0	18.6	.0	.0	.0	100.0	54.4	4336
	Bombali	.0	.7	.0	4.8	8.4	52.4	.1	.0	.0	5.3	11.9	.0	.0	15.9	.0	.4	.1	100.0	66.4	5511
	Kambia	.0	.0	.0	1.6	3.1	21.8	.4	.1	.0	31.4	1.8	.0	.0	39.9	.0	.0	.0	100.0	27.0	3208
	Koinadugu	.0	.0	.5	13.3	12.8	10.6	1.3	.0	.0	6.6	.5	.0	1.0	53.2	.0	.0	.2	100.0	38.5	3365
	Port Loko	.0	.7	.5	2.0	10.9	24.3	1.3	.1	.0	9.6	3.7	.0	.0	46.7	.1	.0	.0	100.0	39.9	6703
	Tonkolili	.0	.0	.0	4.3	6.5	20.4	.2	.0	.1	9.4	2.5	.0	.2	56.3	.0	.0	.0	100.0	31.6	5568
	Bo	.0	.4	.4	22.2	26.3	22.7	1.3	.0	.0	7.3	5.4	.0	.1	13.4	.0	.3	.2	100.0	73.3	6477
	Bonthe	.0	.3	.3	4.5	5.6	17.0	.0	.0	.0	13.1	.0	.0	.0	59.0	.0	.1	.0	100.0	27.7	2841
	Moyamba	.0	.0	.0	1.4	5.1	16.6	1.0	.0	.0	15.5	13.5	.0	.0	45.9	.0	.8	.2	100.0	24.2	3175
	Pujehun	.0	.0	.0	11.9	19.0	23.9	.8	.0	.0	5.7	2.6	.0	.0	35.9	.0	.2	.1	100.0	55.6	3372
	Western Rural	2.3	8.3	11.9	22.6	15.2	27.0	.4	.0	.6	9.4	.6	.0	.0	1.7	.1	.1	.0	100.0	88.2	1982
	Western Urban	6.5	11.1	16.6	35.0	.5	18.5	1.6	.0	1.6	2.4	2.0	.4	.2	2.7	.4	.4	.1	100.0	91.4	7584
Area	Urban	2.8	5.7	8.4	18.7	8.7	30.4	1.0	.0	.6	6.1	2.5	.2	.1	14.3	.1	.4	.1	100.0	76.2	21153
	Rural	.1	1.1	.7	7.2	13.2	24.8	.9	.0	.0	10.6	6.8	.0	.1	34.1	.0	.1	.1	100.0	48.2	45554
Education of household head	None	.4	1.2	1.8	8.6	11.6	25.0	.9	.0	.0	9.6	6.3	.0	.1	34.3	.0	.1	.1	100.0	49.5	44900
	Primary	.9	3.3	3.2	11.9	14.3	31.1	1.2	.0	.0	7.9	4.9	.1	.1	20.9	.0	.2	.0	100.0	65.8	6093
	Secondary +	2.8	6.0	7.1	16.8	11.2	29.4	1.1	.0	.9	8.5	3.4	.2	.0	12.0	.2	.3	.1	100.0	75.3	15640
	Missing/DK	.0	.0	5.0	29.6	28.0	16.7	.0	.0	.0	20.7	.0	.0	.0	.0	.0	.0	.0	100.0	79.3	75
Wealth index quintiles	Poorest	.0	.1	.0	2.4	8.0	8.7	.6	.0	.0	6.7	8.2	.0	.3	64.9	.0	.2	.1	100.0	19.7	13342
	Second	.0	.2	.5	6.0	13.7	23.6	1.1	.0	.0	9.9	8.9	.0	.1	35.5	.0	.2	.1	100.0	45.3	13347
	Middle	.2	.7	.6	8.5	16.1	30.2	.8	.0	.0	11.5	5.8	.0	.0	25.4	.0	.0	.0	100.0	57.2	13338
	Fourth	.1	2.0	1.9	12.5	14.9	41.0	1.0	.0	.0	12.2	3.2	.0	.0	10.8	.0	.2	.1	100.0	73.4	13343
	Richest	4.5	9.6	12.8	25.0	6.2	29.3	1.2	.0	1.1	5.6	1.3	.2	.1	2.5	.3	.3	.0	100.0	89.6	13336
Total		**1.0**	**2.5**	**3.2**	**10.9**	**11.8**	**26.6**	**1.0**	**.0**	**.2**	**9.2**	**5.5**	**.1**	**.1**	**27.8**	**.1**	**.2**	**.1**	**100.0**	**57.1**	**66707**

[1] MICS indicator 4.1; MDG indicator 7.8

The source of drinking water for the population varies strongly by region. In the West, 32 percent of the population uses drinking water that is piped into their dwelling or yard or plot, while less than 0.5 percent of the population in the south enjoys this facility. Another 32 percent of the population in the West obtains water from a public tap or standpipe; in contrast, only thirteen, six and five percent of those residing in the south, east, and north, respectively, get water from this source. In provinces outside of the West, the most important improved source of drinking water is protected wells; 34, 28 and 21 percent of the population in the east, north and south, respectively, obtain their water from this source. Surface water and unprotected wells and springs are the most commonly used unprotected sources of drinking water outside of the West.

Figure WS.1 Percent distribution of household members by source of drinking water, Sierra Leone, 2010



The practice of in-house water treatment in Sierra Leone is described in Table WS.2. Households were asked how they may treat water at home to make it safer to drink—boiling, adding bleach or chlorine, using a water filter, and using solar disinfection were considered to be different ways to properly treat drinking water. The table shows water treatment by all households and the percentage of household members that live in households that get drinking water from an unimproved source but that use an appropriate water treatment method. Eleven percent of households use some type of water treatment—adding bleach / chlorine (seven percent) and straining through a cloth (two percent) are the most commonly used methods. Only two percent of household members living in households using unimproved water sources use an appropriate water treatment method. Both of these indicators are highest among urban populations, households where the household head has a secondary education, and households in the richest wealth quintile.

Table WS.2: Household water treatment
Percentage of household population by drinking water treatment method used in the household, and for household members living in households where an unimproved drinking water source is used, the percentage who are using an appropriate treatment method, Sierra Leone, 2010

		Water treatment method used in the household				Number of household members	Percentage of household members in households using unimproved drinking water sources and using an appropriate water treatment method [1]	Number of household members in households using unimproved drinking water sources
		None	Boil, filter or solar disinfection	Add bleach / chlorine	Strain through a cloth			
Region	East	88.6	0.6	8.7	1.5	16922	1.5	5966
	North	92.2	0.2	4.7	1.7	24355	1	14106
	South	87	0.9	8.7	1.4	15865	3.1	7688
	West	86	2.3	4.9	5.8	9565	9.5	886
District	Kailahun	94.8	0.7	2.2	1.6	5627	0.2	1666
	Kenema	87.9	0.3	9.7	1.8	6960	1.6	2323
	Kono	81.6	0.9	15.7	1.1	4336	2.5	1976
	Bombali	88.5	0.7	8	1.7	5511	0	1852
	Kambia	86.7	0.8	3.8	7.5	3208	2.5	2343
	Koinadugu	90.8	0	8.3	0.6	3365	1	2071
	Port Loko	97.2	0	1.1	0.8	6703	0.7	4030
	Tonkolili	94	0.1	4.2	0.3	5568	0.8	3810
	Bo	80	1.2	13.1	2.9	6477	6.4	1729
	Bonthe	96.2	0.4	2.2	0.3	2841	1.1	2053
	Moyamba	93.5	1.5	4.2	0.7	3175	3.6	2408
	Pujehun	86.6	0	9.8	0.4	3372	1.5	1498
	Western Rural	82.8	0.9	11.6	2.6	1982	6.2	233
	Western Urban	86.9	2.6	3.2	6.6	7584	10.6	653
Area	Urban	84.9	1.5	8.7	3.5	21153	4.9	5027
	Rural	91.1	0.4	5.8	1.6	45554	1.3	23619
Education of household head	None	91.3	0.4	5.6	1.6	44900	1.2	22682
	Primary	90.8	0.5	5	2.5	6093	1.1	2081
	Secondary +	82.6	1.9	10.4	3.7	15640	6.6	3868
	Missing/DK	76.2	0	20	0	75	*	16
Wealth index quintiles	Poorest	96.3	0.2	2.4	0.7	13342	0.4	10710
	Second	93.7	0.3	3.6	1	13347	0.7	7298
	Middle	89.7	0.5	6.6	1.7	13338	1.5	5702
	Fourth	85.9	1	10.1	2.2	13343	4.5	3547
	Richest	80.3	2.1	10.9	5.4	13336	15.3	1388
Total		**89.2**	**0.8**	**6.7**	**2.2**	**66707**	**1.9**	**28646**

[1] MICS indicator 4.2
[*] Based on less than 25 unweighted cases and has been suppressed.

The amount of time that it takes household members to obtain water in Sierra Leone is presented in Table WS.3. The person who usually collects water is described in Table WS.4. Note that these results refer to one round-trip from home to drinking water source. Information on the number of trips made in one day was not collected.

Table WS.3 shows that for 14 percent of households, the drinking water source is on the premises. For about two-thirds (64 percent) of all households, it takes less than 30 minutes to get to the water source and bring water, while 20 percent of households spend 30 minutes or more for this purpose. Households in rural areas spend somewhat more time collecting water compared to urban households, especially among households using unimproved sources of water. The relatively high percentage of households in urban areas that use improved sources of drinking water but that take 30 minutes or more to get it is most likely due to having to wait for a long time in queue for water.

Table WS.3: Time to source of drinking water

Percent distribution of household population according to time to go to source of drinking water, get water and return, for users of improved and unimproved drinking water sources, Sierra Leone, 2010

		Time to source of drinking water									
		Users of improved drinking water sources				Users of unimproved drinking water sources					
		Water on premises	Less than 30 minutes	30 minutes or more	Missing/DK	Water on premises	Less than 30 minutes	30 minutes or more	Missing/DK	Total	Number of household members
Region	East	13.5	43.9	6.2	1.1	1.1	24.7	8.8	.7	100.0	16922
	North	5.3	33.3	3.1	.4	2.6	39.1	15.8	.4	100.0	24355
	South	5.8	31.8	9.7	4.2	1.4	30.6	14.3	2.1	100.0	15865
	West	37.1	28.9	24.1	.7	.6	4.7	3.6	.3	100.0	9565
District	Kailahun	6.9	56.0	7.3	.2	.4	21.7	7.2	.3	100.0	5627
	Kenema	24.0	36.3	5.1	1.2	1.4	24.9	6.9	.2	100.0	6960
	Kono	5.0	40.6	6.7	2.1	1.5	28.2	14.0	1.8	100.0	4336
	Bombali	13.5	48.5	4.1	.4	.8	26.3	6.0	.5	100.0	5511
	Kambia	4.2	20.8	2.0	.0	6.3	50.8	15.0	.9	100.0	3208
	Koinadugu	1.2	33.6	3.4	.2	3.8	36.8	20.7	.3	100.0	3365
	Port Loko	3.4	32.8	2.9	.8	3.2	37.0	19.3	.7	100.0	6703
	Tonkolili	2.5	26.0	2.7	.4	.7	49.0	18.7	.0	100.0	5568
	Bo	6.6	41.2	16.6	8.9	1.3	13.7	7.9	3.8	100.0	6477
	Bonthe	5.6	18.0	4.1	.0	1.4	46.3	24.5	.0	100.0	2841
	Moyamba	3.8	17.3	3.0	.0	2.7	53.6	18.7	.8	100.0	3175
	Pujehun	6.5	38.8	7.5	2.7	.5	28.2	13.8	2.0	100.0	3372
	Western Rural	27.8	53.5	6.8	.2	1.3	9.9	.4	.2	100.0	1982
	Western Urban	39.5	22.4	28.6	.9	.4	3.4	4.5	.4	100.0	7584
Area	Urban	25.3	32.4	17.3	1.2	1.5	14.7	7.0	.5	100.0	21153
	Rural	5.9	36.2	4.3	1.7	1.7	34.9	14.2	1.1	100.0	45554
Education of household head	None	7.6	33.6	6.7	1.6	1.6	33.9	14.0	1.0	100.0	44900
	Primary	12.3	42.6	9.2	1.8	.7	22.1	11.2	.2	100.0	6093
	Secondary +	24.7	36.1	13.1	1.3	2.2	15.4	6.3	.8	100.0	15640
	Missing/DK	14.2	49.5	9.3	6.3	.0	20.7	.0	.0	100.0	75
Wealth index quintiles	Poorest	1.4	14.9	2.3	1.1	.6	54.9	23.2	1.6	100.0	13342
	Second	3.9	34.5	4.4	2.5	.9	35.7	16.7	1.5	100.0	13347
	Middle	4.2	45.7	5.9	1.4	1.6	30.4	10.2	.6	100.0	13338
	Fourth	13.8	49.4	8.4	1.8	3.1	16.7	6.4	.3	100.0	13343
	Richest	36.9	30.6	21.2	.9	2.1	4.7	3.1	.4	100.0	13336
Total		**12.1**	**35.0**	**8.5**	**1.5**	**1.7**	**28.5**	**11.9**	**.9**	**100.0**	**66707**

Table WS.4 shows that for almost two-thirds (64 percent) of households, an adult female is the person collecting the water when the source of drinking water is not on the premises. Adult men collect water in only 17 percent of households, while children under age 15 collect drinking water in the remainder (19 percent) of households. Adult men are more likely to collect drinking water in households in the highest wealth quintile, in households where the household head is highly educated, and in the West.

Table WS.4: Person collecting water

Percentage of households without drinking water on premises, and percent distribution of households without drinking water on premises according to the person usually collecting drinking water used in the household, Sierra Leone, 2010

		Percentage of households without drinking water on premises	Number of households	Person usually collecting drinking water							Number of households without drinking water on premises
				Adult woman (age 15+ years)	Adult man (age 15+ years)	Female child (under 15)	Male child (under 15)	DK	Missing	Total	
Region	East	86.5	3072	70.1	13.6	11.3	4.7	.0	.3	100.0	2657
	North	93.0	3761	67.8	11.9	13.4	6.8	.0	.1	100.0	3500
	South	93.1	2760	59.2	16.9	13.9	9.6	.1	.2	100.0	2568
	West	59.3	1801	44.9	38.8	9.6	5.3	.3	1.1	100.0	1068
District	Kailahun	94.6	991	67.3	11.9	14.0	6.3	.0	.4	100.0	938
	Kenema	75.8	1287	67.3	15.6	11.3	5.8	.0	.0	100.0	976
	Kono	93.6	793	77.4	13.1	7.7	1.4	.1	.4	100.0	743
	Bombali	87.8	849	62.7	14.4	17.4	5.4	.0	.1	100.0	745
	Kambia	89.8	411	74.6	7.7	10.1	7.3	.1	.2	100.0	369
	Koinadugu	96.5	517	77.4	10.8	8.4	3.1	.1	.2	100.0	499
	Port Loko	93.1	971	60.1	14.6	15.6	9.6	.1	.0	100.0	903
	Tonkolili	97.0	1013	71.3	9.6	12.1	6.8	.0	.1	100.0	983
	Bo	92.7	1100	61.6	15.4	12.7	10.0	.0	.3	100.0	1020
	Bonthe	93.1	466	54.1	21.1	13.3	11.2	.2	.1	100.0	434
	Moyamba	94.0	569	62.2	17.0	14.6	6.0	.0	.2	100.0	534
	Pujehun	92.8	625	56.1	16.2	15.9	11.1	.5	.1	100.0	580
	Western Rural	69.3	355	46.1	29.8	12.6	11.5	.0	.0	100.0	246
	Western Urban	56.8	1447	44.6	41.6	8.7	3.4	.3	1.4	100.0	822
Area	Urban	70.6	3608	57.3	25.7	10.2	5.9	.3	.6	100.0	2549
	Rural	93.0	7786	65.9	13.4	13.4	7.1	.0	.2	100.0	7243
Education of household head	None	90.9	7460	65.8	14.3	13.0	6.5	.1	.3	100.0	6784
	Primary	87.2	1056	65.7	14.2	12.5	7.2	.0	.5	100.0	921
	Secondary +	72.5	2864	55.6	25.2	11.3	7.5	.1	.3	100.0	2076
	Missing/DK	*	14	*	*	*	*	*	*	*	11
Wealth index quintiles	Poorest	97.9	2481	68.4	12.5	12.0	6.9	.1	.1	100.0	2428
	Second	95.5	2322	68.1	12.7	12.8	5.9	.1	.4	100.0	2218
	Middle	94.2	2180	66.5	13.9	12.0	7.5	.0	.2	100.0	2052
	Fourth	83.2	2088	62.1	15.7	14.4	7.4	.0	.4	100.0	1737
	Richest	58.4	2323	45.8	35.6	11.6	6.3	.2	.5	100.0	1356
Total		**85.9**	**11394**	**63.7**	**16.6**	**12.5**	**6.8**	**.1**	**.3**	**100.0**	**9792**

[*] Based on less than 25 unweighted cases and has been suppressed.

Discussion: Use of improved water sources

The MICS4 finding that 57 percent of the population has access to an improved source of drinking water represents a positive and gradual increase from previous estimates of this indicator. This is most likely a reflection of increased NGO involvement in this sector as well as increased investment in water systems by the government.

The MDG for Sierra Leone is for 74 percent of the population to have access to an improved source of drinking water by 2015. This is probably not attainable as it would require an increase of over three percent per year in the coming five years. Experts note that 80 percent of funding for this sector is external and this funding can be decreased at any time.

Organizations that work in the Water, Sanitation, and Hygiene (WASH) sector note that there is a need to work with the private sector to ensure sustainable availability of spare parts for pumps that supply safe drinking water. They also point out that the quality of drinking water in Sierra Leone is often assumed to be adequate if it is from a "safe source" but that is not always the case. They suggest that further studies of the quality of water from "safe sources" be conducted and that programs implement activities to sensitize the public regarding hygiene issues.

Use of Improved Sanitation Facilities

Inadequate disposal of human excreta is associated with a range of diseases including diarrhoeal diseases, malaria and cholera. An improved sanitation facility is defined as one that hygienically protects human excreta from human contact. Improved sanitation can reduce diarrheal disease by more than one-third and can significantly lessen the adverse health impacts of other disorders responsible for death and disease among millions of children in developing countries. Improved sanitation facilities include flush or pour flush to a piped sewer system, septic tank, or pit latrine; ventilated improved pit latrine, pit latrine with slab, and composting toilet.

Forty percent of the population of Sierra Leone—58 percent in urban areas and 32 percent in rural areas—lives in households using improved sanitation facilities (Table WS.5). Residents of the north (32 percent) and the south (33 percent) are less likely than others to use improved facilities. The table indicates that use of improved sanitation facilities is strongly correlated with higher levels of wealth and education of household head and is higher in urban than in rural areas. In rural areas, approximately one-third of the population uses pit latrines without slabs, another third uses pit latrines with slabs, and the final third simply has no facilities. These are also the three most common types of facilities in urban areas, but more households have pit latrines with slabs, and fewer have no facilities.

Table WS.5: Types of sanitation facilities

Percent distribution of household population according to type of toilet facility used by the household, Sierra Leone, 2010

		Type of toilet facility used by household							Total	Number of household members
		Improved sanitation facility			Unimproved sanitation facility					
		Flush/Composting toilet	Ventilated Improved Pit latrine (VIP)	Pit latrine with slab	Flush to somewhere else or bucket or other or missing	Pit latrine without slab / Open pit	Hanging toilet, Hanging latrine	No facility, Bush, Field		
Region	East	0.7	3.9	34.9	0.6	29.3	1.8	28.8	100	16922
	North	1.5	2	28.3	1.7	40.6	3.4	22.5	100	24355
	South	1.7	1.8	29.2	0.7	11.4	0.9	54.3	100	15865
	West	21.4	3.2	51.9	2.2	15.9	1.9	3.3	100	9565
District	Kailahun	0.6	2	42.6	0.3	14.3	3.3	37	100	5627
	Kenema	0.4	3.8	39.8	0.6	23.2	1.6	30.6	100	6960
	Kono	1.4	6.6	16.9	0.9	58.8	0.1	15.2	100	4336
	Bombali	3.9	3.4	41.5	0.5	20.7	8.9	21.1	100	5511
	Kambia	0.9	0.8	26.6	0	50.9	1.6	19.1	100	3208
	Koinadugu	0	2.3	12.1	1.4	70.1	2	12.1	100	3365
	Port Loko	0.9	2.3	19.6	3.8	42.2	2.5	28.5	100	6703
	Tonkolili	1.1	1	36.4	1.2	34.4	1.1	24.7	100	5568
	Bo	3.4	2.3	42	1.1	12.9	0.6	37.6	100	6477
	Bonthe	1.3	0.4	14.2	0.6	5.7	0.1	77.6	100	2841
	Moyamba	0	0.2	22.3	0.4	13.1	1.8	62.3	100	3175
	Pujehun	0.6	3.4	23.7	0.3	11.4	1.2	59.3	100	3372
	Western Rural	7.9	2	46.5	2.2	26.3	4.8	10.3	100	1982
	Western Urban	25.1	3.4	53.4	2.3	13.1	1.2	1.5	100	7584
Area	Urban	11.6	2.8	43.1	1.9	24.3	0.9	15.3	100	21153
	Rural	0.7	2.5	29.1	0.9	28.6	2.8	35.2	100	45554
Education of household head	None	1.9	2.1	28.3	1.3	30	2.5	34.1	100	44900
	Primary	2.5	3.1	40.2	1.1	24.4	1.5	27.2	100	6093
	Secondary +	12.1	3.9	46.1	1.3	20.4	1.6	14.7	100	15640
	Missing/DK	5	14.3	40.8	0	35.8	0	4.1	100	75
Wealth index quintiles	Poorest	0.1	0.9	6	0.8	21.5	1	69.7	100	13342
	Second	0	1.5	19.2	1.9	34.4	2.9	40	100	13347
	Middle	0.5	2.8	34.7	1.5	34	3.5	23.1	100	13338
	Fourth	1.1	3.8	51.1	0.8	30.8	2.5	9.9	100	13343
	Richest	19.6	4.1	56.8	1.2	15.5	1	1.7	100	13336
Total		**4.3**	**2.6**	**33.6**	**1.2**	**27.2**	**2.2**	**28.9**	**100**	**66707**

Access to basic sanitation is assessed by measuring the percentage of the population using an improved sanitation facility. The MDGs and the WHO / UNICEF Joint Monitoring Programme (JMP) for Water Supply and Sanitation classify a household as using an unimproved sanitation facility if it is using an otherwise acceptable (i.e., "improved") sanitation facility but either (i) sharing the facility between two or more households or (ii) using a public toilet facility.

As shown in Table WS.6, 40 percent of the household population in Sierra Leone uses an improved sanitation facility, among which less than one in three households (32 percent) uses an improved facility that is not shared with others. Among households that use an unimproved sanitation facility (excluding those who practice open defecation), the same percentage (32 percent) use an unimproved toilet facility that is not shared with other households.

Table WS.6: Use and sharing of sanitation facilities
Percent distribution of household population by use of private and public sanitation facilities and use of shared facilities, by users of improved and unimproved sanitation facilities, Sierra Leone, 2010

		Users of improved sanitation facilities					Users of unimproved sanitation facilities					Open defecation (no facility, bush field)	Total	Number of household members
		Not shared [1]	Public facility	Shared by: 5 households or less	Shared by: More than 5 households	Missing/DK	Not shared	Public facility	Shared by: 5 households or less	Shared by: More than 5 households	Missing/DK			
Region	East	7.6	4.1	17.5	10.0	.2	6.8	4.8	13.6	6.4	.1	28.8	100.0	16922
	North	11.1	2.3	15.7	2.4	.4	17.6	2.1	20.8	4.3	.8	22.5	100.0	24355
	South	10.0	6.1	10.3	4.9	1.4	3.3	3.5	3.3	2.0	.8	54.3	100.0	15865
	West	31.1	1.5	27.2	16.5	.3	4.6	.9	9.0	5.2	.3	3.3	100.0	9565
District	Kailahun	10.3	2.9	24.4	7.5	.0	2.6	4.6	6.3	4.2	.1	37.0	100.0	5627
	Kenema	6.8	6.9	14.5	15.5	.4	5.3	5.4	8.4	6.3	.0	30.6	100.0	6960
	Kono	5.5	1.3	13.2	4.6	.3	14.9	3.9	31.4	9.3	.4	15.2	100.0	4336
	Bombali	11.8	3.6	28.8	4.2	.3	8.7	.2	19.4	1.2	.7	21.1	100.0	5511
	Kambia	12.9	.8	13.5	1.0	.1	20.5	.8	25.1	4.0	2.3	19.1	100.0	3208
	Koinadugu	6.6	2.7	3.4	1.3	.4	40.6	6.7	18.8	7.1	.3	12.1	100.0	3365
	Port Loko	13.4	2.4	5.8	1.1	.1	20.5	3.8	20.1	3.5	.7	28.5	100.0	6703
	Tonkolili	9.2	1.3	23.4	3.7	1.1	7.3	.0	21.8	6.8	.7	24.7	100.0	5568
	Bo	16.3	5.2	14.0	9.8	2.4	2.7	4.8	3.4	3.1	.6	37.6	100.0	6477
	Bonthe	2.9	2.5	8.9	1.5	.2	2.0	2.0	1.2	.8	.4	77.6	100.0	2841
	Moyamba	8.5	1.6	9.3	2.5	.7	5.0	1.8	5.8	2.4	.2	62.3	100.0	3175
	Pujehun	5.3	15.1	5.2	.8	1.4	3.8	3.9	2.2	.7	2.3	59.3	100.0	3372
	Western Rural	27.0	3.6	18.8	6.4	.6	12.7	.3	16.9	2.7	.8	10.3	100.0	1982
	Western Urban	32.2	1.0	29.3	19.2	.3	2.5	1.1	6.9	5.9	.2	1.5	100.0	7584
Area	Urban	20.9	2.0	21.5	12.7	.5	8.2	2.6	11.1	5.0	.3	15.3	100.0	21153
	Rural	9.0	4.3	14.2	4.3	.7	10.3	3.1	14.0	4.2	.7	35.2	100.0	45554
Education of household head	None	8.6	3.4	13.9	5.5	.6	11.2	3.1	14.1	4.8	.7	34.1	100.0	44900
	Primary	10.4	5.8	19.1	10.0	.5	7.0	2.8	12.1	4.4	.5	27.2	100.0	6093
	Secondary +	25.9	3.0	22.8	9.9	.6	6.2	2.6	10.6	3.3	.4	14.7	100.0	15640
	Missing/DK	19.0	.0	29.8	11.3	.0	3.9	12.7	9.2	10.1	.0	4.1	100.0	75
Wealth index quintiles	Poorest	1.2	2.0	2.7	1.0	.0	7.5	1.8	10.0	3.6	.4	69.7	100.0	13342
	Second	3.7	3.9	8.9	3.8	.3	12.8	4.3	15.6	5.3	1.3	40.0	100.0	13347
	Middle	7.2	4.5	18.7	6.6	.9	12.2	4.5	16.8	5.0	.5	23.1	100.0	13338
	Fourth	17.4	5.0	24.4	8.2	1.1	10.7	2.8	15.8	4.5	.3	9.9	100.0	13343
	Richest	34.5	2.3	27.8	15.2	.7	4.8	1.3	7.4	3.8	.4	1.7	100.0	13336
Total		**12.8**	**3.5**	**16.5**	**7.0**	**.6**	**9.6**	**3.0**	**13.1**	**4.4**	**.6**	**28.9**	**100.0**	**66707**

[1] MICS indicator 4.3; MDG indicator 7.9

Safe disposal of a child's faeces is defined as disposing of the stool either by the child using a toilet or by rinsing the stool into a toilet or latrine. Caretakers of children aged less than two years were asked how they disposed of their child's faeces the last time he or she passed stools. The results of this inquiry are presented in Table WS.7. The stools of 54 percent of children aged less than two years were disposed of safely; the stools were put into the toilet for 52 percent, while two percent of children used the toilet themselves. Stools were disposed of safely for 79 percent of children living in the West but for only 34 percent of children living in the south. Urban residence, higher levels of mother's education, and higher level of household wealth were all associated with higher levels of safe disposal of child's faeces.

Table WS.7: Disposal of child's faeces

Percent distribution of children age 0-2 years according to place of disposal of child's faeces, and the percentage of children age 0-2 years whose stools were disposed of safely the last time the child passed stools, Sierra Leone, 2010

		Place of disposal of child's faeces											
		Child used toilet / latrine	Put / Rinsed into toilet or latrine	Put / Rinsed into drain or ditch	Thrown into garbage (solid waste)	Buried	Left in the open	Other	DK	Missing	Total	Percentage of children whose stools were disposed of safely [1]	Number of children age 0-2 years
Type of sanitation facility in dwelling	Improved	.8	75.7	10.9	7.5	.3	.6	1.7	1.6	1.0	100.0	76.4	1774
	Unimproved	3.5	64.0	11.6	15.1	.5	.1	1.8	2.7	.7	100.0	67.5	1591
	Open defecation	.5	13.9	20.7	41.6	4.0	2.0	13.4	2.0	1.9	100.0	14.5	1587
Region	East	.5	59.5	14.8	14.6	.0	.5	5.5	3.4	1.3	100.0	60.0	1427
	North	3.2	51.6	11.3	25.5	1.0	1.0	4.3	1.4	.7	100.0	54.9	1795
	South	.3	34.0	18.2	28.4	4.6	1.3	9.3	2.0	1.7	100.0	34.4	1226
	West	1.6	77.2	13.6	4.0	.3	.3	.4	1.1	1.5	100.0	78.8	506
District	Kailahun	1.2	58.8	12.9	17.6	.0	.3	3.1	4.0	2.1	100.0	60.0	510
	Kenema	.2	58.9	15.2	12.7	.0	.1	10.6	1.1	1.0	100.0	59.1	557
	Kono	.0	61.2	16.7	13.2	.0	1.5	.9	6.0	.6	100.0	61.2	360
	Bombali	14.5	51.6	.8	22.2	1.0	1.4	4.2	2.3	2.3	100.0	66.0	387
	Kambia	.2	59.9	16.0	11.8	2.1	.6	5.8	3.1	.5	100.0	60.0	264
	Koinadugu	.8	51.4	8.4	32.0	.2	.3	2.8	2.7	1.3	100.0	52.2	201
	Port Loko	.0	48.4	8.0	37.6	1.5	1.4	3.1	.0	.0	100.0	48.4	521
	Tonkolili	.0	50.6	23.3	18.9	.0	.9	5.9	.4	.0	100.0	50.6	422
	Bo	.4	52.4	20.5	13.5	.5	.0	8.6	2.3	1.7	100.0	52.8	520
	Bonthe	.0	16.0	12.6	39.8	16.1	1.3	10.0	1.4	2.9	100.0	16.0	222
	Moyamba	.8	23.7	23.4	38.8	1.3	.6	10.8	.4	.1	100.0	24.5	257
	Pujehun	.0	21.2	12.8	39.7	6.6	4.9	8.5	3.8	2.4	100.0	21.2	227
	Western Rural	1.9	72.8	6.2	13.0	1.1	1.3	.0	3.3	.4	100.0	74.7	116
	Western Urban	1.5	78.5	15.8	1.4	.0	.0	.5	.4	1.8	100.0	80.0	390
Area	Urban	.7	65.5	12.9	12.9	1.3	.4	4.0	1.7	.8	100.0	66.1	1388
	Rural	1.9	46.9	14.8	24.0	1.6	1.0	6.1	2.2	1.4	100.0	48.9	3565
Mother's education	None	1.5	48.0	14.5	23.5	1.9	1.1	5.8	2.4	1.2	100.0	49.5	3514
	Primary	1.3	52.1	15.0	19.5	.6	.3	7.4	2.3	1.5	100.0	53.4	679
	Secondary	2.1	71.1	12.4	9.8	.7	.3	2.2	.6	.8	100.0	73.2	760
Wealth index quintiles	Poorest	1.2	24.5	17.7	37.7	3.8	1.4	10.5	2.2	.9	100.0	25.7	1064
	Second	2.3	41.5	15.7	28.8	1.6	1.3	5.7	2.4	.8	100.0	43.7	1092
	Middle	1.5	53.3	13.5	19.9	1.3	.9	5.6	2.2	1.8	100.0	54.8	1050
	Fourth	1.6	68.5	13.1	9.1	.3	.4	3.3	2.3	1.4	100.0	70.1	987
	Richest	1.0	83.2	10.0	2.5	.2	.1	.8	1.0	1.2	100.0	84.2	761
Total		**1.6**	**52.1**	**14.2**	**20.9**	**1.5**	**.9**	**5.5**	**2.1**	**1.2**	**100.0**	**53.7**	**4953**

[1] MICS indicator 4.4

In its 2008 report[9], the JMP introduced a new way of presenting data on access to drinking water and sanitation. Under this new format, data on drinking-water and sanitation are disaggregated and presented in "ladder" format. This ladder allows a disaggregated analysis of trends in a three-rung ladder for drinking-water and a four-rung ladder for sanitation. For sanitation, this format presents the percentage of the population (i) with no sanitation facilities at all, (ii) that is reliant on technologies defined by JMP as "unimproved", (iii) that shares sanitation facilities of otherwise acceptable technology, and (iv) that uses "improved" sanitation facilities. Table WS.8 presents the percentages of household population by drinking water and sanitation ladders. The table also shows the percentage of household members using improved sources of drinking water and sanitary means of excreta disposal. Essentially, this table uses a new format to summarize and present data that have been presented above in tables WS.1 and WS.6. The new statistic that is presented here is the percentage of households that both use improved drinking water sources and have improved sanitation. At the national level, ten percent of households meet this standard. Households are more likely to both use improved drinking water and have improved sanitation if they are located in the urban areas, if the household head is more highly educated, or if the household is wealthier.

[9] WHO/UNICEF JMP (2008), MDG assessment report - http://www.wssinfo.org/download?id_document=1279

Table WS.8: Drinking water and sanitation ladders
Percentage of household population by drinking water and sanitation ladders, Sierra Leone, 2010

		Percentage of household population using:										
		Improved drinking water [1]					Unimproved sanitation					
		Piped into dwelling, plot or yard	Other improved	Unimproved drinking water	Total	Improved sanitation [2]	Shared improved	Un-improved facility	Open defecation	Total	Improved drinking water sources and improved sanitation	Number of households
Region	East	3.9	60.8	35.3	100.0	7.6	31.9	31.7	28.8	100.0	6.6	16922
	North	.4	41.7	57.9	100.0	11.1	20.8	45.7	22.5	100.0	6.6	24355
	South	.2	51.3	48.5	100.0	10.0	22.7	12.9	54.3	100.0	8.1	15865
	West	16.9	73.8	9.3	100.0	31.1	45.5	20.1	3.3	100.0	28.3	9565
District	Kailahun	.2	70.2	29.6	100.0	10.3	34.9	17.9	37.0	100.0	8.6	5627
	Kenema	8.1	58.5	33.4	100.0	6.8	37.3	25.4	30.6	100.0	6.0	6960
	Kono	2.0	52.4	45.6	100.0	5.5	19.4	59.9	15.2	100.0	4.9	4336
	Bombali	.7	65.7	33.6	100.0	11.8	36.9	30.2	21.1	100.0	10.4	5511
	Kambia	.0	27.0	73.0	100.0	12.9	15.4	52.6	19.1	100.0	4.5	3208
	Koinadugu	.0	38.5	61.5	100.0	6.6	7.8	73.5	12.1	100.0	2.1	3365
	Port Loko	.8	39.0	60.1	100.0	13.4	9.5	48.6	28.5	100.0	8.2	6703
	Tonkolili	.0	31.6	68.4	100.0	9.2	29.4	36.7	24.7	100.0	4.7	5568
	Bo	.4	72.9	26.7	100.0	16.3	31.4	14.7	37.6	100.0	14.3	6477
	Bonthe	.3	27.4	72.3	100.0	2.9	13.1	6.4	77.6	100.0	1.9	2841
	Moyamba	.0	24.2	75.8	100.0	8.5	14.0	15.3	62.3	100.0	4.8	3175
	Pujehun	.0	55.6	44.4	100.0	5.3	22.5	12.9	59.3	100.0	4.4	3372
	Western Rural	10.9	77.3	11.8	100.0	27.0	29.4	33.4	10.3	100.0	22.8	1982
	Western Urban	18.5	72.9	8.6	100.0	32.2	49.7	16.6	1.5	100.0	29.8	7584
Area	Urban	8.8	67.4	23.8	100.0	20.9	36.6	27.1	15.3	100.0	18.8	21153
	Rural	1.2	46.9	51.8	100.0	9.0	23.4	32.3	35.2	100.0	6.0	45554
Education of household head	None	1.6	47.9	50.5	100.0	8.6	23.5	33.8	34.1	100.0	6.1	44900
	Primary	4.2	61.7	34.2	100.0	10.4	35.4	27.0	27.2	100.0	8.1	6093
	Secondary +	9.3	66.0	24.7	100.0	25.9	36.3	23.2	14.7	100.0	22.1	15640
	Missing/DK	.0	79.3	20.7	100.0	19.0	41.1	35.8	4.1	100.0	19.0	75
Wealth index quintiles	Poorest	.1	19.6	80.3	100.0	1.2	5.7	23.3	69.7	100.0	.4	13342
	Second	.2	45.1	54.7	100.0	3.7	16.9	39.3	40.0	100.0	1.9	13347
	Middle	1.0	56.3	42.8	100.0	7.2	30.8	38.9	23.1	100.0	4.1	13338
	Fourth	2.1	71.3	26.6	100.0	17.4	38.7	34.1	9.9	100.0	12.6	13343
	Richest	14.7	74.9	10.4	100.0	34.5	46.0	17.7	1.7	100.0	31.4	13336
Total		**3.6**	**53.4**	**42.9**	**100.0**	**12.8**	**27.6**	**30.7**	**28.9**	**100.0**	**10.1**	**66707**

[1] MICS indicator 4.1; MDG indicator 7.8
[2] MICS indicator 4.3; MDG indicator 7.9

Discussion: Use of improved sanitation facilities

Efforts to strengthen the use of sanitation facilities in Sierra Leone are centered on the Community-Led Total Sanitation (CLTS) approach. CLTS was initially introduced in Sierra Leone in 2008 and is now a national program supported by the GoSL and a number of partners. CLTS may have contributed to the ten percent increase in the use of improved sanitation facilities over the past five years. The MDG for this indicator is 66, meaning that the current rate of annual increase will need to be more than doubled if the MDG is to be achieved by 2015.

The GoSL promotes improved sanitation facilities regardless of whether they are shared or unshared. The low use of unshared improved sanitation facilities in Sierra Leone (13 percent) indicates that substantial work remains to be done in this sector. It is not clear how successful efforts will be to promote unshared sanitation facilities given prevailing cultural norms.

Experts in the field of sanitation in Sierra Leone note that current policy is to promote the message that investing in sanitation facilities is important. They feel that the sanitation component of the public health ordinance dealing with sanitation should be reviewed and strengthened and that the GoSL should demonstrate commitment to improving sanitation by elevating the Division of Sanitation to the level of a directorate. The GoSL should further demonstrate its commitment to sanitation by making available the resources that it has committed to the WASH sector.

Handwashing

Handwashing with water and soap is the most cost-effective health intervention to reduce both the incidence of diarrhoea and pneumonia in children under five. It is most effective when done using

both water and soap after visiting a toilet or cleaning a child, before eating or handling food, and before feeding a child. It is difficult to accurately measure correct hand washing behaviour at these critical times. A reliable alternative to the measurement of hand washing through observations or self-reported behaviour is to assess the likelihood that correct hand washing behaviour takes place by observing if a household has a specific place where people most often wash their hands and observing if water and soap (or other local cleansing materials) are present at a designated place for hand washing.

The construction of the MICS4 questionnaire in Sierra Leone caused some problems in the measurement of this indicator (see questions HW1 through HW5 on the Household Questionnaire). In many areas of Sierra Leone, there is simply no concept of having a single designated place where members of the household wash their hands. Asking a respondent where members of a household usually wash their hands will often draw a blank response and a non-specific gesture to the area in front of the house. Clearly, in households such as this, there is no place where household members usually wash their hands; the net result was that some households that do not have a designated place for Handwashing were judged to have one. While the data for the MICS4 indicator percentage of households where place for Handwashing was observed is not felt to be accurate in the Sierra Leone MICS4, the data that describe the number and percentage of households where water and soap are available for Handwashing in a specific place are of higher quality and can be taken as a reasonably accurate measure of the percentage of households with a specific Handwashing place with both water and soap available.

Table WS.9: Water and soap at place for Handwashing
Percentage of households where place for Handwashing was observed and percent distribution of households by availability of water and soap at place for Handwashing, Sierra Leone, 2010

		Percentage of households where place for Handwashing was observed	Percentage of households where place for Handwashing was not observed					Number of households	Percent distribution of households where place for Handwashing was observed, where:						Number of households where place for handwashing was observed
			Not in dwelling/ plot/yard	No permission to see	Other reasons	Missing	Total		Water and soap are available [1]	Water is available, soap is not available	Water is not available, soap is available	Water and soap are not available	Missing	Total	
Region	East	62.5	28.0	4.9	4.3	.2	100.0	3072	11.6	13.2	4.2	70.8	.1	100.0	1920
	North	66.1	28.1	2.0	3.7	.1	100.0	3761	15.1	15.3	3.4	66.2	.1	100.0	2485
	South	67.4	28.0	.3	4.3	.1	100.0	2760	23.1	11.2	6.0	59.4	.2	100.0	1860
	West	67.8	29.3	.6	1.7	.7	100.0	1801	37.2	5.5	22.0	35.4	.0	100.0	1221
District	Kailahun	75.4	16.1	7.9	.5	.1	100.0	991	16.7	17.0	2.5	63.5	.3	100.0	748
	Kenema	71.1	17.4	5.3	6.1	.2	100.0	1287	8.0	12.2	3.7	76.1	.0	100.0	915
	Kono	32.5	60.3	.7	6.1	.4	100.0	793	9.6	5.6	11.5	73.3	.0	100.0	258
	Bombali	64.2	26.8	1.7	7.2	.1	100.0	849	47.9	10.0	5.2	36.9	.0	100.0	545
	Kambia	97.7	1.3	.0	.8	.2	100.0	411	2.2	3.5	1.2	93.0	.0	100.0	402
	Koinadugu	59.2	28.0	4.4	8.3	.1	100.0	517	6.5	54.5	1.1	37.4	.4	100.0	306
	Port Loko	35.9	63.4	.4	.3	.0	100.0	971	14.2	7.2	3.8	74.8	.0	100.0	348
	Tonkolili	87.2	6.5	3.4	2.6	.2	100.0	1013	4.0	13.5	3.8	78.7	.0	100.0	883
	Bo	75.1	22.4	.2	2.2	.0	100.0	1100	36.6	10.7	8.5	44.0	.2	100.0	827
	Bonthe	58.6	41.2	.0	.1	.1	100.0	466	2.4	11.3	2.4	83.1	.7	100.0	273
	Moyamba	88.4	11.5	.0	.0	.2	100.0	569	11.3	5.6	3.0	80.0	.2	100.0	503
	Pujehun	41.3	42.9	1.0	14.8	.0	100.0	625	25.0	23.8	7.2	44.0	.0	100.0	258
	Western Rural	76.7	22.5	.3	.0	.4	100.0	355	14.0	6.1	7.4	72.6	.0	100.0	272
	Western Urban	65.6	30.9	.7	2.1	.7	100.0	1447	43.8	5.3	26.2	24.7	.0	100.0	949
Area	Urban	67.4	29.2	1.1	1.9	.4	100.0	3608	29.1	9.5	13.7	47.6	.1	100.0	2433
	Rural	64.9	27.8	2.7	4.5	.1	100.0	7786	15.3	13.4	4.2	67.0	.1	100.0	5053
Education of household head	None	64.3	29.3	2.1	4.1	.2	100.0	7460	15.1	12.6	5.5	66.7	.1	100.0	4794
	Primary	68.0	25.8	3.1	2.8	.3	100.0	1056	18.5	15.8	5.9	59.8	.0	100.0	718
	Secondary +	68.5	26.4	1.9	2.9	.2	100.0	2864	31.8	9.7	12.0	46.4	.1	100.0	1963
	Missing/DK	*	*	*	*	*	*	14	*	*	*	*	*	*	11
Wealth index quintiles	Poorest	60.3	33.2	2.1	4.1	.3	100.0	2481	9.7	10.9	3.0	76.1	.3	100.0	1496
	Second	64.3	28.1	3.0	4.5	.1	100.0	2322	11.0	13.1	3.5	72.4	.0	100.0	1493
	Middle	68.0	25.3	2.9	3.8	.0	100.0	2180	17.3	14.7	4.1	63.8	.1	100.0	1482
	Fourth	67.6	27.0	2.1	3.1	.3	100.0	2088	19.7	14.8	7.5	57.9	.1	100.0	1411
	Richest	69.1	27.1	.9	2.6	.3	100.0	2323	39.7	7.7	17.6	35.0	.0	100.0	1605
Total		**65.7**	**28.2**	**2.2**	**3.7**	**.2**	**100.0**	**11394**	**19.8**	**12.1**	**7.3**	**60.7**	**.1**	**100.0**	**7486**

[1] MICS indicator 4.5

[*] Based on less than 25 unweighted cases and has been suppressed.

In Sierra Leone, survey personnel found that 66 percent of households have a specific place for hand washing (Table WS.9) although this figure is suspected to be higher for reasons outlined in the previous paragraph. Among those households where a place for handwashing was observed, only 20

percent had both water and soap present at the designated place; in 12 percent of the households only water was available at the designated place while in seven percent of the households the place only had soap but no water. The remaining 61 percent of households had neither water nor soap available at the designated place for hand washing. In total, 13 percent of all households (19.8 percent of 65.7 percent) were found to have a designated place for handwashing with both soap and water present.

Forty-nine percent of surveyed households were not able to show any soap present in the household and in the remaining fifty-one percent either the soap was observed or it was shown to the interviewer (Table WS.10).

Table WS.10: Availability of soap
Percent distribution of households by availability of soap in the dwelling, Sierra Leone, 2010

		Place for handwashing observed						Place for handwashing not observed				Percentage of households with soap anywhere in the dwelling [1]	Number of households
		Soap observed	Soap shown	No soap in household	Not able/Does not want to show soap	Missing	Total	Soap shown	No soap in household	Not able/Does not want to show soap	Total		
Region	East	15.9	24.1	59.6	.3	.1	100.0	15.6	84.3	.1	100.0	30.8	3072
	North	18.5	18.8	62.4	.3	.1	100.0	26.0	73.5	.6	100.0	33.4	3761
	South	29.1	27.8	42.1	.8	.2	100.0	25.7	72.3	2.0	100.0	46.7	2760
	West	59.2	26.3	14.2	.4	.0	100.0	50.3	48.3	1.4	100.0	74.1	1801
District	Kailahun	19.2	33.5	46.2	.8	.3	100.0	12.4	87.6	.0	100.0	42.8	991
	Kenema	11.7	16.1	72.1	.0	.0	100.0	14.5	85.3	.3	100.0	24.0	1287
	Kono	21.0	24.6	54.4	.0	.0	100.0	17.8	82.2	.0	100.0	26.8	793
	Bombali	53.1	29.3	16.8	.8	.0	100.0	44.9	54.3	.9	100.0	69.0	849
	Kambia	3.4	15.6	80.9	.1	.0	100.0	19.6	80.4	.0	100.0	19.0	411
	Koinadugu	7.7	8.2	83.7	.0	.4	100.0	7.5	91.9	.6	100.0	12.5	517
	Port Loko	18.0	15.9	65.5	.6	.0	100.0	23.7	76.3	.0	100.0	27.4	971
	Tonkolili	7.8	18.5	73.4	.1	.1	100.0	23.1	74.3	2.5	100.0	25.9	1013
	Bo	45.2	22.8	31.1	.8	.2	100.0	47.3	46.0	6.6	100.0	62.8	1100
	Bonthe	4.8	33.5	60.9	.0	.7	100.0	8.5	91.5	.0	100.0	26.0	466
	Moyamba	14.3	41.7	42.2	1.7	.2	100.0	51.7	48.3	.0	100.0	55.5	569
	Pujehun	32.2	10.6	57.2	.0	.0	100.0	14.0	86.0	.0	100.0	25.9	625
	Western Rural	21.4	50.5	27.2	.9	.0	100.0	30.1	69.4	.5	100.0	62.1	355
	Western Urban	70.0	19.4	10.4	.2	.0	100.0	53.6	44.9	1.5	100.0	77.1	1447
Area	Urban	42.8	26.0	30.7	.4	.1	100.0	39.5	59.6	1.0	100.0	59.2	3608
	Rural	19.5	22.4	57.5	.5	.1	100.0	20.9	78.3	.8	100.0	34.6	7786
Education of household head	None	20.6	22.7	56.1	.5	.1	100.0	21.9	77.3	.8	100.0	35.7	7460
	Primary	24.4	25.9	48.8	.8	.0	100.0	28.0	71.1	.9	100.0	43.2	1056
	Secondary +	43.8	25.0	30.9	.3	.1	100.0	39.4	59.7	1.0	100.0	59.5	2864
	Missing/DK	*	*	*	*	*	*	*	*	*	*	*	14
Wealth index quintiles	Poorest	12.7	20.2	66.0	.8	.3	100.0	13.5	85.9	.6	100.0	25.2	2481
	Second	14.5	23.3	61.8	.4	.1	100.0	20.0	79.1	.9	100.0	31.4	2322
	Middle	21.3	22.9	55.2	.4	.1	100.0	22.4	77.3	.3	100.0	37.2	2180
	Fourth	27.2	28.4	43.8	.4	.1	100.0	30.9	67.3	1.8	100.0	47.6	2088
	Richest	57.3	23.5	19.0	.2	.0	100.0	51.4	47.6	.9	100.0	71.8	2323
Total		**27.1**	**23.6**	**48.8**	**.4**	**.1**	**100.0**	**26.5**	**72.7**	**.9**	**100.0**	**42.4**	**11394**

[1] MICS indicator 4.6

[*] Based on less than 25 unweighted cases and has been suppressed.

VIII. Reproductive Health

Fertility

In the MICS4 survey, adolescent birth rates and total fertility rates are calculated by using the date of each respondent's most recent delivery and are based on the one-year period preceding the survey. Rates are underestimated by a very small margin due to the absence of information on multiple births (twins, triplets, etc.) and because some women may have multiple deliveries during the year preceding the survey.

Table RH.1 shows adolescent birth rates and the total fertility rate. The adolescent birth rate (ABR; i.e., the age-specific fertility rate for women aged 15-19) is defined as the number of births given by women aged 15-19 years during the one-year period preceding the survey, divided by the average number of women aged 15-19 (number of women-years lived between ages 15 through 19, inclusive) during the same period. The ABR is then expressed per 1000 women. The total fertility rate (TFR) is calculated by summing the age-specific fertility rates for each of the 5-year age groups of women from age 15 to 49. The TFR denotes the average number of children that a woman will have given birth to by the end of her reproductive years if current fertility rates prevailed. The TFR in Sierra Leone is 4.3 at the national level but is substantially lower (2.6) in the West than in other provinces. Lower levels of the TFR in Sierra Leone are strongly associated with urban residence, high level of mother's education and higher levels of household wealth. The ABR is 122 in Sierra Leone and generally has similar associations with background variables as the TFR. One difference, however, is that the ABR is notably higher in the east as compared to other provinces.

Table RH.1: Adolescent birth rate and total fertility rate
Adolescent birth rates and total fertility rates, Sierra Leone, 2010

		Adolescent birth rate [1] (Age-specific fertility rate for women age 15-19) per 1000 women	Total Fertility Rate
Region	East	156	4.8
	North	125	4.5
	South	121	4.6
	West	76	2.6
District	Kailahun	159	4.3
	Kenema	151	4.7
	Kono	158	5.5
	Bombali	122	4.0
	Kambia	159	5.5
	Koinadugu	91	3.5
	Port Loko	142	4.8
	Tonkolili	100	4.8
	Bo	106	4.7
	Bonthe	129	4.1
	Moyamba	185	5.8
	Pujehun	99	3.8
	Western Rural	136	3.3
	Western Urban	66	2.5
Area	Urban	98	3.4
	Rural	138	4.8
Mother's education	None	163	4.8
	Primary	134	5.0
	Secondary+	94	2.6
Wealth index quintile	Poorest	146	5.2
	Second	111	4.9
	Middle	154	4.8
	Fourth	138	4.0
	Richest	82	2.7
Total		**122**	**4.3**

[1] MICS indicator 5.1; MDG indicator 5.4

Sexual activity and childbearing early in life carry significant risks for young people all around the world. Table RH.2 presents some early childbearing indicators for women aged 15-19 and 20-24 while Table RH.3 presents trends for early childbearing in Sierra Leone. As shown in Table RH.2, 26 percent of women age 15-19 have already had a birth, six percent are pregnant with their first child and seven percent had a live birth before age 15. The prevalence of early childbearing varies little among the provinces with the exception of the West, where early childbearing indicators are much lower. Lower rates of early childbearing are associated with urban residence, higher levels of education and living in wealthier households. Data that describe trends in early childbearing (Table RH.3) suggest that there has been a significant drop in early childbearing among the current cohort of women aged 15-19 years as compared to older cohorts. The percentage of women with a live birth before age 18 appears to have been decreasing gradually for some time among urban dwellers but has increased over time among women living in rural locations.

Table RH.2: Early childbearing
Percentage of women age 15-19 who have had a live birth or who are pregnant with the first child, percentage of women age 15-19 who have begun childbearing before age 15, and the percentage of women age 20-24 who have had a live birth before age 18, Sierra Leone, 2010

		Number of women age 15-19						
		Have had a live birth	Are pregnant with first child	Have begun childbearing	Have had a live birth before age 15	Number of women age 15-19	Percentage of women age 20-24 who have had a live birth before age 18 [1]	Number of women age 20-24
Region	East	29.2	5.7	35.0	7.9	616	40.5	577
	North	30.7	6.8	37.5	7.6	828	43.5	772
	South	29.6	7.6	37.2	10.0	544	42.8	485
	West	13.7	2.7	16.4	3.1	562	19.6	429
District	Kailahun	31.4	7.7	39.1	9.7	220	40.2	200
	Kenema	28.3	5.8	34.1	5.7	251	40.6	235
	Kono	27.5	2.6	30.1	9.1	145	41.0	142
	Bombali	28.6	4.5	33.1	6.5	239	39.3	197
	Kambia	34.5	8.3	42.8	11.2	125	41.3	87
	Koinadugu	28.3	4.2	32.5	7.6	88	37.2	92
	Port Loko	30.9	12.2	43.0	5.5	236	44.5	211
	Tonkolili	32.2	2.1	34.3	10.0	141	51.2	185
	Bo	24.8	7.7	32.5	7.9	258	35.9	223
	Bonthe	34.9	5.3	40.2	7.4	101	47.4	96
	Moyamba	30.2	9.4	39.6	15.7	86	44.3	80
	Pujehun	36.0	7.9	43.9	13.0	99	54.4	86
	Western Rural	25.7	5.2	30.9	5.0	74	36.5	50
	Western Urban	11.9	2.3	14.2	2.9	488	17.4	379
Area	Urban	20.6	2.5	23.1	4.5	1083	27.4	854
	Rural	30.6	8.3	38.9	9.2	1466	44.6	1409
Education	None	47.4	10.1	57.5	18.4	616	52.8	1151
	Primary	23.2	7.0	30.2	5.6	555	35.8	311
	Secondary +	18.2	3.4	21.6	2.9	1378	17.9	802
Wealth index quintiles	Poorest	38.1	9.3	47.4	13.2	367	50.3	398
	Second	30.0	7.7	37.8	11.0	388	42.0	393
	Middle	34.4	7.2	41.6	7.2	448	47.2	394
	Fourth	25.6	5.0	30.7	6.6	595	41.6	489
	Richest	14.6	2.9	17.4	2.9	752	18.2	589
Total		**26.4**	**5.8**	**32.2**	**7.2**	**2549**	**38.1**	**2263**

[1] MICS indicator 5.2

Table RH.3: Trends in early childbearing
Percentage of women who have had a live birth by age 15 and 18, by age groups, Sierra Leone, 2010

		Urban				Rural				All			
		Percentage of women with a live birth before age 15	Number of women	Percentage of women with a live birth before age 18	Number of women	Percentage of women with a live birth before age 15	Number of women	Percentage of women with a live birth before age 18	Number of women	Percentage of women with a live birth before age 15	Number of women	Percentage of women with a live birth before age 18	Number of women
Age	15-19	4.5	1083	.	0	9.2	1466	.	0	7.2	2549	.	0
	20-24	10.0	854	27.4	854	15.9	1409	44.6	1409	13.6	2263	38.1	2263
	25-29	9.8	831	29.3	831	13.6	1740	39.9	1740	12.4	2571	36.5	2571
	30-34	14.0	654	32.3	654	14.3	1432	40.2	1432	14.2	2086	37.7	2086
	35-39	12.1	599	35.8	599	10.9	1399	35.7	1399	11.3	1997	35.7	1997
	40-44	14.4	378	36.2	378	12.4	737	33.5	737	13.1	1115	34.4	1115
	45-49	14.0	258	38.5	258	8.2	518	26.8	518	10.1	777	30.7	777
Total		**10.1**	**4658**	**31.9**	**3575**	**12.5**	**8701**	**38.5**	**7235**	**11.7**	**13359**	**36.3**	**10810**

Discussion: Fertility

The MICS4 estimate of the ABR in Sierra Leone is 122 births per 1000 women aged 15-19 per year; this compares with an estimate of 129 in West and Central Africa (2000-2008) and 123 in least developed countries (The State of the World's Children 2011). The factors that affect the ABR come from a variety of areas outside of the health sector. There is a growing awareness that the high level of adolescent births constitutes a major problem in Sierra Leone with a wide set of consequences that include lack of educational opportunities to young women, risks to women's health and fertility, and children being born into homes that are not ready for them. The Child's Right Act (2007) forbids marriage before age 18 but has yet to be fully implemented. Policy makers should ensure that this act is enforced and recognize the importance of the problem of adolescent pregnancy by developing appropriate policies to discourage it.

Contraception

Appropriate family planning plays an important role in determining the health of women and children by 1) preventing pregnancies that are too early or too late; 2) extending the period between births; and 3) limiting the number of children. It is critical for all couples to be able to access information and services that can prevent pregnancies that are too early, too closely spaced, too late or too frequent.

Current use of any method of contraception was reported by only eleven percent of women currently married or in union in Sierra Leone (Table RH.4). The most popular method is injectables which are used by five percent of women. The next most popular method is the pill, which is used by four percent of women. All other methods are used by less than one percent of women.

Contraceptive prevalence (any type of contraceptive) is highest in the West at 20 percent (19 percent for modern method of contraception). Twelve percent of married women in the south and east and only seven percent of women in the north use a method of contraception. Adolescents are less likely to use contraception than older women. Only about five percent of women aged 15-19 currently use a method of contraception compared to ten percent of 20-24 year olds and an even higher percentage of older women.

The contraceptive prevalence varies with women's education level. The percentage of women using any method of contraception rises from eight percent among those with no education to fifteen percent among women with primary education and to 24 percent among women with secondary or

higher education. Increasing wealth is also positively associated with greater contraceptive prevalence as is urban residence. There is little difference in the mix of methods across the various background variables although injectables do appear to be disproportionately used by women living in the West while the pill is favoured by women living in the East.

Table RH.4: Use of contraception

Percentage of women age 15-49 years currently married or in union who are using (or whose partner is using) a contraceptive method, Sierra Leone, 2010

		Percent of women (currently married or in union) who are using:						Any modern method	Any traditional method	Any method [1]	Number of women currently married or in union
		Not using any method	Injectables	Implants	Pill	Male condom	Other(***)				
Region	East	88.4	2.9	0.8	6.1	0.1	1.7	10.2	1.3	11.6	2484
	North	93.2	3.6	0.6	1.2	0	1.4	6.3	0.6	6.8	3335
	South	87.6	5.2	0.3	4.8	0	1.9	11.1	1.2	12.4	2135
	West	79.9	10.3	0.9	6.6	0.3	2.3	19.1	1	20.1	1058
District	Kailahun	82.5	2.9	1	11.8	0.2	1.7	16.4	1.2	17.5	834
	Kenema	91.8	2	0.6	4.3	0	1.4	7.3	0.9	8.2	1031
	Kono	90.9	4.3	0.7	1.3	0	2.8	6.7	2.4	9.1	618
	Bombali	86.1	7.3	1.3	2.9	0.1	2.3	12.8	1.1	13.9	714
	Kambia	94.9	3.3	0.1	0.7	0.1	1	5.1	0	5.1	429
	Koinadugu	96.4	2.2	0.5	0.4	0	0.5	3.3	0.3	3.6	448
	Port Loko	95.3	2.7	0.4	0.8	0	0.8	4.4	0.3	4.7	909
	Tonkolili	94.1	2.5	0.5	0.6	0	2.2	4.9	0.9	5.9	835
	Bo	80.2	8.4	0.2	8.4	0	2.9	17.6	2.2	19.8	868
	Bonthe	93.4	2.4	0	2.1	0	2	6.4	0.1	6.6	378
	Moyamba	90.7	3.9	0.8	3.2	0	1.4	8.6	0.7	9.3	436
	Pujehun	94	2.5	0.5	1.9	0	1.2	5.2	0.7	6	453
	Western Rural	85.4	5.5	1.6	5.7	0	1.7	13.6	1	14.6	248
	Western Urban	78.2	11.7	0.7	6.9	0.3	2.2	20.8	1	21.8	810
Area	Urban	83.2	7.6	0.7	6.5	0.2	1.7	15.8	1	16.8	2556
	Rural	91.3	3.4	0.6	3	0	1.7	7.7	1	8.7	6456
Age	15-19	94.7	2.8	0.2	1.4	0	0.8	4.6	0.7	5.3	586
	20-24	90.4	2.9	1.1	4.2	0.2	1.1	8.7	0.9	9.6	1335
	25-29	90.5	3.8	0.5	3.9	0	1.3	8.6	0.9	9.5	2045
	30-34	87.4	5.6	0.6	4.9	0	1.6	11.8	0.8	12.6	1792
	35-39	85.5	6.5	0.9	4.2	0	2.9	13.1	1.4	14.5	1731
	40-44	88	4.9	0.3	4.9	0.2	1.7	11.3	0.7	12	925
	45-49	91.4	3.8	0.1	2.1	0	2.5	6.9	1.7	8.6	599
Number of living children	0	95.7	1.2	0.1	2.6	0	0.4	3.9	0.4	4.3	859
	1	91.1	3.4	0.8	3.1	0.1	1.6	7.8	1.1	8.9	1449
	2	89.2	4.4	0.8	4.3	0	1.1	10.2	0.7	10.8	1866
	3	87.7	5	0.4	4.7	0.1	2	11.3	1	12.3	1694
	4+	86.8	5.9	0.7	4.3	0	2.3	11.9	1.3	13.2	3144
Education	None	92	3.4	0.5	2.6	0	1.6	7.1	0.9	8	6761
	Primary	84.9	5.5	0.5	5.9	0.2	3	13.7	1.4	15.1	1058
	Secondary +	75.5	10.3	1.4	10.2	0.3	2.3	23.1	1.3	24.5	1193
Wealth index quintiles	Poorest	94	2.7	0.2	1.9	0	1.3	5.4	0.6	6	1956
	Second	94.3	2.2	0.4	1.9	0	1	5	0.7	5.7	1905
	Middle	90.1	3.7	0.3	4.1	0	1.7	8.8	1	9.9	1857
	Fourth	86.2	5.5	1.1	4.7	0.1	2.4	12.4	1.4	13.8	1769
	Richest	77.7	9.9	1.3	8.5	0.2	2.3	21	1.2	22.3	1525
Total		**89**	**4.6**	**0.6**	**4**	**0.1**	1.8	**10**	**1**	**11**	**9012**

[1] MICS indicator 5.3; MDG indicator 5.3

(***) includes male and female sterilization, LAM, Female condom, diaphragm, periodic abstinence withdrawal and any other

Unmet Need

Unmet need for contraception refers to fecund women who are not using any method of contraception but who wish to postpone their next birth (spacing) or who wish to stop childbearing altogether (limiting). Unmet need is identified in MICS4 by using a set of questions eliciting current behaviours and preferences pertaining to contraceptive use, fecundity, and fertility preferences.

