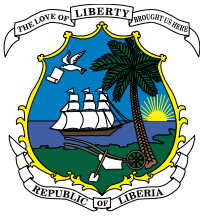
Liberia

Malaria Indicator Trends Report

Trends from DHS Program Surveys, 2009–2022



The 2022 Liberia Malaria Indicator Survey (2022 LMIS) was implemented by the Liberia National Malaria Control Program (NMCP) of the Ministry of Health (MOH) in collaboration with the Liberia Institute for Statistics and Geo-Information Services (LISGIS). Financial support was provided by the United States Agency for International Development (USAID) through the President's Malaria Initiative (PMI), the Government of Liberia, and the Global Fund to Fight AIDS, Tuberculosis and Malaria (GFATM). ICF provided technical assistance through The DHS Program, a USAID-funded project providing support and technical assistance in the implementation of population and health surveys in countries worldwide.

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2022 Liberia Malaria Indicator Survey

The 2022 Liberia Malaria Indicator Survey (LMIS) is designed to provide up-to-date estimates of basic demographic and health indicators for malaria in Liberia. The 2022 LMIS is the fourth Malaria Indicator Survey (MIS) conducted in Liberia since 2009. The 2022 LMIS provides reliable estimates on malaria control interventions, such as mosquito nets, intermittent preventive treatment of malaria in pregnant women, and care seeking for and treatment of fever in children. Also, children age 6–59 months were tested for malaria infection and anemia.

A nationally representative sample of 4,513 women age 15–49 in all selected households were successfully interviewed. The 2022 LMIS was conducted in the field from October 2022 to December 2022. The sample design for the LMIS provides estimates at the national level, urban and rural areas, and six geographical regions, consisting of the following counties:

- Greater Monrovia
- North Western: Bomi, Grand Cape Mount, and Gbarpolu counties
- South Central: Montserrado (excluding Greater Monrovia district), Margibi, and Grand Bassa counties
- North Central: Bong, Nimba, and Lofa counties
- South Eastern A: River Cess, Sinoe, and Grand Gedeh counties
- South Eastern B: River Gee, Grand Kru, and Maryland counties

Malaria Indicator Trends Report

This report summarizes of the results of analyses of malaria data, using LMIS data from 2009, 2011, 2016, and 2022, as well as data from the 2013 and 2019-20 Liberia Demographic and Health Surveys (LDHS). This report used sampling error estimates of key malaria indicators from the aforementioned DHS surveys to plot the indicators with confidence intervals and examine variations over time, between urban and rural areas, and across Liberia's six geographical regions. The results are presented as graphs and short summaries.

A Note on Interpretation of Malaria Indicator Trends

Every estimate from a sample survey, including DHS Program surveys, is subject to a certain degree of uncertainty. The estimates shown in the graphs used throughout this report are the middle of a range of possible values. This range of possible values reflects the level of uncertainty of the estimate and is called the confidence interval. Researchers are confident that the "truth", or the value one would find if every single person in the population were surveyed (rather than using a sample) lies within this range. For example, according to the 2022 LMIS, 72% of households in Liberia own at least one insecticide treated net (ITN). The 95% confidence interval for this indicator ranges from 69.4% to 75.2%, meaning that researchers are confident that if the 2022 LMIS were conducted 100 times with a different sample each time, the estimate of the percentage of households with at least one ITN would fall between 69.4% and 75.2% for 95 out of 100 samples.

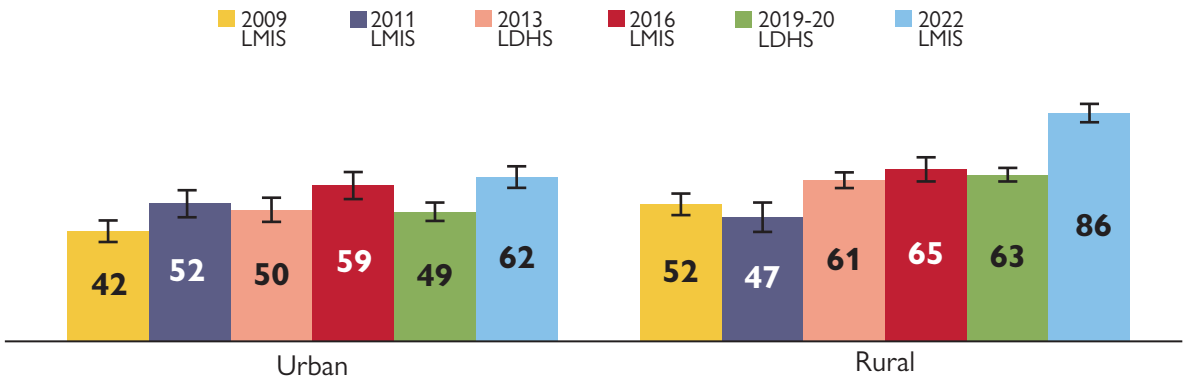
How to Read and Understand Trend Graphs

The use of a standard methodology and questionnaires by both MIS and DHS surveys allows comparisons between estimates of the same indicator over time and across surveys. The trend graphs in this document use a uniform color scheme to facilitate reading and understanding. Data from the 2009 LMIS are always presented in yellow, data from the 2011 LMIS are in purple, data from the 2013 LDHS are pink, data from the 2016 LMIS are red, data from the 2019-20 LDHS are green, and data from the 2022 LMIS are blue. Each bar in the chart includes the 95% confidence intervals in black at the top of each column. If the 95% confidence intervals for two estimates do not overlap, the difference between the estimates is considered significant.

The text immediately following each graph describes the indicator's key findings, including whether or not the changes are significant. In addition, the graphs that present data according to place of residence all use the same orientation (such as the graph below). In all residential-level graphs, data are presented separately for rural and urban areas.

In the example below, we see that household ownership of at least one ITN in urban areas has increased from 42% in 2009 to 62% in 2022. Looking at the 95% confidence intervals of the 2009 LMIS and 2022 LMIS urban estimates, it is clear that they do not overlap and thus the increase observed in urban areas over time is significant. Similarly, household ownership of at least one ITN in rural areas significantly increased from 52% in 2009 to 86% in 2022. Household ownership of at least one ITN in rural areas declined from 52% in 2009 to 47% in 2011. However, the 95% confidence intervals overlap, meaning that the difference is in the decline is not significant.

Percent of households with at least one insecticide-treated net (ITN)



How to Read and Understand Regional Charts

Using the 2022 LMIS, it is possible to compare estimates of the same indicator across regions. Note that for some indicators, such as household ownership of at least one ITN (see below), a high value represents a "good" result, but for other indicators, such as malaria prevalence by microscopy, a low value is synonymous with a "good" result. The graph also shows the 95% confidence intervals for each regional estimate, as well as a line, showing the national level for the indicator. In the text, regional estimates are compared to the other regions, as well as the national estimate. Comparisons of regional estimates to the national level, takes into consideration the national estimate's confidence intervals, despite those confidence intervals not being displayed.

Percent of households with at least one ITN

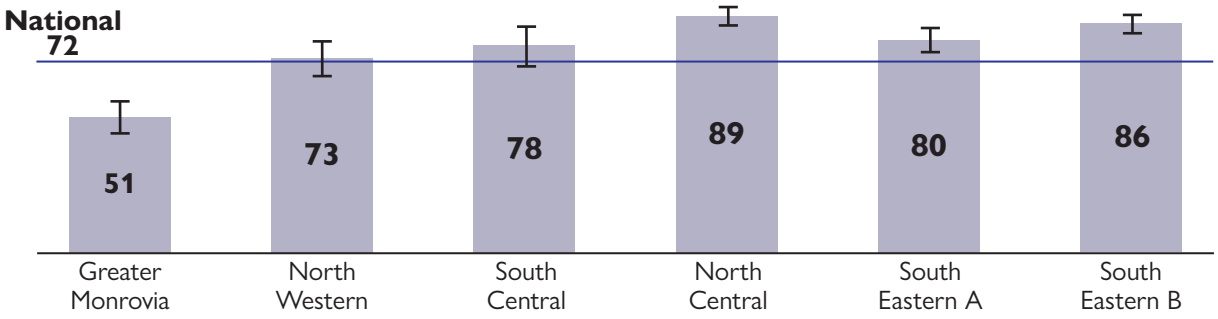
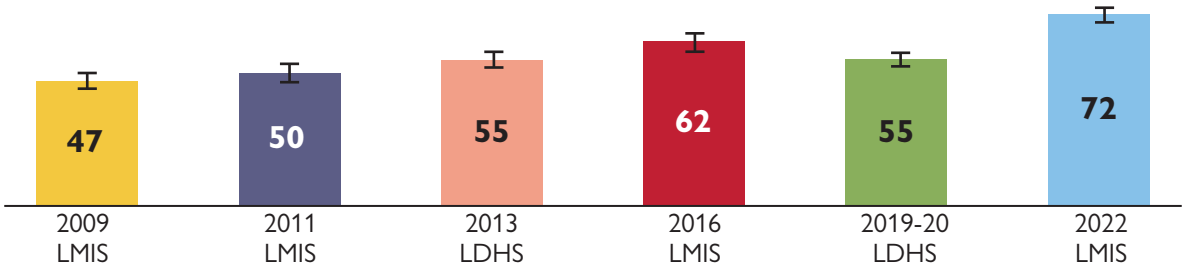


Photo credit: ©2008 Sarah Hoibak/MENTOR Initiative

Household Ownership of Insecticide Treated Nets (ITNs)

National-Level Trends in ITN* Ownership

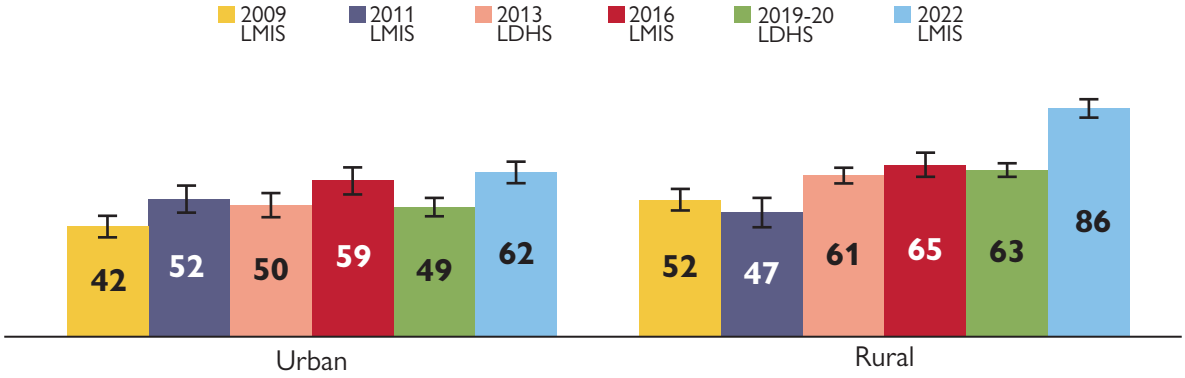
Percent of households with at least one insecticide-treated net (ITN)



- In the 2022 LMIS, more than 7 in 10 households (72%) in Liberia own at least one ITN.
- Household ownership of at least one ITN significantly increased between 2019-20 and 2022, from 55% to 72%, respectively.

ITN Ownership Trends by Residence

Percent of households with at least one insecticide-treated net (ITN)

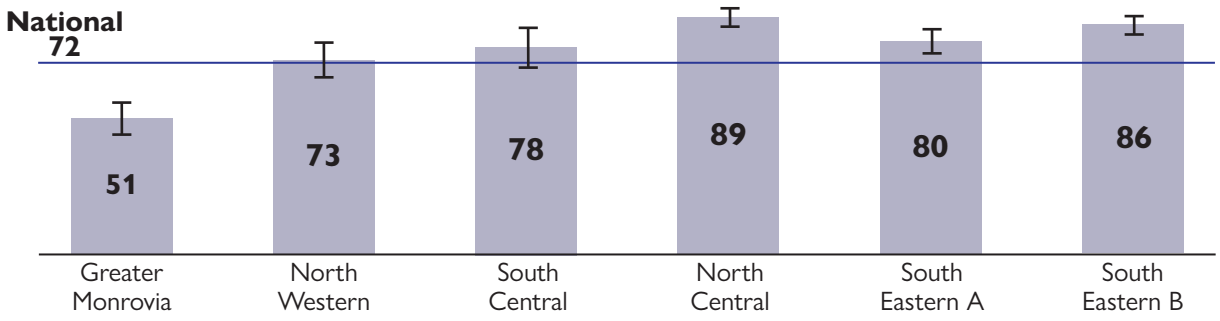


- ITN ownership varies significantly by residence; 62% of urban households own at least one ITN, compared to 86% of rural households in the 2022 LMIS,.
- In both urban and rural areas, ownership of at least one ITN increased significantly between 2019-20 and 2022.

**Note: An ITN is a factory-treated net that does not require any further treatment. In the 2016 LMIS, 2013 LDHS, and 2011 LMIS, this was known as a long-lasting insecticidal net (LLIN).*

Does ITN* ownership vary significantly across regions (2022 LMIS)?

Percent of households with at least one ITN



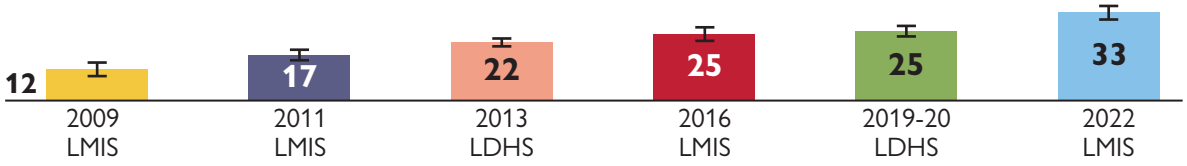
- Household ownership of at least one ITN by region ranges from a minimum of 51% in Greater Monrovia to a maximum of 89% in North Central.
- Household ownership of at least one ITN in Greater Monrovia (51%) is significantly lower than in all other regions, as well as the national percentage of 72%.
- In addition, household ownership of at least one ITN is significantly higher than the national level in North Central (89%), South Eastern A (80%), and South Eastern B (86%).

**Note: An ITN is a factory-treated net that does not require any further treatment. In the 2016 LMIS, 2013 LDHS, and 2011 LMIS, this was known as a long-lasting insecticidal net (LLIN).*

Household Ownership of Insecticide Treated Nets (ITNs)

National-Level Trends in Full Household ITN* Coverage

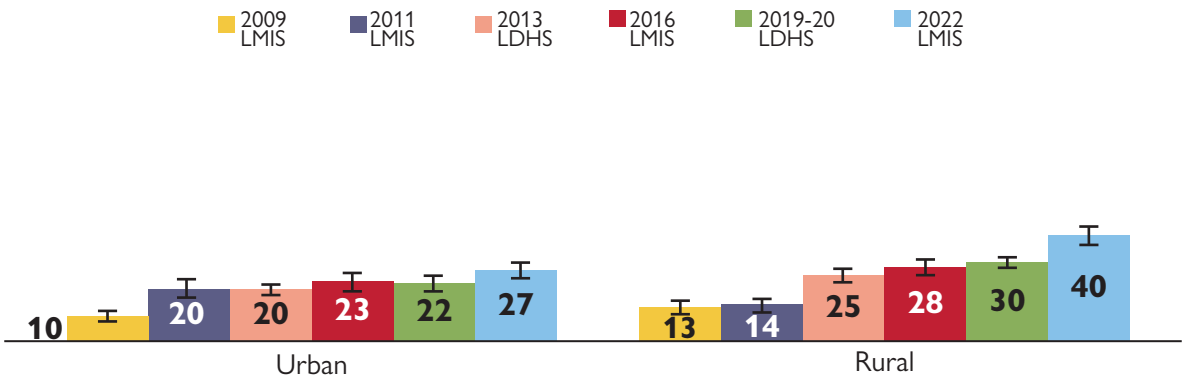
Percent of households with at least one ITN for every two persons the night before the survey



- In the 2022 LMIS, one-third of households have at least one ITN for every two people who spent the night before the survey in the household.
- Full household ITN coverage significantly increased from 25% in 2019-20 to 33% in 2022.

Full Household ITN* Coverage Trends by Residence

Percent of households with at least one ITN for every two persons the night before the survey

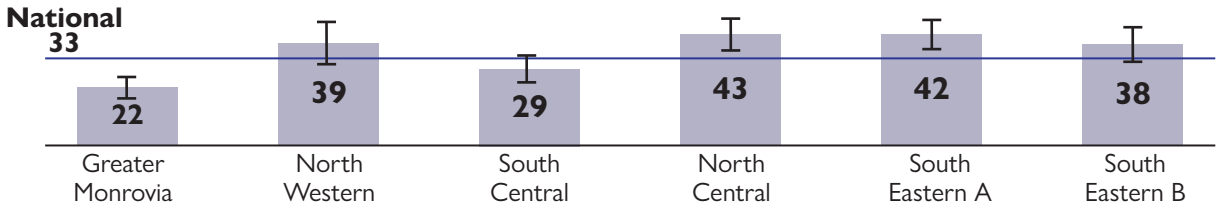


- Household ownership of at least one ITN for every two people in 2022 is significantly higher in rural areas than in urban areas (40% versus 27%).
- There was a significant increase in full household ITN coverage between 2019-20 and 2022 in rural areas. There was no significant change in this period for urban areas.

**Note: An ITN is a factory-treated net that does not require any further treatment. In the 2016 LMIS, 2013 LDHS, and 2011 LMIS, this was known as a long-lasting insecticidal net (LLIN).*

Does full household ITN* coverage vary significantly across regions (2022 LMIS)?

Percent of households with at least one ITN for every two persons the night before the survey



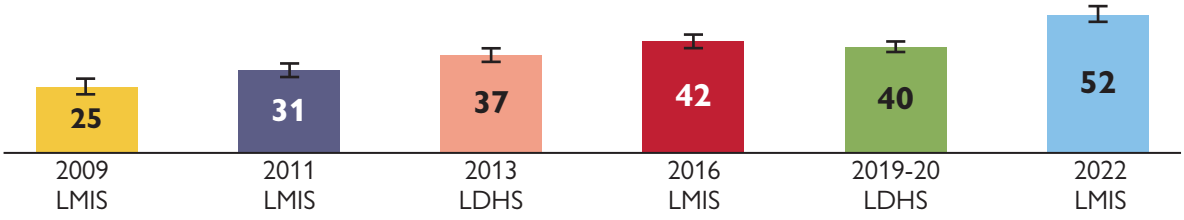
- Household ownership of at least one ITN for every two people varies by region, from 22% in Greater Monrovia to 43% in North Central.
- Household ownership of at least one ITN for every two people is significantly lower in Greater Monrovia (22%) than in North Western (39%), North Central (43%), South Eastern A (42%), South Eastern B (38%), and the national level (33%).
- Full household ITN coverage is in South Eastern A (42%) and North Central (43%) are both significantly higher than the national level.

