

SIERRA LEONE
**NATIONAL
NUTRITION
SURVEY** 2021



DECEMBER 2021





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Foreword

The COVID-19 pandemic has inadvertently affected economic and development activities, resulting in an increase in the proportion of food insecure Sierra Leoneans from 50 percent in 2015 to 57 percent in 2020. With 4.7 million people in the country suffering from food insecurity, timely assessment of the nutrition conditions of the most vulnerable population, especially children and women, is needed to prevent and control all forms of malnutrition.

Prior to the pandemic, the nutrition situation in Sierra Leone has greatly improved in the last decade and a half, with fewer children suffering from any form of malnutrition. This is evidenced by the overall decreasing trends in malnutrition especially stunting, from various national surveys. However, with the deteriorating food security situation combined with major interruptions in economic and development activities due to the pandemic, the gains in nutrition are at risk, and taking measures to mitigate the adverse effects of the pandemic on the nutritional status of the Sierra Leone population starts with knowing where the country is at and how far the country is in achieving global and national goals and targets in nutrition.

The fourth Sierra Leone National Nutrition Survey using the Standardized Monitoring and Assessment of Relief and Transition, known as the SMART methodology, is a national sample survey wherein two-stage cluster sampling methodology was employed and collected information from 10,803 households in 548 clusters nationwide. The survey provides up-to-date information on child and maternal nutrition indicators, including child health indicators and household-related data such as water, sanitation, and hygiene.

The leadership of the Ministry of Health and Sanitation through the Directorate of Policy, Planning and Information, and Directorate of Food and Nutrition in collaboration with Statistics Sierra Leone, UNICEF, Government of Japan, the National Technical Working Group, and other stakeholders have ensured that the highest quality of standards has been put in place throughout the implementation of the survey. In addition, the field team's hard work, commitment, and dedication national coordinators, regional monitors, district supervisors, team supervisors, team leaders, and enumerators) and the data processing team have ensured the timely completion of field activities and survey reports.

The survey provides timely and valuable information on nutrition. All health and nutrition stakeholders, including donors and partners, are welcome to use and refer to this report in designing, improving, and monitoring the progress made to date in the nutrition sector. It is with the hope that the survey results inspire everyone to do more and do better in our collective action to fight malnutrition,

Additional information regarding Sierra Leone National Nutrition Survey 2021 can be obtained from:

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Suggested citation

Ministry of Health and Sanitation Sierra Leone and UNICEF Sierra Leone. (2021).
Sierra Leone National Nutrition Survey 2021. Freetown: UNICEF.

SPECIAL THANKS TO

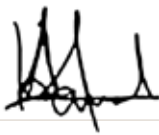
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Acknowledgement

The role of the Directorate of Food and Nutrition within the Ministry of Health and Sanitation is to oversee the nation's nutritional status. The implementation of Sierra Leone National Nutrition Survey 2021 was successful due to joint efforts and consultations with the National Nutrition Technical Working Group (NNTWG) members, which includes: National School Health Programme, UNICEF, UNN REACH, WFP, WHO, World Vision International, MAF, Statistics Sierra Leone, Action Against Hunger, Helen Keller International, Focus 1000, Concern Worldwide and Joint Aid Management (JAM). The survey was mainly organized and coordinated by the Directorate of Food and Nutrition and UNICEF.

The Directorate of Food and Nutrition and the entire NNTWG would like to convey special gratitude to the supporting Donors - Government of Japan and Government of Ireland's Irish Aid. Furthermore, a profound appreciation goes to UNICEF for providing leadership jointly with the Directorate of Food and Nutrition and NNTWG members to complete the survey. In addition, Statistics Sierra Leone is appreciated for ensuring sampling was done in accordance with in-country of maps that supported the survey teams in the field throughout the implementation stage.

Special recognition to our esteemed partners, UN REACH, Concern Worldwide, Joint Aid Management (JAM), World Vision International, Action Against Hunger and Helen Keller International for their financial and technical support to the survey. The contributions from other partners such as the World Health Organization, Ministry of Agriculture and Forestry, School and Adolescent Health Programme are highly appreciated for their logistical and technical support. Their contributions made it easier for the consultant to promptly produce preliminary and final results. Gratitude to all DMOS, DHMT members, PHU staff, and all communities that were selected for helping the survey teams during implementation.

DFN would also like to extend special appreciation to UNICEF and Helen Keller International for their support in providing tablets for data collection. Finally, thank you goes to our technical assistant, regional supervisors, supervisors, team leaders, enumerators, and support staff for their active participation, dedication, commitment, and overall ensuring a successful implementation of the 2021 SLNN survey.



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List of Abbreviations & Acronyms

| | |
|---------------|--|
| AAH-SL | Action Against Hunger, Sierra Leone |
| BMI | Body Mass Index |
| CAPI | Computer-assisted personal interviewing |
| CDR | Crude Death Rate |
| CHC | Community Health Center |
| CHP | Community Health Post |
| CFSVA | Comprehensive Food Security & Vulnerability Analysis |
| CI | Confidence interval (at 95per cent throughout the report) |
| CSD | Child Survival and Development |
| DEFF | Design Effect |
| DFN | Directorate of Food and Nutrition |
| DHS | Demographic Health Survey |
| EA | Enumeration Area |
| ENA | Emergency Nutrition Assessments |
| EPI | Expanded Programme on Immunization |
| FCS | Food Consumption Score |
| FCG | Food Consumption Group |
| FSL | Food Security and Livelihoods |
| GAM | Global Acute Malnutrition |
| GFD | General Food Distribution |
| HAZ | Height for Age z-scores |
| HDDS | Household Dietary Diversity Score |
| HFA | Height for Age |
| HH | Household |
| HHS | Household Hunger Scale |
| HKI | Hellen Keller International |
| HMIS | Health Management Information System |
| IDPs | Internally Displaced Persons |
| IMAM | Integrated Management of Acute Malnutrition |
| INGO | International Non-Governmental Organization |
| IPC | Infection, Prevention and Control |
| ISSSF | Introduction of solid, semi-solid or soft foods 6–8 months |
| ITN | Insecticide Treated Net |
| IYCF | Infant and Young Child feeding |
| LBW | Low Birth Weight |
| LLIN | Long Lasting Insecticidal Net |
| MAD | Minimum acceptable diet 6–23 months |
| MAM | Moderate Acute Malnutrition |

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| MDD | Minimum dietary diversity 6–23 months |
| MDDW | Minimum Dietary Diversity for Women of Reproductive Age |
| MICS | Multiple Indicator Cluster Survey |
| MMF | Minimum Meal Frequency 6–23 months |
| MOHS | Ministry of Health and Sanitation |
| MUAC | Mid Upper Arm Circumference |
| NCA | Nutrition Causal Analysis |
| NFNS-IP | National Food and Nutrition Security Implementation Plan |
| NFNSP | National Food and Nutrition Security Policy |
| NGO | Non-Governmental Organization |
| NNIS | National Nutrition Information System |
| NNS | National Nutrition Strategy |
| OTP | Out-Patient Therapeutic Programme |
| PLW | Pregnant & Lactating Women |
| PPS | Probability Proportional to Size |
| PRSP | Poverty Reduction Strategy Papers |
| RUSF | Ready to Use Supplementary Food |
| RUTF | Ready to Use Therapeutic Food |
| SAM | Severe Acute Malnutrition |
| SC | Stabilization Centre |
| SCUK | Save the children, UK |
| SD | Standard Deviation (measure of spread around the mean) |
| SE | Standard Error |
| SFP | Supplementary Feeding Programme |
| SLNNS | Sierra Leone National Nutrition Survey |
| SMART | Standardized Monitoring and Assessment of Relief and Transitions |
| SSL | Statistics Sierra Leone |
| TFC | Therapeutic Feeding Centre |
| TSFP | Targeted Supplementary Feeding Program |
| TWG | Technical Working Group |
| U5DR | Under 5 Death Rate |
| UNHCR | United Nations Higher Commission for Refugees |
| UNICEF | United Nations International Children’s Emergency Fund |
| VAD | Vitamin A Deficiency |
| VAM | Vulnerability Analysis & Mapping |
| VAS | Vitamin A Supplementation |
| WASH | Water, Sanitation and Hygiene |
| WAZ | Weight for Age z-scores |
| WFA | Weight for Age |
| WFP | World Food Program |
| WFH | Weight for Height |
| WHO | World Health Organization |
| WHZ | Weight for Height z-scores |

Glossary

Body mass Index (BMI):

An weight-for-height index commonly used to classify underweight, overweight and obesity in adults. It is defined as the weight in kilograms divided by the square of the height in meters (kg/m^2). Both high and low indexes are associated with poor health. The normal range for a healthy adult is 18.5 to 24.9. A BMI below 18.5 is considered too lean, while one above 25 is considered overweight. A BMI greater than 30 is considered obese, and one greater than 40 is considered morbidly obese.

Breastfeeding:

A child receiving breast milk directly from the mother or wet nurse's breast within the last 12 hours.

Coping Strategies Index (CSI):

A numerical indicator of household food security based on a questionnaire about what people do in the absence of sufficient food or money to buy such food. CSI is used to predict food crises, identify specific areas of greatest need, assess the impact of food aid programs in emergencies, and outline long-term trends.

Exclusive Breastfeeding:

An infant receiving only breast milk for nourishment. No other liquids or solids are given – not even water – except for oral rehydration solution or drops or syrups of vitamins, minerals, or medicines. Exclusive breastfeeding is recommended for the first six months of life.

Food security:

A situation where 'all people, at all times, have physical and economic access to sufficient, safe, and nutritious food to meet their dietary needs and food preferences for an active and healthy life'. It entails the availability, access, and utilization of sufficient food by all people for an active, healthy life.

Global Acute Malnutrition (GAM):

Includes children with moderate wasting, severe wasting and Oedema. It is defined as weight-for-height below minus two standard deviations from the mean ($\text{WHZ} < -2$) or no Oedema. And combined Global Acute Malnutrition (**cGAM**) is an aggregated indicator defined as all cases of GAM by $\text{WHZ} < -2$, mid-upper arm circumference (MUAC) < 125 mm, and bilateral pitting Oedema.

Low Birth Weight (LBW):

Infants born weighing less than 2,500 grams (5.5 pounds). In rural areas, this is estimated by the infant's "relative size" to other babies, as assessed by the birth attendant or mother.

Malnutrition refers to deficiencies, excesses, or imbalances in a person's energy and nutrient intake.

Malnutrition covers two (2) broad groups of conditions: 1) undernutrition - which includes *stunting* (low height for age), *wasting* (low weight for height), *underweight* (low weight for age) and *micronutrient deficiencies* or insufficiencies (a lack of important vitamins and minerals); 2) overnutrition – which includes overweight, obesity and diet-related non-communicable diseases (such as heart disease, stroke, diabetes, and cancer).
Mid-upper arm circumference (MUAC): One of the anthropometric measures used in assessing nutritional status. It is always measured on the left arm.

Minimum Dietary Diversity for Women of Reproductive Age (MDDW):

A food group diversity indicator and a proxy indicator for higher micronutrient adequacy, one important dimension of diet quality. It is a dichotomous measure of whether women 15–49 years of age consumed at least five of ten defined food groups the previous day or night.

Moderate acute malnutrition (MAM) or moderate wasting:

Is defined as weight-for-height between minus three and minus two standard deviations from the mean or mid-upper arm circumference (MUAC) between 115 and 125 mm, and no Oedema).

Oedema:

Pitting Oedema on both feet (bilateral Oedema): is the sign of kwashiorkor. Any person with bilateral Oedema has severe malnutrition and is classified as severely malnourished even if the WFH z- score is normal.

Severe Acute Malnutrition (SAM):

The term refers to a condition where children with severe wasting or MUAC are below 115 mm or those with Oedema.

Severe stunting, wasting, or underweight rate:

Is a common benchmark in health and nutrition studies. It is technically defined as the percentage of children under five years who suffer from severe stunting, wasting, or are underweight. This definition speaks to factors such as height-for-age, weight-for-height, or weight-for-age value equal to or smaller than the value corresponding to three standard deviations. These are usually below the median of the WHO reference population—the value corresponding to minus three z-scores concerning the WHO reference population (see also the definitions of stunting, wasting, and underweight).

Stunted growth, also known as stunting:

Is defined as impaired growth and development that children experience from poor nutrition, repeated infection, and inadequate psychosocial stimulation; and major effect of, or adaptation to – chronic (as opposed to acute) malnutrition, which can impede both physical and cognitive development. Children are stunted (short for one's age) if their height-for-age is more than two standard deviations below the WHO Child Growth Standards median.

Undernutrition:

Failing to get enough nutrients for a healthy body. Undernutrition takes four broad sub-forms of undernutrition: wasting, stunting, underweight, and deficiencies in vitamins and minerals.

Underweight:

When a child has a low weight compared to other children of the same age. "Underweight" is one way to measure malnutrition. It is defined with factors such as weight-for-age that is equal to or smaller than the value corresponding to two standard deviations below the median of the global reference population. That is, the value corresponding to minus two z-scores concerning the global reference population (a population with a distribution of weight-for-age values that is considered normal by international standards).

Vitamin A deficiency:

A form of micronutrient deficiency resulting from inadequate intake or high loss of vitamin A. Symptoms include growth retardation, night blindness in mild deficiency, and xerophthalmia (drying of the cornea), which leads to complete blindness. In areas where vitamin A deficiency is a public health problem, routine vitamin A supplementation is recommended in infants and children 6-59 months of age as a public health intervention every 6 months to improve vitamin A status and reduce child morbidity and mortality in the long term.

Wasting:

A thin body in relation to height is defined as weight-for-height less than minus two standard deviations below the median of the WHO reference population. It is a symptom of acute undernutrition in children, usually due to insufficient food intake or infectious diseases, especially diarrhoea.

Z-score:

Also known as the standard score, is the number of standard deviations from the mean of a normalized distribution of a reference population; in this case, the WHO reference population. It is calculated as the difference between individual value and the population mean, divided by the population standard deviation.