Table RH.5 shows the results of the MICS4 survey regarding contraception, unmet need, and the demand for contraception satisfied.

Unmet need for spacing is defined as the percentage of women who are not using a method of contraception AND who:

- are not pregnant and not postpartum amenorrheic[10] and are fecund[11] and say they want to wait two or more years for their next birth OR;
- are not pregnant and not postpartum amenorrheic and are fecund and unsure whether they want another child OR;
- are pregnant and say that their pregnancy was mistimed: i.e., they would have preferred to wait to become pregnant; OR
- are postpartum amenorrheic and say that the birth was mistimed: i.e., they would have preferred to wait to become pregnant.

Unmet need for limiting is defined as the percentage of women who are not using a method of contraception AND who:

- are not pregnant and not postpartum amenorrheic and are fecund and say they do not want any more children OR;
- are pregnant and say they didn't want to become pregnant; OR,
- are postpartum amenorrheic and say that they didn't want to give birth.

Total unmet need for contraception is simply the sum of unmet need for spacing and unmet need for limiting. Met need for limiting includes women who (i) are using a contraceptive method and want no more children, (ii) have been sterilized (or their partners have been sterilized), or (iii) declare themselves as infecund. Met need for spacing includes women who are using a contraceptive method and who want to have another child or who are undecided whether to have another child. The total met need for spacing is added to the total met need for limiting to yield the total met need for contraception. In Sierra Leone, met need for spacing is seven percent and met need for limiting is four percent, yielding a total met need for contraception of eleven percent. Total met need ranges from seven percent in the north to 20 percent in the West. Higher total met need is correlated with urban residence, older age of women, higher levels of education and higher levels of wealth.

[10] A women is postpartum amenorrheic if she had a birth in last two years and is not currently pregnant and her menstrual period has not returned since the birth of the last child.

[11] A women is considered infecund if she is neither pregnant nor postpartum amenorrheic and:
(1a) has not had menstruation for at least six months, or (1b) never menstruated, or (1c) her last menstruation occurred before her last birth, or (1d) is in menopause/has had hysterectomy OR;
(2) she declares that she has had hysterectomy, or that she has never menstruated or that she is menopausal, or that she has been trying to get pregnant for 2 or more years without result in response to questions on why she thinks she is not physically able to get pregnant at the time of survey OR;
(3) she declares she cannot get pregnant when asked about her desire for future birth; OR,
(4) she has not had a birth in the preceding 5 years, is currently not using contraception and is currently married and was continuously married during the last 5 years preceding the survey.

Table RH.5: Unmet need for contraception
Percentage of women aged 15-49 years currently married or in union with an unmet need for family planning and percentage of demand for contraception satisfied, Sierra Leone, 2010

		Met need for contraception - For spacing	Met need for contraception - For limiting	Met need for contraception - Total	Unmet need for contraception - For spacing	Unmet need for contraception - For limiting	Unmet need for contraception - Total [1]	Number of women currently married or in union	Percentage of demand for contraception satisfied	Number of women currently married or in union with need for contraception
Region	East	7.5	4.3	11.8	19.4	9.5	28.9	2484	29.0	1011
	North	4.0	2.9	6.9	16.9	7.9	24.9	3335	21.8	1060
	South	6.7	5.8	12.5	15.7	13.6	29.3	2135	29.9	892
	West	14.3	6.1	20.4	19.8	8.1	27.9	1058	42.2	510
District	Kailahun	12.8	4.8	17.6	22.0	6.0	28.0	834	38.6	380
	Kenema	4.7	3.7	8.4	19.3	8.9	28.2	1031	23.0	377
	Kono	5.1	4.5	9.7	16.2	15.2	31.4	618	23.5	254
	Bombali	7.9	6.0	13.9	11.8	7.3	19.1	714	42.1	235
	Kambia	2.6	2.5	5.1	17.6	10.6	28.2	429	15.2	143
	Koinadugu	2.1	1.5	3.6	13.8	7.9	21.7	448	14.2	113
	Port Loko	2.9	1.8	4.7	12.2	6.5	18.7	909	19.9	212
	Tonkolili	3.8	2.4	6.2	27.7	8.8	36.5	835	14.4	356
	Bo	10.8	9.0	19.8	13.8	12.2	26.0	868	43.3	398
	Bonthe	2.3	4.8	7.1	16.1	13.9	30.0	378	19.1	140
	Moyamba	5.6	3.7	9.3	18.2	12.6	30.8	436	23.1	175
	Pujehun	3.5	2.4	6.0	16.8	16.8	33.6	453	15.1	179
	Western Rural	9.2	5.4	14.6	23.2	6.9	30.1	248	32.7	111
	Western Urban	15.8	6.3	22.1	18.8	8.4	27.2	810	44.8	400
Area	Urban	11.0	6.1	17.0	17.8	8.7	26.4	2556	39.2	1111
	Rural	5.2	3.6	8.8	17.6	10.1	27.8	6456	24.1	2363
Age	15-19	4.9	.4	5.4	27.4	1.5	28.9	586	15.6	201
	20-24	8.7	1.0	9.7	25.4	2.6	28.0	1335	25.8	503
	25-29	8.3	1.3	9.6	21.8	5.8	27.6	2045	25.8	761
	30-34	8.4	4.3	12.7	19.5	9.4	28.9	1792	30.5	746
	35-39	6.3	8.2	14.5	11.8	14.2	26.0	1731	35.8	701
	40-44	3.8	8.9	12.7	7.8	20.7	28.5	925	30.9	381
	45-49	.8	7.7	8.6	3.7	17.8	21.5	599	28.4	180
Education	None	4.6	3.5	8.1	16.6	10.4	27.0	6761	23.1	2378
	Primary	8.7	6.7	15.3	19.1	8.0	27.1	1058	36.1	449
	Secondary +	17.8	6.8	24.6	22.2	7.5	29.7	1193	45.3	647
Wealth index quintiles	Poorest	3.4	2.8	6.2	17.0	10.2	27.2	1956	18.5	653
	Second	3.9	2.0	5.9	18.9	9.9	28.7	1905	17.0	659
	Middle	5.8	4.1	10.0	18.3	10.1	28.3	1857	26.0	711
	Fourth	7.8	6.0	13.8	16.1	9.5	25.5	1769	35.1	696
	Richest	15.1	7.5	22.5	18.2	8.8	27.0	1525	45.5	755
Total		**6.8**	**4.3**	**11.2**	**17.7**	**9.7**	**27.4**	**9012**	**29.0**	**3473**

[1] MICS indicator 5.4; MDG indicator 5.6

Unmet need for spacing is eighteen percent and unmet need for limiting is ten percent, yielding a total unmet need for contraception of 27 percent. Total unmet need varies little across the various background variables.

Using information on contraception and unmet need, the percentage of demand for contraception satisfied is also estimated from the MICS data. The percentage of demand satisfied is defined as the percentage of women married or in a marital union who are currently using contraception, among all women currently married or in a marital union who are either currently using contraception or who have an unmet need for contraception. The percentage of demand for contraception satisfied in Sierra Leone as measured in the MICS4 survey is 29 percent. In other words, out of every ten women who need contraception, only three are using it. Demand for contraception satisfied varies from 22 percent in the north to 42 percent in the West. Higher levels of this indicator are correlated with urban residence, higher levels of education and higher levels of wealth.

Discussion: Contraception and unmet need

Results presented above confirm findings in the recent Sierra Leone DHS 2008 and clearly show the weak status of family planning efforts in Sierra Leone. The high infant and child mortality rates in Sierra Leone directly contribute to the low use of contraceptives as women and families seek to replace children they have lost. Family planning experts in Sierra Leone note that the GoSL family planning program is not strong and is not a government priority as evidenced by the lack of government resources dedicated to FP; for example, the GoSL doesn't purchase any contraceptive commodities with public funds. Problems related to access to contraceptives contribute to the low level of demand for contraception satisfied in Sierra Leone. Barriers to the use of contraception at the health facility level include lack of information about and availability of contraceptive services, especially in rural areas.

Antenatal Care

The antenatal period presents important opportunities for reaching pregnant women with a number of interventions that may be vital to their health and well-being and that of their infants. Better understanding of foetal growth and development and its relationship to the mother's health has resulted in increased attention to the potential of antenatal care to improve both maternal and newborn health. For example, if women and families are informed during the antenatal period about danger signs and symptoms during pregnancy and about the risks of labour and delivery, this may help ensure that pregnant women do, in practice, deliver with the assistance of a skilled birth attendant. The antenatal period also represents an opportunity to provide information on birth spacing, which is recognized as an important factor in improving infant survival. Tetanus immunization during pregnancy can be life-saving for both the mother and infant. The prevention and treatment of malaria among pregnant women, management of anaemia during pregnancy and treatment of STIs can significantly improve foetal outcomes and improve maternal health. Adverse outcomes such as low birth weight can be reduced through a combination of interventions to improve women's nutritional status and prevent infections (e.g., malaria and STIs) during pregnancy. More recently, recognition of the potential of the antenatal period as an entry point for HIV prevention and care—in particular for the prevention of HIV transmission from mother to child—has led to renewed interest in access to and use of antenatal services.

WHO recommends a minimum of four antenatal visits based on a review of the effectiveness of different models of antenatal care. WHO guidelines are specific regarding the desired content of antenatal care visits, which includes:

- Blood pressure measurement
- Urine testing for bacteriuria and proteinuria
- Blood testing to detect syphilis and severe anaemia
- Weight/height measurement (optional)

The type of personnel who provided antenatal care to women aged 15-49 years who gave birth in the two years preceding the Sierra Leone MICS4 survey is presented in Table RH.6. Coverage of antenatal care (by a doctor, nurse, or midwife[12]) is high in Sierra Leone with 93 percent of women receiving antenatal care at least once during the pregnancy. The lowest level of antenatal care is found in the north (89 percent), while the highest level is in the West (98 percent). Given the high

[12] There is no cadre in Sierra Leone that is called "midwives". In the results presented above, "midwives" should be understood to be "MCHAs (MCH Aides)", which is the cadre that, along with nurses, provides most of the RH services in Sierra Leone. Results for nurses and MCH Aides are lumped together.

levels of antenatal care coverage, there is relatively little variation in this indicator among the background variables measured in MICS4.

Table RH.6: Antenatal care provider
Percent distribution of women aged 15-49 who gave birth in the two years preceding the survey by type of personnel providing antenatal care, Sierra Leone, 2010

		Person providing antenatal care							Total	At least once by skilled personnel [1]	Number of women who gave birth in the preceding two years
		Doctor	Nurse / Midwife	Auxiliary midwife/ MCH Aide	Traditional birth attendant	Community health worker	Other/ missing	No antenatal care received			
Region	East	2.7	94.0	.0	.3	.2	.0	2.8	100	96.7	993
	North	4.4	81.6	2.8	.2	5.9	.2	4.9	100	88.7	1230
	South	3.7	85.8	3.5	1.3	1.0	.1	4.7	100	93.0	885
	West	33.4	63.8	.3	.3	.0	.5	1.7	100	97.5	353
District	Kailahun	2.9	92.0	.0	.0	.6	.0	4.5	100	94.9	330
	Kenema	3.5	94.2	.0	.6	.0	.0	1.7	100	97.6	391
	Kono	1.4	96.2	.0	.0	.0	.0	2.4	100	97.6	272
	Bombali	8.9	88.4	.0	.3	.0	.0	2.4	100	97.3	269
	Kambia	5.0	68.6	6.7	.9	16.5	.0	2.3	100	80.3	171
	Koinadugu	5.3	80.6	.0	.5	.0	.9	12.7	100	85.9	129
	Port Loko	1.1	73.8	3.9	.0	12.1	.0	9.1	100	78.8	360
	Tonkolili	3.6	92.6	2.8	.0	.4	.3	.4	100	99.0	302
	Bo	4.2	90.7	.0	1.0	1.1	.0	2.9	100	95.0	378
	Bonthe	1.4	87.6	1.3	4.2	.7	.0	4.7	100	90.4	158
	Moyamba	3.4	73.9	14.7	.0	1.8	.5	5.8	100	91.9	188
	Pujehun	5.0	86.5	.6	.5	.0	.0	7.5	100	92.1	161
	Western Rural	9.7	85.7	1.2	.0	.0	.0	3.4	100	96.6	73
	Western Urban	39.6	58.2	.0	.3	.0	.6	1.3	100	97.8	281
Area	Urban	15.7	78.3	.3	.6	.7	.3	4.1	100	94.3	971
	Rural	3.2	86.8	2.5	.5	3.1	.1	3.9	100	92.5	2491
Mother's age at birth	Less than 20	6.7	83.7	1.8	.9	3.8	.1	3.0	100	92.2	674
	20-34	6.4	85.0	1.9	.3	2.2	.2	4.1	100	93.3	2230
	35-49	7.7	82.0	2.1	1.2	1.7	.0	5.2	100	91.8	424
	Missing	8.4	85.6	2.3	.0	1.2	.0	2.4	100	96.4	134
Education	None	4.2	85.7	2.2	.7	2.3	.2	4.8	100	92.0	2348
	Primary	7.3	86.2	1.2	.3	2.7	.2	2.1	100	94.8	511
	Secondary +	15.8	78.1	1.3	.2	2.5	.0	2.1	100	95.2	603
Wealth index quintiles	Poorest	1.3	87.6	2.8	.7	2.0	.2	5.4	100	91.7	757
	Second	2.9	87.7	2.5	.5	3.1	.0	3.3	100	93.1	750
	Middle	2.2	87.0	1.9	.9	3.2	.1	4.7	100	91.2	765
	Fourth	7.0	85.8	1.3	.1	2.0	.1	3.7	100	94.1	663
	Richest	25.9	69.8	.4	.2	1.5	.3	1.9	100	96.1	526
Total		**6.7**	**84.4**	**1.9**	**.5**	**2.4**	**.1**	**3.9**	**100**	**93.0**	**3462**

[1] MICS indicator 5.5a; MDG indicator 5.5

UNICEF and WHO recommend that a pregnant woman receives a minimum of four antenatal care visits during pregnancy. It should be noted, however, that many people working in reproductive health consider the evidence supporting this recommendation to be inconclusive. Table RH.7 shows the number of antenatal care visits received by women who were pregnant during the two years preceding the survey, regardless of who the provider was. While ten percent of women report that they did not know how many antenatal care visits they received, 86 percent report receiving antenatal care more than once and three out of four mothers report receiving antenatal care at least four times. Mothers from the poorest households and those with primary education are less likely than more advantaged mothers to receive ANC four or more times. For example, 68 percent of the women living in poorest households reported four or more antenatal care visits compared with 84 percent among those living in richest households. Among provinces, the percentage of women who receive four or more ANC visits ranges from 65 percent in the north to 83 percent in the east.

Table RH.7: Number of antenatal care visits

Percentage of women who had a live birth during the two years preceding the survey by number of antenatal care visits by any provider, Sierra Leone, 2010

		Percent of women who had:							Number of women who gave birth in the preceding two years
		No antenatal care visits	One visit	Two visits	Three visits	4 or more visits [1]	Missing/DK	Total	
Region	East	2.8	.6	2.2	5.3	83.2	5.9	100	993
	North	4.9	.8	4.5	14.1	64.9	10.8	100	1230
	South	4.7	.7	2.2	6.0	75.7	10.8	100	885
	West	1.7	.2	1.4	2.8	81.9	12.0	100	353
District	Kailahun	4.5	.6	1.4	3.3	85.1	5.1	100	330
	Kenema	1.7	1.1	.2	5.1	86.3	5.7	100	391
	Kono	2.4	.0	6.2	7.9	76.4	7.1	100	272
	Bombali	2.4	2.1	2.9	16.5	58.6	17.6	100	269
	Kambia	2.3	.6	3.9	12.6	65.2	15.5	100	171
	Koinadugu	12.7	1.5	5.0	9.8	63.4	7.5	100	129
	Port Loko	9.1	.0	7.1	18.0	57.3	8.4	100	360
	Tonkolili	.4	.4	2.7	9.9	80.2	6.3	100	302
	Bo	2.9	.8	1.2	1.3	85.7	8.1	100	378
	Bonthe	5.1	.8	3.5	11.7	75.7	3.2	100	158
	Moyamba	5.8	.8	3.3	8.0	66.7	15.4	100	188
	Pujehun	7.5	.0	1.7	9.1	62.8	18.9	100	161
	Western Rural	3.4	.0	1.6	9.1	74.3	11.6	100	73
	Western Urban	1.3	.3	1.3	1.2	83.9	12.1	100	281
Area	Urban	4.2	1.0	1.6	6.2	77.5	9.5	100	971
	Rural	3.9	.5	3.4	9.2	73.6	9.5	100	2491
Mother's age at birth	Less than 20	3.0	.7	1.7	8.0	77.1	9.5	100	674
	20-34	4.0	.6	3.1	8.4	74.0	9.9	100	2362
	35-49	5.3	1.0	3.8	8.3	74.3	7.2	100	424
	Missing	*	*	*	*	*	*	*	2
Education	None	4.8	.8	3.5	9.2	71.5	10.1	100	2348
	Primary	2.1	.6	1.9	7.4	80.5	7.5	100	511
	Secondary +	2.1	.0	1.5	5.8	81.8	8.7	100	603
Wealth index quintiles	Poorest	5.4	.7	4.3	11.7	67.7	10.3	100	757
	Second	3.4	.6	3.1	10.4	72.5	9.9	100	750
	Middle	4.7	.4	2.6	8.5	75.1	8.7	100	765
	Fourth	3.7	1.1	2.8	6.5	77.3	8.5	100	663
	Richest	1.9	.4	1.2	2.6	83.7	10.1	100	526
Total		**4.0**	**.7**	**2.9**	**8.3**	**74.7**	**9.5**	**100**	**3462**

[1] MICS indicator 5.5b; MDG indicator 5.5

The types of services that pregnant women in Sierra Leone receive during antenatal care are shown in table RH.8. Among those women who have given birth to a child during the two years preceding the survey, 66 percent reported that a blood sample was taken during antenatal care visits, 82 percent reported that their blood pressure was checked and 56 percent reported that a urine specimen was taken. Fifty percent of pregnant women reported that they received all three services. The percentage of women who received all three services varied from 36 percent in the east to 84 percent in the West. Higher levels of receiving all three services were associated with urban residence, higher levels of mother's education and higher levels of wealth.

Table RH.8: Content of antenatal care
Percentage of women age 15-49 years who had their blood pressure measured, urine sample taken, and blood sample taken as part of antenatal care, Sierra Leone, 2010

		Percent of pregnant women who had:			Blood pressure measured, urine specimen and blood test taken [1]	Number of women who gave birth in two years preceding survey
		Blood pressure measured	Urine specimen taken	Blood test taken		
Region	East	76.9	45.2	53.8	35.6	993
	North	80.0	57.5	66.1	50.2	1230
	South	86.7	55.6	70.7	51.1	885
	West	94.1	86.9	89.3	83.6	353
District	Kailahun	81.8	48.6	55.8	37.3	330
	Kenema	75.7	42.3	49.8	32.4	391
	Kono	72.5	45.0	57.4	38.3	272
	Bombali	89.1	77.8	82.9	74.8	269
	Kambia	86.1	61.8	71.5	55.4	171
	Koinadugu	68.3	45.5	48.1	37.7	129
	Port Loko	73.6	55.0	67.5	52.0	360
	Tonkolili	81.2	45.0	54.2	28.5	302
	Bo	89.8	65.4	79.0	60.0	378
	Bonthe	85.1	61.4	70.4	57.4	158
	Moyamba	81.6	44.0	57.8	38.8	188
	Pujehun	87.0	40.5	66.2	38.6	161
	Western Rural	92.5	68.5	74.8	66.6	73
	Western Urban	94.6	91.7	93.0	87.9	281
Area	Urban	85.5	67.0	74.8	61.8	971
	Rural	81.0	52.4	62.8	45.0	2491
Mother's age at birth	Less than 20	81.3	58.6	65.7	50.8	674
	20-34	82.6	56.9	66.7	49.7	2362
	35-49	81.6	50.6	63.3	47.6	424
	Missing	*	*	*	*	2
Education	None	79.3	52.1	62.5	45.7	2348
	Primary	86.8	57.1	67.0	49.0	511
	Secondary +	89.8	73.0	79.4	65.9	603
Wealth index quintiles	Poorest	77.0	47.9	58.5	40.7	757
	Second	79.3	45.3	58.1	40.2	750
	Middle	80.6	53.8	62.6	45.3	765
	Fourth	85.1	61.6	69.7	53.2	663
	Richest	93.0	82.0	89.1	77.9	526
Total		**82.3**	**56.5**	**66.1**	**49.7**	**3462**

[1] MICS indicator 5.6
[*] Based on less than 25 unweighted cases and has been suppressed.

Discussion: Antenatal care

The introduction of the Free Health Care Initiative (FHCI) by the Government of Sierra Leone on the 27th of April 2010 has coincided with an impressive increase in the utilization rates of key services including reproductive health services. This does not, however, represent evidence that the FHCI has directly caused the observed increase in utilization. The coverage rate of antenatal care is high but quality is considered to be low by many experts and clients alike. Now that high levels of access and utilization have been achieved, the focus must shift to ensuring that when women attend antenatal care, they receive high quality services.

Pregnant women in Sierra Leone generally start ANC late and many are not able to make four meaningful ANC visits. A pregnant woman's first ANC visit should be within four months of conception. Although the MICS4 survey did not measure timing of ANC visits, Sierra Leone DHS 2008 showed that only 30 percent of pregnant women make their first ANC visit within four months of conception. Future efforts to increase the percentage of women who make four ANC visits must also stress the importance of timely visits. As noted previously, there is a significant school of thought that contends that there is no conclusive evidence that the "four ANC visit policy" has resulted in improved health outcomes, even when the visits are timely and of reasonable quality.

Assistance at Delivery

Three quarters of all maternal deaths occur during delivery and the immediate post-partum period. The single most critical intervention for safe motherhood is to ensure that a competent health worker with midwifery skills is present at every birth and that transport is available to a referral facility for obstetric care in case of emergency. A World Fit for Children goal is to ensure that women have ready and affordable access to skilled attendance at delivery. The relevant indicators that are measured in MICS4 are the percentage of births attended by a skilled birth attendant and the percentage of institutional deliveries. The indicator regarding skilled attendance at delivery is also used to track progress toward the Millennium Development target of reducing the maternal mortality ratio by three quarters between 1990 and 2015. *A skilled attendant* is defined globally as a doctor, nurse, midwife or auxiliary midwife. In the context of Sierra Leone and this survey report, "midwife" should be understood to mean "Maternal and Child Health Aide (MCH Aide)". The MCH Aide is the cadre that, along with nurses, provides most of the reproductive health (RH) services in Sierra Leone. Respondents to the Sierra Leone MICS4 survey were not able to differentiate between a nurse and an MCH Aide when describing who attended their birth and these two categories of health workers have thus been lumped together in the analysis.

Table RH.9: Assistance during delivery
Percent distribution of women age 15-49 who had a live birth in the two years preceding the survey by person assisting, at delivery and percentage of births delivered by C-section, Sierra Leone, 2010

		Person assisting at delivery											
		Doctor	Nurse/ Midwife / MCH Aide	Aux. midwife	Traditional birth attendant	Community health worker	Relative / Friend	Other/ missing	No attendant	Total	Any skilled personnel [1]	Percent delivered by C-section [2]	Number of women who gave birth in preceding two years
Region	East	1.8	73.0	1.0	20.0	1.1	1.9	.9	.3	100.0	75.8	6.0	993
	North	1.9	42.8	1.6	40.0	2.3	10.1	.9	.4	100.0	46.3	2.5	1230
	South	2.4	57.6	2.9	27.7	2.5	4.2	1.4	1.2	100.0	63.0	4.4	885
	West	13.0	66.7	.5	14.9	.8	2.0	1.1	1.0	100.0	80.2	7.4	353
District	Kailahun	1.9	79.9	.4	12.5	2.1	1.3	1.5	.4	100.0	82.2	10.2	330
	Kenema	1.8	77.5	1.5	17.1	.5	.3	1.0	.3	100.0	80.8	2.4	391
	Kono	1.7	58.2	1.0	33.4	.5	5.0	.2	.0	100.0	60.8	6.2	272
	Bombali	2.6	57.7	.7	33.3	.0	4.3	1.4	.0	100.0	61.0	4.2	269
	Kambia	2.5	40.5	1.9	33.1	1.7	19.7	.2	.4	100.0	44.8	2.4	171
	Koinadugu	2.0	59.0	.8	24.4	1.0	10.7	.7	1.4	100.0	61.8	4.2	129
	Port Loko	1.0	40.2	2.5	34.2	6.3	13.5	1.7	.6	100.0	43.6	1.0	360
	Tonkolili	2.1	27.0	1.7	63.2	.4	5.7	.0	.0	100.0	30.7	2.0	302
	Bo	2.4	71.5	.7	17.3	3.3	2.7	1.5	.7	100.0	74.6	7.2	378
	Bonthe	2.5	40.5	2.0	49.1	3.0	1.8	.5	.7	100.0	45.0	2.6	158
	Moyamba	1.7	33.9	9.9	36.8	2.7	12.7	.8	1.5	100.0	45.4	2.6	188
	Pujehun	3.4	69.7	.9	20.7	.0	.0	3.0	2.4	100.0	74.0	1.7	161
	Western Rural	4.4	55.0	.0	37.2	.3	2.3	.2	.7	100.0	59.4	4.6	73
	Western Urban	15.2	69.7	.7	9.2	.9	1.9	1.3	1.1	100.0	85.6	8.1	281
Area	Urban	6.4	64.6	.8	21.2	1.7	3.0	1.6	.7	100.0	71.8	6.0	971
	Rural	1.9	55.0	2.0	31.4	1.9	6.4	.9	.6	100.0	58.9	3.9	2491
Mother's age at birth	Less than 20	2.7	62.0	1.7	25.1	2.4	4.7	1.0	.4	100.0	66.5	4.1	674
	20-34	3.2	57.2	1.6	29.5	1.6	5.4	.9	.6	100.0	62.0	4.6	2362
	35-49	3.6	53.6	1.8	29.3	2.0	6.6	2.3	.8	100.0	59.0	4.3	424
	Missing	*	*	*	*	*	*	*	*	*	*	*	2
Place of delivery	Public H facility	4.7	90.0	1.4	1.2	2.5	.1	.1	.1	100.0	96.1	8.4	1614
	Private H facility	22.6	70.7	1.1	.8	4.8	.0	.0	.0	100.0	94.4	16.5	119
	Home	.1	27.3	2.0	57.9	.9	11.0	.2	.6	100.0	29.4	.0	1661
	Other	(10.9)	(10.7)	(.0)	(19.0)	(2.4)	(12.3)	(31.7)	(13.1)	(100.0)	(21.6)	(.0)	34
	Missing/DK	(2.1)	(10.8)	(.0)	(2.9)	(3.9)	(.0)	(65.2)	(15.1)	(100.0)	(12.9)	(.0)	34
Education	None	1.8	53.3	1.8	33.4	2.0	6.1	1.0	.6	100.0	56.9	4.3	2348
	Primary	3.3	64.0	1.6	23.7	1.7	4.0	1.0	.8	100.0	68.8	4.7	511
	Secondary +	8.4	69.3	1.1	13.9	1.4	3.9	1.3	.6	100.0	78.8	5.2	603
Wealth index quintiles	Poorest	.7	40.7	2.6	44.8	1.1	8.3	1.2	.6	100.0	44.0	3.8	757
	Second	1.7	51.9	2.0	36.3	2.7	4.9	.4	.2	100.0	55.5	3.5	750
	Middle	1.3	60.8	2.0	26.9	1.6	5.6	.9	1.0	100.0	64.1	3.9	765
	Fourth	2.3	68.7	.8	19.1	2.6	4.4	1.6	.5	100.0	71.8	3.8	663
	Richest	12.5	71.9	.5	8.5	1.0	3.2	1.4	.8	100.0	85.0	8.6	526
Total		**3.1**	**57.7**	**1.7**	**28.6**	**1.8**	**5.4**	**1.1**	**.6**	**100.0**	**62.5**	**4.5**	**3462**

[1] MICS indicator 5.7; MDG indicator 5.2
[2] MICS indicator 5.9
[*] Based on less than 25 unweighted cases and has been suppressed.

About 62 percent of births occurring in Sierra Leone during the two years preceding the MICS4 survey were attended by skilled personnel (Table RH.9). This percentage is highest in the West (80 percent) and lowest in the north (46 percent). The more educated a woman is, the more likely she is to have delivered with the assistance of a skilled attendant. Higher levels of skilled attendance are associated with lower mother's age, urban residence, and higher levels of wealth.

Almost three in five births (58 percent) in the two years preceding the MICS4 survey were delivered with the assistance of a nurse. MCH Aides attended two percent of births while doctors assisted with the delivery of three percent of births. Doctors play a larger role in birth attendance in the West, where they attend 13 percent of births. Four percent of babies in Sierra Leone are delivered via caesarean section.

Discussion: Assistance at delivery

The percentage of women whose birth was attended by a skilled provider has increased compared to previous surveys. The Free Health Care Initiative may have played an important role in this improvement. Similar to the issues discussed above for antenatal care, now that access to skilled delivery services is increasing, the focus must increasingly turn to quality of services. The recent SARA survey showed that only 57 percent of health care facilities in Sierra Leone were prepared to support the provision of skilled care during delivery. "Skilled care" means more than a provider with a certain qualification and can only be provided when the infrastructure is in place to support its provision.

Public health officials and health care workers should also recognize the strong link between skilled delivery care and postnatal care—which connect MDGs 4 and 5—and ensure that opportunities are not missed to provide postnatal care immediately after delivery and develop awareness of the need for further postnatal care while with the client at the time of delivery.

Place of Delivery

Increasing the proportion of births that are delivered in health facilities is an important strategy for reducing the health risks to both the mother and the baby. Proper medical attention and hygienic conditions during delivery can reduce the risks of complications and infection that can cause morbidity and mortality to either the mother or the baby. Table RH.10 presents the percent distribution of women age 15-49 who had a live birth in the two years preceding the survey by place of delivery.

Fifty percent of births in Sierra Leone take place in a health facility; 47 percent of deliveries occur in public sector facilities and four percent occur in private sector facilities. Forty-eight percent of births occur at home. Women aged less than 20 are slightly more likely to deliver in a health facility than older women. Women in urban areas are more likely to deliver in a health facility than their rural counterparts (55 percent compared with 48 percent). The Eastern Province has the highest percentage of institutional deliveries (65 percent), followed by the West (58 percent), while the Northern Province has the lowest percentage (38 percent). Women with higher levels of educational attainment are more likely to deliver in a health facility than women with less or no education. The percentage of births occurring in a health facility increases steadily with increasing wealth status, from 33 percent of births in the lowest wealth quintile to 65 percent among those in the highest quintile. Mothers who received higher numbers of antenatal care services had higher rates of institutional deliveries.

Table RH.10: Place of delivery

Percent distribution of women age 15-49 with a birth in two years preceding the survey by place of delivery, Sierra Leone, 2010

		Place of delivery					Total	Delivered in health facility [1]	Number of women who gave birth in preceding two years
		Public sector health facility	Private sector health facility	Home	Other	Missing/DK			
Region	East	63.0	1.6	33.4	1.0	.9	100.0	64.6	993
	North	35.2	2.4	61.3	.6	.5	100.0	37.5	1230
	South	44.4	3.6	48.5	1.7	1.7	100.0	48.0	885
	West	46.0	11.9	41.0	.3	.9	100.0	57.8	353
District	Kailahun	73.5	1.9	22.6	.6	1.3	100.0	75.4	330
	Kenema	67.5	.7	29.9	.8	1.1	100.0	68.3	391
	Kono	43.8	2.6	51.6	1.8	.2	100.0	46.4	272
	Bombali	42.7	1.8	54.0	.0	1.4	100.0	44.6	269
	Kambia	29.0	.3	70.5	.0	.2	100.0	29.3	171
	Koinadugu	54.5	.9	44.2	.5	.0	100.0	55.3	129
	Port Loko	36.6	4.4	56.8	1.6	.7	100.0	40.9	360
	Tonkolili	22.0	2.3	75.3	.4	.0	100.0	24.3	302
	Bo	53.0	7.2	36.2	2.5	1.1	100.0	60.2	378
	Bonthe	36.9	1.7	60.6	.0	.8	100.0	38.6	158
	Moyamba	30.7	.5	66.0	1.1	1.7	100.0	31.2	188
	Pujehun	47.5	.9	45.2	2.3	4.1	100.0	48.3	161
	Western Rural	43.4	1.1	54.6	.9	.0	100.0	44.5	73
	Western Urban	46.6	14.7	37.4	.1	1.2	100.0	61.3	281
Area	Urban	47.2	7.8	41.9	1.5	1.6	100.0	55.0	971
	Rural	46.4	1.7	50.3	.8	.7	100.0	48.1	2491
Mother's age at birth	Less than 20	51.5	3.0	43.9	.7	.9	100.0	54.5	674
	20-34	45.5	3.8	48.8	.8	1.0	100.0	49.3	2362
	35-49	45.0	2.5	49.4	2.2	.8	100.0	47.5	424
	Missing	*	*	*	*	*	*	*	2
Percent of women who had:	None	9.7	.0	54.9	12.2	23.3	100.0	9.7	137
	1-3 visits	32.5	1.8	65.4	.3	.0	100.0	34.3	412
	4+ visits	50.8	3.7	44.9	.6	.1	100.0	54.4	2585
	Missing/DK	47.1	5.4	47.1	.4	.0	100.0	52.5	328
Education	None	43.4	2.3	52.5	1.0	.8	100.0	45.7	2348
	Primary	52.0	3.4	41.9	1.5	1.3	100.0	55.4	511
	Secondary +	54.6	8.2	35.3	.5	1.4	100.0	62.7	603
Wealth index quintiles	Poorest	32.4	1.0	65.3	.8	.6	100.0	33.3	757
	Second	43.1	1.3	54.4	1.0	.2	100.0	44.4	750
	Middle	51.0	1.6	45.1	1.3	1.0	100.0	52.6	765
	Fourth	56.7	4.4	36.1	1.0	1.8	100.0	61.1	663
	Richest	53.0	11.7	33.1	.7	1.5	100.0	64.7	526
Total		**46.6**	**3.5**	**48.0**	**1.0**	**1.0**	**100.0**	**50.1**	**3462**

[1] MICS indicator 5.8

[*] Based on less than 25 unweighted cases and has been suppressed.

IX. Child Development

Early Childhood Education and Learning

A child who attends a pre-school education program is taking an important step to prepare him or herself to attend formal school at a later date.

Fourteen percent of children aged 36-59 months in Sierra Leone attend pre-school (Table CD.1). Urban-rural differentials are significant; 23 percent of children living in urban areas attend pre-school, compared to only ten percent in rural areas. Attendance is highest in the West (36 percent), and lowest in the north (seven percent). Attendance is strongly and positively correlated with higher levels of mother's education and household wealth. Children aged 49-59 months are almost twice as likely to attend pre-school (18 percent) as children aged 36-47 months (ten percent).

Table CD.1: Early childhood education
Percentage of children age 36-59 months who are attending some form of organized early childhood education program, Sierra Leone, 2010

		Percentage of children age 36-59 months currently attending early childhood education [1]	Number of children aged 36-59 months
Sex	Male	13.3	1817
	Female	14.5	1818
	Missing	*	2
Region	East	18.9	939
	North	6.9	1417
	South	10.5	909
	West	36.5	371
District	Kailahun	21.4	326
	Kenema	13.4	350
	Kono	22.9	264
	Bombali	10.5	315
	Kambia	5.8	195
	Koinadugu	6.2	223
	Port Loko	6.0	351
	Tonkolili	5.7	333
	Bo	14.5	331
	Bonthe	6.1	189
	Moyamba	12.0	174
	Pujehun	6.9	214
	Western Rural	18.4	117
	Western Urban	44.9	254
Area	Urban	23.4	967
	Rural	10.5	2669
Age of child	36-47 months	10.1	1970
	48-59 months	18.5	1666
Mother's education	None	9.7	2766
	Primary	17.7	454
	Secondary	37.5	416
Wealth index quintiles	Poorest	5.2	884
	Second	7.5	824
	Middle	9.9	732
	Fourth	16.0	686
	Richest	42.3	509
Total		**13.9**	**3636**

[1] MICS indicator 6.7

It is well recognized that a period of rapid brain development occurs in the first 3-4 years of a child's life and the quality of home care is the major determinant of the child's development during this period. In this context, whether or not adults conduct learning activities with children, the presence of children's books in the home, and the conditions of the child's care are all important indicators of the quality of home care. Children should be physically healthy, mentally alert, emotionally secure, socially competent and ready to learn.

Information on a number of activities that support early learning was collected in the MICS4 survey. These included the involvement of adults with children in the following activities: reading books or looking at picture books; telling stories; singing songs; taking children outside the home, compound or yard; playing with children; and, spending time with children naming, counting, or drawing things.

For slightly over half (54 percent) of children aged 36-59 months, an adult household member engaged in more than four activities that promote learning and school readiness during the three days preceding the survey (Table CD.2). The average number of activities that adults engaged in with children was 3.4. The table also indicates that the father's involvement in such activities was somewhat limited. Forty-two percent of children engaged in activities with their fathers and the average number of activities that the father engaged in with children was 0.9. One out of three children (33 percent) in Sierra Leone lives in a household without his or her natural father.

Table CD.2: Support for learning
Percentage of children age 36-59 months with whom an adult household member engaged in activities that promote learning and school readiness during the last three days, Sierra Leone, 2010

		Percentage of children aged 36-59 months		Mean number of activities			
		With whom adult household members engaged in four or more activities [1]	With whom the father engaged in one or more activities [2]	Any adult household member engaged with the child	The father engaged with the child	Percentage of children not living with their natural father	Number of children aged 36-59 months
Sex	Male	53.2	41.9	3.4	.9	31.7	1817
	Female	55.2	41.2	3.4	.9	33.9	1818
	Missing	*	*	*	*	*	2
Region	East	52.6	48.1	3.3	1.1	29.1	939
	North	47.6	31.1	3.2	.6	31.7	1417
	South	55.8	55.8	3.4	1.3	31.8	909
	West	79.6	30.5	4.6	.7	48.9	371
District	Kailahun	66.0	55.7	3.7	1.5	26.0	326
	Kenema	36.2	42.9	2.7	.8	31.6	350
	Kono	57.8	45.4	3.5	1.0	29.4	264
	Bombali	55.5	30.6	3.5	.6	34.5	315
	Kambia	49.7	20.2	3.1	.4	35.5	195
	Koinadugu	40.4	48.0	2.9	1.0	20.0	223
	Port Loko	46.7	27.0	3.2	.6	39.3	351
	Tonkolili	44.8	30.8	3.1	.5	26.6	333
	Bo	58.6	50.0	3.5	1.3	31.8	331
	Bonthe	49.1	55.4	3.1	1.3	28.7	189
	Moyamba	55.5	48.8	3.6	1.2	36.0	174
	Pujehun	57.7	70.9	3.4	1.5	31.0	214
	Western Rural	63.5	33.2	3.8	.9	48.0	117
	Western Urban	87.0	29.2	5.0	.6	49.4	254
Area	Urban	62.1	37.3	3.8	.8	42.0	967
	Rural	51.4	43.1	3.3	1.0	29.4	2669
Age	36-47 months	52.7	42.6	3.3	1.0	29.8	1970
	48-59 months	56.0	40.4	3.5	.9	36.3	1666
Mother's education	None	49.9	41.3	3.2	.9	30.8	2766
	Primary	60.6	47.3	3.8	1.1	31.1	454
	Secondary	76.0	37.2	4.5	.9	47.9	416
Father's education	None	49.6	50.2	3.2	1.1	.0	1623
	Primary	57.8	56.5	3.7	1.2	.0	272
	Secondary +	67.4	54.7	4.0	1.4	.0	548
	Father not in household	53.6	20.3	3.5	.4	100.0	1192
	Missing/DK	*	*	*	*	*	2
Wealth index quintiles	Poorest	44.8	47.3	2.9	1.1	29.1	884
	Second	45.2	41.9	3.1	.9	28.0	824
	Middle	55.1	40.7	3.4	.9	32.4	732
	Fourth	58.0	39.5	3.6	.9	37.5	686
	Richest	78.9	35.0	4.6	.9	41.2	509
Total		**54.2**	**41.6**	**3.4**	**.9**	**32.8**	**3636**

[1] MICS indicator 6.1
[2] MICS Indicator 6.2

Male and female children are engaged by families and fathers at an equal level. A larger proportion of adults took part in learning and school readiness activities with children in urban areas (62 percent) than in rural areas (51 percent). Notable differentials by region are also observed: Adult

participation in activities with children was highest in the West (80 percent) and lowest in the north (48 percent). Higher levels of engagement by adults are associated with higher levels of household wealth, mother's education and father's education.

Exposure to books in early years not only provides a child with greater understanding of the nature of print, but may also foster opportunities to see others reading, such as older siblings doing school work. The presence of books in a child's life is important for later school performance and IQ scores. Mothers / caretakers of all children under five years of age were asked about the number of children's books or picture books that the child has and whether the child plays with household objects (e.g., bowls or pots), outside objects (e.g., sticks or rocks), and/or homemade toys or toys that came from a shop.

In Sierra Leone, only two percent of children age 0-59 months are living in households where at least three children's books are present and less than half of one percent of children live in households with ten or more children's books. The presence of higher numbers of children's books is positively associated with urban residence, higher levels of mother's education and household wealth, and increasing age of the child.

Table CD.3: Learning materials
Percentage of children under age 5 by numbers of children's books present in the household, and by playthings that child plays with, Sierra Leone, 2010

		Household has for the child:		Child plays with:				
		3 or more children's books [1]	10 or more children's books	Homemade toys	Toys from a shop/manufactured toys	Household objects/objects found outside	Two or more types of playthings [2]	Number of children under age 5
Sex	Male	2.2	.2	27.8	29.0	57.5	34.7	4288
	Female	2.0	.3	25.5	30.5	57.2	34.6	4306
	Missing	*	*	*	*	*	*	4
Region	East	1.0	.1	19.9	28.3	53.0	29.5	2371
	North	1.2	.1	31.2	22.4	61.7	35.8	3218
	South	.8	.1	26.0	26.1	57.6	31.8	2132
	West	11.6	1.7	29.5	69.8	52.7	50.9	877
Area	Urban	4.9	.6	23.9	45.8	53.7	38.9	2359
	Rural	1.0	.1	27.7	23.7	58.7	33.0	6240
Age	0-23 months	.6	.1	17.0	24.1	38.8	22.6	3325
	24-59 months	3.1	.4	32.7	33.4	69.0	42.2	5273
Mother's education	None	1.1	.1	26.7	23.8	57.7	32.1	6289
	Primary	2.1	.1	25.7	35.1	55.8	35.4	1133
	Secondary	7.4	1.2	27.0	56.7	56.9	47.4	1176
Wealth index quintiles	Poorest	.4	.0	23.2	13.5	54.0	23.5	1951
	Second	.3	.0	26.2	18.5	55.6	28.8	1916
	Middle	.9	.1	28.4	27.1	59.2	35.6	1783
	Fourth	1.3	.1	28.8	36.2	62.1	41.6	1677
	Richest	10.0	1.4	27.3	67.1	56.2	50.0	1271
Total		2.1	.3	26.6	29.8	57.3	34.6	8598

[1] MICS indicator 6.3
[2] MICS indicator 6.4
[*] Based on less than 25 unweighted cases and has been suppressed.

Table CD.3 also shows that 35 percent of children aged 0-59 months had two or more types of playthings in their homes. The definition of "playthings" as measured in MICS4 included homemade toys (such as dolls, cars, or other toys made at home), toys that came from a store, and household objects (such as pots and bowls) or objects and materials found outside the home (such as sticks, rocks, animal shells, or leaves). Thirty percent of children play with toys that come from a store, while 27 percent play with homemade toys and 57 percent play with other types of objects. The percentage of children who have 2 or more type of playthings does not differ by gender. Higher percentages of children with two or more types of playthings are positively associated with urban residence, higher levels of mother's education and household wealth, and increasing age of the child. Among provinces, the level of this indicator is highest in the West (51 percent) and lowest in the East (30 percent).

Leaving children alone or in the presence of other young children is known to increase the risk of accidents. In MICS4, two questions were asked to find out whether children aged 0-59 months were left alone during the week preceding the interview and whether children aged 0-59 months were left in the care of other children under 10 years of age for more than one hour.

Table CD.4: Inadequate care
Percentage of children under age 5 left alone or left in the care of other children under the age of 10 years for more than one hour at least once during the past week, Sierra Leone, 2010

		Percentage of children under age 5			
		Left alone in the past week	Left in the care of another child younger than 10 years of age in the past week	Left with inadequate care in the past week [1]	Number of children under age 5
Sex	Male	25.4	23.2	32.8	4288
	Female	24.2	22.1	31.9	4306
	Missing	*	*	*	4
Region	East	25.7	23.9	32.7	2371
	North	31.9	30.8	42.6	3218
	South	13.0	12.2	18.2	2132
	West	25.0	14.6	28.3	877
District	Kailahun	42.3	35.9	48.4	837
	Kenema	17.8	19.1	24.9	908
	Kono	15.1	14.7	23.1	627
	Bombali	19.6	21.6	34.7	705
	Kambia	14.1	15.9	26.6	460
	Koinadugu	53.9	55.0	65.6	424
	Port Loko	47.2	31.8	50.4	873
	Tonkolili	24.1	33.6	37.8	757
	Bo	11.1	12.0	17.6	851
	Bonthe	12.1	13.7	18.8	411
	Moyamba	18.3	14.0	20.0	431
	Pujehun	12.3	9.5	17.1	440
	Western Rural	25.7	18.9	27.9	233
	Western Urban	24.7	13.1	28.5	644
Area	Urban	19.6	18.6	27.0	2359
	Rural	26.8	24.2	34.4	6240
Age	0-23	13.7	10.7	18.1	3325
	24-59	31.8	30.2	41.4	5273
Mother's education	None	25.7	24.1	33.3	6289
	Primary	22.0	21.4	30.3	1133
	Secondary	22.6	15.7	29.1	1176
Wealth index quintiles	Poorest	21.0	22.3	28.5	1951
	Second	26.7	26.5	35.1	1916
	Middle	28.6	26.4	37.0	1783
	Fourth	25.2	19.6	32.1	1677
	Richest	21.8	16.0	28.1	1271
Total		**24.8**	**22.6**	**32.4**	**8598**

[1] MICS indicator 6.5

Table CD.4 shows that 23 percent of children aged 0-59 months were left in the care of other children, while 25 percent were left alone during the week preceding the interview. Combining the two care indicators, it is calculated that 32 percent of children were left with inadequate care during the week preceding the survey, either by being left alone or in the care of another child. No differences were observed by the gender of the child while more children were left with inadequate

care in rural areas (34 percent) than in urban areas (27 percent). The highest levels of leaving a child with inadequate care were found in the north (43 percent) while the lowest levels were in the south (18 percent). Inadequate care was slightly more prevalent among children whose mothers had no education and among children living in households classified as having mid-level wealth. Children aged 24-59 months were left with inadequate care more frequently (41 percent) than those aged 0-23 months (18 percent).

Early Childhood Development

Early childhood development consists of an orderly, predictable process along a continuous path in which a child learns increasingly complex levels of moving, thinking, speaking, feeling and relating to others. Physical growth, literacy and numeracy skills, socio-emotional development and readiness to learn are key domains of a child's ongoing development which in turn is the basis for their future growth.

A ten-item module that was developed for the MICS4 survey was used to calculate the Early Child Development Index (ECDI). This index is based on benchmarks that children would be expected to achieve if they develop at the same pace as the majority of children in their age group. The primary purpose of the ECDI is to inform public policy regarding the developmental status of children in Sierra Leone.

Table CD.5: Early child development index
Percentage of children age 36-59 months who are developmentally on track in literacy-numeracy, physical, social-emotional, and learning domains, and the early child development index score, Sierra Leone, 2010

		Percentage of children age 36-59 months who are developmentally on track for indicated domains				Early child development index score [1]	Number of children age 36-59 months
		Literacy-numeracy	Physical	Social-Emotional	Learning		
Sex	Male	9.2	87.7	57.4	78.4	44.9	1817
	Female	9.5	90.0	60.3	75.5	45.3	1818
	Missing	*	*	*	*	*	2
Region	East	11.6	85.9	39.9	85.1	36.5	939
	North	5.5	88.9	68.9	76.5	48.6	1417
	South	5.7	90.8	61.1	70.1	44.0	909
	West	26.9	91.1	62.9	75.2	56.6	371
District	Kailahun	16.7	87.4	30.4	85.1	31.9	326
	Kenema	6.8	83.4	40.1	83.6	31.6	350
	Kono	11.7	87.2	51.5	87.0	48.6	264
	Bombali	5.3	90.8	81.4	72.4	56.6	315
	Kambia	6.0	81.5	53.2	73.8	32.3	195
	Koinadugu	6.5	96.0	81.6	87.9	70.8	223
	Port Loko	5.8	89.4	62.4	72.5	39.9	351
	Tonkolili	4.6	86.3	64.5	78.5	44.8	333
	Bo	6.4	85.7	56.0	73.9	43.1	331
	Bonthe	3.5	98.0	58.0	64.1	40.4	189
	Moyamba	3.6	90.4	74.8	61.0	47.0	174
	Pujehun	8.4	92.8	60.7	77.0	46.0	214
	Western Rural	10.6	91.9	64.6	54.0	40.7	117
	Western Urban	34.4	90.7	62.1	84.9	63.9	254
Area	Urban	16.0	88.4	60.0	78.3	49.0	967
	Rural	6.9	89.0	58.5	76.5	43.7	2669
Age	36-47 months	6.2	87.5	57.2	74.3	40.9	1970
	48-59 months	13.0	90.4	60.8	80.1	50.1	1666
Preschool attendance	Attending	39.7	92.2	58.0	88.6	63.4	506
	Not attending	4.4	88.3	59.0	75.1	42.2	3130
Mother's education	None	6.6	88.0	58.8	76.0	43.2	2766
	Primary	10.6	89.9	58.1	79.6	46.6	454
	Secondary	26.0	92.8	60.2	80.7	56.5	416
Wealth index quintiles	Poorest	3.7	89.5	60.1	69.3	38.5	884
	Second	4.3	89.5	57.7	77.5	42.4	824
	Middle	8.7	88.5	58.5	79.1	45.8	732
	Fourth	8.9	86.5	59.2	79.8	46.4	686
	Richest	28.9	90.1	58.6	82.4	58.3	509
Total		**9.3**	**88.8**	**58.9**	**77.0**	**45.1**	**3636**

1] MICS indicator 6.6

[*] Based on less than 25 unweighted cases and has been suppressed.

Each of the ten items is used in one of the four domains to determine if a child is developmentally on track in that domain. The four domains are as follows:

- **Literacy-numeracy:** Children are identified as being developmentally on track based on whether they can identify/name at least ten letters of the alphabet, whether they can read at least four simple, popular words, and whether they know the name and recognize the symbols of all numbers from 1 to 10. If at least two of these are true, then the child is considered developmentally on track.
- **Physical:** If the child can pick up a small object with two fingers, like a stick or a rock from the ground and/or the mother/caretaker does not indicate that the child is sometimes too sick to play, then the child is regarded as being developmentally on track in the physical domain.
- **Social-emotional:** Children are considered to be developmentally on track in the social-emotional domain if two of the following are true: (i) If the child gets along well with other children, (ii) if the child does not kick, bite, or hit other children and (iii) if the child is not distracted easily.
- **Learning:** If the child follows simple directions on how to do something correctly and/or when given something to do and is able to do it independently, then the child is considered to be developmentally on track in the learning domain.

The ECDI score is calculated as the percentage of children who are developmentally on track in at least three of the four domains. It is important to note that the children were not tested as part of the MICS4 survey; all data are based on mothers/caretakers' reports. The results are presented in Table CD.5. In Sierra Leone, 45 percent of children aged 36-59 months are developmentally on track. There are no differences between boys and girls. Higher ECDI scores are found among children living in urban households, wealthier households, and whose mothers are more highly educated. As expected, the ECDI score is higher in older age group (50 percent among children who are 48-59 months old compared to 41 percent among children who are 36-47 months old), since children are more mature and have more skills with increasing age. Higher ECDI scores are seen in children attending pre-school (63 percent compared to 42 percent for those who are not attending preschool). The analysis of four domains of child development shows that 89 percent of children are on track in the physical domain, but fewer are on track in learning (77 percent), social-emotional (59 percent) and literacy (nine percent) domains. Among the four domains, the literacy-numeracy domain score stands out as being most strongly (and positively) associated with background variables such as wealthier households, preschool attendance, older children, higher levels of mother's education, and urban residence.

Discussion: Child development

Educational experts in Sierra Leone questioned the validity of the "learning domain score" as reported directly above. For example, the learning domain score is based on a mother's response to the questions "Can (name) read at least four simple, popular words?", "Does (name) know the name and recognize the symbols of all numbers 1 to 10?", and "Can (name) identify or name at least ten letters of the alphabet?"

An official government policy for early child development in Sierra Leone has been drafted but has not yet passed parliament. The Government White Paper on Education includes plans to provide up to three years of pre-school education through the public education system. The cabinet of the current government in Sierra Leone has recently rejected a proposal to make parents education compulsory.

X. Literacy and Education

Literacy among Young Women

One of the World Fit for Children goals is to assure adult literacy. Adult literacy is also a MDG indicator for both men and women. In MICS4, since only a women's questionnaire was administered, the results regarding adult literacy that are presented below are only for females aged 15-24 years. Literacy was assessed in the MICS4 based on the ability of respondents to read a simple short statement (in English) or on their school attendance (i.e., women who had attended secondary school at any level were assumed to be literate). Results regarding women's literacy are presented in Table ED.1. Almost one in two women in Sierra Leone is literate (48 percent). The level of literacy is much higher in the West (76 percent) and almost constant in the remaining provinces (41 percent). Among women who stated that primary school was their highest level of education, only 16 percent were actually able to read the statement shown to them. Literacy was highest among women from households in the upper wealth quintiles and women living in urban locations. Women aged 15-19 years demonstrated much higher levels of literacy (59 percent) than did women aged 20-24 years (36 percent).

Table ED.1: Literacy among young women
Percentage of women age 15-24 years who are literate, Sierra Leone, 2010

		Percentage literate [1]	Percentage not known	Number of women age 15-24 years
Region	East	40.8	.7	1193
	North	41.2	.3	1600
	South	41.3	.4	1028
	West	76.1	.3	991
District	Kailahun	47.4	.3	420
	Kenema	37.4	.9	486
	Kono	37.1	1.0	287
	Bombali	53.3	.2	436
	Kambia	38.7	.5	212
	Koinadugu	45.0	1.0	180
	Port Loko	36.2	.1	447
	Tonkolili	31.4	.0	325
	Bo	50.4	.8	482
	Bonthe	31.7	.0	196
	Moyamba	35.1	.0	165
	Pujehun	33.1	.0	185
	Western Rural	65.2	.0	124
	Western Urban	77.7	.3	867
Area	Urban	64.5	.6	1937
	Rural	37.4	.3	2876
Education	None	.1	.7	1767
	Primary	16.5	.8	866
	Secondary +	100.0	.0	2180
Age	15-19	58.8	.6	2549
	20-24	36.5	.2	2263
Wealth index quintiles	Poorest	19.1	.7	766
	Second	28.5	.3	781
	Middle	40.9	.4	841
	Fourth	54.7	.6	1084
	Richest	76.0	.2	1341
Total		**48.3**	**.4**	**4813**

[1] MICS indicator 7.1; MDG indicator 2.3

Discussion: Literacy among young women

It is instructive to break down the numerator for the literacy among young women indicator into women who were assumed to be literate (because they had attended secondary school) and women who were tested regarding their ability to read a simple statement in English. Forty-five percent of 4813 women aged 15-24 years, were automatically assumed to be literate (due to having attended secondary school). The finding that only 17 percent of 866 respondents who had attended some level of primary school could read a simple statement raises concern about the quality of primary school education in Sierra Leone.

The increase in literacy among women aged 15-24 from 25 percent in MICS3 (2005) to 48 percent in MICS4 (2010) was felt by education experts to be not only encouraging but somewhat surprising, given that there is not a strong current effort to increase literacy per se among this age group. Further analysis is required to determine the extent to which an increase in school attendance by girls, especially at the secondary school level, is responsible for this result.

School Readiness

A child's participation in a pre-school education program or activity can play an important role in preparing the child for school. Table ED.2 shows the percentage of children in the first grade of primary school in Sierra Leone who attended pre-school the previous year. Overall, only six percent of children who are currently attending the first grade of primary school attended pre-school the previous year. Higher levels of previous pre-school attendance among current first-graders are associated with urban residence and higher levels of mother's education and household wealth. Among current first-graders, pre-school attendance during the previous year was highest in the south and west (11 percent) and lowest in the east (two percent).

Table ED.2: School readiness
Percentage of children attending first grade of primary school who attended pre-school the previous year, Sierra Leone, 2010

		Percentage of children attending first grade who attended preschool in previous year [1]	Number of children attending first grade of primary school
Sex	Male	5.3	1321
	Female	5.6	1261
	Missing	*	2
Region	East	2.0	791
	North	3.8	968
	South	10.6	593
	West	10.7	232
District	Kailahun	1.0	198
	Kenema	2.2	351
	Kono	2.7	242
	Bombali	6.3	253
	Kambia	.0	136
	Koinadugu	1.7	111
	Port Loko	8.0	182
	Tonkolili	1.7	286
	Bo	10.6	255
	Bonthe	14.2	88
	Moyamba	3.5	143
	Pujehun	17.4	107
	Western Rural	9.3	58
	Western Urban	11.2	174
Area	Urban	7.8	739
	Rural	4.5	1846
Mother's education	None	5.0	1838
	Primary	7.6	260
	Secondary +	9.1	318
	Mother not in household	.0	101
Wealth index quintiles	Poorest	4.2	396
	Second	3.3	532
	Middle	4.4	607
	Fourth	6.9	599
	Richest	8.6	451
Total		**5.5**	**2585**

[1] MICS indicator 7.2

[*] Based on less than 25 unweighted cases and has been suppressed.

Primary and Secondary School Participation

Universal access to basic education and the completion of primary education by the world's children is one of the most important goals of the Millennium Development Goals and A World Fit for Children. Education is a vital prerequisite for combating poverty, empowering women, protecting children from hazardous and abusive labour and sexual exploitation, promoting human rights and democracy, protecting the environment, and influencing population growth.

Primary and secondary school attendance in Sierra Leone were measured in MICS4 through indicators that include the following:

- Net intake rate in primary education
- Primary school net attendance ratio (adjusted)
- Secondary school net attendance ratio (adjusted)
- Female-to-male education ratio (or gender parity index - GPI) in primary and secondary school

The indicators of school progression include:

- Children reaching the last grade of primary school
- Primary school completion rate
- Transition rate from primary school to secondary school

Among children who are of primary school entry age (age 6) in Sierra Leone, 45 percent are attending the first grade of primary school (Table ED.3). Attendance is higher among girls than among boys (48 percent vs. 42 percent). Differences among the provinces are relatively minor, ranging from 42 percent in the south to 49 percent in the east. Children's entry into primary school is slightly timelier in urban areas (47 percent) than in rural areas (44 percent). Timely entry into first grade is correlated with increasing household wealth.

Table ED.3: Primary school entry
Percentage of children of primary school entry age entering grade 1 (net intake rate), Sierra Leone, 2010

		Percentage of children of primary school entry age entering grade 1 [1]	Number of children of primary school entry age
Sex	Male	42.2	1199
	Female	48.3	1190
	Missing	*	1
Region	East	48.8	659
	North	44.8	885
	South	41.5	594
	West	46.7	253
District	Kailahun	44.2	216
	Kenema	48.4	258
	Kono	54.6	184
	Bombali	46.6	164
	Kambia	41.8	130
	Koinadugu	38.5	119
	Port Loko	40.2	262
	Tonkolili	54.4	210
	Bo	38.7	248
	Bonthe	45.4	85
	Moyamba	43.0	122
	Pujehun	43.0	139
	Western Rural	41.2	61
	Western Urban	48.4	192
Area	Urban	47.4	663
	Rural	44.4	1727
Mother's education	None	42.9	1888
	Primary	56.7	221
	Secondary +	52.1	280
	Mother not in household	*	1
Wealth index quintiles	Poorest	35.6	510
	Second	45.0	509
	Middle	45.3	538
	Fourth	51.0	474
	Richest	51.7	360
Total		**45.3**	**2390**

[1] MICS indicator 7.3

[*] Based on less than 25 unweighted cases and has been suppressed.

Table ED.4 presents the percentage of children of primary school age (6 to 11 years) who are attending primary or secondary school[13]. The majority of children of primary school age in Sierra Leone are attending school (74 percent). The corollary of this statement is that 26 percent of children are not attending school at an age when they are expected to be enrolled in and attending school. In urban areas 80 percent of children attend school while in rural areas only 72 percent of children attend. Attendance varies from 66 percent in the south to 85 percent in the West. Attendance is lowest among six-year olds at 55 percent and gradually increases to 84 percent among eleven-year olds. Attendance levels are positively correlated with increasing levels of mother's education and household wealth.

Table ED.4: Primary school attendance
Percentage of children of primary school age attending primary or secondary school (Net attendance ratio), Sierra Leone, 2010

		Male		Female		Missing		Total	
		Net attendance ratio (adjusted) [1]	Number of children	Net attendance ratio (adjusted) [1]	Number of children	Net attendance ratio (adjusted) [1]	Number of children	Net attendance ratio (adjusted) [1]	Number of children
Region	East	78.1	1492	80.3	1601	.	0	79.3	3093
	North	72.8	2375	72.6	2151	100.0	1	72.7	4527
	South	62.2	1385	70.0	1373	.	0	66.1	2758
	West	84.6	694	86.0	653	.	0	85.3	1347
District	Kailahun	82.6	524	82.2	581	.	0	82.4	1105
	Kenema	72.7	606	80.6	647	.	0	76.8	1253
	Kono	80.7	362	76.9	373	.	0	78.8	735
	Bombali	77.6	511	79.7	430	100.0	1	78.6	942
	Kambia	72.8	336	66.5	291	100.0	0	69.9	627
	Koinadugu	67.5	295	64.8	278	.	0	66.2	573
	Port Loko	64.5	625	68.1	634	.	0	66.3	1259
	Tonkolili	79.7	607	79.9	519	.	0	79.8	1126
	Bo	68.6	563	74.3	578	.	0	71.5	1141
	Bonthe	48.8	233	61.3	230	.	0	55.0	463
	Moyamba	61.6	319	71.2	268	.	0	66.0	588
	Pujehun	60.9	269	67.3	297	.	0	64.2	566
	Western Rural	76.8	168	81.4	145	.	0	78.9	313
	Western Urban	87.1	526	87.3	508	.	0	87.2	1034
Area	Urban	77.4	1668	81.7	1686	100.0	0	79.5	3354
	Rural	71.3	4279	73.2	4092	100.0	1	72.2	8372
Age at beginning of school year	6.00	53.1	1199	56.8	1190	100.0	1	55.0	2390
	7.00	70.5	1190	75.3	1082	.	0	72.8	2272
	8.00	78.7	948	80.9	951	.	0	79.8	1900
	9.00	80.3	933	82.9	948	.	0	81.6	1880
	10.00	79.7	976	82.2	893	.	0	80.9	1869
	11.00	84.6	700	82.9	714	100.0	0	83.7	1415
Mother's education	None	70.0	4644	73.1	4480	100.0	1	71.5	9125
	Primary	81.8	605	82.3	584	.	0	82.0	1189
	Secondary +	85.7	691	86.7	710	.	0	86.2	1401
	Mother not in household	*	1	*	1	.	0	*	2
Wealth index quintiles	Poorest	57.1	1176	60.0	1112	.	0	58.5	2288
	Second	66.6	1273	70.0	1207	100.0	1	68.3	2481
	Middle	74.5	1290	77.2	1269	100.0	0	75.8	2559
	Fourth	82.0	1258	83.6	1197	.	0	82.8	2455
	Richest	87.3	950	88.4	993	.	0	87.9	1943
Total		**73.0**	**5947**	**75.6**	**5778**	**100.0**	**1**	**74.3**	**11726**

[1] MICS indicator 7.4; MDG indicator 2.1
[*] Based on less than 25 unweighted cases and has been suppressed.