**Note: An ITN is a factory-treated net that does not require any further treatment. In the 2016 LMIS, 2013 LDHS, and 2011 LMIS, this was known as a long-lasting insecticidal net (LLIN).*

ITN Access and Use

National-Level Trends in ITN* Access

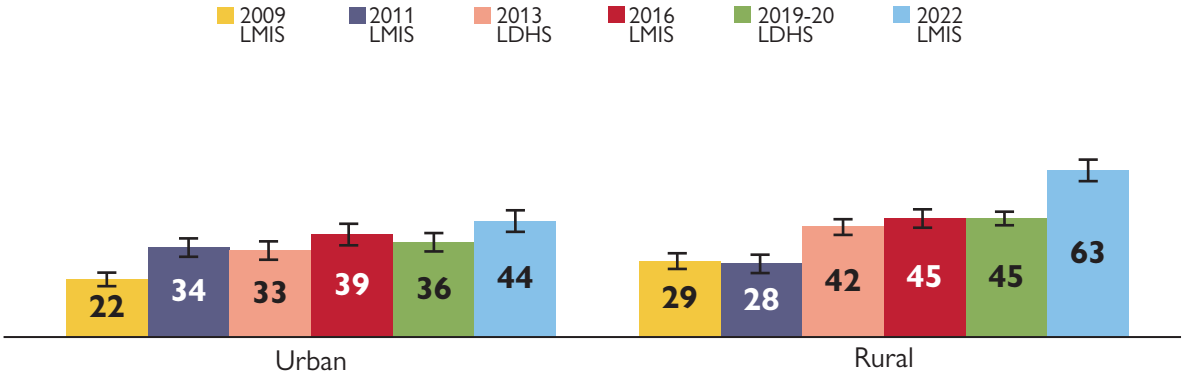
Percent of household population with access to an ITN



- In the 2022 LMIS, more than half of the household population (52%) has access to an ITN, meaning that they could sleep under an ITN if each ITN in the household were used by up to two people.
- ITN access increased significantly from 40% in 2019-20 to 52% in 2022.

Trends in ITN* Access by Residence

Percent of household population with access to an ITN

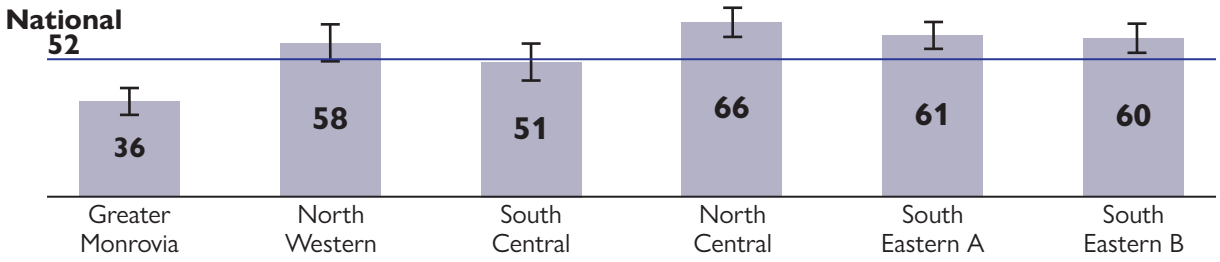


- In the 2022 LMIS, ITN access varies significantly by residence, from 44% in urban areas to 63% in rural areas.
- In both urban and rural areas, access to an ITN significantly increased between 2019-20 and 2022.

**Note: An ITN is a factory-treated net that does not require any further treatment. In the 2016 LMIS, 2013 LDHS, and 2011 LMIS, this was known as a long-lasting insecticidal net (LLIN).*

Does ITN* access vary significantly across regions (2022 LMIS)?

Percent of household population with access to an ITN



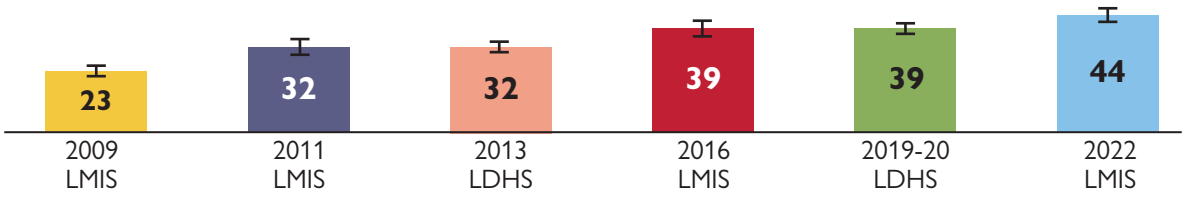
- By region, ITN access ranges from a minimum of 36% in Greater Monrovia to a maximum of 66% in North Central.
- ITN access is significantly lower in Greater Monrovia (36%) than in all other regions, as well as the national level (52%).
- North Central (66%) and South Eastern A (61%) have significantly higher ITN access compared to the national level, but not when compared to other regions (North Western, South Central, and South Eastern B).

**Note: An ITN is a factory-treated net that does not require any further treatment. In the 2016 LMIS, 2013 LDHS, and 2011 LMIS, this was known as a long-lasting insecticidal net (LLIN).*

ITN Access and Use

National-Level Trends in ITN Use

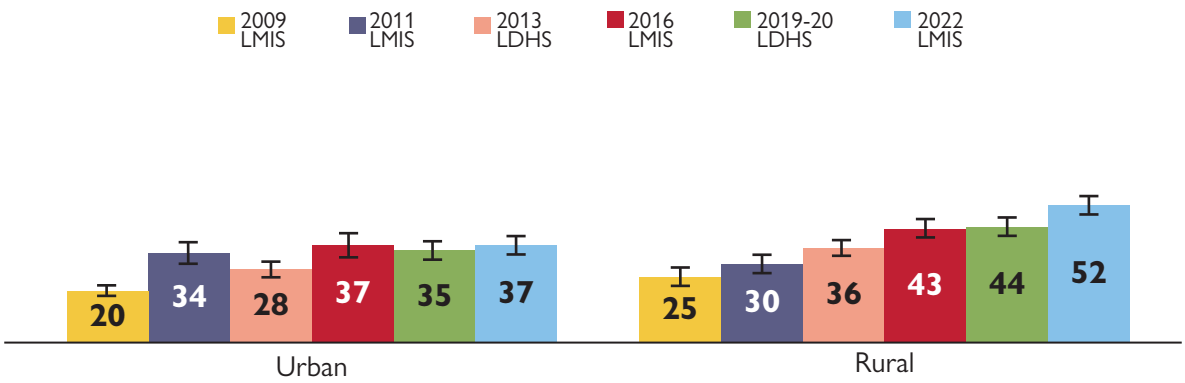
Percent of household population who slept under an ITN the night before the survey



- In the 2022 LMIS, 44% of the household population slept under an ITN the night before the survey.
- ITN use by the household population doubled between 2009 (23%) and 2022 (44%).
- The increase in ITN use by the household population between 2019-20 and 2022 is not statistically significant.

Trends in ITN Use by Residence

Percent of household population who slept under an ITN the night before the survey

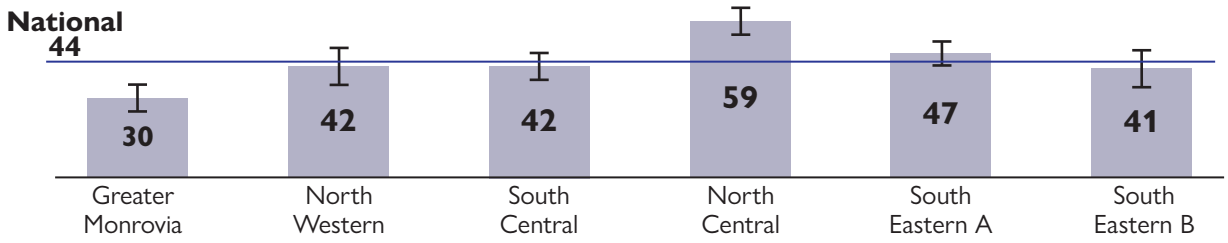


- In the 2022 LMIS, ITN use by the household population is significantly higher in rural areas (52%) than in urban areas (37%).
- In rural areas, ITN use by the household population increased significantly between 2019-20 and 2022.

**Note: An ITN is a factory-treated net that does not require any further treatment. In the 2016 LMIS, 2013 LDHS, and 2011 LMIS, this was known as a long-lasting insecticidal net (LLIN).*

Does ITN use vary significantly across regions (2022 LMIS)?

Percent of household population who slept under an ITN the night before the survey



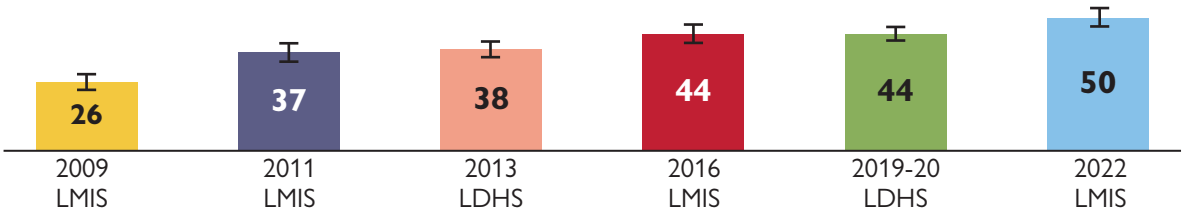
- ITN use by the household population ranges from 30% in Greater Monrovia to 59% in North Central.
- ITN use by the household population in Greater Monrovia is statistically significantly lower than in South Central (42%), North Central (59%), South Eastern A (47%), and the national level (44%).
- ITN use is significantly higher in North Central (59%) than in other regions, as well as the national level (44%).

**Note: An ITN is a factory-treated net that does not require any further treatment. In the 2016 LMIS, 2013 LDHS, and 2011 LMIS, this was known as a long-lasting insecticidal net (LLIN).*

ITN Use by Vulnerable Groups

National-Level Trends in Children's Use of ITNs*

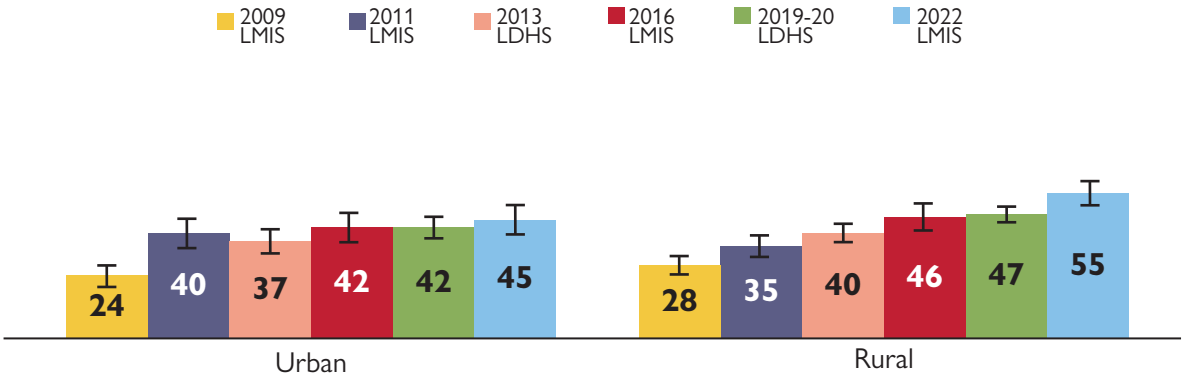
Percent of children under age 5 who slept under an ITN the night before the survey



- In the 2022 LMIS, half of children under age 5 slept under an ITN the night before the survey, nearly twice as high as 2009 (26%).
- The increase in children's use of ITNs between 2019-20 and 2022 was not significant.

Trends in Children's Use of ITNs* by Residence

Percent of children under age 5 who slept under an ITN the night before the survey

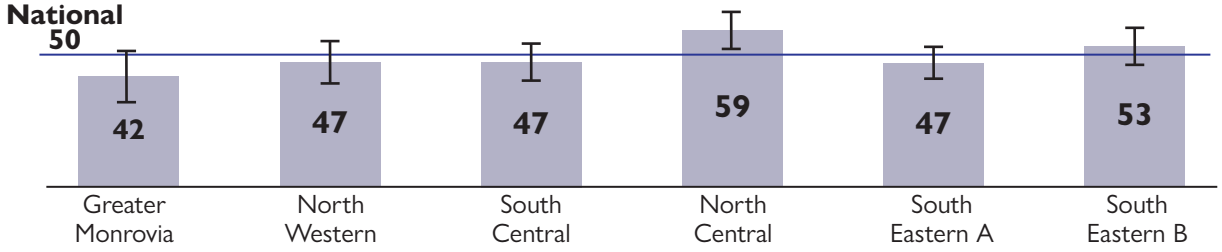


- In the 2022 LMIS, children's ITN use is higher in rural areas (55%) than in rural areas (45%), though this difference is not significant.
- In rural areas, the increase in ITN use by children under age 5 between 2019-20 and 2022 was significant, but not in urban areas.

**Note: An ITN is a factory-treated net that does not require any further treatment. In the 2016 LMIS, 2013 LDHS, and 2011 LMIS, this was known as a long-lasting insecticidal net (LLIN).*

Does children's use of ITNs* vary significantly across regions (2022 LMIS)?

Percent of children under age 5 who slept under an ITN the night before the survey



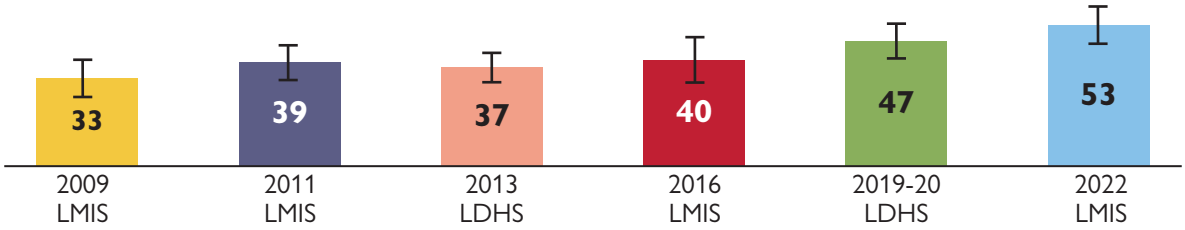
- By region, children's use of ITNs ranges from 42% in Greater Monrovia to 59% in North Central.
- Use of ITNs by children in North Central (59%) is significantly higher than in Greater Monrovia (42%), otherwise there are no significant differences among the regions and the national level.

**Note: An ITN is a factory-treated net that does not require any further treatment. In the 2016 LMIS, 2013 LDHS, and 2011 LMIS, this was known as a long-lasting insecticidal net (LLIN).*

ITN Use by Vulnerable Groups

National-Level Trends in Pregnant Women's Use of ITNs

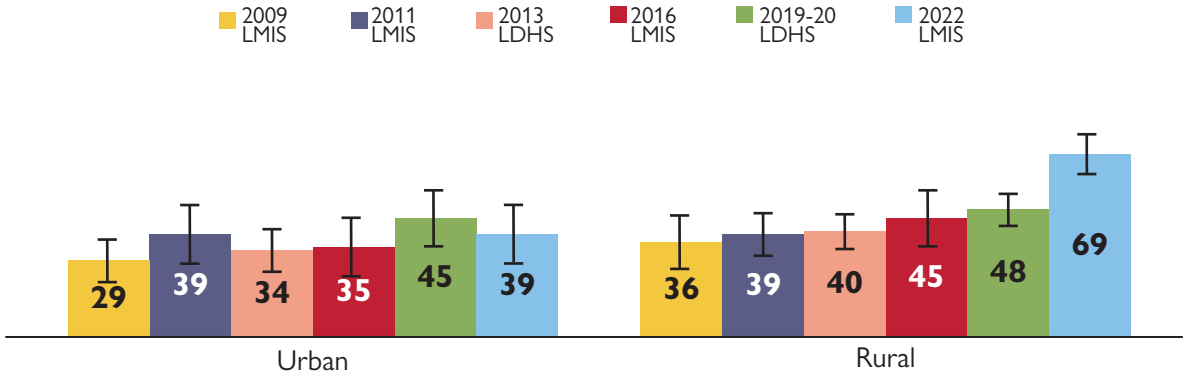
Percent of pregnant women age 15–49 who slept under an ITN the night before the survey



- In the 2022 LMIS, more than half of pregnant women age 15–49 (53%) slept under an ITN the night before the survey.
- ITN use by pregnant women increased from 47% in 2019-20 to 53% in 2022, though this increase was not significant.

Trends in Pregnant Women's Use of ITNs by Residence

Percent of pregnant women age 15–49 who slept under an ITN the night before the survey

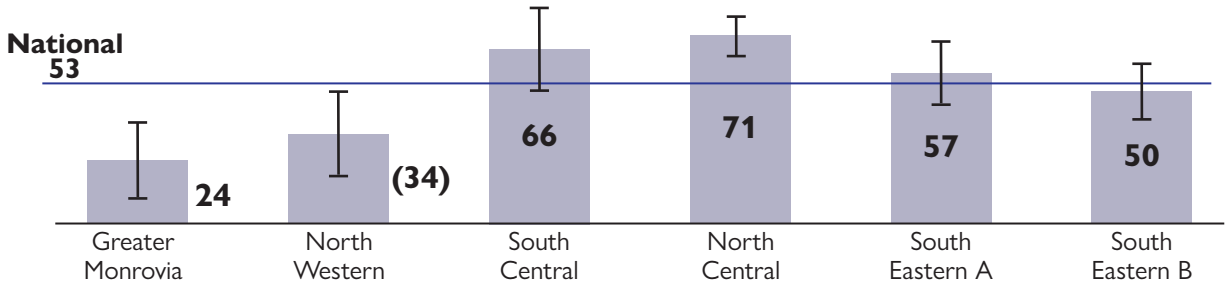


- In the 2022 LMIS, the use of ITNs by pregnant women age 15–49 is significantly higher in rural areas than in urban areas (69% versus 39%).
- In urban areas, pregnant women's use of ITNs declined, from 45% in 2019-20 to 39% in 2022, though this change was not significant.
- In rural areas, use of ITNs by pregnant women increased significantly from 48% in 2019-20 to 69% in 2022.

**Note: An ITN is a factory-treated net that does not require any further treatment. In the 2016 LMIS, 2013 LDHS, and 2011 LMIS, this was known as a long-lasting insecticidal net (LLIN).*

Does pregnant women's use of ITNs vary significantly across regions (2022 LMIS)?

Percent of pregnant women age 15–49 who slept under an ITN the night before the survey



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

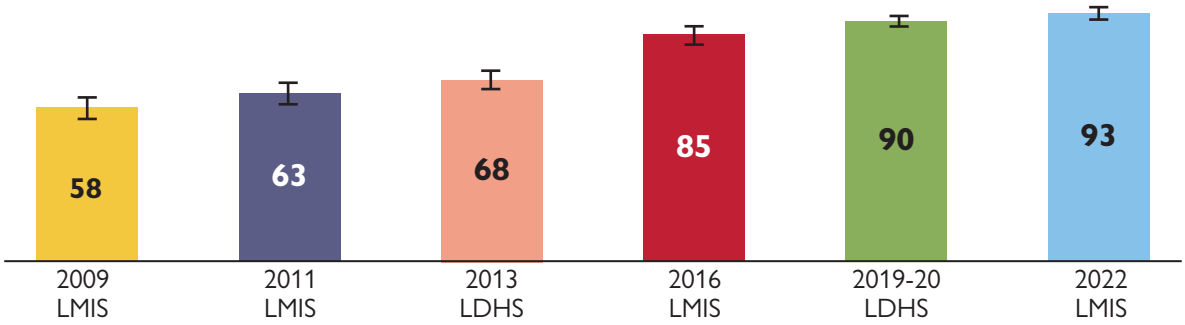
- Use of ITNs by pregnant women age 15–49 ranges from a minimum of 24% in Greater Monrovia to a maximum of 71% in North Central.
- Pregnant women's use of ITNs is significantly lower in Greater Monrovia (24%) than in most other regions and the national level (53%).
- In contrast, use of ITNs by pregnant women is significantly higher in North Central than in Greater Monrovia, North Western (34%), South Eastern B (50%), and the national level (53%).