Executive Summary

The Sierra Leone National Nutrition Survey (SLNNS) 2021 data collection started on 1 August 2021 and ended on 31 August 2021. The Directorate of Food and Nutrition (DFN) of Sierra Leone's Ministry of Health and Sanitation (MoHS) and UNICEF Sierra Leone, with funding from the Government of Japan and other partners such as Irish Aid, Concern Worldwide, Hellen Keller International, Joint Aid Management (JAM), Save the Children, and World Vision surveyed in close collaboration and partnership with Sierra Leone Nutrition Technical Working Group (TWG). A nutrition and mortality assessment using SMART methodology was applied. The survey covered 17 statistical (16 districts plus 1 slum) domains countrywide, including the two new districts of Falaba and Karene that were not assessed separately during the 2017 SLNNS. The main objective of the survey was to assess the current nutrition status of the population, especially children 6-59 months old, adolescent girls 10-14 and 10-19 years old, adolescent boys 10-19 years old and women of reproductive age (15-49 years of age). Also included in the survey was a retrospective mortality rate in the population at the district level; and to evaluate the major contextual factors contributing to undernutrition, such as infant and young child feeding (IYCF) practices; minimum dietary diversity and minimum meal frequency for adolescents and women; water, sanitation, and hygiene (WASH); and health situation in Sierra Leone. The last and third national nutrition SMART survey was conducted in 2017. The second and first surveys in 2014 and 2010, respectively, showed a general improvement in the trend. This except a slight deterioration resulting from the effects of the Ebola outbreak

of 2015. With the scheduling of the next Demographic and Health Survey (DHS) in another three years (the last was conducted in 2019) and the absence of a reliable nutrition surveillance system in the country to provide real-time data for planning, implementation, and monitoring an effective humanitarian nutrition response during the period of the COVID-19 outbreak has been challenging. The SLNNS 2021 survey findings help evaluate progress in nutrition interventions and provide the platform for policy and strategy development to prioritize the programs for short, medium, and long-term direct and indirect interventions at the national and district levels.

A two-stage cluster sampling methodology was used. A total of 8,755 children aged 6-59 months from 10,803 households in 548 clusters were examined for anthropometry, and 4,572 children aged 0-23 months were assessed for IYCF practices, including 1,410 children aged 0-5 months assessed for exclusive breastfeeding practices. A total of 3,489 adolescent girls (10-14 years), 4,941 adolescent boys (10-19 years) and 13,297 women of the reproductive age (15-49 years) of 3,635 were pregnant or lactating were assessed for their nutrition status and dietary diversity. Assessment of mortality was conducted concurrently in the same households with a mean household size of 4.9 (± 1.9) persons. Household-related data, water, sanitation, and hygiene (WASH), and health access, were collected in the same households during the assessment.

Table 1 provides a summary of the key findings. Specific recommendations are outlined in the table.

Table 1: Summary of SLNNS 2021 results

| Indicator | SLNNS, Aug-Sep 2021 | | |
|---|---------------------|--------|-----------|
| | n | % | 95% CI |
| Child Nutrition: Anthropometric Results based on WHO 2006 Standards 6-59 months (N=8993) | | | |
| Prevalence of Global Acute Malnutrition, GAM (WHZ<-2 and/or Oedema), N=8459 | 439 | 5.2 | 4.7-5.8 |
| Prevalence of Moderate Acute Malnutrition, GAM (WHZ>=-3 and <-2) | 353 | 4.2 | 3.7-4.5 |
| Prevalence of Severe Acute Malnutrition, SAM (WHZ<-3 and/or Oedema) | 86 | 1.0 | 0.8-1.3 |
| Mean Weight-for-Height z-score (WHZ) | -0.15 | ± 1.05 | |
| Bilateral Oedema | 49 | 0.6 | 0.4-0.7 |
| Prevalence of Global Acute Malnutrition based on MUAC (MUAC<125mm and/or Oedema), (N=8748) | 233 | 2.7 | 2.3-3.1 |
| Prevalence of Moderate Acute Malnutrition based on MUAC (MUAC>=115mm and <125mm) | 143 | 1.6 | 1.3-2.0 |
| Prevalence of Severe Malnutrition based on MUAC (MUAC<115mm and/or Oedema) | 90 | 1.0 | 0.8-1.3 |
| Mean Mid-Upper Arm Circumference (MUAC in mm) | 151.6 | ± 13.7 | |
| Prevalence of stunting (HAZ<-2), (N=8220) | 2157 | 26.2 | 25.0-27.5 |
| Prevalence of moderate stunting (HAZ>=-3 and <-2) | 1605 | 19.5 | 18.5-20.6 |
| Prevalence of severe stunting (HAZ<-3) | 552 | 6.7 | 6.1-7.4 |
| Mean Height-for-Age z-score (HAZ) | -1.16 | ±1.23 | |
| Prevalence of underweight (WAZ<-2), (N=8560) | 944 | 11.0 | 10.1-12.0 |
| Prevalence of moderate underweight (WAZ>=-3 and <-2) | 759 | 8.9 | 8.1-9.7 |
| Prevalence of severe underweight (WAZ<-2) | 185 | 2.2 | 1.8-2.6 |
| Mean Weight-for-Age z-score (WAZ) | -0.72 | ±1.04 | |
| Child Mortality Results (Retrospective in 99-120 days prior to survey), N=10,601 | | | |
| CDR (Total deaths/10,000 people/day) | | 0.14 | 0.11-0.18 |
| U5DR (Deaths in U5 children /10,000 U5 children/day) | | 0.29 | 0.20-0.44 |
| Child Morbidity in two weeks prior to survey 6-59 months (N=9464) | | | |
| Prevalence of reported illness (6-59 months) | 1163 | 12.3 | 11.0-13.6 |

| Indicator | SLNNS, Aug-Sep 2021 | | |
|---|---------------------|------|-----------|
| | n | % | 95% CI |
| Prevalence of different types of illnesses | | | |
| Fever | 753 | 8.0 | 7.0-8.9 |
| Cough | 362 | 3.8 | 3.2-4.4 |
| Diarrhea | 157 | 1.7 | 1.1-2.2 |
| Skin infection | 88 | 0.9 | 0.6-1.2 |
| Eye infections | 21 | 0.2 | 0.1-0.3 |
| Child Health Programmes (N=9384) | | | |
| Children (12-35 months) immunized against measles, any dose (N=4207) | 4129 | 97.9 | 97.3-98.6 |
| Children immunized against measles: | | | |
| At least once by EPI card (12-23 months), N=2104 | 1813 | 86.2 | 83.4-88.8 |
| At least once, by recall (12-23 months) | 244 | 11.6 | 9.1-14.2 |
| Twice, with EPI card (24-35 months), (N=2103) | 1151 | 54.7 | 50.8-58.7 |
| Twice by recall (24-35 months) | 118 | 5.6 | 4.1-7.1 |
| Children who received vitamin A supplement (N=9384) | 8814 | 93.9 | 92.7-94.9 |
| Children who slept under net (LLIN) last night | 7554 | 80.5 | 78.5-82.6 |
| Proportion (12-59 months) dewormed in the last 6 months (N=8379) | 7671 | 91.6 | 90.2-92.9 |
| IYCF Practices (N=4570) | | | |
| Proportion of children (0-23 months) ever breastfed | 4475 | 97.9 | 97.3-98.2 |
| Proportion currently breastfeeding (0-23 months) | 3571 | 78.1 | 76.5-79.3 |
| Proportion fed on prelacteals (0-23 months) | 798 | 17.5 | 16.3-19.5 |
| Proportion Exclusive Breast Feeding (N=1410) | 743 | 52.7 | 49.1-56.3 |
| Proportion bottle feeding | 443 | 9.7 | 8.8-11.1 |
| Timely initiation of breastfeeding (immediately + within 1 hr of birth) | 4085 | 89.4 | 88.1-90.7 |
| Continued breastfeeding at 23 months (12-23 months), (N=2029) | 1077 | 53.1 | 50.4-55.8 |
| Timely introduction of complementary feeding (6-8 months), (N=379) | 228 | 60.2 | 56.9-64.3 |

| Indicator | SLNNS, Aug-Sep 2021 | | |
|---|---------------------|------|-----------|
| | n | % | 95% CI |
| Proportion meeting minimum dietary diversity (6-23 months), (N=3134) | 718 | 22.9 | 19.7-24.3 |
| Proportion meeting minimum meal frequency (6-23 months) (N=3134) | 1033 | 33.0 | 30.7-36.3 |
| Proportion meeting minimum acceptable diet (6-23 months) [N=3134] | 155 | 4.9 | 3.5-5.8 |
| Adolescent Girls, Boys and Women Dietary Diversity & Nutrition | | | |
| Acute Malnutrition by MUAC in Adolescent Girls | | | |
| 10-19 years (N=6297) | 580 | 8.5 | 7.5-9.5 |
| 10-14 years (N=3838) | 476 | 12.4 | 10.9-13.9 |
| Acute Malnutrition by MUAC in Adolescent Boys 10-19 years (N=5433) | 580 | 10.7 | 9.5-11.9 |
| Acute Malnutrition by MUAC in all WRA (N=14550) | 256 | 1.8 | 1.4-2.1 |
| Acute Malnutrition by MUAC in PLW (N=3630) | 199 | 5.5 | 4.5-6.5 |
| Underweight by BMI in non-pregnant Adolescent Girls | | | |
| 10-19 years (N=6297) | 370 | 5.9 | 5.1-6.6 |
| 10-14 years (N=3838) | 92 | 2.4 | 1.8-3.1 |
| Underweight by BMI in Adolescent Boys (N=5435) | 159 | 2.9 | 2.3-3.5 |
| Underweight by BMI in non-pregnant WRA (N=10928) | 524 | 4.8 | 4.3-5.3 |
| Proportion of overweight in non-pregnant Adolescent Girls | | | |
| 10-19 years (N=6297) | 228 | 3.6 | 3.0-4.2 |
| 10-14 years (N=3838) | 25 | 0.7 | 0.4-1.1 |
| Proportion of overweight in Adolescent Boys | 47 | 0.9 | 0.5-1.2 |
| Proportion of overweight in non-pregnant WRA | 2337 | 21.4 | 20.1-22.7 |
| Proportion meeting minimum dietary diversity in Adolescent Girls | | | |
| 10-19 years (N=6821) | 5045 | 74.0 | |
| 10-14 years (N=3838) | 2763 | 72.0 | 68.6-75.6 |
| Proportion meeting minimum dietary diversity in Adolescent Boys (N=5454) | 4016 | 73.6 | 69.7-75.9 |
| Proportion meeting minimum dietary diversity for WRA (N=14568) | 10807 | 74.2 | 72.4-77.5 |

| Indicator | SLNNS, Aug-Sep 2021 | | |
|---|---------------------|------|-----------|
| | n | % | 95% CI |
| Proportion meeting minimum meal frequency in Adolescent Girls | | | |
| 10-19 years (N=6820) | 1322 | 19.4 | 15.8-23.0 |
| 10-14 years (N=3841) | 752 | 19.6 | 15.4-23.6 |
| Proportion meeting minimum meal frequency in Adolescent Boys (N=5440) | 1070 | 19.7 | 16.0-23.3 |
| Proportion meeting minimum meal frequency in WRA (N=14564) | 2904 | 19.9 | 16.7-23.2 |
| WASH Results (N=11666) | | | |
| Access to safe/protected water source (Borehole, protected well/spring) | 8842 | 75.8 | 72.6-79.0 |
| Take recommended time (<30 minutes) to collect water (including queuing time) | 8067 | 69.2 | 66.0-72.3 |
| Appropriate treatment method (boiling, chlorination) for drinking water | 10133 | 86.9 | 84.4-89.3 |
| Optimal (adequate) water use (15L/person/day) | 7746 | 66.4 | 63.4-69.4 |
| Access to sanitation facility (latrine/toilet) | 7190 | 62.6 | 58.9-66.3 |
| Hand washing at (at least 3) critical times | 1426 | 12.2 | 10.2-14.3 |
| Hand washing with soap | 6278 | 53.8 | 50.3-57.4 |

Child health and nutrition

The national prevalence among children 6 -59 months of age of Global Acute Malnutrition (GAM) was **5.2 per cent** (95 per cent CI: 4.7-5.8), moderate acute malnutrition (MAM) was **4.2 per cent** (95 per cent CI: 3.7-4.5), and the severe acute malnutrition (SAM) rate (WHZ<-3 or Oedema) was **1.0 per cent** (95 per cent CI: 0.8-1.3), including forty-nine (0.6 per cent) cases of Oedema. Boys and girls were equally acutely malnourished ($p>0.05$); however, younger children (aged 6-29 months or 6-23 months) were more malnourished ($p<0.05$) than the older (aged 30-59 months or 24-59 months) children.

The results indicate a **poor** nutrition situation phase (GAM rate of 5.0-9.9 per cent) of acute malnutrition in the country's population according to WHO (2006) classification (**Table 59**) and **medium** according to UNICEF (2008) classification and translate to 58,380 acutely malnourished children nationally. Although SLNNS 2021 findings show a slight increase in GAM, MAM and SAM cases, the rates have not changed significantly compared to the SLNNS 2017 findings of GAM, MAM, and SAM rates of 5.1 per cent (95 per cent CI: 4.6-5.6), 4.0 per cent (95 per cent CI: 3.6-4.5) and 1.0 per cent (95 per cent CI: 0.8-1.3) respectively. However, a steady deterioration was observed in the Western Area districts of Urban, Slums and Rural domains, where GAM rates increased from 5.8 per cent, 5.5

per cent, and 3.6 per cent in 2017 to 9.6 7.6 per cent and 5.9 per cent, respectively.

The national prevalence of stunting among children 6 – 59 months old ($HAZ < -2$) was **26.2 per cent** (95 per cent CI: 25.0-27.5), translating to 294,147 stunted children (SLIH 2019 update based on 2015 population census) with 19.5 per cent (95 per cent CI: 18.5-20.6) moderately stunted and 6.7 per cent (95 per cent CI: 6.1-7.4) severely stunted, with more boys (29.2 per cent; 95 per cent CI: 27.6-30.9) than girls (26.2 per cent; 95 per cent CI: 25.0-27.5 per cent) reportedly stunted ($p < 0.05$); a significant reduction compared to the SLNNS 2017 findings when global stunting, moderate stunting and severe stunting rates of 31.3 per cent (95 per cent CI: 30.0-32.6), 21.3 per cent (95 per cent CI: 20.3-22.3), and 10.0 (95 per cent CI: 9.2-10.7) respectively were reported. Although the results for stunting indicate a generally improving trend over the past 10 years, the rate indicates *poor/high* (20-29.9 per cent) chronic malnutrition according to WHO/UNICEF Classification. It remains the most form of malnutrition burden in the country.