The secondary school net attendance ratio is presented in Table ED.5[14]. Only 37 percent of children of secondary school age are actually attending secondary school or higher levels (i.e., the "secondary school net attendance ratio" is 37 percent). Among the remaining 63 percent, 37 percent of the

[13] Ratios presented in this table are "adjusted" since they include not only primary school attendance, but also secondary school attendance in the numerator.
[14] Ratios presented in this table are "adjusted" since they include not only secondary school attendance but also attendance at higher levels in the numerator.

children of secondary school age are attending primary school while the remaining 26 percent are not attending school at all. Higher levels of the secondary school net attendance ratio are strongly correlated with urban residence and higher levels of mother's education and household wealth. Among the provinces, the south has the lowest value of the secondary school net attendance ratio (30 percent) while the West has the highest (57 percent). The value of the secondary school net attendance ratio increases dramatically from 14 percent for 12 year-olds to 28 and 41 percent, respectively, for 13 and 14 year-olds. This finding highlights the delayed progression of many children through the educational system in Sierra Leone.

Table ED.5: Secondary school attendance

Percentage of children of secondary school age attending secondary school or higher (adjusted net attendance ratio), and percentage of children attending primary school, Sierra Leone, 2010

		Male			Female			Total		
		Net attendance ratio (adjusted) [1]	Percent attending primary school	Number of children	Net attendance ratio (adjusted) [1]	Percent attending primary school	Number of children	Net attendance ratio (adjusted) [1]	Percent attending primary school	Number of children
Region	East	38.6	41.1	1003	30.0	44.2	957	34.4	42.6	1960
	North	36.3	34.7	1803	28.1	39.1	1658	32.4	36.8	3461
	South	34.1	33.3	1026	25.1	39.4	920	29.8	36.2	1946
	West	59.8	29.3	685	54.8	30.2	882	57.0	29.8	1567
District	Kailahun	44.3	41.7	311	29.6	50.1	316	36.9	45.9	627
	Kenema	35.1	40.5	401	29.0	43.8	378	32.1	42.1	780
	Kono	37.2	41.3	291	32.1	37.8	263	34.8	39.6	554
	Bombali	37.1	41.9	449	31.3	47.0	421	34.4	44.3	871
	Kambia	40.0	38.7	245	20.4	38.5	245	30.2	38.6	491
	Koinadugu	30.8	32.3	235	30.8	39.0	180	30.8	35.2	415
	Port Loko	33.0	30.2	495	28.8	32.1	477	30.9	31.1	972
	Tonkolili	40.7	30.7	378	27.1	39.7	334	34.3	34.9	712
	Bo	40.6	34.0	435	28.0	40.7	377	34.7	37.2	813
	Bonthe	31.3	24.2	185	24.2	33.0	146	28.2	28.1	331
	Moyamba	30.2	40.1	177	16.0	43.1	186	22.9	41.6	362
	Pujehun	26.9	34.4	229	28.5	38.1	211	27.7	36.2	440
	Western Rural	54.1	30.1	138	39.1	38.7	154	46.2	34.6	292
	Western Urban	61.2	29.1	547	58.1	28.4	728	59.5	28.7	1275
Area	Urban	49.9	30.0	1547	47.6	33.5	1646	48.7	31.8	3195
	Rural	34.6	37.6	2969	24.7	41.5	2771	29.8	39.5	5740
Age at beginning of school year	12.00	15.8	65.0	802	13.4	68.5	932	14.5	66.9	1734
	13.00	28.3	53.7	626	27.7	49.1	914	28.0	51.0	1540
	14.00	42.3	35.2	837	39.7	35.6	977	40.9	35.5	1815
	15.00	44.9	26.2	866	44.0	24.5	515	44.5	25.6	1382
	16.00	53.0	19.7	621	45.4	17.9	500	49.6	18.9	1121
	17.00	55.5	10.1	763	42.7	8.8	579	50.0	9.6	1343
Mother's education	None	32.2	42.8	2361	26.8	47.2	2463	29.4	45.1	4825
	Primary	39.3	49.7	281	37.7	47.9	292	38.5	48.8	573
	Secondary +	53.1	35.9	448	46.8	40.3	582	49.5	38.4	1029
	Mother not in household	49.8	21.8	1036	42.9	18.5	797	46.8	20.4	1833
	Missing/DK	*	*	2	.	.	0	100.0	*	2
Wealth index quintiles	Poorest	22.2	30.5	804	14.4	34.7	643	18.7	32.4	1447
	Second	25.9	37.9	813	16.3	44.7	781	21.2	41.2	1594
	Middle	37.8	40.2	828	27.0	42.9	757	32.7	41.5	1584
	Fourth	48.0	36.5	1010	36.8	41.3	1036	42.3	39.0	2047
	Richest	57.8	30.7	1062	55.1	31.3	1201	56.4	31.0	2263
Total		**39.9**	**35.0**	**4516**	**33.2**	**38.5**	**4417**	**36.6**	**36.7**	**8935**

[1] MICS indicator 7.5

[*] Based on less than 25 unweighted cases and has been suppressed.

The percentage of children entering first grade who eventually reach the last grade of primary school is presented in Table ED.6. Of all children starting grade one, the overwhelming majority of them (92 percent) eventually reach grade six. Note that this result includes children that repeat grades and then eventually move up to reach grade six. This statistic varies only marginally by the various background variables measured in MICS4.

Table ED.6: Children reaching last grade of primary school
Percentage of children entering first grade of primary school who eventually reach the last grade of primary school (Survival rate to last grade of primary school), Sierra Leone, 2010

		Percent attending grade 1 last year who are in grade 2 this year	Percent attending grade 2 last year who are attending grade 3 this year	Percent attending grade 3 last year who are attending grade 4 this year	Percent attending grade 4 last year who are attending grade 5 this year	Percent attending grade 5 last year who are attending grade 6 this year	Percent who reach grade 6 of those who enter grade 1 [1]
Sex	Male	98.6	97.9	98.4	99.2	99.0	93.3
	Female	99.2	98.6	98.0	98.3	97.4	91.8
Region	East	98.8	97.7	98.7	99.8	98.4	93.6
	North	99.3	98.8	98.6	98.5	98.5	93.9
	South	98.8	97.4	97.0	98.2	97.8	89.6
	West	98.5	99.2	98.2	97.8	97.4	91.5
District	Kailahun	98.7	99.2	100.0	100.0	97.7	95.6
	Kenema	99.1	96.7	96.7	99.5	98.8	91.0
	Kono	98.6	96.7	100.0	100.0	98.7	94.2
	Bombali	100.0	99.0	100.0	99.2	99.4	97.7
	Kambia	99.3	98.1	98.6	95.5	98.3	90.1
	Koinadugu	98.0	98.9	100.0	100.0	98.7	95.8
	Port Loko	99.2	98.3	98.9	98.2	98.5	93.3
	Tonkolili	99.2	99.6	95.9	98.9	97.5	91.3
	Bo	100.0	95.8	94.0	97.2	97.5	85.4
	Bonthe	99.4	99.2	100.0	100.0	98.9	97.4
	Moyamba	95.3	98.7	98.2	98.8	98.6	90.0
	Pujehun	99.6	98.9	100.0	98.8	97.3	94.7
	Western Rural	99.3	100.0	96.2	97.4	100.0	92.9
	Western Urban	98.3	99.0	98.7	98.0	96.9	91.2
Area	Urban	98.8	98.2	98.5	98.8	97.2	91.8
	Rural	99.0	98.3	98.1	98.7	98.7	92.9
Mother's education	None	99.2	98.8	98.7	99.2	99.3	95.3
	Primary	97.6	98.1	98.2	100.0	99.4	93.4
	Secondary +	99.8	98.9	99.4	98.8	99.6	96.5
	Mother not in household	86.9	85.0	88.6	93.9	97.5	60.0
Wealth index quintiles	Poorest	98.6	99.1	98.6	99.4	97.4	93.4
	Second	99.0	97.3	96.1	97.3	97.8	88.1
	Middle	99.4	97.6	98.7	99.6	98.3	93.8
	Fourth	98.5	98.8	98.5	99.2	99.2	94.3
	Richest	99.1	98.5	99.3	98.2	97.7	93.0
	Total	**98.9**	**98.2**	**98.2**	**98.7**	**98.2**	**92.5**

[1] MICS indicator 7.6; MDG indicator 2.2

The primary school completion rate is presented in Table ED.7. The primary school completion rate is calculated as follows:

Numerator	Denominator
Number of children (of any age) attending the last grade of primary school (excluding repeaters)	Total number of children of primary school completion age (11 years old in Sierra Leone)

The term “primary school completion rate” is somewhat of a misnomer as many children in the last grade of primary school do not pass and thus do not technically complete primary school. At the time of the MICS4 survey, the primary school completion rate, based on the formula above, was 117 percent.

Table ED.7: Primary school completion and transition to secondary school
Primary school completion rates and transition rate to secondary school, Sierra Leone, 2010

		Primary school completion rate [1]	Number of children of primary school completion age	Transition rate to secondary school [2]	Number of children who were in the last grade of primary school the previous year
Sex	Male	117.6	700	25.8	617
	Female	115.6	714	24.0	533
	Missing	*	0	*	1
Region	East	116.7	366	22.1	350
	North	110.6	556	29.1	408
	South	114.1	297	27.6	223
	West	137.3	195	17.7	171
District	Kailahun	104.8	135	6.7	101
	Kenema	116.5	148	28.2	143
	Kono	136.7	83	28.4	106
	Bombali	125.0	120	13.9	140
	Kambia	75.7	92	49.1	68
	Koinadugu	152.9	60	(6.1)	26
	Port Loko	96.1	170	26.2	85
	Tonkolili	122.8	115	47.2	88
	Bo	116.2	127	14.4	123
	Bonthe	(124.2)	43	(72.9)	27
	Moyamba	60.9	83	(37.7)	40
	Pujehun	(201.2)	43	(27.9)	34
	Western Rural	(110.2)	41	(7.2)	27
	Western Urban	144.6	154	19.7	143
Area	Urban	120.9	482	21.2	410
	Rural	114.4	932	27.1	742
Mother's education	None	99.3	1061	24.4	652
	Primary	90.1	145	28.9	99
	Secondary +	125.4	200	18.5	170
	Mother not in household	*	1	32.5	149
Wealth index quintiles	Poorest	107.9	210	34.7	122
	Second	108.7	301	26.9	169
	Middle	104.8	293	25.1	223
	Fourth	128.0	302	24.3	324
	Richest	130.3	308	20.8	314
Total		**116.6**	**1415**	**25.0**	**1152**

[1] MICS indicator 7.7
[2] MICS indicator 7.8
[*] Based on less than 25 unweighted cases and has been suppressed.

Table ED.8: Education gender parity

Ratio of adjusted net attendance ratios of girls to boys, in primary and secondary school, Sierra Leone, 2010

		Primary school adjusted net attendance ratio (NAR), girls	Primary school adjusted net attendance ratio (NAR), boys	Gender parity index (GPI) for primary school adjusted NAR [1]	Secondary school adjusted net attendance ratio (NAR), girls	Secondary school adjusted net attendance ratio (NAR), boys	Gender parity index (GPI) for secondary school adjusted NAR [2]
Region	East	80.3	78.1	1.03	30.0	38.6	.78
	North	72.6	72.8	1.00	28.1	36.3	.77
	South	70.0	62.2	1.13	25.1	34.1	.74
	West	86.0	84.6	1.02	54.8	59.8	.92
District	Kailahun	82.2	82.6	1.00	29.6	44.3	.67
	Kenema	80.6	72.7	1.11	29.0	35.1	.82
	Kono	76.9	80.7	.95	32.1	37.2	.86
	Bombali	79.7	77.6	1.03	31.3	37.1	.84
	Kambia	66.5	72.8	.91	20.4	40.0	.51
	Koinadugu	64.8	67.5	.96	30.8	30.8	1.00
	Port Loko	68.1	64.5	1.06	28.8	33.0	.87
	Tonkolili	79.9	79.7	1.00	27.1	40.7	.67
	Bo	74.3	68.6	1.08	28.0	40.6	.69
	Bonthe	61.3	48.8	1.26	24.2	31.3	.77
	Moyamba	71.2	61.6	1.16	16.0	30.2	.53
	Pujehun	67.3	60.9	1.11	28.5	26.9	1.06
	Western Rural	81.4	76.8	1.06	39.1	54.1	.72
	Western Urban	87.3	87.1	1.00	58.1	61.2	.95
Area	Urban	81.7	77.4	1.06	47.6	49.9	.95
	Rural	73.2	71.3	1.03	24.7	34.6	.71
Mother's education	None	73.1	70.0	1.04	26.8	32.2	.83
	Primary	82.3	81.8	1.01	37.7	39.3	.96
	Secondary +	86.7	85.7	1.01	46.8	53.1	.88
	Mother not in household	.0	.0	.	42.9	49.8	.86
Wealth index quintiles	Poorest	60.0	57.1	1.05	14.4	22.2	.65
	Second	70.0	66.6	1.05	16.3	25.9	.63
	Middle	77.2	74.5	1.04	27.0	37.8	.72
	Fourth	83.6	82.0	1.02	36.8	48.0	.77
	Richest	88.4	87.3	1.01	55.1	57.8	.95
Total		**75.6**	**73.0**	**1.04**	**33.2**	**39.9**	**.83**

[1] MICS indicator 7.9; MDG indicator 3.1

[2] MICS indicator 7.10; MDG indicator 3.1

The ratio of girls to boys attending primary and secondary education is described in Table ED.8. Each of these ratios is also known as Gender Parity Index (GPI) for (i) primary and (ii) secondary school. Note that these ratios are calculated using net attendance ratios rather than gross attendance ratios[15]. The table shows that gender parity for primary school is 1.04, indicating that a higher percentage of girls attends primary school than boys. However, the indicator decreases to 0.83 for secondary education, as boys are more likely than girls to continue their formal education into secondary school. The GPI for primary school varies little across the various background variables measured in MICS4. Variation is observed in the GPI for secondary school, however. Higher levels of this indicator (i.e., greater parity between girls and boys) are correlated with urban residence and higher levels of mother's education and household wealth. The value of the GPI for secondary school is 0.92 in the West and varies between 0.74 and 0.78 in the other three provinces.

Discussion: Primary and secondary school participation

The primary school net attendance ratio (NAR) increased from 69 percent in MICS3 (2005) to 74 percent in MICS4 (2010) and thus appears to be stabilizing at a lower-than-optimum level.

The secondary school NAR has almost doubled from 19 percent in MICS3 (2005) to 37 percent in MICS4 (2010). A substantial number of new secondary schools have been opened in the past five years in Sierra Leone and more children are transitioning from primary to secondary school than before. This indicator is a trigger for budget support and should provide the basis for targeting additional resources to secondary education in the future.

The percentage of girls that attend primary school now exceeds the percentage of boys who do so in Sierra Leone. The GPI for primary school in Sierra Leone shows that there are now some districts (Bonthe: 1.26; Moyamba: 1.16) where the percentage of girls that attend primary school is much higher than boys. This finding suggests that gender inequities with regards to school attendance may cut both ways, depending on the district. Further research is required to validate these findings and determine the cause of disproportionately low attendance by boys in selected districts. It is important that this finding does not lead to the reduction of resources for programs that encourage girls to go to schools.

There has been some progress with regards to increasing the GPI for secondary school from 0.78 in MICS3 (2005) to 0.83 in MICS4 (2010). National-level programs provide scholarships and grant-in-aid to support and encourage girls to study math or science at the secondary school level. These programs are funded by the government and do not always provide girls with the support that is promised; strengthening of these and other initiatives that support girls secondary education is required to further increase the percentage of girls of secondary school age who attend school.

[15] The use of gross attendance ratios in the calculation of the GPI often results in an erroneous value for the GPI, primarily because the majority of over-aged children attending primary school tends to be boys.

XI. Child Protection

Birth Registration

The International Convention on the Rights of the Child states that every child has the right to a name and a nationality and the right to protection from being deprived of his or her identity. Birth registration is a fundamental means for securing these rights for children. The World Fit for Children resolution states that the goal with regards to birth registration is to develop systems to ensure the registration of every child at or shortly after birth, and fulfil his or her right to acquire a name and a nationality, in accordance with national laws and relevant international instruments. The relevant MICS4 indicator is the percentage of children under five years of age whose birth is registered.

Table CP.1: Birth registration
Percentage of children under age 5 by whether birth is registered and percentage of children not registered whose mothers/caretakers know how to register birth, Sierra Leone, 2010

		Children under age 5 whose birth is registered with civil authorities					Children under age 5 whose birth is not registered	
		Has birth certificate						
		Seen	Not seen	No birth certificate	Total registered [1]	Number of children	Percent of children whose mother/caretaker knows how to register birth	Number of children without birth registration
Sex	Male	21.9	40.5	15.3	77.7	4288	33.6	956
	Female	23.6	40.0	14.7	78.3	4306	31.2	936
	Missing	*	*	*	*	4	.	0
Region	East	23.2	35.5	20.5	79.3	2371	28.8	491
	North	19.0	42.1	9.0	70.2	3218	29.4	960
	South	29.4	37.2	18.9	85.5	2132	36.9	308
	West	19.1	53.6	12.1	84.8	877	57.1	133
District	Kailahun	26.8	41.6	20.0	88.5	837	19.5	96
	Kenema	15.9	29.8	23.4	69.1	908	25.2	280
	Kono	29.1	35.7	17.0	81.8	627	45.2	114
	Bombali	28.7	55.9	6.5	91.1	705	68.0	63
	Kambia	23.1	39.2	4.3	66.7	460	30.8	153
	Koinadugu	13.7	42.3	18.0	74.1	424	10.4	110
	Port Loko	13.1	47.1	5.0	65.2	873	24.2	304
	Tonkolili	17.3	25.2	13.8	56.4	757	32.6	330
	Bo	27.8	36.5	19.3	83.6	851	51.3	140
	Bonthe	33.8	31.1	30.8	95.8	411	*	17
	Moyamba	20.5	41.7	13.4	75.6	431	34.2	105
	Pujehun	37.2	39.6	12.6	89.5	440	(10.7)	46
	Western Rural	21.4	53.0	9.0	83.4	233	(44.5)	39
	Western Urban	18.3	53.8	13.2	85.3	644	62.3	95
Area	Urban	19.9	42.7	15.0	77.6	2359	36.5	529
	Rural	23.9	39.3	14.9	78.2	6240	30.9	1363
Age	0-11	24.7	28.5	20.1	73.3	1824	38.5	487
	12-23	23.2	35.7	17.2	76.2	1502	32.7	358
	24-35	24.0	40.4	14.0	78.4	1621	30.8	350
	36-47	21.4	45.8	12.6	79.9	1970	30.0	397
	48-59	20.9	50.2	11.0	82.1	1666	27.3	298
	DK/Missing	*	*	*	*	16	*	3
Mother's education	None	22.0	39.7	15.2	76.9	6289	27.8	1454
	Primary	23.6	37.9	15.8	77.3	1133	43.0	257
	Secondary	26.3	45.6	12.7	84.6	1176	54.4	181
Wealth index quintiles	Poorest	24.2	33.6	16.2	74.0	1951	22.9	507
	Second	19.2	39.3	15.4	73.8	1916	31.8	501
	Middle	23.6	39.0	15.0	77.5	1783	26.9	401
	Fourth	23.4	42.7	14.6	80.7	1677	42.6	323
	Richest	24.1	50.6	12.8	87.5	1271	58.3	159
Total		**22.8**	**40.2**	**15.0**	**78.0**	**8598**	**32.4**	**1892**

[1] MICS indicator 8.1

The births of 78 percent of children under five years of age in Sierra Leone have been registered (Table CP.1). The percentage of children whose births have been registered increases with increasing age of child and increasing levels of mother's education and household wealth. Birth registration is highest in the south (86 percent) and lowest in the north (70 percent). Within various strata, the

percentage of children whose birth is registered is higher among mothers/caretakers who report that they know how to register a birth.

Child Labour

Article 32 of the Convention on the Rights of the Child states: "States Parties recognize the right of the child to be protected from economic exploitation and from performing any work that is likely to be hazardous or to interfere with the child's education, or to be harmful to the child's health or physical, mental, spiritual, moral or social development..." The World Fit for Children resolution mentions nine strategies to combat child labour while the MDGs call for the protection of children against exploitation. In the MICS4 questionnaire, a number of questions were used to assess how children 5-14 years of age are involved in labour activities. According to the definition of "child labour" that was used in MICS4, a child is considered to be involved in child labour activities if s/he, during the week preceding the survey, performed the following:

- Ages 5-11: at least one hour of economic work or 28 hours or more of domestic work per week.
- Ages 12-14: at least 14 hours of economic work or 28 hours or more of domestic work per week.

This definition allows differentiation between child labour and child work in order to identify the type of work that should be focused on, and as necessary reduced and/or eventually eliminated. The estimate provided here should be considered to be a conservative estimate of the prevalence of child labour since some children, although they work for a lower number of hours than outlined in the bullets above, may be involved in hazardous labour activities that are directly classified as "child labour"; these children are not counted as "labourers" under the definition used in the MICS4 survey. Table CP.2 presents the results of child labour by the type of work. Percentages do not add up to the total child labour as children may be involved in more than one type of work.

Findings from the MICS4 survey suggest that child labour is a notable problem in Sierra Leone. Fifty percent of children aged 5-14 are involved in child labor—63 percent of children aged 5-11 years and 15 percent of children aged 12-14 years. Among children aged 5-11 years, the overwhelming majority that perform child labour are classified as such due to performing one or more hours of economic work per week. Similarly, almost all children aged 12-14 who perform child labour are classified as such due to performing more than 14 hours of economic work per week. Higher levels of child labour are associated with rural residence and lower levels of mother's education and household wealth. Even among households in the wealthiest quintile, 49 percent of children aged 5-11 and seven percent of children aged 12-14 perform child labour. Levels of child labour among children aged 5-11 are highest in the south (66 percent) and lowest in the West (50 percent); among children aged 12-14, they are highest in the east (24 percent) and lowest in the West (four percent). There is little difference between girls and boys in the performance of child labour.

Table CP.2: Child labor

Percentage of children by involvement in economic activity and household chores during the past week, according to age groups, and percentage of children age 5-14 involved in child labor, Sierra Leone, 2010

		Percentage of children age 5-11 involved in								Percentage of children age 12-14 involved in										
		Economic activity								Economic activity										
		Working outside household		Working for family business	Economic activity for at least one hour	Household chores less than 28 hours	Household chores for 28 hours or more	Child labor	Number of children age 5-11	Working outside household		Working for family business	Economic activity less than 14 hours	Economic activity for 14 hours or more	Household chores less than 28 hours	Household chores for 28 hours or more	Child labor	Number of children age 12-14	Total child labor [1]	Number of children age 5-14 years
		Paid work	Unpaid work							Paid work	Unpaid work									
Sex	Male	2.3	16.9	59.4	62.1	56.7	.5	62.1	7063	4.9	24.0	84.7	70.0	15.8	81.7	.9	15.9	2182	51.2	9245
	Female	1.9	17.6	60.2	63.1	62.7	.4	63.1	6934	3.4	21.5	85.9	72.6	14.0	87.1	.7	14.2	2973	48.4	9908
	Missing	*	*	*	*	*	*	*	2	*	*	*	*	*	*	*	*	1	*	3
Region	East	1.9	15.0	58.5	60.5	56.6	1.1	60.6	3720	3.6	20.0	82.3	59.2	23.5	79.8	2.5	23.5	1125	52.0	4845
	North	2.6	19.5	61.6	65.4	60.7	.1	65.4	5352	5.6	26.6	89.7	78.4	12.5	86.1	.0	12.5	2106	50.5	7458
	South	2.1	21.0	63.5	66.4	63.6	.5	66.5	3366	3.2	26.8	86.5	68.8	18.9	85.2	1.0	19.2	1095	54.9	4461
	West	1.1	7.0	48.5	49.8	55.1	.2	49.8	1562	1.8	10.3	77.0	74.1	3.3	87.8	.4	3.7	831	33.8	2393
Area	Urban	1.6	12.7	52.5	55.2	55.2	.3	55.3	3953	3.3	17.1	79.8	70.6	9.9	83.8	.8	10.2	1704	41.7	5657
	Rural	2.3	19.0	62.6	65.5	61.5	.5	65.5	10046	4.4	25.3	88.1	71.9	17.2	85.3	.9	17.2	3453	53.2	13499
School participation	Yes	2.2	18.5	64.9	67.5	65.2	.5	67.6	9914	3.9	21.6	84.8	72.1	13.6	85.1	.8	13.8	4184	51.6	14098
	No	1.8	14.2	47.2	50.6	46.3	.5	50.7	4085	4.7	26.8	87.8	68.9	19.7	83.4	.8	19.7	973	44.7	5058
Mother's education	None	2.2	18.0	61.4	64.1	60.4	.5	64.2	10907	4.4	23.8	87.3	72.5	15.6	84.9	.9	15.7	3840	51.6	14748
	Primary	2.4	17.0	61.3	64.4	63.2	.5	64.4	1399	3.1	25.3	86.9	74.0	14.5	86.1	.2	14.5	476	51.7	1875
	Secondary +	1.2	12.8	48.2	51.1	52.5	.3	51.1	1693	2.8	15.8	75.6	65.4	11.1	83.8	.8	11.7	839	38.0	2531
	Missing/DK	.	.	.	.	.	.	0.	*	*	*	*	*	*	*	*	*	2	*	2
Wealth index quintiles	Poorest	1.7	19.2	66.5	68.7	63.4	.5	68.8	2815	3.5	28.2	89.1	71.1	18.8	83.7	.8	18.8	850	57.2	3665
	Second	2.7	20.0	62.4	65.3	60.4	.7	65.3	2987	5.1	25.7	89.1	70.4	19.7	82.4	.9	19.8	937	54.5	3924
	Middle	2.3	20.0	62.2	64.9	59.9	.3	64.9	3078	5.4	26.7	88.2	67.9	21.0	86.1	1.4	21.0	963	54.4	4041
	Fourth	2.5	15.8	58.1	61.9	59.7	.6	62.0	2867	4.6	23.5	87.7	77.6	10.8	87.1	.9	11.0	1173	47.1	4040
	Richest	1.0	9.2	46.6	49.1	53.7	.1	49.1	2251	1.9	12.3	75.6	69.5	7.2	84.2	.2	7.4	1234	34.3	3485
Total		2.1	17.3	59.8	62.6	59.7	.5	62.6	13999	4.0	22.6	85.4	71.5	14.8	84.8	.8	14.9	5157	49.8	19156

[1] MICS Indicator 8.2

Table CP.3 presents the percentage of children aged 5-14 years involved in child labour who are attending school and the percentage of children age 5-14 years attending school who are involved in child labour. Of the 74 percent of children 5-14 years of age who are attending school, 52 percent are also involved in child labour activities (i.e., they are “student labourers”). On the other hand, out of the 50 percent of the children who are involved in child labour, over three-quarters of them are also attending school (76 percent are “labourer students”). Given that school attendance is higher among labourers than among non-labourers, it is difficult to argue that child labour has a dramatically negative effect on school attendance in Sierra Leone. The percentage of child labourers who are also attending school is lowest in the south (69 percent) and highest in the West (90 percent). Among child labourers, higher levels of school attendance are associated with urban residence and higher levels of mother’s education and household wealth.

Table CP.3: Child labor and school attendance
Percentage of children age 5-14 years involved in child labor who are attending school, and percentage of children age 5-14 years attending school who are involved in child labor, Sierra Leone, 2010

		Percentage of children involved in child labor	Percentage of children attending school	Number of children age 5-14 years	Percentage of child laborers who are attending school [1]	Number of children age 5-14 years involved in child labor	Percentage of children attending school who are involved in child labor [2]	Number of children age 5-14 years attending school
Sex	Male	51.2	72.8	9245	76.1	4736	53.6	6728
	Female	48.4	74.4	9908	76.5	4799	49.8	7367
	Missing	*	*	3	*	1	*	3
Region	East	52.0	79.1	4845	82.7	2518	54.4	3831
	North	50.5	69.4	7458	73.9	3763	53.7	5178
	South	54.9	66.5	4461	68.8	2447	56.8	2965
	West	33.8	88.8	2393	90.1	808	34.3	2124
District	Kailahun	56.9	83.6	1671	88.6	950	60.2	1398
	Kenema	46.6	76.7	1967	80.3	916	48.7	1509
	Kono	54.0	76.6	1207	77.6	652	54.7	924
	Bombali	50.3	76.2	1625	82.1	817	54.1	1238
	Kambia	46.1	66.0	1027	73.1	473	51.1	678
	Koinadugu	64.4	65.2	911	66.4	587	65.7	594
	Port Loko	39.8	65.1	2093	66.1	833	40.4	1362
	Tonkolili	58.4	72.5	1802	78.2	1053	63.0	1307
	Bo	51.5	73.6	1828	78.0	942	54.6	1345
	Bonthe	63.0	54.6	760	56.2	479	64.9	415
	Moyamba	61.2	64.3	913	67.7	558	64.4	587
	Pujehun	48.7	64.3	960	64.5	468	48.9	618
	Western Rural	39.8	80.1	538	78.0	214	38.8	431
	Western Urban	32.0	91.3	1854	94.5	594	33.2	1692
Area	Urban	41.7	80.8	5657	82.4	2359	42.5	4571
	Rural	53.2	70.6	13499	74.3	7177	56.0	9527
Age	5-11 years	62.6	70.8	13999	76.4	8768	67.6	9914
	12-14 years	14.9	81.1	5157	75.1	768	13.8	4184
Mother's education	None	51.6	70.2	14748	73.5	7602	54.0	10354
	Primary	51.7	81.7	1875	86.0	971	54.5	1532
	Secondary +	38.0	87.3	2531	88.2	963	38.4	2211
	Missing/DK	*	*	2	.	0	*	2
Wealth index quintiles	Poorest	57.2	55.6	3665	60.3	2098	62.1	2038
	Second	54.5	65.2	3924	70.7	2137	59.0	2558
	Middle	54.4	74.6	4041	79.8	2199	58.2	3017
	Fourth	47.1	82.3	4040	85.5	1905	49.0	3325
	Richest	34.3	90.7	3485	93.1	1197	35.2	3160
Total		**49.8**	**73.6**	**19156**	**76.3**	**9536**	**51.6**	**14098**

[1] MICS indicator 8.3
[2] MICS indicator 8.4
[*] Based on less than 25 unweighted cases and has been suppressed.

Discussion: Child labor

In MICS4 64% of labourer students attend primary school. Results show higher attendance rate among child labourers (76 percent) than among all children (74 percent). The substantial efforts that have been made over the past five years to keep child labourers in school appear to have achieved some success.

Issues regarding child labor are a somewhat sensitive topic in Sierra Leone and will need to be addressed with care in order to make further progress. The Child's Rights Act has been implemented over the past several years in Sierra Leone. The way in which this Act has been implemented and interpreted has met with some resistance, as it has been done with little regard to what parents/communities were already doing with regard to child protection and without regard to local values and norms with regard to child protection. Due to these and other factors, the implementation of the Act has been perceived by some as an imposition from outside that places an overemphasis on the rights of the child and an under-emphasis on the responsibilities of a child. While the Act does address broad issues regarding child labor there is doubt among stakeholders that it will achieve substantial impact on attitudes and practices regarding child labor at the household level.

Child Discipline

As stated in the World Fit for Children resolution, "children must be protected against any acts of violence …" Echoing this sentiment, the Millennium Declaration calls for the protection of children against abuse, exploitation and violence. In the Sierra Leone MICS4 survey, mothers/caretakers of children aged 2-14 years were asked a series of questions regarding how they discipline their children when they misbehave. Note that these questions were not asked in a general sense; for each mother/caretaker, one of their children aged between two and fourteen years was selected randomly and then all child discipline questions were asked referring to how the respondent disciplined that child in the month prior to the survey. The two indicators that were constructed from respondents' answers that are used to describe aspects of child discipline are: 1) the percentage of children 2-14 years that experience psychological aggression as punishment ***or*** minor physical punishment ***or*** severe physical punishment; and 2) the percentage of parents/caretakers of children 2-14 years of age that believe that in order to raise their children properly, they need to physically punish them.

Table CP.4: Child discipline
Percentage of children age 2-14 years according to method of disciplining the child, Sierra Leone, 2010

		Percentage of children age 2-14 years who experienced:					Number of children age 2-14 years
		Only non-violent discipline	Psychological aggression	Physical punishment		Any violent discipline method [1]	
				Any	Severe		
Sex	Male	10.3	73.7	65.1	19.2	81.1	11947
	Female	9.0	75.1	64.6	18.4	82.3	12659
	Missing	*	*	*	*	*	1
Region	East	11.0	73.8	65.4	19.7	81.3	6316
	North	9.2	72.9	65.5	22.8	80.8	9549
	South	9.2	77.1	63.3	14.0	84.1	5814
	West	9.0	75.1	64.4	13.5	81.1	2928
District	Kailahun	4.3	78.8	74.4	24.7	85.3	2199
	Kenema	14.0	73.0	64.0	16.4	79.7	2509
	Kono	15.4	68.2	55.5	17.8	78.1	1607
	Bombali	6.5	80.7	65.8	25.3	87.4	2096
	Kambia	7.0	75.5	69.3	24.6	86.1	1319
	Koinadugu	7.2	64.1	61.6	21.3	78.7	1225
	Port Loko	15.0	59.2	54.0	18.1	65.9	2629
	Tonkolili	7.4	84.9	78.4	25.5	89.9	2280
	Bo	10.7	76.7	65.0	17.2	84.8	2355
	Bonthe	3.5	82.0	60.8	9.1	85.4	1023
	Moyamba	6.0	78.4	77.2	16.1	88.5	1170
	Pujehun	14.0	72.9	49.3	10.0	77.9	1267
	Western Rural	16.3	57.9	51.9	11.5	63.4	698
	Western Urban	6.8	80.5	68.4	14.2	86.7	2230
Area	Urban	9.4	74.1	65.9	17.4	82.6	7137
	Rural	9.8	74.6	64.4	19.3	81.4	17470
Age	2-4 years	10.3	65.1	57.3	14.2	73.6	5079
	5-9 years	9.6	75.2	67.5	18.6	83.0	10990
	10-14 years	9.4	79.0	65.9	21.8	84.9	8538
Education of household head	None	9.7	73.5	63.7	18.9	80.7	16902
	Primary	8.1	78.5	68.1	18.3	84.4	2285
	Secondary +	10.0	75.4	66.9	18.5	83.8	5393
	Missing/DK	(11.4)	(82.6)	(82.6)	(42.3)	(82.6)	26
Respondent's education	None	9.5	73.9	64.3	19.1	80.9	17041
	Primary	9.3	76.7	67.1	18.7	83.5	2532
	Secondary +	10.2	75.2	65.5	18.0	83.6	5025
	Missing/DK	*	*	*	*	*	10
Wealth index quintiles	Poorest	9.0	74.5	62.8	18.5	81.3	4926
	Second	9.1	74.2	65.4	19.2	81.5	5136
	Middle	10.5	72.8	64.7	20.0	80.3	5159
	Fourth	11.0	74.6	64.1	19.5	81.2	5119
	Richest	8.5	76.3	67.6	16.4	85.0	4267
Total		**9.7**	**74.4**	**64.8**	**18.8**	**81.7**	**24607**

[1] MICS indicator 8.5

[*] Based on less than 25 unweighted cases and has been suppressed.

In Sierra Leone, 82 percent of children age 2-14 years were subjected to at least one form of psychological or physical punishment by their mothers/caretakers or other household members (Table CP.4). More importantly, 65 percent of children were subjected to any type (minor and/or severe) of physical punishment while 19 percent of children were subjected to severe physical punishment.

There are virtually no differences across all of the background variables for any of the discipline-related indicators, indicating a surprising uniformity in the practice of child discipline across different strata of Sierra Leonean society. It is important to note that while only 42 percent of parents/caretakers believe that they need to physically punish children in order to raise them properly (Table CP.4.1), in practice 65 percent of children receive physical punishment.

Table CP.4.1: Child discipline
Percentage of children age 2-14 years according to method of disciplining the child, Sierra Leone, 2010

		Respondent believes that the child needs to be physically punished	Respondents to the child discipline module
Sex	Male	42.8	4475
	Female	42.2	4841
	Missing	*	1
Region	East	44.1	2481
	North	43.2	3307
	South	43.8	2286
	West	35.0	1243
District	Kailahun	62.8	839
	Kenema	37.6	1012
	Kono	29.7	630
	Bombali	52.6	723
	Kambia	47.4	380
	Koinadugu	31.8	427
	Port Loko	38.2	886
	Tonkolili	44.3	891
	Bo	40.4	907
	Bonthe	52.3	392
	Moyamba	50.0	472
	Pujehun	37.6	516
	Western Rural	31.3	267
	Western Urban	36.0	976
Area	Urban	39.4	2787
	Rural	43.8	6530
Age	2-4 years	36.9	2144
	5-9 years	44.2	4027
	10-14 years	44.2	3145
Education of household head	None	43.0	6289
	Primary	47.4	876
	Secondary +	38.9	2141
	Missing/DK	*	10
Respondent's education	None	43.1	6324
	Primary	45.6	978
	Secondary +	39.2	2012
	Missing/DK	*	3
Wealth index quintiles	Poorest	45.5	2057
	Second	43.9	1956
	Middle	43.8	1843
	Fourth	41.1	1784
	Richest	37.4	1676
Total		**42.5**	**9317**

[*] Based on less than 25 unweighted cases and has been suppressed.

Discussion: Child discipline

The Child Rights Act has contributed to a growing awareness in Sierra Leone of the need to curb the practice of violent discipline. There has been a reduction of ten percent between MICS3 and MICS4 in the percentage of children who are disciplined using at least one violent discipline method although the overall level of violent discipline remains strikingly high. The observed reduction is felt by Child Protection experts to be plausible as the Childs Rights Act dictates the cessation of corporal punishment and this is an area where the new law has been translated—to some extent—into action. Programs in this area have focused on conveying messages to the public regarding (i) the need to change the degree of punishment and (ii) the difference between punishment and discipline. The Family Support Unit (FSU) in the police force has also helped to support progress in this area.

Early Marriage and Polygyny

Marriage before the age of 18 is a reality for many young girls. According to UNICEF's worldwide estimates, over 64 million women aged 20-24 were married/in union before the age of 18. Factors that influence child marriage rates include the state of the country's civil registration system, which provides proof of age for children; the existence of an adequate legislative framework with an accompanying enforcement mechanism to address cases of child marriage; and, the existence of customary or religious laws that condone the practice.

In many parts of the world parents encourage the marriage of their daughters while they are still children in hopes that the marriage will benefit them both financially and socially, while also relieving financial burdens on the family. In actual fact, child marriage is a violation of human rights, compromising the development of girls and often resulting in early pregnancy and social isolation, with low levels of education and poor vocational training reinforcing the gendered nature of poverty. The right to “free and full” consent to a marriage is recognized in the Universal Declaration of Human Rights—with the recognition that consent cannot be “free and full” when one of the parties involved is not sufficiently mature to make an informed decision about a life partner.

The Convention on the Elimination of all Forms of Discrimination against Women mentions the right to protection from child marriage in article 16, which states: "The betrothal and the marriage of a child shall have no legal effect, and all necessary action, including legislation, shall be taken to specify a minimum age for marriage...” While marriage is not considered directly in the Convention on the Rights of the Child, child marriage is linked to other rights—such as the right to express one’s views freely, the right to protection from all forms of abuse, and the right to be protected from harmful traditional practices—and is frequently addressed by the Committee on the Rights of the Child. Other international agreements related to child marriage are the Convention on Consent to Marriage, Minimum Age for Marriage and Registration of Marriages; the African Charter on the Rights and Welfare of the Child, and the Protocol to the African Charter on Human and People's Rights on the Rights of Women in Africa. Child marriage was also identified by the Pan-African Forum Against the Sexual Exploitation of Children as a type of commercial sexual exploitation of children.

Young married girls are a unique, though often invisible, group. Required to perform heavy amounts of domestic work, under pressure to demonstrate fertility, and responsible for raising children while still children themselves, married girls and child mothers face constraints on their decision-making authority and reduced life choices. Boys are also affected by child marriage but the issue impacts girls with more intensity and in far larger numbers. Cohabitation—when a couple lives together as if married—raises the same concerns regarding human rights as marriage. When a girl lives with a man

and takes on the role of caregiver for him, the assumption is often that she has become an adult woman, even if she has not yet reached the age of 18. Additional concerns due to the informality of the relationship—for example, inheritance, citizenship and social recognition—can make girls in informal unions vulnerable in different ways than those who are in formally recognized marriages.

Table CP.5: Early marriage and polygyny

Percentage of women age 15-49 years who first married or entered a marital union before their 15th birthday, percentages of women age 20-49 years who first married or entered a marital union before their 15th and 18th birthdays, percentage of women age 15-19 years currently married or in union, and the percentage of women currently married or in union who are in a polygynous marriage or union, Sierra Leone, 2010

		Percentage married before age 15 [1]	Number of women age 15-49 years	Percentage married before age 15	Percentage married before age 18 [2]	Number of women age 20-49 years	Percentage of women 15-19 years currently married/in union [3]	Number of women age 15-19 years	Percentage of women age 15-49 years in polygynous marriage/ union [4]	Number of women age 15-49 years currently married/in union
Region	East	14.6	3459	16.0	47.2	2843	22.8	616	30.0	2484
	North	19.2	4531	21.0	59.6	3704	30.9	828	41.0	3335
	South	17.4	3137	19.2	51.6	2593	23.7	544	34.5	2135
	West	10.7	2232	13.6	33.2	1670	10.7	562	15.3	1058
District	Kailahun	13.5	1177	14.5	45.7	957	27.1	220	29.4	834
	Kenema	13.8	1412	15.2	44.6	1161	18.5	251	32.7	1031
	Kono	17.1	870	19.1	53.3	724	23.8	145	26.6	618
	Bombali	15.8	1102	17.6	59.9	863	19.6	239	37.0	714
	Kambia	20.3	570	21.7	66.6	446	34.6	125	55.7	429
	Koinadugu	11.0	597	11.4	56.5	509	32.1	88	46.1	448
	Port Loko	22.1	1231	24.4	57.3	996	34.6	236	39.6	909
	Tonkolili	23.7	1031	25.4	59.9	891	39.9	141	35.9	835
	Bo	16.7	1368	18.8	45.6	1109	18.5	258	33.9	868
	Bonthe	19.1	565	21.2	59.0	465	24.4	101	29.9	378
	Moyamba	19.0	569	20.5	58.6	484	26.6	86	40.1	436
	Pujehun	16.0	634	17.3	51.5	536	34.3	99	34.3	453
	Western Rural	13.5	390	14.6	46.5	316	21.9	74	18.6	248
	Western Urban	10.2	1842	13.4	30.1	1354	9.0	488	14.3	810
Area	Urban	13.9	4658	16.7	41.1	3575	14.8	1083	26.2	2556
	Rural	17.4	8701	18.8	54.9	7235	29.0	1466	36.3	6456
Age	15-19	8.0	2549	.	.	0	23.0	2549	24.6	586
	20-24	17.7	2263	17.7	43.7	2263	.	0	23.4	1335
	25-29	19.0	2571	19.0	50.4	2571	.	0	31.0	2045
	30-34	19.3	2086	19.3	49.9	2086	.	0	33.8	1792
	35-39	17.2	1997	17.2	56.6	1997	.	0	39.0	1731
	40-44	17.6	1115	17.6	53.0	1115	.	0	41.6	925
	45-49	16.1	777	16.1	50.8	777	.	0	43.5	599
Education	None	20.7	8108	20.7	57.9	7492	52.9	616	37.0	6761
	Primary	15.1	1765	19.2	50.2	1210	20.2	555	27.5	1058
	Secondary +	6.2	3486	8.4	23.4	2108	10.7	1378	18.8	1193
Wealth index quintiles	Poorest	21.6	2549	22.5	56.6	2182	36.7	367	30.5	1956
	Second	18.5	2493	19.6	56.3	2105	34.4	388	35.7	1905
	Middle	17.6	2528	19.6	58.4	2080	27.5	448	39.8	1857
	Fourth	14.4	2738	16.7	48.9	2143	18.6	595	37.8	1769
	Richest	10.1	3051	12.5	32.9	2299	11.2	752	21.7	1525
Total		**16.2**	**13359**	**18.1**	**50.3**	**10810**	**23.0**	**2549**	**33.5**	**9012**

[1] MICS indicator 8.6
[2] MICS indicator 8.7
[3] MICS indicator 8.8
[4] MICS indicator 8.9

Research suggests that many factors interact to place a child at risk of marriage. Poverty, protection of girls, unintended pregnancies, family honour and the provision of stability during unstable social periods are considered as significant factors in determining a girl's risk of becoming married while still a child. Women who are married at younger ages are more likely to believe that it is sometimes acceptable for a husband to beat his wife and are more likely to experience domestic violence themselves. The age gap between partners is thought to contribute to these abusive power dynamics and to increase the risk of untimely widowhood.

Closely related to the issue of child marriage is the age at which girls become sexually active. Women who are married before the age of 18 tend to have more children than those who marry later in life. Pregnancy-related deaths are known to be a leading cause of mortality for both married and unmarried girls between the ages of 15 and 19, particularly among the younger-aged women in this

cohort. There is also evidence to suggest that girls who marry at young ages are more likely to marry older men which puts them at increased risk of HIV infection. Parents seek to marry off their girls to protect their honour while men in some countries—although not in Sierra Leone—often seek younger women as wives as a means to avoid choosing a wife who might already be infected. The demand for this young wife to reproduce—coupled with the power imbalance resulting from the age differential within the marriage—can lead to low condom use among such couples.

Two of the indicators that are used to define and quantify early marriage are (i) the percentage of women married before 15 years of age and (ii) the percentage of women married before 18 years of age. Estimates for these and other indicators related to early marriage can be found in Table CP.5. Sixteen percent of respondents (aged 15-49) first married before the age of 15 while 50 percent of respondents (aged 18-49) were married before the age of 18. About one in four young women age 15-19 years is currently married (23 percent) while one in three women (34 percent) aged 15-49 years is in a polygynous union. Indicators of early marriage are highest in the north and lowest in the West. Higher levels of early marriage are associated with rural residence and lower levels of women's education and household wealth.

Table CP.6 presents the proportion of women who were first married or entered into a marital union before age 15 and 18 by residence and age groups. Examining the percentages married before age 15 and 18 within the different age cohorts among MICS4 respondents allow us to see the trends in early marriage over time. These results suggest that the prevalence of early marriage—both prior to age 15 as well as prior to age 18—began to decline 5-10 years ago and has declined even more rapidly in the past five years. The decline has been especially steep among urban populations although early marriage rates have fallen among rural populations as well.

Table CP.6: Trends in early marriage
Percentage of women who were first married or entered into a marital union before age 15 and 18, by residence and age groups, Sierra Leone, 2010

		Urban				Rural				All			
		Percentage of women married before age 15	Number of women	Percentage of women married before age 18	Number of women	Percentage of women married before age 15	Number of women	Percentage of women married before age 18	Number of women	Percentage of women married before age 15	Number of women	Percentage of women married before age 18	Number of women
Age	15-19	4.8	1083	.	0	10.4	1466	.	0	8.0	2549	.	0
	20-24	13.9	854	31.0	854	20.0	1409	51.3	1409	17.7	2263	43.7	2263
	25-29	16.5	831	40.2	831	20.2	1740	55.3	1740	19.0	2571	50.4	2571
	30-34	19.2	654	41.9	654	19.3	1432	53.6	1432	19.3	2086	49.9	2086
	35-39	17.7	599	48.9	599	17.1	1399	59.9	1399	17.2	1997	56.6	1997
	40-44	16.1	378	47.5	378	18.4	737	55.8	737	17.6	1115	53.0	1115
	45-49	19.2	258	47.8	258	14.6	518	52.2	518	16.1	777	50.8	777
Total		**13.9**	**4658**	**41.1**	**3575**	**17.4**	**8701**	**54.9**	**7235**	**16.2**	**13359**	**50.3**	**10810**

Another important aspect of early marriage is the age difference between spouses. The MICS4 indicator in this regard is the percentage of married/in union women who are ten or more years younger than their current spouse/partner. Table CP.7 describes the age differences between spouses for two different cohorts of women: those aged 15-19 years at the time of the survey and those aged 20-24. Over one in three women age 15-19 and age 20-24 is currently married to a man who is older by ten years or more (respectively 36 percent and 35 percent). These results likely represent an underestimate of the true situation as one in five respondents does not know her husband/partner's age. Among the four categories of age difference between the respondent and her husband / partner (younger / 0-4 years older / 5-9 years older / 10+ years older) the most highly populated category is "10+ years older". High levels (10+ years older) of spousal age difference range from 50 percent in the West among women aged 15-19 to 31 percent in the north. High levels of spousal age difference among this cohort are higher in urban than in rural areas. The result show no clear patterns of spousal age difference among women aged 15-19 and background variables such as women's educational level or household wealth level. Among women aged 20-24 the situation is

somewhat different; high levels of spousal age difference range from 41 percent in the east and south to 29 percent in the West. High levels of spousal age difference among this cohort are higher in rural areas and are higher among women with little or no education than among more highly educated women.

Table CP.7: Spousal age difference
Percent distribution of women currently married / in union of age 15-19 and 20-24 years according to the age difference with their husband or partner, Sierra Leone, 2010

		Percentage of currently married/in union women age 15-19 years whose husband or partner is:						Number of women age 15-19 years currently married/ in union	Percentage of currently married/in union women age 20-24 years whose husband or partner is:						Number of women age 20-24 years currently married/in union
		Younger	0-4 years older	5-9 years older	10+ years older [1]	Husband/partner's age unknown	Total		Younger	0-4 years older	5-9 years older	10+ years older [2]	Husband / partner's age unknown	Total	
Region	East	1.6	14.4	22.3	32.6	29.1	100.0	141	2.5	12.4	23.4	41.2	20.6	100.0	390
	North	1.3	13.6	27.0	31.2	27.0	100.0	256	3.1	14.9	26.3	32.0	23.7	100.0	522
	South	.0	22.2	24.3	38.0	15.5	100.0	129	2.7	16.5	28.4	40.9	11.5	100.0	273
	West	3.5	19.8	20.1	50.2	6.4	100.0	60	2.3	22.5	32.8	29.1	13.2	100.0	150
District	Kailahun	.0	13.4	27.7	25.1	33.8	100.0	60	.2	14.9	32.9	36.6	15.4	100.0	138
	Kenema	(.0)	(14.6)	(18.9)	(33.6)	(32.9)	(100.0)	46	4.3	9.3	14.9	41.6	29.9	100.0	165
	Kono	(6.6)	(15.8)	(17.4)	(44.3)	(15.8)	(100.0)	35	2.9	14.1	24.3	47.5	11.3	100.0	88
	Bombali	(1.7)	(12.2)	(31.6)	(19.0)	(35.5)	(100.0)	47	6.1	19.9	24.4	24.8	24.9	100.0	122
	Kambia	(4.0)	(12.8)	(22.1)	(21.0)	(40.2)	(100.0)	43	5.9	11.6	18.3	24.8	39.4	100.0	62
	Koinadugu	(2.4)	(7.9)	(13.9)	(32.9)	(42.9)	(100.0)	28	2.3	16.9	17.6	38.7	24.4	100.0	58
	Port Loko	.0	14.2	31.0	45.8	8.9	100.0	82	1.8	14.1	28.2	35.7	20.2	100.0	138
	Tonkolili	.0	17.3	27.5	27.1	28.0	100.0	56	.8	11.9	33.2	35.0	19.0	100.0	142
	Bo	(.0)	(24.2)	(24.0)	(45.8)	(6.0)	(100.0)	48	3.3	13.5	31.2	45.6	6.4	100.0	112
	Bonthe	(.0)	(11.4)	(38.7)	(49.9)	(.0)	(100.0)	25	.9	24.5	30.5	43.0	1.1	100.0	55
	Moyamba	*	*	*	*	*	*	23	(1.8)	(19.0)	(35.6)	(32.4)	(11.2)	(100.0)	48
	Pujehun	(.0)	(25.1)	(9.4)	(26.6)	(38.9)	(100.0)	34	3.8	12.7	15.0	36.7	31.8	100.0	58
	Western Rural	*	*	*	*	*	*	16	(2.5)	(17.4)	(27.7)	(20.0)	(32.5)	(100.0)	26
	Western Urban	(4.8)	(17.7)	(16.8)	(52.0)	(8.6)	(100.0)	44	2.3	23.6	33.9	31.1	9.2	100.0	124
Area	Urban	2.0	23.3	16.3	43.2	15.2	100.0	161	3.1	21.1	29.5	32.6	13.8	100.0	366
	Rural	1.0	13.7	27.7	31.9	25.7	100.0	425	2.6	13.2	25.5	37.5	21.2	100.0	969
Age	15-19	1.3	16.3	24.5	35.0	22.8	100.0	586	.	.	.	.	.	.	0
	20-24	.0	.0	.0	.0	.0	.0	0	2.8	15.3	26.6	36.2	19.1	100.0	1335
Education	None	1.3	12.0	21.4	40.4	25.0	100.0	326	2.2	13.7	23.5	38.8	21.8	100.0	895
	Primary	3.0	13.3	39.4	24.4	19.9	100.0	112	3.1	15.0	30.9	32.6	18.5	100.0	204
	Secondary +	.0	28.3	20.1	31.2	20.4	100.0	147	4.5	21.7	34.8	29.4	9.6	100.0	236
Wealth index quintiles	Poorest	.3	14.6	24.6	37.2	23.3	100.0	135	1.4	15.4	28.9	34.2	20.1	100.0	288
	Second	1.7	18.8	21.2	41.3	16.9	100.0	133	2.1	15.7	19.6	38.9	23.7	100.0	274
	Middle	.7	14.1	29.9	25.7	29.6	100.0	123	2.5	12.7	29.9	33.2	21.7	100.0	271
	Fourth	1.1	16.5	26.7	28.0	27.6	100.0	111	4.3	14.6	22.1	41.0	18.0	100.0	286
	Richest	3.3	18.1	18.9	44.3	15.3	100.0	84	3.6	19.0	34.2	32.7	10.5	100.0	217
Total		**1.3**	**16.3**	**24.5**	**35.0**	**22.8**	**100.0**	**586**	**2.8**	**15.3**	**26.6**	**36.2**	**19.1**	**100.0**	**1335**

[1] MICS indicator 8.10a
[2] MICS indicator 8.10b
[*] Based on less than 25 unweighted cases and has been suppressed.

Female Genital Mutilation/Cutting

Female genital mutilation/cutting (FGM/C) is the partial or total removal of the female external genitalia or other intentional injury to the female genital organs. FGM/C is always traumatic with immediate complications including excruciating pain, shock, urine retention, ulceration of the genitals and injury to adjacent tissue. Other potential complications include septicaemia, infertility, obstructed labour, and even death. The practice of FGM/C in Sierra Leone is shrouded in secrecy and conducted by members of a secret society known as the Bondo Society. Most women in Sierra Leone are initiated into the Bondo Society between the ages of 8 and 18. It is widely reported that all women who are initiated into the Bondo Society undergo FGM/C. FGM/C in Sierra Leone is generally done under the auspices of the local head of the Bondo Society. It is reported that the procedure of FGM/C is conducted under local anesthesia although the veracity of these reports has not been confirmed.

FGM/C is a fundamental violation of human rights. In the absence of any perceived medical necessity, it subjects girls and women to health risks and has life-threatening consequences. Among those rights violated are the rights to the highest attainable standard of health and to bodily integrity.

Table CP.8: Female genital mutilation/cutting (FGM/C) among women
Percent distribution of women age 15-49 years by FGM/C status, Sierra Leone, 2010

		Percent distribution of women age 15-49 years:							
			Who had FGM/C						
		No FGM/C	Had flesh removed	Were nicked	Were sewn closed	Form of FGM/C not determined	Total	Percentage who had any form of FGM/C [1]	Number of women aged 15-49 years
Region	East	10.3	70.3	.7	11.4	7.3	100.0	89.7	3459
	North	3.7	72.0	.7	14.9	8.8	100.0	96.3	4531
	South	13.8	50.0	1.2	23.2	11.9	100.0	86.2	3137
	West	27.1	54.5	2.0	7.5	8.9	100.0	72.9	2232
District	Kailahun	8.5	75.8	.1	13.1	2.5	100.0	91.5	1177
	Kenema	9.6	68.4	.5	12.0	9.5	100.0	90.4	1412
	Kono	13.9	66.1	1.7	8.1	10.2	100.0	86.1	870
	Bombali	4.8	61.1	2.3	24.1	7.7	100.0	95.2	1102
	Kambia	3.4	78.0	.4	15.0	3.1	100.0	96.6	570
	Koinadugu	1.3	63.2	.3	24.0	11.2	100.0	98.7	597
	Port Loko	5.2	85.0	.1	7.8	1.9	100.0	94.8	1231
	Tonkolili	2.3	69.8	.0	8.1	19.9	100.0	97.7	1031
	Bo	14.8	41.8	.7	31.3	11.3	100.0	85.2	1368
	Bonthe	9.0	70.7	3.7	10.9	5.7	100.0	91.0	565
	Moyamba	23.1	31.8	.8	18.7	25.5	100.0	76.9	569
	Pujehun	7.5	65.3	.1	20.7	6.4	100.0	92.5	634
	Western Rural	22.3	47.5	.2	14.8	15.1	100.0	77.7	390
	Western Urban	28.1	56.0	2.4	5.9	7.5	100.0	71.9	1842
Area	Urban	19.3	59.5	1.4	12.3	7.4	100.0	80.7	4658
	Rural	7.6	65.6	.8	16.0	10.0	100.0	92.4	8701
Age	15-19	29.9	53.7	.7	10.3	5.4	100.0	70.1	2549
	20-24	13.1	62.6	1.3	14.9	8.2	100.0	86.9	2263
	25-29	7.8	67.1	1.0	15.6	8.5	100.0	92.2	2571
	30-34	6.8	65.9	.7	15.8	10.8	100.0	93.2	2086
	35-39	4.2	68.6	1.2	15.7	10.4	100.0	95.8	1997
	40-44	4.7	64.5	1.3	16.8	12.7	100.0	95.3	1115
	45-49	3.6	64.7	1.2	16.9	13.6	100.0	96.4	777
Education	None	5.0	68.4	.9	15.8	10.0	100.0	95.0	8108
	Primary	14.7	59.4	1.2	14.7	10.0	100.0	85.3	1765
	Secondary +	25.8	54.0	1.3	12.2	6.8	100.0	74.2	3486
Wealth index quintiles	Poorest	5.9	66.1	1.0	16.3	10.8	100.0	94.1	2549
	Second	6.6	64.8	.4	18.4	9.8	100.0	93.4	2493
	Middle	7.5	66.7	.7	16.7	8.3	100.0	92.5	2528
	Fourth	11.7	65.9	.8	12.6	9.0	100.0	88.3	2738
	Richest	24.2	55.3	1.9	10.6	8.0	100.0	75.8	3051
Total		**11.7**	**63.5**	**1.0**	**14.7**	**9.1**	**100.0**	**88.3**	**13359**

[1] MICS indicator 8.12

Table CP.8 presents information on the prevalence of FGM/C among women and the type and extent of the procedure. The table shows that 88 percent of women aged 15-49 had some form of female genital mutilation. The practice appears to be more common in rural areas, in the Northern Province, among households in the poorest three quintiles and among uneducated women. Among ethnic groups, it is lowest among Creoles (34 percent) and highest among Temnes (92 percent). The predominant method for performing FGM/C in Sierra Leone is through removal of flesh (64 percent) while the next most common method is “sewn closed” (15 percent).

Table CP.9 presents information on the prevalence and extent of FGM/C performed on daughters of MICS4 respondents. Overall, respondents reported that ten per cent of their daughters aged 0-14 had undergone FGM/C. Higher levels of the practice of FGM/C on daughters aged 0-14 are among households with lower levels of wealth and mother’s education, higher age of child, mothers who have had FGM/C performed on them, and residence in the North.

Table CP.9: Female genital mutilation/cutting (FGM/C) among daughters
Percent distribution of daughters age 0-14 by FGM/C status, Sierra Leone, 2010

		Percent distribution of daughters age 0-14 years:							
			Who had FGM/C						
		No FGM/C	Had flesh removed	Were nicked	Were sewn closed	Form of FGM/C not determined	Total	Percentage who had any form of FGM/C [1]	Number of daughters age 0-14 years
Region	East	93.5	5.2	.3	.1	.9	100.0	6.5	4115
	North	83.2	12.3	.1	1.7	2.7	100.0	16.8	5250
	South	93.7	2.6	.1	1.9	1.7	100.0	6.3	3775
	West	93.2	5.0	.0	1.1	.7	100.0	6.8	1563
District	Kailahun	93.2	5.6	.0	.2	1.0	100.0	6.8	1399
	Kenema	93.6	5.3	.0	.0	1.0	100.0	6.4	1583
	Kono	93.8	4.4	.9	.2	.7	100.0	6.2	1133
	Bombali	84.8	7.4	.4	2.8	4.7	100.0	15.2	1209
	Kambia	87.6	11.2	.0	.6	.5	100.0	12.4	763
	Koinadugu	83.7	11.9	.0	3.0	1.4	100.0	16.3	648
	Port Loko	82.0	15.3	.0	1.5	1.3	100.0	18.0	1371
	Tonkolili	80.0	14.8	.0	.8	4.4	100.0	20.0	1260
	Bo	92.4	2.3	.2	3.1	1.9	100.0	7.6	1600
	Bonthe	96.2	2.2	.1	.8	.6	100.0	3.8	671
	Moyamba	95.0	1.3	.0	1.5	2.3	100.0	5.0	694
	Pujehun	93.2	4.7	.0	.5	1.5	100.0	6.8	810
	Western Rural	94.2	2.6	.0	1.6	1.6	100.0	5.8	355
	Western Urban	92.9	5.7	.0	1.0	.4	100.0	7.1	1207
Area	Urban	90.5	6.9	.0	1.1	1.4	100.0	9.5	4248
	Rural	89.6	7.1	.2	1.3	1.9	100.0	10.4	10455
Age	0-4	98.6	.7	.1	.2	.4	100.0	1.4	4095
	5-9	90.2	6.7	.1	1.3	1.6	100.0	9.8	4186
	10-14	66.0	24.1	.3	4.0	5.6	100.0	34.0	3026
	Missing/DK	100.0	.0	.0	.0	.0	100.0	.0	3395
Education	None	88.7	7.9	.2	1.3	2.0	100.0	11.3	11089
	Primary	93.7	4.5	.0	.7	1.1	100.0	6.3	1734
	Secondary +	93.2	4.8	.1	1.2	.8	100.0	6.8	1880
Mother's FGM/C experience	No FGM/C	99.2	.3	.0	.0	.6	100.0	.8	1016
	Had FGM/C	89.1	7.6	.1	1.3	1.8	100.0	10.9	13686
Wealth index quintiles	Poorest	89.4	7.4	.3	1.1	1.9	100.0	10.6	3154
	Second	89.0	7.0	.0	1.8	2.2	100.0	11.0	3117
	Middle	89.6	7.5	.0	1.0	2.0	100.0	10.4	3164
	Fourth	90.6	6.3	.1	1.3	1.6	100.0	9.4	2873
	Richest	91.0	7.1	.2	1.0	.7	100.0	9.0	2394
Total		**89.8**	**7.1**	**.1**	**1.2**	**1.7**	**100.0**	**10.2**	**14703**

[1] MICS indicator 8.13

Table CP.10 presents the respondents' (mothers' and caretakers') attitudes regarding whether the practice of FGM/C should be continued or discontinued. Seventy-two percent of women thought it should be continued while 22 percent believed it should be discontinued. Women in the south are more likely (78 percent) to approve of the continuation of the practice of FGM/C than women in other regions while women in the west (51 percent) are the least likely to approve. Higher levels of approval are associated with rural residence, older age of respondent, personal experience of FGM/C, and lower levels of mother's education and household wealth.