**Note: An ITN is a factory-treated net that does not require any further treatment. In the 2016 LMIS, 2013 LDHS, and 2011 LMIS, this was known as a long-lasting insecticidal net (LLIN).*

Intermittent Preventive Treatment in Pregnancy (IPTp)

National-Level Trends in IPTp 1+

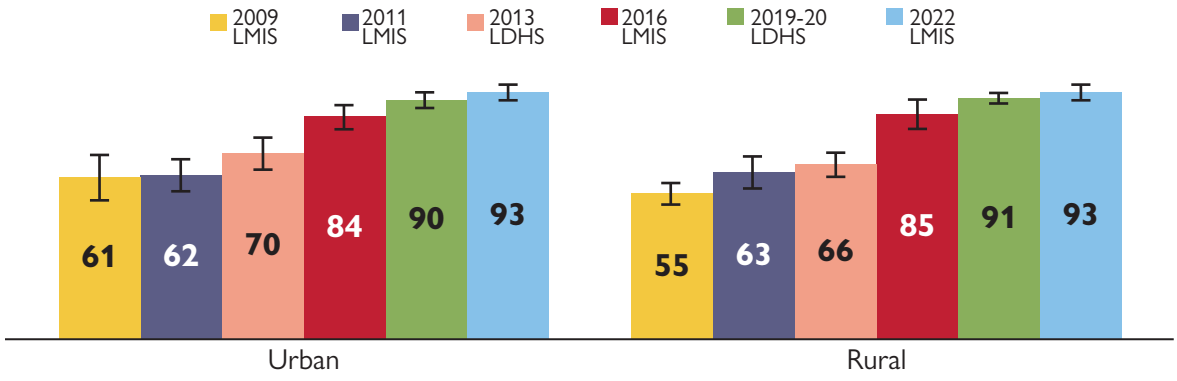
Percent of women age 15–49 with a live birth in the two years preceding the survey who received one or more doses of SP/Fansidar



- In the 2022 LMIS, over 9 in 10 women age 15–49 (93%) who had a live birth in the two years before the survey received at least one dose of SP/Fansidar to prevent malaria during pregnancy (IPTp1+).
- Coverage of IPTp 1+ increased slightly, but not significantly, from 90% in 2019-20 to 93% in 2022.

IPTp 1+ Trends by Residence

Percent of women age 15–49 with a live birth in the two years preceding the survey who received one or more doses of SP/Fansidar

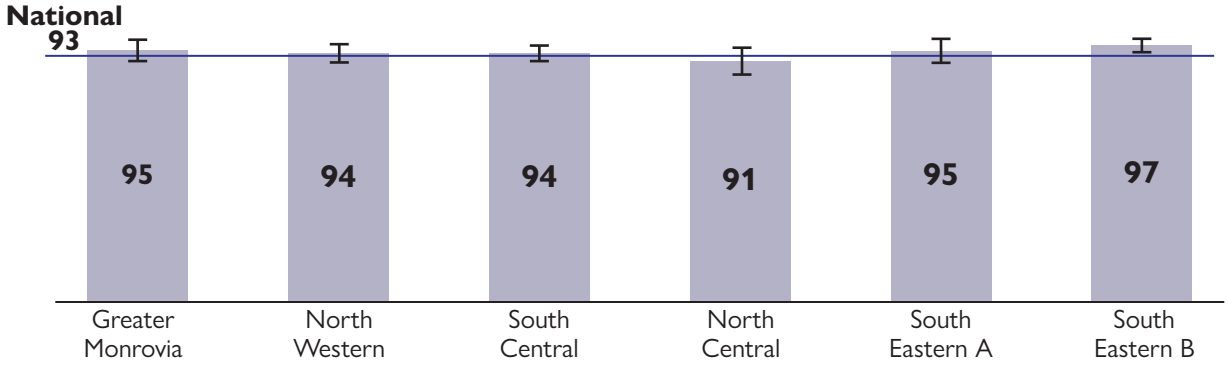


- In the 2022 LMIS, coverage of IPTp 1+ is the same in urban and rural areas, at 93%.
- Urban and rural areas have seen a significant increase since 2009, though the changes between 2019-20 and 2022 were not significant in either residential area.

Coverage of IPT 1+

Does IPTp 1+ vary significantly across regions (2022 LMIS)?

Percent of women age 15–49 with a live birth in the two years preceding the survey who received one or more doses of SP/Fansidar

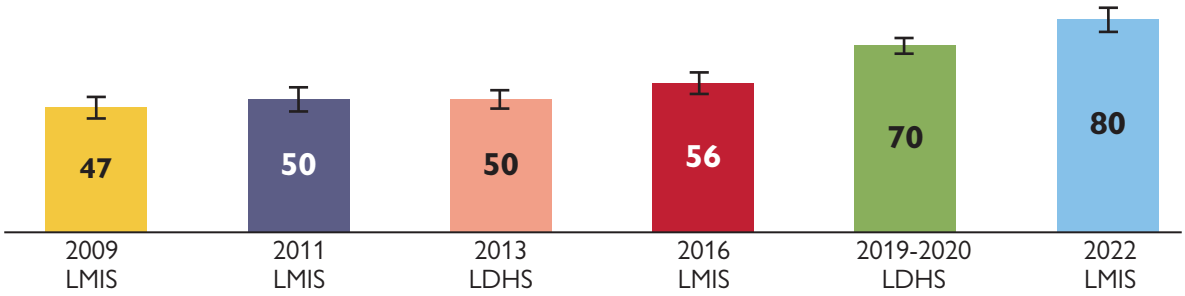


- IPTp 1+ ranges from 91% in North Central to 97% in South Eastern B.
- Coverage of IPTp 1+ is not significantly different across the regions or compared to the national level (93%).

Intermittent Preventive Treatment in Pregnancy (IPTp)

National-Level Trends in IPTp 2+

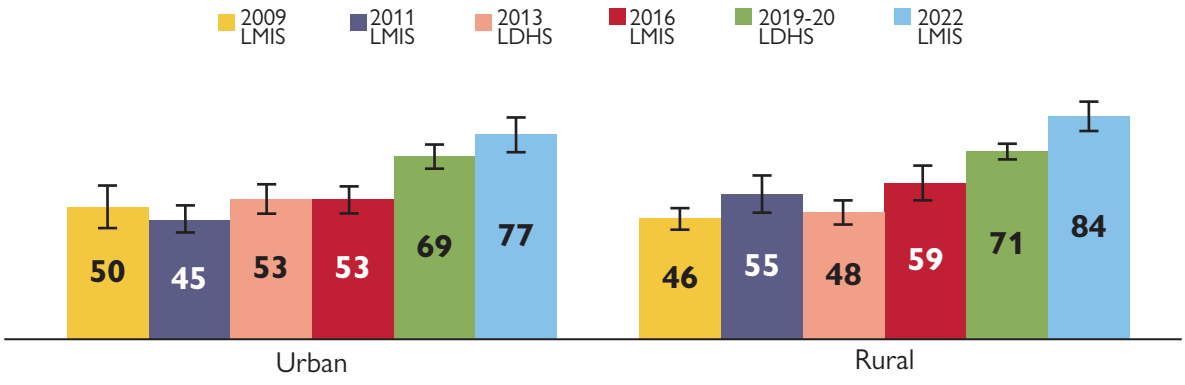
Percent of women age 15–49 with a live birth in the two years preceding the survey who received two or more doses of SP/Fansidar



- In the 2022 LMIS, eight in ten women age 15–49 who had a live birth in the two years before the survey received two or more doses of SP/Fansidar to prevent malaria during pregnancy (IPTp2+).
- Pregnant women receiving IPTp 2+ increased significantly from 70% in 2019-20 to 80% in 2022.

IPTp 2+ Trends by Residence

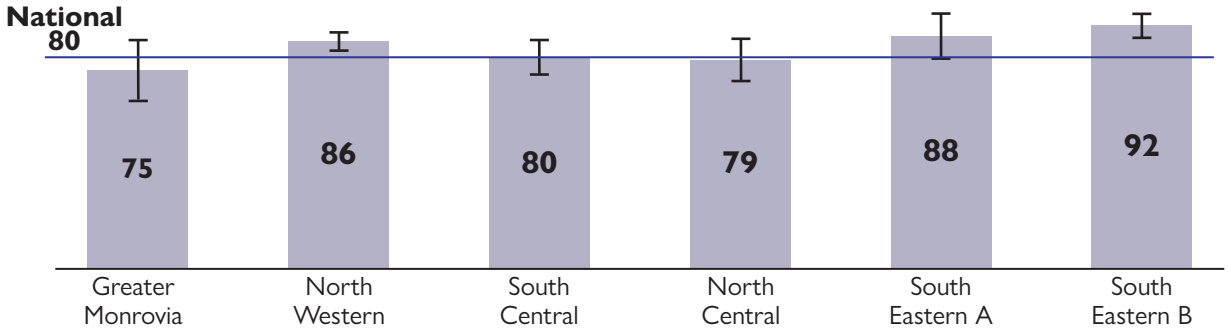
Percent of women age 15–49 with a live birth in the two years preceding the survey who received two or more doses of SP/Fansidar



- In the 2022 LMIS, pregnant women receiving IPTp 2+ is higher in rural areas (84%) than in rural areas (77%), though this difference is not significant.
- In rural areas, coverage of IPTp 2+ increased significantly between 2019-20 (71%) and 2022 (84%).

Does IPTp 2+ vary significantly across regions (2022 LMIS)?

Percent of women age 15–49 with a live birth in the two years preceding the survey who received two or more doses of SP/Fansidar

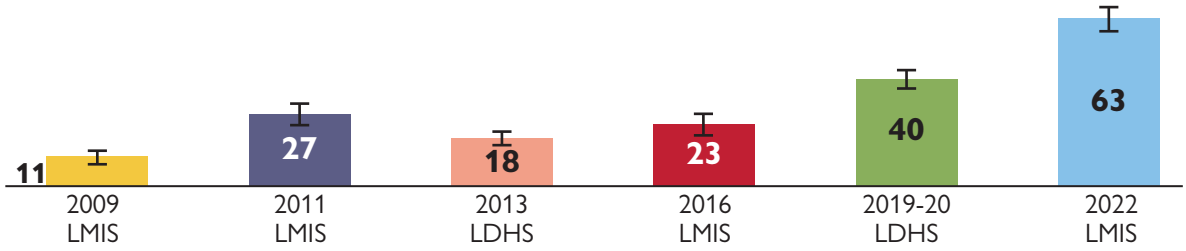


- By region, IPTp 2+ ranges from a minimum of 75% in Greater Monrovia to a maximum of 92% in South Eastern B.
- Coverage of IPTp 2+ is significantly higher in South Eastern B (92%) than in Greater Monrovia (75%).
- Coverage of IPTp2+ in South Eastern B is also significantly higher than the national level (80%).

Intermittent Preventive Treatment in Pregnancy (IPTp)

National-Level Trends in IPTp 3+

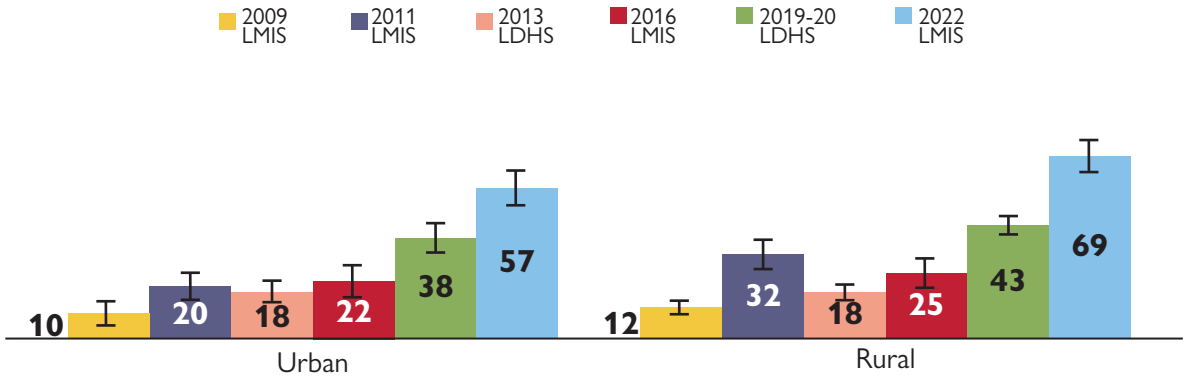
Percent of women age 15–49 with a live birth in the two years preceding the survey who received three or more doses of SP/Fansidar



- In the 2022 LMIS, over six in ten women age 15–49 (63%) with a live birth in the two years before the survey received three or more doses of SP/Fansidar to prevent malaria during pregnancy (IPT3+).
- Coverage of IPTp 3+ increased significantly from 40% in 2019-20 to 63% in 2022. IPTp3+ coverage has increased more than five times since 2009 (11%).

IPTp 3+ Trends by Residence

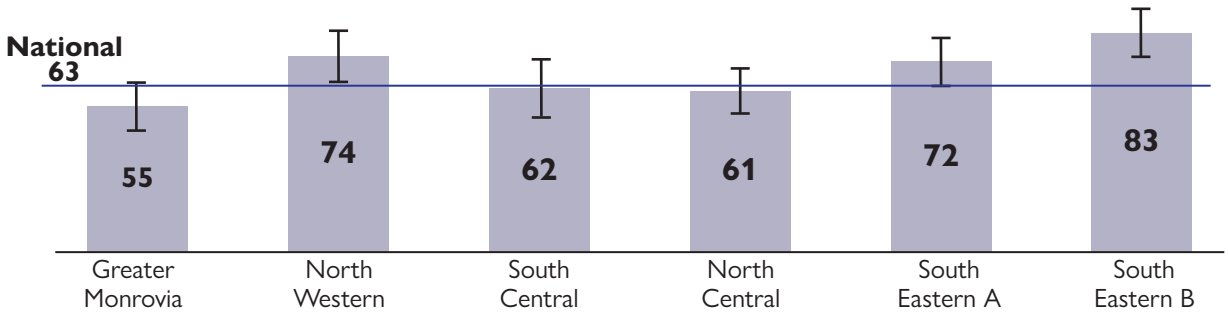
Percent of women age 15–49 with a live birth in the two years preceding the survey who received three or more doses of SP/Fansidar



- In the 2022 LMIS, coverage of IPTp 3+ is higher in rural areas (69%) than in urban areas (57%).
- In both urban and rural areas, IPTp 3+ significantly increased between 2019-20 and 2022.

Does IPTp 3+ vary significantly across regions (2022 LMIS)?

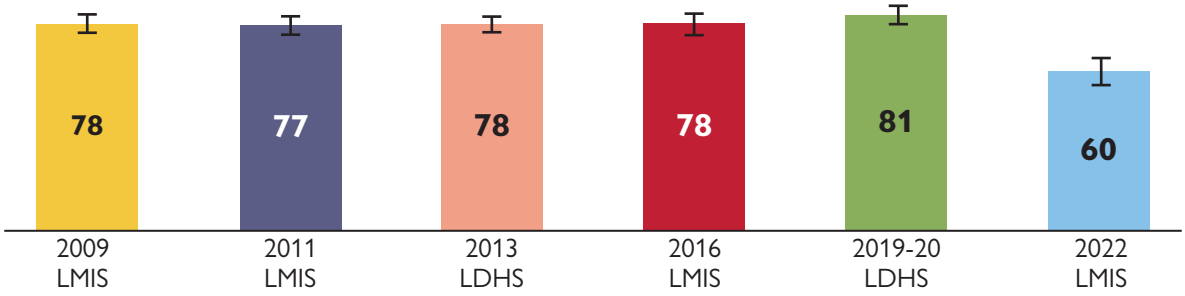
Percent of women age 15–49 with a live birth in the two years preceding the survey who received three or more doses of SP/Fansidar



- Coverage of IPTp 3+ ranges from 55% in Greater Monrovia to 83% in South Eastern B.
- IPTp 3+ is significantly higher in South Eastern B (83%) than in Greater Monrovia (55%), South Central (62%), North Central (61%), and the national level (63%).

National-Level Trends in Care-Seeking Behavior

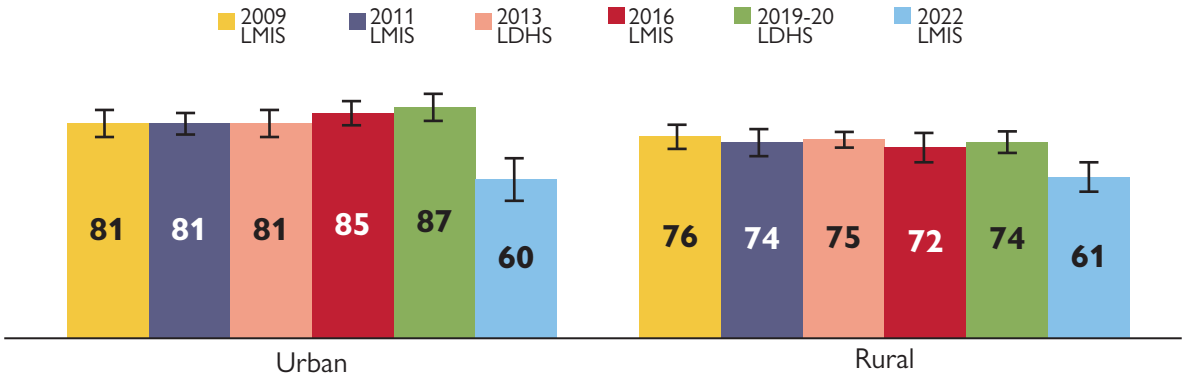
Percent of children under age 5 with a fever in the two weeks preceding the survey for whom advice or treatment was sought



- In the 2022 LMIS, advice or treatment was sought for 60% of children under age five with fever in the two weeks before the survey. This was a significant decline from 2019-20 (81%).
- Care-seeking for children with fever rose slightly between 2009 (78%) to 2019-20 (81%) and then declined in 2022 (60%).

Trends in Care-Seeking Behavior by Residence

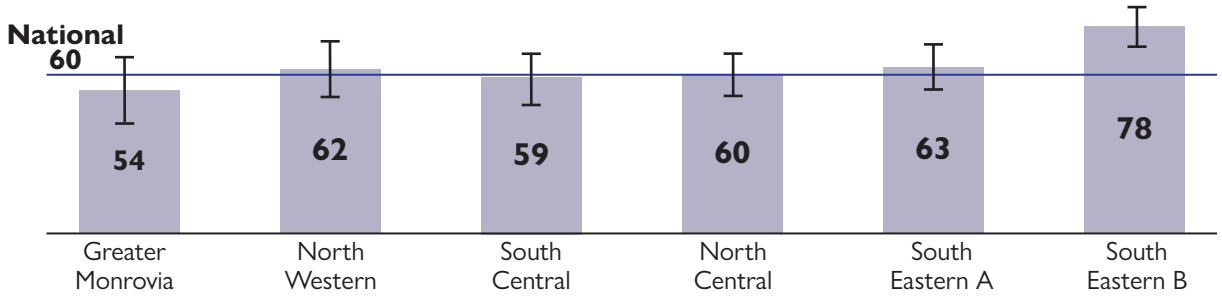
Percent of children under age 5 with a fever in the two weeks preceding the survey for whom advice or treatment was sought



- In the 2022 LMIS, care-seeking for children under age five with fever is essentially the same among urban and rural residents, at 60% and 61%, respectively.
- In both urban and rural areas, care-seeking for children with fever declined significantly between 2019-20 and 2022.