Based on MUAC measurements, the national prevalence of global acute malnutrition ($MUAC < 125\text{mm}$) and Oedema, moderate acute malnutrition ($MUAC \geq 115\text{mm}$ and $\leq 125\text{mm}$, and no Oedema), and severe acute malnutrition ($MUAC < 115\text{mm}$ and Oedema) was **2.7 per cent** (95 per cent CI: 2.3-3.1), 1.6 per cent (95 per cent CI: 1.3-2.0) and 1.0 per cent (95 per cent CI: 0.8-1.3) respectively. The national prevalence of combined Global Acute Malnutrition (cGAM), defined as all cases of GAM by $WHZ < -2$ and $MUAC < 125\text{mm}$ and Oedema, was **6.6 per cent** (95 per cent CI: 5.9-7.2). The combined Severe Acute Malnutrition (cSAM) as an aggregated indicator defined as all cases of SAM by $WHZ < -3$, $MUAC < 115\text{mm}$, and bilateral pitting Oedema was **1.4 per cent** (95 per cent CI: 1.2-1.7), both rates higher than respective acute malnutrition based either on weight-for-height z-scores or MUAC alone.

Among children 6-59 months of age, 2.0 per cent (95 per cent CI: 1.6-2.5) are overweight, with zero severe overweight recorded. The prevalence of overweight among young children is highest at 2.3 per cent for those aged 18-59 months and 42-53 months, respectively.

Although breastfeeding is widespread among the population, nearly all the assessed children 0-23 months ever breastfed (97.9 per cent), 89.4 per cent of early initiated breastfeeding, and 78.1 per cent were currently breastfeeding. Only 52.7 per cent of 0-6 months were breastfed exclusively, and 53.1 per cent continued breastfeeding at 23 months. Complementary feeding remains sub-optimal. Only 22.9 per cent receive a diversified diet - minimum dietary diversity (MDD). Only 33.0 per cent meet the recommended minimum meal frequency (MMF) for their age and breastfeeding status, and very few (4.9 per cent) of children 6-23 months meet the minimum acceptable diet (MAD). Approximately 40 per cent of children are prematurely introduced to solid, semi-solid or soft foods (ISSSF) before six months. It is important to note that the districts with very high (>30 per cent) stunting rates, such as Kenema, Koinadugu, and Kailahun, also have the poorest ICYF indicators.

In the two weeks before the assessment, one in every eight children evaluated is reported to have frequent illnesses. These are one or more communicable childhood diseases (e.g., fever, cough, diarrhoea, among others). A possible contributing factor is poor nutrition situation.

Illness and infection affect nutrition by reducing appetite for adequate food intake and the metabolism and utilization of the nutrients already ingested into the body. MOHS also enlists malaria and pneumonia as the commonly reported causes of morbidity in health facilities during the rainy season. Morbidity levels are aggravated by the poor WASH conditions in many districts



in the country, characterized by poor access to safe drinking water (24.2 per cent), lack of sanitation facilities (37.4 per cent) and poor handwashing practices at critical times (12.2 per cent).

In the backdrop of reports of polio cases in the country besides the prevailing COVID-19 pandemic, about one in eight (**12.3 per cent**) of children had reportedly suffered from one or more childhood illnesses in the two weeks before the assessment. Of those who fell ill, **64.8 per cent** of the children had a fever, **31.2 per cent** had a cough, and 13.5 per cent reportedly had diarrhoea. Reported as suffering from other illnesses such as skin and eye infections is 9.4 per cent. The proportion of children who slept under mosquito nets was (**80.5 per cent**) vitamin A supplementation coverage was **93.9 per cent**, and the deworming rate was **91.6 per cent**, indicating very good coverage in the preceding 6 months. Measles immunization coverage was **97.9 per cent** for any dose among children 12 to 35 months. However, when disaggregated by age and dosage, nearly all (**97.8 per cent**) of children 12-23 months had received at

least the first dosage, while only **60.3 per cent** had received the second dose among the children 24-35 months of age.

Adolescent and women's nutrition

The national prevalence of acute malnutrition using MUAC was 12.4 per cent (95 per cent CI: 10.9-13.9), 10.7 per cent (95 per cent CI: 9.5-11.9), and 1.8 per cent (95 per cent CI: 1.4-2.1) among adolescent girls, adolescent boys and WRA respectively; further the wasting prevalence was 5.5 per cent (95 per cent CI: 4.5-6.5) among pregnant and lactating women. Based on BMI for age, the national prevalence of acute malnutrition was 2.4 per cent (95 per cent CI: 1.8-3.1), 2.9 per cent (95 per cent CI: 2.3-3.5), and 4.8 per cent (95 per cent CI: 4.3-5.3) among adolescent girls, adolescent boys and WRA respectively. The prevalence of overweight and obesity was 0.7 per cent and 0.1 per cent, respectively, in adolescent girls; 0.9 per cent and 0.0 per cent, respectively, in adolescent boys; and 21.4 per cent and 8.5 per cent, respectively, among the assessed

WRA. Low consumption of eggs and other fruits on the household menu yet substantial consumption of other unhealthy foods – savoury and fried snacks, sweets and sugar-sweetened beverages were reported among the adolescent girls (26.1 per cent, 31.6 per cent and 26.4 per cent, respectively); among the adolescent boys (26.0 per cent, 29.4 per cent and 27.0 per cent respectively) and WRA (23.8 per cent, 23.5 per cent and 25.2 per cent respectively).

Mortality

The crude death rate (CDR) and under-five death rates (U5DR) of **0.14** (95 per cent CI: 0.11-0.18) and **0.29** (95 per cent CI: 0.20-0.44) were recorded, respectively. The national (CDR) and (U5DR) rates are below the SPHERE alert thresholds of 1/10,000/day and 2/10,000/day, respectively and no significant change is observed from the (CDR) of **0.19** deaths/10,000/day (95 per cent CI: 0.15-0.24) and (U5DR) of **0.16** under five deaths/10,000/day (95 per cent CI: 0.10-0.27) reported in SLNNS 2017.

In conclusion, the acute malnutrition situation in the country is at *poor/medium* levels, and chronic malnutrition,

as expressed by high stunting rates, is also *poor/high* according to WHO/UNICEF classifications. However, crude and under-five mortality rates remain below the SPHERE *alert* levels. The occurrence of under and over-nutrition in children, adolescents and women indicate the emerging double burden and complexity of malnutrition in the country. A worsening trend of acute malnutrition in Western Area, rural and Urban, including Urban Slums, require attention.

Key underlying factors, i.e., morbidity, food insecurity, poor childcare, lack of safe drinking water, limited sanitation and hygiene facilities, remain key risk factors affecting the nutritional status of the children. Findings of this survey indicate a major problem for young child feeding practices in terms of diversity and frequency of meals. It is also important to note that malnutrition is multifaceted and chronic malnutrition is hinged on the basal socio-economic, education and cultural structures. The various national, regional, and global nutrition goals require continued concerted and integrated efforts among the country's relevant sectors.

Immediate interventions:

- Maintain interventions to prevent all forms of malnutrition, including washing and stunting. Maintain nutrition programmes for rehabilitation of acutely malnourished children through sustained active case finding or early detection, continued self-referrals through scale-up of Family MUAC approach, and capacity building of the existing IPFs, CHC, CHP and MCHP staff and the community (CHW/MSG networks) to manage or treat acutely malnourished children. Improve treatment services, especially MAM services and quality of care in Western Area domains (rural, Urban and Slums), Bonthe and Pujehun.
- Treatment of acute malnutrition among WRA, especially the pregnant and lactating women, not only treats wasting among WRA but also contributes to preventing low birth among newborns, given that wasting is highest among children less than 18 months. Low birth weight is a possible contributing factor to child malnutrition, especially if breastfeeding is practised in the first 6 months.

- Facilitate sharing of experience and best practices across districts and replicate the practices from districts that have had a good impact on other districts.
- Intensify supportive supervision with a focus on mentoring HW staff on the correct use of anthropometric tools, collection and recording, and maintaining use of MUAC and weight-for-height z-scores for admissions for maximum identification of malnutrition cases. Encourage caregivers to take their children for regular growth monitoring programme (GMP) services and self-referral through the family MUAC approach.
- Implement the strategy developed from the qualitative assessment for IYCF in the country.
- Based on the Nutrition Strategy 2020-2030, with emphasis on the systems approach, integrate social protection schemes to improve household food security among vulnerable groups (e.g., promoting backyard gardening and livestock keeping) with health and nutrition education and counselling activities on good IYCF practices. This intervention can be done through different media targeting caregivers with a focus on promoting exclusive breastfeeding, appropriate and timely complementary young child feeding, especially diet diversification and meal frequency, and improvements in household hygiene. This includes health-seeking behaviour and practices through women support groups within the communities advocating for optimal IYCF. Continued health education to sensitize the community on the domestic treatment of drinking water and proper disposal of human faecal waste to avoid contamination of water sources is encouraged.
- Introduce social protection interventions, particularly for the Urban poor whose livelihood depends on cash incomes. Promote care practices or 'parenting' for Urban and rural households differently and with particular attention to those children who do not live with biological parents.
- Improve and popularize adequate consumption of locally available foods using the complimentary food recipe book.
- Scale up the BFHI activities.

Long term interventions

- Implementation of the proven interventions based on the outcomes of operational research, such as social protection measures and nutrition-sensitive livelihood and agricultural interventions (Bhutta et al. 2015).
- Evidence creation: an in-depth analysis of adolescent dietary practices and influencers (including the environment – food market and parenting arrangement); a formative study on overweight and obesity – dietary practices, lifestyle (including physical activity). Conduct a qualitative study to understand the factors, barriers and promoters affecting adolescent malnutrition.
- Implement programmes for managing and preventing the emerging overweight and obesity in children, adolescents, and adults, such as behaviour change communication (BCC) for adopting and maintaining lifestyle behaviours that contribute to dietary intake and physical activity. It is critical to strengthen nutrition counselling within the ANC package, considering the high prevalence of overweight among pregnant women. Design nutrition programs incorporating adolescents in schools, religious institutions, and colleges; use FBDs and agricultural clubs.

Advocate for National surveys to investigate the prevalence of anaemia among adolescent girls. Incorporate practice-based nutrition education in the school curriculum.

- Review policies relating to nutrition and dietary diversity based on the new evidence presented by the SMART survey. The Nutrition for Growth (N4G) targets review paves the way for integrated multisectoral and multistakeholder coordination to address undernutrition in Sierra Leone.
- Improve the policy environment to promote and deliver IYCF practices and services by ensuring the availability of legislation on the Regulation of the Marketing of breast milk substitutes. Implementation/roll out of the Infant feeding policy and the breastfeeding Act.
- In-depth analysis of operational research to assess feasibility and cost-effectiveness of nutrition-sensitive cash transfer programme, nutrition-sensitive livelihood and agriculture programme (including family farming), school health and nutrition interventions (such as nutrition education with practicum – agriculture and food preparation).
- Develop a strategy for Urban nutrition and adolescent nutrition for Sierra Leone.
- Strengthen the national nutrition surveillance system (including family MUAC assessments linked to health facilities) with emergency response mechanisms and triggers in integration with HMIS to monitor the nutrition trends better and implement nutrition-sensitive and nutrition-specific programmes. Given the prevailing COVID-19 situation and recurrent food deficit during hunger gap periods, encourage partners to support periodic annual rapid SMART or LQAS surveys in specific intervention districts, especially during the lean seasons, to provide timely data for monitoring and any early warning signs. Continue the 3-year periodic national nutrition SMART surveys to provide data in between 3-year periodic full SMART surveys on the nutrition situation and assess the progress toward global, regional, and national commitments to eliminate hunger in the country.
- The communities are to be trained on sanitation and maintenance of the water systems to address the issues of limited access to safe water. Provision of sanitary facilities, including building latrines at the household level in settled populations or strategic locations in the bomas and villages for appropriate disposal of human excretal waste, should be coupled with the awareness of the need to use such facilities.
- Assessing WASH indicators during the peak of rainy seasons is insufficient; the next survey questions should differentiate WASH sources/facilities during dry and rainy seasons.

1.

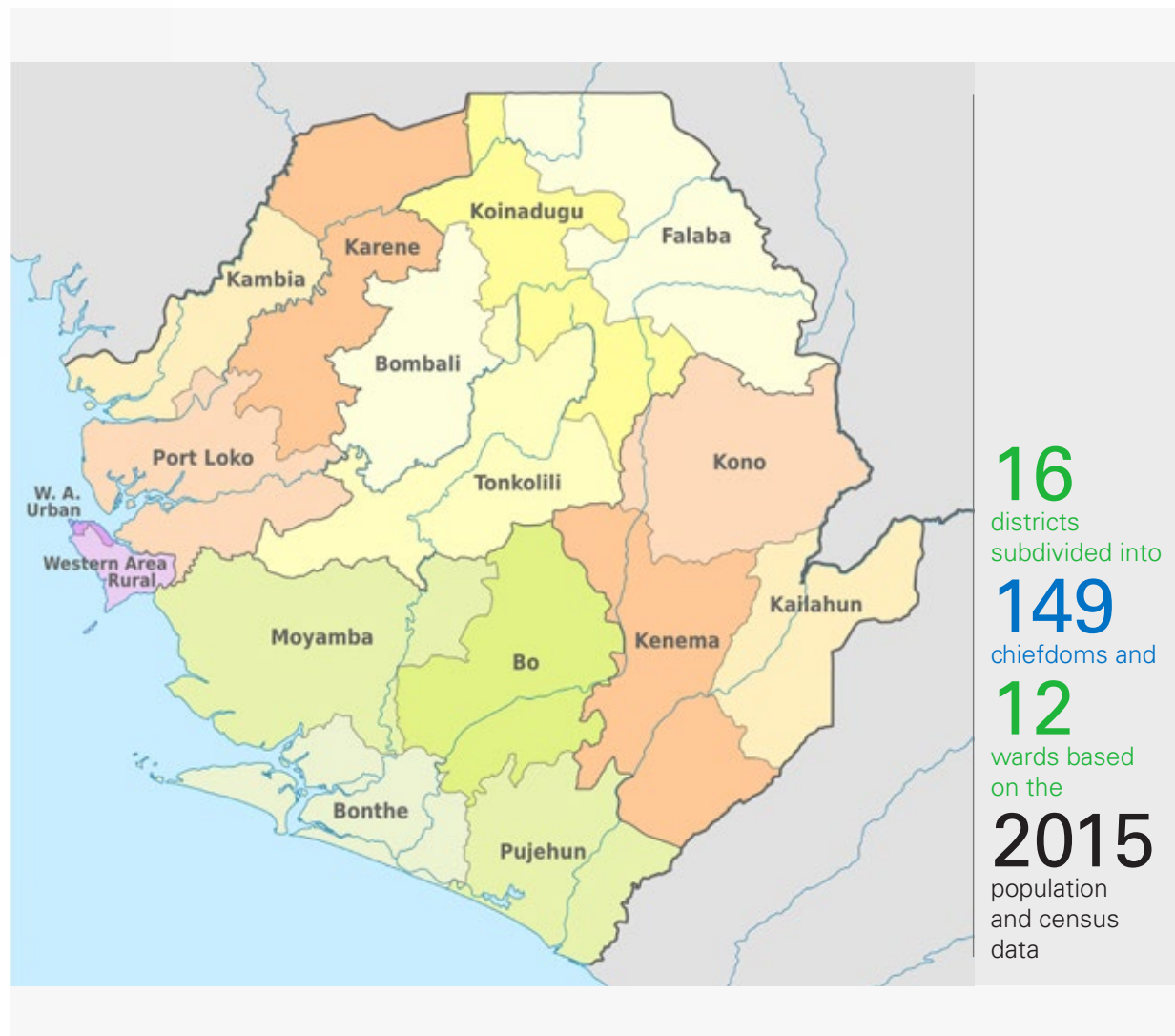
INTRODUCTION

1.1 General background

Sierra Leone is one of the poor developing African countries on the West Coast, covering 72,000 square kilometres (28,000 square miles). The Republic of Guinea borders Sierra Leone in the north and northeast and the Republic of Liberia in the east and southeast. Although, the Atlantic Ocean extends approximately 340 kilometres (211 miles) on the west and southwest. Sierra Leone has a total population of 7,534,883 (3,606,085 males

and 3,928,798 females) in 6,840 households of which 4,754,139 (63.1 per cent) persons live in the rural and 2,780,842 (38.9 per cent) live in the Urban areas¹. In 2018, the mean size of households was 6.0, 6.2 in rural and 5.8 in Urban. Characteristic of young demography, 14.9 per cent are children under five years of age, 42.5 per cent of the population are children (below 15 years old), 53.0 per cent is of working age (15-64 years), and only 4.2 per cent are aged 65