Table CP.10: Approval of female genital mutilation/cutting (FGM/C)
Percentage of women age 15-49 years who have heard of FGM/C, and percent distribution of women according to attitudes towards whether the practice of FGM/C should be continued, Sierra Leone, 2010

		Percentage of women who have heard of FGM/C	Number of women aged 15-49 years	Percent distribution of women who believe the practice of FGM/C should be:					Number of women age 15-49 years who have heard of FGM/C
				Continued [1]	Discontinued	Depends	Don't know/ Missing	Total	
Region	East	99.6	3459	73.1	22.9	1.6	2.3	100.0	3443
	North	99.9	4531	75.2	19.2	3.5	2.1	100.0	4529
	South	99.9	3137	78.3	15.9	3.7	2.2	100.0	3135
	West	100.0	2232	51.0	43.3	3.0	2.7	100.0	2232
District	Kailahun	99.2	1177	82.2	12.9	1.5	3.4	100.0	1168
	Kenema	99.7	1412	77.8	19.8	.7	1.7	100.0	1407
	Kono	99.8	870	54.7	40.5	2.9	1.9	100.0	868
	Bombali	100.0	1102	76.1	13.4	6.0	4.5	100.0	1102
	Kambia	99.8	570	78.2	15.8	4.1	1.9	100.0	569
	Koinadugu	99.8	597	85.0	8.7	3.9	2.4	100.0	595
	Port Loko	100.0	1231	72.2	25.1	1.1	1.7	100.0	1231
	Tonkolili	100.0	1031	71.1	25.2	3.2	.5	100.0	1031
	Bo	99.8	1368	72.0	22.5	3.8	1.7	100.0	1365
	Bonthe	100.0	565	92.4	5.8	.9	.9	100.0	565
	Moyamba	100.0	569	73.6	19.1	3.6	3.8	100.0	569
	Pujehun	100.0	634	82.6	8.6	5.8	3.0	100.0	634
	Western Rural	100.0	390	54.7	40.4	.9	4.1	100.0	390
	Western Urban	100.0	1842	49.9	44.1	3.6	2.4	100.0	1842
Area	Urban	99.8	4658	61.2	34.0	2.3	2.6	100.0	4650
	Rural	99.9	8701	77.2	17.4	3.2	2.1	100.0	8689
Age	15-19	99.7	2549	63.9	29.3	2.5	4.3	100.0	2541
	20-24	99.8	2263	67.6	27.4	2.6	2.4	100.0	2259
	25-29	100.0	2571	73.9	20.0	3.3	2.8	100.0	2570
	30-34	99.9	2086	73.0	21.6	2.9	2.5	100.0	2083
	35-39	99.9	1997	73.6	21.6	3.3	1.5	100.0	1996
	40-44	99.8	1115	72.6	22.3	3.3	1.7	100.0	1114
	45-49	99.9	777	74.6	21.5	1.6	2.3	100.0	776
Education	None	99.9	8108	77.9	17.3	2.6	2.2	100.0	8098
	Primary	99.6	1765	69.9	23.6	4.0	2.5	100.0	1758
	Secondary +	99.9	3486	48.0	45.6	3.8	2.6	100.0	3483
FGM/C experience	No FGM/C	98.7	1563	23.6	61.2	3.8	11.5	100.0	1543
	Had FGM/C	100.0	11796	75.1	20.2	2.9	1.8	100.0	11796
Wealth index quintiles	Poorest	99.9	2549	83.4	13.1	2.3	1.2	100.0	2546
	Second	99.9	2493	78.8	16.7	2.6	2.0	100.0	2491
	Middle	99.7	2528	75.0	19.7	2.7	2.7	100.0	2521
	Fourth	99.8	2738	69.3	23.8	4.2	2.8	100.0	2734
	Richest	99.9	3051	52.2	41.8	3.1	3.0	100.0	3047
Total		**99.9**	**13359**	**72.4**	**22.4**	**2.9**	**2.3**	**100.0**	**13339**

Discussion: Female genital mutilation/cutting

FGM/C remains a highly sensitive and political topic in Sierra Leone. While some agencies and NGOs continue to work to eradicate this practice, the GoSL has not made particularly strong efforts to eliminate the practice of FGM/C. Politicians can win votes by publicly supporting FGM/C. Some districts in the north, where the practice of FGM/C is the highest, have been declared "no cutting under 18" districts—but these districts still have rates of FGM/C that are among the highest in the country. Programmers and policy makers who work in child protection are currently struggling to find an approach that will be effective in reducing the practice of FGM/C.

Experts in this field note that the strongest support for this practice is among women. They note that many young men in Sierra Leone are under pressure from their mothers to marry a girl who has been "cut". Given the reality that FGM/C is a strong social norm, it is clear that the practice of FGM/C cannot be legislated away or terminated by passing laws—people will just hide and continue with the practice. Change will only come when individuals begin to collectively view the practice of FGM/C in a negative light and collectively decide to stop the practice.

The data presented above do suggest that progress in reducing FGM/C has been made over the past five years. The reported prevalence of FGM/C among daughters of MICS respondents has decreased from 34 percent in MICS3 to ten percent in MICS4.

Domestic Violence

A number of questions were asked to women respondents aged 15-49 years in order to assess their attitudes regarding whether husbands are justified to hit or beat their wives/partners under a variety of scenarios. These questions were asked in order to obtain information regarding cultural beliefs that tend to be associated with the prevalence of violence against women by their husbands/partners. The primary assumption here is that women who agree with statements indicating that husbands/partners are justified to beat their wives/partners under the situations described tend to in fact be abused by their own husbands/partners in similar situations.

The aggregated responses to these questions can be found in Table CP.11. Overall, 73 percent of women in Sierra Leone feel that their husband/partner has the right to hit or beat them for at least one reason. Women feel that a partner's violence towards them is justified most frequently in instances when they neglect the children (62 percent), or if they demonstrate their autonomy, e.g., when they argue with their partner (60 percent) or go out without telling their partner (60 percent). Forty-two percent of women believe that their partner has a right to hit or beat them if they refuse to have sex with him. Acceptance is most prevalent in the south (81 percent) and least prevalent in the West (51 percent). Higher levels of acceptance are found in rural residence, among women who are currently married, and older women, as well as among women with lover education level or household wealth.

Table CP.11: Attitudes toward domestic violence
Percentage of women age 15-49 years who believe a husband is justified in beating his wife/partner in various circumstances, Sierra Leone, 2010

		Percentage of women age 15-49 years who believe a husband is justified in beating his wife/partner:						
		If goes out without telling him	If she neglects the children	If she argues with him	If she refuses sex with him	If she burns the food	For any of these reasons [1]	Number of women age 15-49 years
Region	East	61.1	61.6	61.6	39.5	37.9	74.1	3459
	North	63.6	66.5	64.7	50.5	34.1	78.0	4531
	South	68.6	70.9	66.6	52.0	43.0	81.2	3137
	West	37.6	39.7	40.1	14.8	12.7	51.4	2232
District	Kailahun	69.9	70.9	65.2	40.8	36.8	82.2	1177
	Kenema	62.6	60.7	66.4	42.1	45.6	76.0	1412
	Kono	46.9	50.6	48.9	33.7	26.8	59.8	870
	Bombali	65.3	66.3	53.8	32.8	18.6	75.8	1102
	Kambia	66.2	71.8	74.6	63.6	53.3	84.7	570
	Koinadugu	64.7	65.2	70.4	72.5	32.4	84.0	597
	Port Loko	65.0	69.6	68.7	52.4	44.5	77.3	1231
	Tonkolili	58.2	61.0	62.5	47.1	28.5	74.1	1031
	Bo	63.7	66.1	59.3	49.9	42.7	77.8	1368
	Bonthe	72.6	72.3	76.0	64.7	59.9	82.7	565
	Moyamba	64.6	71.6	68.8	47.8	31.5	81.1	569
	Pujehun	79.3	79.3	71.8	49.1	38.9	87.2	634
	Western Rural	59.0	58.9	63.6	21.1	21.8	71.6	390
	Western Urban	33.1	35.6	35.2	13.5	10.8	47.2	1842
Area	Urban	47.7	49.6	48.7	29.0	22.8	61.8	4658
	Rural	66.3	68.3	66.4	49.0	39.4	79.5	8701
Age	15-19	47.9	51.1	49.5	28.0	25.5	63.0	2549
	20-24	54.9	58.6	56.5	38.0	30.6	70.2	2263
	25-29	63.9	66.2	64.1	45.8	36.5	77.7	2571
	30-34	64.5	66.2	64.7	46.8	37.0	78.4	2086
	35-39	66.5	66.4	66.3	48.3	36.7	78.1	1997
	40-44	63.5	65.1	61.5	49.3	36.3	74.4	1115
	45-49	64.5	62.6	63.6	48.6	38.1	74.0	777
Marital/Union status	Currently married/in union	67.0	68.3	67.1	49.9	39.1	79.9	9012
	Formerly married/in union	58.1	59.8	59.2	38.1	29.7	69.3	1051
	Never married/in union	40.6	44.6	41.6	21.8	19.7	56.6	3292
	Missing	*	*	*	*	*	*	4
Education	None	69.4	70.4	69.2	53.0	41.4	81.4	8108
	Primary	59.8	61.0	59.6	38.0	32.5	74.6	1765
	Secondary +	37.5	42.0	39.6	18.7	15.9	53.7	3486
Wealth index quintiles	Poorest	70.6	72.2	70.0	55.0	44.0	81.6	2549
	Second	67.3	68.4	68.3	52.2	41.8	80.3	2493
	Middle	66.4	68.0	66.9	48.5	37.9	80.2	2528
	Fourth	60.2	62.8	59.8	40.2	32.7	75.2	2738
	Richest	38.8	41.6	40.2	19.2	15.4	53.3	3051
Total		**59.8**	**61.8**	**60.2**	**42.1**	**33.6**	**73.3**	**13359**

[1] MICS indicator 8.14

[*] Based on less than 25 unweighted cases and has been suppressed.

XII. HIV/AIDS, Sexual Behavior, and Orphanhood

Knowledge about HIV Transmission and Misconceptions about HIV/AIDS

One of the most important prerequisites for reducing the rate of HIV infection is for the general public to have accurate knowledge regarding how HIV is transmitted and how its transmission can be prevented. Correct information is the first step toward raising awareness and giving young people the tools to protect themselves from infection. Misconceptions about HIV are common and can confuse young and old people alike and hinder prevention efforts. Different regions within a country are likely to have variations in misconceptions although some appear to be universal (for example, that sharing food can transmit HIV or that mosquito bites can transmit HIV). The UN General Assembly Special Session on HIV/AIDS (UNGASS) called on governments to improve the knowledge and skills of young people to protect themselves from HIV. The types of indicators that are used to measure achievement of this goal—as well as the MDG of reducing HIV infections by half—include (i) measures of the level of knowledge of HIV and its prevention and (ii) measures of behaviours to prevent further spread of the disease. The MICS4 HIV module was administered to women 15-49 years of age.

Table HA.1: Knowledge about HIV transmission, misconceptions about HIV/AIDS, and comprehensive knowledge about HIV transmission
Percentage of women age 15-49 years who know the main ways of preventing HIV transmission, percentage who know that a healthy looking person can have the AIDS virus, percentage who reject common misconceptions, and percentage who have comprehensive knowledge about HIV transmission, Sierra Leone, 2010

		Percentage who have heard of AIDS	Percentage who know transmission can be prevented by:		Percentage of women who know both ways	Percentage who know that a healthy looking person can have the AIDS virus	Percentage who know that HIV cannot be transmitted by:			Percentage who reject the two most common misconceptions and know that a healthy looking person can have the AIDS virus	Percentage with comprehensive knowledge [1]	Number of women
			Having only one faithful uninfected sex partner	Using a condom every time			Mosquito bites	Super-natural means	Sharing food with someone with AIDS			
Region	East	70.4	55.4	48.7	44.5	39.2	35.0	45.5	37.6	16.8	14.5	3459
	North	78.7	61.3	57.7	52.4	40.3	42.5	53.2	41.0	21.1	18.6	4531
	South	80.1	62.2	57.0	52.2	35.1	43.9	53.8	39.5	17.8	14.7	3137
	West	97.7	86.2	81.5	76.6	72.9	64.2	69.2	69.2	41.9	36.5	2232
District	Kailahun	79.8	67.3	60.8	57.7	51.2	47.4	58.2	56.1	29.6	26.5	1177
	Kenema	63.5	47.6	40.0	36.0	30.6	25.7	37.2	26.1	9.5	8.2	1412
	Kono	69.0	52.0	46.4	40.5	37.1	33.3	41.7	31.3	11.3	8.4	870
	Bombali	91.8	66.5	68.1	59.4	50.1	44.8	60.6	44.9	19.7	17.0	1102
	Kambia	76.2	56.9	50.3	45.6	32.7	37.3	51.2	32.5	13.4	11.4	570
	Koinadugu	56.1	44.4	41.1	36.1	33.1	32.8	37.5	31.8	17.5	14.0	597
	Port Loko	71.4	61.1	55.8	53.0	39.4	47.9	55.5	44.8	27.3	24.2	1231
	Tonkolili	87.8	68.3	62.6	57.4	39.2	42.1	52.7	42.5	21.5	20.2	1031
	Bo	83.8	67.5	62.8	57.5	34.4	46.8	57.4	39.9	16.6	14.0	1368
	Bonthe	90.4	77.5	73.7	68.0	35.6	44.1	52.2	42.0	15.9	15.1	565
	Moyamba	72.1	44.0	34.5	29.1	32.5	32.7	43.2	32.9	13.8	6.4	569
	Pujehun	70.4	53.4	49.9	47.2	38.4	47.7	57.0	42.4	25.8	23.0	634
	Western Rural	93.4	70.2	71.0	61.2	56.5	68.7	69.8	60.2	35.0	24.8	390
	Western Urban	98.6	89.6	83.7	79.9	76.4	63.2	69.1	71.1	43.4	39.0	1842
Area	Urban	88.6	75.1	70.7	65.4	56.1	53.6	61.4	55.1	30.5	26.6	4658
	Rural	75.5	58.3	53.0	48.4	37.9	39.6	50.0	38.8	18.5	15.8	8701
Age	15-24	83.2	68.7	64.5	59.9	47.7	49.2	58.7	49.8	25.9	23.1	4813
	25-29	81.0	64.3	60.2	54.3	44.0	43.6	53.3	44.0	20.9	17.5	2571
	30-39	78.9	62.5	56.7	52.0	42.5	41.8	52.3	41.9	21.2	18.1	4084
	40-49	73.4	56.2	49.7	45.4	39.4	39.6	46.8	37.5	20.1	16.8	1892
Marital status	Ever married/in union	77.8	60.5	55.1	50.1	40.5	40.4	50.3	40.1	19.4	16.3	10063
	Never married/in union	87.0	75.5	71.5	67.3	55.8	57.0	65.4	57.8	32.7	29.5	3292
	Missing	*	*	*	*	*	*	*	*	*	*	4
Education	None	72.8	54.1	48.7	43.9	34.4	35.2	44.0	33.1	15.1	12.4	8108
	Primary	82.4	64.5	58.9	53.2	40.2	40.5	52.6	44.8	18.0	15.3	1765
	Secondary +	95.7	87.4	83.6	79.3	69.1	68.2	77.9	70.8	42.9	38.5	3486
Wealth index quintile	Poorest	70.1	52.7	46.4	42.6	28.8	33.1	42.0	30.5	12.6	11.1	2549
	Second	71.4	53.8	47.9	43.5	33.6	34.5	44.9	34.8	14.7	12.1	2493
	Middle	76.4	59.3	55.3	50.3	39.3	41.2	51.3	39.5	18.7	16.7	2528
	Fourth	83.8	67.3	62.4	56.7	46.5	48.4	59.0	48.5	25.1	20.8	2738
	Richest	95.1	83.4	79.4	74.2	67.8	61.5	69.2	64.6	38.7	34.2	3051
Total		**80.1**	**64.2**	**59.2**	**54.3**	**44.2**	**44.5**	**54.0**	**44.5**	**22.7**	**19.6**	**13359**

[1] MICS indicator 9.1

[*] Based on less than 25 unweighted cases and has been suppressed.

One indicator that is both an MDG and UNGASS indicator is the percent of young women who have comprehensive and correct knowledge of HIV prevention and transmission. In the Sierra Leone MICS4 survey, all women who have heard of AIDS were asked whether the transmission of HIV can be prevented by (i) having only one faithful uninfected partner and (ii) using a condom every time you have sex. The results are presented in Table HA.1. Four in five respondents (80 percent) aged 15-49 years have heard of AIDS. The percentage of women who have heard of AIDS ranges from 70 percent in the east to 98 percent in the West. Higher levels of awareness of AIDS are associated with urban residence, younger age, never-married status, and higher levels of women's education and household wealth.

Fifty-four percent of women know the two main ways of preventing HIV transmission; sixty-four percent of women know that HIV transmission can be prevented by having one faithful uninfected sex partner and 59 percent know that using a condom every time can prevent HIV transmission. Patterns of knowledge of modes of transmission among different strata of respondents are identical to those described in the preceding paragraph.

Table HA.2: Knowledge about HIV transmission, misconceptions about HIV/AIDS, and comprehensive knowledge about HIV transmission among young people

Percentage of young women age 15-24 years who know the main ways of preventing HIV transmission, percentage who know that a healthy looking person can have the AIDS virus, percentage who reject common misconceptions, and percentage who have comprehensive knowledge about HIV transmission, Sierra Leone, 2010

		Percentage who have heard of AIDS	Percentage who know transmission can be prevented by:		Percentage of women who know both ways	Percentage who know that a healthy looking person can have the AIDS virus	Percentage who know that HIV cannot be transmitted by:			Percentage who reject the two most common misconceptions and know that a healthy looking person can have the AIDS virus	Percentage with comprehensive knowledge [1]	Number of women
			Having only one faithful uninfected sex partner	Using a condom every time			Mosquito bites	Super-natural means	Sharing food with someone with AIDS			
Region	East	73.0	59.0	53.3	49.1	42.1	37.7	48.9	42.1	19.0	16.5	1193
	North	82.2	67.0	64.7	59.4	43.7	48.2	59.0	46.8	24.9	22.6	1600
	South	82.3	64.2	60.7	56.1	36.4	46.7	56.9	41.5	17.8	15.5	1028
	West	97.9	87.6	81.6	77.9	72.7	67.2	71.8	72.3	44.5	39.9	991
District	Kailahun	81.8	67.8	61.5	58.6	53.5	50.7	62.0	59.2	31.9	28.6	420
	Kenema	65.8	55.3	47.7	44.5	33.8	28.5	41.1	30.4	10.5	9.1	486
	Kono	72.2	52.1	50.9	43.1	39.4	34.5	42.7	36.6	14.5	11.5	287
	Bombali	94.9	70.6	75.1	65.5	52.0	48.4	65.1	54.5	23.8	22.2	436
	Kambia	76.8	62.2	57.6	53.4	33.0	41.2	56.4	40.9	18.7	17.6	212
	Koinadugu	64.4	57.4	54.4	50.3	44.2	47.7	54.5	41.8	28.8	24.0	180
	Port Loko	76.9	67.9	62.4	60.1	42.4	54.7	60.7	49.3	30.6	27.0	447
	Tonkolili	86.0	69.3	64.2	59.1	40.9	43.7	52.6	39.7	20.3	19.6	325
	Bo	84.2	67.5	65.4	60.3	33.7	51.7	59.7	39.9	15.9	14.1	482
	Bonthe	89.6	77.0	76.2	70.5	37.2	41.8	52.1	45.9	16.7	15.4	196
	Moyamba	75.1	47.5	39.1	34.3	38.3	34.4	49.4	37.5	14.0	9.5	165
	Pujehun	75.8	57.0	51.3	49.4	41.3	49.6	61.3	44.7	27.3	24.2	185
	Western Rural	92.3	77.2	73.4	68.8	44.9	67.1	67.9	60.8	26.3	20.8	124
	Western Urban	98.7	89.1	82.8	79.2	76.7	67.2	72.3	73.9	47.1	42.6	867
Area	Urban	91.6	78.9	74.5	69.6	58.5	58.1	65.9	59.6	33.6	29.8	1937
	Rural	77.5	61.8	57.8	53.4	40.4	43.2	53.8	43.1	20.8	18.6	2876
Age	15-24	83.4	69.0	64.6	60.2	48.0	49.5	59.0	50.7	26.1	23.4	2549
	25-29	83.0	68.2	64.4	59.7	47.4	48.8	58.2	48.7	25.8	22.8	2263
Marital status	Ever married/in union	77.6	60.3	55.9	51.2	38.3	38.8	49.6	38.5	17.7	15.4	2106
	Never married/in union	87.5	75.2	71.2	66.7	55.0	57.3	65.7	58.5	32.3	29.1	2705
	Missing	*	*	*	*	*	*	*	*	*	*	2
Education	None	71.2	52.1	47.7	43.4	31.4	32.5	41.6	30.6	12.9	11.1	1767
	Primary	77.9	59.3	55.0	50.0	36.5	38.1	48.8	40.3	15.8	14.2	866
	Secondary +	95.0	85.9	81.9	77.3	65.4	67.1	76.4	69.0	40.5	36.4	2180
Wealth index quintile	Poorest	70.6	54.2	49.6	46.0	28.4	34.8	41.4	32.8	14.7	13.7	766
	Second	72.7	58.7	54.5	51.3	36.7	37.2	50.6	39.2	16.4	14.8	781
	Middle	79.3	62.5	59.5	54.4	41.8	45.4	55.6	42.5	21.3	19.3	841
	Fourth	87.1	72.9	68.1	63.5	50.3	52.6	64.1	53.9	27.0	23.6	1084
	Richest	95.7	83.2	79.1	73.5	66.7	64.0	70.8	66.8	40.0	35.5	1341
Total		**83.2**	**68.7**	**64.5**	**59.9**	**47.7**	**49.2**	**58.7**	**49.8**	**25.9**	**23.1**	**4813**

[1] MICS indicator 9.2; MDG indicator 6.3

[*] Based on less than 25 unweighted cases and has been suppressed.

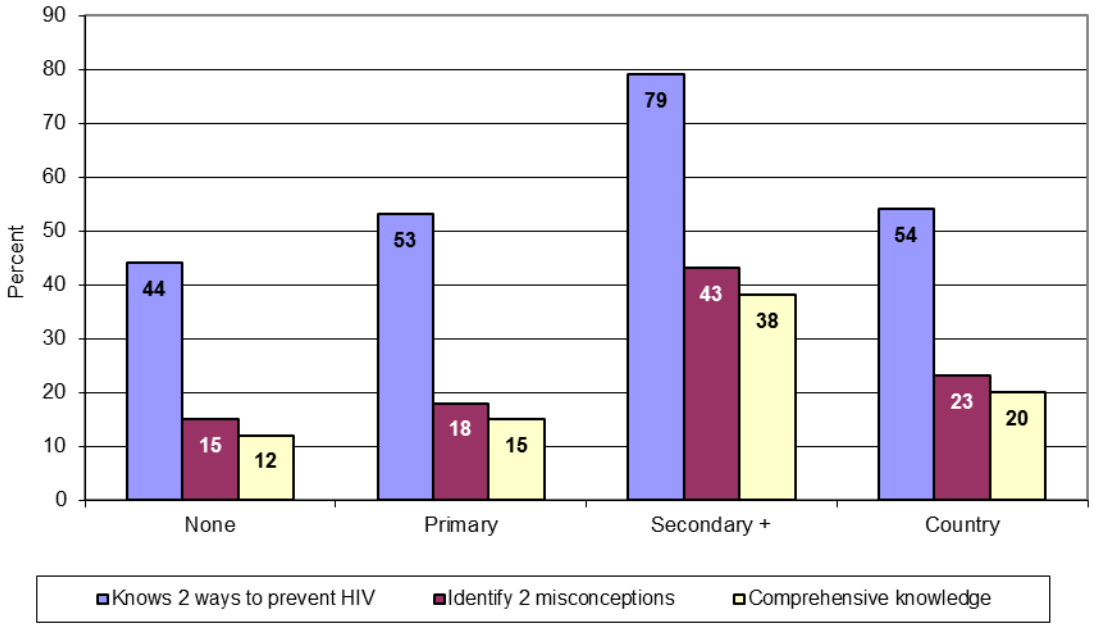
The results for women aged 15-24 years in Sierra Leone are presented separately in Table HA.2. Among this group of women, 83 percent have heard of AIDS. The value and patterns of this indicator across the different background variables measured in MICS4 are almost identical to those described above for all women aged 15-49. Among this cohort of women, 60 percent know the two main ways of preventing HIV transmission; 69 percent of women know that having one faithful uninfected sex

partner can prevent HIV transmission while 64 percent know that using a condom every time can prevent transmission.

Tables HA.1 and HA.2 also present information about the percentage of women who can correctly identify misconceptions concerning HIV. Among respondents aged 15-24 years, 49 percent of women know that HIV cannot be transmitted through mosquito bites while 50 and 59 percent know that HIV cannot be transmitted through sharing food with somebody with AIDS and supernatural means, respectively. Only 26 percent reject the two most common misconceptions (that HIV can be transmitted by mosquito bites and sharing food) and know that a healthy-looking person can be infected. The value of this indicator ranges from 18 percent in the south to 44 percent in the West. Higher levels of this indicator are associated with urban residence, never-married status, and higher levels of women's education and household wealth.

A woman who has "comprehensive knowledge about HIV prevention" is defined as a woman who (i) knows the two main ways to prevent HIV (having only one faithful uninfected partner and using a condom every time), who knows that a healthy looking person can have the AIDS virus, and who rejects the two most common misconceptions (as noted in preceding paragraph). Tables HA.1 and HA.2 present data regarding the percentage of respondents with comprehensive knowledge about HIV prevention. The value of this indicator among respondents aged 15-24 years is 23 percent at the national level and ranges from 16 percent in the south to 40 percent in the West. Higher levels of this indicator are correlated with urban residence, never-married status and higher levels of women's education and household wealth.

Figure HA.1 Percentage of women who have comprehensive knowledge of HIV/AIDS transmission by mother's education, Sierra Leone, 2010



A pregnant woman's knowledge regarding prevention of mother-to-child transmission (PMTCT) of HIV is an important factor that will influence whether or not she seeks HIV testing when she is pregnant and takes further action as necessary to avoid transmitting HIV to her baby. Women need to know that HIV can be transmitted from mother-to-child during pregnancy, delivery, and through

breastfeeding. The level of knowledge among women aged 15-49 years in Sierra Leone concerning mother-to-child transmission is presented in Table HA.3. Overall, 64 percent of women know that HIV can be transmitted from mother to child. Forty-six percent of women know all three ways that mother-to-child transmission can take place while 16 percent of women did not know of any specific mode of transmission. The percentage of women who know all three ways that mother-to-child transmission can take place ranges from 37 percent in the south to 60 percent in the West. Higher levels of this indicator are associated with urban residence, never-married status and higher levels of women's education and household wealth.

Table HA.3: Knowledge of mother-to-child HIV transmission
Percentage of women age 15-49 years who correctly identify means of HIV transmission from mother to child, Sierra Leone, 2010

		Percentage who know HIV can be transmitted from mother to child	Percent who know HIV can be transmitted:				Does not know any of the specific means	Number of women
			During pregnancy	During delivery	By breastfeeding	All three means [1]		
Region	East	57.8	53.6	49.1	50.1	42.8	12.6	3459
	North	62.4	57.9	54.2	56.1	48.7	16.3	4531
	South	63.0	54.1	49.0	49.1	37.0	17.2	3137
	West	79.2	71.8	66.7	70.0	59.5	18.6	2232
District	Kailahun	71.8	68.2	65.6	62.7	57.0	8.0	1177
	Kenema	50.2	45.1	38.2	43.0	33.6	13.3	1412
	Kono	51.2	47.8	44.6	44.6	38.5	17.8	870
	Bombali	70.9	66.8	65.1	65.8	59.6	20.9	1102
	Kambia	55.9	49.4	47.2	50.0	41.8	20.2	570
	Koinadugu	43.0	40.3	34.3	31.7	26.1	13.1	597
	Port Loko	54.1	50.7	49.7	50.3	46.7	17.3	1231
	Tonkolili	77.9	71.9	63.2	70.2	56.2	9.9	1031
	Bo	63.1	53.5	46.9	46.8	35.5	20.7	1368
	Bonthe	80.6	70.2	65.1	67.6	50.4	9.8	565
	Moyamba	46.0	38.8	32.3	36.6	25.3	26.1	569
	Pujehun	62.3	54.7	54.2	48.6	38.9	8.0	634
	Western Rural	71.3	65.4	56.7	59.3	50.0	22.1	390
	Western Urban	80.8	73.1	68.9	72.2	61.5	17.8	1842
Area	Urban	72.1	65.0	60.5	61.7	51.7	16.5	4658
	Rural	59.8	54.6	50.1	51.7	43.3	15.6	8701
Age group	15-24	65.5	58.9	54.6	56.2	46.7	17.6	4813
	25+	63.3	57.8	53.3	54.6	46.0	15.0	8546
Age group	15-19	63.7	57.4	53.5	55.1	46.3	19.6	2549
	20-24	67.6	60.5	55.9	57.6	47.1	15.4	2263
	25-29	67.2	61.4	56.7	57.6	49.1	13.8	2571
	30-39	63.6	58.3	53.8	55.0	46.2	15.3	4084
	40-49	57.5	52.0	47.3	49.7	41.1	15.9	1892
Marital status	Ever married/in union	62.4	56.9	52.2	53.8	45.0	15.4	10063
	Never married/in union	69.3	62.4	58.7	59.6	50.0	17.7	3292
	Missing	*	*	*	*	*	*	4
Education	None	56.2	51.2	46.9	49.0	41.0	16.6	8108
	Primary	64.7	57.7	52.6	55.3	44.9	17.7	1765
	Secondary +	82.2	74.8	70.2	69.6	59.2	13.5	3486
Wealth index quintiles	Poorest	54.4	49.4	45.6	45.6	37.7	15.8	2549
	Second	55.7	51.2	46.1	48.7	40.5	15.7	2493
	Middle	60.2	54.2	50.5	52.9	44.4	16.2	2528
	Fourth	68.5	62.6	58.0	58.9	50.0	15.3	2738
	Richest	78.5	70.7	65.7	67.2	56.2	16.6	3051
Total		**64.1**	**58.2**	**53.8**	**55.2**	**46.2**	**15.9**	**13359**

[1] MICS indicator 9.3
[*] Based on less than 25 unweighted cases and has been suppressed.

Discussion: Knowledge about HIV transmission and misconceptions about HIV/AIDS

Women who have heard of AIDS

The percentage of women who have heard of AIDS in Sierra Leone is increasing slowly but steadily over time, from 67 percent in MICS3 (2005) to 80 percent in MICS4 (2010). This is the result of the advocacy campaigns that have been conducted in Sierra Leone during the past five years coupled with the emphasis on prevention and awareness-raising in the national program. Given all of the resources that go into HIV prevention programming in Sierra Leone, the finding that only 80 percent of women have heard about AIDS may seem low. However, it must be kept in mind that the prevalence of HIV in Sierra Leone is only 1.5 percent and thus is not perceived by the public as a

major problem. A relatively low level of awareness regarding HIV/AIDS is not uncommon in low-prevalence countries.

The HIV response in Sierra Leone is funded primarily through external, non-government sources that are then applied vertically. The national HIV/AIDS program needs to begin to receive steadily increasing budgetary allocations from the government to improve program sustainability. The National HIV BCC Strategy and National HIV Prevention Strategy are in the process of being revised. A recently conducted study of modes of transmission in Sierra Leone (the "Know Your Epidemic, Know Your Response" study) will provide an empirical basis for the development and targeting of messages on HIV prevention in the future.

Comprehensive knowledge about HIV prevention
Women's low level of comprehensive knowledge about HIV prevention is not surprising given the approach that has been taken to date in Sierra Leone to inform the public about the epidemic. The primary channel for disseminating messages has been through the mass media, which can succeed in raising awareness but is generally not as effective for increasing knowledge. Future activities that seek to increase HIV-related knowledge will need to be implemented through strategies that include interpersonal communication and community-engagement. These approaches should be detailed in the revised National HIV BCC strategy that is currently being drafted. For younger age groups, the primary intervention to increase HIV-related knowledge is the Life Skills course which is now being taught in fifteen percent of schools in Sierra Leone. Anecdotal reports state that this course is not taken very seriously because students are not examined. Policy makers should accelerate the roll-out of the Life Skills course and consider introducing an exam for this course which should encourage students and teachers alike to regard it more seriously.

Knowledge of mother-to-child transmission of HIV
There has been a major effort in recent years to scale up PMTCT services in Sierra Leone. At this time, over 50 percent of health facilities offer PMTCT services. Awareness-raising regarding PMTCT has not been emphasized and most knowledge regarding PMTCT is conveyed to women through counseling in the health clinics. The quality of counseling was found to be low in a recent review of the national PMTCT program. Messaging regarding PMTCT will need to be addressed in the National HIV BCC strategy. The PMTCT program will increase its coverage in the future as the program is expanded to additional health facilities.

Accepting Attitudes toward People Living with HIV/AIDS

The indicators on attitudes toward people living with HIV measure stigma and discrimination in the community. Stigma and discrimination are considered to not be present if a respondent reports an accepting attitude on the following four questions: 1) would care for a family member sick with AIDS; 2) would buy fresh vegetables from a vendor who is HIV-positive; 3) thinks that a female teacher who is HIV-positive should be allowed to teach in school; and 4) would ***not*** want to keep HIV status of a family member a secret. Table HA.4 presents MICS4 results regarding the attitudes of women in Sierra Leone towards people living with HIV/AIDS. Overall, accepting attitudes in Sierra Leone are extremely low as ninety-four percent of women who have heard of AIDS disagree with at least one accepting statement. The most common discriminatory attitude is rejection of buying fresh vegetables from a person who has AIDS (70 percent) while the least common discriminatory attitude is unwillingness to care for a family member with AIDS in her own home (41 percent). More highly educated women and women from wealthier households have more accepting attitudes than women with lower education and wealth status.

Table HA.4: Accepting attitudes toward people living with HIV/AIDS
Percentage of women age 15-49 years who have heard of AIDS who express an accepting attitude towards people living with HIV/AIDS, Sierra Leone, 2010

		Percent of women who:						
		Are willing to care for a family member with the AIDS virus in own home	Would buy fresh vegetables from a shopkeeper or vendor who has the AIDS virus	Believe that a female teacher with the AIDS virus and is not sick should be allowed to continue teaching	Would not want to keep secret that a family member got infected with the AIDS virus	Agree with at least one accepting attitude	Express accepting attitudes on all four indicators [1]	Number of women who have heard of AIDS
Region	East	49.3	27.3	32.5	59.2	91.8	3.6	2436
	North	56.3	23.7	30.1	48.7	88.4	3.5	3565
	South	59.6	27.8	31.2	50.5	89.7	5.7	2514
	West	71.8	45.0	57.8	34.2	89.2	11.6	2181
District	Kailahun	60.9	40.3	44.9	49.9	94.7	3.4	940
	Kenema	37.5	13.8	19.2	69.8	90.3	2.3	896
	Kono	48.8	27.2	33.2	58.1	89.5	5.6	600
	Bombali	71.1	24.3	33.5	45.0	90.9	3.4	1012
	Kambia	54.5	11.5	26.9	33.8	78.8	1.8	435
	Koinadugu	67.8	48.4	58.4	52.0	94.9	15.4	335
	Port Loko	42.2	22.9	23.0	43.2	81.4	1.5	879
	Tonkolili	50.1	20.6	24.2	64.2	94.6	1.9	905
	Bo	62.9	26.9	30.5	45.9	87.4	6.6	1146
	Bonthe	61.8	25.2	29.2	55.9	97.0	1.3	511
	Moyamba	52.3	26.8	30.2	54.1	86.8	8.2	411
	Pujehun	55.2	34.1	36.1	52.6	89.9	6.3	446
	Western Rural	61.5	38.1	43.2	41.5	79.4	14.5	364
	Western Urban	73.8	46.4	60.8	32.7	91.1	11.0	1817
Area	Urban	66.9	37.0	46.9	41.4	89.8	8.4	4127
	Rural	53.4	25.3	30.0	53.1	89.5	3.9	6569
Age group	15-24	61.5	32.4	40.4	44.6	89.5	5.9	4003
	25+	56.9	28.4	34.2	51.0	89.7	5.5	6693
Age group	15-19	61.5	32.0	41.2	44.2	89.6	6.0	2125
	20-24	61.5	32.8	39.5	45.0	89.3	5.8	1878
	25-29	59.0	28.2	34.8	52.4	91.4	5.8	2081
	30-39	55.4	28.3	34.4	50.5	88.7	5.1	3223
	40-49	57.3	28.7	33.0	49.9	89.5	6.0	1389
Marital status	Ever married/in union	55.9	26.7	32.3	51.6	89.4	4.9	7827
	Never married/in union	65.9	38.6	48.1	40.4	90.3	7.9	2864
	Missing	*	*	*	*	*	*	4
Education	None	51.4	21.5	26.7	54.2	87.9	3.5	5905
	Primary	57.5	24.5	32.6	50.9	89.6	4.7	1454
	Secondary +	72.0	47.0	55.8	37.5	92.7	9.9	3337
Wealth index quintiles	Poorest	50.7	21.6	23.8	57.3	90.5	2.6	1788
	Second	50.9	21.2	25.1	53.7	87.6	3.2	1779
	Middle	56.6	25.8	33.5	54.1	90.9	5.3	1931
	Fourth	57.8	29.1	35.4	46.9	87.0	5.2	2295
	Richest	70.3	43.6	54.4	37.7	91.6	9.8	2903
Total		**58.6**	**29.9**	**36.6**	**48.6**	**89.6**	**5.7**	**10696**

[1] MICS indicator 9.4

[*] Based on less than 25 unweighted cases and has been suppressed.

Discussion: Accepting attitudes towards people living with HIV/AIDS

There are currently about 50 thousand people in Sierra Leone who are HIV-positive. Only five thousand of them are currently on ART. PLHA in Sierra Leone face stigma and discrimination at both an institutional as well as a personal level. The Sierra Leonean public appears to equate HIV with morality and is highly judgmental about people who contract HIV. It is not clear if discrimination can best be reduced in Sierra Leone by increasing the knowledge of the public on relevant issues or if messaging and programming should focus on the public's perceptions of morality and attempt to influence those perceptions. PLHA need to become more involved in programming and policy development in Sierra Leone as a first step to reducing stigma and discrimination. Positive prevention needs to become policy and a major stigma reduction program needs to be designed and implemented.

Knowledge of a Place for HIV Testing, Counselling and Testing During Antenatal Care

Another important HIV-related indicator is women's knowledge of where HIV testing services are located and their use of such services. In order to protect themselves and to prevent infecting others, it is important for individuals to know their HIV status. Knowledge of one's status is also clearly a critical factor in the decision to seek treatment. Information regarding respondents' knowledge of where they can be tested for HIV and whether they have ever been tested is presented in Table HA.5. Forty-six percent of women knew where to be tested while 28 percent have actually been tested (eleven percent in the last twelve months). Of these eleven percent, two out of three women has been told the result. Knowledge of a place to be tested is highest among women from wealthier households, younger women, women who have never been married, women who live in urban locations, and women in the West.

Table HA.5: Knowledge of a place for HIV testing
Percentage of women age 15-49 years who know where to get an HIV test, percentage of women who have ever been tested, percentage of women who have been tested in the last 12 months, and percentage of women who have been tested and have been told the result, Sierra Leone, 2010

		Percentage of women who:				
		Know a place to get tested [1]	Have ever been tested	Have been tested in the last 12 months	Have been tested and have been told result [2]	Number of women
Region	East	36.1	20.6	9.7	6.7	3459
	North	43.3	27.3	10.4	6.3	4531
	South	41.9	27.2	12.1	8.3	3137
	West	73.1	43.7	15.2	10.8	2232
District	Kailahun	48.9	28.0	12.9	10.0	1177
	Kenema	25.9	14.2	7.2	4.1	1412
	Kono	35.5	20.9	9.4	6.6	870
	Bombali	57.9	39.0	14.0	8.0	1102
	Kambia	44.7	28.4	9.9	6.0	570
	Koinadugu	24.9	13.7	4.4	2.4	597
	Port Loko	38.5	25.5	12.5	8.8	1231
	Tonkolili	43.5	24.3	7.7	3.8	1031
	Bo	44.2	28.2	12.3	8.9	1368
	Bonthe	47.0	28.1	13.4	7.2	565
	Moyamba	29.7	21.2	10.4	6.4	569
	Pujehun	43.4	29.2	12.1	9.5	634
	Western Rural	55.4	34.7	15.5	11.6	390
	Western Urban	76.8	45.7	15.1	10.6	1842
Area	Urban	59.6	35.9	14.2	10.1	4658
	Rural	38.9	24.2	9.9	6.3	8701
Age	15-19	46.6	20.5	11.0	7.5	2549
	20-24	53.8	34.1	14.2	7.9	2263
	25-29	47.8	33.0	13.2	8.3	2571
	30-34	45.3	31.7	11.7	8.0	2086
	35-39	43.7	28.4	10.2	7.9	1997
	40-44	37.4	22.6	6.8	5.5	1115
	45-49	37.3	20.0	7.5	6.4	777
Marital status	Ever married/in union	43.4	29.4	11.4	7.2	10063
	Never married/in union	54.4	24.8	11.4	8.9	3292
	Missing	*	*	*	*	4
Wealth index quintiles	Poorest	29.5	18.9	6.2	3.6	2549
	Second	33.5	19.9	8.0	4.8	2493
	Middle	40.8	26.1	11.0	7.0	2528
	Fourth	50.6	30.8	13.9	9.1	2738
	Richest	70.7	42.5	16.6	12.5	3051
Total		**46.1**	**28.3**	**11.4**	**7.6**	**13359**

[1] MICS indicator 9.5
[2] MICS indicator 9.6
[*] Based on less than 25 unweighted cases and has been suppressed.

Table HA.6 presents the same results as Table HA.5, but for sexually active young women. The proportion of young women who have been tested and have been told the result provides a measure of the effectiveness of interventions that promote HIV counselling and testing among

young people. This is important to know as young people may perceive barriers to accessing services related to HIV services and sexual health. Fifty-two percent of sexually active young women report that they know where they can be tested and 30 percent report having actually been tested (fifteen percent in the last twelve months). Of these fifteen percent, 63 percent (9.2/14.7) have been told the result. Knowledge of a place to be tested is highest among women from wealthier households, more highly educated women, women who live in urban locations, and women in the West (74 percent) and lowest among women in the east (40 percent).

Table HA.6: Knowledge of a place for HIV testing among sexually active young women
Percentage of women age 15-24 years who have had sex in the last 12 months, and among women who have had sex in the last 12 months, the percentage who know where to get an HIV test, percentage of women who have ever been tested, percentage of women who have been tested in the last 12 months, and percentage of women who have been tested and have been told the result, Sierra Leone, 2010

		Percentage who have had sex in the last 12 months	Number of women age 15-24 years	Percentage of women who:				Number of women age 15-24 years who have had sex in the last 12 months
				Know a place to get tested	Have ever been tested	Have been tested in the last 12 months	Have been tested and have been told result [1]	
Region	East	69.6	1193	40.3	20.1	10.7	6.4	830
	North	69.2	1600	51.2	32.7	15.8	10.0	1107
	South	73.5	1028	46.9	28.6	14.7	9.3	756
	West	60.0	991	74.1	39.8	17.9	11.3	595
District	Kailahun	69.3	420	51.4	21.3	11.3	8.9	291
	Kenema	72.6	486	31.6	17.7	9.2	4.3	352
	Kono	65.0	287	39.7	22.5	12.6	6.7	187
	Bombali	70.1	436	63.2	41.3	19.6	11.6	305
	Kambia	61.0	212	49.0	28.5	13.3	8.9	129
	Koinadugu	63.2	180	34.7	18.8	6.7	3.5	114
	Port Loko	68.1	447	48.7	37.1	21.9	15.7	304
	Tonkolili	78.0	325	48.3	25.5	9.5	4.5	254
	Bo	71.9	482	47.5	28.6	12.8	9.0	346
	Bonthe	78.0	196	53.4	32.2	19.4	10.6	153
	Moyamba	77.6	165	38.6	25.0	17.1	9.0	128
	Pujehun	69.5	185	45.8	27.7	11.7	9.1	129
	Western Rural	68.4	124	59.5	40.2	24.3	13.1	85
	Western Urban	58.8	867	76.5	39.8	16.9	11.0	510
Area	Urban	64.6	1937	64.3	36.0	16.4	10.4	1252
	Rural	70.8	2876	43.8	26.1	13.6	8.4	2036
Age	15-19	57.0	2549	48.9	25.0	14.2	9.6	1452
	20-24	81.1	2263	53.8	33.7	15.0	8.8	1835
Marital status	Ever married/in union	82.2	2106	44.2	30.9	14.9	7.8	1731
	Never married/in union	57.6	2705	59.8	28.6	14.3	10.7	1557
	Missing	*	2	.	.	.	.	0
Education	None	77.6	1767	37.2	24.7	12.0	6.6	1371
	Primary	58.6	866	43.7	25.2	14.2	8.1	507
	Secondary +	64.6	2180	68.5	36.6	17.4	12.1	1409
Wealth index quintiles	Poorest	72.9	766	33.9	18.9	8.4	5.0	558
	Second	70.8	781	40.2	21.6	10.5	7.5	553
	Middle	69.4	841	48.5	29.8	15.0	8.1	584
	Fourth	68.7	1084	56.7	35.5	18.6	10.4	744
	Richest	63.3	1341	68.4	37.5	17.8	12.7	848
Total		**68.3**	**4813**	**51.6**	**29.9**	**14.7**	**9.2**	**3288**

[1] MICS indicator 9.7
[*] Based on less than 25 unweighted cases and has been suppressed.

Among women who had given birth within the two years preceding the MICS4 survey, the percentage who received counselling and HIV testing during antenatal care is presented in Table HA.7. Forty-one percent received HIV counselling during antenatal care while 26 percent were offered an HIV test and were tested for HIV during antenatal care and received the results. The percentage of women who were offered an HIV test and were tested for HIV during antenatal care and received the results is much higher in the West (67 percent) than in the next highest province (29 percent in the north). Higher levels of this indicator are associated with urban residence, younger age, never-married status, and higher levels of women's education and household wealth.

Table HA.7: HIV counseling and testing during antenatal care
Among women age 15-49 who gave birth in the last 2 years, percentage of women who received antenatal care from a health professional during the last pregnancy, percentage who received HIV counseling, percentage who were offered and accepted an HIV test and received the results, Sierra Leone, 2010

		Percent of women who:					
		Received antenatal care from a health care professional for last pregnancy	Received HIV counseling during antenatal care [1]	Were offered an HIV test and were tested for HIV during antenatal care	Were offered an HIV test and were tested for HIV during antenatal care, and received the results [2]	Received HIV counseling, were offered an HIV test, accepted and received the results	Number of women who gave birth in the 2 years preceding the survey
Region	East	96.7	29.4	22.0	11.5	9.6	993
	North	88.7	42.9	36.9	28.8	26.5	1230
	South	93.0	36.1	31.3	23.7	18.4	885
	West	97.5	75.2	71.7	67.3	63.7	353
District	Kailahun	94.9	40.0	30.8	11.0	10.0	330
	Kenema	97.6	25.5	17.8	11.8	9.5	391
	Kono	97.6	22.1	17.3	11.6	9.3	272
	Bombali	97.3	71.8	67.5	52.4	50.3	269
	Kambia	80.3	31.3	30.0	19.0	17.6	171
	Koinadugu	85.9	21.6	21.9	14.2	12.8	129
	Port Loko	78.8	35.9	29.1	24.6	24.2	360
	Tonkolili	99.0	41.0	29.3	24.5	19.0	302
	Bo	95.0	38.0	29.7	26.0	22.6	378
	Bonthe	90.4	40.7	42.9	27.7	15.8	158
	Moyamba	91.9	38.7	24.8	18.3	16.6	188
	Pujehun	92.1	24.3	31.5	20.7	13.1	161
	Western Rural	96.6	55.2	45.9	39.4	38.6	73
	Western Urban	97.8	80.4	78.3	74.5	70.2	281
Area	Urban	94.3	51.6	45.9	39.1	35.8	971
	Rural	92.5	36.3	30.4	21.5	18.5	2491
Young women	15-24	93.2	44.8	40.1	29.9	26.1	1239
Age	15-19	93.0	45.6	40.4	29.1	25.7	452
	20-24	93.3	44.3	39.9	30.4	26.3	787
	25-29	92.7	39.7	34.3	27.1	24.0	950
	30-34	93.0	36.9	28.8	22.6	19.9	664
	35-49	93.1	37.5	31.1	22.6	20.6	609
Marital status	Ever married/in union	92.9	39.1	33.0	24.7	21.7	3033
	Never married/in union	94.0	50.7	47.2	38.6	35.3	429
Education	None	92.0	34.2	28.2	20.4	17.7	2348
	Primary	94.8	43.3	35.9	25.0	21.5	511
	Secondary +	95.2	63.2	59.3	51.2	47.1	603
Wealth index quintiles	Poorest	91.7	26.9	23.9	17.9	12.8	757
	Second	93.1	32.8	26.0	18.0	16.2	750
	Middle	91.2	38.0	31.1	20.2	18.7	765
	Fourth	94.1	47.3	39.7	29.3	26.3	663
	Richest	96.1	66.7	61.9	56.3	52.0	526
Total		**93.0**	**40.6**	**34.8**	**26.5**	**23.4**	**3462**

[1] MICS indicator 9.8
[2] MICS indicator 9.9

Sexual Behaviour Related to HIV Transmission

Promoting safe sexual behaviour is critical for reducing the prevalence of HIV. The use of condoms during sex, especially with non-regular partners, is especially important for reducing HIV transmission. In most countries over half of new HIV infections occur among young people aged 15-24 years; therefore, the practice of safe sexual behaviour by men and women in this age group is crucial in order to prevent new infections. A module of questions was administered in MICS4 to women 15-24 years of age in order to assess their risk of HIV infection. Risk factors for HIV include sex at an early age, sex with older men, sex with a non-marital non-cohabitating partner, and failure to use a condom during high-risk sex.

Table HA.8: Sexual behavior that increases the risk of HIV infection
Percentage of never-married young women age 15-24 years who have never had sex, percentage of young women age 15-24 years who have had sex before age 15, and percentage of young women age 15-24 years who had sex with a man 10 or more years older during the last 12 months, Sierra Leone, 2010

		Percentage of never-married women age 15-24 years who have never had sex [1]	Number of never-married women age 15-24 years	Percentage of women age 15-24 years who had sex before age 15 [2]	Number of women age 15-24 years	Percentage of women age 15-24 years who had sex in the last 12 months with a man 10 or more years older [3]	Number of women age 15-24 years who had sex in the 12 months preceding the survey
Region	East	34.5	631	20.6	1193	28.6	830
	North	31.2	751	33.3	1600	23.1	1107
	South	31.0	568	29.6	1028	28.8	756
	West	42.3	755	9.7	991	25.7	595
District	Kailahun	36.2	208	19.8	420	26.0	291
	Kenema	28.9	266	20.1	486	27.9	352
	Kono	41.5	157	22.5	287	34.1	187
	Bombali	31.0	254	17.8	436	18.7	305
	Kambia	32.3	99	40.4	212	16.8	129
	Koinadugu	56.4	88	21.7	180	25.9	114
	Port Loko	25.3	202	39.1	447	29.5	304
	Tonkolili	21.3	109	47.9	325	22.8	254
	Bo	31.8	300	29.6	482	33.9	346
	Bonthe	26.0	101	26.8	196	32.3	153
	Moyamba	22.3	81	36.9	165	22.5	128
	Pujehun	42.0	86	26.1	185	17.1	129
	Western Rural	42.4	71	15.5	124	19.8	85
	Western Urban	42.3	683	8.9	867	26.7	510
Area	Urban	37.2	1347	18.5	1937	23.9	1252
	Rural	32.9	1358	28.5	2876	27.8	2036
Age	15-19	45.2	1910	23.8	2549	22.5	1452
	20-24	10.6	794	25.3	2263	29.3	1835
Marital status	Ever married/in union	.	0	34.7	2106	35.1	1731
	Never married/in union	35.0	2705	16.6	2705	16.5	1557
	Missing	*	*	*	2	*	0
Education	None	22.7	443	36.3	1767	35.7	1371
	Primary	50.8	505	23.8	866	24.8	507
	Secondary +	33.6	1757	15.2	2180	17.7	1409
Wealth index quintiles	Poorest	33.7	294	38.2	766	30.7	558
	Second	36.2	333	28.0	781	31.2	553
	Middle	30.7	416	28.5	841	23.4	584
	Fourth	32.5	650	25.0	1084	24.5	744
	Richest	38.4	1012	11.7	1341	23.7	848
Total		**35.0**	**2705**	**24.5**	**4813**	**26.3**	**3288**

[1] MICS indicator 9.10
[2] MICS indicator 9.11
[3] MICS indicator 9.12

The frequency of sexual behaviours that increase the risk of HIV infection among women is presented in Table HA.8 and Figure HA.2. Thirty-five percent of never-married women aged 15-24 in Sierra Leone have never had sex. This indicator ranges from 31 percent in the south and north to 42 percent in the West. Higher levels of never-married young women who have never had sex are found in urban locations (37 percent) and among women aged 15-19 years (45 percent) as opposed to women aged 20-24 years (11 percent). There are no clear relations between this indicator and level of women's education or household wealth.

Twenty-four percent of women aged 15-24 report that they first had sex before the age of 15. Among provinces, this indicator is highest in the north (33 percent) and lowest in the West (ten percent). There are strong associations or relations between higher levels of this indicator and lower levels of women's education and household wealth.

Twenty-six percent of women aged 15-24 report that they had sex in the previous 12 months with a man ten or more years older. This indicator varies only slightly among provinces and is modestly higher in rural areas (28 percent) as compared to urban areas (24 percent). Young women who have lower levels of education or who are from less wealthy households are more likely to have had sex in the previous 12 months with an older man than more highly educated or wealthier young women.

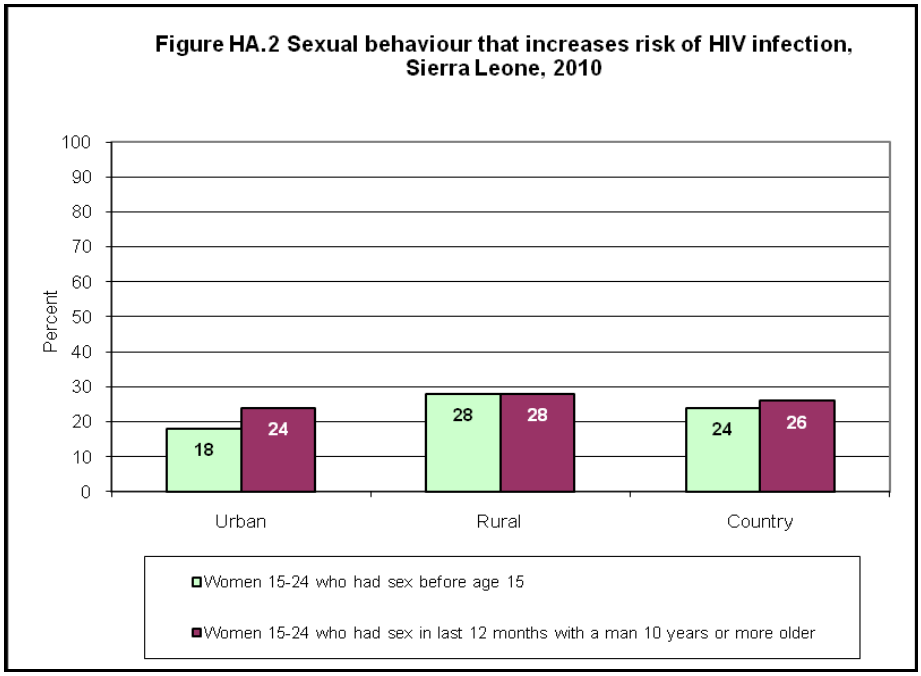


Table HA.9: Sex with multiple partners

Percentage of women age 15-49 years who ever had sex, percentage who had sex in the last 12 months, percentage who have had sex with more than one partner in the last 12 months and among those who had sex with multiple partners, the percentage who used a condom at last sex, Sierra Leone, 2010

		Percentage of women who:			Number of women age 15-49 years	Percent of women age 15-49 years who had more than one sexual partner in the last 12 months, who also reported that a condom was used the last time they had sex [2]	Number of women age 15-49 years who had more than one sexual partner in the last 12 months
		Ever had sex	Had sex in the last 12 months	Had sex with more than one partner in last 12 months [1]			
Region	East	93.1	78.9	7.5	3459	6.7	259
	North	94.6	77.3	7.1	4531	10.0	324
	South	94.2	82.5	11.7	3137	11.3	368
	West	85.4	73.6	5.6	2232	16.9	126
District	Kailahun	93.0	77.7	7.7	1177	10.8	91
	Kenema	94.2	81.3	9.2	1412	3.1	130
	Kono	91.6	76.5	4.3	870	(9.0)	38
	Bombali	92.5	76.8	6.6	1102	15.1	72
	Kambia	94.2	66.7	8.8	570	11.1	50
	Koinadugu	91.1	80.2	7.6	597	(19.1)	45
	Port Loko	95.8	75.7	6.3	1231	4.4	78
	Tonkolili	97.6	83.7	7.6	1031	5.0	79
	Bo	92.8	82.8	16.5	1368	13.7	226
	Bonthe	95.0	83.2	4.8	565	*	27
	Moyamba	96.7	83.8	10.9	569	12.1	62
	Pujehun	94.1	80.2	8.3	634	5.8	53
	Western Rural	92.2	78.2	5.4	390	*	21
	Western Urban	83.9	72.6	5.7	1842	19.1	105
Area	Urban	88.8	76.0	7.7	4658	12.4	360
	Rural	94.6	79.5	8.2	8701	9.5	717
Age	15-24	80.1	68.3	8.6	4813	12.4	416
	25-29	99.1	83.2	8.0	2571	8.2	205
	30-39	99.8	86.7	8.4	4084	8.9	343
	40-49	99.9	79.0	6.0	1892	12.0	113
Marital status	Ever married/in union	99.8	83.5	6.8	10063	9.5	689
	Never married/in union	70.6	62.3	11.8	3292	12.2	388
	Missing	*	*	*	4	*	0
Education	None	98.5	81.9	6.9	8108	7.4	561
	Primary	85.0	71.4	9.3	1765	10.8	164
	Secondary +	82.7	73.5	10.1	3486	15.1	352
Wealth index quintiles	Poorest	95.8	80.2	8.0	2549	10.6	204
	Second	94.9	79.0	7.8	2493	8.7	193
	Middle	94.6	78.3	6.4	2528	10.4	161
	Fourth	91.9	78.4	9.3	2738	8.0	255
	Richest	87.0	76.1	8.6	3051	14.0	264
Total		**92.6**	**78.3**	**8.1**	**13359**	**10.5**	**1077**

[1] MICS indicator 9.13
[2] MICS indicator 9.14

The MICS4 survey gathered information about sexual behaviour and condom use during sex among women who had sex with more than one partner during the twelve months prior to the survey. This information is presented below separately for (i) all women and (ii) women 15-24 years of age (Tables HA.9 and HA.10, respectively).

Eight percent of women 15-49 years of age—and nine percent of women aged 15-24—reported having sex with more than one partner during the year prior to the survey. Among these two groups of women, only ten and twelve percent, respectively, reported using a condom the last time they had sex. Levels of having sex with more than one partner are highest in the south and lowest in the West. For both age cohorts of respondents, this indicator is not correlated with level of household wealth but is modestly higher among more highly educated women.

Among women who had more than one sexual partner during the year prior to MICS4, levels of condom use during the last time they had sex were found to be highest in the West and lowest in the east among both age cohorts. Higher levels of condom use were positively associated with higher levels of women's education among both cohorts and with higher levels of household wealth (only for the cohort aged 15-24 years).

Table HA.10: Sex with multiple partners (Young women)
Percentage of women age 15-24 years who ever had sex, percentage who had sex in the last 12 months, percentage who have had sex with more than one partner in the last 12 months and among those who had sex with multiple partners, the percentage who used a condom at last sex, Sierra Leone, 2010

		Percentage of women who:			Number of women age 15-24 years	Percent of women age 15-24 years who had more than one sexual partner in the last 12 months, who also reported that a condom was used the last time they had sex [2]	Number of women age 15-24 years who had more than one sexual partner in the last 12 months
		Ever had sex	Had sex in the last 12 months	Had sex with more than one partner in last 12 months [1]			
Region	East	81.5	69.6	8.4	1193	7.4	100
	North	85.0	69.2	7.5	1600	9.2	121
	South	82.8	73.5	12.3	1028	14.3	127
	West	67.7	60.0	6.9	991	21.9	68
District	Kailahun	81.6	69.3	7.6	420	(16.5)	32
	Kenema	83.9	72.6	10.9	486	1.9	53
	Kono	77.3	65.0	5.2	287	*	15
	Bombali	81.6	70.1	5.8	436	*	25
	Kambia	84.9	61.0	12.9	212	*	27
	Koinadugu	71.2	63.2	7.5	180	*	13
	Port Loko	88.6	68.1	2.9	447	*	13
	Tonkolili	92.5	78.0	12.7	325	(2.7)	41
	Bo	80.2	71.9	15.7	482	15.0	76
	Bonthe	86.2	78.0	5.9	196	*	12
	Moyamba	89.1	77.6	13.9	165	*	23
	Pujehun	80.4	69.5	9.1	185	*	17
	Western Rural	75.6	68.4	6.3	124	*	8
	Western Urban	66.5	58.8	7.0	867	23.4	60
Area	Urban	74.0	64.6	8.4	1937	15.8	164
	Rural	84.2	70.8	8.8	2876	10.2	252
Age	15-19	65.9	57.0	8.3	2549	9.6	211
	20-24	96.1	81.1	9.1	2263	15.3	205
Marital status	Ever married/in union	99.6	82.2	6.9	2106	11.4	145
	Never married/in union	65.0	57.6	10.0	2705	13.0	271
	Missing	*	*	*	2	*	0
Education	None	94.1	77.6	7.1	1767	6.8	125
	Primary	70.1	58.6	9.4	866	12.3	81
	Secondary +	72.8	64.6	9.6	2180	15.7	210
Wealth index quintiles	Poorest	86.9	72.9	9.8	766	8.0	75
	Second	84.2	70.8	9.3	781	8.3	72
	Middle	84.6	69.4	6.3	841	11.9	53
	Fourth	80.2	68.7	8.6	1084	12.4	94
	Richest	71.0	63.3	9.0	1341	17.8	121
Total		**80.1**	**68.3**	**8.6**	**4813**	**12.4**	**416**

[*] Based on less than 25 unweighted cases and has been suppressed..

The information presented in Table HA.11 describes the percentage of women aged 15-24 years who have ever had sex, the percentage who had sex in the 12 months prior to the MICS4 survey, the

percentage who have had sex with a non-marital, non-cohabiting partner in the 12 months prior to the MICS4 survey and, among those who had sex with a non-marital, non-cohabiting partner, the percentage who used a condom the last time they had sex with such a partner. Eighty percent of women in this cohort report that they have ever had sex and 68 percent report that they have had sex in the past year. Thirty-seven percent of women aged 15-24 years report that they had sex with a non-marital, non-cohabiting partner in the previous year. Higher levels of this indicator are associated with urban residence and higher levels of women's education and wealth. The level of this indicator ranges from 34 percent in the north and east to 42 percent in the West.