Does care-seeking behavior vary significantly across regions (2022 LMIS)?

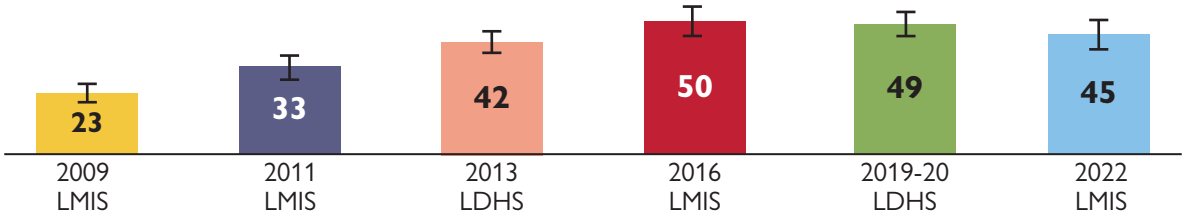
Percent of children under age 5 with a fever in the two weeks preceding the survey for whom advice or treatment was sought



- By region, care-seeking for children under age five with fever ranges from 54% in Greater Monrovia to 78% in South Eastern B.
- Care-seeking for children with fever is significantly higher in South Eastern B (78%) than Greater Monrovia (54%), South Central (59%), North Central (60%), and the national level (60%).

National-Level Trends in Diagnostic Testing

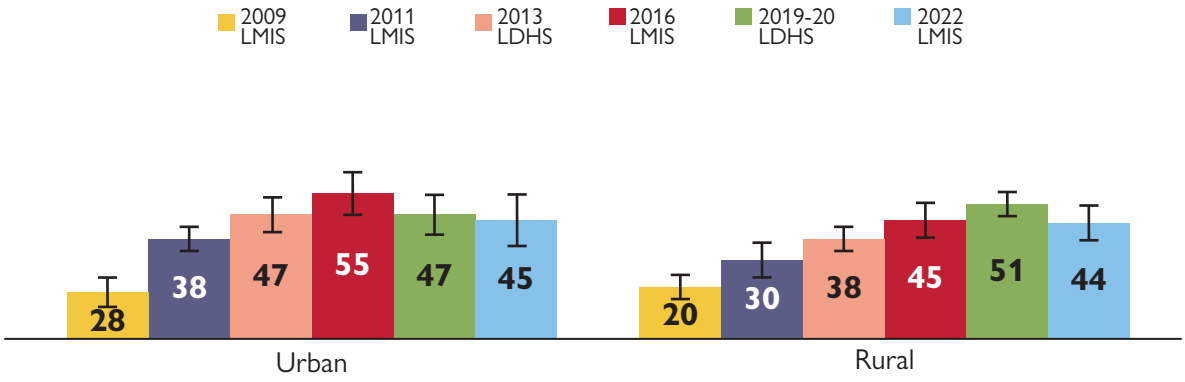
Percent of children under age 5 with a fever in the two weeks preceding the survey who had blood taken from a finger or heel for testing



- In the 2022 LMIS, blood was taken from a finger or heel for testing for 45% of children under age five who had fever in the two weeks before the survey.
- The decline in diagnostic testing for children with fever between 2019-20 and 2022 is not statistically significant.

Trends in Diagnostic Testing by Residence

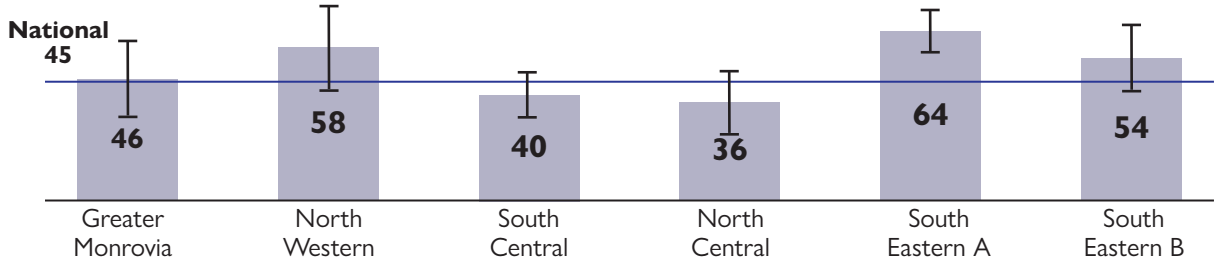
Percent of children under age 5 with a fever in the two weeks preceding the survey who had blood taken from a finger or heel for testing



- In the 2022 LMIS, diagnostic testing for children with fever varies little by residence (45% in urban areas and 44% in rural areas).
- Diagnostic testing for children with fever did not significantly change between 2019-20 and 2022.

Does diagnostic testing vary significantly across regions (2022 LMIS)?

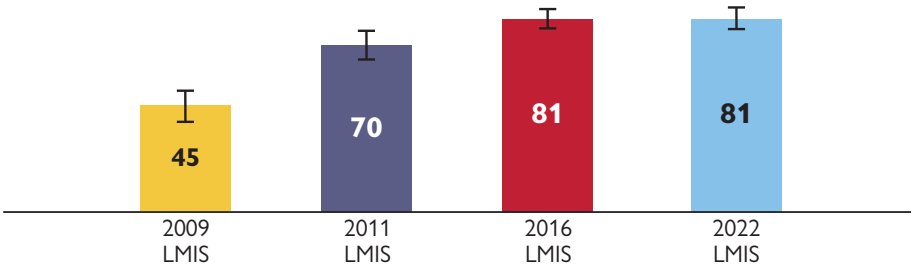
Percent of children under age 5 with a fever in the two weeks preceding the survey who had blood taken from a finger or heel for testing



- Diagnostic testing for children with fever ranges from a minimum of 36% in North Central to a maximum of 64% in South Eastern A.
- Diagnostic testing for children with fever is significantly higher in South Eastern A (64%) than in South Central (40%), North Central (36%), and the national level (45%).

National-Level Trends in Appropriate Antimalarial Treatment

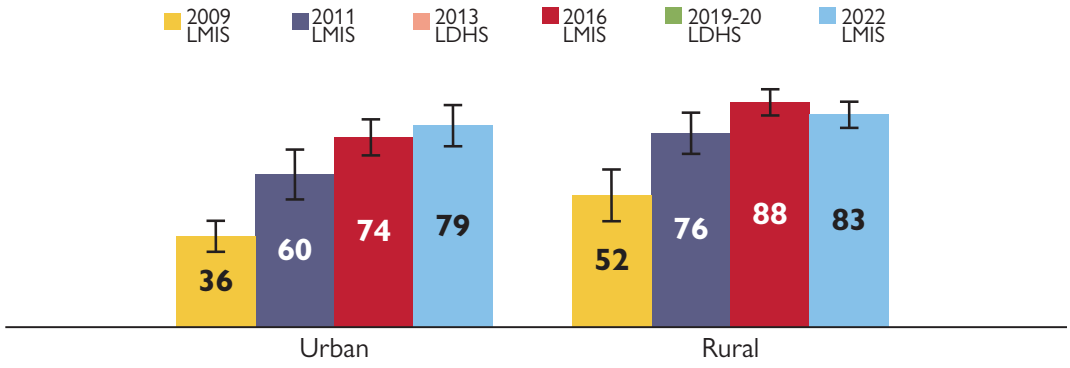
Among children under age 5 with fever in the two weeks before the survey who took an antimalarial, percent who took any artemisinin-based combination therapy (ACT)



- Among children under age five who had fever in the two weeks before the survey and had taken antimalarial drugs, 81% received artemisinin-based combination therapy (ACT), the preferred treatment in Liberia in 2022.
- ACT treatment among children with fever has increased since 2009, with no change between 2016 and 2022 (81% for both years).

Trends in Appropriate Antimalarial Treatment by Residence

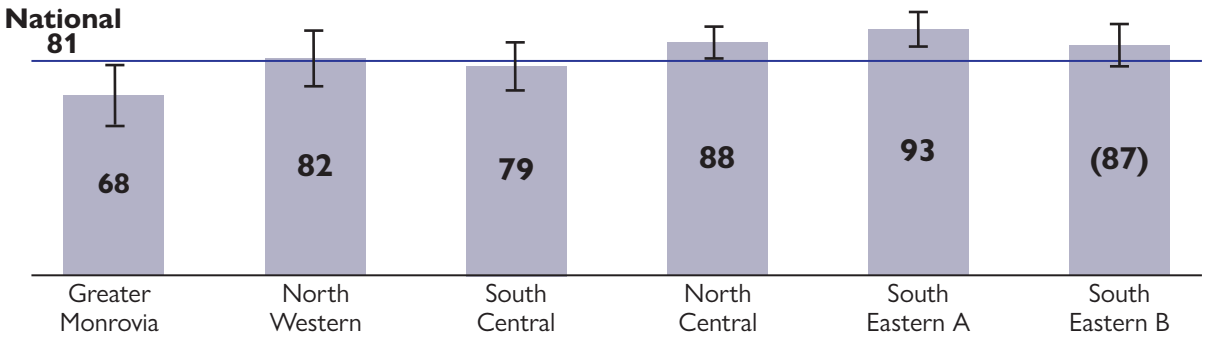
Among children under age 5 with fever in the two weeks before the survey who took an antimalarial, percent who took any ACT



- In the 2022 LMIS, appropriate antimalarial treatment is slightly higher in rural areas (83%) than in urban areas (79%), though this difference is not significant.
- As at the national level, there has been an increase in the use of ACTs between 2009 and 2022, in both urban and rural areas.

Does appropriate antimalarial treatment vary significantly by region (2022 LMIS)?

Among children under age 5 with fever in the two weeks before the survey who took an antimalarial, percent who took any ACT



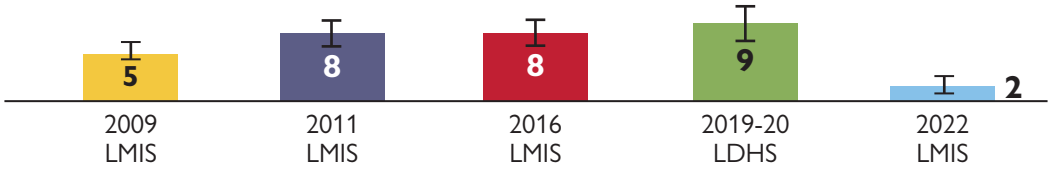
Note: Figures in parentheses are based on 25–49 unweighted cases.

- Appropriate antimalarial treatment varies across regions, from a minimum of 68% in Greater Monrovia to a maximum of 93% in South Eastern A.
- Appropriate antimalarial treatment is significantly higher in South Eastern A (93%) than in Greater Monrovia (68%), and the national level (81%), otherwise the remaining regions are not statistically different from each other.

Anemia Prevalence

National-Level Trends in Anemia (Hemoglobin Level <8.0 g/dl)

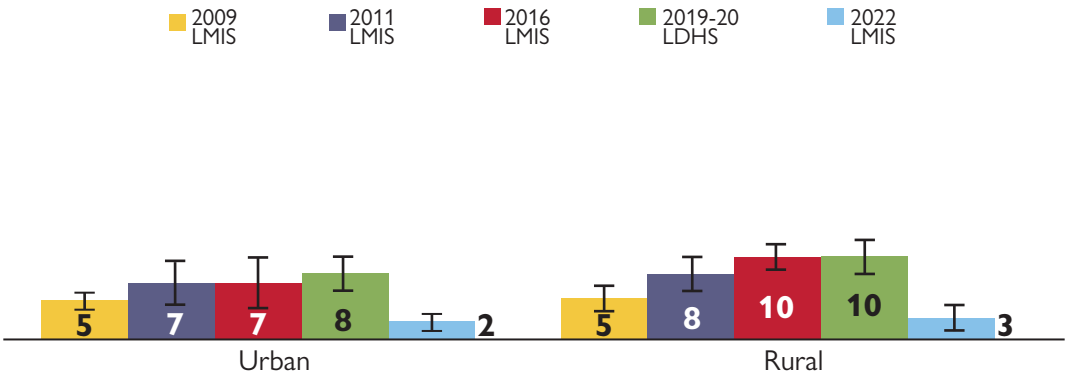
Percent of children age 6–59 months with hemoglobin lower than 8.0 g/dl



- Anemia is a medical condition characterized by an abnormal drop in the level of hemoglobin in the blood. Although anemia is not specific to malaria, trends in the prevalence of anemia may reflect the morbidity caused by malaria.
- Only 2% of children age 6–59 months have a hemoglobin level below 8.0 g/dl in 2022, a significant decrease from 9% in 2019-20.

Trends in Anemia (Hemoglobin Level <8.0 g/dl) by Residence

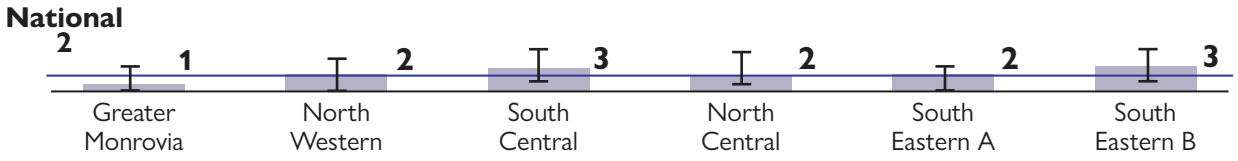
Percent of children age 6–59 months with hemoglobin lower than 8.0 g/dl



- The prevalence of low hemoglobin among children age 6–59 months is nearly the same in rural areas (3%) as in urban areas (2%).
- The prevalence of low hemoglobin declined significantly in both urban and rural areas between 2019-20 and 2022.

Does the prevalence of anemia (hemoglobin level <8.0 g/dl) vary significantly across regions (2022 LMIS)?

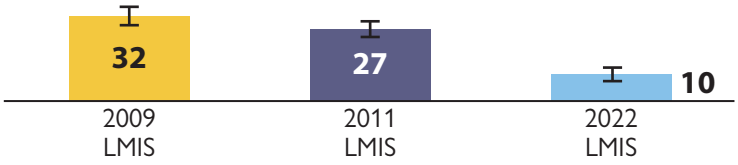
Percent of children age 6–59 months with hemoglobin lower than 8.0 g/dl



- By region, the prevalence of low hemoglobin among children age 6–59 months varies from 1% in Greater Monrovia to 3% in South Central and South Eastern B.
- The differences across regions for prevalence of low hemoglobin across regions is not significant. The national level is also not significantly different from any region.

National-Level Trends in Malaria Prevalence (Microscopy)

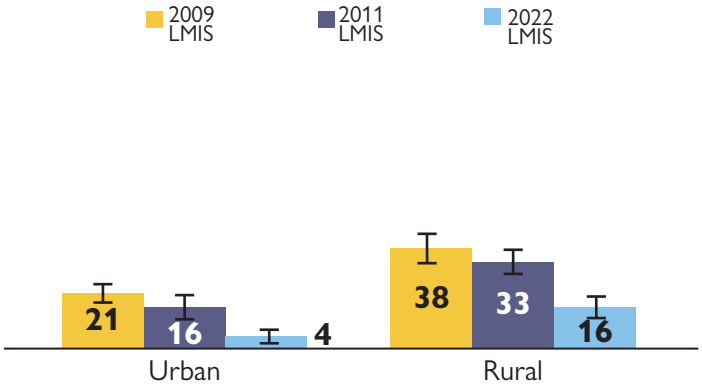
Percent of children age 6-59 months who tested positive for malaria by microscopy



- One in ten children age 6–59 months tested positive for malaria by microscopy in 2022.
- The prevalence of malaria has decreased significantly from 32% in 2009 and 27% in 2011 to 10% in 2022.

Trends in Malaria Prevalence by Residence (Microscopy)

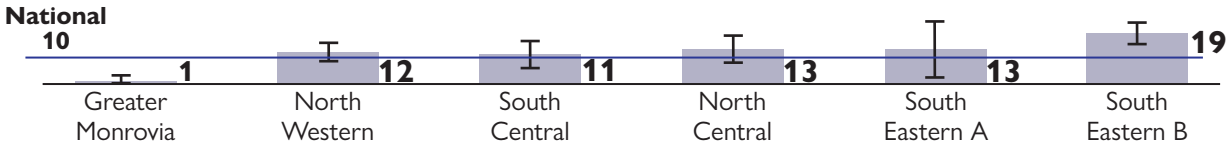
Percent of children age 6-59 months who tested positive for malaria by microscopy



- In the 2022 LMIS, the prevalence of malaria among children age 6–59 months is significantly higher in rural areas (16%) than in urban areas (4%).
- In both urban and rural areas, the prevalence of malaria decreased significantly between 2011 and 2022.

Does malaria prevalence by microscopy vary significantly across regions (2022 LMIS)?

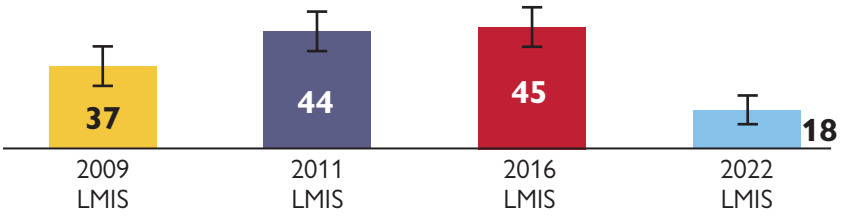
Percent of children age 6-59 months who tested positive for malaria by microscopy



- The prevalence of malaria among children age 6–59 months ranges from a minimum of 1% in Greater Monrovia to 19% in South Eastern B.
- The prevalence of malaria is significantly lower in Greater Monrovia (1%) than in North Western (12%), South Central (11%), South Eastern B (19%), and the national level (10%).
- In contrast, the prevalence of malaria is significantly higher in South Eastern B (19%) than in Greater Monrovia (1%) and the national level (10%).

National-Level Trends in Malaria Prevalence (Rapid Diagnostic Test)

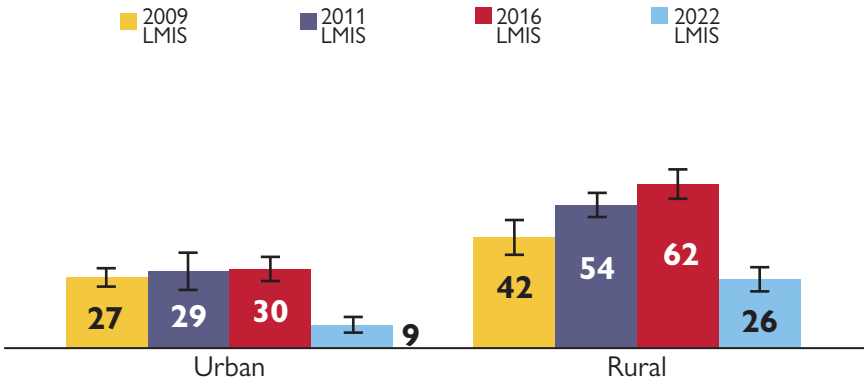
Percent of children age 6–59 months who tested positive for malaria by rapid diagnostic test (RDT)



- Nearly 1 in 5 children (18%) age 6–59 months tested positive for malaria by rapid diagnostic test (RDT) in 2022.
- The prevalence of malaria among children declined significantly from 45% in 2016 to 18% in 2022.