Figure 1: Map of Sierra Leone showing geographic location and the district administrative units



¹ Stats SL (2019). 2018 Sierra Leone Integrated Household Survey (SLIHS).

years and above. Adolescents (10-19 years) constitute 22.9 per cent, while women of reproductive age (15-49 years) constitute 24.8 per cent of the total population (SLIHS, 2018).

Administratively, Sierra Leone is divided into five regions. Each region is divided into districts, and each is divided into chiefdoms and wards for Western Urban and rural area. Overall, there are 16 districts subdivided into 149 chiefdoms and 12 wards based on the 2015 population and census data (see **Figure 1**)². The country experiences two main seasons: the dry season, between November and May, and the wet/ rainy season, from April/May to November.

Sierra Leone has made steady progress in human development, health, nutrition, and food security. It is ranked 182 out of 189 countries on the Human Development Index (HDI). The HDI value increased by 57.5 per cent between 1990 (HDI of 0.287) and 2019 (HDI of 0.452), while the under-five-years-old mortality rate has fallen gradually from 327.2 deaths per thousand live births in 1971 to 102.09 deaths per thousand live births in 2020.

In the 2020 Global Hunger Index (GHI)³, Sierra Leone ranks 101 out of the 107 countries with a score of 30.9, classified as a serious hunger level and gradually improved from an extremely alarming GHI of 58.3 in 2000 and GHI of 53.3 in 2006 through alarming GHI level of 42.4 in 2012 and lately serious GHI level of 30.9.

Similarly, the nutrition situation in Sierra Leone has greatly improved in the last decade, with a smaller proportion of children suffering from any form of malnutrition. This is evidenced by the overall decreasing trend

in malnutrition from various national surveys. According to the Sierra Leone Demographic Health Survey (SLDHS, 2019), malnutrition rates have improved significantly in the past 10 years, with a 7 percentage point reduction in childhood stunting from 36 per cent in 2013 to 29 per cent in 2019; a 5 percentage point reduction in childhood wasting from 10 per cent in 2013 to 5 per cent in 2019, and a 4 percentage point reduction in childhood overweight from 8 per cent in 2013 to 4 per cent in 2019⁴.

The Sierra Leone National Nutrition Survey (SLNNS) using the Standardized Monitoring and Assessment of Relief and Transitions (SMART) methodology revealed similar trends in the past 15 years, with a 14 percentage point reduction in childhood stunting from 40 per cent in 2005 to 26 per cent in 2017, and; a 4-percentage point reduction in childhood wasting from 9 per cent in 2005 to 5 per cent in 2017.^{5/6}

In 2014 – 2015, Sierra Leone experienced the world's most widespread Ebola Virus Disease (EVD) outbreak along with neighbouring countries Guinea and Liberia. The Ebola outbreak negatively impacted the health and socioeconomic situation of the most vulnerable populations. The recent onset of the COVID-19 outbreak, with national containment measures to prevent and control the spread of infection such as travel restrictions, curfew, community quarantine, and physical distancing have inadvertently affected economic and development activities leading to intermittent disruptions in the delivery of essential services, poor access and utilization of basic social services, and retardation of economic and agricultural activities.

² Stats SL (2016). Sierra Leone National Population and Housing Census 2015. Statistics Sierra Leone. A.J. Momoh Street Tower Hill Freetown.

³ Based on the values of the four indicators, the GHI determines hunger on a 100-point scale where 0 is the best possible score (no hunger) and 100 is the worst. Each country's GHI score is classified by severity, from low (≤ 9.9) to extremely alarming (≥ 50). 2021 Global Hunger Index. <https://www.globalhungerindex.org/ranking.html>

⁴ Statistics Sierra Leone (Stats SL) and ICF. 2020. *Sierra Leone Demographic and Health Survey 2019*. Freetown, Sierra Leone, and Rockville, Maryland, USA: Stats SL and ICF.

⁵ Ministry of Health and Sanitation (MoHS) and Action against Hunger. 2017. *Sierra Leone National Nutrition Survey 2017*. Freetown, Sierra Leone: MoHS and Action against Hunger.

⁶ Tolla, A., Cassard, F. and Johnston, R. 2010. *Report on the Nutritional Situation of Sierra Leone: Nutrition Survey using SMART Methods*. Freetown, Sierra Leone: MoHS and UNICEF.

While the Government of Sierra Leone (GoSL) and its partners make efforts to reduce the impact of COVID-19 on the health and nutrition of its population, it is assumed that the nutrition conditions of the most vulnerable population in the country, especially children and women, deteriorates. However, the extent to which the outbreak has led to deterioration in children and

women's nutritional status is unknown. This precarious situation has resulted in an increase in the proportion of food insecure Sierra Leoneans from 44 per cent in August 2019 to 63 per cent (approximately 5.1 million people) in June 2020, based on the findings of the June 2020 emergency food security monitoring system (E-FSMS).

1.2 Justification

Various stakeholders have conducted nutrition assessments at regular intervals to assess the impact of the various interventions designed to address the high prevalence of malnutrition. These include stunting levels, evaluating progress towards sustainable development goals (SDGs 2030), and monitoring the nutritional status of specific population groups in Sierra Leone. The Directorate of Food and Nutrition (DFN) at MoHS conducts SMART surveys every two-three years to obtain data across timelines and therefore enable trend analysis. The last and third national nutrition SMART survey was conducted in 2017, following the second and first surveys in 2014 and 2010, respectively. With the next DHS scheduled in another three years (the last was conducted in 2019) and the absence of a reliable nutrition surveillance system in the country to provide real-time data, planning, implementation, and monitoring. It was therefore critical to organize a national nutrition survey following a SMART methodology to support evidence-based planning and response to the humanitarian crisis.

Therefore, the government of Sierra Leone (GoSL), led by the Ministry of Health &

Sanitation (MoHS) and its partners, planned to conduct the fourth national nutrition survey (NNS) using SMART Methodology. UNICEF supported the current survey that would enhance the comparison of results given the standard study design, timing of the nutrition surveys, indicators assessed and data analysis, including analysis of trends. Implementing a national nutrition survey using the SMART methodology protocol is also shown to enhance the quality, validity and reliability of survey data generated and ultimately enable comparison and efficient prioritization and targeting of interventions and resources.

The NNS 2021 also assessed the severity and geographical scope of nutrition-related factors. The information on child, adolescent and maternal nutrition, mortality, infant and young child feeding, and associated factors improves program planning and monitoring for better maternal and child survival and development outcomes. Furthermore, it provides the platform for policy and strategy development to prioritize the programs for short, medium, and long-term direct and indirect interventions at the national and district levels.



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1.3 Nutrition context

1.3.1 Sources of nutrition information

Nutrition SMART surveys provide the main sources of reliable nutrition information at district and national levels. Desk review of secondary data was mainly based on the NNS 2014 and NNS 2017 reports. Other sources of national nutrition indicators have been the MICS 2016 and DHS 2019. Other sources, such as the Census Report 2015 and the Sierra Leone Integrated Household Survey (SLIHS, 2018), provided information on the demographic and livelihood context of the country.

1.3.2 Nutrition situation in the country: Secondary review

In the SLNNS 2017, the prevalence of global acute malnutrition (GAM) rate of **5.1 per cent** (95 per cent CI: 4.6-5.6), moderate acute malnutrition of **4.0 per cent** (95 per cent CI: 3.6-4.5) and severe acute malnutrition (SAM) rate (WHZ<-3 or Oedema) of **1.0 per cent** (95 per cent CI: 0.8-1.3) indicating a *poor* situation (GAM rate of 5.0-9.9 per cent) of acute malnutrition in the country's population according to WHO classification. When compared to NNS 2014, the results indicated an insignificant 0.4 per cent rise from the *acceptable* level with respective GAM, MAM, and SAM rates of 4.7 per cent (95 per cent CI: 4.3-5.2), 3.7 per cent (95 per cent CI: 3.3-4.1) and 1.0 per cent (95 per cent CI: 0.9-1.2). The DHS 2019 also showed similar results, with 5.4 per cent of children wasting 1.1 per cent severely.

The national prevalence of stunting (HAZ<-2) in NNS 2017 was **31.3 per cent** (95 per cent CI: 30.0-32.6); 21.3 per cent (95 per cent CI: 20.3-22.3) moderate, and 10.0 per cent (95 per cent CI: 9.2-10.7) severe stunting

indicating the *high* or *serious* situation of chronic malnutrition, an insignificant increase from the 2014 findings of **28.8 per cent** (95 per cent CI: 27.5-30.2), 21.0 per cent (95 per cent CI: 19.9-22.1), and 7.8 per cent (95 per cent CI: 7.2-8.5) for global, moderate, and severe stunting respectively. The DHS 2019 showed similar results with stunting and severe stunting prevalence of 29.5 per cent and 10.7 per cent, respectively.

The national prevalence of GAM and stunting rates have shown a generally improving trend since the 2008 assessment, with GAM rates reducing from 10.9 per cent in 2008, 6.9 per cent in 2010, to 4.7 per cent in 2014. Stunting rates reduced from 37.4 per cent in 2008 to 34.1 per cent in 2010 to 28.8 per cent in 2014. However, the 2017 NNS findings indicated a plateau and no significant improvement from 2014 results due to aggravating factors prevailing at that time, including the impact of the Ebola pandemic in the country. The NNS 2017 rates were, however, better than the previous years (2008-2010) rates and the regional prevalence in Sub-Saharan Africa (SSA) and West and Central Africa (WCA).

According to the UNICEF Conceptual framework, the causes of malnutrition are multifaceted. They are associated with poor food consumption/ dietary diversity and high morbidity burden in less favourable environments aggravated by poor infant and young child feeding practices, livelihood shocks, water, and sanitation. The nutrition improvement can thus be attributed to the national IMAM program and supportive treatment programs and associated WASH, food security and livelihood interventions by DFN, line ministries and national NGOs with support from international UN and NGO partners.



2.

OBJECTIVES

2.1 Overall objective

The overall objective of the Sierra Leone National Nutrition Survey (SLNSS) 2021 using SMART methodology is to determine and evaluate the current nutrition status of the population (especially children 6-59 months old, adolescent girls 10-14 years, adolescent boys 10-19 years and women of reproductive age 15-49 years) and the retrospective mortality rate in the

population at district and national levels. The assessment of major contextual factors contributing to malnutrition, such as (IYCF), dietary diversity, water, sanitation, and hygiene (WASH) and the health situation in Sierra Leone, define program planning priorities for direct and indirect nutrition interventions.

2.2 Specific objectives

1. To determine the prevalence of acute malnutrition among children 6-59 months to estimate acute and chronic malnutrition (global acute malnutrition, underweight, overweight, and stunting) at the national and in the 17 domains (16 districts and one Western Area Urban Slum) of Sierra Leone.
2. To assess nutrition status (underweight and overweight using BMI and MUAC in adolescent girls (10-14 years old and 10-19 years old) and adolescent boys (10-19 years old) at the national and in the 17 domains (16 districts and one Western Area Urban Slum) of Sierra Leone.
3. To assess maternal nutrition status (underweight and overweight using BMI (BMI-for-Age) and MUAC) in Women of Reproductive Age (15-49 years old) at the national and in the 17 domains (16 districts and one Western Area Urban Slum) of Sierra Leone.
4. To assess the coverage of access to key primary health care services for child survival outcomes at the national and in the 17 domains (16 districts and one Western Area Urban Slum) of Sierra Leone.
5. To assess two-week retrospective morbidity among children under 5 at the national and in the 17 domains (16 districts and one Western Area Urban Slum) of Sierra Leone.
6. To assess retrospective mortality (Crude Mortality and U5 Mortality rates) over 3 months recall period among populations at the national and in the 17 domains (16 districts and one Western Area Urban Slum) of Sierra Leone.
7. To assess other contextual factors contributing to malnutrition, such as Minimum Dietary Diversity for Women or Adolescents and WASH at the national and in the 17 domains (16 districts and one Western Area Urban Slum) of Sierra Leone.
8. To assess levels of core Infant and Young Child (IYCF) practices among the mothers or primary caregivers of 0-23 months old children in Sierra Leone.

The background is a solid blue color with several overlapping geometric shapes in various shades of blue and teal. A thin white vertical line descends from the top center of the page and ends just above the number '3.'. The number '3.' is large and white, positioned in the lower-left quadrant of a central blue square.

3.

METHODOLOGY

3.1 Study design

The SLNNS 2021 mainly employed a cross-sectional design using the SMART methodology. This methodology provides a basic integrated method for assessing nutritional status and mortality rate as well as other associated factors, including

food security, morbidity, health programs, and WASH hence providing the basis for understanding the magnitude and severity of the humanitarian crisis in the 16 districts to be assessed and among the populations of the Western Area Slums.