Table HA.11: Sex with non-regular partners

Percentage of women age 15-24 years who ever had sex, percentage who had sex in the last 12 months, percentage who have had sex with a non-marital, non-cohabiting partner in the last 12 months and among those who had sex with a non-marital, non-cohabiting partner, the percentage who used a condom the last time they had sex with such a partner, Sierra Leone, 2010

		Percentage of women 15-24 years who:		Number of women age 15-24 years	Percentage who had sex with a non-marital, non-cohabiting partner in the last 12 months [1]	Number of women age 15-24 years who had sex in the last 12 months	Percentage of women age 15-24 years who had sex with a non-marital, non-cohabiting partner in the last 12 months, who also reported that a condom was used the last time they had sex with such a partner [2]	Number of women age 15-49 years who had more than one sexual partner in the last 12 months
		Ever had sex	Had sex in the last 12 months					
Region	East	81.5	69.6	1193	34.2	830	9.6	408
	North	85.0	69.2	1600	33.7	1107	8.7	539
	South	82.8	73.5	1028	40.5	756	12.8	417
	West	67.7	60.0	991	42.5	595	18.6	421
District	Kailahun	81.6	69.3	420	30.7	291	8.8	129
	Kenema	83.9	72.6	486	38.4	352	12.0	187
	Kono	77.3	65.0	287	32.3	187	6.0	93
	Bombali	81.6	70.1	436	42.0	305	9.0	183
	Kambia	84.9	61.0	212	32.5	129	14.8	69
	Koinadugu	71.2	63.2	180	24.2	114	16.6	44
	Port Loko	88.6	68.1	447	33.0	304	3.6	148
	Tonkolili	92.5	78.0	325	29.5	254	7.7	96
	Bo	80.2	71.9	482	44.5	346	15.2	214
	Bonthe	86.2	78.0	196	38.8	153	9.7	76
	Moyamba	89.1	77.6	165	40.6	128	14.0	67
	Pujehun	80.4	69.5	185	32.2	129	6.8	59
	Western Rural	75.6	68.4	124	43.2	85	10.7	54
	Western Urban	66.5	58.8	867	42.4	510	19.8	367
Area	Urban	74.0	64.6	1937	42.9	1252	15.5	831
	Rural	84.2	70.8	2876	33.2	2036	9.3	953
Age	15-19	65.9	57.0	2549	39.0	1452	11.5	994
	20-24	96.1	81.1	2263	34.9	1835	13.1	791
Marital status	Ever married/in union	99.6	82.2	2106	12.3	1731	10.2	259
	Never married/in union	65.0	57.6	2705	56.4	1557	12.5	1526
	Missing	*	*	2	*	0	.	0
Education	None	94.1	77.6	1767	22.7	1371	4.3	402
	Primary	70.1	58.6	866	30.6	507	9.4	265
	Secondary +	72.8	64.6	2180	51.3	1409	15.7	1117
Wealth index quintiles	Poorest	86.9	72.9	766	28.6	558	5.7	219
	Second	84.2	70.8	781	30.0	553	9.0	234
	Middle	84.6	69.4	841	33.5	584	8.7	282
	Fourth	80.2	68.7	1084	40.6	744	9.6	440
	Richest	71.0	63.3	1341	45.5	848	19.3	610
Total		**80.1**	**68.3**	**4813**	**37.1**	**3288**	**12.2**	**1785**

[1] MICS indicator 9.15

[2] MICS indicator 9.16; MDG indicator 6.2

[*] Based on less than 25 unweighted cases and has been suppressed.

Among women aged 15-24 years who had sex with a non-marital, non-cohabiting partner in the last 12 months, only twelve percent reported that a condom was used the last time they had sex with such a partner. Use of a condom in such a situation was lowest in the north (nine percent) and highest in the West (19 percent). This indicator is higher in urban (16 percent) than in rural (nine percent) areas and higher levels of this indicator are correlated with higher levels of women's education and household wealth.

Discussion: Sexual behavior related to HIV transmission

The main indicators in this section measure young women's practice of the different steps of the ABC (Abstinence, Be Faithful, Use a Condom) approach to HIV prevention. ABC messaging is the entry point for HIV messaging in Sierra Leone.

The indicator young women who have never had sex pertains to the "A", or to abstinence. Only eleven percent of never-married women between the ages of 20-24 report having never had sex.

The indicator had sex with more than one partner in the last 12 months pertains to the "B", or to being faithful to one partner. Only nine percent of women aged 15-24 reported having sex with more than one partner during the previous year.

The indicator had sex with more than one partner in the last 12 months and used a condom the last time they had sex pertains to the "C", or correct and consistent use of condoms in high-risk situations. The level of this indicator was very low (12 percent) and appears to have decreased since MICS3. The use of condoms during high-risk sex is related to gender empowerment. Much of the sex that young women in Sierra Leone participate in is transactional in nature. Male partners often feel that they don't get "value" if they have to wear a condom. Condom availability can also be a barrier to use of condoms during high-risk sex. Most condoms are provided free of charge at public health facilities and NGOs and through workplaces. Condoms are also socially marketed in Sierra Leone on a modest scale but availability is felt to be low in places where couples meet and have sex. Experts note that some shops in Sierra Leone are owned and run by members of conservative ethnic or religious groups that may not agree to market condoms.

The GoSL and its partners should review the policy on condom distribution and marketing with the goal of increasing the public's access to condoms and making the public more aware of the need to use condoms. Program efforts need to focus on establishing better condom outlets that are more youth-friendly and that target most-at-risk adolescents. Efforts should also be made to develop an enabling environment for condom use by targeting perceptions of condom use among peers and parents of young people in high-risk groups.

Orphanhood

Children who are orphaned or who live in vulnerable households—whether due to losing parents to AIDS, or because of other causes—may be at increased risk of neglect or exploitation if their parents are not there to assist them. Monitoring variation in different outcomes for orphans and vulnerable children and comparing them to their peers allows us to assess how well communities and governments are responding to their needs.

The frequency of children living with neither parent, mother only, and father only is presented in Table HA.12. Fifty-three percent of children aged 0-17 years in Sierra Leone live with both the parents while 22 percent do not live with a biological parent. The percentage of children not living with a biological parent is highest in the West (31 percent) and relatively constant in the remaining three regions (20-22 percent). This indicator is higher in urban locations (26 percent) as compared to rural locations (21 percent) and increases with increasing age of child from 11 percent among children aged 0-4 years to 32 percent among children aged 15-17 years. Higher levels of this indicator are associated with higher levels of household wealth.

Thirteen percent of children aged 0-17 years have one or both parents dead. Across provinces this indicator ranges from ten percent in the south to fifteen percent in the north. The level of this indicator increases with increasing age of the child but otherwise varies little across different strata of the background variables measured in MICS4.

Table HA.12: Children's living arrangements and orphanhood
Percent distribution of children age 0-17 years according to living arrangements, percentage of children age 0-17 years in households not living with a biological parent and percentage of children who have one or both parents dead, Sierra Leone, 2010

			Living with neither parent				Living with mother only		Living with father only						Number of children age 0-17 years
		Living with both parents	Only father alive	Only mother alive	Both are alive	Both are dead	Father alive	Father dead	Mother alive	Mother dead	Impossible to determine	Total	Not living with a biological parent [1]	One or both parents dead [2]	
Sex	Male	55.0	1.4	3.1	14.2	1.7	10.7	4.5	6.0	1.5	1.8	100.0	20.4	12.4	15983
	Female	51.7	1.6	3.9	17.2	1.7	11.2	4.6	5.1	1.3	1.7	100.0	24.4	13.1	15816
	Missing	*	*	*	*	*	*	*	*	*	*	*	*	*	7
Region	East	58.3	1.6	2.9	14.2	1.4	9.2	3.8	5.2	1.6	1.8	100.0	20.1	11.4	8136
	North	53.4	1.5	4.1	14.7	2.1	10.1	5.4	5.5	1.7	1.5	100.0	22.4	14.9	12154
	South	55.1	1.2	2.6	15.0	1.4	11.9	4.1	6.0	1.0	1.7	100.0	20.2	10.4	7503
	West	39.9	1.9	4.3	22.9	2.1	15.6	4.3	5.6	.8	2.6	100.0	31.2	13.5	4013
District	Kailahun	61.4	1.8	3.3	13.9	1.2	6.4	4.5	4.5	2.1	.8	100.0	20.2	13.1	2809
	Kenema	54.0	1.6	2.6	16.4	1.5	11.3	3.5	6.1	.9	1.9	100.0	22.1	10.3	3226
	Kono	60.7	1.2	2.7	11.2	1.5	9.6	3.4	4.7	1.9	2.9	100.0	16.7	10.9	2100
	Bombali	50.3	1.5	4.0	17.0	2.1	11.7	5.0	5.3	1.5	1.7	100.0	24.6	14.2	2714
	Kambia	52.7	1.4	2.9	15.0	2.4	10.4	5.2	7.4	.9	1.7	100.0	21.7	12.9	1695
	Koinadugu	64.6	1.6	2.5	6.2	2.8	7.0	5.8	4.3	3.7	1.5	100.0	13.1	16.6	1521
	Port Loko	48.5	1.8	5.4	17.6	1.8	11.0	6.8	5.1	.9	1.0	100.0	26.7	16.7	3377
	Tonkolili	56.4	1.3	4.1	13.4	1.7	9.2	4.2	5.7	2.2	1.7	100.0	20.5	13.6	2848
	Bo	52.8	1.3	2.5	15.7	1.5	13.7	3.3	6.1	.9	2.3	100.0	21.0	9.7	3109
	Bonthe	61.2	.9	2.1	13.4	1.2	9.3	3.3	5.4	1.2	1.9	100.0	17.6	8.7	1320
	Moyamba	55.1	1.3	3.0	17.6	.8	12.1	2.3	6.4	.5	.8	100.0	22.8	8.1	1506
	Pujehun	54.6	1.1	3.0	12.6	1.7	10.2	8.1	6.0	1.5	1.1	100.0	18.5	15.4	1567
	Western Rural	42.4	2.0	5.9	21.1	1.8	15.7	5.5	3.1	.9	1.7	100.0	30.8	16.0	892
	Western Urban	39.2	1.9	3.9	23.4	2.1	15.5	4.0	6.4	.8	2.9	100.0	31.3	12.7	3120
Area	Urban	46.4	1.8	3.8	18.7	2.0	13.2	5.3	5.6	1.1	2.1	100.0	26.3	14.0	9574
	Rural	56.3	1.4	3.3	14.4	1.6	10.0	4.2	5.6	1.5	1.6	100.0	20.7	12.2	22232
Age	0-4 years	65.8	.6	.8	8.8	.4	17.1	2.4	2.8	.5	.6	100.0	10.7	4.8	8811
	5-9 years	55.4	1.5	3.0	16.9	1.3	9.4	3.8	6.3	1.2	1.2	100.0	22.7	10.8	10552
	10-14 years	44.7	2.3	5.6	19.3	2.5	8.4	6.8	7.1	2.1	1.4	100.0	29.6	19.2	8605
	15-17 years	38.4	1.9	5.9	20.0	4.4	6.8	6.8	6.5	2.4	6.8	100.0	32.2	21.8	3839
Wealth index quintiles	Poorest	61.1	1.2	2.2	11.7	1.5	10.0	5.0	4.9	1.1	1.4	100.0	16.5	11.0	6273
	Second	57.9	1.1	3.1	13.4	1.5	9.5	4.9	5.1	1.8	1.6	100.0	19.2	12.5	6581
	Middle	56.7	1.4	3.7	13.9	1.7	9.1	4.9	5.2	1.6	1.8	100.0	20.6	13.5	6518
	Fourth	48.1	1.8	4.1	18.1	1.9	12.6	4.3	5.9	1.5	1.7	100.0	25.9	13.7	6636
	Richest	42.1	2.0	4.4	21.9	2.1	14.1	3.6	6.8	.8	2.3	100.0	30.4	13.0	5797
Total		**53.3**	**1.5**	**3.5**	**15.7**	**1.7**	**11.0**	**4.6**	**5.6**	**1.4**	**1.8**	**100.0**	**22.4**	**12.8**	**31806**

[1] MICS indicator 9.17
[2] MICS indicator 9.18
[*] Based on less than 25 unweighted cases and has been suppressed.

A key measure that has been developed to assess the status of orphaned children relative to their peers compares the school attendance of children aged 10-14 years for children who have lost both parents versus children whose parents are alive (and who live with at least one of their parents). If children whose parents have died do not have the same access to school as their peers, then society is not ensuring that these children's rights are being met.

In Sierra Leone, 2.5 percent of children aged 10-14 have lost both parents (Table HA.13). Seventy-four percent of these orphans are currently attending school. Among children aged 10-14 years who have not lost a parent and who live with at least one parent, 84 percent are attending school. These two statistics can be combined to calculate an orphans:non-orphans school attendance ratio of 0.88 (74/84). This finding suggests that orphans are somewhat disadvantaged in terms of school attendance compared to the non-orphaned children. Based on this ratio, girl orphans appear to be more disadvantaged than boy orphans (ratio = 0.81 vs. 0.95) and orphans in urban locations appear to be more disadvantaged than orphans in rural locations (ratio = 0.82 vs. 0.90).

Table HA.13: School attendance of orphans and non-orphans
School attendance of children age 10-14 years by orphanhood, Sierra Leone, 2010

		Percentage of children whose mother and father have died (orphans)	Percentage of children of whom both parents are alive and child is living with at least one parent (non-orphans)	Number of children age 10-14 years	Percentage of children who are orphans and are attending school [1]	Total number of orphan children age 10-14 years	Percentage of children who are non-orphans and are attending school [2]	Total number of non-orphan children age 10-14 years	Orphans to non-orphans school attendance ratio
Sex	Male	2.4	62.8	3952	79.9	95	84.1	2484	.95
	Female	2.5	57.9	4650	68.2	117	83.8	2693	.81
	Missing	*	*	2	.	0	*	2	.
Area	Urban	2.5	55.7	2727	73.6	69	89.3	1519	.82
	Rural	2.4	62.3	5877	73.4	143	81.7	3660	.90
Total		2.5	60.2	8605	73.5	212	83.9	5179	.88

[1] MICS indicator 9.19; MDG indicator 6.4
[2] MICS indicator 9.20; MDG indicator 6.4
[*] Based on less than 25 unweighted cases and has been suppressed.

Appendix A. Sample Design

The major features of the sample design are described in this appendix. Sample design features include target sample size, sample allocation, sampling frame and listing, choice of domains, sampling stages, stratification, and the calculation of sample weights.

The primary objective of the sample design for the Sierra Leone Multiple Indicator Cluster Survey was to produce statistically reliable estimates of most indicators at the national level, for urban and rural areas, for the four regions of the country (Northern Province, Eastern Province, Southern Province, and the West), and finally, for the fourteen districts of Sierra Leone. Urban and rural areas in each of the fourteen districts were defined as the sampling strata.

A multi-stage, stratified cluster sampling approach was used for the selection of the survey sample.

Sample Size and Sample Allocation

The target sample size for the Sierra Leone MICS was calculated as 12000 households. For the calculation of the sample size, the key indicator used was the proportion of children aged 12-23 months who are vaccinated with DPT3 by one year of age. The following formula was used to estimate the required sample size for this indicator:

$$n = \frac{[4(r)(1-r)(f)(1.1)]}{[(0.066r)^2(p)(\bar{n})]}$$

where

- *n* is the required sample size, expressed as number of households
- *4* is a factor to achieve 95 percent level of confidence
- *r* is the predicted or anticipated value of the indicator, expressed in the form of a proportion
- *1.1* is the factor necessary to raise the sample size by 10 per cent for the expected non-response
- *f* is the shortened symbol for *deff* (design effect)
- *0.066r* is the margin of error to be tolerated at the 95 percent level of confidence, defined as 6.6 per cent of *r* (relative margin of error of *r*)
- *p* is the proportion of the total population upon which the indicator, *r*, is based
- $\bar{n}$ is the average number of persons per household in Sierra Leone.

For the calculation, *r* (DPT3 coverage rate) was estimated to be 45 percent. The value of *deff* (design effect) was taken as 1.75 based on estimates from previous surveys, *p* (percentage of children aged 12-23 months in the general population) was taken as 3 percent, $\bar{n}$ (average household size) was taken as 6.0 households, and the response rate is assumed to be 90%.

The resulting number of households to be selected that was calculated using the formula above was 11990, which was rounded up to 12000 households. It was decided that the cluster size would be 25 households, based on a number of considerations that include the available budget and the estimated time that was required for a team to completely survey one cluster. Dividing the total number of households by the number of households per cluster, it was calculated that a total of 480 clusters was required.

The MICS4 Steering Committee made a decision to sample a minimum of 30 enumeration areas (EAs) in each district in order to generate district-level estimates with a maximum precision level of ± 12 percent. Using a probability proportion to size (*pps*) method to allocate clusters to districts would have resulted in several districts with less than 30 EAs. The decision was thus taken to create a weighted sample (i.e., not *pps*) that contained at least 30 clusters per district. Other districts were under-sampled to compensate for over-sampling the smaller districts. The number of EAs for each district that was included in the sample is listed in the table below. In each district, the EAs (primary sampling units) were distributed to urban and rural domains, proportional to the size of urban and rural populations in that district. The table below shows the allocation of clusters to the sampling strata.

Table SD.1: Allocation of Sample Clusters (Primary Sampling Units) to Sampling Strata as Realized in MICS4 (non-PPS)

District	Population (2004 Estimates)			Number of Clusters Actually Allocated in MICS4		
	Urban	Rural	Total	Urban	Rural	Total
Eastern Province						
Kailahun	52155	305020	357175	5	27	32
Kenema	183761	306668	490429	15	28	43
Kono	110761	223505	334266	10	20	30
Northern Province						
Bombali	103208	303184	406392	8	22	30
Kambia	46820	223556	270376	5	25	30
Koinadugu	22486	243197	265683	2	28	30
Port Loko	72090	380929	453019	5	27	32
Tonkolili	57657	288799	346456	5	25	30
Southern Province						
Bo	186227	262734	448961	14	23	37
Bonthe	23554	116051	139605	5	25	30
Moyamba	22148	236358	258506	3	27	30
Pujehun	22444	202929	225373	3	27	30
West						
Western Rural	99746	70061	169807	18	12	30
Western Urban	764484	0	764484	66	0	66
Total	**1767541**	**3162991**	**4930532**	**164**	**316**	**480**

Table SD.1.1 shows how sample clusters would have been allocated if the allocation had been performed for a self-weighting sample—that is, if clusters had been allocated across all districts, and within each district (urban/rural), based on the population in each stratum, without regard for a requirement to sample 30 clusters in each district.

Table SD.1.1: Theoretical Allocation of Sample Clusters (Primary Sampling Units) to Sampling Strata (According to PPS)

District	Population (2004 Estimates)			Number of Clusters Allocated Under PPS		
	Urban	Rural	Total	Urban	Rural	Total
Eastern Province						
Kailahun	52155	305020	357175	5	30	35
Kenema	183761	306668	490429	18	30	48
Kono	110761	223505	334266	11	22	33
Northern Province						
Bombali	103208	303184	406392	10	29	39
Kambia	46820	223556	270376	5	22	27
Koinadugu	22486	243197	265683	2	24	26
Port Loko	72090	380929	453019	7	37	44
Tonkolili	57657	288799	346456	6	28	34
Southern Province						
Bo	186227	262734	448961	18	25	43
Bonthe	23554	116051	139605	2	11	13
Moyamba	22148	236358	258506	2	23	25
Pujehun	22444	202929	225373	2	20	22
West						
Western Rural	99746	70061	169807	10	7	17
Western Urban	764484	0	764484	74	0	74
Total	**1767541**	**3162991**	**4930532**	**172**	**308**	**480**

Sampling Frame and Selection of Clusters

The 2004 census frame was used for the selection of clusters. Census enumeration areas were defined as primary sampling units (PSUs), and were selected from each of the sampling strata by using systematic pps (probability proportional to size) sampling procedures, based on the estimated sizes of the enumeration areas from the 2004 Population Census. The first stage of sampling was thus completed by selecting the required number of enumeration areas from each of the 14 districts, separately by urban and rural strata. In total, 27 sampling strata were constructed (Western Urban having only one stratum).

Samples were selected independently within each stratum. An implicit stratification and proportional allocation was achieved at each of the lower administrative levels within the districts by listing the EAs, within each sampling stratum, according to lower administrative units.

Listing Activities

Since the sampling frame (the 2004 Population Census) was not up-to-date, a listing verification exercise was conducted prior to the selection of households. During this exercise, the existing lists of households from EAs that were selected for MICS4 were updated by listing teams from SSL that visited each enumeration area, checked existing structures and households against lists from the 2004 census, and prepared a new listing of occupied households to be used in the MICS4 sampling process. This listing verification exercise was conducted in May 2010 by 14 teams; each was comprised of three listers/mappers, one driver and a supervisor.

Segmentation of large EAs

A certain number of the selected EAs were very large in terms of number of households. A complete listing of these EAs would have resulted in a sizable cost. Those selected EAs that had more than 200 households were therefore segmented, and one segment was then chosen randomly (using probability proportional to segment size methods) and listed (household listing was conducted only in the selected segment)**.** Thus, a MICS4 cluster was either an EA or a segment of an EA. In total, 15 EAs were segmented in the districts of Kono (7 EAs), Kenema (2 EAs) and West Rural (6 EAs).

Selection of Households

Lists of households were prepared by the listing teams in the field for each enumeration area. The households were then sequentially numbered from 1 to n (the total number of households in each enumeration area) at the SSL office, where the selection of 25 households in each enumeration area was carried out using systematic random selection procedures.

Calculation of Sample Weights

The Sierra Leone MICS4 survey sample is not self-weighting. Essentially, by allocating a minimum of 750 households to each of the districts, different sampling fractions were used in each district since the size of the districts varied. For this reason, sample weights were calculated and these were used in the subsequent analyses of the survey data.

Since the estimated number of households in each enumeration area (PSU) in the sampling frame used for the first stage selection and the updated number of households in the enumeration area from the listing were different, individual sampling fractions for households in each sample enumeration area (cluster) were calculated. The sampling fractions for households in each cluster therefore included the first stage probability of selection of the enumeration area in that particular sampling stratum and the second stage probability of selection of a household in the sample enumeration area cluster.

Sampling probabilities have been calculated separately for each sampling stage and for each cluster. The following notations were used:

P_{1hi}: first-stage sampling probability of the i^{th} cluster in stratum h
P_{2hi}: second -stage sampling probability within the i^{th} cluster (household selection)

Let a_h be the number of clusters selected in stratum h, M_{hi} the number of households according to the sampling frame in the i^{th} cluster, and $\sum M_{hi}$ the total number of households in the stratum. The probability of selecting the i^{th} cluster in the MICS 4 sample is calculated as follows:

$$\frac{a_h \, M_{hi}}{\sum M_{hi}}$$

Let b_{hi} be the proportion of households in the selected segment compared to the total number of households in the EAi in stratum h if the EA is segmented, otherwise $b_{hi} = 1$. Then the probability of selecting cluster i in the sample is:

$$P_{1hi} = \frac{a_h \, M_{hi}}{\sum M_{hi}} \times b_{hi}$$

Let L_{hi} be the number of households listed in the household listing operation in cluster *i* in stratum *h*, let g_{hi} be the number of households selected in the cluster. The second stage's selection probability for each household in the cluster is calculated as follows:

$$P_{2hi} = \frac{g_{hi}}{L_{hi}}$$

The overall selection probability of each household in cluster *i* of stratum *h* is therefore the production of the two stages selection probabilities:

$$P_{hi} = P_{1hi} \times P_{2hi}$$

The sampling weight for each household in cluster *i* of stratum *h* is the inverse of its overall selection probability:

$$W_{hi} = 1/P_{hi}$$

A second component in the calculation of sample weights takes into account the level of non-response for the household and individual interviews. The adjustment for household non-response is equal to the inverse value of:

RR_h = Number of interviewed households in stratum h/ Number of occupied households listed in stratum h

After the completion of fieldwork, response rates were calculated for each sampling stratum. These were used to adjust the sample weights calculated for each cluster. Response rates in the Sierra Leone Multiple Indicator Cluster Survey are shown in Table HH.1 in this report. Similarly, the adjustment for non-response at the individual level (women and under-5 children) for each stratum is equal to the inverse value of:

RR_h = Completed women's (or under-5's) questionnaires in stratum h / Eligible women (or under-5s) in stratum h

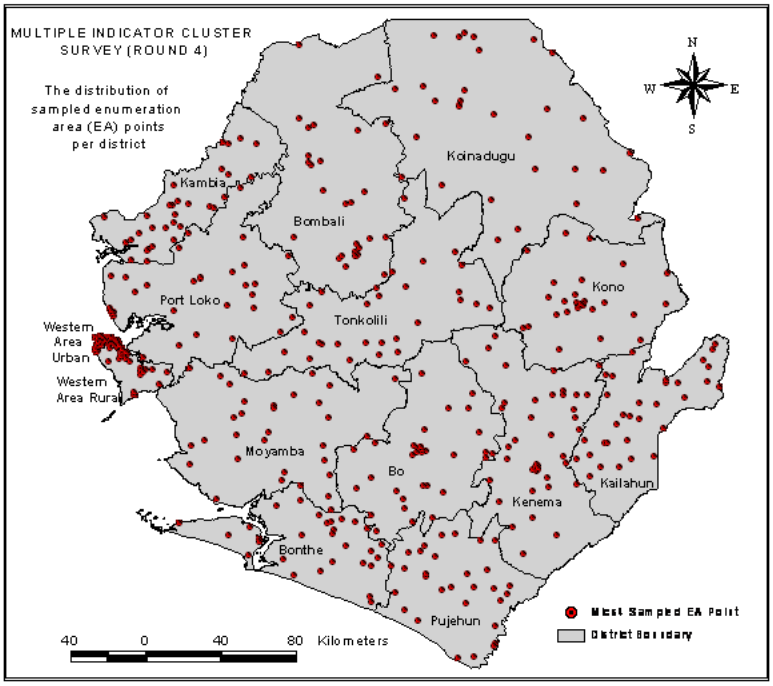
The non-response adjustment factors for women's and under-5's questionnaires are applied to the adjusted household weights. Numbers of eligible women and under-5 children were obtained from the roster of household members in the Household Questionnaire for households where interviews were completed.

The design weights for the households were calculated by multiplying the above factors for each enumeration area. These weights were then standardized (or normalized), one purpose of which is to make the weighted sum of the interviewed sample units equal the total sample size at the national level. Normalization is performed by dividing the aforementioned design weights by the average design weight at the national level. The average design weight is calculated as the sum of the design weights divided by the unweighted total. A similar standardization procedure was followed in obtaining standardized weights for the women's and under-5's questionnaires. Adjusted (normalized) weights for households varied between 0.0494 and 4.4452 in the 480 sample enumeration areas (clusters).

Sample weight calculation was performed on the basis of enumeration areas. Sample weights were appended to all data sets and analyses were performed by weighting each household, woman or under-5 with these sample weights.

LOCATIONS OF CLUSTERS

Below is the map of Sierra Leone showing the locations of the sampled enumeration areas (clusters) in the Sierra Leone MICS4 survey.



Appendix B. List of Personnel Involved in the Survey

List of Enumerators

Name	Name
1. Cecilia Musa	49. Mohamed S. Kamara
2. Hawa Dainkeh	50. Emmanuel Turay
3. Denis Macavorey	51. Zainab N. Rose
4. Attu Leslie Attipoe	52. Henrietta Koroma
5. Salome Sanja	53. Moinena Massaquoi
6. Kumba Agnes Musa	54. Agnes Y. Kamara
7. Malike Loleh	55. David J. Walters
8. Edson Palmer	56. Catherine K. Kallon
9. Ruth K. Thomas	57. Minkailu Jalloh
10. Anna Perry	58. Saidu B. Samura
11. Franklyn S. Kanneh	59. Halimatu Massaquoi
12. Alfred Augustine Sheriff	60. Monica A. Lamin
13. Ibrahim Sorie Koroma	61. Magdalene N. Saffa
14. James M. D. Thomas Mafinda	62. Rebecca Bockarie
15. Wuyatta M. Koroma	63. Idrissa Bangura
16. Aruna M. Kanu	64. Issa Mansaray
17. Muctarr Yomba Komba	65. Joe Julius Minah
18. John F. Morsay	66. Foday A. Kamara
19. Phengo Gborie	67. Abu-Bakarr Mansaray
20. Sarah Elizabeth Bangura	68. Edith C. George
21. Mohamed Bah	69. Ibrahim Tholley
22. Michael Johnson	70. Saidu Bah
23. Abdul-Aziz Wurie	71. Abu-Bakarr Turay
24. Marie Kargbo	72. Agnes Turay
25. Mohamed S. Baul	73. Patricia S. J. Abu-Dingie
26. Mohamed Melvin Conteh	74. Rose Johnny
27. Mabinty Kamara	75. Ibrahim Munu
28. Hawanatu F. Kamara	76. Hudson B. Fornah
29. Patricia Serry-Kamal	77. Mary Bintu Bao
30.Bernadette B. Sowa	78. Aminata M. Thulah
31. Abu-Bakarr Kalokoh	79. Thomas Sesay
32. Paul S. Mansaray	80. Yayah L. Magbay
33. Aruna Kamara	81. Sullay Katta
34. Ibrahim Bah	82. Momoh Kamara
35. Ishmail Bangura	83. Eugenia King
36. Fatmata Kargbo	84. Mary B. Navo
37. Mohamed Victor Kamara	85. Dorcas Hassan-King
38. S. T. Koroma	86. Nigel B. E. Davies
39. Memuna Kamara	87. James Gendemeh
40. Christian Edwards	88. Princess Abibatu Amara
41. Steven M. Konteh	89. Mariama Conteh
42. Paul Bangura	90. Mariama Koroma
43. Aminata Bomporoh Kamara	91. Moses P. Kamara

List of Enumerators

Name	Name
44. Abibatu R. Bangura	92. Desmond Joseph Sevalie
45. Fatmata Yillah	93. Wango Lahai
46. Christiana Elliot	94. Hannah Oscar
47. Brima Conteh	95. Solomon Bannister
48. Pabai Conteh	96. Elizabeth Sheila Bangura

List of Drivers

Name	Name
1. Alieu Kargbo	13. Margai Mansaray
2. Abdulai Kellah	14. Abu-Bakarr Koroma
3. Morlai Sesay	15. Senneh Koroma
4. Mohamed Kamara	16. Nabieu Turay
5. Rashid Fofanah	17. Abu-Bakarr Kamara
6. Alimamay Sankoh	18. Mohamed Kargbo
7. Ishmael Kamara	19. Francis Alpha
8. Papaney Kargbo	20. Abu Conteh
9. Santigie Koroma	21. Kai moiwo
10. Abdulai Kuyateh	22. Issa Sesay
11. Ibrahim Kamara	23. Abdul Kailie
12. Sallieu Barrie	24. Mohamed Kamara

List of Field Supervisors

Name	Institution	Designation
1. Emmanuel Musa	Statistics Sierra Leone	District Statistician
2. Saidu Jaay Kanu	Statistics Sierra Leone	Statistician
3. Sahr K. Davowa	Statistics Sierra Leone	Statistician
4. Momodu J. Bundu	Statistics Sierra Leone	Statistician
5. Harriet Farma	Statistics Sierra Leone	District Statistician
6. Betty Bull	Contract Personnel	Supervisor
7. Umaru Tarawallie	Statistics Sierra Leone	District Statistician
8. Alimamy Yalancy	Statistics Sierra Leone	District Statistician
9. Andrew Kamara	Statistics Sierra Leone	Statistician
10. Silleh Bah	Statistics Sierra Leone	Statistician
11. Mohamed Koblo Kamara	Statistics Sierra Leone	District Statistician
12. Peter Bangura	Statistics Sierra Leone	Statistician
13. Caleb Thomas	Statistics Sierra Leone	District Statistician
14. Isata Allieu-Keikura	Statistics Sierra Leone	Statistician
15. Paul Sengeh Jr.	Contract Personnel	Supervisor
16. Janie Taylor	Contract Personnel	Supervisor
17. Bala Musa Kandeh	Statistics Sierra Leone	District Statistician
18. Mohamed Shaid Conteh	Contract Personnel	Supervisor
19. Maada Mambu Bockarie	Statistics Sierra Leone	Statistician
20. Valentina B. C. Nicol	Contract Personnel	Supervisor
21. Alusine Kamara	Statistics Sierra Leone	Statistician
22. Yeabu Tholley	Statistics Sierra Leone	Statistician
23. Francis Tommy	Statistics Sierra Leone	Statistician
24. Alimatu Vandi	Statistics Sierra Leone	Statistician

Data Entry Personnel

Name	Designation	Name	Designation
1. David Gbaya-Kokoya	Supervisor	20. Tiangay Koroma	Operator
2. Sylvester Kpulun	Supervisor	21. Josephus B. Coker	Operator
3. Adama Bangura	Editor	22. Fanta Bangura	Operator
4. Sia Sartie	Editor	23. Fatmata Seisi	Operator
5. Cecil Sillah	Editor	24. Elizabeth Massaquoi	Operator
6. Wuya Konneh	Editor	25. Rola Sol-Jones	Operator
7. Mohamed L. Mansaray	Editor	26. Finda Sandy	Operator
8. Bridget Kanu	Operator	27. Gibril Sesay	Operator
9. Comfort Lewis	Operator	28. Christian Taylor	Operator
10. Hawa Sesay	Operator	29. Alieu Mansaray	Operator
11. Isatu Kargbo	Operator	30. Issa Kamara	Operator
12. Maddy Kamara	Operator	31. Georgiana Tucker	Operator
13. Patience Sawyerr	Operator	32. Jonathan Johnson	Operator
14. Memunatu Mansaray	Operator	33. Muriel Mansaray	Operator
15. Isatu Awalu	Operator	34. Angella F. Mansaray	Operator
16. Olive Odia	Operator	35. Umu Lamboi	Operator
17. Bintu Ola-Williams	Operator	36. Hawa Kaikai	Operator
18. Tamba Bull	Operator	37. Madeline Allie	Operator
19. Miatta Bockarie	Operator		

List of Technical Staff

Name	Institution	Designation
Mohamed King Koroma	Statistics Sierra Leone	Project Director
Sonnia-Magba Bu-Buakei Jabbi	Statistics Sierra Leone	Coordinator
Sahr Entua Yambasu	Statistics Sierra Leone	Sampling Expert
Sylvester K. Kpulun	Statistics Sierra Leone	Programmer
Paul Sengeh	UNICEF	M&E Specialist (Technical Coordinator)
Glenis Taylor	UNICEF	M&E Specialist
Robert McPherson	Independent	Consultant

Members of Steering Committee

Institution	Number
1. Statistics Sierra Leone	3
2. Ministry of Finance and Economic Development	1
3. Ministry of Health and Sanitation	1
4. Ministry of Education, Science and Technology	1
5. Ministry of Local Government	1
6. Ministry of Social Welfare, Gender and Children's Affairs	1
7. Ministry of Energy and Power (Water Division)	1
8. UNICEF	2
9. UNFPA	1
10. WHO	1
11. FAO	1
12. WFP	1
13. UNHCR	1
14. World Bank	1
15. African Development Bank	1

Appendix C. Estimates of Sampling Errors

The sample of respondents selected in the Sierra Leone Multiple Indicator Cluster Survey is only one of the samples that could have been selected from the same population, using the same design and size. Each of these samples would yield results that differ somewhat from the results of the actual sample selected. Sampling errors are a measure of the variability between the estimates from all possible samples. The extent of variability is not known exactly, but can be estimated statistically from the survey data.

The following sampling error measures are presented in this appendix for each of the selected indicators:

- Standard error (*se*): Sampling errors are usually measured in terms of standard errors for particular indicators (means, proportions, etc.). Standard error is the square root of the variance of the estimate. The Taylor linearization method is used for the estimation of standard errors.
- Coefficient of variation (*se*/*r*) is the ratio of the standard error to the value of the indicator, and is a measure of the relative sampling error.
- Design effect (*deff*) is the ratio of the actual variance of an indicator, under the sampling method used in the survey, to the variance calculated under the assumption of simple random sampling. The square root of the design effect (*deft*) is used to show the efficiency of the sample design in relation to the precision. A *deft* value of 1.0 indicates that the sample design is as efficient as a simple random sample, while a *deft* value above 1.0 indicates the increase in the standard error due to the use of a more complex sample design.
- Confidence limits are calculated to show the interval within which the true value for the population can be reasonably assumed to fall, with a specified level of confidence. For any given statistic calculated from the survey, the value of that statistic will fall within a range of plus or minus two times the standard error ($r + 2.se$ or $r - 2.se$) of the statistic in 95 percent of all possible samples of identical size and design.

For the calculation of sampling errors from MICS data, the SPSS Version 18 Complex Samples module has been used. The results are shown in the tables that follow. In addition to the sampling error measures described above, the tables also include weighted and unweighted counts of denominators for each indicator.

Sampling errors are calculated for indicators of primary interest at the national, regional and location (i.e., urban/rural) levels. Two of the selected indicators are based on households, eight are based on household members, 23 are based on women, and 20 are based on children under 5. All indicators presented here are in the form of proportions. Table SE.1 shows the list of indicators for which sampling errors are calculated, including the base population (denominator) for each indicator. Tables SE.2 to SE.8 show the calculated sampling errors for selected domains.

Table SE.1: Indicators selected for sampling error calculations

List of indicators selected for sampling error calculations, and base populations (denominators) for each indicator, Sierra Leone, 2010

MICS4 Indicator		Base Population
	HOUSEHOLDS	
2.16	Iodized salt consumption	All households
3.12	Household availability of insecticide-treated nets (ITNs)	All households
	HOUSEHOLD MEMBERS	
4.1	Use of improved drinking water sources	All household members
4.3	Use of improved sanitation facilities	All household members
7.5	Secondary school net attendance ratio (adjusted)	Children of secondary school age
8.2	Child labour	Children age 5-14 years
8.5	Violent discipline	Children age 2-14 years
9.18	Prevalence of children with at least one parent dead	Children age 0-17 years
9.19	School attendance of orphans	Children age 10-14 years who have lost both parents
9.20	School attendance of non-orphans	Children age 10-14 years, whose parents are alive, and who are living with at least one parent
	WOMEN	
-	Pregnant women	Women age 15-49 years
3.19	Pregnant women sleeping under insecticide-treated nets (ITNs)	Pregnant women
3.20	Intermittent preventive treatment for malaria	Women age 15-49 years with a live birth in the 2 years preceding the survey
5.2	Early childbearing	Women age 20-24 years
5.3	Contraceptive prevalence	Women age 15-49 years who are currently married or in union
5.4	Unmet need	Women age 15-49 years who are currently married or in union
5.5a	Antenatal care coverage - at least once by skilled personnel	Women age 15-49 years with a live birth in the 2 years preceding the survey
5.5b	Antenatal care coverage – at least four times by any provider	Women age 15-49 years with a live birth in the 2 years preceding the survey
5.7	Skilled attendant at delivery	Women age 15-49 years with a live birth in the 2 years preceding the survey
5.8	Institutional deliveries	Women age 15-49 years with a live birth in the 2 years preceding the survey
5.9	Caesarean section	
7.1	Literacy rate among young women	Women age 15-24 years
8.7	Marriage before age 18	Women age 20-49 years
8.9	Polygyny	Women age 15-49 years who are currently married or in union
8.12	Prevalence of female genital mutilation/cutting (FGM/C) among women	Women age 15-49 years
8.13	Prevalence of female genital mutilation/cutting (FGM/C) among girls	Daughters age 0-14 years
9.2	Comprehensive knowledge about HIV prevention among young people	Women age 15-24 years
9.3	Knowledge of mother- to-child transmission of HIV	Women age 15-49 years
9.4	Accepting attitudes towards people living with HIV	Women age 15-49 years
9.6	Women who have been tested for HIV and know the results	Women age 15-49 years
9.7	Sexually active young women who have been tested for HIV and know the results	Women age 15-24 years who have had sex in the 12 months preceding the survey
9.11	Sex before age 15 among young women	Women age 15-24 years
9.16	Condom use with non-regular partners	Women age 15-24 years that had a non-marital, non-cohabiting partner in the 12 months preceding the survey

MICS4 Indicator		Base Population
	UNDER-5s	
2.1a	Underweight prevalence	Children under age 5
2.2a	Stunting prevalence	Children under age 5
2.3a	Wasting prevalence	Children under age 5
2.6	Exclusive breastfeeding under 6 months	Total number of infants under 6 months of age
2.14	Age-appropriate breastfeeding	Children age 0-23 months
-	Tuberculosis immunization coverage	Children age 12-23 months
-	Received polio immunization	Children age 12-23 months
-	Received DPT immunization	Children age 12-23 months
-	Received measles immunization	Children age 12-23 months
-	Received Hepatitis B immunization	Children age 12-23 months
-	Diarrhoea in the previous 2 weeks	Children under age 5
-	Illness with a cough in the previous 2 weeks	Children under age 5
-	Fever in last two weeks	Children under age 5
3.8	Oral rehydration therapy with continued feeding	Children under age 5 with diarrhoea in the previous 2 weeks
3.10	Antibiotic treatment of suspected pneumonia	Children under age 5 with suspected pneumonia in the previous 2 weeks
3.15	Children under age 5 sleeping under insecticide-treated nets (ITNs)	Children under age 5
3.18	Anti-malarial treatment of children under age 5	Children under age 5 with fever in the previous 2 weeks
6.1	Support for learning	Children age 36-59 months
6.7	Attendance to early childhood education	Children age 36-59 months
8.1	Birth registration	Children under age 5

Table SE.2: Sampling errors: Total

Standard errors, coefficients of variation, design effects (deff), square root of design effects (deft) and confidence intervals for selected indicators, Sierra Leone, 2010

	MICS Indicator	Value (*r*)	Standard error (*se*)	Coefficient of variation (*se*/*r*)	Design effect (*deff*)	Square root of design effect (*deft*)	Weighted count	Unweighted count	Confidence limits	
									r - 2*se*	*r* + 2*se*
HOUSEHOLDS										
Iodized salt consumption	2.16	.6263	.01106	.018	5.852	2.419	11185	11192	0.604	0.648
Household availability of insecticide-treated nets (ITNs)	3.12	.3589	.00772	.022	2.951	1.718	11394	11394	0.343	0.374
HOUSEHOLD MEMBERS										
Use of improved drinking water sources	4.1	.5706	.01882	.033	16.461	4.057	66707	11394	0.533	0.608
Use of improved sanitation facilities	4.3	.4043	.01400	.035	9.270	3.045	66707	11394	0.376	0.432
Secondary school net attendance ratio (adjusted)	7.5	.3658	.00958	.026	3.560	1.887	8935	8999	0.347	0.385
Child labour	8.2	.4978	.00676	.014	3.475	1.864	19156	19004	0.484	0.511
Prevalence of children with at least one parent dead	9.18	.1275	.00373	.029	3.965	1.991	31806	31674	0.120	0.135
School attendance of orphans	9.19	.7347	.01908	.026	.411	.641	212	221	0.697	0.773
School attendance of non-orphans	9.2	.8395	.01072	.013	4.462	2.112	5179	5237	0.818	0.861
Violent discipline	8.5	.8174	.00685	.008	2.914	1.707	24607	9270	0.804	0.831
WOMEN										
Pregnant women	-	.1071	.00438	.041	2.679	1.637	13359	13359	0.098	0.116
Pregnant women sleeping under insecticide-treated nets (ITNs)	3.19	.2756	.01618	.059	1.720	1.312	1380	1312	0.243	0.308
Intermittent preventive treatment for malaria	3.2	.4144	.01164	.028	1.761	1.327	3220	3156	0.391	0.438
Early childbearing	5.2	.3808	.01319	.035	1.650	1.284	2263	2237	0.354	0.407
Contraceptive prevalence	5.3	.1102	.00499	.045	2.261	1.504	9012	8912	0.100	0.120
Unmet need	5.4	.2738	.00630	.023	1.780	1.334	9012	8912	0.261	0.286
Antenatal care coverage - at least once by skilled personnel	5.5a	.9300	.00597	.006	1.872	1.368	3462	3415	0.918	0.942
Antenatal care coverage – at least four times by any provider	5.5b	.7466	.00997	.013	1.793	1.339	3462	3415	0.727	0.767
Skilled attendant at delivery	5.7	.6249	.01629	.026	3.866	1.966	3462	3415	0.592	0.658
Institutional deliveries	5.8	.5007	.01812	.036	4.483	2.117	3462	3415	0.464	0.537
Caesarean section	5.9	.0449	.00531	.118	2.244	1.498	3462	3415	0.034	0.056
Literacy rate among young women	7.1	.4832	.01282	.027	3.192	1.787	4813	4848	0.458	0.509
Marriage before age 18	8.7	.5033	.00725	.014	2.258	1.503	10810	10748	0.489	0.518
Polygyny	8.9	.3345	.00858	.026	2.949	1.717	9012	8912	0.317	0.352
Prevalence of female genital mutilation/cutting (FGM/C) among women	8.12	.8830	.00492	.006	3.131	1.769	13359	13359	0.873	0.893
Comprehensive knowledge about HIV prevention among young people	9.2	.2312	.00961	.042	2.519	1.587	4813	4848	0.212	0.250
Knowledge of mother- to-child transmission of HIV	9.3	.4623	.00983	.021	5.188	2.278	13359	13359	0.443	0.482
Accepting attitudes towards people living with HIV	9.4	.0568	.00309	.054	1.925	1.387	10696	10772	0.051	0.063
Women who have been tested for HIV and know the results	9.6	.0763	.00371	.049	2.604	1.614	13359	13359	0.069	0.084
Sexually active young women who have been tested for HIV and know the results	9.7	.0918	.00770	.084	2.335	1.528	3288	3280	0.076	0.107
Sex before age 15 among young women	9.11	.2450	.00961	.039	2.422	1.556	4813	4848	0.226	0.264
Condom use with non-regular partners	9.16	.1220	.01023	.084	1.745	1.321	1785	1787	0.102	0.142
Prevalence of female genital mutilation/cutting (FGM/C) among girls	8.13	10.1631	.44945	.044	3.247	1.802	14703	14676	9.264	1.000
UNDER-5s										
Underweight prevalence	2.1a	.2167	.00708	.033	2.393	1.547	8100	8104	0.203	0.231
Stunting prevalence	2.2a	.4441	.00871	.020	2.379	1.543	7730	7736	0.427	0.462
Wasting prevalence	2.3a	.0848	.00441	.052	1.992	1.411	7952	7944	0.076	0.094
Exclusive breastfeeding under 6 months	2.6	.3154	.01683	.053	1.089	1.044	848	831	0.282	0.349
Age-appropriate breastfeeding	2.14	.3954	.00992	.025	1.347	1.160	3325	3273	0.376	0.415
Tuberculosis immunization coverage	-	.9550	.00570	.006	1.096	1.047	1500	1453	0.944	0.966
Received polio immunization	-	.6290	.01701	.027	1.801	1.342	1501	1454	0.595	0.663
Received DPT immunization	-	.7184	.01644	.023	1.869	1.367	1453	1400	0.686	0.751
Received measles immunization	-	.8182	.01413	.017	1.934	1.391	1489	1442	0.790	0.846
Received Hepatitis B immunization	-	.6914	.01676	.024	1.810	1.345	1423	1376	0.658	0.725
Diarrhoea in the previous 2 weeks	-	.1548	.00611	.039	2.455	1.567	8598	8598	0.143	0.167
Illness with a cough in the previous 2 weeks	-	.0875	.00429	.049	1.985	1.409	8598	8598	0.079	0.096
Fever in last two weeks	-	.3688	.00852	.023	2.684	1.638	8598	8598	0.352	0.386
Oral rehydration therapy with continued feeding	3.8	.5478	.01414	.026	1.123	1.060	1331	1392	0.519	0.576
Antibiotic treatment of suspected pneumonia	3.1	.5748	.02193	.038	1.378	1.174	752	701	0.531	0.619
Children under age 5 sleeping under insecticide-treated nets (ITNs)	3.15	.3033	.00884	.029	3.137	1.771	8473	8492	0.286	0.321
Anti-malarial treatment of children under age 5	3.18	.5034	.01098	.022	1.525	1.235	3171	3160	0.481	0.525
Support for learning	6.1	.5422	.01177	.022	2.052	1.432	3636	3679	0.519	0.566
Attendance to early childhood education	6.7	.1392	.00797	.057	1.952	1.397	3636	3679	0.123	0.155
Birth registration	8.1	.7800	.01113	.014	6.203	2.491	8598	8598	0.758	0.802

Table SE.3: Sampling errors: Urban

Standard errors, coefficients of variation, design effects (deff), square root of design effects (deft) and confidence intervals for selected indicators, Sierra Leone, 2010

	MICS Indicator	Value (*r*)	Standard error (*se*)	Coefficient of variation (*se/r*)	Design effect (*deff*)	Square root of design effect (*deft*)	Weighted count	Unweighted count	Confidence limits	
									r - 2se	*r + 2se*
HOUSEHOLDS										
Iodized salt consumption	2.16	.6341	.02026	.032	6.699	2.588	3540	3787	0.594	0.675
Household availability of insecticide-treated nets (ITNs)	3.12	.3252	.01251	.038	2.751	1.658	3608	3856	0.300	0.350
HOUSEHOLD MEMBERS										
Use of improved drinking water sources	4.1	.7624	.03410	.045	24.746	4.975	21153	3856	0.694	0.831
Use of improved sanitation facilities	4.3	.5757	.02554	.044	10.296	3.209	21153	3856	0.525	0.627
Secondary school net attendance ratio (adjusted)	7.5	.4872	.01450	.030	2.840	1.685	3195	3377	0.458	0.516
Child labour	8.2	.4170	.01086	.026	2.890	1.700	5657	5955	0.395	0.439
Prevalence of children with at least one parent dead	9.18	.1404	.00665	.047	3.690	1.921	9574	10069	0.127	0.154
School attendance of orphans	9.19	.7364	.02517	.034	.232	.481	69	72	0.686	0.787
School attendance of non-orphans	9.2	.8927	.02228	.025	8.437	2.905	1519	1629	0.848	0.937
Violent discipline	8.5	.8255	.01247	.015	3.208	1.791	7137	2973	0.801	0.850
WOMEN										
Pregnant women	-	.0847	.01090	.129	7.489	2.737	4658	4892	0.063	0.106
Pregnant women sleeping under insecticide-treated nets (ITNs)	3.19	.2477	.03153	.127	1.921	1.386	386	361	0.185	0.311
Intermittent preventive treatment for malaria	3.2	.4706	.02114	.045	1.743	1.320	916	973	0.428	0.513
Early childbearing	5.2	.2737	.02130	.078	2.029	1.424	854	890	0.231	0.316
Contraceptive prevalence	5.3	.1684	.01251	.074	2.981	1.727	2556	2669	0.143	0.193
Unmet need	5.4	.2643	.01114	.042	1.702	1.305	2556	2669	0.242	0.287
Antenatal care coverage - at least once by skilled personnel	5.5a	.9429	.01202	.013	2.739	1.655	971	1022	0.919	0.967
Antenatal care coverage – at least four times by any provider	5.5b	.7750	.02031	.026	2.415	1.554	971	1022	0.734	0.816
Skilled attendant at delivery	5.7	.7175	.03000	.042	4.532	2.129	971	1022	0.658	0.778
Institutional deliveries	5.8	.5504	.03721	.068	5.712	2.390	971	1022	0.476	0.625
Caesarean section	5.9	.0600	.01359	.226	3.342	1.828	971	1022	0.033	0.087
Literacy rate among young women	7.1	.6447	.02046	.032	3.717	1.928	1937	2035	0.604	0.686
Marriage before age 18	8.7	.4108	.01316	.032	2.681	1.637	3575	3747	0.384	0.437
Polygyny	8.9	.2619	.01459	.056	2.937	1.714	2556	2669	0.233	0.291
Prevalence of female genital mutilation/cutting (FGM/C) among women	8.12	.8065	.01076	.013	3.629	1.905	4658	4892	0.785	0.828
Comprehensive knowledge about HIV prevention among young people	9.2	.2980	.01587	.053	2.449	1.565	1937	2035	0.266	0.330
Knowledge of mother- to-child transmission of HIV	9.3	.5167	.02031	.039	8.077	2.842	4658	4892	0.476	0.557
Accepting attitudes towards people living with HIV	9.4	.0844	.00550	.065	1.722	1.312	4127	4394	0.073	0.095
Women who have been tested for HIV and know the results	9.6	.1013	.00750	.074	3.021	1.738	4658	4892	0.086	0.116
Sexually active young women who have been tested for HIV and know the results	9.7	.1043	.01222	.117	2.100	1.449	1252	1316	0.080	0.129
Sex before age 15 among young women	9.11	.1850	.01652	.089	3.682	1.919	1937	2035	0.152	0.218
Condom use with non-regular partners	9.16	.1549	.01935	.125	2.482	1.575	831	869	0.116	0.194
Prevalence of female genital mutilation/cutting (FGM/C) among girls	8.13	9.4655	.86958	.092	3.922	1.980	4248	4446	7.726	1.000
UNDER-5s										
Underweight prevalence	2.1a	.2012	.01907	.095	5.281	2.298	2211	2335	0.163	0.239
Stunting prevalence	2.2a	.4086	.01847	.045	3.142	1.773	2110	2227	0.372	0.446
Wasting prevalence	2.3a	.0964	.01160	.120	3.465	1.861	2136	2246	0.073	0.120
Exclusive breastfeeding under 6 months	2.6	.2724	.03035	.111	1.152	1.074	223	249	0.212	0.333
Age-appropriate breastfeeding	2.14	.3551	.01942	.055	1.629	1.276	935	990	0.316	0.394
Tuberculosis immunization coverage	-	.9492	.01241	.013	1.434	1.198	433	450	0.924	0.974
Received polio immunization	-	.5666	.03170	.056	1.837	1.355	433	450	0.503	0.630
Received DPT immunization	-	.7629	.02770	.036	1.820	1.349	415	430	0.708	0.818
Received measles immunization	-	.8647	.01625	.019	1.005	1.002	429	446	0.832	0.897
Received Hepatitis B immunization	-	.7114	.02601	.037	1.393	1.180	410	424	0.659	0.763
Diarrhoea in the previous 2 weeks	-	.1417	.01119	.079	2.562	1.600	2359	2489	0.119	0.164
Illness with a cough in the previous 2 weeks	-	.0773	.00759	.098	2.007	1.417	2359	2489	0.062	0.093
Fever in last two weeks	-	.3248	.01425	.044	2.305	1.518	2359	2489	0.296	0.353
Oral rehydration therapy with continued feeding	3.8	.5585	.03336	.060	1.729	1.315	334	384	0.492	0.625
Antibiotic treatment of suspected pneumonia	3.1	.6344	.04718	.074	1.958	1.399	182	205	0.540	0.729
Children under age 5 sleeping under insecticide-treated nets (ITNs)	3.15	.2699	.01745	.065	3.804	1.950	2334	2464	0.235	0.305
Anti-malarial treatment of children under age 5	3.18	.4586	.02288	.050	1.771	1.331	766	841	0.413	0.504
Support for learning	6.1	.6209	.02104	.034	1.919	1.385	967	1021	0.579	0.663
Attendance to early childhood education	6.7	.2340	.01819	.078	1.882	1.372	967	1021	0.198	0.270
Birth registration	8.1	.7757	.02763	.036	10.914	3.304	2359	2489	0.720	0.831

Table SE.4: Sampling errors: Rural

Standard errors, coefficients of variation, design effects (deff), square root of design effects (deft) and confidence intervals for selected indicators, Sierra Leone, 2010

	MICS Indicator	Value (*r*)	Standard error (*se*)	Coefficient of variation (*se/r*)	Design effect (*deff*)	Square root of design effect (*deft*)	Weighted count	Unweighted count	Confidence limits	
									r - 2se	*r + 2se*
HOUSEHOLDS										
Iodized salt consumption	2.16	.6227	.01324	.021	5.521	2.350	7645	7405	0.596	0.649
Household availability of insecticide-treated nets (ITNs)	3.12	.3745	.00971	.026	3.036	1.742	7786	7538	0.355	0.394
HOUSEHOLD MEMBERS										
Use of improved drinking water sources	4.1	.4815	.02288	.048	15.806	3.976	45554	7538	0.436	0.527
Use of improved sanitation facilities	4.3	.3247	.01718	.053	10.139	3.184	45554	7538	0.290	0.359
Secondary school net attendance ratio (adjusted)	7.5	.2983	.01296	.043	4.508	2.123	5740	5622	0.272	0.324
Child labour	8.2	.5317	.00850	.016	3.789	1.947	13499	13049	0.515	0.549
Prevalence of children with at least one parent dead	9.18	.1220	.00449	.037	4.068	2.017	22232	21605	0.113	0.131
School attendance of orphans	9.19	.7338	.02553	.035	.494	.703	143	149	0.683	0.785
School attendance of non-orphans	9.2	.8174	.01217	.015	3.580	1.892	3660	3608	0.793	0.842
Violent discipline	8.5	.8142	.00818	.010	2.786	1.669	17470	6297	0.798	0.831
WOMEN										
Pregnant women	-	.1192	.00371	.031	1.112	1.055	8701	8467	0.112	0.127
Pregnant women sleeping under insecticide-treated nets (ITNs)	3.19	.2864	.01804	.063	1.513	1.230	994	951	0.250	0.322
Intermittent preventive treatment for malaria	3.2	.3921	.01396	.036	1.785	1.336	2304	2183	0.364	0.420
Early childbearing	5.2	.4457	.01606	.036	1.406	1.186	1409	1347	0.414	0.478
Contraceptive prevalence	5.3	.0872	.00504	.058	1.992	1.411	6456	6243	0.077	0.097
Unmet need	5.4	.2776	.00757	.027	1.784	1.336	6456	6243	0.262	0.293
Antenatal care coverage - at least once by skilled personnel	5.5a	.9250	.00698	.008	1.681	1.297	2491	2393	0.911	0.939
Antenatal care coverage – at least four times by any provider	5.5b	.7355	.01154	.016	1.639	1.280	2491	2393	0.712	0.759
Skilled attendant at delivery	5.7	.5888	.01959	.033	3.791	1.947	2491	2393	0.550	0.628
Institutional deliveries	5.8	.4813	.02077	.043	4.135	2.033	2491	2393	0.440	0.523
Caesarean section	5.9	.0390	.00505	.130	1.628	1.276	2491	2393	0.029	0.049
Literacy rate among young women	7.1	.3744	.01672	.045	3.356	1.832	2876	2813	0.341	0.408
Marriage before age 18	8.7	.5490	.00916	.017	2.374	1.541	7235	7001	0.531	0.567
Polygyny	8.9	.3633	.01076	.030	3.125	1.768	6456	6243	0.342	0.385
Prevalence of female genital mutilation/cutting (FGM/C) among women	8.12	.9240	.00419	.005	2.115	1.454	8701	8467	0.916	0.932
Comprehensive knowledge about HIV prevention among young people	9.2	.1863	.01156	.062	2.481	1.575	2876	2813	0.163	0.209
Knowledge of mother- to-child transmission of HIV	9.3	.4331	.01088	.025	4.085	2.021	8701	8467	0.411	0.455
Accepting attitudes towards people living with HIV	9.4	.0395	.00342	.087	1.966	1.402	6569	6378	0.033	0.046
Women who have been tested for HIV and know the results	9.6	.0629	.00406	.064	2.362	1.537	8701	8467	0.055	0.071
Sexually active young women who have been tested for HIV and know the results	9.7	.0841	.01002	.119	2.560	1.600	2036	1964	0.064	0.104
Sex before age 15 among young women	9.11	.2854	.01208	.042	2.014	1.419	2876	2813	0.261	0.310
Condom use with non-regular partners	9.16	.0933	.00959	.103	.997	.998	953	918	0.074	0.112
Prevalence of female genital mutilation/cutting (FGM/C) among girls	8.13	10.4466	.52435	.050	3.006	1.734	10455	10230	9.398	1.000
UNDER-5s										
Underweight prevalence	2.1a	.2225	.00685	.031	1.563	1.250	5889	5769	0.209	0.236
Stunting prevalence	2.2a	.4574	.00995	.022	2.196	1.482	5620	5509	0.438	0.477
Wasting prevalence	2.3a	.0806	.00411	.051	1.299	1.140	5816	5698	0.072	0.089
Exclusive breastfeeding under 6 months	2.6	.3306	.01984	.060	1.034	1.017	626	582	0.291	0.370
Age-appropriate breastfeeding	2.14	.4112	.01131	.027	1.205	1.098	2390	2283	0.389	0.434
Tuberculosis immunization coverage	-	.9573	.00615	.006	.929	.964	1067	1003	0.945	0.970
Received polio immunization	-	.6544	.01980	.030	1.739	1.319	1068	1004	0.615	0.694
Received DPT immunization	-	.7007	.02035	.029	1.914	1.384	1038	970	0.660	0.741
Received measles immunization	-	.7994	.01842	.023	2.105	1.451	1060	996	0.763	0.836
Received Hepatitis B immunization	-	.6834	.02113	.031	1.961	1.401	1013	952	0.641	0.726
Diarrhoea in the previous 2 weeks	-	.1597	.00723	.045	2.380	1.543	6240	6109	0.145	0.174
Illness with a cough in the previous 2 weeks	-	.0913	.00516	.057	1.961	1.400	6240	6109	0.081	0.102
Fever in last two weeks	-	.3854	.01020	.026	2.684	1.638	6240	6109	0.365	0.406
Oral rehydration therapy with continued feeding	3.8	.5442	.01531	.028	.952	.976	997	1008	0.514	0.575
Antibiotic treatment of suspected pneumonia	3.1	.5557	.02416	.043	1.170	1.082	569	496	0.507	0.604
Children under age 5 sleeping under insecticide-treated nets (ITNs)	3.15	.3160	.01015	.032	2.875	1.696	6139	6028	0.296	0.336
Anti-malarial treatment of children under age 5	3.18	.5176	.01264	.024	1.483	1.218	2405	2319	0.492	0.543
Support for learning	6.1	.5136	.01423	.028	2.153	1.467	2669	2658	0.485	0.542
Attendance to early childhood education	6.7	.1049	.00872	.083	2.150	1.466	2669	2658	0.087	0.122
Birth registration	8.1	.7816	.01119	.014	4.480	2.117	6240	6109	0.759	0.804

Table SE.5: Sampling errors: East

Standard errors, coefficients of variation, design effects (deff), square root of design effects (deft) and confidence intervals for selected indicators, Sierra Leone, 2010