Trends in Malaria Prevalence by Residence (RDT)

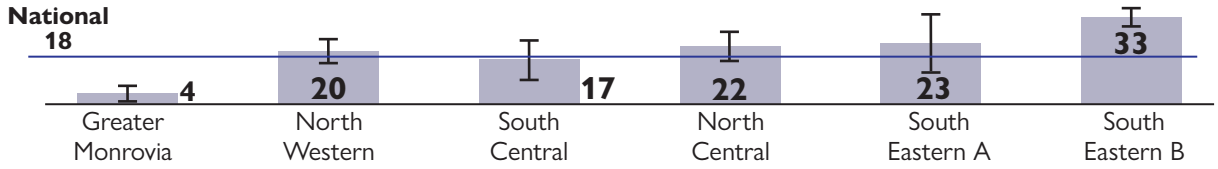
Percent of children age 6-59 months who tested positive for malaria by rapid diagnostic test (RDT)



- The prevalence of malaria by RDT among children age 6–59 months is significantly higher in rural areas (26%) than in urban areas (9%) in the 2022 LMIS.
- In both urban and rural areas, the prevalence of malaria decreased significantly between 2016 and 2022.

Does malaria prevalence by RDT vary significantly across regions (2022 LMIS)?

Percent of children age 6-59 months who tested positive for malaria by RDT



- The prevalence of malaria among children age 6–59 months ranges from a minimum of 4% in Greater Monrovia to 33% in South Eastern B.
- The prevalence of malaria is significantly lower in Greater Monrovia (4%) than in all other regions and the national level (18%).
- In contrast, the prevalence of malaria is significantly higher in South Eastern B (33%) than in most other regions and the national level (18%).

Appendix A: Estimates of Sampling Errors

The following pages provide information on the sampling errors from the 2009 LMIS, 2011 LMIS, 2013 LDHS, 2016 LMIS, 2019-20 LDHS, and 2022 LMIS surveys. This is the data used to produce the graphs and confidence intervals displayed throughout the document.

The estimates from a sample survey are affected by two types of errors: (1) nonsampling errors and (2) sampling errors. Nonsampling errors result from mistakes made in implementing data collection and data processing, such as the failure to locate and interview the selected households, misunderstanding of the questions by interviewers or respondents, and data entry errors. Although numerous efforts are made during the implementation of surveys to minimize nonsampling errors, they are impossible to avoid and difficult to evaluate statistically.

Sampling errors, on the other hand, can be evaluated statistically. The sample of respondents selected for each LMIS and LDHS is one of many samples that could have been selected from the same population, with the same design and identical size for each of these surveys. Each of these samples would yield results that differ somewhat from the results of the actual sample. Sampling error is a measure of the variability between all possible samples. The exact degree of variability is unknown, but can be estimated from the survey results.

A sampling error is usually measured in terms of the standard error for a particular statistic (such as the mean or percentage), which is the square root of the variance. The standard error can be used to calculate confidence intervals within which the true value for the population can reasonably be assumed to fall. For example, for any given statistic calculated from a sample survey, the value of that statistic will fall within a range of plus or minus two times the standard error of that statistic in 95% of all possible samples of identical size and design.

If the sample were selected as a simple random sample, it would have been possible to use straightforward formulas for calculating sampling errors. However, the samples for the 2009 LMIS, 2011 LMIS, 2013 LDHS, 2016 LMIS, 2019-20 LDHS, and 2022 LMIS surveys are the result of a multi-stage, stratified design. Consequently, it was necessary to use more complex formulas. The computer software used to calculate sampling errors for the 2009 LMIS, 2011 LMIS, 2013 LDHS, 2016 LMIS, 2019-20 LDHS, and 2022 LMIS surveys is a SAS program that used the Taylor linearization method for variance estimation for survey estimates that are means or proportions.

In addition to the standard error, the program computes the design effect (DEFT) for each estimate, which is defined as the ratio between the standard error that uses the given sample design and the standard error that would result if a simple random sample had been used. A DEFT value of 1.0 indicates that the sample design is as efficient as a simple random sample. A value greater than 1.0 indicates that the increase in the sampling error is due to the use of a more complex, less statistically efficient design, such as multistage and cluster selection. The program also computes the relative standard error and the confidence limits for the estimates.

Sampling errors for the 2009 LMIS, 2011 LMIS, 2013 LDHS, 2016 LMIS, 2019-20 LDHS, and 2022 LMIS surveys are calculated for selected variables of primary interest to the NMCP in Liberia. The sampling errors in this annex are shown for Liberia as a whole, for urban and rural areas separately, and for the 2022 LMIS, for each of the 6 geographical regions. The subsequent tables present the value of the statistic (R), its standard error (SE), the number of unweighted (N) and weighted (WN) cases, the design effect (DEFT), the relative standard error (SE/R), and the 95% confidence limits (R±2SE) for each variable. The DEFT is considered undefined when the standard error for the simple random sample is zero (when the estimate is close to 0 or 1).

The confidence interval, for example as calculated for child has malaria (based on microscopy test), can be interpreted as follows: the overall proportion from the national sample is 0.102, and its standard error is 0.012. Therefore, to obtain the 95% confidence limits, one adds and subtracts twice the standard error to the sample estimate, that is, $0.102 \pm 2 \times 0.012$. There is a high probability (95%) that the true average proportion of children with malaria according to microscopy is between 0.079 and 0.126.

Sampling errors: Total sample, Liberia MIS 2009

Variable	Value (R)	Standard error (SE)	Number of cases Unweighted (N)	Number of cases Weighted (WN)	Design effect (DEFT)	Relative error (SE/R)	Confidence interval R-2SE	Confidence interval R+2SE
HOUSEHOLD/POPULATION								
Ownership of at least one mosquito net of any type	0.489	0.015	4,162	4,162	1.929	0.031	0.459	0.519
Number of any mosquito nets	0.763	0.031	4,162	4,162	2.061	0.041	0.700	0.826
Ownership of at least one ITN	0.472	0.015	4,162	4,162	1.939	0.032	0.442	0.502
Number of ITNs	0.732	0.031	4,162	4,162	2.062	0.042	0.671	0.793
Ownership of at least one ITN for two persons	0.119	0.008	4,154	4,153	1.556	0.066	0.103	0.135
Household population that slept under an ITN last night	0.228	0.011	21,876	22,559	3.853	0.048	0.206	0.250
Proportion of de facto population with access to an ITN	0.254	0.011	21,876	22,559	5.008	0.042	0.233	0.275
CHILDREN								
Slept under any mosquito net last night	0.272	0.014	4,484	4,725	2.120	0.052	0.244	0.300
Slept under an ITN last night	0.264	0.014	4,484	4,725	2.113	0.053	0.236	0.292
Slept under an ITN last night in household with at least one ITN	0.514	0.017	2,603	2,427	1.760	0.034	0.480	0.548
Had fever in last 2 weeks	0.436	0.013	3,833	3,694	1.668	0.031	0.409	0.463
Advice or treatment for fever sought	0.783	0.016	1,600	1,610	1.588	0.021	0.750	0.816
Received ACT treatment for fever	0.445	0.031	987	1,081	1.975	0.070	0.382	0.508
Received a finger/heel stick	0.234	0.017	1,600	1,610	1.625	0.074	0.200	0.268
Had a hemoglobin level less than 8 g/dl	0.047	0.005	4,018	4,258	1.421	0.101	0.037	0.057
Has malaria (based on rapid test)	0.365	0.020	4,018	4,260	2.658	0.055	0.325	0.405
Has malaria (based on microscopy test)	0.317	0.019	4,018	4,260	2.545	0.059	0.280	0.354
PREGNANT WOMEN								
Slept under any mosquito net last night	0.338	0.034	468	471	1.570	0.102	0.269	0.407
Slept under an ITN last night	0.329	0.034	468	471	1.562	0.103	0.261	0.397
Slept under an ITN last night in household with at least one ITN	0.632	0.046	268	245	1.553	0.073	0.540	0.724
Received one or more doses of SP/Fansidar during pregnancy of the most recent live birth	0.576	0.020	1,644	1,573	1.645	0.035	0.536	0.616
Received 2 or more doses of SP/Fansidar during pregnancy of the most recent live birth	0.474	0.020	1,644	1,573	1.648	0.043	0.433	0.515
Received 3 or more doses of SP/Fansidar during pregnancy of the most recent live birth	0.110	0.012	1,644	1,573	1.547	0.109	0.086	0.134

Sampling errors: Urban sample, Liberia MIS 2009

Variable	Value (R)	Standard error (SE)	Number of cases Unweighted (N)	Number of cases Weighted (WN)	Design effect (DEFT)	Relative error (SE/R)	Confidence interval R-2SE	Confidence interval R+2SE
HOUSEHOLD/POPULATION								
Ownership of at least one mosquito net of any type	0.445	0.021	1,884	1,940	1.825	0.047	0.403	0.487
Number of any mosquito nets	0.660	0.035	1,884	1,940	1.676	0.054	0.589	0.731
Ownership of at least one ITN	0.420	0.021	1,884	1,940	1.844	0.050	0.378	0.462
Number of ITNs	0.617	0.034	1,884	1,940	1.688	0.056	0.548	0.686
Ownership of at least one ITN for two persons	0.102	0.010	1,882	1,937	1.387	0.095	0.083	0.121
Household population that slept under an ITN last night	0.199	0.011	10,050	10,376	2.682	0.054	0.178	0.220
Proportion of de facto population with access to an ITN	0.219	0.013	10,050	10,376	4.234	0.058	0.194	0.244
CHILDREN								
Slept under any mosquito net last night	0.256	0.021	1,747	1,796	2.054	0.084	0.213	0.299
Slept under an ITN last night	0.240	0.021	1,747	1,796	2.061	0.088	0.198	0.282
Slept under an ITN last night in household with at least one ITN	0.525	0.030	982	822	1.893	0.057	0.465	0.585
Had fever in last 2 weeks	0.467	0.020	1,504	1,411	1.579	0.044	0.426	0.508
Advice or treatment for fever sought	0.813	0.024	664	659	1.606	0.030	0.764	0.862
Received ACT treatment for fever	0.357	0.030	457	476	1.355	0.085	0.296	0.418
Received a finger/heel stick	0.284	0.028	664	659	1.597	0.098	0.228	0.340
Had a hemoglobin level less than 8 g/dl	0.050	0.006	1,549	1,598	1.066	0.118	0.038	0.062
Has malaria (based on rapid test)	0.267	0.017	1,550	1,600	1.475	0.062	0.234	0.300
Has malaria (based on microscopy test)	0.213	0.017	1,550	1,600	1.646	0.080	0.179	0.247
PREGNANT WOMEN								
Slept under any mosquito net last night	0.301	0.038	195	204	1.164	0.127	0.224	0.378
Slept under an ITN last night	0.293	0.040	195	204	1.217	0.136	0.213	0.373
Slept under an ITN last night in household with at least one ITN	0.624	0.062	107	96	1.319	0.099	0.500	0.748
Received one or more doses of SP/Fansidar during pregnancy of the most recent live birth	0.614	0.041	631	585	2.133	0.067	0.531	0.697
Received 2 or more doses of SP/Fansidar during pregnancy of the most recent live birth	0.496	0.041	631	585	2.053	0.082	0.414	0.578
Received 3 or more doses of SP/Fansidar during pregnancy of the most recent live birth	0.103	0.023	631	585	1.943	0.228	0.056	0.150

Sampling errors: Rural sample, Liberia MIS 2009

Variable	Value (R)	Standard error (SE)	Number of cases Unweighted (N)	Number of cases Weighted (WN)	Design effect (DEFT)	Relative error (SE/R)	Confidence interval R-2SE	Confidence interval R+2SE
HOUSEHOLD/POPULATION								
Ownership of at least one mosquito net of any type	0.527	0.020	2,278	2,222	1.955	0.039	0.486	0.568
Number of any mosquito nets	0.852	0.048	2,278	2,222	2.239	0.056	0.756	0.948
Ownership of at least one ITN	0.518	0.020	2,278	2,222	1.947	0.039	0.477	0.559
Number of ITNs	0.832	0.047	2,278	2,222	2.216	0.056	0.738	0.926
Ownership of at least one ITN for two persons	0.133	0.012	2,272	2,216	1.651	0.089	0.109	0.157
Household population that slept under an ITN last night	0.253	0.018	11,826	12,183	4.479	0.071	0.217	0.289
Proportion of de facto population with access to an ITN	0.285	0.016	11,826	12,183	5.318	0.055	0.253	0.317
CHILDREN								
Slept under any mosquito net last night	0.282	0.018	2,737	2,930	2.117	0.065	0.246	0.318
Slept under an ITN last night	0.279	0.018	2,737	2,930	2.083	0.064	0.243	0.315
Slept under an ITN last night in household with at least one ITN	0.509	0.021	1,621	1,605	1.702	0.042	0.467	0.551
Had fever in last 2 weeks	0.417	0.017	2,329	2,283	1.671	0.041	0.383	0.451
Advice or treatment for fever sought	0.763	0.022	936	951	1.566	0.029	0.719	0.807
Received ACT treatment for fever	0.515	0.049	530	606	2.255	0.095	0.417	0.613
Received a finger/heel stick	0.200	0.021	936	951	1.632	0.107	0.157	0.243
Had a hemoglobin level less than 8 g/dl	0.046	0.007	2,469	2,660	1.605	0.147	0.032	0.060
Has malaria (based on rapid test)	0.424	0.031	2,468	2,660	3.154	0.074	0.361	0.487
Has malaria (based on microscopy test)	0.379	0.028	2,468	2,660	2.900	0.075	0.322	0.436
PREGNANT WOMEN								
Slept under any mosquito net last night	0.365	0.052	273	268	1.796	0.144	0.260	0.470
Slept under an ITN last night	0.356	0.051	273	268	1.758	0.143	0.254	0.458
Slept under an ITN last night in household with at least one ITN	0.637	0.064	161	150	1.676	0.100	0.510	0.764
Received one or more doses of SP/Fansidar during pregnancy of the most recent live birth	0.554	0.020	1,013	988	1.274	0.036	0.514	0.594
Received 2 or more doses of SP/Fansidar during pregnancy of the most recent live birth	0.461	0.021	1,013	988	1.349	0.046	0.419	0.503
Received 3 or more doses of SP/Fansidar during pregnancy of the most recent live birth	0.115	0.013	1,013	988	1.316	0.115	0.089	0.141

Sampling errors: Total sample, Liberia MIS 2011

Variable	Value (R)	Standard error (SE)	Number of cases Unweighted (N)	Number of cases Weighted (WN)	Design effect (DEFT)	Relative error (SE/R)	Confidence interval R-2SE	Confidence interval R+2SE
HOUSEHOLD/POPULATION								
Ownership of at least one mosquito net of any type	0.510	0.019	4,162	4,162	2.410	0.037	0.473	0.547
Number of any mosquito nets	0.765	0.034	4,162	4,162	2.288	0.044	0.698	0.832
Ownership of at least one ITN	0.497	0.019	4,162	4,162	2.388	0.037	0.460	0.534
Number of ITN	0.737	0.033	4,162	4,162	2.305	0.045	0.671	0.803
Ownership of at least one ITN for two persons	0.169	0.011	4,132	4,134	1.866	0.064	0.147	0.191
Household population that slept under an ITN last night	0.321	0.014	18,632	18,265	4.116	0.044	0.293	0.349
Proportion of de facto population with access to an ITN	0.308	0.013	18,632	18,265	5.223	0.043	0.282	0.334
CHILDREN								
Slept under any mosquito net last night	0.381	0.016	3,600	3,352	2.027	0.043	0.348	0.414
Slept under an ITN last night	0.371	0.017	3,600	3,352	2.062	0.045	0.338	0.404
Slept under an ITN last night in household with at least one ITN	0.680	0.016	2,068	1,827	1.600	0.024	0.647	0.713
Had fever in last 2 weeks	0.492	0.015	3,149	2,876	1.679	0.030	0.462	0.522
Advice or treatment for fever sought	0.766	0.016	1,617	1,416	1.562	0.021	0.733	0.799
Received ACT treatment for fever	0.696	0.031	895	808	2.012	0.044	0.634	0.758
Received a finger/heel stick	0.333	0.022	1,617	1,416	1.864	0.066	0.289	0.377
Had a hemoglobin level less than 8 g/dl	0.077	0.007	3,169	2,942	1.489	0.091	0.063	0.091
Has malaria (based on rapid test)	0.444	0.019	3,167	2,941	2.124	0.042	0.406	0.482
Has malaria (based on microscopy test)	0.265	0.016	3,167	2,941	2.062	0.061	0.233	0.297
PREGNANT WOMEN								
Slept under any mosquito net last night	0.402	0.035	356	363	1.342	0.087	0.332	0.472
Slept under an ITN last night	0.390	0.033	356	363	1.265	0.084	0.324	0.456
Slept under an ITN last night in household with at least one ITN	0.774	0.039	196	183	1.290	0.050	0.697	0.851
Received one or more doses of SP/Fansidar during pregnancy of the most recent live birth	0.626	0.021	1,326	1,230	1.582	0.034	0.584	0.668
Received 2 or more doses of SP/Fansidar during pregnancy of the most recent live birth	0.503	0.022	1,326	1,230	1.635	0.045	0.458	0.548
Received 3 or more doses of SP/Fansidar during pregnancy of the most recent live birth	0.265	0.019	1,326	1,230	1.589	0.073	0.226	0.304