3.2 Study population

The SLNNS 2021 targeted primarily children less than five years, women of reproductive age (15-49 years), adolescent girls (10-14 years), and adolescent boys (10-19 years) for

household interviews and anthropometric measurement. The following definitions are applied for the sake of this study:

- A household is defined as a group of people who routinely eat out of the same pot and live on the same compound (or physical location). It is possible that they may live in different structures. Sharing the pot is the unifying factor for households.
- Definition of HH head: is member of the family who manages the family resources and decisions (He/She is the final decision maker on most of the decision related to income allocation and major family activities).
- Respondent is the mother or caregiver in the household.

3.3 Sampling

3.3.1 Sampling strategy

A two-stage cluster sampling approach was applied in the SLNNS 2021 to select sampling units at different levels (clusters and households) in each domain (district or administrative area).

3.3.2 Sample size calculation

The sample size for nutrition, mortality and IYCF were determined using the 11 January 2020 updated version of ENA for SMART (2020) by entering all the required data in the planning menu of the ENA delta software. The data entered into the software included estimated prevalence

of global acute malnutrition (GAM) and crude death rate (CDR), desired precision, design effect (DEFF), average household size based on the most recent 2015 census data, percentage of children under five years old (in the 6-59 months for anthropometry and 0-23 months for IYCF), non-response rate and recall period. A national date which is remembered by most of the population (e.g., 27 April, *Independence Day*, depending on the data collection) was taken as the beginning of the recall period for the

three to four months retrospective mortality assessment. Prevalence of GAM and CDR and other parameters were estimated from the NNS 2017 for each domain. However, for Karene and Falaba – the two new districts that were not distinct in the 2017 assessment, parameters from the 2019 Sierra Leone Demographic and Health Survey results were used for sampling.

The software (ENA) calculated the sample size based on the formula below:

$$N = \frac{[Z^2 \times p(p - 1) \times \text{Deff}] / [1 - \text{NRR}]}{d^2}$$

where;

| | |
|--------------|--|
| N: | is the total sample size |
| Z: | is the normal deviate (confidence limit) taken as 1.96 at 95% confidence level |
| p: | proportion of global acute malnutrition (GAM) in the study population |
| d: | is the acceptable degree of accuracy (precision) desired |
| Deff: | Design effect |
| NRR: | Non-response rate (expected) |

The **95%** Confidence Interval (CI) for prevalence (proportions) was computed in ENA using the formula:

$$95\% \text{ CI } (\tilde{p}) = \tilde{p} \pm Z \sqrt{\frac{\tilde{p}(1 - \tilde{p})}{\tilde{n}}}$$

Table 2: Sample size calculation for SLNNS 2021 survey

| Province | District | | Prevalence (2017) | Precision | DE | Non response | % children | Mean HH size | Sample children | Sample HHs | No of clusters (20 HHs/cluster) | No of Reserve Clusters (RCs) | Total Clusters Sampled |
|-----------|----------------|----------------|-------------------|-----------|------|--------------|------------|--------------|-----------------|------------|---------------------------------|------------------------------|------------------------|
| Eastern | Kailahun | Anthro | 3.2 | 1.7 | 1.20 | 3 | 16.1 | 6.3 | 538 | 607 | 30 | | |
| | | Mortality | 0.52 | 0.30 | 1.52 | 3 | 16.1 | 6.3 | 3949 | 646 | 32 | 4 | 36 |
| | | IYCF (0-23 mo) | 50.8 | 10.5 | 1.20 | 3 | 8.1 | 6.3 | 114 | 574 | 29 | | |
| | Kenema | Anthro | 5.7 | 2.5 | 1.20 | 5 | 13.2 | 5.5 | 432 | 695 | 35 | 4 | 39 |
| | | Mortality | 0.46 | 0.26 | 1.15 | 5 | 13.2 | 5.5 | 3519 | 673 | 34 | | |
| | | IYCF (0-23 mo) | 78.5 | 10.5 | 1.50 | 5 | 6.6 | 5.5 | 96 | 681 | 34 | | |
| | Kono | Anthro | 4.6 | 2.4 | 1.50 | 3 | 15.8 | 5.9 | 478 | 587 | 29 | | |
| | | Mortality | 0.53 | 0.29 | 1.22 | 3 | 15.8 | 5.9 | 3457 | 604 | 30 | 4 | 34 |
| | | IYCF (0-23 mo) | 87.6 | 8.0 | 1.50 | 3 | 7.9 | 5.9 | 106 | 588 | 29 | | |
| Northern | Bombali | Anthro | 5.9 | 2.5 | 1.35 | 3 | 16.8 | 5.7 | 502 | 600 | 30 | 4 | 34 |
| | | Mortality | 0.75 | 0.35 | 1.14 | 3 | 16.8 | 5.7 | 3139 | 568 | 28 | | |
| | | IYCF (0-23 mo) | 82.8 | 9.0 | 1.50 | 3 | 8.4 | 5.7 | 110 | 593 | 30 | | |
| | Falaba* | Anthro | 3.6 | 1.9 | 1.50 | 3 | 16.2 | 6.9 | 603 | 618 | 31 | | |
| | | Mortality | 0.33 | 0.20 | 1.12 | 3 | 16.2 | 6.9 | 4155 | 621 | 31 | | |
| | | IYCF (0-23 mo) | 39.7 | 10.5 | 1.50 | 3 | 8.1 | 6.9 | 136 | 628 | 31 | 4 | 35 |
| | Koinadugu | Anthro | 5.7 | 2.0 | 1.20 | 3 | 16.2 | 7.3 | 674 | 653 | 33 | 4 | 37 |
| | | Mortality | 0.30 | 0.18 | 1.10 | 3 | 16.2 | 7.3 | 4580 | 647 | 32 | | |
| | | IYCF (0-23 mo) | 75.2 | 9.5 | 1.50 | 3 | 8.1 | 7.3 | 130 | 565 | 28 | | |
| Tonkolili | Anthro | 5.5 | 2.3 | 1.20 | 5 | 14.9 | 6.1 | 493 | 634 | 32 | 4 | 36 | |
| | Mortality | 0.44 | 0.25 | 1.10 | 5 | 14.9 | 6.1 | 3482 | 601 | 30 | | | |
| | IYCF (0-23 mo) | 77.3 | 10.0 | 1.50 | 5 | 7.5 | 6.1 | 110 | 620 | 31 | | | |

| Province | District | | Prevalence (2017) | Precision | DE | Non response | % children | Mean HH size | Sample children | Sample HHs | No of clusters (20 HHs/cluster) | No of Reserve Clusters (RCs) | Total Clusters Sampled |
|------------|----------------|----------------|-------------------|-----------|------|--------------|------------|--------------|-----------------|------------|---------------------------------|------------------------------|------------------------|
| N. Western | Kambia | Anthro | 5.6 | 2.0 | 1.20 | 3 | 18.2 | 6.4 | 663 | 652 | 33 | 4 | 37 |
| | | Mortality | 0.42 | 0.25 | 1.10 | 3 | 18.2 | 6.4 | 3324 | 535 | 27 | | |
| | | IYCF (0-23 mo) | 91.0 | 6.0 | 1.50 | 3 | 9.1 | 6.4 | 143 | 631 | 32 | | |
| | Karene* | Anthro | 3.0 | 1.8 | 1.50 | 3 | 14.9 | 6.5 | 451 | 533 | 27 | 4 | 31 |
| | | Mortality | 0.42 | 0.25 | 1.10 | 3 | 14.9 | 6.5 | 3324 | 527 | 26 | | |
| | | IYCF (0-23 mo) | 78.2 | 9.5 | 1.20 | 3 | 7.5 | 6.5 | 95 | 501 | 25 | | |
| | Port Loko | Anthro | 5.8 | 2.2 | 1.20 | 3 | 18.3 | 5.5 | 567 | 645 | 32 | 4 | 36 |
| | | Mortality | 0.36 | 0.32 | 1.50 | 3 | 18.3 | 5.5 | 2371 | 444 | 22 | | |
| | | IYCF (0-23 mo) | 74.3 | 9.5 | 1.20 | 3 | 9.2 | 5.5 | 106 | 540 | 27 | | |
| Southern | Pujehun | Anthro | 4.8 | 2.0 | 1.20 | 3 | 18.9 | 6.7 | 573 | 519 | 26 | | |
| | | Mortality | 0.38 | 0.21 | 1.10 | 3 | 18.9 | 6.7 | 4262 | 656 | 33 | 4 | 37 |
| | | IYCF (0-23 mo) | 92.0 | 6.0 | 1.50 | 3% | 9.5 | 6.7 | 128 | 519 | 26 | | |
| | Bonthe | Anthro | 4.1 | 1.9 | 1.20 | 5% | 16.2 | 6.2 | 547 | 636 | 32 | 4 | 36 |
| | | Mortality | 0.35 | 0.25 | 1.20 | 5 | 16.2 | 6.2 | 3108 | 528 | 26 | | |
| | | IYCF (0-23 mo) | 90.1 | 7.0 | 1.50 | 5 | 8.1 | 6.2 | 114 | 597 | 30 | | |
| | Bo | Anthro | 5.7 | 2.3 | 1.13 | 3 | 17.4 | 5.6 | 480 | 564 | 28 | | |
| | | Mortality | 0.68 | 0.35 | 1.43 | 3 | 17.4 | 5.6 | 3570 | 657 | 33 | 4 | 37 |
| | | IYCF (0-23 mo) | 79.5 | 9.5 | 1.50 | 3 | 8.7 | 5.6 | 113 | 597 | 30 | | |
| Moyamba | Anthro | 4.3 | 2.1 | 1.20 | 3 | 15.4 | 5.1 | 468 | 683 | 34 | 4 | 38 | |
| | Mortality | 0.66 | 0.35 | 1.23 | 3 | 15.4 | 5.1 | 2980 | 602 | 30 | | | |
| | IYCF (0-23 mo) | 89.5 | 8 | 1.50 | 3 | 7.7 | 5.1 | 92 | 604 | 30 | | | |

| Province | District | | Prevalence (2017) | Precision | DE | Non response | % children | Mean HH size | Sample children | Sample HHs | No of clusters (20 HHs/cluster) | No of Reserve Clusters (RCs) | Total Clusters Sampled |
|---------------|----------|------------------|-------------------|-----------|------|--------------|------------|--------------|-----------------|--------------|---------------------------------|------------------------------|------------------------|
| Western | Urban | Anthro | 5.8 | 2.5 | 1.22 | 3 | 14.9 | 5.4 | 446 | 635 | 32 | | |
| | | Mortality | 0.50 | 0.27 | 1.10 | 3 | 14.9 | 5.4 | 3393 | 648 | 32 | | |
| | | IYCF (0-23 mo)** | 57.7 | 10.5 | 1.15 | 3 | 7.5 | 5.4 | 106 | 677 | 34 | 4 | 38 |
| | Slums | Anthro | 5.5 | 2.3 | 1.41 | 7 | 16.1 | 6.8 | 579 | 632 | 32 | 4 | 36 |
| | | Mortality | 0.35 | 0.21 | 1.10 | 7 | 16.1 | 6.8 | 3926 | 621 | 31 | | |
| | | IYCF (0-23 mo) | 55.2 | 10.5 | 1.50 | 7 | 8.1 | 6.8 | 113 | 547 | 27 | | |
| | Rural | Anthro | 3.6 | 2.0 | 1.2 | 3 | 13.3 | 5.6 | 435 | 670 | 34 | | |
| | | Mortality | 0.50 | 0.27 | 1.24 | 3 | 13.3 | 5.6 | 3824 | 704 | 35 | 5 | 40 |
| | | IYCF (0-23 mo) | 57.9 | 10.5 | 1.10 | 3 | 6.7 | 5.6 | 100 | 689 | 34 | | |
| Notes: | | | | | | | | | | 10920 | 548 | 72 | 620 |

§ The largest of the three sample sizes is taken. The population parameters are based on Stats SL (2019) and the Reanalysis of the 2015 Census Report for the Sierra Leone Integrated Household Survey (SLIHS) 2018 Report.

* Figures for 2019 SLDHS used for the new district not covered in the SLNNS 2017.

**Sample size calculated based on initiation to breastfeeding rates (targeting 0-23 mo) to accommodate some IYCF indicators. Other indicators will be computed at aggregated regional and national levels.

IYCF analysis for some aggregation at the regional and national levels enhances the measurement of IYCF indicators with high precision. The largest sample sizes, 533-704 households, are required in each district to be assessed in the integrated SMART assessment. Based on the determined number of households and the average time a team would take to interview a household, there will be 27-35 clusters per district to be covered in 27-31 days, assuming 20 teams; each team being able to interview 20 HHs in a day.

According to the 2018 Integrated Household Survey⁷, the total population of Sierra Leone

is 7,534,883 (3,606,085 males and 3,928,798 females), with a mean household size of 6.0. Of these, the proportion of U5 children, adolescent girls (10-14 years), adolescent boys (10-19 years) and women of the reproductive age (15-49 years) is 14.9 per cent, 5.9 per cent, 11.5 per cent, and 24.8 per cent respectively.

Based on these computations, a total of 548 clusters were selected nationally. By visiting 20 households per cluster, the expected number of demographic groups to be assessed was as follows (see **Table 3**):

⁷ Stats SL (2019). Sierra Leone Integrated Household Survey (SLIHS) 2018 Report.