MICS Indicator		Value (*r*)	Standard error (*se*)	Coefficient of variation (*se/r*)	Design effect (*deff*)	Square root of design effect (*deft*)	Weighted count	Unweighted count	Confidence limits *r - 2se*	Confidence limits *r + 2se*
HOUSEHOLDS										
Iodized salt consumption	2.16	.7466	.01721	.023	3.815	1.953	3008	2438	0.712	0.781
Household availability of insecticide-treated nets (ITNs)	3.12	.3513	.01626	.046	2.883	1.698	3072	2486	0.319	0.384
HOUSEHOLD MEMBERS										
Use of improved drinking water sources	4.1	.6474	.03920	.061	16.728	4.090	16922	2486	0.569	0.726
Use of improved sanitation facilities	4.3	.3950	.02466	.062	6.322	2.514	16922	2486	0.346	0.444
Secondary school net attendance ratio (adjusted)	7.5	.3441	.01798	.052	2.324	1.525	1960	1623	0.308	0.380
Child labour	8.2	.5197	.01459	.028	3.342	1.828	4845	3920	0.491	0.549
Prevalence of children with at least one parent dead	9.18	.1142	.00752	.066	3.691	1.921	8136	6601	0.099	0.129
School attendance of orphans	9.19	.8501	.01327	.016	.053	.229	40	39	0.824	0.877
School attendance of non-orphans	9.2	.8905	.01097	.012	1.260	1.122	1290	1022	0.869	0.912
Violent discipline	8.5	.8126	.01244	.015	2.039	1.428	6316	2006	0.788	0.838
WOMEN										
Pregnant women	-	.1156	.00710	.061	1.394	1.181	3459	2831	0.101	0.130
Pregnant women sleeping under insecticide-treated nets (ITNs)	3.19	.2730	.02657	.097	1.081	1.040	370	305	0.220	0.326
Intermittent preventive treatment for malaria	3.2	.3573	.02312	.065	1.813	1.347	960	780	0.311	0.404
Early childbearing	5.2	.4055	.02827	.070	1.585	1.259	577	479	0.349	0.462
Contraceptive prevalence	5.3	.1158	.00886	.076	1.538	1.240	2484	2007	0.098	0.134
Unmet need	5.4	.2890	.01154	.040	1.301	1.141	2484	2007	0.266	0.312
Antenatal care coverage - at least once by skilled personnel	5.5a	.9672	.00681	.007	1.177	1.085	993	807	0.954	0.981
Antenatal care coverage – at least four times by any provider	5.5b	.8319	.01787	.021	1.842	1.357	993	807	0.796	0.868
Skilled attendant at delivery	5.7	.7578	.02773	.037	3.377	1.838	993	807	0.702	0.813
Institutional deliveries	5.8	.6465	.03670	.057	4.750	2.179	993	807	0.573	0.720
Caesarean section	5.9	.0603	.01413	.234	2.836	1.684	993	807	0.032	0.089
Literacy rate among young women	7.1	.4084	.02437	.060	2.485	1.576	1193	1012	0.360	0.457
Marriage before age 18	8.7	.4720	.01495	.032	2.061	1.436	2843	2298	0.442	0.502
Polygyny	8.9	.3004	.01531	.051	2.238	1.496	2484	2007	0.270	0.331
Prevalence of female genital mutilation/cutting (FGM/C) among women	8.12	.8967	.00930	.010	2.644	1.626	3459	2831	0.878	0.915
Comprehensive knowledge about HIV prevention among young people	9.2	.1653	.01571	.095	1.808	1.345	1193	1012	0.134	0.197
Knowledge of mother- to-child transmission of HIV	9.3	.4280	.01850	.043	3.955	1.989	3459	2831	0.391	0.465
Accepting attitudes towards people living with HIV	9.4	.0355	.00467	.132	1.286	1.134	2436	2019	0.026	0.045
Women who have been tested for HIV and know the results	9.6	.0674	.00672	.100	2.030	1.425	3459	2831	0.054	0.081
Sexually active young women who have been tested for HIV and know the results	9.7	.0642	.00861	.134	.865	.930	830	702	0.047	0.081
Sex before age 15 among young women	9.11	.2058	.01639	.080	1.661	1.289	1193	1012	0.173	0.239
Condom use with non-regular partners	9.16	.0961	.01573	.164	1.001	1.000	408	352	0.065	0.128
Prevalence of female genital mutilation/cutting (FGM/C) among girls	8.13	6.5051	.68638	.106	2.613	1.616	4115	3374	5.132	1.000
UNDER-5s										
Underweight prevalence	2.1a	.2198	.01135	.052	1.308	1.143	2199	1743	0.197	0.242
Stunting prevalence	2.2a	.4151	.01652	.040	1.846	1.359	2068	1644	0.382	0.448
Wasting prevalence	2.3a	.0788	.00668	.085	1.062	1.030	2167	1728	0.065	0.092
Exclusive breastfeeding under 6 months	2.6	.4237	.02803	.066	.733	.856	287	229	0.368	0.480
Age-appropriate breastfeeding	2.14	.4696	.01940	.041	1.176	1.084	958	779	0.431	0.508
Tuberculosis immunization coverage	-	.9577	.01145	.012	1.110	1.054	429	344	0.935	0.981
Received polio immunization	-	.6151	.03634	.059	1.913	1.383	429	344	0.542	0.688
Received DPT immunization	-	.7034	.03388	.048	1.855	1.362	422	338	0.636	0.771
Received measles immunization	-	.7478	.03226	.043	1.887	1.374	429	343	0.683	0.812
Received Hepatitis B immunization	-	.7097	.03847	.054	2.385	1.544	415	333	0.633	0.787
Diarrhoea in the previous 2 weeks	-	.1617	.01183	.073	1.954	1.398	2371	1895	0.138	0.185
Illness with a cough in the previous 2 weeks	-	.1265	.00916	.072	1.437	1.199	2371	1895	0.108	0.145
Fever in last two weeks	-	.3923	.01447	.037	1.664	1.290	2371	1895	0.363	0.421
Oral rehydration therapy with continued feeding	3.8	.4882	.03345	.069	1.334	1.155	383	299	0.421	0.555
Antibiotic treatment of suspected pneumonia	3.1	.5819	.04430	.076	1.944	1.394	300	242	0.493	0.671
Children under age 5 sleeping under insecticide-treated nets (ITNs)	3.15	.2911	.01719	.059	2.625	1.620	2290	1835	0.257	0.325
Anti-malarial treatment of children under age 5	3.18	.5179	.02094	.040	1.310	1.145	930	747	0.476	0.560
Support for learning	6.1	.5259	.02797	.053	2.313	1.521	939	738	0.470	0.582
Attendance to early childhood education	6.7	.1887	.01921	.102	1.777	1.333	939	738	0.150	0.227
Birth registration	8.1	.7931	.01607	.020	2.981	1.727	2371	1895	0.761	0.825

Table SE.6: Sampling errors: North

Standard errors, coefficients of variation, design effects (deff), square root of design effects (deft) and confidence intervals for selected indicators, Sierra Leone, 2010

	MICS Indicator	Value (*r*)	Standard error (*se*)	Coefficient of variation (*se/r*)	Design effect (*deff*)	Square root of design effect (*deft*)	Weighted count	Unweighted count	Confidence limits *r - 2se*	Confidence limits *r + 2se*
HOUSEHOLDS										
Iodized salt consumption	2.16	.5402	.02329	.043	7.894	2.810	3714	3615	0.494	0.587
Household availability of insecticide-treated nets (ITNs)	3.12	.3854	.01242	.032	2.384	1.544	3761	3665	0.361	0.410
HOUSEHOLD MEMBERS										
Use of improved drinking water sources	4.1	.4208	.03292	.078	16.289	4.036	24355	3665	0.355	0.487
Use of improved sanitation facilities	4.3	.3186	.02601	.082	11.422	3.380	24355	3665	0.267	0.371
Secondary school net attendance ratio (adjusted)	7.5	.3239	.01851	.057	5.265	2.294	3461	3365	0.287	0.361
Child labour	8.2	.5045	.01174	.023	4.002	2.001	7458	7262	0.481	0.528
Prevalence of children with at least one parent dead	9.18	.1487	.00589	.040	3.271	1.809	12154	11939	0.137	0.160
School attendance of orphans	9.19	.7782	.03446	.044	.695	.833	102	102	0.709	0.847
School attendance of non-orphans	9.2	.8034	.02206	.027	6.485	2.547	2062	2105	0.759	0.848
Violent discipline	8.5	.8080	.01136	.014	2.662	1.632	9549	3201	0.785	0.831
WOMEN										
Pregnant women	-	.1274	.01045	.082	4.357	2.087	4531	4435	0.107	0.148
Pregnant women sleeping under insecticide-treated nets (ITNs)	3.19	.2608	.02863	.110	2.182	1.477	567	514	0.203	0.318
Intermittent preventive treatment for malaria	3.2	.4478	.01869	.042	1.505	1.227	1092	1066	0.410	0.485
Early childbearing	5.2	.4353	.02637	.061	2.065	1.437	772	731	0.383	0.488
Contraceptive prevalence	5.3	.0685	.00747	.109	2.872	1.695	3335	3282	0.054	0.083
Unmet need	5.4	.2486	.01116	.045	2.186	1.479	3335	3282	0.226	0.271
Antenatal care coverage - at least once by skilled personnel	5.5a	.8873	.01237	.014	1.859	1.364	1230	1215	0.863	0.912
Antenatal care coverage – at least four times by any provider	5.5b	.6494	.01661	.026	1.471	1.213	1230	1215	0.616	0.683
Skilled attendant at delivery	5.7	.4634	.03058	.066	4.566	2.137	1230	1215	0.402	0.525
Institutional deliveries	5.8	.3753	.03179	.085	5.234	2.288	1230	1215	0.312	0.439
Caesarean section	5.9	.0248	.00580	.234	1.692	1.301	1230	1215	0.013	0.036
Literacy rate among young women	7.1	.4120	.02772	.067	4.945	2.224	1600	1560	0.357	0.467
Marriage before age 18	8.7	.5955	.01441	.024	3.109	1.763	3704	3606	0.567	0.624
Polygyny	8.9	.4105	.01477	.036	2.956	1.719	3335	3282	0.381	0.440
Prevalence of female genital mutilation/cutting (FGM/C) among women	8.12	.9629	.00450	.005	2.514	1.585	4531	4435	0.954	0.972
Comprehensive knowledge about HIV prevention among young people	9.2	.2261	.01796	.079	2.874	1.695	1600	1560	0.190	0.262
Knowledge of mother- to-child transmission of HIV	9.3	.4869	.02106	.043	7.869	2.805	4531	4435	0.445	0.529
Accepting attitudes towards people living with HIV	9.4	.0350	.00433	.124	1.896	1.377	3565	3415	0.026	0.044
Women who have been tested for HIV and know the results	9.6	.0629	.00690	.110	3.584	1.893	4531	4435	0.049	0.077
Sexually active young women who have been tested for HIV and know the results	9.7	.0999	.01717	.172	3.473	1.864	1107	1060	0.066	0.134
Sex before age 15 among young women	9.11	.3331	.01981	.059	2.755	1.660	1600	1560	0.294	0.373
Condom use with non-regular partners	9.16	.0867	.01265	.146	1.022	1.011	539	507	0.061	0.112
Prevalence of female genital mutilation/cutting (FGM/C) among girls	8.13	16.8272	.83060	.049	2.592	1.610	5250	5259	15.166	1.000
UNDER-5s										
Underweight prevalence	2.1a	.2461	.01396	.057	3.232	1.798	3040	3077	0.218	0.274
Stunting prevalence	2.2a	.4865	.01451	.030	2.493	1.579	2930	2957	0.457	0.515
Wasting prevalence	2.3a	.0964	.00904	.094	2.894	1.701	3065	3085	0.078	0.115
Exclusive breastfeeding under 6 months	2.6	.2971	.03226	.109	1.480	1.217	302	298	0.233	0.362
Age-appropriate breastfeeding	2.14	.3746	.01718	.046	1.466	1.211	1185	1165	0.340	0.409
Tuberculosis immunization coverage	-	.9444	.01093	.012	1.147	1.071	520	505	0.923	0.966
Received polio immunization	-	.6243	.02705	.043	1.575	1.255	521	506	0.570	0.678
Received DPT immunization	-	.6528	.03160	.048	2.076	1.441	494	472	0.590	0.716
Received measles immunization	-	.8032	.02480	.031	1.938	1.392	515	499	0.754	0.853
Received Hepatitis B immunization	-	.6818	.02773	.041	1.634	1.278	480	462	0.626	0.737
Diarrhoea in the previous 2 weeks	-	.1799	.01109	.062	2.706	1.645	3218	3250	0.158	0.202
Illness with a cough in the previous 2 weeks	-	.0827	.00744	.090	2.370	1.540	3218	3250	0.068	0.098
Fever in last two weeks	-	.4421	.01666	.038	3.655	1.912	3218	3250	0.409	0.475
Oral rehydration therapy with continued feeding	3.8	.5707	.01888	.033	.964	.982	579	663	0.533	0.608
Antibiotic treatment of suspected pneumonia	3.1	.6005	.02845	.047	.864	.929	266	257	0.544	0.657
Children under age 5 sleeping under insecticide-treated nets (ITNs)	3.15	.3082	.01576	.051	3.771	1.942	3205	3239	0.277	0.340
Anti-malarial treatment of children under age 5	3.18	.5016	.01558	.031	1.399	1.183	1423	1442	0.470	0.533
Support for learning	6.1	.4761	.01681	.035	1.642	1.282	1417	1451	0.442	0.510
Attendance to early childhood education	6.7	.0693	.00923	.133	1.915	1.384	1417	1451	0.051	0.088
Birth registration	8.1	.7018	.02297	.033	8.190	2.862	3218	3250	0.656	0.748

Table SE.7: Sampling errors: South

Standard errors, coefficients of variation, design effects (deff), square root of design effects (deft) and confidence intervals for selected indicators, Sierra Leone, 2010

	MICS Indicator	Value (*r*)	Standard error (*se*)	Coefficient of variation (*se/r*)	Design effect (*deff*)	Square root of design effect (*deft*)	Weighted count	Unweighted count	Confidence limits	
									r - 2se	*r + 2se*
HOUSEHOLDS										
Iodized salt consumption	2.16	.6605	.01824	.028	4.374	2.091	2698	2948	0.624	0.697
Household availability of insecticide-treated nets (ITNs)	3.12	.4020	.01824	.045	4.158	2.039	2760	3006	0.366	0.439
HOUSEHOLD MEMBERS										
Use of improved drinking water sources	4.1	.5154	.03801	.074	17.380	4.169	15865	3006	0.439	0.591
Use of improved sanitation facilities	4.3	.3273	.02916	.089	11.603	3.406	15865	3006	0.269	0.386
Secondary school net attendance ratio (adjusted)	7.5	.2982	.01923	.065	3.752	1.937	1946	2123	0.260	0.337
Child labour	8.2	.5486	.01147	.021	2.591	1.610	4461	4877	0.526	0.572
Prevalence of children with at least one parent dead	9.18	.1038	.00773	.074	5.255	2.292	7503	8185	0.088	0.119
School attendance of orphans	9.19	.4187	.05591	.134	.565	.752	41	45	0.307	0.530
School attendance of non-orphans	9.2	.7785	.02081	.027	3.272	1.809	1178	1304	0.737	0.820
Violent discipline	8.5	.8414	.01056	.013	2.084	1.443	5814	2492	0.820	0.863
WOMEN										
Pregnant women	-	.1066	.00517	.048	.941	.970	3137	3359	0.096	0.117
Pregnant women sleeping under insecticide-treated nets (ITNs)	3.19	.3348	.03026	.090	1.394	1.181	325	340	0.274	0.395
Intermittent preventive treatment for malaria	3.2	.3806	.02229	.059	1.866	1.366	823	886	0.336	0.425
Early childbearing	5.2	.4283	.02284	.053	1.087	1.043	485	511	0.383	0.474
Contraceptive prevalence	5.3	.1236	.01125	.091	2.701	1.643	2135	2312	0.101	0.146
Unmet need	5.4	.2930	.01266	.043	1.787	1.337	2135	2312	0.268	0.318
Antenatal care coverage - at least once by skilled personnel	5.5a	.9297	.01142	.012	1.906	1.381	885	956	0.907	0.953
Antenatal care coverage – at least four times by any provider	5.5b	.7571	.01716	.023	1.529	1.237	885	956	0.723	0.791
Skilled attendant at delivery	5.7	.6299	.02475	.039	2.510	1.584	885	956	0.580	0.679
Institutional deliveries	5.8	.4804	.02810	.059	3.022	1.738	885	956	0.424	0.537
Caesarean section	5.9	.0439	.00783	.178	1.393	1.180	885	956	0.028	0.060
Literacy rate among young women	7.1	.4128	.02654	.064	3.136	1.771	1028	1080	0.360	0.466
Marriage before age 18	8.7	.5164	.01197	.023	1.599	1.265	2593	2790	0.492	0.540
Polygyny	8.9	.3455	.01713	.050	3.000	1.732	2135	2312	0.311	0.380
Prevalence of female genital mutilation/cutting (FGM/C) among women	8.12	.8623	.01050	.012	3.121	1.767	3137	3359	0.841	0.883
Comprehensive knowledge about HIV prevention among young people	9.2	.1545	.01449	.094	1.734	1.317	1028	1080	0.126	0.184
Knowledge of mother- to-child transmission of HIV	9.3	.3704	.01612	.044	3.743	1.935	3137	3359	0.338	0.403
Accepting attitudes towards people living with HIV	9.4	.0574	.00635	.110	1.986	1.409	2514	2670	0.045	0.070
Women who have been tested for HIV and know the results	9.6	.0830	.00712	.086	2.238	1.496	3137	3359	0.069	0.097
Sexually active young women who have been tested for HIV and know the results	9.7	.0933	.01135	.122	1.206	1.098	756	792	0.071	0.116
Sex before age 15 among young women	9.11	.2959	.02161	.073	2.420	1.555	1028	1080	0.253	0.339
Condom use with non-regular partners	9.16	.1280	.02582	.202	2.503	1.582	417	420	0.076	0.180
Prevalence of female genital mutilation/cutting (FGM/C) among girls	8.13	6.2595	.56284	.090	2.211	1.487	3775	4096	5.134	1.000
UNDER-5s										
Underweight prevalence	2.1a	.1856	.00985	.053	1.447	1.203	2046	2258	0.166	0.205
Stunting prevalence	2.2a	.4272	.01532	.036	2.062	1.436	1944	2151	0.397	0.458
Wasting prevalence	2.3a	.0673	.00521	.077	.940	.970	1961	2176	0.057	0.078
Exclusive breastfeeding under 6 months	2.6	.2733	.03216	.118	1.089	1.043	190	210	0.209	0.338
Age-appropriate breastfeeding	2.14	.3790	.01914	.051	1.401	1.184	830	901	0.341	0.417
Tuberculosis immunization coverage	-	.9596	.00892	.009	.862	.929	394	421	0.942	0.977
Received polio immunization	-	.6711	.03282	.049	2.050	1.432	394	421	0.605	0.737
Received DPT immunization	-	.7815	.02294	.029	1.286	1.134	392	418	0.736	0.827
Received measles immunization	-	.8975	.01531	.017	1.066	1.032	392	419	0.867	0.928
Received Hepatitis B immunization	-	.6710	.02775	.041	1.434	1.198	385	412	0.615	0.726
Diarrhoea in the previous 2 weeks	-	.1138	.00889	.078	1.844	1.358	2132	2356	0.096	0.132
Illness with a cough in the previous 2 weeks	-	.0684	.00772	.113	2.204	1.485	2132	2356	0.053	0.084
Fever in last two weeks	-	.2642	.01565	.059	2.967	1.722	2132	2356	0.233	0.296
Oral rehydration therapy with continued feeding	3.8	.5693	.02282	.040	.573	.757	243	271	0.524	0.615
Antibiotic treatment of suspected pneumonia	3.1	.4512	.03783	.084	.792	.890	146	138	0.376	0.527
Children under age 5 sleeping under insecticide-treated nets (ITNs)	3.15	.3511	.01722	.049	3.027	1.740	2106	2327	0.317	0.386
Anti-malarial treatment of children under age 5	3.18	.4994	.02492	.050	1.588	1.260	563	640	0.450	0.549
Support for learning	6.1	.5583	.02167	.039	1.933	1.390	909	1016	0.515	0.602
Attendance to early childhood education	6.7	.1048	.01303	.124	1.836	1.355	909	1016	0.079	0.131
Birth registration	8.1	.8554	.01504	.018	4.305	2.075	2132	2356	0.825	0.885

Table SE.8: Sampling errors: West

Standard errors, coefficients of variation, design effects (deff), square root of design effects (deft) and confidence intervals for selected indicators, Sierra Leone, 2010

	MICS Indicator	Value (*r*)	Standard error (*se*)	Coefficient of variation (*se/r*)	Design effect (*deff*)	Square root of design effect (*deft*)	Weighted count	Unweighted count	Confidence limits	
									r - 2se	*r + 2se*
HOUSEHOLDS										
Iodized salt consumption	2.16	.5504	.02184	.040	4.223	2.055	1765	2191	0.507	0.594
Household availability of insecticide-treated nets (ITNs)	3.12	.2505	.01064	.042	1.349	1.162	1801	2237	0.229	0.272
HOUSEHOLD MEMBERS										
Use of improved drinking water sources	4.1	.9074	.01506	.017	6.036	2.457	9565	2237	0.877	0.937
Use of improved sanitation facilities	4.3	.7666	.02196	.029	6.025	2.455	9565	2237	0.723	0.810
Secondary school net attendance ratio (adjusted)	7.5	.5699	.02010	.035	3.109	1.763	1567	1888	0.530	0.610
Child labour	8.2	.3379	.01221	.036	1.962	1.401	2393	2945	0.313	0.362
Prevalence of children with at least one parent dead	9.18	.1346	.01031	.077	4.514	2.125	4013	4949	0.114	0.155
School attendance of orphans	9.19	.8638	.02838	.033	.233	.483	29	35	0.807	0.921
School attendance of non-orphans	9.2	.9634	.00709	.007	1.150	1.073	648	806	0.949	0.978
Violent discipline	8.5	.8111	.02734	.034	7.661	2.768	2928	1571	0.756	0.866
WOMEN										
Pregnant women	-	.0536	.00584	.109	1.840	1.356	2232	2734	0.042	0.065
Pregnant women sleeping under insecticide-treated nets (ITNs)	3.19	.1921	.03220	.168	1.016	1.008	119	153	0.128	0.256
Intermittent preventive treatment for malaria	3.2	.5484	.02685	.049	1.231	1.110	345	424	0.495	0.602
Early childbearing	5.2	.1959	.02202	.112	1.585	1.259	429	516	0.152	0.240
Contraceptive prevalence	5.3	.2014	.01220	.061	1.213	1.101	1058	1311	0.177	0.226
Unmet need	5.4	.2789	.01196	.043	.932	.965	1058	1311	0.255	0.303
Antenatal care coverage - at least once by skilled personnel	5.5a	.9752	.00776	.008	1.085	1.042	353	437	0.960	0.991
Antenatal care coverage – at least four times by any provider	5.5b	.8191	.02365	.029	1.646	1.283	353	437	0.772	0.866
Skilled attendant at delivery	5.7	.8019	.02304	.029	1.457	1.207	353	437	0.756	0.848
Institutional deliveries	5.8	.5784	.02805	.048	1.407	1.186	353	437	0.522	0.635
Caesarean section	5.9	.0739	.01468	.199	1.372	1.171	353	437	0.045	0.103
Literacy rate among young women	7.1	.7612	.01404	.018	1.296	1.138	991	1196	0.733	0.789
Marriage before age 18	8.7	.3319	.01378	.042	1.758	1.326	1670	2054	0.304	0.359
Polygyny	8.9	.1530	.01347	.088	1.834	1.354	1058	1311	0.126	0.180
Prevalence of female genital mutilation/cutting (FGM/C) among women	8.12	.7289	.01629	.022	3.672	1.916	2232	2734	0.696	0.761
Comprehensive knowledge about HIV prevention among young people	9.2	.3985	.02068	.052	2.132	1.460	991	1196	0.357	0.440
Knowledge of mother- to-child transmission of HIV	9.3	.5947	.01567	.026	2.782	1.668	2232	2734	0.563	0.626
Accepting attitudes towards people living with HIV	9.4	.1155	.00922	.080	2.218	1.489	2181	2668	0.097	0.134
Women who have been tested for HIV and know the results	9.6	.1078	.00866	.080	2.128	1.459	2232	2734	0.091	0.125
Sexually active young women who have been tested for HIV and know the results	9.7	.1133	.02091	.184	3.154	1.776	595	726	0.072	0.155
Sex before age 15 among young women	9.11	.0971	.01001	.103	1.367	1.169	991	1196	0.077	0.117
Condom use with non-regular partners	9.16	.1862	.02464	.132	2.031	1.425	421	508	0.137	0.236
Prevalence of female genital mutilation/cutting (FGM/C) among girls	8.13	6.8391	.89245	.130	2.433	1.560	1563	1947	5.054	1.000
UNDER-5s										
Underweight prevalence	2.1a	.1765	.02251	.127	3.571	1.890	816	1026	0.132	0.222
Stunting prevalence	2.2a	.4045	.03025	.075	3.734	1.932	788	984	0.344	0.465
Wasting prevalence	2.3a	.1006	.01366	.136	1.967	1.402	759	955	0.073	0.128
Exclusive breastfeeding under 6 months	2.6	.0610	.02111	.346	.724	.851	69	94	0.019	0.103
Age-appropriate breastfeeding	2.14	.3021	.01729	.057	.606	.778	352	428	0.268	0.337
Tuberculosis immunization coverage	-	.9710	.01113	.011	.800	.894	156	183	0.949	0.993
Received polio immunization	-	.5771	.04399	.076	1.443	1.201	156	183	0.489	0.665
Received DPT immunization	-	.8148	.02080	.026	.490	.700	146	172	0.773	0.856
Received measles immunization	-	.8623	.02894	.034	1.270	1.127	154	181	0.804	0.920
Received Hepatitis B immunization	-	.7259	.03025	.042	.772	.879	144	169	0.665	0.786
Diarrhoea in the previous 2 weeks	-	.1436	.02025	.141	3.655	1.912	877	1097	0.103	0.184
Illness with a cough in the previous 2 weeks	-	.0456	.00794	.174	1.589	1.261	877	1097	0.030	0.061
Fever in last two weeks	-	.2901	.02183	.075	2.536	1.592	877	1097	0.246	0.334
Oral rehydration therapy with continued feeding	3.8	.5822	.03531	.061	.810	.900	126	159	0.512	0.653
Antibiotic treatment of suspected pneumonia	3.1	.8010	.02876	.036	.327	.572	40	64	0.743	0.859
Children under age 5 sleeping under insecticide-treated nets (ITNs)	3.15	.2017	.01514	.075	1.553	1.246	872	1091	0.171	0.232
Anti-malarial treatment of children under age 5	3.18	.4689	.04966	.106	3.268	1.808	254	331	0.370	0.568
Support for learning	6.1	.7962	.01931	.024	1.088	1.043	371	474	0.758	0.835
Attendance to early childhood education	6.7	.3650	.03278	.090	2.192	1.481	371	474	0.299	0.431
Birth registration	8.1	.8479	.02011	.024	3.439	1.854	877	1097	0.808	0.888

Appendix D. Data Quality Tables

Table DQ.1: Age distribution of household population
Single-year age distribution of household population by sex, Sierra Leone, 2010

Age in Years	Sex					
	Male		Female		Missing	
	Number	Percent	Number	Percent	Number	Percent
0	920	2.8	903	2.7	2	9.5
1	783	2.4	752	2.2	0	.0
2	823	2.5	867	2.6	0	.0
3	1007	3.0	1003	3.0	2	6.6
4	886	2.7	864	2.6	0	.0
5	1023	3.1	1088	3.2	1	3.7
6	1222	3.7	1218	3.6	0	.0
7	1195	3.6	1097	3.3	1	2.3
8	1071	3.2	1059	3.2	0	.0
9	782	2.4	796	2.4	0	.0
10	1194	3.6	1126	3.4	0	.0
11	577	1.7	551	1.6	0	1.2
12	926	2.8	942	2.8	0	.0
13	604	1.8	903	2.7	0	.0
14	652	2.0	1129	3.4	1	5.6
15	1069	3.2	554	1.7	0	.0
16	658	2.0	513	1.5	0	.0
17	593	1.8	452	1.4	0	.0
18	881	2.7	716	2.1	1	3.0
19	546	1.6	489	1.5	1	4.5
20	925	2.8	835	2.5	0	.0
21	349	1.1	342	1.0	0	.0
22	449	1.4	501	1.5	0	.0
23	340	1.0	338	1.0	0	.0
24	345	1.0	350	1.0	0	.0
25	897	2.7	1087	3.2	1	4.5
26	319	1.0	371	1.1	0	.0
27	307	.9	410	1.2	0	.0
28	472	1.4	579	1.7	1	4.5
29	262	.8	251	.7	0	.0
30	979	3.0	1176	3.5	1	4.5
31	187	.6	182	.5	0	.0
32	354	1.1	388	1.2	0	.0
33	247	.7	236	.7	0	.0
34	217	.7	208	.6	0	.0
35	940	2.8	1076	3.2	0	.0
36	278	.8	264	.8	0	.0
37	273	.8	267	.8	0	.0
38	353	1.1	355	1.1	0	.0
39	186	.6	157	.5	0	.0
40	864	2.6	763	2.3	0	1.1
41	125	.4	97	.3	0	.0
42	290	.9	147	.4	0	.0
43	117	.4	109	.3	0	.0
44	103	.3	65	.2	0	.0
45	763	2.3	451	1.3	0	.0
46	196	.6	131	.4	0	.0
47	140	.4	73	.2	0	.0
48	193	.6	119	.4	2	7.2
49	145	.4	79	.2	0	.0
50	540	1.6	1016	3.0	0	.0
51	87	.3	253	.8	0	.0
52	172	.5	337	1.0	1	3.7

Age in Years	Sex					
	Male		Female		Missing	
	Number	Percent	Number	Percent	Number	Percent
53	96	.3	182	.5	0	.0
54	100	.3	122	.4	0	.0
55	373	1.1	444	1.3	0	.0
56	120	.4	119	.4	0	.0
57	83	.3	51	.2	0	.0
58	114	.3	128	.4	0	.0
59	58	.2	55	.2	0	.0
60	493	1.5	600	1.8	1	2.5
61	44	.1	37	.1	0	.0
62	93	.3	100	.3	0	.0
63	68	.2	58	.2	0	.0
64	58	.2	34	.1	0	.0
65	307	.9	282	.8	0	.0
66	36	.1	29	.1	0	.0
67	41	.1	42	.1	0	.0
68	74	.2	82	.2	0	.0
69	42	.1	30	.1	0	.0
70	370	1.1	341	1.0	0	.0
71	20	.1	26	.1	0	.0
72	52	.2	68	.2	0	.0
73	21	.1	20	.1	0	.0
74	17	.1	16	.0	0	.0
75	190	.6	113	.3	0	.0
76	39	.1	32	.1	0	.0
77	17	.1	11	.0	0	.0
78	34	.1	32	.1	0	.0
79	11	.0	13	.0	0	.0
80+	358	1.1	380	1.1	0	.0
DK/missing	24	.1	24	.1	8	35.6
Total	33176	100.0	33507	100.0	23	100.0

Table DQ.2: Age distribution of eligible and interviewed women
Household population of women age 10-54, interviewed women age 15-49, and percentage of eligible women who were interviewed, by five-year age groups, Sierra Leone, 2010

Age group	Household population of women age 10-54	Interviewed women age 15-49		Percentage of eligible women interviewed (Completion rate)
	Number	Number	Percent	
10-14	4650	.	.	.
15-19	2724	2562	19.1	94.0
20-24	2366	2261	16.9	95.6
25-29	2698	2580	19.2	95.6
30-34	2190	2091	15.6	95.5
35-39	2119	2005	14.9	94.6
40-44	1181	1130	8.4	95.6
45-49	854	787	5.9	92.2
50-54	1911	.	.	.
Total (15-49)	**14133**	**13416**	**100.0**	**94.9**
Ratio of 50-54 to 45-49	2.24			

Table DQ.3: Age distribution of under-5s in household and under-5 questionnaires
Household population of children age 0-7, children age 0-4 whose mothers/caretakers were interviewed, and percentage of under-5 children whose mothers/caretakers were interviewed, by single ages, Sierra Leone, 2010

Age	Household population of children 0-7 years	Interviewed under-5 children		Percentage of eligible under-5s interviewed (Completion rate)
	Number	Number	Percent	
0	1825	1797	20.8	98.4
1	1535	1499	17.4	97.7
2	1690	1649	19.1	97.6
3	2011	1971	22.9	98.0
4	1750	1703	19.8	97.3
5	2112	.	.	.
6	2439	.	.	.
7	2293	.	.	.
Total (0-4)	**8811**	**8619**	**100.0**	**97.8**
Ratio of 5 to 4	1.21			

Table DQ.4: Women's completion rates by socio-economic characteristics of households
Household population of women age 15-49, interviewed women age 15-49, and percentage of eligible women who were interviewed, by selected social and economic characteristics of the household, Sierra Leone, 2010

		Household population of women age 15-49 years		Interviewed women age 15-49 years		Percent of eligible women interviewed (Completion rates)
Region	East	3666	25.9	3448	25.7	94.0
	North	4789	33.9	4613	34.4	96.3
	South	3320	23.5	3141	23.4	94.6
	West	2358	16.7	2215	16.5	93.9
Area	Urban	4932	34.9	4669	34.8	94.7
	Rural	9201	65.1	8747	65.2	95.1
Household size	1-3	7809	55.3	1256	9.4	96.4
	4-6	3651	25.8	5368	40.0	95.8
	7+	2673	18.9	6791	50.6	94.0
Education of household head	None	9131	64.6	8661	64.6	94.9
	Primary	1331	9.4	1271	9.5	95.4
	Secondary +	3656	25.9	3469	25.9	94.9
	Missing/DK	15	*	15	*	*
Wealth index quintiles	Poorest	2673	18.9	2565	19.1	96.0
	Second	2647	18.7	2502	18.7	94.5
	Middle	2672	18.9	2545	19.0	95.3
	Fourth	2909	20.6	2761	20.6	94.9
	Richest	3234	22.9	3043	22.7	94.1
Total		**14133**	**100.0**	**13416**	**100.0**	**94.9**

Table DQ.5: Completion rates for under-5 questionnaires by socio-economic characteristics of households

Household population of under-5 children, under-5 questionnaires completed, and percentage of under-5 children for whom interviews were completed, by selected socio-economic characteristics of the household, Sierra Leone, 2010

		Household population of under-5 children		Interviewed under-5 children		Percent of eligible under-5s with completed under-5 questionnaires (Completion rates)
Region	East	2432	27.6	2374	27.5	97.6
	North	3297	37.4	3248	37.7	98.5
	South	2189	24.8	2131	24.7	97.4
	West	893	10.1	866	10.0	97.0
Area	Urban	2418	27.4	2359	27.4	97.6
	Rural	6393	72.6	6259	72.6	97.9
Household size	1-3	870	9.9	499	5.8	97.6
	4-6	4158	47.2	3640	42.2	98.4
	7+	3782	42.9	4480	52.0	97.4
Education of household head	None	6113	69.4	5986	69.5	97.9
	Primary	948	10.8	930	10.8	98.1
	Secondary +	1746	19.8	1699	19.7	97.3
	Missing/DK	4	*	4	*	*
Wealth index quintiles	Poorest	1990	22.6	1958	22.7	98.4
	Second	1970	22.4	1924	22.3	97.7
	Middle	1823	20.7	1791	20.8	98.2
	Fourth	1725	19.6	1683	19.5	97.6
	Richest	1303	14.8	1262	14.6	96.9
Total		**8811**	**100.0**	**8619**	**100.0**	**97.8**

Table DQ.6: Completeness of reporting

Percentage of observations that are missing information for selected questions and indicators, Sierra Leone, 2010

	Percent with missing/incomplete information*	Number of cases
Age	.1	66571

Table DQ.6.1: Completeness of reporting

Percentage of observations that are missing information for selected questions and indicators, Sierra Leone, 2010

	Percent with missing/incomplete information*	Number of cases
Salt testing	1.1	11394
Starting time of interview	1.5	11394
Ending time of interview	1.6	11394

Table DQ.6.2: Completeness of reporting
Percentage of observations that are missing information for selected questions and indicators, Sierra Leone, 2010

	Percent with missing/incomplete information*	Number of cases
Woman's date of birth: Only month	28.4	13359
Woman's date of birth: Both month and year	17.4	13359
Date of first birth: Only month	16.8	10335
Date of first birth: Both month and year	13.3	10335
Completed years since first birth	3.1	1385
Date of last birth: Only month	2.6	10335
Date of last birth: Both month and year	1.0	10335
Date of first marriage/union: Only month	35.5	10067
Date of first marriage/union: Both month and year	41.6	10067
Age at first marriage/union	.0	10067
Age at first intercourse	.1	3856
Time since last intercourse	.2	3856
Starting time of interview	1.1	13359
Ending time of interview	1.2	13359

Table DQ.6.3: Completeness of reporting
Percentage of observations that are missing information for selected questions and indicators, Sierra Leone, 2010

	Percent with missing/incomplete information*	Number of cases
Date of birth: Only month	2.5	8598
Date of birth: Both month and year	.2	8598
Anthropometric measurements: Weight	2.4	8598
Anthropometric measurements: Height	2.8	8598
Anthropometric measurements: Both weight and height	1.9	8598
Starting time of interview	1.1	8598
Ending time of interview	1.4	8598

Table DQ.7: Completeness of information for anthropometric indicators
Distribution of children under 5 by completeness of information for anthropometric indicators, Sierra Leone, 2010

	Age in months	Valid weight and date of birth	Reason for exclusion from analysis				Total	Percent of children excluded from analysis	Number of children under 5
			Weight not measured	Incomplete date of birth	Weight not measured, incomplete date of birth	Flagged cases (outliers)			
Weight by age	<6	93.4	.7	.8	.0	5.1	100.0	6.6	831
	6-11	96.5	.9	.5	.0	2.1	100.0	3.5	987
	12-23	96.4	.3	.8	.0	2.4	100.0	3.6	1455
	24-35	95.0	.3	2.5	.0	2.2	100.0	5.0	1632
	36-47	93.3	.7	3.2	.1	2.6	100.0	6.7	1978
	48-59	92.7	.9	4.1	.1	2.2	100.0	7.3	1701
	Missing	*	*	*	*	*	*	*	14
Total		**94.3**	**.6**	**2.5**	**.0**	**2.6**	**100.0**	**5.7**	**8598**

Table DQ.7.1: Completeness of information for anthropometric indicators
Distribution of children under 5 by completeness of information for anthropometric indicators, Sierra Leone, 2010

Age in Months		Valid height and date of birth	Reason for exclusion from analysis				Total	Percent of children excluded from analysis	Number of children under 5
			Height not measured	Incomplete date of birth	Height not measured, incomplete date of birth	Flagged cases (outliers)			
Height by age	<6	87.1	3.1	.8	.0	8.9	100.0	12.9	831
	6-11	90.8	.5	.5	.0	8.2	100.0	9.2	987
	12-23	90.7	.4	.8	.0	8.1	100.0	9.3	1455
	24-35	90.9	.9	2.5	.0	5.7	100.0	9.1	1632
	36-47	90.1	.7	3.3	.0	5.9	100.0	9.9	1978
	48-59	89.9	.7	4.1	.1	5.2	100.0	10.1	1701
	Missing	*	*	*	*	*	*	*	14
Total		**90.0**	**.9**	**2.5**	**.0**	**6.6**	**100.0**	**10.0**	**8598**

Table DQ.7.2: Completeness of information for anthropometric indicators
Distribution of children under 5 by completeness of information for anthropometric indicators, Sierra Leone, 2010

Weight by height	Valid weight and height	Reason for exclusion from analysis						Total	Percent of children excluded from analysis	Number of children under 5
		Weight not measured	Height not measured	Incomplete date of birth	Weight not measured, incomplete date of birth	Height not measured, incomplete date of birth	Weight and height not measured, incomplete date of birth	Flagged cases (outliers)			
<6	82.9	.6	3.0	.8	.0	.0	.0	12.6	100.0	17.1	831
6-11	91.2	.6	.2	.5	.0	.0	.0	7.5	100.0	8.8	987
12-23	92.1	.3	.4	.8	.0	.0	.0	6.3	100.0	7.9	1455
24-35	91.2	.2	.8	2.5	.0	.0	.0	5.3	100.0	8.8	1632
36-47	90.3	.5	.5	3.2	.1	.0	.0	5.4	100.0	9.7	1978
48-59	90.4	.8	.5	4.0	.1	.1	.1	4.2	100.0	9.6	1701
Missing	*	*	*	*	*	*	*	*	*	*	14
Total	**90.0**	**.5**	**.7**	**2.4**	**.0**	**.0**	**.0**	**6.2**	**100.0**	**10.0**	**8598**

Table DQ.8: Heaping in anthropometric measurements
Distribution of weight and height/length measurements by digits reported for decimals, Sierra Leone, 2010

		Weight		Height	
		Number	Percent	Number	Percent
Digits	0	993	11.8	2350	27.9
	1	754	9.0	719	8.5
	2	988	11.8	1103	13.1
	3	762	9.1	684	8.1
	4	842	10.0	629	7.5
	5	982	11.7	1398	16.6
	6	785	9.4	524	6.2
	7	698	8.3	383	4.5
	8	876	10.4	345	4.1
	9	705	8.4	295	3.5
	0 or 5	1975	23.6	3748	44.5
	Total	**8385**	**100.0**	**8430**	**100.0**

Table DQ.9: Observation of bed nets and places for hand washing
Percentage of bed nets in all households interviewed observed by the interviewer, and percentage of places for hand washing observed by the interviewer in all interviewed households, Sierra Leone, 2010

		Percentage of bed nets observed by interviewer	Total number of bed nets	Observation of places for hand washing: Observed	Place for hand washing not in dwelling	No permission to see	Other	Total	Number of households interviewed
Region	East	93.4	1361	63.6	28.1	4.3	3.9	100.0	2486
	North	85.4	2470	67.8	25.2	2.4	4.5	100.0	3665
	South	87.2	2064	64.9	30.4	.4	4.3	100.0	3006
	West	92.1	911	70.2	27.6	.5	1.1	100.0	2237
Area	Urban	91.3	2037	70.4	26.6	1.0	1.7	100.0	3856
	Rural	87.3	4769	64.7	28.2	2.4	4.6	100.0	7538
Wealth index quintiles	Poorest	88.7	1152	57.8	34.5	2.4	5.1	100.0	2507
	Second	87.8	1224	65.0	27.5	2.8	4.7	100.0	2189
	Middle	86.6	1498	70.7	23.3	2.3	3.7	100.0	2018
	Fourth	88.1	1431	70.2	25.2	1.6	2.7	100.0	2066
	Richest	91.4	1501	70.4	26.6	.6	2.1	100.0	2614
Total		**88.6**	**6806**	**66.6**	**27.7**	**1.9**	**3.6**	**100.0**	**11394**

Table DQ.10: Observation of women's health cards
Percent distribution of women with a live birth in the last 2 years by presence of a health card, and the percentage of health cards seen by the interviewers, Sierra Leone, 2010

		Woman does not have health card	Woman has health card		Missing/DK	Total	Percent of health cards seen by the interviewer (1)/(1+2)*100	Number of women with a live birth in the last two years
			Seen by the interviewer (1)	Not seen by the interviewer (2)				
Region	East	12.1	34.0	51.9	2.0	100.0	39.5	807
	North	12.1	23.5	63.5	.8	100.0	27.0	1215
	South	9.9	27.2	60.7	2.2	100.0	31.0	956
	West	7.6	24.3	66.8	1.4	100.0	26.6	437
Area	Urban	9.4	26.2	62.2	2.2	100.0	29.6	1022
	Rural	11.6	27.5	59.6	1.3	100.0	31.6	2393
Wealth index quintiles	Poorest	14.6	29.2	54.7	1.5	100.0	34.8	739
	Second	11.8	26.7	60.6	.8	100.0	30.6	711
	Middle	10.7	24.5	62.9	1.9	100.0	28.0	728
	Fourth	9.7	28.4	60.0	1.8	100.0	32.1	668
	Richest	6.7	26.7	64.9	1.8	100.0	29.2	569
Total		**10.9**	**27.1**	**60.4**	**1.6**	**100.0**	**31.0**	**3415**

Table DQ.11: Observation of under-5s birth certificates
Percent distribution of children under 5 by presence of birth certificates, and percentage of birth calendar seen, Sierra Leone, 2010

		Child does not have birth certificate	Child has birth certificate		Missing/ DK	Total	Percent of birth certificates seen by the interviewer (1)/(1+2)*100	Number of children under age 5
			Seen by the interviewer (1)	Not seen by the interviewer (2)				
Region	East	41.5	23.1	34.8	.6	100.0	39.8	1895
	North	37.8	20.1	41.5	.6	100.0	32.6	3250
	South	31.6	30.6	37.5	.3	100.0	44.9	2356
	West	28.1	21.1	49.8	1.1	100.0	29.7	1097
Area	Urban	35.6	21.9	41.8	.8	100.0	34.3	2489
	Rural	35.7	24.5	39.3	.5	100.0	38.4	6109
Child's age	0	46.6	25.7	27.3	.3	100.0	48.5	1810
	1	39.5	24.7	35.3	.4	100.0	41.2	1447
	2	34.2	25.3	39.7	.8	100.0	39.0	1653
	3	31.2	22.0	46.3	.5	100.0	32.2	1963
	4	27.5	21.3	50.3	.8	100.0	29.8	1725
Total		**35.7**	**23.7**	**40.0**	**.6**	**100.0**	**37.3**	**8598**

Table DQ.12: Observation of vaccination cards
Percent distribution of children under 5 by presence of a vaccination card, and the percentage of vaccination cards seen by the interviewers, Sierra Leone, 2010

		Child does not have vaccination card		Child has vaccination card		Missing/ DK	Total	Percent of vaccination cards seen by the interviewer (1)/(1+2)* 100	Number of children under age 5
		Had vaccination card previously	Never had vaccination card	Seen by the interviewer (1)	Not seen by the interviewer (2)				
Region	**East**	**5.7**	**2.0**	**58.2**	**34.1**	**.0**	**100.0**	**63.1**	**1895**
	North	**3.4**	**5.6**	**41.4**	**49.4**	**.1**	**100.0**	**45.6**	**3250**
	South	**4.5**	**3.2**	**57.8**	**34.4**	**.1**	**100.0**	**62.7**	**2356**
	West	**1.6**	**1.9**	**41.4**	**55.0**	**.1**	**100.0**	**43.0**	**1097**
Area	**Urban**	**4.0**	**2.7**	**49.2**	**44.0**	**.2**	**100.0**	**52.8**	**2489**
	Rural	**4.0**	**4.1**	**49.8**	**42.1**	**.1**	**100.0**	**54.2**	**6109**
Child's age	**0**	**1.6**	**5.2**	**74.5**	**18.5**	**.2**	**100.0**	**80.1**	**1810**
	1	**2.6**	**2.1**	**67.3**	**28.1**	**.0**	**100.0**	**70.6**	**1447**
	2	**4.6**	**3.4**	**48.0**	**44.0**	**.1**	**100.0**	**52.2**	**1653**
	3	**4.9**	**3.1**	**36.3**	**55.6**	**.1**	**100.0**	**39.5**	**1963**
	4	**6.0**	**4.3**	**25.3**	**64.2**	**.1**	**100.0**	**28.3**	**1725**
Total		**4.0**	**3.7**	**49.6**	**42.6**	**.1**	**100.0**	**53.8**	**8598**

Table DQ.13: Presence of mother in the household and the person interviewed for the under-5 questionnaire
Distribution of children under five by whether the mother lives in the same household, and the person interviewed for the under-5 questionnaire, Sierra Leone, 2010

		Mother in the household					Mother not in the household				Total	Number of children under 5
		Mother interviewed	Father interviewed	Other adult female interviewed	Other adult male interviewed	Other person interviewed	Father interviewed	Other adult female interviewed	Other adult male interviewed	Other person interviewed		
Age	0	94.5	.8	.6	.0	.1	.3	3.7	.1	.0	100	1825
	1	88.9	.7	1.1	.3	.2	.5	7.8	.5	.1	100	1535
	2	83.7	.2	1.3	.3	.1	.7	13.2	.5	.1	100	1690
	3	79.3	.7	1.1	.1	.0	1.2	16.9	.7	.1	100	2011
	4	72.9	.6	.5	.0	.2	2.0	22.4	1.3	.2	100	1750
Total		**83.7**	**.6**	**.9**	**.1**	**.1**	**.9**	**12.9**	**.6**	**.1**	**100**	**8811**

Table DQ.14: Selection of children age 2-14 years for the child discipline module
Percent of households with at least two children age 2-14 years where correct selection of one child for the child discipline module was performed, Sierra Leone, 2010

		Percent of households where correct selection was performed	Number of households with 2 or more children age 2-14 years
Region	East	76.4	1431
	North	80.4	2536
	South	61.1	1804
	West	80.4	1036
Area	Urban	75.0	2101
	Rural	74.2	4706
Number of households by number of children 2-14	2	79.7	2608
	3	74.1	2028
	4	68.4	2171
Total		**74.4**	**6807**

Table DQ.15: School attendance by single age

Distribution of household population age 5-24 by educational level and educational level and grade attended in the current (or most recent) school year, Sierra Leone, 2010

				Primary								Secondary										
		Not attending school	Pre school	1	2	3	4	5	6	DK	Missing	1	2	3	4	5	6	Missing	Higher	DK	Total	Number of household members
Age at beginning of school year	5	51.0	11.1	22.5	11.4	2.4	.5	.4	.2	.0	.1	.0	.0	.0	.0	.0	.0	.0	.0	.4	100.0	2294
	6	36.0	8.5	23.9	21.4	7.2	1.9	.3	.3	.0	.0	.0	.0	.1	.0	.0	.0	.0	.0	.5	100.0	2390
	7	23.4	3.5	15.1	32.9	17.3	5.4	1.5	.5	.0	.0	.1	.1	.0	.0	.0	.0	.0	.0	.2	100.0	2272
	8	17.5	2.5	7.5	25.1	29.0	12.7	4.4	.9	.0	.0	.1	.0	.0	.0	.0	.0	.0	.0	.1	100.0	1900
	9	16.9	1.0	4.5	14.4	25.8	20.8	11.7	3.4	.0	.0	.3	.6	.2	.0	.0	.0	.0	.0	.3	100.0	1880
	10	18.1	.9	3.2	8.4	15.7	22.5	19.4	9.8	.0	.0	.5	1.1	.2	.0	.0	.0	.0	.0	.1	100.0	1869
	11	15.8	.2	4.8	5.3	9.8	16.1	21.3	19.3	.0	.0	1.7	4.3	.7	.1	.0	.1	.0	.0	.3	100.0	1415
	12	18.1	.2	8.8	2.7	7.5	11.3	15.1	21.3	.0	.0	3.0	8.3	2.6	.3	.3	.1	.0	.0	.3	100.0	1734
	13	20.1	.3	8.3	1.5	5.2	7.6	9.8	18.7	.0	.0	4.5	14.4	8.1	.6	.2	.2	.0	.0	.4	100.0	1540
	14	23.0	.1	9.8	1.2	2.0	3.4	5.6	13.5	.0	.0	5.0	19.2	13.3	2.4	.9	.2	.0	.0	.4	100.0	1815
	15	28.7	.4	6.7	.9	1.2	3.0	3.8	10.0	.0	.0	4.2	18.0	15.8	3.6	2.0	.9	.0	.1	.5	100.0	1382
	16	31.2	.1	5.3	.9	1.1	1.5	3.4	6.8	.0	.0	2.2	14.8	19.7	6.6	4.7	1.6	.0	.0	.1	100.0	1121
	17	40.5	.0	2.3	.1	.4	.8	1.9	4.1	.0	.0	2.1	9.4	17.2	8.5	7.9	4.5	.0	.1	.1	100.0	1343
	18	45.0	.0	1.6	.7	.4	.2	1.5	1.6	.0	.0	1.2	8.9	15.0	8.3	7.9	6.9	.2	.4	.2	100.0	1319
	19	59.4	.0	.7	.4	.8	.3	.4	1.2	.0	.0	1.3	6.1	8.8	5.1	6.9	8.3	.0	.5	.0	100.0	1474
	20	62.6	.3	1.1	.0	.6	.2	.6	.5	.0	.1	.5	2.7	7.8	4.5	7.4	9.1	.0	2.0	.0	100.0	1234
	21	69.9	.0	.7	.6	.3	.0	.2	.8	.0	.0	.8	2.3	4.9	3.6	5.1	8.0	.2	2.5	.0	100.0	798
	22	69.0	.2	.4	.0	.1	.0	.0	.8	.0	.0	.4	2.6	5.2	3.5	4.8	9.4	.0	3.3	.1	100.0	855
	23	72.6	.0	.5	.5	.4	.1	.4	.1	.3	.2	.5	1.5	2.9	1.5	3.0	9.7	.0	5.5	.3	100.0	652
	24	90.1	.1	.2	.0	.1	.1	.1	.3	.0	.0	.3	.8	1.0	.4	.7	2.5	.0	3.4	.0	100.0	1445

Appendix E. MICS4 Indicators: Numerators and Denominators

MICS4 Indicators: Numerators and Denominators

MICS4 INDICATOR [M]		Module [16]	Numerator	Denominator	MDG[17]
1. MORTALITY					
1.1	Under-five mortality rate[18]	CM - BH	Probability of dying by exact age 5 years		MDG 4.1
1.2	Infant mortality rate[19]	CM - BH	Probability of dying by exact age 1 year		MDG 4.2

[16] Some indicators are constructed by using questions in several modules. In such cases, only the module(s) which contains most of the necessary information is indicated.
[17] MDG indicators as of February 2010
[18] Indicator is defined as “Probability of dying between birth and fifth birthday, during the 5-year period preceding the survey” when estimated from the birth history
[19] Indicator is defined as “Probability of dying between birth and the first birthday, during the 5-year period preceding the survey” when estimated from the birth history

MICS4 INDICATOR [M]		Module [16]	Numerator	Denominator	MDG[17]
2. NUTRITION					
2.1a 2.1b	Underweight prevalence	AN	Number of children under age 5 who (a) fall below minus two standard deviations (moderate and severe) (b) fall below minus three standard deviations (severe) from the median weight for age of the WHO standard	Total number of children under age 5	MDG 1.8
2.2a 2.2b	Stunting prevalence	AN	Number of children under age 5 who (a) fall below minus two standard deviations (moderate and severe) (b) fall below minus three standard deviations (severe) from the median height for age of the WHO standard	Total number of children under age 5	
2.3a 2.3b	Wasting prevalence	AN	Number of children under age 5 who (a) fall below minus two standard deviations (moderate and severe) (b) fall below minus three standard deviations (severe) from the median weight for height of the WHO standard	Total number of children under age 5	
2.4	Children ever breastfed	MN	Number of women with a live birth in the 2 years preceding the survey who breastfed the child at any time	Total number of women with a live birth in the 2 years preceding the survey	
2.5	Early initiation of breastfeeding	MN	Number of women with a live birth in the 2 years preceding the survey who put the newborn infant to the breast within 1 hour of birth	Total number of women with a live birth in the 2 years preceding the survey	
2.6	Exclusive breastfeeding under 6 months	BF	Number of infants under 6 months of age who are exclusively breastfed[20]	Total number of infants under 6 months of age	
2.7	Continued breastfeeding at 1 year	BF	Number of children age 12-15 months who are currently breastfeeding	Total number of children age 12-15 months	
2.8	Continued breastfeeding at 2 years	BF	Number of children age 20-23 months who are currently breastfeeding	Total number of children age 20-23 months	
2.9	Predominant breastfeeding under 6 months	BF	Number of infants under 6 months of age who received breast milk as the predominant source of nourishment[21] during the previous day	Total number of infants under 6 months of age	
2.10	Duration of breastfeeding	BF	The age in months when 50 percent of children age 0-35 months did not receive breast milk during the previous day		
2.11	Bottle feeding	BF	Number of children age 0-23 months who were fed with a bottle during the previous day	Total number of children age 0-23 months	

[20] Infants receiving breast milk, and not receiving any other fluids or foods, with the exception of oral rehydration solution, vitamins, mineral supplements and medicines

[21] Infants who receive breast milk and certain fluids (water and water-based drinks, fruit juice, ritual fluids, oral rehydration solution, drops, vitamins, minerals, and medicines), but do not receive anything else (in particular, non-human milk and food-based fluids)

MICS4 INDICATOR [M]		Module [16]	Numerator	Denominator	MDG[17]
2.12	Introduction of solid, semi-solid or soft foods	BF	Number of infants age 6-8 months who received solid, semi-solid or soft foods during the previous day	Total number of infants age 6-8 months	
2.13	Minimum meal frequency	BF	Number of children age 6-23 months receiving solid, semi-solid and soft foods (plus milk feeds for non-breastfed children) the minimum times[22] or more, according to breastfeeding status, during the previous day	Total number of children age 6-23 months	
2.14	Age-appropriate breastfeeding	BF	Number of children age 0-23 months appropriately fed[23] during the previous day	Total number of children age 0-23 months	
2.15	Milk feeding frequency for non-breastfed children	BF	Number of non-breastfed children age 6-23 months who received at least 2 milk feedings during the previous day	Total number of non-breastfed children age 6-23 months	
2.16	Iodized salt consumption	SI	Number of households with salt testing 15 parts per million or more of iodide/iodate	Total number of households in which salt was tested or with no salt	
2.17	Vitamin A supplementation (children under age 5)	IM	Number of children age 6-59 months who received at least one high-dose vitamin A supplement in the 6 months preceding the survey	Total number of children age 6-59 months	
2.18	Low-birthweight infants	MN	Number of last live births in the 2 years preceding the survey weighing below 2,500 grams at birth	Total number of last live births in the 2 years preceding the survey	
2.19	Infants weighed at birth	MN	Number of last live births in the 2 years preceding the survey who were weighed at birth	Total number of last live births in the 2 years preceding the survey	

[22] Breastfeeding children: Solid, semi-solid, or soft foods, two times for infants age 6-8 months, 3 times for children 9-23 months; Non-breastfeeding children: Solid, semi-solid, or soft foods, or milk feeds, four times for children age 6-23 months

[23] Infants age 0-5 who are exclusively breastfed, and children age 6-23 months who are breastfed and ate solid, semi-solid or soft foods

MICS4 INDICATOR [M]		Module [16]	Numerator	Denominator	MDG[17]
3. CHILD HEALTH					
3.1	Tuberculosis immunization coverage	IM	Number of children age 12-23 months who received BCG vaccine before their first birthday	Total number of children age 12-23 months	
3.2	Polio immunization coverage	IM	Number of children age 12-23 months who received OPV3 vaccine before their first birthday	Total number of children age 12-23 months	
3.3	Immunization coverage for diphtheria, pertussis and tetanus (DPT)	IM	Number of children age 12-23 months who received DPT3 vaccine before their first birthday	Total number of children age 12-23 months	
3.4	Measles immunization coverage	IM	Number of children age 12-23 months who received measles vaccine before their first birthday	Total number of children age 12-23 months	MDG 4.3
3.5	Hepatitis B immunization coverage	IM	Number of children age 12-23 months who received the third dose of Hepatitis B vaccine before their first birthday	Total number of children age 12-23 months	
3.6	Yellow fever immunization coverage	IM	Number of children age 12-23 months who received yellow fever vaccine before their first birthday	Total number of children age 12-23 months	
3.7	Neonatal tetanus protection	MN	Number of women age 15-49 years with a live birth in the 2 years preceding the survey who were given at least two doses of tetanus toxoid vaccine within the appropriate interval[24] prior to giving birth	Total number of women age 15-49 years with a live birth in the 2 years preceding the survey	
3.8	Oral rehydration therapy with continued feeding	CA	Number of children under age 5 with diarrhoea in the previous 2 weeks who received ORT (ORS packet or recommended homemade fluid or increased fluids) and continued feeding during the episode of diarrhoea	Total number of children under age 5 with diarrhoea in the previous 2 weeks	
3.9	Care-seeking for suspected pneumonia	CA	Number of children under age 5 with suspected pneumonia in the previous 2 weeks who were taken to an appropriate health provider	Total number of children under age 5 with suspected pneumonia in the previous 2 weeks	
3.10	Antibiotic treatment of suspected pneumonia	CA	Number of children under age 5 with suspected pneumonia in the previous 2 weeks who received antibiotics	Total number of children under age 5 with suspected pneumonia in the previous 2 weeks	
3.11	Solid fuels	HC	Number of household members in households that use solid fuels as the primary source of domestic energy to cook	Total number of household members	
3.12	Household availability of insecticide-treated nets (ITNs)[25]	TN	Number of households with at least one insecticide treated net (ITN)	Total number of households	

[24] See MICS4 manual for a detailed description

[25] An ITN is (a) a factory treated net which does not require any treatment, (b) a pretreated net obtained within the past 12 months, or (c) a net that has been soaked with insecticide within the past 12 months

MICS4 INDICATOR [M]		Module [16]	Numerator	Denominator	MDG[17]
3.13	Households protected by a vector control method	TN - IR	Number of households with at least one insecticide-treated net (ITN) and/or that received spraying through an IRS[26] campaign in the last 12 months preceding the survey	Total number of households	
3.14	Children under age 5 sleeping under any type of mosquito net	TN	Number of children under age 5 who slept under any type of mosquito net the previous night	Total number of children under age 5	
3.15	Children under age 5 sleeping under insecticide-treated nets (ITNs)	TN	Number of children under age 5 who slept under an insecticide-treated mosquito net (ITN) the previous night	Total number of children under age 5	MDG 6.7
3.16	Malaria diagnostics usage	ML	Number of children under age 5 reported to have had fever in the previous 2 weeks who had a finger or heel stick for malaria testing	Total number of children under age 5 reported to have had fever in the previous 2 weeks	
3.17	Anti-malarial treatment of children under age 5 the same or next day	ML	Number of children under age 5 reported to have had fever in the previous 2 weeks who were treated with any anti-malarial drug within the same or next day of onset of symptoms	Total number of children under age 5 reported to have had fever in the previous 2 weeks	
3.18	Anti-malarial treatment of children under age 5	ML	Number of children under age 5 reported to have had fever in the previous 2 weeks who received any antimalarial treatment	Total number of children under age 5 reported to have had fever in the previous 2 weeks	MDG 6.8
3.19	Pregnant women sleeping under insecticide-treated nets (ITNs)	TN	Number of pregnant women who slept under an insecticide-treated net (ITN) the previous night	Total number of pregnant women	
3.20	Intermittent preventive treatment for malaria	MN	Number of women age 15-49 years who received at least 2 doses of SP/Fansidar to prevent malaria during antenatal care visits for their last pregnancy leading to a live birth in the 2 years preceding the survey	Total number of women age 15-49 years who have had a live birth in the 2 years preceding the survey	

[26] Indoor residual spraying

MICS4 INDICATOR [M]		Module [16]	Numerator	Denominator	MDG[17]
4. WATER AND SANITATION					
4.1	Use of improved drinking water sources	WS	Number of household members using improved sources of drinking water	Total number of household members	MDG 7.8
4.2	Water treatment	WS	Number of household members using unimproved drinking water who use an appropriate treatment method	Total number of household members in households using unimproved drinking water sources	
4.3	Use of improved sanitation	WS	Number of household members using improved sanitation facilities which are not shared	Total number of household members	MDG 7.9
4.4	Safe disposal of child's faeces	CA	Number of children age 0-2 years whose (last) stools were disposed of safely	Total number of children age 0-2 years	
4.5	Place for handwashing	HW	Number of households with a designated place for hand washing where water and soap are present	Total number of households	
4.6	Availability of soap	HW	Number of households with soap anywhere in the dwelling	Total number of households	

5. REPRODUCTIVE HEALTH					
5.1	Adolescent birth rate[27]	CM - BH	Age-specific fertility rate for women age 15-19 years for the one year period preceding the survey		MDG 5.4
5.2	Early childbearing	CM - BH	Number of women age 20-24 years who had at least one live birth before age 18	Total number of women age 20-24 years	
5.3	Contraceptive prevalence rate	CP	Number of women age 15-49 years currently married or in union who are using (or whose partner is using) a (modern or traditional) contraceptive method	Total number of women age 15-49 years who are currently married or in union	MDG 5.3
5.4	Unmet need[28]	UN	Number of women age 15-49 years who are currently married or in union who are fecund and want to space their births or limit the number of children they have and who are not currently using contraception	Total number of women age 15-49 years who are currently married or in union	MDG 5.6
5.5a 5.5b	Antenatal care coverage	MN	Number of women age 15-49 years who were attended during pregnancy in the 2 years preceding the survey (a) at least once by skilled personnel	Total number of women age 15-49 years with a live birth in the 2 years preceding the survey	MDG 5.5

[27] Indicator is defined as "Age-specific fertility rate for women age 15-19 years, for the 3-year period preceding the survey" when estimated from the birth history

[28] See MICS4 manual for a detailed description

MICS4 INDICATOR [M]		Module [16]	Numerator	Denominator	MDG[17]
			(b) at least four times by any provider		
5.6	Content of antenatal care	MN	Number of women age 15-49 years with a live birth in the 2 years preceding the survey who had their blood pressure measured and gave urine and blood samples during the last pregnancy	Total number of women age 15-49 years with a live birth in the 2 years preceding the survey	
5.7	Skilled attendant at delivery	MN	Number of women age 15-49 years with a live birth in the 2 years preceding the survey who were attended during childbirth by skilled health personnel	Total number of women age 15-49 years with a live birth in the 2 years preceding the survey	MDG 5.2
5.8	Institutional deliveries	MN	Number of women age 15-49 years with a live birth in the 2 years preceding the survey who delivered in a health facility	Total number of women age 15-49 years with a live birth in the 2 years preceding the survey	
5.9	Caesarean section	MN	Number of last live births in the 2 years preceding the survey who were delivered by caesarean section	Total number of last live births in the 2 years preceding the survey	

MICS4 INDICATOR [M]		Module [16]	Numerator	Denominator	MDG[17]
6. CHILD DEVELOPMENT					
6.1	Support for learning	EC	Number of children age 36-59 months with whom an adult has engaged in four or more activities to promote learning and school readiness in the past 3 days	Total number of children age 36-59 months	
6.2	Father's support for learning	EC	Number of children age 36-59 months whose father has engaged in one or more activities to promote learning and school readiness in the past 3 days	Total number of children age 36-59 months	
6.3	Learning materials: children's books	EC	Number of children under age 5 who have three or more children's books	Total number of children under age 5	
6.4	Learning materials: playthings	EC	Number of children under age 5 with two or more playthings	Total number of children under age 5	
6.5	Inadequate care	EC	Number of children under age 5 left alone or in the care of another child younger than 10 years of age for more than one hour at least once in the past week	Total number of children under age 5	
6.6	Early child development Index	EC	Number of children age 36-59 months who are developmentally on track in literacy-numeracy, physical, social-emotional, and learning domains	Total number of children age 36-59 months	
6.7	Attendance to early childhood education	EC	Number of children age 36-59 months who are attending an early childhood education programme	Total number of children age 36-59 months	