Sampling errors: Urban sample, Liberia MIS 2011

Variable	Value (R)	Standard error (SE)	Number of cases Unweighted (N)	Number of cases Weighted (WN)	Design effect (DEFT)	Relative error (SE/R)	Confidence interval R-2SE	Confidence interval R+2SE
HOUSEHOLD/POPULATION								
Ownership of at least one mosquito net of any type	0.544	0.025	1,914	2,058	2.162	0.045	0.495	0.593
Number of any mosquito nets	0.851	0.049	1,914	2,058	2.112	0.058	0.753	0.949
Ownership of at least one ITN	0.522	0.025	1,914	2,058	2.171	0.048	0.472	0.572
Number of ITN	0.805	0.049	1,914	2,058	2.154	0.061	0.707	0.903
Ownership of at least one ITN for two persons	0.196	0.017	1,899	2,042	1.816	0.085	0.163	0.229
Household population that slept under an ITN last night	0.342	0.021	8,644	8,935	4.142	0.062	0.300	0.384
Proportion of de facto population with access to an ITN	0.337	0.018	8,644	8,935	4.672	0.054	0.301	0.373
CHILDREN								
Slept under any mosquito net last night	0.423	0.026	1,428	1,377	1.970	0.061	0.371	0.475
Slept under an ITN last night	0.402	0.027	1,428	1,377	2.071	0.067	0.348	0.456
Slept under an ITN last night in household with at least one ITN	0.695	0.025	837	798	1.596	0.037	0.644	0.746
Had fever in last 2 weeks	0.496	0.024	1,260	1,175	1.699	0.048	0.448	0.544
Advice or treatment for fever sought	0.806	0.020	667	583	1.292	0.025	0.766	0.846
Received ACT treatment for fever	0.604	0.049	399	345	1.979	0.080	0.507	0.701
Received a finger/heel stick	0.379	0.023	667	583	1.223	0.061	0.333	0.425
Had a hemoglobin level less than 8 g/dl	0.070	0.012	1,224	1,160	1.588	0.165	0.047	0.093
Has malaria (based on rapid test)	0.291	0.035	1,224	1,163	2.660	0.119	0.222	0.360
Has malaria (based on microscopy test)	0.164	0.022	1,224	1,163	2.119	0.137	0.119	0.209
PREGNANT WOMEN								
Slept under any mosquito net last night	0.419	0.060	153	160	1.505	0.144	0.299	0.539
Slept under an ITN last night	0.393	0.055	153	160	1.376	0.139	0.284	0.502
Slept under an ITN last night in household with at least one ITN	0.875	0.044	80	72	1.190	0.051	0.786	0.964
Received one or more doses of SP/Fansidar during pregnancy of the most recent live birth	0.624	0.029	562	540	1.433	0.047	0.565	0.683
Received 2 or more doses of SP/Fansidar during pregnancy of the most recent live birth	0.445	0.026	562	540	1.244	0.059	0.393	0.497
Received 3 or more doses of SP/Fansidar during pregnancy of the most recent live birth	0.195	0.025	562	540	1.471	0.126	0.146	0.244

Sampling errors: Rural sample, Liberia MIS 2011

Variable	Value (R)	Standard error (SE)	Number of cases Unweighted (N)	Number of cases Weighted (WN)	Design effect (DEFT)	Relative error (SE/R)	Confidence interval R-2SE	Confidence interval R+2SE
HOUSEHOLD/POPULATION								
Ownership of at least one mosquito net of any type	0.478	0.027	2,248	2,104	2.579	0.057	0.424	0.532
Number of any mosquito nets	0.681	0.044	2,248	2,104	2.413	0.064	0.593	0.769
Ownership of at least one ITN	0.472	0.027	2,248	2,104	2.542	0.057	0.418	0.526
Number of ITN	0.670	0.043	2,248	2,104	2.402	0.065	0.583	0.757
Ownership of at least one ITN for two persons	0.143	0.014	2,233	2,091	1.848	0.096	0.116	0.170
Household population that slept under an ITN last night	0.301	0.018	9,988	9,330	3.886	0.059	0.265	0.337
Proportion of de facto population with access to an ITN	0.280	0.018	9,988	9,330	5.566	0.066	0.243	0.317
CHILDREN								
Slept under any mosquito net last night	0.351	0.021	2,172	1,974	2.002	0.058	0.310	0.392
Slept under an ITN last night	0.348	0.020	2,172	1,974	1.999	0.059	0.307	0.389
Slept under an ITN last night in household with at least one ITN	0.668	0.021	1,231	1,030	1.570	0.032	0.626	0.710
Had fever in last 2 weeks	0.490	0.019	1,889	1,701	1.664	0.039	0.452	0.528
Advice or treatment for fever sought	0.738	0.024	950	833	1.713	0.033	0.689	0.787
Received ACT treatment for fever	0.764	0.039	496	463	2.035	0.051	0.686	0.842
Received a finger/heel stick	0.300	0.034	950	833	2.265	0.112	0.233	0.367
Had a hemoglobin level less than 8 g/dl	0.081	0.009	1,945	1,782	1.433	0.109	0.063	0.099
Has malaria (based on rapid test)	0.543	0.023	1,943	1,778	2.051	0.043	0.497	0.589
Has malaria (based on microscopy test)	0.331	0.023	1,943	1,778	2.117	0.068	0.286	0.376
PREGNANT WOMEN								
Slept under any mosquito net last night	0.388	0.040	203	203	1.157	0.102	0.309	0.467
Slept under an ITN last night	0.388	0.040	203	203	1.157	0.102	0.309	0.467
Slept under an ITN last night in household with at least one ITN	0.708	0.053	116	111	1.244	0.074	0.603	0.813
Received one or more doses of SP/Fansidar during pregnancy of the most recent live birth	0.628	0.030	764	689	1.694	0.047	0.569	0.687
Received 2 or more doses of SP/Fansidar during pregnancy of the most recent live birth	0.548	0.034	764	689	1.912	0.063	0.479	0.617
Received 3 or more doses of SP/Fansidar during pregnancy of the most recent live birth	0.320	0.029	764	689	1.688	0.089	0.263	0.377

Sampling errors: Total sample, Liberia DHS 2013

Variable	Value (R)	Standard error (SE)	Number of cases Unweighted (N)	Number of cases Weighted (WN)	Design effect (DEFT)	Relative error (SE/R)	Confidence interval R-2SE	Confidence interval R+2SE
HOUSEHOLD/POPULATION								
Ownership of at least one mosquito net of any type	0.577	0.015	9,333	9,333	2.861	0.025	0.548	0.606
Number of any mosquito nets	1.080	0.038	9,333	9,333	3.115	0.035	1.003	1.157
Ownership of at least one ITN	0.546	0.014	9,333	9,333	2.802	0.026	0.517	0.575
Number of ITN	1.014	0.037	9,333	9,333	3.015	0.036	0.941	1.087
Ownership of at least one ITN for two persons	0.221	0.008	9,292	9,295	1.915	0.037	0.205	0.237
Household population that slept under an ITN last night	0.317	0.011	45,995	45,042	4.978	0.034	0.295	0.339
Proportion of de facto population with access to an ITN	0.370	0.011	45,995	45,042	6.508	0.031	0.347	0.393
CHILDREN								
Slept under any mosquito net last night	0.403	0.015	7,968	7,261	2.713	0.037	0.373	0.433
Slept under an ITN last night	0.381	0.015	7,968	7,261	2.670	0.038	0.352	0.410
Slept under an ITN last night in household with at least one ITN	0.632	0.014	4,914	4,375	2.008	0.022	0.604	0.660
Had fever in last 2 weeks	0.286	0.011	7,058	6,047	2.134	0.040	0.263	0.309
Advice or treatment for fever sought	0.779	0.014	2,203	1,728	1.589	0.018	0.751	0.807
Received ACT treatment for fever	0.429	0.029	1,221	963	2.031	0.067	0.371	0.487
Received a finger/heel stick	0.419	0.019	2,203	1,728	1.819	0.046	0.381	0.457
Had a hemoglobin level less than 8 g/dl	na	na	na	na	na	na	na	na
Has malaria (based on rapid test)	na	na	na	na	na	na	na	na
Has malaria (based on microscopy test)	na	na	na	na	na	na	na	na
PREGNANT WOMEN								
Slept under any mosquito net last night	0.397	0.027	834	816	1.577	0.067	0.344	0.450
Slept under an ITN last night	0.371	0.026	834	816	1.571	0.071	0.318	0.424
Slept under an ITN last night in household with at least one ITN	0.632	0.029	516	479	1.347	0.045	0.575	0.689
Received one or more doses of SP/Fansidar during pregnancy of the most recent live birth	0.681	0.018	3,064	2,650	2.153	0.027	0.645	0.717
Received 2 or more doses of SP/Fansidar during pregnancy of the most recent live birth	0.502	0.018	3,064	2,650	1.968	0.035	0.466	0.538
Received 3 or more doses of SP/Fansidar during pregnancy of the most recent live birth	0.179	0.012	3,064	2,650	1.790	0.069	0.154	0.204

na = non-applicable

Sampling errors: Urban sample, Liberia DHS 2013

Variable	Value (R)	Standard error (SE)	Number of cases Unweighted (N)	Number of cases Weighted (WN)	Design effect (DEFT)	Relative error (SE/R)	Confidence interval R-2SE	Confidence interval R+2SE
HOUSEHOLD/POPULATION								
Ownership of at least one mosquito net of any type	0.531	0.022	3,450	5,289	2.604	0.042	0.487	0.575
Number of any mosquito nets	0.960	0.056	3,450	5,289	2.893	0.059	0.848	1.072
Ownership of at least one ITN	0.497	0.022	3,450	5,289	2.579	0.044	0.453	0.541
Number of ITN	0.888	0.053	3,450	5,289	2.806	0.060	0.782	0.994
Ownership of at least one ITN for two persons	0.196	0.011	3,436	5,268	1.648	0.057	0.174	0.218
Household population that slept under an ITN last night	0.281	0.015	17,001	25,438	4.352	0.053	0.251	0.311
Proportion of de facto population with access to an ITN	0.330	0.017	17,001	25,438	6.007	0.052	0.296	0.364
CHILDREN								
Slept under any mosquito net last night	0.397	0.024	2,503	3,617	2.430	0.060	0.349	0.445
Slept under an ITN last night	0.367	0.023	2,503	3,617	2.383	0.063	0.321	0.413
Slept under an ITN last night in household with at least one ITN	0.640	0.022	1,595	2,072	1.871	0.035	0.595	0.685
Had fever in last 2 weeks	0.263	0.018	2,222	3,013	1.886	0.067	0.228	0.298
Advice or treatment for fever sought	0.810	0.025	651	793	1.634	0.031	0.760	0.860
Received ACT treatment for fever	0.360	0.043	391	454	1.763	0.119	0.274	0.446
Received a finger/heel stick	0.471	0.032	651	793	1.628	0.068	0.407	0.535
Had a hemoglobin level less than 8 g/dl	na	na	na	na	na	na	na	na
Has malaria (based on rapid test)	na	na	na	na	na	na	na	na
Has malaria (based on microscopy test)	na	na	na	na	na	na	na	na
PREGNANT WOMEN								
Slept under any mosquito net last night	0.375	0.042	264	422	1.419	0.113	0.290	0.460
Slept under an ITN last night	0.340	0.040	264	422	1.385	0.119	0.259	0.421
Slept under an ITN last night in household with at least one ITN	0.625	0.045	168	230	1.189	0.071	0.536	0.714
Received one or more doses of SP/Fansidar during pregnancy of the most recent live birth	0.703	0.029	988	1,351	1.982	0.041	0.645	0.761
Received 2 or more doses of SP/Fansidar during pregnancy of the most recent live birth	0.526	0.028	988	1,351	1.740	0.053	0.471	0.581
Received 3 or more doses of SP/Fansidar during pregnancy of the most recent live birth	0.175	0.020	988	1,351	1.637	0.113	0.135	0.215

na = non-applicable

Sampling errors: Rural sample, Liberia DHS 2013

Variable	Value (R)	Standard error (SE)	Number of cases Unweighted (N)	Number of cases Weighted (WN)	Design effect (DEFT)	Relative error (SE/R)	Confidence interval R-2SE	Confidence interval R+2SE
HOUSEHOLD/POPULATION								
Ownership of at least one mosquito net of any type	0.638	0.017	5,883	4,044	2.646	0.026	0.605	0.671
Number of any mosquito nets	1.236	0.047	5,883	4,044	2.946	0.038	1.141	1.331
Ownership of at least one ITN	0.611	0.016	5,883	4,044	2.528	0.026	0.579	0.643
Number of ITN	1.179	0.046	5,883	4,044	2.848	0.039	1.088	1.270
Ownership of at least one ITN for two persons	0.254	0.012	5,856	4,028	2.072	0.046	0.230	0.278
Household population that slept under an ITN last night	0.364	0.015	28,994	19,604	5.254	0.041	0.334	0.394
Proportion of de facto population with access to an ITN	0.423	0.014	28,994	19,604	6.383	0.034	0.394	0.452
CHILDREN								
Slept under any mosquito net last night	0.408	0.018	5,465	3,645	2.718	0.044	0.372	0.444
Slept under an ITN last night	0.395	0.018	5,465	3,645	2.711	0.045	0.359	0.431
Slept under an ITN last night in household with at least one ITN	0.625	0.017	3,319	2,302	1.992	0.027	0.592	0.658
Had fever in last 2 weeks	0.308	0.014	4,836	3,034	2.145	0.046	0.280	0.336
Advice or treatment for fever sought	0.752	0.015	1,552	935	1.381	0.020	0.722	0.782
Received ACT treatment for fever	0.490	0.036	830	508	2.077	0.074	0.418	0.562
Received a finger/heel stick	0.376	0.022	1,552	935	1.794	0.059	0.332	0.420
Had a hemoglobin level less than 8 g/dl	na	na	na	na	na	na	na	na
Has malaria (based on rapid test)	na	na	na	na	na	na	na	na
Has malaria (based on microscopy test)	na	na	na	na	na	na	na	na
PREGNANT WOMEN								
Slept under any mosquito net last night	0.421	0.031	570	394	1.495	0.074	0.359	0.483
Slept under an ITN last night	0.403	0.032	570	394	1.535	0.078	0.340	0.466
Slept under an ITN last night in household with at least one ITN	0.638	0.036	348	249	1.413	0.057	0.565	0.711
Received one or more doses of SP/Fansidar during pregnancy of the most recent live birth	0.657	0.022	2,076	1,299	2.079	0.033	0.614	0.700
Received 2 or more doses of SP/Fansidar during pregnancy of the most recent live birth	0.476	0.022	2,076	1,299	1.973	0.045	0.433	0.519
Received 3 or more doses of SP/Fansidar during pregnancy of the most recent live birth	0.184	0.015	2,076	1,299	1.742	0.081	0.154	0.214

na = non-applicable

Sampling errors: Total sample, Liberia MIS 2016

Variable	Value (R)	Standard error (SE)	Number of cases Unweighted (N)	Number of cases Weighted (WN)	Design effect (DEFT)	Relative error (SE/R)	Confidence interval R-2SE	Confidence interval R+2SE
HOUSEHOLD/POPULATION								
Ownership of at least one mosquito net of any type	0.625	0.016	4,218	4,218	2.178	0.026	0.593	0.657
Number of any mosquito nets	1.240	0.047	4,218	4,218	2.317	0.038	1.145	1.335
Ownership of at least one ITN	0.615	0.016	4,218	4,218	2.199	0.027	0.582	0.648
Number of ITN	1.217	0.048	4,218	4,218	2.374	0.040	1.120	1.314
Ownership of at least one ITN for two persons	0.252	0.012	4,191	4,200	1.717	0.046	0.229	0.275
Household population that slept under an ITN last night	0.393	0.016	20,859	21,141	4.625	0.040	0.362	0.424
Proportion of de facto population with access to an ITN	0.415	0.013	20,859	21,141	5.178	0.032	0.388	0.442
CHILDREN								
Slept under any mosquito net last night	0.448	0.018	3,232	3,315	2.082	0.041	0.412	0.484
Slept under an ITN last night	0.437	0.019	3,232	3,315	2.139	0.043	0.400	0.474
Slept under an ITN last night in household with at least one ITN	0.657	0.021	2,175	2,206	2.055	0.032	0.615	0.699
Had fever in last 2 weeks	0.384	0.015	2,843	2,705	1.645	0.039	0.354	0.414
Advice or treatment for fever sought	0.782	0.020	1,134	1,039	1.661	0.026	0.741	0.823
Received ACT treatment for fever	0.811	0.021	720	680	1.449	0.026	0.769	0.853
Received a finger/heel stick	0.498	0.026	1,134	1,039	1.771	0.053	0.445	0.551
Had a hemoglobin level less than 8 g/dl	0.083	0.008	2,792	2,873	1.564	0.098	0.067	0.099
Has malaria (based on rapid test)	0.449	0.020	2,790	2,872	2.122	0.045	0.409	0.489
Has malaria (based on microscopy test)	na	na	na	na	na	na	na	na
PREGNANT WOMEN								
Slept under any mosquito net last night	0.425	0.042	300	304	1.457	0.098	0.342	0.508
Slept under an ITN last night	0.395	0.042	300	304	1.491	0.107	0.311	0.479
Slept under an ITN last night in household with at least one ITN	0.699	0.048	185	172	1.418	0.069	0.603	0.795
Received one or more doses of SP/Fansidar during pregnancy of the most recent live birth	0.845	0.017	1,219	1,146	1.625	0.020	0.811	0.879
Received 2 or more doses of SP/Fansidar during pregnancy of the most recent live birth	0.558	0.021	1,219	1,146	1.454	0.037	0.517	0.599
Received 3 or more doses of SP/Fansidar during pregnancy of the most recent live birth	0.231	0.020	1,219	1,146	1.697	0.089	0.190	0.272

na = not applicable

Sampling errors: Urban sample, Liberia MIS 2016

Variable	Value (R)	Standard error (SE)	Number of cases Unweighted (N)	Number of cases Weighted (WN)	Design effect (DEFT)	Relative error (SE/R)	Confidence interval R-2SE	Confidence interval R+2SE
HOUSEHOLD/POPULATION								
Ownership of at least one mosquito net of any type	0.599	0.023	1,974	2,382	2.129	0.039	0.552	0.646
Number of any mosquito nets	1.240	0.073	1,974	2,382	2.338	0.059	1.094	1.386
Ownership of at least one ITN	0.589	0.024	1,974	2,382	2.161	0.041	0.541	0.637
Number of ITN	1.215	0.075	1,974	2,382	2.414	0.062	1.065	1.365
Ownership of at least one ITN for two persons	0.228	0.017	1,966	2,376	1.780	0.074	0.194	0.262
Household population that slept under an ITN last night	0.368	0.024	10,334	12,483	4.970	0.064	0.321	0.415
Proportion of de facto population with access to an ITN	0.393	0.019	10,334	12,483	5.313	0.049	0.354	0.432
CHILDREN								
Slept under any mosquito net last night	0.432	0.027	1,399	1,740	2.001	0.061	0.379	0.485
Slept under an ITN last night	0.420	0.027	1,399	1,740	2.060	0.065	0.366	0.474
Slept under an ITN last night in household with at least one ITN	0.655	0.028	936	1,116	1.794	0.043	0.599	0.711
Had fever in last 2 weeks	0.341	0.020	1,235	1,447	1.449	0.057	0.302	0.380
Advice or treatment for fever sought	0.848	0.023	443	494	1.367	0.028	0.801	0.895
Received ACT treatment for fever	0.740	0.034	280	337	1.289	0.046	0.672	0.808
Received a finger/heel stick	0.548	0.041	443	494	1.711	0.074	0.467	0.629
Had a hemoglobin level less than 8 g/dl	0.067	0.014	1,207	1,507	1.925	0.207	0.039	0.095
Has malaria (based on rapid test)	0.295	0.022	1,206	1,506	1.712	0.076	0.250	0.340
Has malaria (based on microscopy test)	na	na	na	na	na	na	na	na
PREGNANT WOMEN								
Slept under any mosquito net last night	0.371	0.053	143	177	1.317	0.144	0.264	0.478
Slept under an ITN last night	0.354	0.056	143	177	1.400	0.159	0.242	0.466
Slept under an ITN last night in household with at least one ITN	0.653	0.073	86	96	1.406	0.111	0.508	0.798
Received one or more doses of SP/Fansidar during pregnancy of the most recent live birth	0.842	0.022	542	639	1.391	0.026	0.798	0.886
Received 2 or more doses of SP/Fansidar during pregnancy of the most recent live birth	0.534	0.026	542	639	1.200	0.048	0.483	0.585
Received 3 or more doses of SP/Fansidar during pregnancy of the most recent live birth	0.217	0.030	542	639	1.677	0.137	0.158	0.276