Table 3: Final sample size selection for the different survey groups

| Province | District | # Clusters | # HHs | HH Size | U5 Prop | U2 Prop | NRR | # Children (0-23 Mo) | # Children (6-59 Mo) | # Adolescent Girls (10-14 yrs) | # Adolescent Boys (10-19 yrs) | # WRA (15-49 yrs) |
|------------------|-----------|------------|--------------|------------|--------------|--------------|-------------|----------------------|----------------------|--------------------------------|-------------------------------|-------------------|
| Eastern | Kailahun | 32 | 640 | 6.3 | 0.161 | 0.081 | 0.03 | 315 | 567 | 231 | 450 | 970 |
| | Kenema | 35 | 700 | 5.5 | 0.132 | 0.066 | 0.05 | 241 | 435 | 216 | 421 | 907 |
| | Kono | 30 | 600 | 5.9 | 0.158 | 0.079 | 0.03 | 271 | 489 | 203 | 395 | 852 |
| Northern | Bombali | 30 | 600 | 5.7 | 0.168 | 0.084 | 0.03 | 279 | 502 | 196 | 382 | 823 |
| | Falaba | 31 | 620 | 6.9 | 0.162 | 0.081 | 0.03 | 336 | 605 | 245 | 477 | 1029 |
| | Koinadugu | 33 | 660 | 7.3 | 0.162 | 0.081 | 0.03 | 379 | 681 | 276 | 537 | 1159 |
| | Tonkolili | 32 | 640 | 6.1 | 0.149 | 0.075 | 0.05 | 276 | 498 | 219 | 427 | 920 |
| North Western | Kambia | 33 | 660 | 6.4 | 0.182 | 0.091 | 0.03 | 373 | 671 | 242 | 471 | 1016 |
| | Karene | 27 | 540 | 6.5 | 0.149 | 0.075 | 0.03 | 254 | 456 | 201 | 392 | 844 |
| | Port Loko | 32 | 640 | 5.5 | 0.183 | 0.092 | 0.03 | 312 | 562 | 201 | 393 | 847 |
| Southern | Pujehun | 33 | 660 | 6.7 | 0.189 | 0.095 | 0.03 | 405 | 729 | 253 | 493 | 1064 |
| | Bonthe | 32 | 640 | 6.2 | 0.162 | 0.081 | 0.05 | 305 | 550 | 222 | 434 | 935 |
| | Bo | 33 | 660 | 5.6 | 0.174 | 0.087 | 0.03 | 312 | 562 | 212 | 412 | 889 |
| | Moyamba | 34 | 680 | 5.1 | 0.154 | 0.077 | 0.03 | 259 | 466 | 198 | 387 | 834 |
| Western | WA-Urban | 34 | 680 | 5.4 | 0.149 | 0.075 | 0.03 | 265 | 478 | 210 | 410 | 883 |
| | WA-Slums | 32 | 640 | 6.8 | 0.161 | 0.081 | 0.07 | 326 | 586 | 239 | 465 | 1004 |
| | WA-Rural | 35 | 700 | 5.6 | 0.133 | 0.067 | 0.03 | 253 | 455 | 224 | 437 | 943 |
| National* | | 548 | 10960 | 6.0 | 0.149 | 0.075 | 0.03 | 4752 | 9292 | 3787 | 7382 | 15919 |

3.3.3 Cluster selection

Upon compilation of the sample sizes and number of clusters required, the cluster sampling with probability proportionate to size (PPS) design was employed for the survey based on SMART guidelines. In the first stage, Statistics Sierra Leone (SSL) selected between 34-41 clusters of Enumeration Areas (EAs), including 4-5 reserve clusters (RCs) per study domain from an updated list of population data (2015 Census) for the targeted geographical areas of study (**Annex I**) using probability proportionate to size (PPS) strategy. Based on ENA guidelines, the number of clusters includes 10 per cent plus one RC reserved in each domain to be visited in case a critical number (10 per cent) of the targeted clusters are not reachable during data collection for unavoidable reasons. In which case, the teams would have to seek approval from the SMART consultant or national coordination team. Statistics Sierra Leone also provided the maps for each of the EAs to aid in identifying their locations.

3.3.4 Household selection

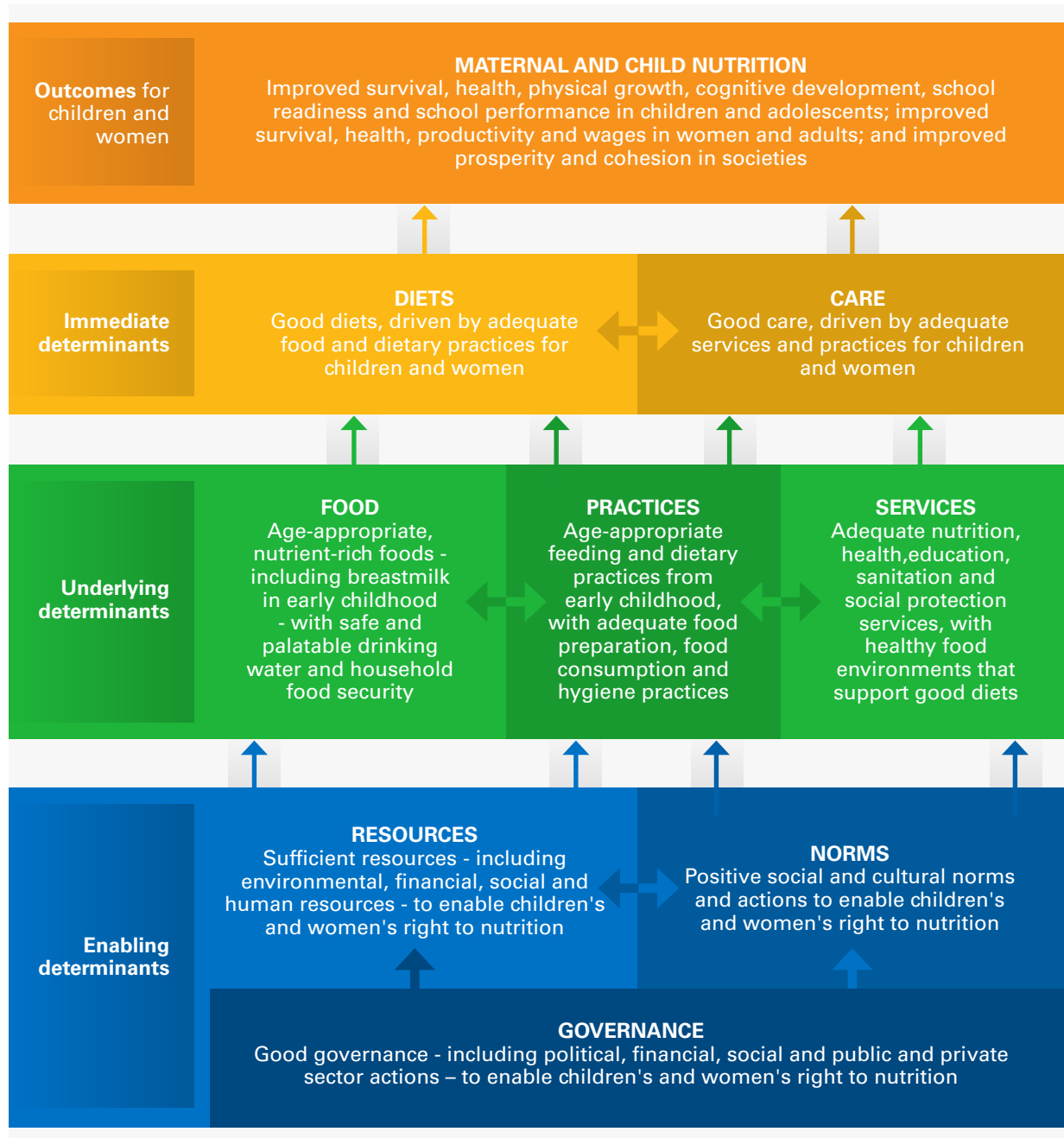
In the second stage, households were selected in the field using simple random sampling (SRS) techniques after population listing. In the randomly selected enumeration areas or localities, the survey teams contacted the local leadership or elder who helped in the segmentation (if large – more than 100 households in the rural or 200 in the Urban area) and listed the households within the EA or segment, from which a list of households was generated to form a cluster. After completing the list of all households (HHs) in a cluster, 20 households were selected for interview by balloting - folding papers with all the listed households, shuffling and randomly picking the required number (20). The consensus was reached beforehand that a neutral party such as the chief/community guide would do the picking so they would feel part of the exercise and understand that the households are selected randomly.



3.4 Conceptual framework

The NNS 2017 design for indicators, tools and analysis is based on the UNICEF Conceptual Framework of Malnutrition (see **Figure 2**).

Figure 2: UNICEF conceptual framework of malnutrition, 2020



The framework underpins the primary and underlying factors associated with malnutrition collected in the survey.

3.5 Study tools

Structured and semi-structured questionnaires were used to conduct household interviews, with mortality data collected using the demography & mortality questionnaire (Household Demography & Mortality Tool – **Annex A**); this includes the WASH questionnaire. Data on child anthropometry, morbidity, health and IYCF were collected in the respective anthropometry and IYCF questionnaires (**Annex B** and **Annex C**, respectively). Adolescent and Maternal nutrition, minimum dietary diversity for women (MDD-W) and meal frequency questionnaires (**Annex D**) was used to collect the suggested data on adolescent girls (10-14 years), adolescent boys (10-19 years) and women of the reproductive age (15-49 years). For standardization and ease of interpretation and inter-country comparisons, the questions were adopted from local tools to mirror the indicators collected in 2017. With the addition of BMI-for-age and minimum meal frequency for women and adolescents, and framed in such a way that they are consistent with international studies and methodologies such as DHS/HHS and MICS protocols. However, the 2021 SLNNS did not include the Food Security Modules,

given that the Food Security Sector just conducted a VAM comprehensive study in 2020. The tools were peer-reviewed by the nutrition technical working group (TWG) members, and the consultant incorporated different stakeholders and comments into the final protocol. The final questionnaires were programmed in KoBo Collect (v1.30.1), uploaded into the server and electronic forms downloaded into the tablets (Android mobile phones) for enumerators.

The survey tools thus covered indicators from several sections, including:

1. Mortality and demography (household structure)
2. Child anthropometry
3. Morbidity, Immunization & Health Seeking Behaviours of Child
4. IYCF
5. WASH
6. Women and Adolescent Anthropometry
7. Minimum Dietary Diversity for Women and Adolescents; and
8. Minimum Meal Frequency for Women and Adolescents⁸

3.6 Field data collection procedures

Survey teams adhered to this protocol of procedures during data collection in the field.

3.6.1 Social mobilization

The DFN sent an official communication to the district health authorities and District

Medical Officers (DMOs) one week before the field survey, with SLNNS 2021 posters in strategic sites in the headquarters and district offices. The team supervisors were also given letters of introduction explaining the ongoing national survey as an important national activity. The authorities would

⁸ Modified and adopted from IndiKit by People in Need. Guidance on SMART Indicators for Relief and Development Projects; and Intake/FHI360. Interactive Multiple Pass (IMP) 24-hour Recall Tool.



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then work closely with the district and community social mobilizers and the survey teams to broadcast and communicate the information in their jurisdiction areas in preparation for the teams' arrival at the villages and localities. The teams were also provided with individual IDs, MoHS/SLNNS 2021 branded T-shirts, vests, and vehicles for ease of identification by the community.

At the community level, the supervisors presented and introduced the team to the local leader and chiefs. They would then assist them in identifying a community guide to lead them through the 20 selected households in the village/locality.

3.6.2 Consent process

In this survey, the primary respondent is the mother or caregiver of the child or the

person responsible for food preparation on the recall day. At the household, the survey teams would present themselves to a responsible adult household member (not a guest). After introductions of the team members, the supervisor (team leader) would briefly explain to the respondent the purpose of their study, who has funded/supported it, how the data would be gathered, the expected duration of the interview and how the findings of the study would be used. The household was also screened for any members with COVID-19 using a rapid COVID-19 screening form before they could be interviewed by the team members who followed the COVID-19 compliance IPC guidelines. Before the interview, verbal consent was obtained from the respondent, an adult household member. This was indicated on the Cluster Control Form, documenting the non-response households.

3.6.3 Team selection and composition

The survey team members were selected from the 114 trained enumerators invited from the NNS database comprising DFN and Statistics Sierra Leone staff and persons from partners who participated in previous similar surveys. One hundred (100) persons were proposed for training, but 114 were trained. After a pre-test, standardization exercise and post-test evaluation during the training, 80 members were selected to serve as supervisors, team leaders and enumerators, leaving 34 persons on standby. Besides passing the tests, the selection of team members and constitution of teams was based on knowledge of English and a local language spoken in the districts to assess (*Krio, Mende, Temne, Loko and Limba*), previous experience in similar studies/assessments, and physical fitness. The team composition considered gender balance by having at least a woman in the team for ease of handling the children and interviews with respondents (**Annex F**).

A total of 20 teams were constituted to undertake the fieldwork. Each team consisted of 4 members – a supervisor, a team leader, and 2 nutrition enumerators in addition to the village/field guide. Based on the length of the household questionnaires and the long distances expected in the field, each team would interview 20 households per cluster daily.

In addition, field supervision and monitoring of the NNS 2021 was conducted by a team of six members led by the SMART consultant, a technical assistant from the DFN, and composed of regional monitors. The five regional monitors were also selected from those who participated in the refresher ToT training.

3.6.4 Team training and pretesting

Eight monitors underwent a short (4 days) refresher training before the main survey team training, facilitated by the

consultant in Radisson Blu, Freetown. The refresher covered the survey planning processes, reasons, timing, and budgeting. The sessions also covered the survey design and methodology, requirements, data management, monitoring, quality controls, analysis and interpretation of findings.

The 6-day training of the SLNNS 2021 survey teams was conducted at the Radisson Blue Hotel (with three spacious enough conference halls) in Freetown in compliance with COVID-19 regulations. A hundred and fourteen participated in the survey team training on a lighter package for SMART methodology in the period 21-27 July 2021, with a day's break on Sunday, 25 July 2021. The training included a standardization test and pretesting field exercise in the last two days, respectively.

The training covered the following key topics:

- An overview of the SLNNS 2021 survey, scope, and its objectives, as well as an introduction to SMART methods

Anthropometric measurements (height or length, weight and MUAC), measurement techniques with an emphasis on taking accurate measurements (practical lessons to evaluate enumerators and their ability to measure accuracy),

- Interviewing techniques and general communication skills; assessment of health status of the child (illness), immunization and mortality data; Introduction, consent process and identification of individuals to measure or interview.
- Sampling procedures - Segmentation, PPS, and simple random sampling/ selection of households.
- KoBo mobile data collection application and data recording procedures - how to complete the questionnaires in KoBo using the tablets. The specific training on tablets included testing for basic literacy

and numeracy, testing capacity to enter data in the tablet; saving, editing, and sending of finalized data; how to handle system crashes of the tablet and when the data entry form closes accidentally.

- Quality control measures, handling of equipment and field procedures, and general courtesy during the assessment. The data entry using tablets of quality control forms – Cluster Control Forms (by Supervisor), Rapid Covid Screening Form (by Team Leader).
- Estimation of age in months and validation using the calendar of local events developed.
- The standardization of anthropometric measures: Each measurer had to measure 10 children less than five years of age twice (height, weight and MUAC) to assess the accuracy and precision of measurement by enumerators. The results of the standardization test by measurers were analyzed and used to identify good measurers during team formation with defined roles and responsibilities (**Annex G**).
- The identification of severe acute malnutrition and bilateral Oedema and how to refer children with SAM to the nearest health facility for treatment.