MICS4 INDICATOR [M]		Module [16]	Numerator	Denominator	MDG[17]
7. LITERACY AND EDUCATION					
7.1	Literacy rate among young women [M]	WB	Number of women age 15-24 years who are able to read a short simple statement about everyday life or who attended secondary or higher education	Total number of women age 15-24 years	MDG 2.3
7.2	School readiness	ED	Number of children in first grade of primary school who attended pre-school during the previous school year	Total number of children attending the first grade of primary school	
7.3	Net intake rate in primary education	ED	Number of children of school-entry age who enter the first grade of primary school	Total number of children of school-entry age	
7.4	Primary school net attendance ratio (adjusted)	ED	Number of children of primary school age currently attending primary or secondary school	Total number of children of primary school age	MDG 2.1
7.5	Secondary school net attendance ratio (adjusted)	ED	Number of children of secondary school age currently attending secondary school or higher	Total number of children of secondary-school age	
7.6	Children reaching last grade of primary	ED	Proportion of children entering the first grade of primary school who eventually reach last grade		MDG 2.2
7.7	Primary completion rate	ED	Number of children (of any age) attending the last grade of primary school (excluding repeaters)	Total number of children of primary school completion age (age appropriate to final grade of primary school)	
7.8	Transition rate to secondary school	ED	Number of children attending the last grade of primary school during the previous school year who are in the first grade of secondary school during the current school year	Total number of children who are attending the first grade of secondary school	
7.9	Gender parity index (primary school)	ED	Primary school net attendance ratio (adjusted) for girls	Primary school net attendance ratio (adjusted) for boys	MDG 3.1
7.10	Gender parity index (secondary school)	ED	Secondary school net attendance ratio (adjusted) for girls	Secondary school net attendance ratio (adjusted) for boys	MDG 3.1

MICS4 INDICATOR [M]		Module [16]	Numerator	Denominator	MDG[17]
8. CHILD PROTECTION					
8.1	Birth registration	BR	Number of children under age 5 whose births are reported registered	Total number of children under age 5	
8.2	Child labour	CL	Number of children age 5-14 years who are involved in child labour	Total number of children age 5-14 years	
8.3	School attendance among child labourers	ED - CL	Number of children age 5-14 years who are involved in child labour and are currently attending school	Total number of children age 5-14 years involved in child labour	
8.4	Child labour among students	ED - CL	Number of children age 5-14 years who are involved in child labour and are currently attending school	Total number of children age 5-14 years attending school	
8.5	Violent discipline	CD	Number of children age 2-14 years who experienced psychological aggression or physical punishment during the past month	Total number of children age 2-14 years	
8.6	Marriage before age 15 [M]	MA	Number of women age 15-49 years who were first married or in union by the exact age of 15	Total number of women age 15-49 years	
8.7	Marriage before age 18 [M]	MA	Number of women age 20-49 years who were first married or in union by the exact age of 18	Total number of women age 20-49 years	
8.8	Young women age 15-19 years currently married or in union [M]	MA	Number of women age 15-19 years who are currently married or in union	Total number of women age 15-19 years	
8.9	Polygyny [M]	MA	Number of women age 15-49 years who are in a polygynous union	Total number of women age 15-49 years who are currently married or in union	
8.10a 8.10b	Spousal age difference	MA	Number of women currently married or in union whose spouse is 10 or more years older, (a) for women age 15-19 years, (b) for women age 20-24 years	Total number of women currently married or in union (a) age 15-19 years, (b) age 20-24 years	
8.11	Approval for female genital mutilation/cutting (FGM/C)	FG	Number of women age 15-49 years favouring the continuation of female genital mutilation/cutting (FGM/C)	Total number of women age 15-49 years who have heard of FGM/C	
8.12	Prevalence of female genital mutilation/cutting (FGM/C) among women	FG	Number of women age 15-49 years who report to have undergone any form of female genital mutilation/cutting (FGM/C)	Total number of women age 15-49 years	
8.13	Prevalence of female genital mutilation/cutting (FGM/C) among girls	FG	Number of girls age 0-14 years who have undergone any form of female genital mutilation/cutting (FGM/C), as reported by mothers	Total number of girls age 0-14 years	
8.14	Attitudes towards domestic violence [M]	DV	Number of women who state that a husband/partner is justified in hitting or beating his wife in at least one of the following circumstances: (1) she goes out without telling him, (2) she neglects the children, (3) she argues with him, (4) she refuses sex with him, (5) she burns the food	Total number of women age 15-49 years	

MICS4 INDICATOR [M]		Module 16	Numerator	Denominator	MDG[17]
9. HIV/AIDS, SEXUAL BEHAVIOUR AND ORPHANS					
9.1	Comprehensive knowledge about HIV prevention [M]	HA	Number of women age 15-49 years who correctly identify two ways of preventing HIV infection[29], know that a healthy looking person can have HIV, and reject the two most common misconceptions about HIV transmission	Total number of women age 15-49 years	
9.2	Comprehensive knowledge about HIV prevention among young people [M]	HA	Number of women age 15-24 years who correctly identify two ways of preventing HIV infection[12], know that a healthy looking person can have HIV, and reject the two most common misconceptions about HIV transmission	Total number of women age 15-24 years	MDG 6.3
9.3	Knowledge of mother-to-child transmission of HIV [M]	HA	Number of women age 15-49 years who correctly identify all three means[30] of mother-to-child transmission of HIV	Total number of women age 15-49 years	
9.4	Accepting attitudes towards people living with HIV [M]	HA	Number of women age 15-49 years expressing accepting attitudes on all four questions[31] toward people living with HIV	Total number of women age 15-49 years who have heard of HIV	
9.5	Women who know where to be tested for HIV [M]	HA	Number of women age 15-49 years who state knowledge of a place to be tested for HIV	Total number of women age 15-49 years	
9.6	Women who have been tested for HIV and know the results [M]	HA	Number of women age 15-49 years who have been tested for HIV in the 12 months preceding the survey and who know their results	Total number of women age 15-49 years	
9.7	Sexually active young women who have been tested for HIV and know the results [M]	HA	Number of women age 15-24 years who have had sex in the 12 months preceding the survey, who have been tested for HIV in the 12 months preceding the survey and who know their results	Total number of women age 15-24 years who have had sex in the 12 months preceding the survey	
9.8	HIV counselling during antenatal care	HA	Number of women age 15-49 years who gave birth in the 2 years preceding the survey and received antenatal care, reporting that they received counselling on HIV during antenatal care	Total number of women age 15-49 years who gave birth in the 2 years preceding the survey	
9.9	HIV testing during antenatal care	HA	Number of women age 15-49 years who gave birth in the 2 years preceding the survey and received antenatal care, reporting that they were offered and accepted an HIV test during antenatal care and received their results	Total number of women age 15-49 years who gave birth in the 2 years preceding the survey	

[29] Using condoms and limiting sex to one faithful, uninfected partner

[30] Transmission during pregnancy, during delivery, and by breastfeeding

[31] Women (1) who think that a female teacher with the AIDS virus should be allowed to teach in school, (2) who would buy fresh vegetables from a shopkeeper or vendor who has the AIDS virus, (3) who would not want to keep it as a secret if a family member became infected with the AIDS virus, and (4) who would be willing to care for a family member who became sick with the AIDS virus

MICS4 INDICATOR [M]		Module [16]	Numerator	Denominator	MDG[17]
9.10	Young women who have never had sex [M]	SB	Number of never married women age 15-24 years who have never had sex	Total number of never married women age 15-24 years	
9.11	Sex before age 15 among young women [M]	SB	Number of women age 15-24 years who have had sexual intercourse before age 15	Total number of women age 15-24 years	
9.12	Age-mixing among sexual partners [M]	SB	Number of women age 15-24 years who had sex in the 12 months preceding the survey with a partner who was 10 or more years older than they were	Total number of women age 15-24 years who have had sex in the 12 months preceding the survey	
9.13	Sex with multiple partners [M]	SB	Number of women age 15-49 years who have had sexual intercourse with more than one partner in the 12 months preceding the survey	Total number of women age 15-49 years	
9.14	Condom use during sex with multiple partners [M]	SB	Number of women age 15-49 years who report having had more than one sexual partner in the 12 months preceding the survey who also reported that a condom was used the last time they had sex	Total number of women age 15-49 years who reported having had more than one sexual partner in the 12 months preceding the survey	
9.15	Sex with non-regular partners [M]	SB	Number of sexually active women age 15-24 years who have had sex with a non-marital, non-cohabitating partner in the 12 months preceding the survey	Total number of women age 15-24 years who have had sex in the 12 months preceding the survey	
9.16	Condom use with non-regular partners [M]	SB	Number of women age 15-24 years reporting the use of a condom during sexual intercourse with their last non-marital, non-cohabiting sex partner in the 12 months preceding the survey	Total number of women age 15-24 years who had a non-marital, non-cohabiting partner in the 12 months preceding the survey	MDG 6.2
9.17	Children's living arrangements	HL	Number of children age 0-17 years not living with a biological parent	Total number of children age 0-17 years	
9.18	Prevalence of children with at least one parent dead	HL	Number of children age 0-17 years with at least one dead parent	Total number of children age 0-17 years	
9.19	School attendance of orphans	HL - ED	Number of children age 10-14 years who have lost both parents and are attending school	Total number of children age 10-14 years who have lost both parents	MDG 6.4
9.20	School attendance of non-orphans	HL - ED	Number of children age 10-14 years, whose parents are alive, who are living with at least one parent, and who are attending school	Total number of children age 10-14 years, whose parents are alive, and who are living with at least one parent	MDG 6.4
9.21	Male circumcision	MMC	Number of males age 15-49 years who report having been circumcised	Total number of males age 15-49 years	

10. ACCESS TO MASS MEDIA AND USE OF INFORMATION/COMMUNICATION TECHNOLOGY					
MT.1	Exposure to mass media [M]	MT	Number of women age 15-49 years who, at least once a week, read a newspaper or magazine, listen to the radio, and watch television	Total number of women age 15-49 years	
MT.2	Use of computers [M]	MT	Number of young women age 15-24 years who used a computer during the last 12 months	Total number of women age 15-24 years	
MT.3	Use of internet [M]	MT	Number of young women age 15-24 who used the internet during the last 12 months	Total number of women age 15-24 years	

11. SUBJECTIVE WELL-BEING					
SW.1	Life satisfaction [M]	LS	Number of women age 15-24 years who are very or somewhat satisfied with their family life, friendships, school, current job, health, where they live, how they are treated by others, and how they look	Total number of women age 15-24 years	
SW.2	Happiness [M]	LS	Number of women age 15-24 years who are very or somewhat happy	Total number of women age 15-24 years	
SW.3	Perception of a better life [M]	LS	Number of women age 15-24 years whose life improved during the last one year, and who expect that their life will be better after one year	Total number of women age 15-24 years	

12. TOBACCO AND ALCOHOL USE					
TA.1	Tobacco use [M]	TA	Number of women age 15-49 years who smoked cigarettes, or used smoked or smokeless tobacco products on one or more days during the last one month	Total number of women age 15-49 years	
TA.2	Smoking before age 15 [M]	TA	Number of women age 15-49 years who smoked a whole cigarette before age 15	Total number of women age 15-49 years	
TA.3	Alcohol use [M]	TA	Number of women age 15-49 years who had at least one alcoholic drink on one or more days during the last one month	Total number of women age 15-49 years	
TA.4	Use of alcohol before age 15 [M]	TA	Number of women age 15-49 years who had at least one alcoholic drink before age 15	Total number of women age 15-49 years	

Appendix F. Questionnaires

MICS

HOUSEHOLD QUESTIONNAIRE
SIERRA LEONE

HOUSEHOLD INFORMATION PANEL	HH
HH1. Cluster number: ___ ___ ___	HH2. Household number: ___ ___
HH3. Interviewer name and number: Name_____ ___ ___	HH4. Supervisor name and number: Name_____ ___ ___
HH5. Day / Month / Year of interview: ___ ___ / ___ ___ / ___ ___ ___ ___	
HH6. Area: Urban .....1 Rural 2	HH7. Region: *East*.....1 *North* .....2 *South*.....3 *West*.....4
	HH7A. District: _____ ____ ____

WE ARE FROM ***Statistics Sierra Leone***. WE ARE WORKING ON A PROJECT CONCERNED WITH FAMILY HEALTH AND EDUCATION. I WOULD LIKE TO TALK TO YOU ABOUT THESE SUBJECTS. THE INTERVIEW WILL TAKE ABOUT ***60*** MINUTES. ALL THE INFORMATION WE OBTAIN WILL REMAIN STRICTLY CONFIDENTIAL AND YOUR ANSWERS WILL NEVER BE SHARED WITH ANYONE OTHER THAN OUR PROJECT TEAM.

MAY I START NOW?

☐ *Yes, permission is given ⇨ Go to HH18 to record the time and then begin the interview.*

☐ *No, permission is not given ⇨ Complete HH9. Discuss this result with your supervisor.*

After all questionnaires for the household have been completed, fill in the following information:	
HH8. Name of head of household: _____	
HH9. Result of household interview: Completed ..... 01 No household member or no competent respondent at home at time of visit ..... 02 Entire household absent for extended period of time..... 03 Refused ..... 04 Dwelling vacant / Address not a dwelling ..... 05 Dwelling destroyed ..... 06 Dwelling not found ..... 07 Other (*specify*)_____ 96	HH10. Respondent to household questionnaire: Name:_____ Line Number: ___ ___ HH11. Total number of household members: ___ ___

HH12. Number of women age 15-49 years: ___ ___	HH13. Number of woman's questionnaires completed: ___ ___
HH14. Number of children under age 5: ___ ___	HH15. Number of under-5 questionnaires completed: ___ ___

HH16. Field edited by (Name and number): Name_____ ___ ___	HH17. Data entry clerk (Name and number): Name_____ ___ ___

HH18.
Record the time:

Hour..... __ __

Minutes..... __ __

HOUSEHOLD LISTING FORM — HL

FIRST, PLEASE TELL ME THE NAME OF EACH PERSON WHO USUALLY LIVES HERE, STARTING WITH THE HEAD OF THE HOUSEHOLD.

List the head of the household in line 01. List all household members (HL2), their relationship to the household head (HL3), and their sex (HL4)

Then ask: ARE THERE ANY OTHERS WHO LIVE HERE, EVEN IF THEY ARE NOT AT HOME NOW?

If yes, complete listing for questions HL2-HL4. Then, ask questions starting with HL5 for each person at a time.

Use an additional questionnaire if all rows in the household listing form have been used.

								For women age **15-49**	*For children age* **5-14**	*For children under age* **5**	*For all household members*	*For children age* **0-17** *years*						
HL1. *Line number*	HL2. *Name*	HL3. WHAT IS THE RELATION-SHIP OF (*name*) TO THE HEAD OF HOUSE-HOLD?	HL4. IS (*name*) MALE OR FEMALE? 1 Male 2 Female	HL5. WHAT IS (*name*)'S DATE OF BIRTH? 98 DK 9998 DK		HL6. HOW OLD IS (*name*)? *Record in completed years. If age is 95 or above, record '95'*	HL7. *Circle line number if woman is age* **15-49**	HL8. WHO IS THE MOTHER OR PRIMARY CARETAKER OF THIS CHILD? *Record line number of mother/ caretaker*	HL9. WHO IS THE MOTHER OR PRIMARY CARETAKER OF THIS CHILD? *Record line number of mother/ caretaker*	HL10. DID (*name*) STAY HERE LAST NIGHT? 1 Yes 2 No	HL11. IS (*name*)'S NATURAL MOTHER ALIVE? 1 Yes 2 No↘ HL13 8 DK↘ HL13	HL12. DOES (*name*)'S NATURAL MOTHER LIVE IN THIS HOUSEHOLD? *Record line number of mother or 00 for "No"*	HL13. IS (*name*)'S NATURAL FATHER ALIVE? 1 Yes 2 No↘ Next Line 8 DK↘ Next Line	HL14. DOES (*name*)'S NATURAL FATHER LIVE IN THIS HOUSEHOLD? *Record line number of father or 00 for "No"*
Line	Name	Relation*	M F	Month	Year	Age	15-49	Mother	Mother	Y N	Y N DK	Mother	Y N DK	Father
01		0 1	1 2	__ __	__ __ __ __	__ __	01	__ __	__ __	1 2	1 2 8	__ __	1 2 8	__ __
02		__ __	1 2	__ __	__ __ __ __	__ __	02	__ __	__ __	1 2	1 2 8	__ __	1 2 8	__ __
03		__ __	1 2	__ __	__ __ __ __	__ __	03	__ __	__ __	1 2	1 2 8	__ __	1 2 8	__ __
04		__ __	1 2	__ __	__ __ __ __	__ __	04	__ __	__ __	1 2	1 2 8		1 2 8	__ __
05		__ __	1 2	__ __	__ __ __ __	__ __	05	__ __	__ __	1 2	1 2 8	__ __	1 2 8	__ __
06		__ __	1 2	__ __	__ __ __ __	__ __	06	__ __	__ __	1 2	1 2 8	__ __	1 2 8	__ __
07		__ __	1 2	__ __	__ __ __ __	__ __	07	__ __	__ __	1 2	1 2 8	__ __	1 2 8	__ __
08		__ __	1 2	__ __	__ __ __ __	__ __	08	__ __	__ __	1 2	1 2 8	__ __	1 2 8	__ __
09		__ __	1 2	__ __	__ __ __ __	__ __	09	__ __	__ __	1 2	1 2 8	__ __	1 2 8	__ __
10		__ __	1 2	__ __	__ __ __ __	__ __	10	__ __	__ __	1 2	1 2 8	__ __	1 2 8	__ __

HL1. *Line number*	HL2. *Name*	HL3. WHAT IS THE RELATION-SHIP OF (*name*) TO THE HEAD OF HOUSE-HOLD?	HL4. IS (*name*) MALE OR FEMALE? 1 Male 2 Female	HL5. WHAT IS (*name*)'S DATE OF BIRTH? 98 DK 9998 DK		HL6. HOW OLD IS (*name*)? *Record in completed years. If age is 95 or above, record '95'*	HL7. *Circle line number if woman is age* **15-49**	HL8. WHO IS THE MOTHER OR PRIMARY CARETAKER OF THIS CHILD? *Record line number of mother/ caretaker*	HL9. WHO IS THE MOTHER OR PRIMARY CARETAKER OF THIS CHILD? *Record line number of mother/ caretaker*	HL10. DID (*name*) STAY HERE LAST NIGHT? 1 Yes 2 No	HL11. IS (*name*)'S NATURAL MOTHER ALIVE? 1 Yes 2 No↘ HL13 8 DK↘ HL13	HL12. DOES (*name*)'S NATURAL MOTHER LIVE IN THIS HOUSEHOLD? *Record line number of mother or 00 for "No"*	HL13. IS (*name*)'S NATURAL FATHER ALIVE? 1 Yes 2 No↘ Next Line 8 DK↘ Next Line	HL14. DOES (*name*)'S NATURAL FATHER LIVE IN THIS HOUSEHOLD? *Record line number of father or 00 for "No"*
Line	Name	Relation*	M F	Month	Year	Age	15-49	Mother	Mother	Y N	Y N DK	Mother	Y N DK	Father
11		__ __	1 2	__ __	__ __ __ __	__ __	11	__ __	__ __	1 2	1 2 8	__ __	1 2 8	__ __
12		__ __	1 2	__ __	__ __ __ __	__ __	12	__ __	__ __	1 2	1 2 8	__ __	1 2 8	__ __
13		__ __	1 2	__ __	__ __ __ __	__ __	13	__ __	__ __	1 2	1 2 8	__ __	1 2 8	__ __
14		__ __	1 2	__ __	__ __ __ __	__ __	14	__ __	__ __	1 2	1 2 8	__ __	1 2 8	__ __
15		__ __	1 2	__ __	__ __ __ __	__ __	15	__ __	__ __	1 2	1 2 8	__ __	1 2 8	__ __

Tick here if additional questionnaire used ☐

Probe for additional household members.
Probe especially for any infants or small children not listed, and others who may not be members of the family (such as servants, friends) but who usually live in the household.
Insert names of additional members in the household list and complete form accordingly.

Now for each woman age 15-49 years, write her name and line number and other identifying information in the information panel of a separate Individual Women's Questionnaire.
For each child under age 5, write his/her name and line number AND the line number of his/her mother or caretaker in the information panel of a separate Under-5 Questionnaire.
You should now have a separate questionnaire for each eligible woman and each child under five in the household.

** Codes for HL3: Relationship to head of household:*

01 Head	06 Parent	11 Niece / Nephew
02 Wife / Husband	07 Parent-In-Law	12 Other relative
03 Son / Daughter	08 Brother / Sister	13 Adopted / Foster / Stepchild
04 Son-In-Law / Daughter-In-Law	09 Brother-In-Law / Sister-In-Law	14 Not related
05 Grandchild	10 Uncle / Aunt	98 Don't know

EDUCATION — ED

For household members age **5 and above**

For household members age **5-24** *years*

ED1. *Line number*	ED2. *Name and age* *Copy from Household Listing Form, HL2 and HL6*		ED3. HAS (*name*) EVER ATTENDED SCHOOL OR PRE-SCHOOL? 1 Yes 2 No ⇘ Next Line		ED4. WHAT IS THE HIGHEST LEVEL OF SCHOOL (*name*) ATTENDED? WHAT IS THE HIGHEST GRADE (*name*) COMPLETED AT THIS LEVEL? Level: 0 Preschool 1 Primary 2 Secondary 3 Higher 8 DK *If level=0, skip to ED5*	ED4. Grade: 98 DK *If less than 1 grade, enter 00.*	ED5. DURING THE (***2009-2010***) SCHOOL YEAR, DID (*name*) ATTEND SCHOOL OR PRESCHOOL AT ANY TIME? 1 Yes 2 No ⇘ ED7		ED6. DURING THIS/THAT SCHOOL YEAR, WHICH LEVEL AND GRADE IS/WAS (*name*) ATTENDING? Level: 0 Preschool 1 Primary 2 Secondary 3 Higher 8 DK *If level=0, skip to ED7*	ED6. Grade: 98 DK	ED7. DURING THE PREVIOUS SCHOOL YEAR, THAT IS (***2008-2009***), DID (*name*) ATTEND SCHOOL OR PRESCHOOL AT ANY TIME? 1 Yes 2 No ⇘ Next Line 8 DK ⇘ Next Line			ED8. DURING THAT PREVIOUS SCHOOL YEAR, WHICH LEVEL AND GRADE DID (*name*) ATTEND? Level: 0 Preschool 1 Primary 2 Secondary 3 Higher 8 DK *If level=0, go to next person*	ED8. Grade: 98 DK
Line	Name	Age	Yes	No	Level	Grade	Yes	No	Level	Grade	Y	N	DK	Level	Grade
01		__ __	1	2	0 1 2 3 8	___ ___	1	2	0 1 2 3 8	___ ___	1	2	8	0 1 2 3 8	___ ___
02		__ __	1	2	0 1 2 3 8	___ ___	1	2	0 1 2 3 8	___ ___	1	2	8	0 1 2 3 8	___ ___
03		__ __	1	2	0 1 2 3 8	___ ___	1	2	0 1 2 3 8	___ ___	1	2	8	0 1 2 3 8	___ ___
04		__ __	1	2	0 1 2 3 8	___ ___	1	2	0 1 2 3 8	___ ___	1	2	8	0 1 2 3 8	___ ___
05		__ __	1	2	0 1 2 3 8	___ ___	1	2	0 1 2 3 8	___ ___	1	2	8	0 1 2 3 8	___ ___
06		__ __	1	2	0 1 2 3 8	___ ___	1	2	0 1 2 3 8	___ ___	1	2	8	0 1 2 3 8	___ ___
07		__ __	1	2	0 1 2 3 8	___ ___	1	2	0 1 2 3 8	___ ___	1	2	8	0 1 2 3 8	___ ___
08		__ __	1	2	0 1 2 3 8	___ ___	1	2	0 1 2 3 8	___ ___	1	2	8	0 1 2 3 8	___ ___
09		__ __	1	2	0 1 2 3 8	___ ___	1	2	0 1 2 3 8	___ ___	1	2	8	0 1 2 3 8	___ ___
10		__ __	1	2	0 1 2 3 8	___ ___	1	2	0 1 2 3 8	___ ___	1	2	8	0 1 2 3 8	___ ___
11		__ __	1	2	0 1 2 3 8	___ ___	1	2	0 1 2 3 8	___ ___	1	2	8	0 1 2 3 8	___ ___
12		__ __	1	2	0 1 2 3 8	___ ___	1	2	0 1 2 3 8	___ ___	1	2	8	0 1 2 3 8	___ ___

WATER AND SANITATION		WS
WS1. WHAT IS THE **MAIN** SOURCE OF DRINKING WATER FOR MEMBERS OF YOUR HOUSEHOLD?	Piped water Piped into dwelling.....11 Piped into compound, yard or plot.....12 Piped to neighbour .....13 Public tap / standpipe .....14 Tube Well, Borehole.....21 Dug well Protected well .....31 Unprotected well.....32 Water from spring Protected spring .....41 Unprotected spring .....42 Rainwater collection .....51 Tanker-truck .....61 Cart with small tank / drum.....71 Surface water (river, stream, dam, lake, pond, canal, irrigation channel) .....81 Bottled water.....91 Other (*specify*) _____ 96	11⇨WS6 12⇨WS6 13⇨WS6 WS3 96⇨WS3
WS2. WHAT IS THE **MAIN** SOURCE OF WATER USED BY YOUR HOUSEHOLD FOR OTHER PURPOSES SUCH AS COOKING AND HANDWASHING?	Piped water Piped into dwelling.....11 Piped into compound, yard or plot.....12 Piped to neighbour .....13 Public tap / standpipe .....14 Tube Well, Borehole.....21 Dug well Protected well .....31 Unprotected well.....32 Water from spring Protected spring .....41 Unprotected spring .....42 Rainwater collection .....51 Tanker-truck .....61 Cart with small tank / drum.....71 Surface water (river, stream, dam, lake, pond, canal, irrigation channel) .....81 Other (*specify*) _____ 96	11⇨WS6 12⇨WS6 13⇨WS6
WS3. WHERE IS THAT WATER SOURCE LOCATED?	In own dwelling .....1 In own yard / plot .....2 Elsewhere.....3	1⇨WS6 2⇨WS6
WS4. HOW LONG DOES IT TAKE TO GO THERE, GET WATER, AND COME BACK?	Number of minutes .....__ __ __ DK.....998	

WS5. WHO USUALLY GOES TO THIS SOURCE TO COLLECT THE WATER FOR YOUR HOUSEHOLD? *Probe:* IS THIS PERSON UNDER AGE 15? WHAT SEX?	Adult woman (age 15+ years) ..... 1 Adult man (age 15+ years) ..... 2 Female child (under 15) ..... 3 Male child (under 15) ..... 4 DK 8	
WS6. DO YOU DO ANYTHING TO THE WATER TO MAKE IT SAFER TO DRINK?	Yes ..... 1 No ..... 2 DK 8	2⇨WS8 8⇨WS8
WS7. WHAT DO YOU USUALLY DO TO MAKE THE WATER SAFER TO DRINK? *Probe:* ANYTHING ELSE? *Record all items mentioned.*	Boil ..... A Add bleach / chlorine ..... B Strain it through a cloth ..... C Use water filter (ceramic, sand, composite, etc.) ..... D Solar disinfection ..... E Let it stand and settle ..... F Other (*specify*) _____ X DK ..... Z	
WS8. WHAT KIND OF TOILET FACILITY DO MEMBERS OF YOUR HOUSEHOLD USUALLY USE? *If "flush" or "pour flush", probe:* WHERE DOES IT FLUSH TO? *If necessary, ask permission to observe the facility.*	Flush / Pour flush Flush to piped sewer system ..... 11 Flush to septic tank ..... 12 Flush to pit (latrine) ..... 13 Flush to somewhere else ..... 14 Flush to unknown place / Not sure / DK where ..... 15 Pit latrine Ventilated Improved Pit latrine (VIP) ..... 21 Pit latrine with slab ..... 22 Pit latrine without slab / Open pit ..... 23 Composting toilet ..... 31 Bucket ..... 41 Hanging toilet, Hanging latrine ..... 51 No facility, Bush, Field ..... 95 Other (*specify*) _____ 96	95⇨Next Module
WS9. DO YOU SHARE THIS FACILITY WITH OTHERS WHO ARE NOT MEMBERS OF YOUR HOUSEHOLD?	Yes ..... 1 No 2	2⇨Next Module
WS10. DO YOU SHARE THIS FACILITY ONLY WITH MEMBERS OF OTHER HOUSEHOLDS THAT YOU KNOW, OR IS THE FACILITY OPEN TO THE USE OF THE GENERAL PUBLIC?	Other households only (not public) ..... 1 Public facility 2	2⇨Next Module
WS11. HOW MANY HOUSEHOLDS IN TOTAL USE THIS TOILET FACILITY, INCLUDING YOUR OWN HOUSEHOLD?	Number of households (if less than 10) 0 __ Ten or more households ..... 10 DK 98	

HOUSEHOLD CHARACTERISTICS		HC
HC1A. WHAT IS THE RELIGION OF THE HEAD OF THIS HOUSEHOLD?	*Christian* ..... 1 *Muslim* ..... 2 *Traditional* ..... 3 Other religion (*specify*) _____ 6 No religion 7	
HC1B. WHAT IS THE MOTHER TONGUE/NATIVE LANGUAGE OF THE HEAD OF THIS HOUSEHOLD?	*Mende* ..... 1 *Temne* ..... 2 *Limba* ..... 3 *Creole* ..... 4 *Madingo* ..... 5 *Loko* ..... 6 *Sherbro* ..... 7 *Kono* ..... 8 Other language (*specify*) _____ 96	
HC1C. TO WHAT ETHNIC GROUP DOES THE HEAD OF THIS HOUSEHOLD BELONG?	*Mende* ..... 1 *Temne* ..... 2 *Limba* ..... 3 *Creole* ..... 4 *Madingo* ..... 5 *Loko* ..... 6 *Sherbro* ..... 7 *Kono* ..... 8 Other ethnic group (*specify*) _____ 96	
HC2. HOW MANY ROOMS IN THIS HOUSEHOLD ARE USED FOR SLEEPING?	Number of rooms ..... __ __	
HC3. Main material of the dwelling floor. *Record observation.*	Natural floor Earth / Sand ..... 11 Dung ..... 12 Rudimentary floor Wood planks ..... 21 Palm / Bamboo ..... 22 Finished floor Parquet or polished wood ..... 31 Vinyl or asphalt strips ..... 32 Ceramic tiles ..... 33 Cement ..... 34 Carpet ..... 35 Other (*specify*) _____ 96	

HC4. Main material of the roof. *Record observation.*	Natural roofing No Roof ..... 11 Thatch / Palm leaf ..... 12 Sod ..... 13 Rudimentary Roofing Rustic mat ..... 21 Palm / Bamboo ..... 22 Wood planks ..... 23 Cardboard ..... 24 Finished roofing Metal ..... 31 Wood ..... 32 Calamine / Cement fibre ..... 33 Ceramic tiles ..... 34 Cement ..... 35 Roofing shingles ..... 36 Other (*specify*)_____ 96	
HC5. Main material of the exterior walls. *Record observation.*	Natural walls No walls ..... 11 Cane / Palm / Trunks ..... 12 Dirt ..... 13 Rudimentary walls Bamboo with mud ..... 21 Stone with mud ..... 22 Uncovered adobe ..... 23 Plywood ..... 24 Cardboard ..... 25 Reused wood ..... 26 Finished walls Cement ..... 31 Stone with lime / cement ..... 32 Bricks ..... 33 Cement blocks ..... 34 Covered adobe ..... 35 Wood planks / shingles ..... 36 Other (*specify*)_____ 96	
HC6. WHAT TYPE OF FUEL DOES YOUR HOUSEHOLD **MAINLY** USE FOR COOKING?	Electricity ..... 01 Liquefied Petroleum Gas (LPG) ..... 02 Natural gas ..... 03 Biogas ..... 04 Kerosene ..... 05 Coal / Lignite ..... 06 Charcoal ..... 07 Wood ..... 08 Straw / Shrubs / Grass ..... 09 Animal dung ..... 10 Agricultural crop residue ..... 11 No food cooked in household ..... 95 Other (*specify*)_____ 96	01⇨HC8 02⇨HC8 03⇨HC8 04⇨HC8 05⇨HC8 95⇨HC8

HC7. IS THE COOKING USUALLY DONE IN THE HOUSE, IN A SEPARATE BUILDING, OR OUTDOORS? *If 'In the house', probe*: IS IT DONE IN A SEPARATE ROOM USED AS A KITCHEN?	In the house In a separate room used as kitchen ..... 1 Elsewhere in the house ..... 2 In a separate building ..... 3 Outdoors ..... 4 Other (*specify*) _____ 6	
HC8. DOES YOUR HOUSEHOLD HAVE:	Yes No	
[A] ELECTRICITY?	Electricity 1 2	
[B] A RADIO?	Radio 1 2	
[C] A TELEVISION?	Television 1 2	
[D] A NON-MOBILE TELEPHONE?	Non-mobile telephone 1 2	
[E] A REFRIGERATOR?	Refrigerator 1 2	
HC9. DOES ANY MEMBER OF YOUR HOUSEHOLD OWN:	Yes No	
[A] A WATCH?	Watch 1 2	
[B] A MOBILE TELEPHONE?	Mobile telephone 1 2	
[C] A BICYCLE?	Bicycle 1 2	
[D] A MOTORCYCLE OR SCOOTER?	Motorcycle / Scooter 1 2	
[E] AN ANIMAL-DRAWN CART?	Animal drawn-cart 1 2	
[F] A CAR OR TRUCK?	Car / Truck 1 2	
[G] A BOAT WITH A MOTOR?	Boat with motor 1 2	
HC10. DO YOU OR SOMEONE LIVING IN THIS HOUSEHOLD OWN THIS DWELLING? *If "No", then ask:* DO YOU RENT THIS DWELLING FROM SOMEONE NOT LIVING IN THIS HOUSEHOLD? *If "Rented from someone else", circle "2". For other responses, circle "6".*	Own ..... 1 Rent ..... 2 Other (Not owned or rented) 6	
HC11. DOES ANY MEMBER OF THIS HOUSEHOLD OWN ANY LAND THAT CAN BE USED FOR AGRICULTURE?	Yes ..... 1 No 2	2⇨HC13
HC12. HOW MANY HECTARES OF AGRICULTURAL LAND DO MEMBERS OF THIS HOUSEHOLD OWN? *If less than 1, record "00". If 95 or more, record '95'. If unknown, record '98'.*	Hectares ..... ___ ___	
HC13. DOES THIS HOUSEHOLD OWN ANY LIVESTOCK, HERDS, OTHER FARM ANIMALS, OR POULTRY?	Yes ..... 1 No 2	2⇨HC15

HC14. HOW MANY OF THE FOLLOWING ANIMALS DOES THIS HOUSEHOLD HAVE? [A] CATTLE, MILK COWS, OR BULLS? [B] HORSES, DONKEYS, OR MULES? [C] GOATS? [D] SHEEP? [E] CHICKENS? [F] PIGS? *If none, record '00'.* *If 95 or more, record '95'.* *If unknown, record '98'.*	 Cattle, milk cows, or bulls ..... ___ ___ Horses, donkeys, or mules ..... ___ ___ Goats..... ___ ___ Sheep..... ___ ___ Chickens ..... ___ ___ Pigs ..... ___ ___	
HC15. DOES ANY MEMBER OF THIS HOUSEHOLD HAVE A BANK ACCOUNT?	Yes ..... 1 No..... 2	

INSECTICIDE TREATED NETS		TN
TN1. DOES YOUR HOUSEHOLD HAVE ANY MOSQUITO NETS THAT CAN BE USED WHILE SLEEPING?	Yes .... 1 No 2	2⇨Next Module
TN2. HOW MANY MOSQUITO NETS DOES YOUR HOUSEHOLD HAVE?	Number of nets .... ___ ___	
TN3. *Ask the respondent to show you the nets in the household. If more than 3 nets, use additional questionnaire(s).*		

	1st Net	2nd Net	3rd Net
TN4. *Mosquito net observed?*	Observed .... 1 Not observed 2	Observed .... 1 Not observed 2	Observed .... 1 Not observed 2
TN5. *Observe or ask the brand/type of mosquito net* *If brand is unknown and you cannot observe the net, show pictures of typical net types/brands to respondent*	Long-lasting treated nets Olyset .... 11 Permanet .... 12 Brand C .... 13 Other (*specify*) _____ 16 DK brand .... 18 Pre-treated nets Olyset .... 21 Permanet .... 22 Brand F .... 23 Other (*specify*) _____ 26 DK brand .... 28 Other net (*specify*) __________ 31 DK brand / type 98	Long-lasting treated nets Olyset .... 11 Permanet .... 12 Brand C .... 13 Other (*specify*) _____ 16 DK brand .... 18 Pre-treated nets Olyset .... 21 Permanet .... 22 Brand F .... 23 Other (*specify*) _____ 26 DK brand .... 28 Other net (*specify*) __________ 31 DK brand / type 98	Long-lasting treated nets Olyset .... 11 Permanet .... 12 Brand C .... 13 Other (*specify*) _____ 16 DK brand .... 18 Pre-treated nets Olyset .... 21 Permanet .... 22 Brand F .... 23 Other (*specify*) _____ 26 DK brand .... 28 Other net (*specify*) __________ 31 DK brand / type 98
TN6. HOW MANY MONTHS AGO DID YOUR HOUSEHOLD GET THE MOSQUITO NET? *If less than one month, record "00"*	Months ago .... ___ ___ More than 36 mo. ago .... 95 DK / Not sure 98	Months ago .... ___ ___ More than 36 mo. ago .... 95 DK / Not sure 98	Months ago .... ___ ___ More than 36 mo. ago .... 95 DK / Not sure 98
TN7. *Check TN5 for type of net*	☐ *Long-lasting (11-18)* ⇨ *TN11* ☐ *Pre-treated (21-28)* ⇨ *TN9* ☐ *Else* ⇨ *Continue*	☐ *Long-lasting (11-18)* ⇨ *TN11* ☐ *Pre-treated (21-28)* ⇨ *TN9* ☐ *Else* ⇨ *Continue*	☐ *Long-lasting (11-18)* ⇨ *TN11* ☐ *Pre-treated (21-28)* ⇨ *TN9* ☐ *Else* ⇨ *Continue*
TN8. WHEN YOU GOT THE NET, WAS IT ALREADY TREATED WITH AN INSECTICIDE TO KILL OR REPEL MOSQUITOES?	Yes .... 1 No .... 2 DK / Not sure 8	Yes .... 1 No .... 2 DK / Not sure 8	Yes .... 1 No .... 2 DK / Not sure 8
TN9. SINCE YOU GOT THE NET, WAS IT EVER SOAKED OR DIPPED IN A LIQUID TO KILL OR REPEL MOSQUITOES?	Yes .... 1 No .... 2 ⇨ TN11 DK / Not sure .... 8 ⇨ TN11	Yes .... 1 No .... 2 ⇨ TN11 DK / Not sure .... 8 ⇨ TN11	Yes .... 1 No .... 2 ⇨ TN11 DK / Not sure .... 8 ⇨ TN11

TN10. HOW MANY MONTHS AGO WAS THE NET LAST SOAKED OR DIPPED? *If less than one month, record "00"*	Months ago ..... ___ ___ More than 24 mo. ago ... 95 DK / Not sure 98	Months ago ..... ___ ___ More than 24 mo. ago ... 95 DK / Not sure 98	Months ago ..... ___ ___ More than 24 mo. ago ... 95 DK / Not sure 98
TN11. DID ANYONE SLEEP UNDER THIS MOSQUITO NET LAST NIGHT?	Yes ..... 1 No ..... 2 ⇨ TN13 DK / Not sure ..... 8 ⇨ TN13	Yes ..... 1 No ..... 2 ⇨ TN13 DK / Not sure ..... 8 ⇨ TN13	Yes ..... 1 No ..... 2 ⇨ TN13 DK / Not sure ..... 8 ⇨ TN13
TN12. WHO SLEPT UNDER THIS MOSQUITO NET LAST NIGHT? *Record the person's line number from the household listing form* *If someone not in the household list slept under the mosquito net, record "00"*	Name _____ Line number ..... ___ ___ Name _____ Line number ..... ___ ___ Name _____ Line number ..... ___ ___ Name _____ Line number ..... ___ ___	Name _____ Line number ..... ___ ___ Name _____ Line number ..... ___ ___ Name _____ Line number ..... ___ ___ Name _____ Line number ..... ___ ___	Name _____ Line number ..... ___ ___ Name _____ Line number ..... ___ ___ Name _____ Line number ..... ___ ___ Name _____ Line number ..... ___ ___
TN13.	*Go back to TN4 for next net. If no more nets, go to next module*	*Go back to TN4 for next net. If no more nets, go to next module*	*Go back to TN4 in first column of a new questionnaire for next net. If no more nets, go to next module*
			Tick here if additional questionnaire used ☐

INDOOR RESIDUAL SPRAYING		IR
IR1. AT ANY TIME IN THE PAST 12 MONTHS, HAS ANYONE COME INTO YOUR DWELLING TO SPRAY THE INTERIOR WALLS AGAINST MOSQUITOES?	Yes ..... 1 No ..... 2 DK 8	 2⇨Next Module 8⇨Next Module
IR2. WHO SPRAYED THE DWELLING? *Circle all that apply.*	Government worker / program ..... A Private company ..... B Non-governmental organization ..... C Other (*specify*) _____ X DK ..... Z	

CHILD LABOUR — CL

To be administered for children in the household age **5-14** *years. For household members below age 5 or above age 14, leave rows blank.*

NOW I WOULD LIKE TO ASK ABOUT ANY WORK CHILDREN IN THIS HOUSEHOLD MAY DO.

CL1. *Line number*	CL2. *Name and Age* *Copy from Household Listing Form, HL2 and HL6*		CL3. DURING THE PAST WEEK, DID (*name*) DO ANY KIND OF WORK FOR SOMEONE WHO IS NOT A MEMBER OF THIS HOUSEHOLD? *If yes*: FOR PAY IN CASH OR KIND? 1 Yes, for pay (cash or kind) 2 Yes, unpaid 3 No ⇨CL5			CL4. SINCE LAST (*day of the week*), ABOUT HOW MANY HOURS DID HE/SHE DO THIS WORK FOR SOMEONE WHO IS NOT A MEMBER OF THIS HOUSEHOLD? *If more than one job, include all hours at all jobs.*	CL5. DURING THE PAST WEEK, DID (*name*) FETCH WATER OR COLLECT FIREWOOD FOR HOUSEHOLD USE? 1 Yes 2 No ⇨ CL7		CL6. SINCE LAST (*day of the week*), ABOUT HOW MANY HOURS DID HE/SHE FETCH WATER OR COLLECT FIREWOOD FOR HOUSEHOLD USE?	CL7. DURING THE PAST WEEK, DID (*name*) DO ANY PAID OR UNPAID WORK ON A FAMILY FARM OR IN A FAMILY BUSINESS OR SELLING GOODS IN THE STREET? *Include work for a business run by the child, alone or with one or more partners.* 1 Yes 2 No ⇨ CL9		CL8. SINCE LAST (*day of the week*), ABOUT HOW MANY HOURS DID HE/SHE DO THIS WORK FOR HIS/HER FAMILY OR HIMSELF/ HERSELF?	CL9. DURING THE PAST WEEK, DID (*name*) HELP WITH HOUSEHOLD CHORES SUCH AS SHOPPING, CLEANING, WASHING CLOTHES, COOKING; OR CARING FOR CHILDREN, OLD OR SICK PEOPLE? 1 Yes 2 No ⇨ Next Line		CL10. SINCE LAST (*day of the week*), ABOUT HOW MANY HOURS DID HE/SHE SPEND DOING THESE CHORES?
Line	Name	Age	Yes Paid	Yes Unpaid	No	Number of hours	Yes	No	Number of hours	Yes	No	Number of hours	Yes	No	Number of hours
01		__ __	1	2	3	___ ___	1	2	___ ___	1	2	___ ___	1	2	___ ___
02		__ __	1	2	3	___ ___	1	2	___ ___	1	2	___ ___	1	2	___ ___
03		__ __	1	2	3	___ ___	1	2	___ ___	1	2	___ ___	1	2	___ ___
04		__ __	1	2	3	___ ___	1	2	___ ___	1	2	___ ___	1	2	___ ___
05		__ __	1	2	3	___ ___	1	2	___ ___	1	2	___ ___	1	2	___ ___
06		__ __	1	2	3	___ ___	1	2	___ ___	1	2	___ ___	1	2	___ ___
07		__ __	1	2	3	___ ___	1	2	___ ___	1	2	___ ___	1	2	___ ___
08		__ __	1	2	3	___ ___	1	2	___ ___	1	2	___ ___	1	2	___ ___
09		__ __	1	2	3	___ ___	1	2	___ ___	1	2	___ ___	1	2	___ ___
10		__ __	1	2	3	___ ___	1	2	___ ___	1	2	___ ___	1	2	___ ___
11		__ __	1	2	3	___ ___	1	2	___ ___	1	2	___ ___	1	2	___ ___
12		__ __	1	2	3	___ ___	1	2	___ ___	1	2	___ ___	1	2	___ ___

CHILD DISCIPLINE CD

TABLE 1: CHILDREN AGED 2-14 YEARS ELIGIBLE FOR CHILD DISCIPLINE QUESTIONS

- *List each of the children aged 2-14 years below in the order they appear in the Household Listing Form. Do not include other household members outside of the age range 2-14 years.*
- *Record the line number, name, sex, and age for each child.*
- *Then record the total number of children aged 2-14 in the box provided (CD6).*

CD1. *Rank number*	CD2. *Line number from HL1*	CD3. *Name from HL2*	CD4. *Sex from HL4*	CD5. *Age from HL6*
Rank	Line	Name	M F	Age
1	__ __		1 2	___ ___
2	__ __		1 2	___ ___
3	__ __		1 2	___ ___
4	__ __		1 2	___ ___
5	__ __		1 2	___ ___
6	__ __		1 2	___ ___
7	__ __		1 2	___ ___
8	__ __		1 2	___ ___
CD6.	Total children age 2-14 years			___ ___

- *If there is only one child age 2-14 years in the household, then skip table 2 and go to CD8; write down '1' and continue with CD9*

TABLE 2: SELECTION OF RANDOM CHILD FOR CHILD DISCIPLINE QUESTIONS

- *Use Table 2 to select one child between the ages of 2 and 14 years, if there is more than one child in that age range in the household.*
- *Check the last digit of the household number (HH2) from the cover page. This is the number of the row you should go to in the table below.*
- *Check the total number of eligible children (2-14) in CD6 above. This is the number of the column you should go to.*
- *Find the box where the row and the column meet and circle the number that appears in the box. This is the rank number of the child (CD1) about whom the questions will be asked.*

CD7.	**Total Number Of Eligible Children In The Household (CD6)**							
Last digit of household number (HH2)	1	2	3	4	5	6	7	8+
0	1	2	2	4	3	6	5	4
1	1	1	3	1	4	1	6	5
2	1	2	1	2	5	2	7	6
3	1	1	2	3	1	3	1	7
4	1	2	3	4	2	4	2	8
5	1	1	1	1	3	5	3	1
6	1	2	2	2	4	6	4	2
7	1	1	3	3	5	1	5	3
8	1	2	1	4	1	2	6	4
9	1	1	2	1	2	3	7	5

CD8. *Record the rank number of the selected child*.....___

CD9. *Write name and line number of the child selected for the module from CD3 and CD2, based on the rank number in CD8.*	Name _____ Line number ..... __ __	
CD10. ADULTS USE CERTAIN WAYS TO TEACH CHILDREN THE RIGHT BEHAVIOUR OR TO ADDRESS A BEHAVIOUR PROBLEM. I WILL READ VARIOUS METHODS THAT ARE USED AND I WANT YOU TO TELL ME IF YOU OR ANYONE ELSE IN YOUR HOUSEHOLD HAS USED THIS METHOD WITH *(name)* **IN THE PAST MONTH**. CD11. TOOK AWAY PRIVILEGES, FORBADE SOMETHING *(name)* LIKED OR DID NOT ALLOW HIM/HER TO LEAVE HOUSE.	Yes ..... 1 No 2	
CD12. EXPLAINED WHY (*name*)'S BEHAVIOR WAS WRONG.	Yes ..... 1 No 2	
CD13. SHOOK HIM/HER.	Yes ..... 1 No 2	
CD14. SHOUTED, YELLED AT OR SCREAMED AT HIM/HER.	Yes ..... 1 No 2	
CD15. GAVE HIM/HER SOMETHING ELSE TO DO.	Yes ..... 1 No 2	
CD16. SPANKED, HIT OR SLAPPED HIM/HER ON THE BOTTOM WITH BARE HAND.	Yes ..... 1 No 2	
CD17. HIT HIM/HER ON THE BOTTOM OR ELSEWHERE ON THE BODY WITH SOMETHING LIKE A BELT, HAIRBRUSH, STICK OR OTHER HARD OBJECT.	Yes ..... 1 No 2	
CD18. CALLED HIM/HER DUMB, LAZY, OR ANOTHER NAME LIKE THAT.	Yes ..... 1 No 2	
CD19. HIT OR SLAPPED HIM/HER ON THE FACE, HEAD OR EARS.	Yes ..... 1 No 2	
CD20. HIT OR SLAPPED HIM/HER ON THE HAND, ARM, OR LEG.	Yes ..... 1 No 2	
CD21. BEAT HIM/HER UP, THAT IS HIT HIM/HER OVER AND OVER AS HARD AS ONE COULD.	Yes ..... 1 No 2	
CD22. DO YOU BELIEVE THAT IN ORDER TO BRING UP, RAISE, OR EDUCATE A CHILD PROPERLY, THE CHILD NEEDS TO BE PHYSICALLY PUNISHED?	Yes ..... 1 No ..... 2 Don't know / No opinion 8	

HANDWASHING		HW
HW1. PLEASE SHOW ME WHERE MEMBERS OF YOUR HOUSEHOLD MOST OFTEN WASH THEIR HANDS.	Observed ..... 1 Not observed Not in dwelling / plot / yard ..... 2 No permission to see ..... 3 Other reason 6	 2 ⇨HW4 3 ⇨HW4 6 ⇨HW4
HW2. *Observe presence of water at the specific place for handwashing.* *Verify by checking the tap/pump, or basin, bucket, water container or similar objects for presence of water.*	Water is available ..... 1 Water is not available 2	
HW3. *Record if soap or detergent is present at the specific place for handwashing.* *Circle all that apply.* *Skip to HH19 if any soap or detergent code (A, B, C or D) is circled. If "None" (Y) is circled, continue with HW4.*	Bar soap ..... A Detergent (Powder / Liquid / Paste) ..... B Liquid soap ..... C Ash / Mud / Sand ..... D None ..... Y	A⇨HH19 B⇨HH19 C⇨HH19 D⇨HH19
HW4. DO YOU HAVE ANY SOAP OR DETERGENT (***or other locally used cleansing agent***) IN YOUR HOUSEHOLD FOR WASHING HANDS?	Yes ..... 1 No 2	 2⇨HH19
HW5. CAN YOU PLEASE SHOW IT TO ME? *Record observation. Circle all that apply*	Bar soap ..... A Detergent (Powder / Liquid / Paste) ..... B Liquid soap ..... C Ash / Mud / Sand ..... D Not able / Does not want to show ..... Y	

HH19. *Record the time.*	Hour and minutes .....__ __ : __ __	

SALT IODIZATION		**SI**
SI1. WE WOULD LIKE TO CHECK WHETHER THE SALT USED IN YOUR HOUSEHOLD IS IODIZED. MAY I HAVE A SAMPLE OF THE SALT USED TO COOK MEALS IN YOUR HOUSEHOLD? *Once you have tested the salt, circle number that corresponds to test outcome.*	Not iodized 0 PPM .....1 More than 0 PPM & less than 15 PPM.....2 15 PPM or more .....3 No salt in the house.....6 Salt not tested 7	

HH20. *Does any eligible woman age 15-49 reside in the household?*

Check household listing, column HL7 for any eligible woman.
You should have a questionnaire with the Information Panel filled in for each eligible woman.

☐ *Yes.* ⇨ *Go to QUESTIONNAIRE FOR INDIVIDUAL WOMEN*
to administer the questionnaire to the first eligible woman.

☐ *No.* ⇨ *Continue.*

HH21. *Does any child under the age of 5 reside in the household?*

Check household listing, column HL9 for any eligible child under age 5.
You should have a questionnaire with the Information Panel filled in for each eligible child.

☐ *Yes.* ⇨ *Go to QUESTIONNAIRE FOR CHILDREN UNDER FIVE*
to administer the questionnaire to mother or caretaker of the first eligible child.

☐ *No.* ⇨ *End the interview by thanking the respondent for his/her cooperation.*
Gather together all questionnaires for this household and complete the relevant information on the cover page.

MICS

QUESTIONNAIRE FOR INDIVIDUAL WOMEN
SIERRA LEONE

WOMAN'S INFORMATION PANEL	WM
This questionnaire is to be administered to all women age 15 through 49 (see column HL7 of Household Listing Form). Fill in one form for each eligible woman	
WM1. Cluster number: ___ ___ ___	WM2. Household number: ___ ___
WM3. Woman's name: Name_____	WM4. Woman's line number: ___ ___
WM5. Interviewer name and number: Name_____ ___ ___	WM6. Day / Month / Year of interview: ___ ___ / ___ ___ / ___ ___ ___ ___

Repeat greeting if not already read to this woman:

WE ARE FROM ***Statistics Sierra Leone***. WE ARE WORKING ON A PROJECT CONCERNED WITH FAMILY HEALTH AND EDUCATION. I WOULD LIKE TO TALK TO YOU ABOUT THESE SUBJECTS. THE INTERVIEW WILL TAKE ABOUT ***45*** MINUTES. ALL THE INFORMATION WE OBTAIN WILL REMAIN STRICTLY CONFIDENTIAL AND YOUR ANSWERS WILL NEVER BE SHARED WITH ANYONE OTHER THAN OUR PROJECT TEAM.

If greeting at the beginning of the household questionnaire has already been read to this woman, then read the following:

NOW I WOULD LIKE TO TALK TO YOU MORE ABOUT YOUR HEALTH AND OTHER TOPICS. THIS INTERVIEW WILL TAKE ABOUT ***45*** MINUTES. AGAIN, ALL THE INFORMATION WE OBTAIN WILL REMAIN STRICTLY CONFIDENTIAL AND YOUR ANSWERS WILL NEVER BE SHARED WITH ANYONE OTHER THAN OUR PROJECT TEAM.

MAY I START NOW?

☐ *Yes, permission is given ⇨ Go to WM10 to record the time and then begin the interview.*

☐ *No, permission is not given ⇨ Complete WM7. Discuss this result with your supervisor.*

WM7. Result of woman's interview	
	Completed .....01 Not at home .....02 Refused .....03 Partly completed .....04 Incapacitated .....05 Other (*specify*) _____ 96

WM8. Field edited by (Name and number):	WM9. Data entry clerk (Name and number):
Name _____ ___ ___	Name_____ ___ ___

WM10. *Record the time.*	Hour and minutes.....__ __ : __ __	

WOMAN'S BACKGROUND		**WB**
WB1. IN WHAT MONTH AND YEAR WERE YOU BORN?	Date of birth Month.....__ __ DK month.....98 Year .....__ __ __ __ DK year.....9998	
WB2. HOW OLD ARE YOU? *Probe:* HOW OLD WERE YOU AT YOUR LAST BIRTHDAY? *Compare and correct WB1 and/or WB2 if inconsistent*	Age (in completed years) .....__ __	
WB3. HAVE YOU EVER ATTENDED SCHOOL OR PRESCHOOL?	Yes .....1 No.....2	2⇨WB7
WB4. WHAT IS THE HIGHEST LEVEL OF SCHOOL YOU ATTENDED?	Preschool .....0 Primary.....1 Secondary .....2 Higher.....3	0⇨WB7
WB5. WHAT IS THE HIGHEST GRADE YOU COMPLETED AT THAT LEVEL? *If less than 1 grade, enter "00"*	Grade .....__ __	
WB6. *Check WB4:* ☐ *Secondary or higher. ⇨ Go to Next Module* ☐ *Primary ⇨ Continue with WB7*		
WB7. NOW I WOULD LIKE YOU TO READ THIS SENTENCE TO ME. *Show sentence on the card to the respondent. If respondent cannot read whole sentence, probe:* CAN YOU READ PART OF THE SENTENCE TO ME?	Cannot read at all .....1 Able to read only parts of sentence.....2 Able to read whole sentence.....3 No sentence in required language_____4 *(specify language)* Blind / mute, visually / speech impaired.....5	

CHILD MORTALITY		CM
All questions refer only to LIVE births.		
CM1. NOW I WOULD LIKE TO ASK ABOUT ALL THE BIRTHS YOU HAVE HAD DURING YOUR LIFE. HAVE YOU EVER GIVEN BIRTH?	Yes ..... 1 No 2	2⇨CM8
CM2. WHAT WAS THE DATE OF YOUR FIRST BIRTH? I MEAN THE VERY FIRST TIME YOU GAVE BIRTH, EVEN IF THE CHILD IS NO LONGER LIVING, OR WHOSE FATHER IS NOT YOUR CURRENT PARTNER. *Skip to CM4 only if year of first birth is given. Otherwise, continue with CM3.*	Date of first birth Day ..... __ __ DK day ..... 98 Month ..... __ __ DK month ..... 98 Year ..... __ __ __ __ DK year 9998	⇨CM4
CM3. HOW MANY YEARS AGO DID YOU HAVE YOUR FIRST BIRTH?	Completed years since first birth ..... __ __	
CM4. DO YOU HAVE ANY SONS OR DAUGHTERS TO WHOM YOU HAVE GIVEN BIRTH WHO ARE NOW LIVING WITH YOU?	Yes ..... 1 No 2	2⇨CM6
CM5. HOW MANY SONS LIVE WITH YOU? HOW MANY DAUGHTERS LIVE WITH YOU? *If none, record '00'.*	Sons at home ..... __ __ Daughters at home ..... __ __	
CM6. DO YOU HAVE ANY SONS OR DAUGHTERS TO WHOM YOU HAVE GIVEN BIRTH WHO ARE ALIVE BUT DO NOT LIVE WITH YOU?	Yes ..... 1 No 2	2⇨CM8
CM7. HOW MANY SONS ARE ALIVE BUT DO NOT LIVE WITH YOU? HOW MANY DAUGHTERS ARE ALIVE BUT DO NOT LIVE WITH YOU? *If none, record '00'.*	Sons elsewhere ..... __ __ Daughters elsewhere ..... __ __	
CM8. HAVE YOU EVER GIVEN BIRTH TO A BOY OR GIRL WHO WAS BORN ALIVE BUT LATER DIED? *If "No" probe by asking:* I MEAN, TO A CHILD WHO EVER BREATHED OR CRIED OR SHOWED OTHER SIGNS OF LIFE – EVEN IF HE OR SHE LIVED ONLY A FEW MINUTES OR HOURS?	Yes ..... 1 No 2	2⇨CM10
CM9. HOW MANY BOYS HAVE DIED? HOW MANY GIRLS HAVE DIED? *If none, record '00'.*	Boys dead ..... __ __ Girls dead ..... __ __	
CM10. Sum answers to CM5, CM7, and CM9.	Sum ..... __ __	

CM11. JUST TO MAKE SURE THAT I HAVE THIS RIGHT, YOU HAVE HAD IN TOTAL (*total number*) LIVE BIRTHS DURING YOUR LIFE. IS THIS CORRECT?

☐ *Yes. Check below:*

☐ *No births ⇨ Go to ILLNESS SYMPTOMS Module*

☐ *One or more births ⇨ Continue with CM12*

☐ *No. ⇨ Check responses to CM1-CM10 and make corrections as necessary before proceeding to CM12*

CM12. OF THESE (*total number*) BIRTHS YOU HAVE HAD, WHEN DID YOU DELIVER THE LAST ONE (EVEN IF HE OR SHE HAS DIED)? Month and year must be recorded.	Date of last birth Day .....__ __ DK day.....98 Month ..... __ __ Year .....__ __ __ __	

CM13. *Check CM12: Last birth occurred within the last 2 years, that is, since (day and month of interview) in* ***2008***

☐ *No live birth in last 2 years. ⇨ Go to ILLNESS SYMPTOMS Module.*

☐ *Yes, live birth in last 2 years. ⇨ Ask for the name of the child*

*Name of child*_____

If child has died, take special care when referring to this child by name in the following modules.

Continue with the next module.

DESIRE FOR LAST BIRTH		DB
This module is to be administered to all women with a live birth in the 2 years preceding date of interview. Check child mortality module CM13 and record name of last-born child here _____. Use this child's name in the following questions, where indicated.		
DB1. WHEN YOU GOT PREGNANT WITH (*name*), DID YOU WANT TO GET PREGNANT AT THAT TIME?	Yes ..... 1 No 2	1⇨Next Module
DB2. DID YOU WANT TO HAVE A BABY LATER ON, OR DID YOU NOT WANT ANY (MORE) CHILDREN?	Later ..... 1 No more 2	2⇨Next Module
DB3. HOW MUCH LONGER DID YOU WANT TO WAIT?	Months ..... 1 __ __ Years ..... 2 __ __ DK 998	

MATERNAL AND NEWBORN HEALTH — MN

This module is to be administered to all women with a live birth in the 2 years preceding date of interview.
Check child mortality module CM13 and record name of last-born child here _____.
Use this child's name in the following questions, where indicated.