na = not applicable

Sampling errors: Rural sample, Liberia MIS 2016

Variable	Value (R)	Standard error (SE)	Number of cases: Unweighted (N)	Number of cases: Weighted (WN)	Design effect (DEFT)	Relative error (SE/R)	Confidence interval: R-2SE	Confidence interval: R+2SE
HOUSEHOLD/POPULATION								
Ownership of at least one mosquito net of any type	0.660	0.021	2,244	1,836	2.127	0.032	0.617	0.703
Number of any mosquito nets	1.240	0.053	2,244	1,836	2.035	0.043	1.133	1.347
Ownership of at least one ITN	0.650	0.021	2,244	1,836	2.125	0.033	0.607	0.693
Number of ITN	1.219	0.053	2,244	1,836	2.037	0.044	1.112	1.326
Ownership of at least one ITN for two persons	0.283	0.015	2,225	1,823	1.591	0.054	0.253	0.313
Household population that slept under an ITN last night	0.428	0.018	10,525	8,658	3.756	0.042	0.392	0.464
Proportion of de facto population with access to an ITN	0.446	0.018	10,525	8,658	4.751	0.040	0.410	0.482
CHILDREN								
Slept under any mosquito net last night	0.466	0.025	1,833	1,575	2.149	0.054	0.416	0.516
Slept under an ITN last night	0.456	0.026	1,833	1,575	2.199	0.056	0.405	0.507
Slept under an ITN last night in household with at least one ITN	0.659	0.031	1,239	1,090	2.324	0.048	0.596	0.722
Had fever in last 2 weeks	0.433	0.023	1,608	1,259	1.848	0.053	0.387	0.479
Advice or treatment for fever sought	0.721	0.028	691	545	1.665	0.039	0.664	0.778
Received ACT treatment for fever	0.880	0.024	440	343	1.554	0.027	0.832	0.928
Received a finger/heel stick	0.452	0.033	691	545	1.736	0.073	0.386	0.518
Had a hemoglobin level less than 8 g/dl	0.101	0.008	1,585	1,366	1.049	0.079	0.085	0.117
Has malaria (based on rapid test)	0.619	0.026	1,584	1,366	2.159	0.043	0.566	0.672
Has malaria (based on microscopy test)	na	na	na	na	na	na	na	na
PREGNANT WOMEN								
Slept under any mosquito net last night	0.502	0.065	157	127	1.628	0.130	0.372	0.632
Slept under an ITN last night	0.453	0.062	157	127	1.568	0.138	0.328	0.578
Slept under an ITN last night in household with at least one ITN	0.758	0.056	99	76	1.290	0.074	0.646	0.870
Received one or more doses of SP/Fansidar during pregnancy of the most recent live birth	0.847	0.026	677	507	1.910	0.031	0.794	0.900
Received 2 or more doses of SP/Fansidar during pregnancy of the most recent live birth	0.589	0.034	677	507	1.781	0.057	0.522	0.656
Received 3 or more doses of SP/Fansidar during pregnancy of the most recent live birth	0.249	0.028	677	507	1.676	0.112	0.193	0.305

na = not applicable

Sampling errors: Total sample, Liberia DHS 2019–20

Variable	Value (R)	Standard error (SE)	Number of cases Unweighted (N)	Number of cases Weighted (WN)	Design effect (DEFT)	Relative error (SE/R)	Confidence interval R-2SE	Confidence interval R+2SE
HOUSEHOLD/POPULATION								
Ownership of at least one mosquito net of any type	0.562	0.012	9,068	9,068	2.330	0.022	0.538	0.586
Number of any mosquito nets	1.077	0.033	9,068	9,068	2.504	0.031	1.010	1.144
Ownership of at least one ITN	0.547	0.012	9,068	9,068	2.337	0.022	0.523	0.571
Number of ITN	1.049	0.033	9,068	9,068	2.515	0.032	0.982	1.116
Ownership of at least one ITN for two persons	0.252	0.009	9,003	9,011	2.006	0.036	0.234	0.270
Household population that slept under an ITN last night	0.390	0.011	40,098	40,202	4.596	0.029	0.368	0.412
Proportion of de facto population with access to an ITN	0.397	0.011	40,098	40,202	5.523	0.027	0.375	0.419
CHILDREN								
Slept under any mosquito net last night	0.452	0.013	5,962	5,903	2.067	0.029	0.425	0.479
Slept under an ITN last night	0.443	0.013	5,962	5,903	2.049	0.030	0.417	0.469
Slept under an ITN last night in household with at least one ITN	0.717	0.010	3,856	3,644	1.340	0.014	0.698	0.736
Had fever in last 2 weeks	0.250	0.012	5,245	4,866	2.046	0.049	0.226	0.274
Advice or treatment for fever sought	0.809	0.017	1,472	1,217	1.611	0.020	0.776	0.842
Received ACT treatment for fever	0.412	0.028	821	634	1.641	0.068	0.356	0.468
Received a finger/heel stick	0.490	0.022	1,472	1,217	1.712	0.046	0.445	0.535
Had a hemoglobin level less than 8 g/dl	0.089	0.011	2,656	2,524	2.002	0.124	0.067	0.111
Has malaria (based on rapid test)	na	na	na	na	na	na	na	na
Has malaria (based on microscopy test)	na	na	na	na	na	na	na	na
PREGNANT WOMEN								
Slept under any mosquito net last night	0.479	0.031	623	600	1.532	0.064	0.418	0.540
Slept under an ITN last night	0.465	0.032	623	600	1.586	0.068	0.402	0.528
Slept under an ITN last night in household with at least one ITN	0.782	0.032	382	357	1.534	0.042	0.717	0.847
Received one or more doses of SP/Fansidar during pregnancy of the most recent live birth	0.903	0.010	2,284	2,096	1.586	0.011	0.883	0.923
Received 2 or more doses of SP/Fansidar during pregnancy of the most recent live birth	0.701	0.014	2,284	2,096	1.496	0.020	0.672	0.730
Received 3 or more doses of SP/Fansidar during pregnancy of the most recent live birth	0.403	0.017	2,284	2,096	1.642	0.042	0.369	0.437

na = not applicable

Sampling errors: Urban sample, Liberia DHS 2019–20

Variable	Value (R)	Standard error (SE)	Number of cases Unweighted (N)	Number of cases Weighted (WN)	Design effect (DEFT)	Relative error (SE/R)	Confidence interval R-2SE	Confidence interval R+2SE
HOUSEHOLD/POPULATION								
Ownership of at least one mosquito net of any type	0.511	0.019	3,321	5,195	2.146	0.036	0.474	0.548
Number of any mosquito nets	0.973	0.053	3,321	5,195	2.430	0.054	0.867	1.079
Ownership of at least one ITN	0.489	0.019	3,321	5,195	2.146	0.038	0.452	0.526
Number of ITN	0.932	0.053	3,321	5,195	2.449	0.057	0.827	1.037
Ownership of at least one ITN for two persons	0.219	0.014	3,301	5,161	1.982	0.065	0.190	0.248
Household population that slept under an ITN last night	0.351	0.017	14,833	23,089	4.292	0.048	0.317	0.385
Proportion of de facto population with access to an ITN	0.358	0.017	14,833	23,089	5.193	0.046	0.325	0.391
CHILDREN								
Slept under any mosquito net last night	0.438	0.021	1,978	3,144	1.901	0.048	0.396	0.480
Slept under an ITN last night	0.423	0.021	1,978	3,144	1.873	0.049	0.381	0.465
Slept under an ITN last night in household with at least one ITN	0.723	0.014	1,250	1,839	1.144	0.020	0.694	0.752
Had fever in last 2 weeks	0.237	0.020	1,769	2,615	1.986	0.085	0.197	0.277
Advice or treatment for fever sought	0.871	0.025	475	620	1.607	0.028	0.822	0.920
Received ACT treatment for fever	0.442	0.053	249	291	1.674	0.119	0.336	0.548
Received a finger/heel stick	0.468	0.039	475	620	1.681	0.082	0.391	0.545
Had a hemoglobin level less than 8 g/dl	0.078	0.019	843	1,311	2.107	0.250	0.039	0.117
Has malaria (based on rapid test)	na	na	na	na	na	na	na	na
Has malaria (based on microscopy test)	na	na	na	na	na	na	na	na
PREGNANT WOMEN								
Slept under any mosquito net last night	0.477	0.050	207	333	1.429	0.104	0.378	0.576
Slept under an ITN last night	0.453	0.052	207	333	1.507	0.115	0.348	0.558
Slept under an ITN last night in household with at least one ITN	0.791	0.053	125	191	1.457	0.067	0.685	0.897
Received one or more doses of SP/Fansidar during pregnancy of the most recent live birth	0.901	0.016	770	1,129	1.499	0.018	0.869	0.933
Received 2 or more doses of SP/Fansidar during pregnancy of the most recent live birth	0.692	0.023	770	1,129	1.389	0.033	0.646	0.738
Received 3 or more doses of SP/Fansidar during pregnancy of the most recent live birth	0.377	0.028	770	1,129	1.577	0.073	0.322	0.432

na = not applicable

Sampling errors: Rural sample, Liberia DHS 2019–20

Variable	Value (R)	Standard error (SE)	Number of cases Unweighted (N)	Number of cases Weighted (WN)	Design effect (DEFT)	Relative error (SE/R)	Confidence interval R-2SE	Confidence interval R+2SE
HOUSEHOLD/POPULATION								
Ownership of at least one mosquito net of any type	0.631	0.013	5,747	3,873	2.018	0.020	0.605	0.657
Number of any mosquito nets	1.216	0.033	5,747	3,873	1.961	0.027	1.150	1.282
Ownership of at least one ITN	0.625	0.013	5,747	3,873	1.985	0.020	0.600	0.650
Number of ITN	1.207	0.033	5,747	3,873	1.948	0.027	1.141	1.273
Ownership of at least one ITN for two persons	0.297	0.010	5,702	3,850	1.610	0.033	0.278	0.316
Household population that slept under an ITN last night	0.442	0.014	25,265	17,113	4.461	0.032	0.414	0.470
Proportion of de facto population with access to an ITN	0.449	0.013	25,265	17,113	5.286	0.029	0.423	0.475
CHILDREN								
Slept under any mosquito net last night	0.469	0.016	3,984	2,759	1.974	0.033	0.438	0.500
Slept under an ITN last night	0.465	0.016	3,984	2,759	2.002	0.034	0.433	0.497
Slept under an ITN last night in household with at least one ITN	0.711	0.013	2,606	1,805	1.450	0.018	0.685	0.737
Had fever in last 2 weeks	0.265	0.013	3,476	2,251	1.674	0.047	0.240	0.290
Advice or treatment for fever sought	0.744	0.019	997	597	1.407	0.026	0.705	0.783
Received ACT treatment for fever	0.386	0.028	572	343	1.374	0.073	0.330	0.442
Received a finger/heel stick	0.513	0.022	997	597	1.381	0.043	0.469	0.557
Had a hemoglobin level less than 8 g/dl	0.101	0.009	1,813	1,213	1.305	0.091	0.083	0.119
Has malaria (based on rapid test)	na	na	na	na	na	na	na	na
Has malaria (based on microscopy test)	na	na	na	na	na	na	na	na
PREGNANT WOMEN								
Slept under any mosquito net last night	0.482	0.030	416	267	1.240	0.063	0.421	0.543
Slept under an ITN last night	0.481	0.030	416	267	1.240	0.063	0.420	0.542
Slept under an ITN last night in household with at least one ITN	0.772	0.035	257	166	1.334	0.045	0.702	0.842
Received one or more doses of SP/Fansidar during pregnancy of the most recent live birth	0.906	0.010	1,514	967	1.305	0.011	0.886	0.926
Received 2 or more doses of SP/Fansidar during pregnancy of the most recent live birth	0.712	0.015	1,514	967	1.290	0.021	0.682	0.742
Received 3 or more doses of SP/Fansidar during pregnancy of the most recent live birth	0.434	0.018	1,514	967	1.387	0.041	0.399	0.469

na = not applicable

Sampling errors: Total sample, Liberia MIS 2022

Variable	Value (R)	Standard error (SE)	Number of cases Unweighted (N)	Number of cases Weighted (WN)	Design effect (DEFT)	Relative error (SE/R)	Confidence interval R-2SE	Confidence interval R+2SE
HOUSEHOLD/POPULATION								
Ownership of at least one mosquito net of any type	0.745	0.015	4,306	4,306	2.228	0.020	0.715	0.775
Number of any mosquito nets	1.578	0.054	4,306	4,306	2.498	0.034	1.469	1.687
Ownership of at least one ITN	0.723	0.014	4,306	4,306	2.095	0.020	0.694	0.752
Number of ITN	1.533	0.053	4,306	4,306	2.422	0.034	1.427	1.639
Ownership of at least one ITN for two persons	0.328	0.012	4,275	4,276	1.682	0.037	0.304	0.352
Household population that slept under an ITN last night	0.439	0.013	20,381	20,982	3.698	0.029	0.413	0.465
Proportion of de facto population with access to an ITN	0.524	0.014	20,381	20,982	5.428	0.027	0.495	0.553
CHILDREN								
Slept under any mosquito net last night	0.521	0.018	3,183	3,192	2.010	0.034	0.485	0.557
Slept under an ITN last night	0.503	0.018	3,183	3,192	2.062	0.036	0.466	0.540
Slept under an ITN last night in household with at least one ITN	0.628	0.019	2,589	2,556	1.977	0.030	0.590	0.666
Had fever in last 2 weeks	0.364	0.016	2,722	2,576	1.685	0.043	0.333	0.395
Advice or treatment for fever sought	0.604	0.024	1,026	937	1.602	0.041	0.555	0.653
Received ACT treatment for fever	0.808	0.024	624	581	1.499	0.029	0.761	0.855
Received a finger/heel stick	0.448	0.029	1,026	937	1.848	0.064	0.391	0.505
Had a hemoglobin level less than 8 g/dl	0.021	0.005	2,849	2,804	1.672	0.215	0.012	0.030
Has malaria (based on rapid test)	0.177	0.014	2,849	2,804	1.937	0.078	0.149	0.205
Has malaria (based on microscopy test)	0.102	0.012	2,849	2,804	2.081	0.116	0.078	0.126
PREGNANT WOMEN								
Slept under any mosquito net last night	0.550	0.036	370	428	1.377	0.065	0.479	0.621
Slept under an ITN last night	0.526	0.036	370	428	1.390	0.069	0.454	0.598
Slept under an ITN last night in household with at least one ITN	0.710	0.034	293	317	1.274	0.048	0.642	0.778
Received one or more doses of SP/Fansidar during pregnancy of the most recent live birth	0.934	0.010	1,171	1,109	1.429	0.011	0.913	0.955
Received 2 or more doses of SP/Fansidar during pregnancy of the most recent live birth	0.799	0.022	1,171	1,109	1.863	0.027	0.755	0.843
Received 3 or more doses of SP/Fansidar during pregnancy of the most recent live birth	0.626	0.023	1,171	1,109	1.607	0.036	0.581	0.671

Sampling errors: Urban sample, Liberia MIS 2022

Variable	Value (R)	Standard error (SE)	Number of cases Unweighted (N)	Number of cases Weighted (WN)	Design effect (DEFT)	Relative error (SE/R)	Confidence interval R-2SE	Confidence interval R+2SE
HOUSEHOLD/POPULATION								
Ownership of at least one mosquito net of any type	0.650	0.022	1,972	2,388	2.016	0.033	0.607	0.693
Number of any mosquito nets	1.331	0.078	1,972	2,388	2.508	0.059	1.174	1.488
Ownership of at least one ITN	0.616	0.020	1,972	2,388	1.864	0.033	0.575	0.657
Number of ITN	1.269	0.075	1,972	2,388	2.395	0.059	1.119	1.419
Ownership of at least one ITN for two persons	0.268	0.016	1,965	2,379	1.588	0.059	0.236	0.300
Household population that slept under an ITN last night	0.371	0.017	9,521	11,692	3.493	0.047	0.336	0.406
Proportion of de facto population with access to an ITN	0.443	0.019	9,521	11,692	4.777	0.042	0.405	0.481
CHILDREN								
Slept under any mosquito net last night	0.485	0.027	1,301	1,601	1.971	0.056	0.430	0.540
Slept under an ITN last night	0.454	0.029	1,301	1,601	2.077	0.063	0.397	0.511
Slept under an ITN last night in household with at least one ITN	0.628	0.033	963	1,157	2.117	0.053	0.562	0.694
Had fever in last 2 weeks	0.343	0.024	1,146	1,348	1.702	0.070	0.295	0.391
Advice or treatment for fever sought	0.599	0.040	404	462	1.639	0.067	0.519	0.679
Received ACT treatment for fever	0.792	0.039	249	286	1.504	0.049	0.714	0.870
Received a finger/heel stick	0.454	0.047	404	462	1.899	0.104	0.360	0.548
Had a hemoglobin level less than 8 g/dl	0.016	0.005	1,137	1,352	1.270	0.293	0.007	0.025
Has malaria (based on rapid test)	0.089	0.015	1,137	1,352	1.724	0.164	0.060	0.118
Has malaria (based on microscopy test)	0.043	0.012	1,137	1,352	1.958	0.274	0.019	0.067
PREGNANT WOMEN								
Slept under any mosquito net last night	0.434	0.053	172	233	1.408	0.123	0.327	0.541
Slept under an ITN last night	0.388	0.055	172	233	1.464	0.141	0.279	0.497
Slept under an ITN last night in household with at least one ITN	0.647	0.061	117	139	1.366	0.094	0.526	0.768
Received one or more doses of SP/Fansidar during pregnancy of the most recent live birth	0.934	0.014	510	603	1.246	0.015	0.906	0.962
Received 2 or more doses of SP/Fansidar during pregnancy of the most recent live birth	0.766	0.033	510	603	1.740	0.043	0.701	0.831
Received 3 or more doses of SP/Fansidar during pregnancy of the most recent live birth	0.573	0.033	510	603	1.490	0.057	0.508	0.638