The SMART consultant from UNICEF led the training with the assistance of three other MoHS and HKI staff who had participated in the refresher ToT sessions. The training used mixed methodologies, including PowerPoint presentations, discussions, Q&A sessions, Quizzes, role plays and practical sessions.

Standardisation exercise was conducted in three groups and halls at the training venue for all of the enumerators, each group with 10 stations (caregiver and child pair and a set of anthropometric equipment) with the trainers assisting in the set-up and organization of the stations and supervisors assisting in the management of the teams.

Standardization exercise is a pre-survey practice recommended by SMART methodology and involves repeated measurements of weight, height and MUAC for 10 children between 0 and 5 years by each of the enumerators.

Pre-testing of the questionnaire and equipment was carried out in 75 households (each team interviewing three households) in five nearby Western Area Rural Eas and localities of Koya Rural Chiefdom in the outskirts of Freetown, which are not part of the actual assessment.

3.6.5 Interviews and measurements

Interviews were conducted by enumerators trained on the type of data collected by each specific question and item, the reason the data was collected, and how to read verbatim from the questionnaire. Interviews were conducted at households within the respondent's homestead. Children's ages, if they did not have birth registration documents, were estimated to the nearest month using an appropriate local events calendar (**Annex E**). Where the question required a single response, the responses were coded and programmed to select only one response. Where there were possible multiple responses, the Kobo application allowed more than one box to be checked. The application also enabled the programming of special filters for questions such that only questions that are supposed to follow a suitable response appear.

Anthropometric measurements were made according to the SMART guidelines using electronic scales for weight in kg (to the nearest 1 decimal place), rigid height boards for height (for both child/adolescent and woman) or length in cm (to the nearest 1 decimal place) and MUAC tape (for child and adult) for Mid-Upper Arm Circumference in cm (to the nearest 1 decimal place). Children below 87 cm were measured lying down for length, while children 87 cm and above were measured for standing height as recommended in the SMART guidelines.

4.

DATA MANAGEMENT PLAN

4.1 Data collection

The teams were deployed and sent to the field (districts) on July 31, 2021, from the DFN/MoHS. Data collection was conducted over 5 weeks from August 1 – 31. The teams followed a movement plan developed by DFN and the consultant. To collect data quickly and in real-time, the 20 teams were organized into 4 groups, each composed of 5 teams such that the 5 teams would work in one district at a time (i.e. 4 districts at a time throughout the country) thus:

- **North Eastern Group covering 4 districts (Kono, Tonkolili, Karene and Bombali)**
- **Northern Group covering 2 districts (Falaba and Koinadugu) before moving to Western Area (Slums and Urban) domains**
- **South Eastern Group covering Kailahun, Kenema, Pujehun and Bo; and**
- **South Western Group covering Bonthe, Moyamba, Kambia and Port Loko**

The strategy was to start with far-stretched and hard-to-reach districts before the peak of the rainy season. The teams thus started with Bonthe (in the Southern Province), Kailahun and Kono (in Eastern Province), and Falaba (in Northern Province). The teams took 6-7 days in the district (depending on the number of clusters covered) before moving to the next set of districts, all the teams converging to finish with the Western Area Rural District.

Data was collected and captured using the different KoBo-built Microsoft Excel forms developed by the consultant and downloaded into the tablets.

4.2 Data processing and analysis plan

Since the mobile phones/tablets were used for data capturing, anthropometric data were downloaded regularly or every week, depending on access to the internet and analyzed using SMART recommended software ENA (Delta Version 2011 and latest update of January 11, 2020). The supervisor reviewed anthropometric data daily for completeness of the questionnaire, plausibility of measurements and identification of any cases of malnutrition requiring a referral in line with SMART guidelines. To enhance data quality control

and allow the supervisor to provide feedback to the teams and the coordinators, the supervisor recorded the day's work on the cluster control form and uploaded the finalized forms/data to the server as soon as they accessed the internet. The anthropometric and other data were merged into the meta-data set in other formats such as EPI Info and SPSS for integrated analysis. The consultant undertook analysis in Freetown using both ENA and SPSS in the third and fourth weeks of September.

Rates of malnutrition (wasting, stunting, underweight and overweight) and mortality were generated in ENA software. The analysis was done separately for each district and domain, and weighted rates

were generated for globally aggregated data for the national rates. Further analysis included frequency distributions to derive the prevalence of various dietary diversity, nutrition and health indicators and mean/median distributions in SPSS.

4.3 Data quality control

The data quality control began from the questionnaire design to the processing and cleaning stage. Quality of data was ensured through: (i) adequate training of monitors and enumerators; (ii) monitoring of fieldwork by coordination/monitoring team, (iii) crosschecking of filled questionnaires daily; recording of observations; confirmation of disease outbreaks; severe malnutrition and Oedema cases by team leaders/supervisors. All households sampled were visited and recorded, including empty houses; (iv) daily review with the teams to address any difficulties

encountered; (v) progress evaluation according to the schedule and progress reports shared among the coordination team regularly;. (vi) continuous data cleaning and plausibility checks in ENA for SMART; (vii) calibration - monitoring accuracy of equipment (weighing scales) by regularly measuring objects of known weights; and (viii) continuous reinforcement of good practices such as good probing, the accuracy of measurements taken, shouting of measurements by both the enumerators reading and recording them.

5.

SURVEY
COORDINATION
& MANAGEMENT



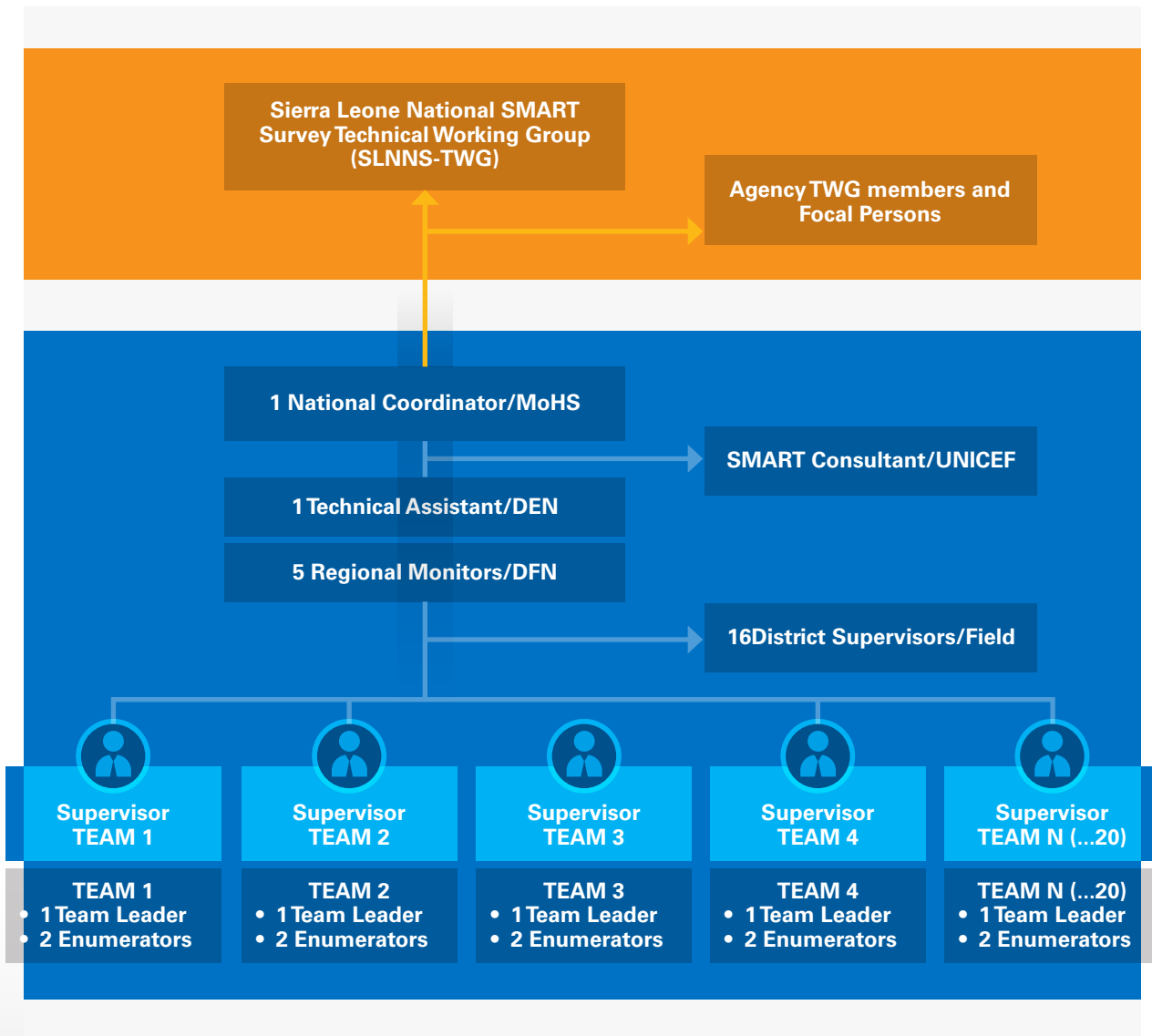
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5.1 Study coordination

The study was managed by the National Nutrition Survey Coordination and Management Committee derived from the Technical Working Group (TWG), which constitutes members from key agencies including the Ministry of Health and Sanitation, UNICEF, WHO, WFP, Hellen Keller, JAM, FAO, WV, CWW, and MOHS/DFN among others. Under the leadership of the director, MOHS/DFN appointed a technical assistant as a focal person to represent it in the coordination & monitoring of the SLNNS 2021 study.

The national survey was technically led by a consultant recruited by UNICEF with

strong survey and analysis capabilities and experience in SMART surveys. He worked closely with a team of local SMART managers and monitors from the government and partner agencies with variable experience and skills. The MoHS, with UNICEF support, provided the overall coordination in logistics and community mobilization. The survey team consisted of 20 teams, a coordinator, a technical and monitoring team of 6 persons (1 technical assistant and 5 regional monitors) working closely with 20 supervisors, and one supervisor assigned to each team (see **Figure 3**).

Figure 3: SLNNS 2021 Organogram

5.2 Logistics and management

The DFN staff led the logistical organization and plans for the survey. DFN/MoHS staff, with support from UNICEF, facilitated the drafting of budgets, contracts for the SMART consultant and the survey teams and logistics for the team training and fieldwork, including sourcing for the equipment, tablets, vehicles, training venue and refreshments besides communication

and operational costs during the fieldwork. UNICEF also facilitated consultant meetings with TWG/stakeholders, monitors, and supervisors to finalize the tablets and KoBo electronic tools, field supervision (Cluster Control Forms) and monitoring forms administration in the field. Each team supervisor was assigned two tablets (20 from UNICEF and 17 from HKI⁹; other

⁹ HKI provided 20 tablets, however 3 of these could not configure to update KoBo apps, and therefore only 17 were given to the teams

supervisors were encouraged to use the android phones that were installed with KoBo and the SLNNS 2021 tools uploaded to them, with the IT assistance from HKI.

DFN facilitated the payment of surveyors' allowances, issuance of identification cards, and branded T-shirts. Each team was assigned a vehicle, a set of anthropometric equipment (electronic weighing scale, height board, and MUAC tapes), Local Events Calendar, Cluster Control Forms, Referral Forms, copy of the questionnaires, EA maps, and soft copy list of clusters. Each team was also issued a thermometer to

take their daily temperatures and record in a daily temperature monitoring form for team members and a quick COVID-19 screening form for household members during COVID-19 screening.

The DFN facilitated advance communication to DHMTs in every district and social mobilization, including production banners or posters announcing the July to August SLNNS 2021 activity and the release of the district nutritionists to undertake supervision of the survey in their respective districts.

5.3 Partners participation

DFN/MoHS and Stats SSL have largely been involved in implementing this survey from the GoSL side. MoHS provided personnel and guidance for the survey. Stats SL provided staff, demographic parameters for sample size determination, PPS sampling for clusters, sampling weights for aggregated analysis, and maps for the EAs. With financial support from the Government of Japan, UNICEF was the main technical partner for the SLNNS 2021, engaging a SMART survey consultant to take the technical lead in the survey implementation. UNICEF also provided

anthropometric equipment, including SECA weighing scales, height meters, MUAC tapes and tablets. Several partners supported the planning, monitoring, social mobilization and visibility of the survey activities, including AAH, Concern Worldwide, HKI, Irish Aid, JAM, Government of Japan, UNICEF, WHO and World Vision. The TWG stakeholders also participated in monitoring and supervision, review of survey tools and validation of findings, and monitoring and response planning.

6.

SURVEY
RESULTS

6.1 Demographic characteristics of the survey population (households and children)

A total of 10,165 children aged 0-59 months were assessed in the Sierra Leone National Nutrition Survey 2021. Of these, 8755 children, (4238 boys and 4517 girls) aged 6-59 months were assessed for anthropometry and morbidity in the 17 districts/units. IYCF information was collected among 4572 children (0-23 months), of which 1410 were under 6 months (0-5 months) and assessed for exclusive breastfeeding practices. The survey covered a total number of 10,803 households, of which 8959 households responded to the mortality questionnaire. The mean household size was 4.9 (± 2.0),

and most of the assessed households were male-headed (78.6 per cent), and a significant proportion of the household's female-headed (21.4 per cent).