MN1. DID YOU SEE ANYONE FOR ANTENATAL CARE DURING YOUR PREGNANCY WITH (*name*)?	Yes ..... 1 No 2	 2⇨MN5
MN2. WHOM DID YOU SEE? *Probe:* ANYONE ELSE? *Probe for the type of person seen and circle all answers given.*	Health professional: Doctor ..... A Nurse / Midwife ..... B Auxiliary midwife ..... C Other person Traditional birth attendant ..... F Community health worker ..... G Other (*specify*) _____ X	
MN3. HOW MANY TIMES DID YOU RECEIVE ANTENATAL CARE DURING THIS PREGNANCY?	Number of times ..... __ __ DK 98	
MN4. AS PART OF YOUR ANTENATAL CARE DURING THIS PREGNANCY, WERE ANY OF THE FOLLOWING DONE AT LEAST ONCE: [A] WAS YOUR BLOOD PRESSURE MEASURED? [B] DID YOU GIVE A URINE SAMPLE? [C] DID YOU GIVE A BLOOD SAMPLE?	Yes No Blood pressure ..... 1 2 Urine sample ..... 1 2 Blood sample 1 2	
MN5. DO YOU HAVE A CARD OR OTHER DOCUMENT WITH YOUR OWN IMMUNIZATIONS LISTED? MAY I SEE IT PLEASE? *If a card is presented, use it to assist with answers to the following questions.*	Yes (card seen) ..... 1 Yes (card not seen) ..... 2 No ..... 3 DK 8	
MN6. WHEN YOU WERE PREGNANT WITH (*name*), DID YOU RECEIVE ANY INJECTION IN THE ARM OR SHOULDER TO PREVENT THE BABY FROM GETTING TETANUS, THAT IS CONVULSIONS AFTER BIRTH?	Yes ..... 1 No ..... 2 DK 8	 2⇨MN9 8⇨MN9
MN7. HOW MANY TIMES DID YOU RECEIVE THIS TETANUS INJECTION DURING YOUR PREGNANCY WITH (*name*)? *If 7 or more times, record '7'.*	Number of times ..... __ DK 8	 8⇨MN9

MN8. *How many tetanus injections during last pregnancy were reported in MN7?*

☐ *At least two tetanus injections during last pregnancy. ⇨ Go to MN12*
☐ *Fewer than two tetanus injections during last pregnancy. ⇨ Continue with MN9*

MN9. DID YOU RECEIVE ANY TETANUS INJECTION AT ANY TIME BEFORE YOUR PREGNANCY WITH (*name*), EITHER TO PROTECT YOURSELF OR ANOTHER BABY?	Yes ..... 1 No ..... 2 DK 8	 2⇨MN12 8⇨MN12
MN10. HOW MANY TIMES DID YOU RECEIVE A TETANUS INJECTION BEFORE YOUR PREGNANCY WITH (*name*)? *If 7 or more times, record '7'.*	Number of times ..... __ DK 8	 8⇨MN12
MN11. HOW MANY YEARS AGO DID YOU RECEIVE THE LAST TETANUS INJECTION BEFORE YOUR PREGNANCY WITH (*name*)?	Years ago ..... __ __	
MN12. *Check MN1 for presence of antenatal care during this pregnancy:* ☐ *Yes, antenatal care received.⇨ Continue with MN13* ☐ *No antenatal care received ⇨ Go to MN17*		
MN13. DURING ANY OF THESE ANTENATAL VISITS FOR THE PREGNANCY, DID YOU TAKE ANY MEDICINE IN ORDER TO PREVENT YOU FROM GETTING MALARIA?	Yes ..... 1 No ..... 2 DK 8	 2⇨MN17 8⇨MN17
MN14. WHICH MEDICINES DID YOU TAKE TO PREVENT MALARIA? *Circle all medicines taken. If type of medicine is not determined, show typical anti-malarial to respondent.*	SP / Fansidar ..... A Chloroquine ..... B Other (*specify*) _____ X DK ..... Z	
MN15. *Check MN14 for medicine taken:* ☐ *SP / Fansidar taken.⇨ Continue with MN16* ☐ *SP / Fansidar not taken.⇨ Go to MN17*		
MN16. DURING THIS PREGNANCY, HOW MANY TIMES DID YOU TAKE SP/ FANSIDAR?	Number of times ..... __ __ DK 98	
MN17. WHO ASSISTED WITH THE DELIVERY OF (*name*)? *Probe:* ANYONE ELSE? *Probe for the type of person assisting and circle all answers given.* *If respondent says no one assisted, probe to determine whether any adults were present at the delivery.*	Health professional: Doctor ..... A Nurse / Midwife ..... B Auxiliary midwife ..... C Other person Traditional birth attendant ..... F Community health worker ..... G Relative / Friend ..... H Other (*specify*) _____ X No one ..... Y	

MN18. WHERE DID YOU GIVE BIRTH TO (*name*)? *Probe to identify the type of source.* *If unable to determine whether public or private, write the name of the place.* _____ *(Name of place)*	Home Your home ..... 11 Other home ..... 12 Public sector Govt. hospital ..... 21 Govt. clinic / health centre ..... 22 Govt. health post ..... 23 Other public (*specify*)_____ 26 Private Medical Sector Private hospital ..... 31 Private clinic ..... 32 Private maternity home ..... 33 Other private medical (*specify*) _____ 36 Other (*specify*) _____ 96	11⇨MN20 12⇨MN20 96⇨MN20
MN19. WAS (*name*) DELIVERED BY CAESEREAN SECTION? THAT IS, DID THEY CUT YOUR BELLY OPEN TO TAKE THE BABY OUT?	Yes ..... 1 No 2	
MN20. WHEN (*name*) WAS BORN, WAS HE/SHE VERY LARGE, LARGER THAN AVERAGE, AVERAGE, SMALLER THAN AVERAGE, OR VERY SMALL?	Very large ..... 1 Larger than average ..... 2 Average ..... 3 Smaller than average ..... 4 Very small ..... 5 DK 8	
MN21. WAS (*name*) WEIGHED AT BIRTH?	Yes ..... 1 No ..... 2 DK 8	 2⇨MN23 8⇨MN23
MN22. HOW MUCH DID (*name*) WEIGH? *Record weight from health card, if available.*	From card ..... 1 (kg) __ . __ __ __ From recall ..... 2 (kg) __ . __ __ __ DK 99998	
MN23. HAS YOUR MENSTRUAL PERIOD RETURNED SINCE THE BIRTH OF (*name*)?	Yes ..... 1 No 2	
MN24. DID YOU EVER BREASTFEED (*name*)?	Yes ..... 1 No 2	 2⇨Next Module
MN25. HOW LONG AFTER BIRTH DID YOU FIRST PUT (*name*) TO THE BREAST? *If less than 1 hour, record '00' hours.* *If less than 24 hours, record hours.* *Otherwise, record days.*	Immediately ..... 000 Hours ..... 1 __ __ Days ..... 2 __ __ Don't know / remember 998	

MN26. IN THE FIRST THREE DAYS AFTER DELIVERY, WAS (*name*) GIVEN ANYTHING TO DRINK OTHER THAN BREAST MILK?	Yes ..... 1 No 2	2⇨Next Module
MN27. WHAT WAS (*name*) GIVEN TO DRINK? *Probe:* ANYTHING ELSE?	Milk (other than breast milk) ..... A Plain water ..... B Sugar or glucose water ..... C Gripe water ..... D Sugar-salt-water solution ..... E Fruit juice ..... F Infant formula ..... G Tea / Infusions ..... H Honey ..... I Other (*specify*) _____ X	

ILLNESS SYMPTOMS		IS
IS1. *Check Household Listing, column HL9* Is the respondent the mother or caretaker of any child under age 5? ☐ Yes. ⇨ Continue with IS2. ☐ No. ⇨ Go to Next Module.		
IS2. SOMETIMES CHILDREN HAVE SEVERE ILLNESSES AND SHOULD BE TAKEN IMMEDIATELY TO A HEALTH FACILITY. WHAT TYPES OF SYMPTOMS WOULD CAUSE YOU TO TAKE YOUR CHILD TO A HEALTH FACILITY RIGHT AWAY? *Probe:* ANY OTHER SYMPTOMS? Keep asking for more signs or symptoms until the mother/caretaker cannot recall any additional symptoms. Circle all symptoms mentioned, but do NOT prompt with any suggestions	Child not able to drink or breastfeed ..... A Child becomes sicker ..... B Child develops a fever ..... C Child has fast breathing ..... D Child has difficult breathing ..... E Child has blood in stool ..... F Child is drinking poorly ..... G Other (*specify*) _____ X Other (*specify*) _____ Y Other (*specify*) _____ Z	

CONTRACEPTION		CP
CP1. I WOULD LIKE TO TALK WITH YOU ABOUT ANOTHER SUBJECT – FAMILY PLANNING. ARE YOU PREGNANT NOW?	Yes, currently pregnant ..... 1 No ..... 2 Unsure or DK 8	1⇨Next Module
CP2. COUPLES USE VARIOUS WAYS OR METHODS TO DELAY OR AVOID A PREGNANCY. ARE YOU CURRENTLY DOING SOMETHING OR USING ANY METHOD TO DELAY OR AVOID GETTING PREGNANT?	Yes ..... 1 No 2	2⇨Next Module
CP3. WHAT ARE YOU DOING TO DELAY OR AVOID A PREGNANCY? Do not prompt. If more than one method is mentioned, circle each one.	Female sterilization ..... A Male sterilization ..... B IUD ..... C Injectables ..... D Implants ..... E Pill ..... F Male condom ..... G Female condom ..... H Diaphragm ..... I Foam / Jelly ..... J Lactational amenorrhoea method (LAM) ..... K Periodic abstinence/Rhythm ..... L Withdrawal ..... M Other (*specify*) _____ X	

UNMET NEED		UN
UN1. *Check CP1. Currently pregnant?* ☐ Yes, currently pregnant ⇨ Continue with UN2 ☐ No, unsure or DK ⇨ Go to UN5		
UN2. NOW I WOULD LIKE TO TALK TO YOU ABOUT YOUR CURRENT PREGNANCY. WHEN YOU GOT PREGNANT, DID YOU WANT TO GET PREGNANT AT THAT TIME?	Yes ..... 1 No 2	1⇨UN4
UN3. DID YOU WANT TO HAVE A BABY LATER ON OR DID YOU NOT WANT ANY (MORE) CHILDREN?	Later ..... 1 No more 2	
UN4. NOW I WOULD LIKE TO ASK SOME QUESTIONS ABOUT THE FUTURE. AFTER THE CHILD YOU ARE NOW EXPECTING, WOULD YOU LIKE TO HAVE ANOTHER CHILD, OR WOULD YOU PREFER NOT TO HAVE ANY MORE CHILDREN?	Have another child ..... 1 No more / None ..... 2 Undecided / Don't know 8	1⇨UN7 2⇨UN13 8⇨UN13
UN5. *Check CP3. Currently using "Female sterilization"?* ☐ Yes. ⇨ Go to UN13 ☐ No. ⇨ Continue with UN6		
UN6. NOW I WOULD LIKE TO ASK YOU SOME QUESTIONS ABOUT THE FUTURE. WOULD YOU LIKE TO HAVE (A/ANOTHER) CHILD, OR WOULD YOU PREFER NOT TO HAVE ANY (MORE) CHILDREN?	Have (a/another) child ..... 1 No more / None ..... 2 Says she cannot get pregnant ..... 3 Undecided / Don't know 8	 2⇨UN9 3⇨UN11 8⇨UN9
UN7. HOW LONG WOULD YOU LIKE TO WAIT BEFORE THE BIRTH OF (A/ANOTHER) CHILD?	Months ..... 1 __ __ Years ..... 2 __ __ Soon / Now ..... 993 Says she cannot get pregnant ..... 994 After marriage ..... 995 Other ..... 996 Don't know 998	 994⇨UN11
UN8. *Check CP1. Currently pregnant?* ☐ Yes, currently pregnant ⇨ Go to UN13 ☐ No, unsure or DK ⇨ Continue with UN9		

UN9. *Check CP2. Currently using a method?* ☐ Yes. ⇨ Go to UN13 ☐ No ⇨ Continue with UN10		
UN10. DO YOU THINK YOU ARE PHYSICALLY ABLE TO GET PREGNANT AT THIS TIME?	Yes ..... 1 No ..... 2 DK 8	1 ⇨UN13 8 ⇨UN13
UN11. WHY DO YOU THINK YOU ARE NOT PHYSICALLY ABLE TO GET PREGNANT?	Infrequent sex / No sex ..... A Menopausal ..... B Never menstruated ..... C Hysterectomy (surgical removal of uterus) ..... D Has been trying to get pregnant for 2 years or more without result ..... E Postpartum amenorrheic ..... F Breastfeeding ..... G Too old ..... H Fatalistic ..... I Other (*specify*) _____ X Don't know ..... Z	
UN12. *Check UN11. "Never menstruated" mentioned?* ☐ Yes. ⇨ Go to Next Module ☐ No ⇨ Continue with UN13		
UN13. WHEN DID YOUR LAST MENSTRUAL PERIOD START?	Days ago ..... 1 __ __ Weeks ago ..... 2 __ __ Months ago ..... 3 __ __ Years ago ..... 4 __ __ In menopause / Has had hysterectomy ..... 994 Before last birth ..... 995 Never menstruated 996	

FEMALE GENITAL MUTILATION/CUTTING		FG
FG1. HAVE YOU EVER HEARD OF FEMALE CIRCUMCISION?	Yes .....1 No 2	1⇨FG3
FG2. IN SOME COUNTRIES, THERE IS A PRACTICE IN WHICH A GIRL MAY HAVE PART OF HER GENITALS CUT. HAVE YOU EVER HEARD ABOUT THIS PRACTICE?	Yes .....1 No 2	2⇨Next Module
FG3. HAVE YOU YOURSELF EVER BEEN CIRCUMCISED?	Yes .....1 No 2	2⇨FG9
FG4. NOW I WOULD LIKE TO ASK YOU WHAT WAS DONE TO YOU AT THAT TIME. WAS ANY FLESH REMOVED FROM THE GENITAL AREA?	Yes .....1 No .....2 DK.....8	1⇨FG6
FG5. WAS THE GENITAL AREA JUST NICKED WITHOUT REMOVING ANY FLESH?	Yes .....1 No .....2 DK.....8	
FG6. WAS THE GENITAL AREA SEWN CLOSED? *If necessary, probe*: WAS IT SEALED?	Yes .....1 No .....2 DK.....8	
FG7. HOW OLD WERE YOU WHEN YOU WERE CIRCUMCISED? *If the respondent does not know the exact age, probe to get an estimate*	Age at circumcision .....__ __ DK / Don't remember / Not sure 98	
FG8. WHO PERFORMED THE CIRCUMCISION?	Health professional Doctor .....11 Nurse/Midwife .....12 Other health professional (*specify*) _____ 16 Traditional persons Traditional 'circumciser' .....21 Traditional birth attendant.....22 Other traditional (*specify*) _____ 26 DK.....98	
FG9. *Check CM5 for Number of daughters at home and CM7 for Number of daughters elsewhere, and sum the answers here*	Total number of living daughters.....___ ___	

FG10. JUST TO MAKE SURE THAT I HAVE THIS RIGHT, YOU HAVE *(total number in FG9)* LIVING DAUGHTERS. IS THIS CORRECT?

☐ *Yes*

☐ *One or more living daughters ⇨ Continue with FG11*

☐ *Does not have any living daughters ⇨ Go to FG22*

☐ *No ⇨ Check responses to CM1 – CM10 and make corrections as necessary, until FG10 = Yes*

FG11. ASK THE RESPONDENT TO TELL YOU THE NAME(S) OF HER DAUGHTER(S), BEGINNING WITH THE YOUNGEST DAUGHTER (IF MORE THAN ONE DAUGHTER). WRITE DOWN THE NAME OF EACH DAUGHTER IN FG12. THEN, ASK QUESTIONS FG13 TO FG20 FOR EACH DAUGHTER AT A TIME.

THE TOTAL NUMBER OF DAUGHTERS IN FG12 SHOULD BE EQUAL TO THE NUMBER IN FG9

IF MORE THAN 4 DAUGHTERS, USE ADDITIONAL QUESTIONNAIRES

	Daughter #1	Daughter #2	Daughter #3	Daughter #4
FG12. *Name of daughter*	_____	_____	_____	_____
FG13. HOW OLD IS (*name*)?	Age ..... ___ ___	Age ..... ___ ___	Age ..... ___ ___	Age ..... ___ ___
FG14. *Is (name) younger than 15 years of age?*	Yes .....1 No.....2 *If "No", go to FG13 for next daughter. If no more daughters, go to FG22*	Yes .....1 No.....2 *If "No", go to FG13 for next daughter. If no more daughters, go to FG22*	Yes .....1 No.....2 *If "No", go to FG13 for next daughter. If no more daughters, go to FG22*	Yes .....1 No.....2 *If "No", go to FG13 for next daughter. If no more daughters, go to FG22*
FG15. IS (*name*) CIRCUMCISED?	Yes .....1 No.....2 *If "No", go to FG13 for next daughter. If no more daughters, go to FG22*	Yes .....1 No.....2 *If "No", go to FG13 for next daughter. If no more daughters, go to FG22*	Yes .....1 No.....2 *If "No", go to FG13 for next daughter. If no more daughters, go to FG22*	Yes .....1 No.....2 *If "No", go to FG13 for next daughter. If no more daughters, go to FG22*
FG16. HOW OLD WAS (*name*) WHEN THIS OCCURRED? *If the respondent does not know the age, probe to get an estimate.*	Age .....___ ___ DK 98	Age .....___ ___ DK 98	Age .....___ ___ DK 98	Age .....___ ___ DK 98
FG17. NOW I WOULD LIKE TO ASK YOU WHAT WAS DONE TO (*name*) AT THAT TIME. WAS ANY FLESH REMOVED FROM THE GENITAL AREA?	Yes .....1 ⇨FG19 No.....2 DK 8	Yes .....1 ⇨FG19 No.....2 DK 8	Yes .....1 ⇨FG19 No.....2 DK 8	Yes .....1 ⇨FG19 No.....2 DK 8
FG18. WAS HER GENITAL AREA JUST NICKED WITHOUT REMOVING ANY FLESH?	Yes .....1 No.....2 DK 8	Yes .....1 No.....2 DK 8	Yes .....1 No.....2 DK 8	Yes .....1 No.....2 DK 8

FG19. WAS HER GENITAL AREA SEWN CLOSED? *If necessary, probe*: WAS IT SEALED?	Yes .....1 No.....2 DK 8	Yes .....1 No.....2 DK 8	Yes .....1 No.....2 DK 8	Yes .....1 No.....2 DK 8
FG20. WHO PERFORMED THE CIRCUMCISION?	Health professional Doctor.....11 Nurse/midwife.12 Other health professional (*specify*) ____ 16 Traditional persons Traditional 'circumciser'...21 Traditional birth attendant.....22 Other traditional (*specify*) ____ 26 DK 98	Health professional Doctor.....11 Nurse/midwife.12 Other health professional (*specify*) ____16 Traditional persons Traditional 'circumciser'...21 Traditional birth attendant .....22 Other traditional (*specify*) _____26 DK 98	Health professional Doctor.....11 Nurse/midwife.12 Other health professional (*specify*) ____ 16 Traditional persons Traditional 'circumciser'...21 Traditional birth attendant .....22 Other traditional (*specify*) ____ 26 DK 98	Health professional Doctor.....11 Nurse/midwife.12 Other health professional (*specify*) ____16 Traditional persons Traditional 'circumciser'...21 Traditional birth attendant .....22 Other traditional (*specify*)_____26 DK 98
FG21.	*Go back to FG13 for next daughter. If no more daughters, go to FG22*	*Go back to FG13 for next daughter. If no more daughters, go to FG22*	*Go back to FG13 for next daughter. If no more daughters, go to FG22*	*Go back to FG13 in first column of additional questionnaire for next daughter. If no more daughters, go to FG22*
				Tick here if additional questionnaire used ☐

FG22. DO YOU THINK THIS PRACTICE SHOULD BE CONTINUED OR SHOULD IT BE DISCONTINUED?	Continued..... 1 Discontinued ..... 2 Depends..... 3 DK..... 8	

ATTITUDES TOWARD DOMESTIC VIOLENCE					DV
DV1. SOMETIMES A HUSBAND IS ANNOYED OR ANGERED BY THINGS THAT HIS WIFE DOES. IN YOUR OPINION, IS A HUSBAND JUSTIFIED IN HITTING OR BEATING HIS WIFE IN THE FOLLOWING SITUATIONS:		Yes	No	DK	
[A] IF SHE GOES OUT WITHOUT TELLING HIM?	Goes out without telling	1	2	8	
[B] IF SHE NEGLECTS THE CHILDREN?	Neglects children	1	2	8	
[C] IF SHE ARGUES WITH HIM?	Argues.....	1	2	8	
[D] IF SHE REFUSES TO HAVE SEX WITH HIM?	Refuses sex	1	2	8	
[E] IF SHE BURNS THE FOOD?	Burns food.....	1	2	8	

MARRIAGE/UNION		MA
MA1. ARE YOU CURRENTLY MARRIED OR LIVING TOGETHER WITH A MAN AS IF MARRIED?	Yes, currently married .....1 Yes, living with a man.....2 No, not in union 3	 3⇨MA5
MA2. HOW OLD IS YOUR HUSBAND/PARTNER? *Probe*: HOW OLD WAS YOUR HUSBAND/PARTNER ON HIS LAST BIRTHDAY?	Age in years.....__ __ DK.....98	
MA2. HOW OLD WAS YOUR HUSBAND/PARTNER ON HIS LAST BIRTHDAY?	Age in years.....__ __ DK.....98	
MA3. BESIDES YOURSELF, DOES YOUR HUSBAND/PARTNER HAVE ANY OTHER WIVES OR PARTNERS OR DOES HE LIVE WITH OTHER WOMEN AS IF MARRIED?	Yes .....1 No 2	 2⇨MA7
MA4. HOW MANY OTHER WIVES OR PARTNERS DOES HE HAVE?	Number.....__ __ DK.....98	⇨MA7 98⇨MA7
MA5. HAVE YOU EVER BEEN MARRIED OR LIVED TOGETHER WITH A MAN AS IF MARRIED?	Yes, formerly married .....1 Yes, formerly lived with a man .....2 No 3	 ⇨Next Module
MA6. WHAT IS YOUR MARITAL STATUS NOW: ARE YOU WIDOWED, DIVORCED OR SEPARATED?	Widowed.....1 Divorced .....2 Separated.....3	
MA7. HAVE YOU BEEN MARRIED OR LIVED WITH A MAN ONLY ONCE OR MORE THAN ONCE?	Only once .....1 More than once.....2	
MA8. IN WHAT MONTH AND YEAR DID YOU FIRST MARRY OR START LIVING WITH A MAN AS IF MARRIED?	Date of first marriage Month.....__ __ DK month.....98 Year .....__ __ __ __ DK year.....9998	 ⇨Next Module
MA9. HOW OLD WERE YOU WHEN YOU STARTED LIVING WITH YOUR FIRST HUSBAND/PARTNER?	Age in years.....__ __	

SEXUAL BEHAVIOUR		SB
Check for the presence of others. Before continuing, ensure privacy.		
SB1. NOW I WOULD LIKE TO ASK YOU SOME QUESTIONS ABOUT SEXUAL ACTIVITY IN ORDER TO GAIN A BETTER UNDERSTANDING OF SOME IMPORTANT LIFE ISSUES. THE INFORMATION YOU SUPPLY WILL REMAIN STRICTLY CONFIDENTIAL. HOW OLD WERE YOU WHEN YOU HAD SEXUAL INTERCOURSE FOR THE VERY FIRST TIME?	Never had intercourse ..... 00 Age in years ..... __ __ First time when started living with (first) husband/partner 95	00⇨Next Module
SB2. THE FIRST TIME YOU HAD SEXUAL INTERCOURSE, WAS A CONDOM USED?	Yes ..... 1 No ..... 2 DK / Don't remember 8	
SB3. WHEN WAS THE LAST TIME YOU HAD SEXUAL INTERCOURSE? *Record 'years ago' only if last intercourse was one or more years ago. If 12 months or more the answer must be recorded in years.*	Days ago ..... 1 __ __ Weeks ago ..... 2 __ __ Months ago ..... 3 __ __ Years ago ..... 4 __ __	4⇨SB15
SB4. THE LAST TIME YOU HAD SEXUAL INTERCOURSE, WAS A CONDOM USED?	Yes ..... 1 No 2	
SB5. WHAT WAS YOUR RELATIONSHIP TO THIS PERSON WITH WHOM YOU LAST HAD SEXUAL INTERCOURSE? *Probe to ensure that the response refers to the relationship at the time of sexual intercourse* *If 'boyfriend', then ask:* WERE YOU LIVING TOGETHER AS IF MARRIED? *If 'yes', circle '2'. If 'no', circle '3'.*	Husband ..... 1 Cohabiting partner ..... 2 Boyfriend ..... 3 Casual acquaintance ..... 4 Other (*specify*) _____ 6	3⇨SB7 4⇨SB7 6⇨SB7
SB6. *Check MA1:* ☐ *Currently married or living with a man (MA1 = 1 or 2) ⇨ Go to SB8* ☐ *Not married / Not in union (MA1 = 3) ⇨ Continue with SB7*		
SB7. HOW OLD IS THIS PERSON? *If response is DK, probe:* ABOUT HOW OLD IS THIS PERSON?	Age of sexual partner ..... __ __ DK 98	
SB8. HAVE YOU HAD SEXUAL INTERCOURSE WITH ANY OTHER PERSON IN THE LAST 12 MONTHS?	Yes ..... 1 No 2	2⇨SB15
SB9. THE LAST TIME YOU HAD SEXUAL INTERCOURSE WITH THIS OTHER PERSON, WAS A CONDOM USED?	Yes ..... 1 No 2	

SB10. WHAT WAS YOUR RELATIONSHIP TO THIS PERSON? *Probe to ensure that the response refers to the relationship at the time of sexual intercourse* *If 'boyfriend' then ask:* WERE YOU LIVING TOGETHER AS IF MARRIED? *If 'yes', circle '2'. If 'no', circle' 3'.*	Husband .....1 Cohabiting partner .....2 Boyfriend.....3 Casual acquaintance .....4 Other (*specify*) _____ 6	 3⇨SB12 4⇨SB12 6⇨SB12
SB11. *Check MA1 and MA7:* ☐ *Currently married or living with a man (MA1 = 1 or 2)* *AND* *Married only once or lived with a man only once (MA7 = 1) ⇨ Go to SB13* ☐ *Else ⇨ Continue with SB12*		
SB12. HOW OLD IS THIS PERSON? *If response is DK, probe:* ABOUT HOW OLD IS THIS PERSON?	Age of sexual partner..... __ __ DK 98	
SB13. OTHER THAN THESE TWO PERSONS, HAVE YOU HAD SEXUAL INTERCOURSE WITH ANY OTHER PERSON IN THE LAST 12 MONTHS?	Yes.....1 No 2	2⇨SB15
SB14. IN TOTAL, WITH HOW MANY DIFFERENT PEOPLE HAVE YOU HAD SEXUAL INTERCOURSE IN THE LAST 12 MONTHS?	Number of partners..... __ __	
SB15. IN TOTAL, WITH HOW MANY DIFFERENT PEOPLE HAVE YOU HAD SEXUAL INTERCOURSE IN YOUR LIFETIME? *If a non-numeric answer is given, probe to get an estimate.* *If number of partners is 95 or more, write '95'.*	Number of lifetime partners ..... __ __ DK 98	

HIV/AIDS		HA
HA1. NOW I WOULD LIKE TO TALK WITH YOU ABOUT SOMETHING ELSE. HAVE YOU EVER HEARD OF AN ILLNESS CALLED AIDS?	Yes ..... 1 No 2	 2⇨WM11
HA2. CAN PEOPLE REDUCE THEIR CHANCE OF GETTING THE AIDS VIRUS BY HAVING JUST ONE UNINFECTED SEX PARTNER WHO HAS NO OTHER SEX PARTNERS?	Yes ..... 1 No ..... 2 DK 8	
HA3. CAN PEOPLE GET THE AIDS VIRUS BECAUSE OF WITCHCRAFT OR OTHER SUPERNATURAL MEANS?	Yes ..... 1 No ..... 2 DK 8	
HA4. CAN PEOPLE REDUCE THEIR CHANCE OF GETTING THE AIDS VIRUS BY USING A CONDOM EVERY TIME THEY HAVE SEX?	Yes ..... 1 No ..... 2 DK 8	
HA5. CAN PEOPLE GET THE AIDS VIRUS FROM MOSQUITO BITES?	Yes ..... 1 No ..... 2 DK 8	
HA6. CAN PEOPLE GET THE AIDS VIRUS BY SHARING FOOD WITH A PERSON WHO HAS THE AIDS VIRUS?	Yes ..... 1 No ..... 2 DK 8	
HA7. IS IT POSSIBLE FOR A HEALTHY-LOOKING PERSON TO HAVE THE AIDS VIRUS?	Yes ..... 1 No ..... 2 DK 8	
HA8. CAN THE VIRUS THAT CAUSES AIDS BE TRANSMITTED FROM A MOTHER TO HER BABY: [A] DURING PREGNANCY? [B] DURING DELIVERY? [C] BY BREASTFEEDING?	Yes No DK During pregnancy ..... 1 2 8 During delivery ..... 1 2 8 By breastfeeding 1 2 8	
HA9. IN YOUR OPINION, IF A FEMALE TEACHER HAS THE AIDS VIRUS BUT IS NOT SICK, SHOULD SHE BE ALLOWED TO CONTINUE TEACHING IN SCHOOL?	Yes ..... 1 No ..... 2 DK / Not sure / Depends 8	
HA10. WOULD YOU BUY FRESH VEGETABLES FROM A SHOPKEEPER OR VENDOR IF YOU KNEW THAT THIS PERSON HAD THE AIDS VIRUS?	Yes ..... 1 No ..... 2 DK / Not sure / Depends 8	
HA11. IF A MEMBER OF YOUR FAMILY GOT INFECTED WITH THE AIDS VIRUS, WOULD YOU WANT IT TO REMAIN A SECRET?	Yes ..... 1 No ..... 2 DK / Not sure / Depends 8	
HA12. IF A MEMBER OF YOUR FAMILY BECAME SICK WITH AIDS, WOULD YOU BE WILLING TO CARE FOR HER OR HIM IN YOUR OWN HOUSEHOLD?	Yes ..... 1 No ..... 2 DK / Not sure / Depends 8	

HA13. *Check CM13: Any live birth in last 2 years?*

☐ *No live birth in last 2 years. ⇨ Go to HA24.*

☐ *Yes, live birth in last 2 years. ⇨ Continue with HA14.*

HA14. *Check MN1: Received antenatal care?*

☐ *Yes, antenatal care received. ⇨ Continue with HA15*

☐ *No antenatal care received ⇨ Go to HA24*

HA15. DURING ANY OF THE ANTENATAL VISITS FOR YOUR PREGNANCY WITH (*name*), WERE YOU GIVEN ANY INFORMATION ABOUT:		Y	N	DK	
[A] BABIES GETTING THE AIDS VIRUS FROM THEIR MOTHER?	AIDS from mother	1	2	8	
[B] THINGS THAT YOU CAN DO TO PREVENT GETTING THE AIDS VIRUS?	Things to do	1	2	8	
[C] GETTING TESTED FOR THE AIDS VIRUS?	Tested for AIDS	1	2	8	
WERE YOU: [D] OFFERED A TEST FOR THE AIDS VIRUS?	Offered a test	1	2	8	
HA16. I DON'T WANT TO KNOW THE RESULTS, BUT WERE YOU TESTED FOR THE AIDS VIRUS AS PART OF YOUR ANTENATAL CARE?	Yes No DK	1 2 8			 2⇨HA19 8⇨HA19
HA17. I DON'T WANT TO KNOW THE RESULTS, BUT DID YOU GET THE RESULTS OF THE TEST?	Yes No DK	1 2 8			 2⇨HA22 8⇨HA22
HA18. REGARDLESS OF THE RESULT, ALL WOMEN WHO ARE TESTED ARE SUPPOSED TO RECEIVE COUNSELING AFTER GETTING THE RESULT. AFTER YOU WERE TESTED, DID YOU RECEIVE COUNSELLING?	Yes No DK	1 2 8			1⇨HA22 2⇨HA22 8⇨HA22

HA19. *Check MN17: Birth delivered by health professional (A, B or C)?*

☐ *Yes, birth delivered by health professional ⇨ Continue with HA20*

☐ *No, birth not delivered by health professional ⇨ Go to HA24*

HA20. I DON'T WANT TO KNOW THE RESULTS, BUT WERE YOU TESTED FOR THE AIDS VIRUS BETWEEN THE TIME YOU WENT FOR DELIVERY BUT BEFORE THE BABY WAS BORN?	Yes No	1 2			 2⇨HA24
HA21. I DON'T WANT TO KNOW THE RESULTS, BUT DID YOU GET THE RESULTS OF THE TEST?	Yes No	1 2			
HA22. HAVE YOU BEEN TESTED FOR THE AIDS VIRUS SINCE THAT TIME YOU WERE TESTED DURING YOUR PREGNANCY?	Yes No	1 2			1⇨HA25

HA23. WHEN WAS THE MOST RECENT TIME YOU WERE TESTED FOR THE AIDS VIRUS?	Less than 12 months ago ..... 1 12-23 months ago ..... 2 2 or more years ago 3	1⇨WM11 2⇨WM11 3⇨WM11
HA24. I DON'T WANT TO KNOW THE RESULTS, BUT HAVE YOU EVER BEEN TESTED TO SEE IF YOU HAVE THE AIDS VIRUS?	Yes ..... 1 No 2	 2⇨HA27
HA25. WHEN WAS THE MOST RECENT TIME YOU WERE TESTED?	Less than 12 months ago ..... 1 12-23 months ago ..... 2 2 or more years ago 3	
HA26. I DON'T WANT TO KNOW THE RESULTS, BUT DID YOU GET THE RESULTS OF THE TEST?	Yes ..... 1 No ..... 2 DK 8	1⇨WM11 2⇨WM11 8⇨WM11
HA27. DO YOU KNOW OF A PLACE WHERE PEOPLE CAN GO TO GET TESTED FOR THE AIDS VIRUS?	Yes ..... 1 No 2	

WM11. *Record the time*.	Hour and minutes ..... __ __ : __ __	

WM12. *Check Household Listing Form, column HL9.*
Is the respondent the mother or caretaker of any child age 0-4 living in this household?

☐ *Yes ⇨ Go to QUESTIONNAIRE FOR CHILDREN UNDER FIVE for that child and start the interview with this respondent.*

☐ *No ⇨ End the interview with this respondent by thanking her for her cooperation. Check for the presence of any other eligible woman or children under-5 in the household.*

QUESTIONNAIRE FOR CHILDREN UNDER FIVE
SIERRA LEONE

UNDER-FIVE CHILD INFORMATION PANEL	UF

This questionnaire is to be administered to all mothers or caretakers (see Household Listing Form, column HL9) who care for a child that lives with them and is under the age of 5 years (see Household Listing Form, column HL6).
A separate questionnaire should be used for each eligible child.

UF1. Cluster number: ___ ___ ___	UF2. Household number: ___ ___
UF3. Child's name: Name_____	UF4. Child's line number: ___ ___
UF5. Mother's / Caretaker's name: Name_____	UF6. Mother's / Caretaker's line number: ___ ___
UF7. Interviewer name and number: Name_____ ___ ___	UF8. Day / Month / Year of interview: ___ ___ / ___ ___ / ___ ___ ___ ___

Repeat greeting if not already read to this respondent:

WE ARE FROM ***Statistics Sierra Leone***. WE ARE WORKING ON A PROJECT CONCERNED WITH FAMILY HEALTH AND EDUCATION. I WOULD LIKE TO TALK TO YOU ABOUT (*name*)'S HEALTH AND WELL-BEING. THE INTERVIEW WILL TAKE ABOUT ***60*** MINUTES. ALL THE INFORMATION WE OBTAIN WILL REMAIN STRICTLY CONFIDENTIAL AND YOUR ANSWERS WILL NEVER BE SHARED WITH ANYONE OTHER THAN OUR PROJECT TEAM.

If greeting at the beginning of the household questionnaire has already been read to this woman, then read the following:

NOW I WOULD LIKE TO TALK TO YOU MORE ABOUT (***child's name from UF3***)'S HEALTH AND OTHER TOPICS. THIS INTERVIEW WILL TAKE ABOUT ***60*** MINUTES. AGAIN, ALL THE INFORMATION WE OBTAIN WILL REMAIN STRICTLY CONFIDENTIAL AND YOUR ANSWERS WILL NEVER BE SHARED WITH ANYONE OTHER THAN OUR PROJECT TEAM.

MAY I START NOW?

- ☐ *Yes, permission is given ⇨ Go to UF12 to record the time and then begin the interview.*
- ☐ *No, permission is not given ⇨ Complete UF9. Discuss this result with your supervisor*

UF9. Result of interview for children under 5 Codes refer to mother/caretaker.	Completed .....01 Not at home .....02 Refused .....03 Partly completed .....04 Incapacitated .....05 Other (*specify*) _____ 96

UF10. Field edited by (Name and number): Name _____ ___ ___	UF11. Data entry clerk (Name and number): Name_____ ___ ___

UF12. *Record the time.*	Hour and minutes..... __ __ : __ __	

AGE		**AG**
AG1. NOW I WOULD LIKE TO ASK YOU SOME QUESTIONS ABOUT THE HEALTH OF (*name*). IN WHAT MONTH AND YEAR WAS (*name*) BORN? *Probe:* WHAT IS HIS / HER BIRTHDAY? If the mother/caretaker knows the exact birth date, also enter the day; otherwise, circle 98 for day Month and year must be recorded.	Date of birth Day .....__ __ DK day.....98 Month.....__ __ Year .....__ __ __ __	
AG2. HOW OLD IS (*name*)? *Probe*: HOW OLD WAS (*name*) AT HIS / HER LAST BIRTHDAY? Record age in completed years. Record '0' if less than 1 year. Compare and correct AG1 and/or AG2 if inconsistent.	Age (in completed years) .....__	

BIRTH REGISTRATION		**BR**
BR1. DOES (*name*) HAVE A BIRTH CERTIFICATE? *If yes, ask:* MAY I SEE IT?	Yes, seen.....1 Yes, not seen.....2 No .....3 DK.....8	1⇨Next Module 2⇨ Next Module
BR2. HAS (*name*)'S BIRTH BEEN REGISTERED WITH THE CIVIL AUTHORITIES?	Yes .....1 No .....2 DK.....8	1⇨Next Module
BR3. DO YOU KNOW HOW TO REGISTER YOUR CHILD'S BIRTH?	Yes .....1 No 2	

EARLY CHILDHOOD DEVELOPMENT		**EC**
EC1. HOW MANY CHILDREN'S BOOKS OR PICTURE BOOKS DO YOU HAVE FOR (*name*)?	None .....00 Number of children's books.....0 __ Ten or more books 10	
EC2. I AM INTERESTED IN LEARNING ABOUT THE THINGS THAT (*name*) PLAYS WITH WHEN HE/SHE IS AT HOME. DOES HE/SHE PLAY WITH: [A] HOMEMADE TOYS (SUCH AS DOLLS, CARS, OR OTHER TOYS MADE AT HOME)? [B] TOYS FROM A SHOP OR MANUFACTURED TOYS? [C] HOUSEHOLD OBJECTS (SUCH AS BOWLS OR POTS) OR OBJECTS FOUND OUTSIDE (SUCH AS STICKS, ROCKS, ANIMAL SHELLS OR LEAVES)? If the respondent says "YES" to the categories above, then probe to learn specifically what the child plays with to ascertain the response	Y N DK Homemade toys .....1 2 8 Toys from a shop.....1 2 8 Household objects or outside objects 1 2 8	
EC3. SOMETIMES ADULTS TAKING CARE OF CHILDREN HAVE TO LEAVE THE HOUSE TO GO SHOPPING, WASH CLOTHES, OR FOR OTHER REASONS AND HAVE TO LEAVE YOUNG CHILDREN. ON HOW MANY DAYS IN THE PAST WEEK WAS (*name*): [A] LEFT ALONE FOR MORE THAN AN HOUR? [B] LEFT IN THE CARE OF ANOTHER CHILD (THAT IS, SOMEONE LESS THAN 10 YEARS OLD) FOR MORE THAN AN HOUR? If 'none' enter' 0'. If 'don't know' enter' 8'	Number of days left alone for more than an hour .....__ Number of days left with other child for more than an hour .....__	
EC4. *Check AG2: Age of child* ☐ *Child age 3 or 4 ⇨ Continue with EC5* ☐ *Child age 0, 1 or 2 ⇨ Go to Next Module*		
EC5. DOES (*name*) ATTEND ANY ORGANIZED LEARNING OR EARLY CHILDHOOD EDUCATION PROGRAMME, SUCH AS A PRIVATE OR GOVERNMENT FACILITY, INCLUDING KINDERGARTEN OR COMMUNITY CHILD CARE?	Yes .....1 No .....2 DK.....8	 2⇨EC7 8⇨EC7

EC6. WITHIN THE LAST SEVEN DAYS, ABOUT HOW MANY HOURS DID (*name*) ATTEND?	Number of hours.....__ __	
EC7. IN THE PAST 3 DAYS, DID YOU OR ANY HOUSEHOLD MEMBER OVER 15 YEARS OF AGE ENGAGE IN ANY OF THE FOLLOWING ACTIVITIES WITH (*name*): *If yes, ask:* WHO ENGAGED IN THIS ACTIVITY WITH (*name*)? *Circle all that apply.*	Mother Father Other No one	
[A] READ BOOKS TO OR LOOKED AT PICTURE BOOKS WITH (*name*)?	Read books A B X Y	
[B] TOLD STORIES TO (*name*)?	Told stories A B X Y	
[C] SANG SONGS TO (*name*) OR WITH (*name*), INCLUDING LULLABIES?	Sang songs A B X Y	
[D] TOOK (*name*) OUTSIDE THE HOME, COMPOUND, YARD OR ENCLOSURE?	Took outside A B X Y	
[E] PLAYED WITH (*name*)?	Played with A B X Y	
[F] NAMED, COUNTED, OR DREW THINGS TO OR WITH (*name*)?	Named/counted A B X Y	
EC8. I WOULD LIKE TO ASK YOU SOME QUESTIONS ABOUT THE HEALTH AND DEVELOPMENT OF YOUR CHILD. CHILDREN DO NOT ALL DEVELOP AND LEARN AT THE SAME RATE. FOR EXAMPLE, SOME WALK EARLIER THAN OTHERS. THESE QUESTIONS ARE RELATED TO SEVERAL ASPECTS OF YOUR CHILD'S DEVELOPMENT. CAN (*name*) IDENTIFY OR NAME AT LEAST TEN LETTERS OF THE ALPHABET?	Yes .....1 No .....2 DK.....8	
EC9. CAN (*name*) READ AT LEAST FOUR SIMPLE, POPULAR WORDS?	Yes .....1 No .....2 DK.....8	
EC10. DOES (*name*) KNOW THE NAME AND RECOGNIZE THE SYMBOL OF ALL NUMBERS FROM 1 TO 10?	Yes .....1 No .....2 DK.....8	
EC11. CAN (*name*) PICK UP A SMALL OBJECT WITH TWO FINGERS, LIKE A STICK OR A ROCK FROM THE GROUND?	Yes .....1 No .....2 DK.....8	
EC12. IS (*name*) SOMETIMES TOO SICK TO PLAY?	Yes .....1 No .....2 DK.....8	

EC13. DOES (*name*) FOLLOW SIMPLE DIRECTIONS ON HOW TO DO SOMETHING CORRECTLY?	Yes .....1 No .....2 DK.....8	
EC14. WHEN GIVEN SOMETHING TO DO, IS (*name*) ABLE TO DO IT INDEPENDENTLY?	Yes .....1 No .....2 DK.....8	
EC15. DOES *(name*) GET ALONG WELL WITH OTHER CHILDREN?	Yes .....1 No .....2 DK.....8	
EC16. DOES (*name*) KICK, BITE, OR HIT OTHER CHILDREN OR ADULTS?	Yes .....1 No .....2 DK.....8	
EC17. DOES (*name*) GET DISTRACTED EASILY?	Yes .....1 No .....2 DK.....8	

BREASTFEEDING		**BF**
BF1. HAS (*name*) EVER BEEN BREASTFED?	Yes .....1 No .....2 DK.....8	 2⇨BF3 8⇨BF3
BF2. IS HE/SHE STILL BEING BREASTFED?	Yes .....1 No .....2 DK.....8	
BF3. I WOULD LIKE TO ASK YOU ABOUT LIQUIDS THAT (*name*) MAY HAVE HAD YESTERDAY DURING THE DAY OR THE NIGHT. I AM INTERESTED IN WHETHER (*name*) HAD THE ITEM EVEN IF IT WAS COMBINED WITH OTHER FOODS. DID (*name*) DRINK PLAIN WATER YESTERDAY, DURING THE DAY OR NIGHT?	Yes .....1 No .....2 DK.....8	
BF4. DID (*name*) DRINK INFANT FORMULA YESTERDAY, DURING THE DAY OR NIGHT?	Yes .....1 No .....2 DK.....8	 2⇨BF6 8⇨BF6
BF5. HOW MANY TIMES DID (*name*) DRINK INFANT FORMULA?	Number of times .....__ __	
BF6. DID (*name*) DRINK MILK, SUCH AS TINNED, POWDERED OR FRESH ANIMAL MILK YESTERDAY, DURING THE DAY OR NIGHT?	Yes .....1 No .....2 DK.....8	 2⇨BF8 8⇨BF8
BF7. HOW MANY TIMES DID (*name*) DRINK TINNED, POWDERED OR FRESH ANIMAL MILK?	Number of times .....__ __	
BF8. DID (*name*) DRINK JUICE OR JUICE DRINKS YESTERDAY, DURING THE DAY OR NIGHT?	Yes .....1 No .....2 DK.....8	
BF9. DID (*name*) DRINK (***local name for clear broth/clear soup***) YESTERDAY, DURING THE DAY OR NIGHT?	Yes .....1 No .....2 DK.....8	
BF10. DID (*name*) DRINK OR EAT VITAMIN OR MINERAL SUPPLEMENTS OR ANY MEDICINES YESTERDAY, DURING THE DAY OR NIGHT?	Yes .....1 No .....2 DK.....8	
BF11. DID (*name*) DRINK ORS (ORAL REHYDRATION SOLUTION) YESTERDAY, DURING THE DAY OR NIGHT?	Yes .....1 No .....2 DK.....8	

BF12. DID (*name*) DRINK ANY OTHER LIQUIDS YESTERDAY, DURING THE DAY OR NIGHT?	Yes .....1 No .....2 DK.....8	
BF13. DID (*name*) DRINK OR EAT YOGURT YESTERDAY, DURING THE DAY OR NIGHT?	Yes .....1 No .....2 DK.....8	2⇨BF15 8⇨BF15
BF14. HOW MANY TIMES DID (*name*) DRINK OR EAT YOGURT YESTERDAY, DURING THE DAY OR NIGHT?	Number of times .....__ __	
BF15. DID (*name*) EAT THIN PORRIDGE YESTERDAY, DURING THE DAY OR NIGHT?	Yes .....1 No .....2 DK.....8	
BF16. DID (*name*) EAT SOLID OR SEMI-SOLID (SOFT, MUSHY) FOOD YESTERDAY, DURING THE DAY OR NIGHT?	Yes .....1 No .....2 DK.....8	2⇨BF18 8⇨BF18
BF17. HOW MANY TIMES DID (*name*) EAT SOLID OR SEMI-SOLID (SOFT, MUSHY) FOOD YESTERDAY, DURING THE DAY OR NIGHT?	Number of times .....__ __	
BF18. YESTERDAY, DURING THE DAY OR NIGHT, DID (*name*) DRINK ANYTHING FROM A BOTTLE WITH A NIPPLE?	Yes .....1 No .....2 DK.....8	

CARE OF ILLNESS		CA
CA1. IN THE LAST TWO WEEKS, HAS (*name*) HAD DIARRHOEA?	Yes ..... 1 No ..... 2 DK 8	 2⇨CA7 8⇨CA7
CA2. I WOULD LIKE TO KNOW HOW MUCH (*name*) WAS GIVEN TO DRINK DURING THE DIARRHOEA (INCLUDING BREASTMILK). DURING THE TIME (*name*) HAD DIARRHOEA, WAS HE/SHE GIVEN LESS THAN USUAL TO DRINK, ABOUT THE SAME AMOUNT, OR MORE THAN USUAL? *If less, probe*: WAS HE/SHE GIVEN MUCH LESS THAN USUAL TO DRINK, OR SOMEWHAT LESS?	Much less ..... 1 Somewhat less ..... 2 About the same ..... 3 More ..... 4 Nothing to drink ..... 5 DK 8	
CA3. DURING THE TIME (*name*) HAD DIARRHOEA, WAS HE/SHE GIVEN LESS THAN USUAL TO EAT, ABOUT THE SAME AMOUNT, MORE THAN USUAL, OR NOTHING TO EAT? If "less", probe: WAS HE/SHE GIVEN MUCH LESS THAN USUAL TO EAT OR SOMEWHAT LESS?	Much less ..... 1 Somewhat less ..... 2 About the same ..... 3 More ..... 4 Stopped food ..... 5 Never gave food ..... 6 DK 8	
CA4. DURING THE EPISODE OF DIARRHOEA, WAS (*name*) GIVEN TO DRINK ANY OF THE FOLLOWING: Read each item aloud and record response before proceeding to the next item. [A] A FLUID MADE FROM A SPECIAL PACKET CALLED (*local name for ORS packet solution*)? [B] A PRE-PACKAGED ORS FLUID FOR DIARRHOEA? [C] GOVERNMENT-RECOMMENDED HOMEMADE SSS FLUID? [D] (***Government-recommended homemade fluid Y)***? [E] (***Government-recommended homemade fluid Z)***?	Y N DK Fluid from ORS packet ..... 1 2 8 Pre-packaged ORS fluid ..... 1 2 8 Recommended homemade SSS ..... 1 2 8 ***Govt. recommended homemade fluid Y*** ..... 1 2 8 ***Govt. recommended homemade fluid Z*** 1 2 8	
CA5. WAS ANYTHING (ELSE) GIVEN TO TREAT THE DIARRHOEA?	Yes ..... 1 No ..... 2 DK 8	 2⇨CA7 8⇨CA7

CA6. WHAT (ELSE) WAS GIVEN TO TREAT THE DIARRHOEA? *Probe*: ANYTHING ELSE? *Record all treatments given. Write brand name(s) of all medicines mentioned.* _____ (Name)	Pill or Syrup Antibiotic ..... A Antimotility ..... B Zinc ..... C Other (Not antibiotic, antimotility or zinc) ..... G Unknown pill or syrup ..... H Injection Antibiotic ..... L Non-antibiotic ..... M Unknown injection ..... N Intravenous ..... O Home remedy / Herbal medicine ..... Q Other (*specify*)_____ X	
CA7. AT ANY TIME IN THE LAST TWO WEEKS, HAS (*name*) HAD AN ILLNESS WITH A COUGH?	Yes ..... 1 No ..... 2 DK 8	 2⇨CA14 8⇨CA14
CA8. WHEN (*name*) HAD AN ILLNESS WITH A COUGH, DID HE/SHE BREATHE FASTER THAN USUAL WITH SHORT, RAPID BREATHS OR HAVE DIFFICULTY BREATHING?	Yes ..... 1 No ..... 2 DK 8	 2⇨CA14 8⇨CA14
CA9. WAS THE FAST OR DIFFICULT BREATHING DUE TO A PROBLEM IN THE CHEST OR A BLOCKED OR RUNNY NOSE?	Problem in chest only ..... 1 Blocked or runny nose only ..... 2 Both ..... 3 Other (*specify*) _____ 6 DK 8	 2⇨CA14 6⇨CA14
CA10. DID YOU SEEK ANY ADVICE OR TREATMENT FOR THE ILLNESS FROM ANY SOURCE?	Yes ..... 1 No ..... 2 DK 8	 2⇨CA12 8⇨CA12
CA11. FROM WHERE DID YOU SEEK ADVICE OR TREATMENT? *Probe:* ANYWHERE ELSE? Circle all providers mentioned, but do NOT prompt with any suggestions. Probe to identify each type of source. If unable to determine if public or private sector, write the name of the place. _____ (Name of place)	Public sector Govt. hospital ..... A Govt. health centre ..... B Govt. health post ..... C Village health worker ..... D Mobile / Outreach clinic ..... E Other public (*specify*)_____ H Private medical sector Private hospital / clinic ..... I Private physician ..... J Private pharmacy ..... K Mobile clinic ..... L Other private medical (*specify*) __ O Other source Relative / Friend ..... P Shop ..... Q Traditional practitioner ..... R Other (*specify*) _____ X	

CA12. WAS (*name*) GIVEN ANY MEDICINE TO TREAT THIS ILLNESS?	Yes ..... 1 No ..... 2 DK 8	 2⇨CA14 8⇨CA14
CA13. WHAT MEDICINE WAS (*name*) GIVEN? *Probe:* ANY OTHER MEDICINE? Circle all medicines given. Write brand name(s) of all medicines mentioned. _____ (Names of medicines)	Antibiotic Pill / Syrup ..... A Injection ..... B Anti-malarials ..... M Paracetamol / Panadol / Acetaminophen ... P Aspirin ..... Q Ibuprofen ..... R Other (*specify*) _____ X DK ..... Z	
CA14. Check AG2: Child aged under 3? ☐ Yes. ⇨ Continue with CA15 ☐ *No. ⇨ Go to Next Module*		
CA15. THE LAST TIME *(name)* PASSED STOOLS, WHAT WAS DONE TO DISPOSE OF THE STOOLS?	Child used toilet / latrine ..... 01 Put / Rinsed into toilet or latrine ..... 02 Put / Rinsed into drain or ditch ..... 03 Thrown into garbage (solid waste) ..... 04 Buried ..... 05 Left in the open ..... 06 Other (*specify*) _____ 96 DK 98	

MALARIA		ML
ML1. IN THE LAST TWO WEEKS, HAS (*name*) BEEN ILL WITH A FEVER AT ANY TIME?	Yes ..... 1 No ..... 2 DK 8	 2⇨Next Module 8⇨Next Module
ML2. AT ANY TIME DURING THE ILLNESS, DID (*name*) HAVE BLOOD TAKEN FROM HIS/HER FINGER OR HEEL FOR TESTING?	Yes ..... 1 No ..... 2 DK 8	
ML3. DID YOU SEEK ANY ADVICE OR TREATMENT FOR THE ILLNESS FROM ANY SOURCE?	Yes ..... 1 No ..... 2 DK 8	 2⇨ML8 8⇨ML8
ML4. WAS (NAME) TAKEN TO A HEALTH FACILITY DURING THIS ILLNESS?	Yes ..... 1 No ..... 2 DK 8	 2⇨ML8 8⇨ML8
ML5. WAS (*name*) GIVEN ANY MEDICINE FOR FEVER OR MALARIA AT THE HEALTH FACILITY?	Yes ..... 1 No ..... 2 DK 8	 2⇨ML7 8⇨ML7
ML6. WHAT MEDICINE WAS (*name*) GIVEN? *Probe:* ANY OTHER MEDICINE? *Circle all medicines mentioned. Write brand name(s) of all medicines, if given.* _____ (Name)	Anti-malarials: SP / Fansidar ..... A Chloroquine ..... B Amodiaquine ..... C Quinine ..... D Combination with Artemisinin ..... E Other anti-malarial (*specify*) _____ H Antibiotic drugs Pill / Syrup ..... I Injection ..... J Other medications: Paracetamol/ Panadol /Acetaminophen . P Aspirin ..... Q Ibuprofen ..... R Other (*specify*) _____ X DK ..... Z	
ML7. WAS (*name*) GIVEN ANY MEDICINE FOR THE FEVER OR MALARIA BEFORE BEING TAKEN TO THE HEALTH FACILITY?	Yes ..... 1 No ..... 2 DK 8	1⇨ML9 2⇨ML10 8⇨ML10
ML8. WAS (*name*) GIVEN ANY MEDICINE FOR FEVER OR MALARIA DURING THIS ILLNESS?	Yes ..... 1 No ..... 2 DK 8	 2⇨ML10 8⇨ML10

ML9. WHAT MEDICINE WAS (*name*) GIVEN? *Probe:* ANY OTHER MEDICINE? *Circle all medicines mentioned. Write brand name(s) of all medicines, if given.* _____ (Name) .	Anti-malarials: SP / Fansidar ..... A Chloroquine ..... B Amodiaquine ..... C Quinine ..... D Combination with Artemisinin ..... E Other anti-malarial (*specify*) _____ H Antibiotic drugs Pill / Syrup ..... I Injection ..... J Other medications: Paracetamol/ Panadol/ Acetaminophen . P Aspirin ..... Q Ibuprofen ..... R Other (*specify*) _____ X DK ..... Z	
ML10. *Check ML6 and ML9: Anti-malarial mentioned (codes A - H)?* ☐ *Yes.* ⇨ *Continue with ML11* ☐ *No.* ⇨ *Go to Next Module*		
ML11. HOW LONG AFTER THE FEVER STARTED DID (*name*) FIRST TAKE (*name of anti-malarial from ML6 or ML9*)? *If multiple anti-malarials mentioned in ML6 or ML9, name all anti-malarial medicines mentioned.* *Record how long after the fever started the first anti-malarial was given.*	Same day ..... 0 Next day ..... 1 2 days after the fever ..... 2 3 days after the fever ..... 3 4 or more days after the fever ..... 4 DK 8	

IMMUNIZATION — IM

If an immunization card is available, copy the dates in IM3 for each type of immunization recorded on the card. IM6-IM17 are for registering vaccinations that are not recorded on the card. IM6-IM17 will only be asked when a card is not available.

IM1. DO YOU HAVE A CARD WHERE (*name*)'S VACCINATIONS ARE WRITTEN DOWN? (*If yes*) MAY I SEE IT PLEASE?	Yes, seen ..... 1 Yes, not seen ..... 2 No card 3	1⇨IM3 2⇨IM6
IM2. DID YOU EVER HAVE A VACCINATION CARD FOR (*name*)?	Yes ..... 1 No 2	1⇨IM6 2⇨IM6

IM3. (a) Copy dates for each vaccination from the card. (b) Write '44' in day column if card shows that vaccination was given but no date recorded.		Date of Immunization								
		Day		Month		Year				
BCG	BCG									
POLIO AT BIRTH	OPV0									
POLIO 1	OPV1									
POLIO 2	OPV2									
POLIO 3	OPV3									
DPT1	DPT1									
DPT2	DPT2									
DPT3	DPT3									
HEPB AT BIRTH	H0									
HEPB1	H1									
HEPB2	H2									
HEPB3	H3									
PENTA AT BIRTH	P0									
PENTA1	P1									
PENTA2	P2									
PENTA3	P3									
MEASLES (OR MMR)	MEASLES									
YELLOW FEVER	YF									

VITAMIN A (MOST RECENT)	VITA									

IM4. *Check IM3. Are all vaccines (BCG to Vitamin A) recorded?*

☐ *Yes⇨ Go to IM18*

☐ *No ⇨ Continue with IM5*

IM5. IN ADDITION TO WHAT IS RECORDED ON THIS CARD, DID (*name*) RECEIVE ANY OTHER VACCINATIONS – INCLUDING VACCINATIONS RECEIVED IN CAMPAIGNS OR IMMUNIZATION DAYS? Record 'Yes' only if respondent mentions vaccines shown in the table above.	Yes ..... 1 (Probe for vaccinations and write '66' in the corresponding day column for each vaccine mentioned. Then skip to IM18) No ..... 2 DK 8	 2⇨IM18 8⇨IM18
IM6. HAS (*name*) EVER RECEIVED ANY VACCINATIONS TO PREVENT HIM/HER FROM GETTING DISEASES, INCLUDING VACCINATIONS RECEIVED IN A CAMPAIGN OR IMMUNIZATION DAY?	Yes ..... 1 No ..... 2 DK 8	 2⇨IM18 8⇨IM18
IM7. HAS (*name*) EVER RECEIVED A BCG VACCINATION AGAINST TUBERCULOSIS – THAT IS, AN INJECTION IN THE ARM OR SHOULDER THAT USUALLY CAUSES A SCAR?	Yes ..... 1 No ..... 2 DK 8	
IM8. HAS (*name*) EVER RECEIVED ANY "VACCINATION DROPS IN THE MOUTH" TO PROTECT HIM/HER FROM GETTING DISEASES – THAT IS, POLIO?	Yes ..... 1 No ..... 2 DK 8	 2⇨IM11 8⇨IM11
IM9. WAS THE FIRST POLIO VACCINE RECEIVED IN THE FIRST TWO WEEKS AFTER BIRTH OR LATER?	First two weeks ..... 1 Later 2	
IM10. HOW MANY TIMES WAS THE POLIO VACCINE RECEIVED?	Number of times ..... __	
IM11. HAS (*name*) EVER RECEIVED A DPT VACCINATION – THAT IS, AN INJECTION IN THE THIGH OR BUTTOCKS – TO PREVENT HIM/HER FROM GETTING TETANUS, WHOOPING COUGH, DIPHTHERIA? *Probe by indicating that DPT vaccination is sometimes given at the same time as Polio*	Yes ..... 1 No ..... 2 DK 8	 2⇨IM13 8⇨IM13
IM12. HOW MANY TIMES WAS A DPT VACCINE RECEIVED?	Number of times ..... __	
IM13. HAS (*name*) EVER BEEN GIVEN A HEPATITIS B VACCINATION – THAT IS, AN INJECTION IN THE THIGH OR BUTTOCKS – TO PREVENT HIM/HER FROM GETTING HEPATITIS B? *Probe by indicating that the Hepatitis B vaccine is sometimes given at the same time as Polio and DPT vaccines*	Yes ..... 1 No ..... 2 DK 8	 2⇨IM15A 8⇨IM15A
IM14. WAS THE FIRST HEPATITIS B VACCINE RECEIVED WITHIN 24 HOURS AFTER BIRTH, OR LATER?	Within 24 hours ..... 1 Later 2	
IM15. HOW MANY TIMES WAS A HEPATITIS B VACCINE RECEIVED?	Number of times ..... __	

IM15A. HAS (*name*) EVER BEEN GIVEN A PENTAVALENT VACCINATION – THAT IS, AN INJECTION IN THE THIGH OR BUTTOCKS – TO PREVENT HIM/HER FROM GETTING TETANUS, WHOOPING COUGH, DIPTHERIA, AND HEPATITIS B? *Probe by indicating that the Pentavalent vaccine is sometimes given at the same time as the Polio vaccine.*	Yes ..... 1 No ..... 2 DK 8	 2⇨IM16 8⇨IM16
IM15B. WAS THE FIRST PENTAVALENT VACCINE RECEIVED WITHIN 24 HOURS AFTER BIRTH, OR LATER?	Within 24 hours ..... 1 Later 2	
IM15C. HOW MANY TIMES WAS A PENTAVALENT VACCINE RECEIVED?	Number of times ..... __	
IM16. HAS (*name*) EVER RECEIVED A MEASLES INJECTION OR AN MMR INJECTION – THAT IS, A SHOT IN THE ARM AT THE AGE OF **9** MONTHS OR OLDER - TO PREVENT HIM/HER FROM GETTING MEASLES?	Yes ..... 1 No ..... 2 DK 8	
IM17. HAS (*name*) EVER RECEIVED THE YELLOW FEVER VACCINATION – THAT IS, A SHOT IN THE ARM AT THE AGE OF **9** MONTHS OR OLDER - TO PREVENT HIM/HER FROM GETTING YELLOW FEVER? *Probe by indicating that the yellow fever vaccine is sometimes given at the same time as the measles vaccine*	Yes ..... 1 No ..... 2 DK 8	
IM18. HAS (*name*) RECEIVED A VITAMIN A DOSE LIKE (THIS/ANY OF THESE) WITHIN THE LAST 6 MONTHS? *Show common types of ampules / capsules / syrups*	Yes ..... 1 No ..... 2 DK 8	
IM19. PLEASE TELL ME IF (*name*) HAS PARTICIPATED IN ANY OF THE FOLLOWING CAMPAIGNS, NATIONAL IMMUNIZATION DAYS AND/OR VITAMIN A OR CHILD HEALTH DAYS: [A] ***Date/type of campaign A, antigens*** [B] ***Date/type of campaign B, antigens*** [C] ***Date/type of campaign C, antigens***	Y N DK *Campaign A* ..... 1 2 8 *Campaign B* ..... 1 2 8 *Campaign C* 1 2 8	

UF13. *Record the time.*	Hour and minutes ..... __ __ : __ __	

UF14. *Is the respondent the mother or caretaker of another child age 0-4 living in this household?*

☐ *Yes.* ⇨ *Indicate to the respondent that you will need to measure the weight and height of the child later. Go to the next QUESTIONNAIRE FOR CHILDREN UNDER FIVE to be administered to the same respondent*

☐ *No.* ⇨ *End the interview with this respondent by thanking him/her for his/her cooperation and tell her/him that you will need to measure the weight and height of the child..*

Check to see if there are other woman's or under-5 questionnaires to be administered in this household.

Move to another woman's or under-5 questionnaire, or start making arrangements for anthropometric measurements of all eligible children in the household.

ANTHROPOMETRY		**AN**
After questionnaires for all children are complete, the measurer weighs and measures each child. Record weight and length/height below, taking care to record the measurements on the correct questionnaire for each child. Check the child's name and line number on the household listing before recording measurements.		
AN1. Measurer's name and number:	Name_____ ___ ___	
AN2. Result of height / length and weight measurement	Either or both measured.....1 Child not present .....2 Child or caretaker refused.....3 Other (*specify*) _____6	 2⇨AN6 3⇨AN6 6⇨AN6
AN3. Child's weight	Kilograms (kg) .....__ __ . __ Weight not measured 99.9	
AN4. Child's length or height Check age of child in AG2: ☐ Child under 2 years old. ⇨ Measure length (lying down). ☐ Child age 2 or more years. ⇨ Measure height (standing up).	Length (cm) Lying down .....1 __ __ __ . __ Height (cm) Standing up .....2 __ __ __ . __ Length / Height not measured.....9999.9	
AN4C. Child's mid-upper arm circumference Check age of child in AG2: ☐ Child under 3 months old. ⇨ skip to AN5 ☐ Child age 3 months or more ⇨ Measure mid-upper arm circumference.	Circumference (cm).....__ __ . __ Circumference not measured.....99.9	
AN5. Oedema Observe and record	Checked Oedema present.....1 Oedema not present.....2 Unsure .....3 Not checked (*specify reason*) _____ 7	

AN6. Is there another child in the household who is eligible for measurement?
☐ Yes. ⇨ Record measurements for next child.
☐ No. ⇨ End the interview with this household by thanking all participants for their cooperation.
Gather together all questionnaires for this household and check that all identification numbers are inserted on each page. Tally on the Household Information Panel the number of interviews completed.