Sampling errors: Rural sample, Liberia MIS 2022

Variable	Value (R)	Standard error (SE)	Number of cases Unweighted (N)	Number of cases Weighted (WN)	Design effect (DEFT)	Relative error (SE/R)	Confidence interval R-2SE	Confidence interval R+2SE
HOUSEHOLD/POPULATION								
Ownership of at least one mosquito net of any type	0.863	0.017	2,334	1,918	2.315	0.019	0.830	0.896
Number of any mosquito nets	1.885	0.071	2,334	1,918	2.415	0.038	1.744	2.026
Ownership of at least one ITN	0.857	0.016	2,334	1,918	2.259	0.019	0.824	0.890
Number of ITN	1.863	0.070	2,334	1,918	2.405	0.038	1.722	2.004
Ownership of at least one ITN for two persons	0.403	0.019	2,310	1,897	1.820	0.046	0.366	0.440
Household population that slept under an ITN last night	0.524	0.019	10,860	9,289	3.861	0.035	0.487	0.561
Proportion of de facto population with access to an ITN	0.626	0.020	10,860	9,289	6.000	0.031	0.587	0.665
CHILDREN								
Slept under any mosquito net last night	0.558	0.022	1,882	1,591	1.923	0.039	0.514	0.602
Slept under an ITN last night	0.552	0.022	1,882	1,591	1.884	0.039	0.509	0.595
Slept under an ITN last night in household with at least one ITN	0.628	0.021	1,626	1,399	1.738	0.033	0.586	0.670
Had fever in last 2 weeks	0.387	0.019	1,576	1,228	1.546	0.049	0.349	0.425
Advice or treatment for fever sought	0.608	0.028	622	475	1.442	0.046	0.551	0.665
Received ACT treatment for fever	0.825	0.026	375	294	1.334	0.032	0.773	0.877
Received a finger/heel stick	0.443	0.033	622	475	1.679	0.076	0.376	0.510
Had a hemoglobin level less than 8 g/dl	0.026	0.007	1,712	1,452	1.912	0.284	0.011	0.041
Has malaria (based on rapid test)	0.259	0.022	1,712	1,452	2.105	0.086	0.214	0.304
Has malaria (based on microscopy test)	0.157	0.019	1,712	1,452	2.188	0.123	0.118	0.196
PREGNANT WOMEN								
Slept under any mosquito net last night	0.689	0.038	198	196	1.161	0.056	0.612	0.766
Slept under an ITN last night	0.689	0.038	198	196	1.161	0.056	0.612	0.766
Slept under an ITN last night in household with at least one ITN	0.760	0.036	176	177	1.103	0.047	0.689	0.831
Received one or more doses of SP/Fansidar during pregnancy of the most recent live birth	0.934	0.016	661	506	1.636	0.017	0.902	0.966
Received 2 or more doses of SP/Fansidar during pregnancy of the most recent live birth	0.839	0.026	661	506	1.848	0.031	0.786	0.892
Received 3 or more doses of SP/Fansidar during pregnancy of the most recent live birth	0.690	0.030	661	506	1.665	0.043	0.630	0.750

Sampling errors: Greater Monrovia sample, Liberia MIS 2022

Variable	Value (R)	Standard error (SE)	Number of cases Unweighted (N)	Number of cases Weighted (WN)	Design effect (DEFT)	Relative error (SE/R)	Confidence interval R-2SE	Confidence interval R+2SE
HOUSEHOLD/POPULATION								
Ownership of at least one mosquito net of any type	0.561	0.032	691	1,434	1.678	0.057	0.498	0.624
Number of any mosquito nets	1.021	0.091	691	1,434	2.024	0.089	0.839	1.203
Ownership of at least one ITN	0.514	0.030	691	1,434	1.554	0.058	0.455	0.573
Number of ITN	0.932	0.079	691	1,434	1.801	0.085	0.774	1.090
Ownership of at least one ITN for two persons	0.221	0.020	689	1,430	1.287	0.092	0.180	0.262
Household population that slept under an ITN last night	0.296	0.025	3,070	6,577	3.030	0.084	0.246	0.346
Proportion of de facto population with access to an ITN	0.356	0.025	3,070	6,577	3.655	0.069	0.307	0.405
CHILDREN								
Slept under any mosquito net last night	0.468	0.043	367	788	1.663	0.093	0.381	0.555
Slept under an ITN last night	0.417	0.046	367	788	1.802	0.111	0.324	0.510
Slept under an ITN last night in household with at least one ITN	0.659	0.052	220	499	1.614	0.078	0.556	0.762
Had fever in last 2 weeks	0.349	0.033	324	684	1.261	0.096	0.282	0.416
Advice or treatment for fever sought	0.544	0.063	111	238	1.316	0.115	0.419	0.669
Received ACT treatment for fever	0.676	0.056	63	142	0.949	0.083	0.563	0.789
Received a finger/heel stick	0.457	0.072	111	238	1.525	0.159	0.312	0.602
Had a hemoglobin level less than 8 g/dl	0.013	0.008	295	632	1.287	0.649	0.000	0.030
Has malaria (based on rapid test)	0.041	0.015	295	632	1.327	0.375	0.010	0.072
Has malaria (based on microscopy test)	0.007	0.007	295	632	1.431	0.996	0.000	0.021
PREGNANT WOMEN								
Slept under any mosquito net last night	0.317	0.073	51	123	1.106	0.230	0.171	0.463
Slept under an ITN last night	0.237	0.072	51	123	1.198	0.304	0.093	0.381
Slept under an ITN last night in household with at least one ITN	0.597	0.142	19	49	1.228	0.238	0.313	0.881
Received one or more doses of SP/Fansidar during pregnancy of the most recent live birth	0.945	0.019	143	307	1.002	0.020	0.907	0.983
Received 2 or more doses of SP/Fansidar during pregnancy of the most recent live birth	0.747	0.057	143	307	1.555	0.076	0.634	0.860
Received 3 or more doses of SP/Fansidar during pregnancy of the most recent live birth	0.552	0.045	143	307	1.082	0.082	0.462	0.642

Sampling errors: North Western sample, Liberia MIS 2022

Variable	Value (R)	Standard error (SE)	Number of cases Unweighted (N)	Number of cases Weighted (WN)	Design effect (DEFT)	Relative error (SE/R)	Confidence interval R-2SE	Confidence interval R+2SE
HOUSEHOLD/POPULATION								
Ownership of at least one mosquito net of any type	0.740	0.033	700	383	2.010	0.045	0.673	0.807
Number of any mosquito nets	1.600	0.169	700	383	2.916	0.105	1.263	1.937
Ownership of at least one ITN	0.728	0.032	700	383	1.880	0.043	0.665	0.791
Number of ITN	1.537	0.161	700	383	2.858	0.105	1.214	1.860
Ownership of at least one ITN for two persons	0.394	0.039	690	378	2.119	0.100	0.315	0.473
Household population that slept under an ITN last night	0.419	0.035	2,910	1,572	3.875	0.085	0.348	0.490
Proportion of de facto population with access to an ITN	0.576	0.035	2,910	1,572	4.849	0.060	0.506	0.646
CHILDREN								
Slept under any mosquito net last night	0.490	0.038	495	274	1.692	0.078	0.414	0.566
Slept under an ITN last night	0.472	0.041	495	274	1.809	0.086	0.391	0.553
Slept under an ITN last night in household with at least one ITN	0.591	0.043	400	219	1.730	0.072	0.506	0.676
Had fever in last 2 weeks	0.454	0.049	384	195	1.912	0.107	0.357	0.551
Advice or treatment for fever sought	0.624	0.053	156	88	1.361	0.085	0.518	0.730
Received ACT treatment for fever	0.816	0.052	91	56	1.281	0.064	0.711	0.921
Received a finger/heel stick	0.580	0.080	156	88	2.028	0.139	0.419	0.741
Had a hemoglobin level less than 8 g/dl	0.022	0.010	455	254	1.464	0.456	0.002	0.042
Has malaria (based on rapid test)	0.195	0.022	455	254	1.172	0.112	0.151	0.239
Has malaria (based on microscopy test)	0.115	0.017	455	254	1.151	0.150	0.080	0.150
PREGNANT WOMEN								
Slept under any mosquito net last night	0.344	0.080	44	23	1.102	0.232	0.184	0.504
Slept under an ITN last night	0.344	0.080	44	23	1.102	0.232	0.184	0.504
Slept under an ITN last night in household with at least one ITN	0.476	0.076	35	16	0.892	0.160	0.323	0.629
Received one or more doses of SP/Fansidar during pregnancy of the most recent live birth	0.936	0.018	171	89	0.969	0.019	0.900	0.972
Received 2 or more doses of SP/Fansidar during pregnancy of the most recent live birth	0.857	0.018	171	89	0.688	0.022	0.820	0.894
Received 3 or more doses of SP/Fansidar during pregnancy of the most recent live birth	0.737	0.047	171	89	1.389	0.064	0.643	0.831

Sampling errors: South Central sample, Liberia MIS 2022

Variable	Value (R)	Standard error (SE)	Number of cases Unweighted (N)	Number of cases Weighted (WN)	Design effect (DEFT)	Relative error (SE/R)	Confidence interval R-2SE	Confidence interval R+2SE
HOUSEHOLD/POPULATION								
Ownership of at least one mosquito net of any type	0.786	0.038	731	741	2.509	0.048	0.710	0.862
Number of any mosquito nets	1.451	0.110	731	741	2.324	0.076	1.231	1.671
Ownership of at least one ITN	0.777	0.038	731	741	2.488	0.049	0.700	0.854
Number of ITN	1.437	0.109	731	741	2.300	0.076	1.218	1.656
Ownership of at least one ITN for two persons	0.286	0.025	728	738	1.509	0.088	0.235	0.337
Household population that slept under an ITN last night	0.423	0.026	3,547	3,647	3.131	0.061	0.371	0.475
Proportion of de facto population with access to an ITN	0.510	0.034	3,547	3,647	5.785	0.067	0.442	0.578
CHILDREN								
Slept under any mosquito net last night	0.475	0.034	563	566	1.614	0.072	0.407	0.543
Slept under an ITN last night	0.471	0.035	563	566	1.644	0.073	0.402	0.540
Slept under an ITN last night in household with at least one ITN	0.602	0.033	427	443	1.379	0.054	0.537	0.667
Had fever in last 2 weeks	0.406	0.028	505	473	1.261	0.068	0.351	0.461
Advice or treatment for fever sought	0.591	0.046	206	192	1.350	0.078	0.498	0.684
Received ACT treatment for fever	0.792	0.044	131	127	1.238	0.056	0.704	0.880
Received a finger/heel stick	0.395	0.043	206	192	1.268	0.110	0.308	0.482
Had a hemoglobin level less than 8 g/dl	0.025	0.010	498	501	1.467	0.409	0.005	0.045
Has malaria (based on rapid test)	0.173	0.037	498	501	2.192	0.215	0.099	0.247
Has malaria (based on microscopy test)	0.113	0.025	498	501	1.790	0.225	0.062	0.164
PREGNANT WOMEN								
Slept under any mosquito net last night	0.656	0.078	62	72	1.290	0.120	0.499	0.813
Slept under an ITN last night	0.656	0.078	62	72	1.290	0.120	0.499	0.813
Slept under an ITN last night in household with at least one ITN	0.760	0.069	49	62	1.123	0.091	0.622	0.898
Received one or more doses of SP/Fansidar during pregnancy of the most recent live birth	0.937	0.014	229	220	0.877	0.015	0.909	0.965
Received 2 or more doses of SP/Fansidar during pregnancy of the most recent live birth	0.797	0.032	229	220	1.193	0.040	0.733	0.861
Received 3 or more doses of SP/Fansidar during pregnancy of the most recent live birth	0.619	0.056	229	220	1.734	0.090	0.507	0.731

Sampling errors: North Central sample, Liberia MIS 2022

Variable	Value (R)	Standard error (SE)	Number of cases: Unweighted (N)	Number of cases: Weighted (WN)	Design effect (DEFT)	Relative error (SE/R)	Confidence interval: R-2SE	Confidence interval: R+2SE
HOUSEHOLD/POPULATION								
Ownership of at least one mosquito net of any type	0.898	0.019	736	1,206	1.685	0.021	0.860	0.936
Number of any mosquito nets	2.200	0.116	736	1,206	2.150	0.053	1.968	2.432
Ownership of at least one ITN	0.892	0.019	736	1,206	1.617	0.021	0.855	0.929
Number of ITN	2.184	0.118	736	1,206	2.165	0.054	1.949	2.419
Ownership of at least one ITN for two persons	0.428	0.031	728	1,190	1.663	0.071	0.367	0.489
Household population that slept under an ITN last night	0.593	0.025	3,901	6,522	3.129	0.042	0.544	0.642
Proportion of de facto population with access to an ITN	0.658	0.026	3,901	6,522	5.077	0.040	0.605	0.711
CHILDREN								
Slept under any mosquito net last night	0.595	0.036	667	1,141	1.904	0.061	0.523	0.667
Slept under an ITN last night	0.587	0.035	667	1,141	1.857	0.060	0.516	0.658
Slept under an ITN last night in household with at least one ITN	0.649	0.035	599	1,033	1.791	0.054	0.579	0.719
Had fever in last 2 weeks	0.301	0.025	566	892	1.304	0.084	0.251	0.351
Advice or treatment for fever sought	0.602	0.040	170	269	1.063	0.067	0.522	0.682
Received ACT treatment for fever	0.883	0.030	103	164	0.950	0.034	0.823	0.943
Received a finger/heel stick	0.358	0.060	170	269	1.623	0.167	0.238	0.478
Had a hemoglobin level less than 8 g/dl	0.024	0.009	609	1,034	1.517	0.390	0.005	0.043
Has malaria (based on rapid test)	0.222	0.027	609	1,034	1.613	0.122	0.168	0.276
Has malaria (based on microscopy test)	0.133	0.026	609	1,034	1.873	0.194	0.081	0.185
PREGNANT WOMEN								
Slept under any mosquito net last night	0.710	0.037	94	160	0.789	0.052	0.636	0.784
Slept under an ITN last night	0.710	0.037	94	160	0.789	0.052	0.636	0.784
Slept under an ITN last night in household with at least one ITN	0.778	0.039	84	146	0.852	0.050	0.700	0.856
Received one or more doses of SP/Fansidar during pregnancy of the most recent live birth	0.911	0.025	229	352	1.343	0.028	0.860	0.962
Received 2 or more doses of SP/Fansidar during pregnancy of the most recent live birth	0.792	0.040	229	352	1.487	0.050	0.712	0.872
Received 3 or more doses of SP/Fansidar during pregnancy of the most recent live birth	0.612	0.043	229	352	1.322	0.070	0.527	0.697

Sampling errors: South Eastern A sample, Liberia MIS 2022

Variable	Value (R)	Standard error (SE)	Number of cases: Unweighted (N)	Number of cases: Weighted (WN)	Design effect (DEFT)	Relative error (SE/R)	Confidence interval: R-2SE	Confidence interval: R+2SE
HOUSEHOLD/POPULATION								
Ownership of at least one mosquito net of any type	0.811	0.022	703	301	1.507	0.027	0.766	0.856
Number of any mosquito nets	1.894	0.107	703	301	1.822	0.056	1.680	2.108
Ownership of at least one ITN	0.801	0.024	703	301	1.559	0.029	0.754	0.848
Number of ITN	1.874	0.111	703	301	1.884	0.059	1.651	2.097
Ownership of at least one ITN for two persons	0.420	0.027	699	300	1.439	0.064	0.366	0.474
Household population that slept under an ITN last night	0.474	0.022	3,366	1,475	2.611	0.047	0.429	0.519
Proportion of de facto population with access to an ITN	0.606	0.024	3,366	1,475	3.762	0.040	0.558	0.654
CHILDREN								
Slept under any mosquito net last night	0.472	0.030	521	230	1.368	0.063	0.412	0.532
Slept under an ITN last night	0.471	0.030	521	230	1.367	0.064	0.411	0.531
Slept under an ITN last night in household with at least one ITN	0.571	0.033	431	190	1.392	0.058	0.505	0.637
Had fever in last 2 weeks	0.442	0.034	440	172	1.438	0.077	0.374	0.510
Advice or treatment for fever sought	0.631	0.042	182	76	1.162	0.066	0.548	0.714
Received ACT treatment for fever	0.927	0.032	109	47	1.265	0.034	0.864	0.990
Received a finger/heel stick	0.636	0.039	182	76	1.092	0.061	0.558	0.714
Had a hemoglobin level less than 8 g/dl	0.018	0.007	473	209	1.226	0.414	0.003	0.033
Has malaria (based on rapid test)	0.234	0.056	473	209	2.852	0.238	0.123	0.345
Has malaria (based on microscopy test)	0.130	0.053	473	209	3.434	0.408	0.024	0.236
PREGNANT WOMEN								
Slept under any mosquito net last night	0.600	0.057	66	29	0.944	0.096	0.485	0.715
Slept under an ITN last night	0.574	0.060	66	29	0.983	0.105	0.453	0.695
Slept under an ITN last night in household with at least one ITN	0.695	0.054	56	24	0.878	0.078	0.586	0.804
Received one or more doses of SP/Fansidar during pregnancy of the most recent live birth	0.951	0.023	193	76	1.462	0.024	0.905	0.997
Received 2 or more doses of SP/Fansidar during pregnancy of the most recent live birth	0.879	0.041	193	76	1.760	0.047	0.796	0.962
Received 3 or more doses of SP/Fansidar during pregnancy of the most recent live birth	0.717	0.044	193	76	1.354	0.061	0.629	0.805

Sampling errors: South Eastern B sample, Liberia MIS 2022

Variable	Value (R)	Standard error (SE)	Number of cases Unweighted (N)	Number of cases Weighted (WN)	Design effect (DEFT)	Relative error (SE/R)	Confidence interval R-2SE	Confidence interval R+2SE
HOUSEHOLD/POPULATION								
Ownership of at least one mosquito net of any type	0.866	0.023	745	241	1.876	0.027	0.819	0.913
Number of any mosquito nets	1.740	0.104	745	241	2.242	0.060	1.532	1.948
Ownership of at least one ITN	0.855	0.028	745	241	2.131	0.032	0.800	0.910
Number of ITN	1.724	0.106	745	241	2.271	0.062	1.511	1.937
Ownership of at least one ITN for two persons	0.379	0.033	741	240	1.870	0.088	0.312	0.446
Household population that slept under an ITN last night	0.414	0.036	3,587	1,188	4.357	0.087	0.342	0.486
Proportion of de facto population with access to an ITN	0.598	0.028	3,587	1,188	4.913	0.047	0.542	0.654
CHILDREN								
Slept under any mosquito net last night	0.538	0.033	570	193	1.583	0.062	0.472	0.604
Slept under an ITN last night	0.532	0.035	570	193	1.660	0.065	0.463	0.601
Slept under an ITN last night in household with at least one ITN	0.591	0.044	512	174	2.016	0.074	0.503	0.679
Had fever in last 2 weeks	0.463	0.043	503	160	1.935	0.093	0.377	0.549
Advice or treatment for fever sought	0.781	0.037	201	74	1.267	0.047	0.707	0.855
Received ACT treatment for fever	0.870	0.041	127	45	1.361	0.047	0.789	0.951
Received a finger/heel stick	0.536	0.063	201	74	1.794	0.118	0.409	0.663
Had a hemoglobin level less than 8 g/dl	0.029	0.011	519	174	1.485	0.376	0.007	0.051
Has malaria (based on rapid test)	0.328	0.019	519	174	0.908	0.057	0.291	0.365
Has malaria (based on microscopy test)	0.185	0.021	519	174	1.244	0.115	0.143	0.227
PREGNANT WOMEN								
Slept under any mosquito net last night	0.495	0.053	53	22	0.759	0.106	0.390	0.600
Slept under an ITN last night	0.495	0.053	53	22	0.759	0.106	0.390	0.600
Slept under an ITN last night in household with at least one ITN	0.546	0.042	50	20	0.597	0.078	0.461	0.631
Received one or more doses of SP/Fansidar during pregnancy of the most recent live birth	0.974	0.011	206	65	1.012	0.012	0.951	0.997
Received 2 or more doses of SP/Fansidar during pregnancy of the most recent live birth	0.918	0.022	206	65	1.175	0.024	0.873	0.963
Received 3 or more doses of SP/Fansidar during pregnancy of the most recent live birth	0.826	0.045	206	65	1.704	0.055	0.736	0.916

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Liberia

Malaria Indicator Survey 2009

Liberia

Malaria Indicator Survey 2011

Liberia

Demographic and Health Survey 2013

Liberia

Malaria Indicator Survey 2016

Liberia

Demographic and Health Survey 2019-20