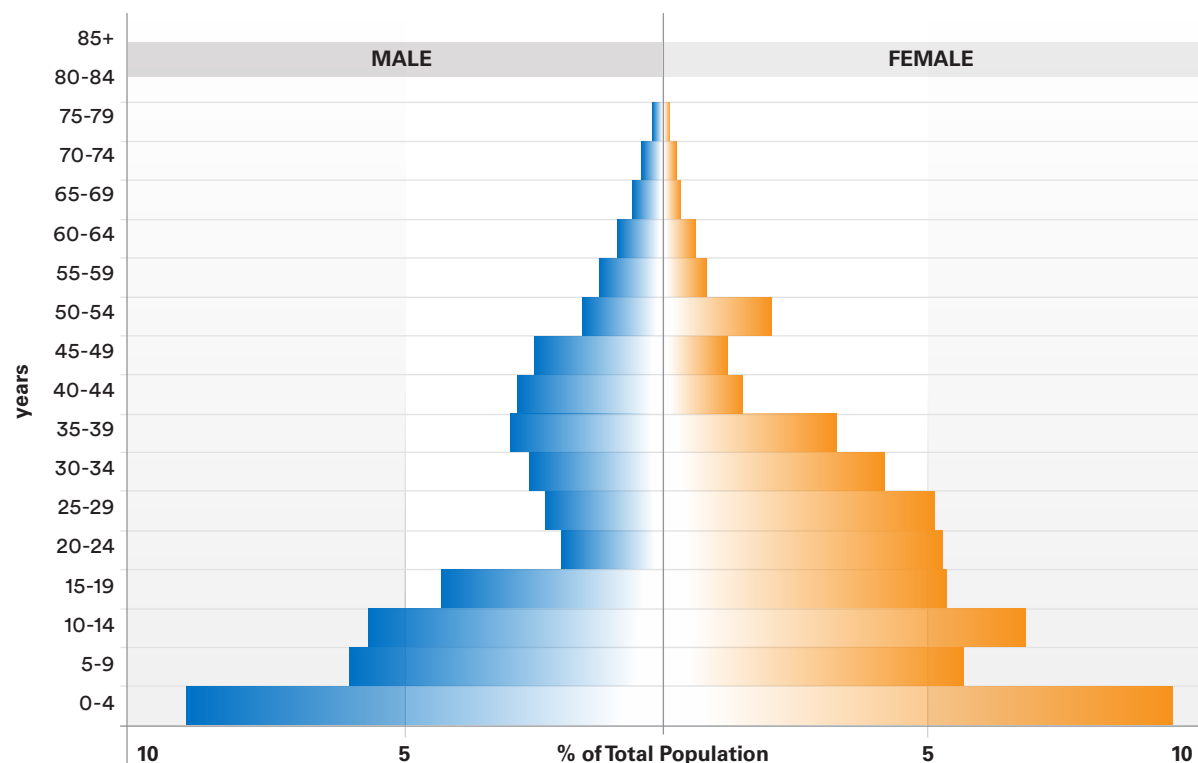
The distribution of children assessed for anthropometry by age and sex shows that the younger (6-29 months) and the older (30-59 months) children were equally sampled ($p=0.167$), with the overall ratio (ratio: 0.88) in the acceptable range (value should be around 0.85). With a sex ratio of 0.94, fewer boys than girls were assessed ($p<0.05$) even though the ratio is still within the as-expected range of 0.8-1.2 (**Table 4**)

Table 4: Distribution of age and sex of sample

| AGE (mo) | Boys | | Girls | | Total | | Ratio |
|--------------|-------------|-------------|-------------|-------------|-------------|--------------|-------------|
| | No. | % | No. | % | No. | % | Boy: Girl |
| 6-17 | 988 | 48.3 | 1059 | 51.7 | 2047 | 23.4 | 0.93 |
| 18-29 | 980 | 48.0 | 1060 | 52.0 | 2040 | 23.3 | 0.92 |
| 30-41 | 1033 | 47.6 | 1136 | 52.4 | 2169 | 24.8 | 0.91 |
| 42-53 | 974 | 49.3 | 1001 | 50.7 | 1975 | 22.6 | 0.97 |
| 54-59 | 263 | 50.2 | 261 | 49.8 | 524 | 6.0 | 1.01 |
| Total | 4238 | 48.4 | 4517 | 51.6 | 8755 | 100.0 | 0.94 |

The sex and age distribution bias among the assessed children 6-59 months of age are likely to arise from errors in age estimation. This is in the population where a significant proportion of home deliveries and events were later registered at the health facilities by mother's recall or where birth records are unavailable. Analysis flagged several age measurement errors even where exact birth dates from child

cards were recorded. From the plausibility report, 7 per cent of children had no actual birthday. There were also reports of mothers hiding some children from being assessed, especially in the northern districts. However, it is unclear whether any particular child's gender in preference was excluded from the assessment. **Figure 4** shows the population pyramid of the assessed sample from the mortality assessment.

Figure 4: Population age and sex pyramid**Table 5:** Response rate and geographic coverage of the SLNNS 2021

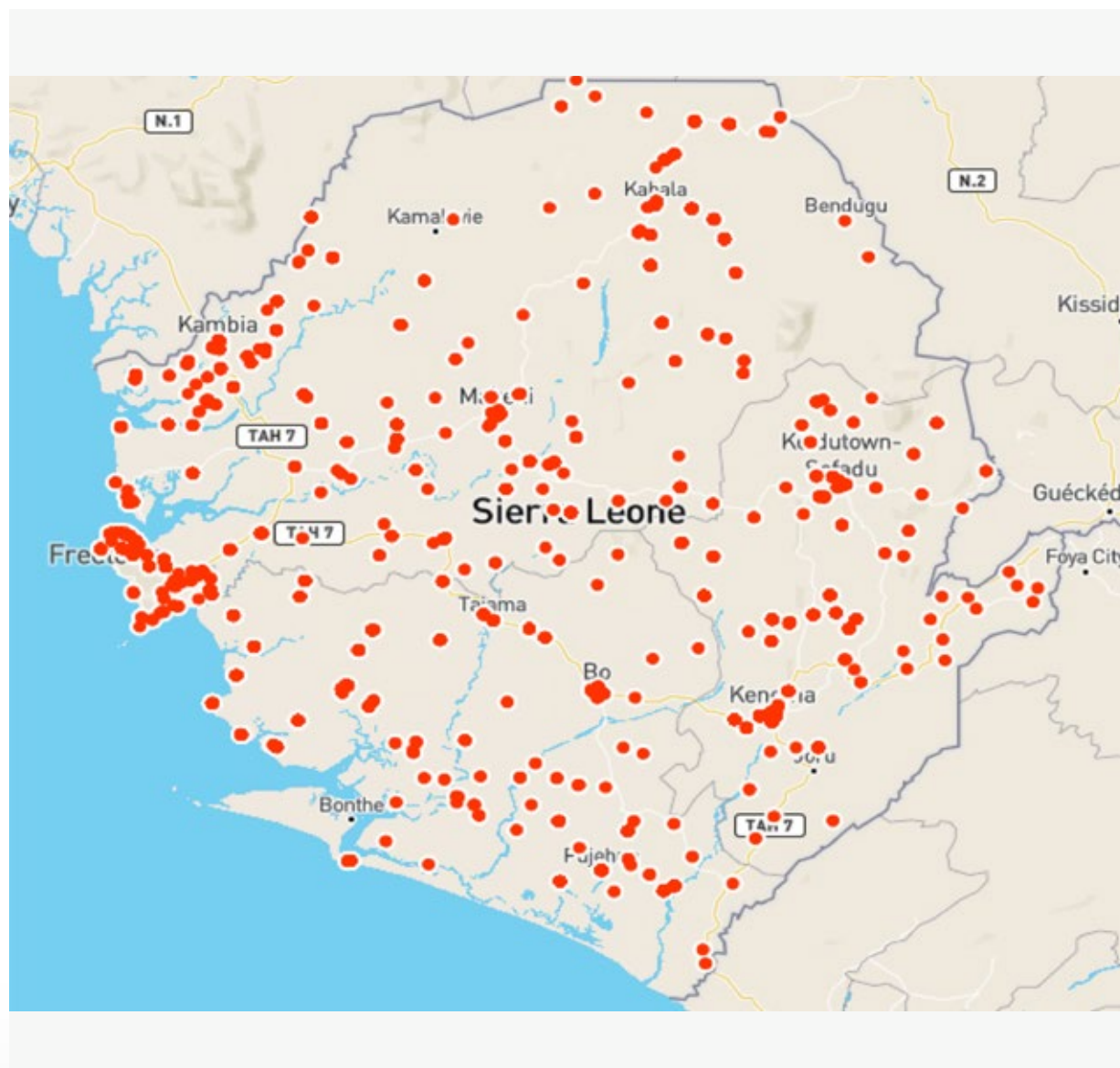
| | HHs Sampled | HHs Assessed | Response (% HHs) | U5 (6-59) Sampled | U5 (6-59) Assessed | Response (% U5s) | U2 (0-23) Sampled | U2 (0-23) Assessed | Response (% U2s) | HH Size (Planned) | HH Size (Assessed) |
|-----------|-------------|--------------|------------------|-------------------|--------------------|------------------|-------------------|--------------------|------------------|-------------------|--------------------|
| Kailahun | 640 | 616 | 96.3 | 567 | 484 | 85.4 | 315 | 220 | 69.8 | 6.3 | 4.2 |
| Kenema | 700 | 700 | 100.0 | 435 | 602 | 138.4 | 241 | 266 | 110.4 | 5.5 | 4.6 |
| Kono | 600 | 600 | 100.0 | 489 | 541 | 110.6 | 271 | 253 | 93.4 | 5.9 | 5.1 |
| Bombali | 600 | 540 | 90.0 | 502 | 570 | 113.5 | 279 | 258 | 92.5 | 5.7 | 6.1 |
| Falaba | 620 | 600 | 96.8 | 605 | 409 | 67.6 | 336 | 162 | 48.2 | 6.9 | 4.3 |
| Koinadugu | 660 | 660 | 100.0 | 681 | 559 | 82.1 | 379 | 249 | 65.7 | 7.3 | 5.2 |
| Tonkolili | 640 | 638 | 99.7 | 498 | 634 | 127.3 | 276 | 295 | 106.9 | 6.1 | 5.5 |
| Kambia | 660 | 660 | 100.0 | 671 | 513 | 76.5 | 373 | 257 | 68.9 | 6.4 | 4.6 |
| Karene | 540 | 540 | 100.0 | 456 | 565 | 123.9 | 254 | 273 | 107.5 | 6.5 | 6.1 |
| Port Loko | 640 | 604 | 94.4 | 562 | 428 | 76.2 | 312 | 231 | 74.0 | 5.5 | 4.7 |
| Pujehun | 660 | 660 | 100.0 | 729 | 638 | 87.5 | 405 | 297 | 73.3 | 6.7 | 5.5 |

| | HHs Sampled | HHs Assessed | Response (% HHs) | U5 (6-59) Sampled | U5 (6-59) Assessed | Response (% U5s) | U2 (0-23) Sampled | U2 (0-23) Assessed | Response (% U2s) | HH Size (Planned) | HH Size (Assessed) |
|-----------------|--------------|--------------|------------------|-------------------|--------------------|------------------|-------------------|--------------------|------------------|-------------------|--------------------|
| Bonthe | 640 | 636 | 99.4 | 550 | 481 | 87.5 | 305 | 210 | 68.9 | 6.2 | 4.1 |
| Bo | 660 | 659 | 99.8 | 562 | 575 | 102.3 | 312 | 277 | 88.8 | 5.6 | 4.9 |
| Moyamba | 680 | 680 | 100.0 | 466 | 487 | 104.5 | 259 | 257 | 99.2 | 5.1 | 4.2 |
| WA-Rural | 700 | 700 | 100.0 | 455 | 472 | 103.7 | 253 | 231 | 91.3 | 5.6 | 4.6 |
| WA-Slums | 640 | 634 | 99.1 | 586 | 458 | 78.2 | 326 | 270 | 82.8 | 6.8 | 5.1 |
| WA-Urban | 680 | 676 | 99.4 | 478 | 424 | 88.7 | 265 | 218 | 82.3 | 5.4 | 4.9 |
| National | 10960 | 10803 | 98.6 | 9292 | 8840 | 95.1 | 5161 | 4224 | 81.8 | 6.0 | 4.9 |

The response rate was high at 95.1 per cent for children (6-59 months) and 98.6 per cent for households nationally. The response rate for households was 100 per cent in most districts and ranged except in a few districts where non-response ranged between 0.2 per cent in Bo to 10 per cent in Bombali (see **Table 5**). In Falaba, Port Loko, Kambia, WA-Slums, for instance, fewer children (6-59 months) were assessed due to a high percentage of non-response rate. This was caused by absenteeism in a few clusters that fell among farming families, Urban labourers or migrant port workers, who reportedly had split families staying in Freetown. In Falaba and Karene, which were not part of the 2017 assessment, the national prevalence and parameters used in

sample size determination were probably under or overestimated for both children assessed for nutrition and the population reached for mortality. Other discrepancies could have arisen from selection bias and actual demographic and migration dynamics since the 2015 Census in the country, as seen in differences in the parameters (such as average household size and under-five) used in the planning stage and those from the findings. The proportion of children under five years per household was 19.2 per cent, i.e., per 0.83 children per household assessed for a household size of 4.9 nationally. **Figure 5** shows the survey coverage from the GPS data submission points.

Figure 5: Map of data submission points showing coverage in SLNNS 2021



6.2 Child nutrition status (anthropometric results)

6.2.1 Prevalence of acute malnutrition based on weight-for-height z-scores

The national prevalence of Global Acute Malnutrition (GAM), defined as Weight-for-height z-scores ($WHZ < -2$ and Oedema

rate for Sierra Leone, was **5.2 per cent** (95 per cent CI: 4.7-5.8). Moderate acute malnutrition (MAM), defined as $WHZ \geq -3$ and ≤ -2 , was 4.2 per cent (95 per cent CI: 3.7-4.7), and severe acute malnutrition (SAM), defined as $WHZ < -3$ and Oedema rate, was **1.0 per cent** (95 per cent CI: 0.8-1.3). Forty-nine Oedema cases (0.6 per cent) were

observed during the assessment (**Table 6**). A slightly higher proportion of boys (5.8 per cent; 95 per cent CI: 5.1-6.6) was more acutely malnourished than girls (4.7 per cent; 95 per cent CI: 4.0-5.4) although not

statistically significant ($p>0.05$). The findings indicate a **poor** nutrition situation (GAM rate of 5-9.9 per cent) according to WHO (2006) and **medium** according to UNICEF (2008) classification.

Table 6: Prevalence of acute malnutrition based on weight-for-height z - score and Oedema by sex

| | All n = 8459 | Boys n = 4093 | Girls n = 4366 |
|--|-----------------------------------|-----------------------------------|-----------------------------------|
| Prevalence of global malnutrition (<-2 z-score and/or Oedema) | (441) 5.2 % (4.7 - 5.8 95% CI) | (237) 5.8 % (5.1 - 6.6 95% CI) | (204) 4.7 % (4.0 - 5.4 95% CI) |
| Prevalence of moderate malnutrition (<-2 z-score and >=-3 z-score, no edema) | (353) 4.2 % (3.7 - 4.7 95% CI) | (200) 4.9 % (4.3 - 5.6 95% CI) | (153) 3.5 % (2.9 - 4.2 95% CI) |
| Prevalence of severe malnutrition (<-3 z-score and/or edema) | (88) 1.0 % (0.8 - 1.3 95% CI) | (37) 0.9 % (0.7 - 1.2 95% CI) | (51) 1.2 % (0.9 - 1.5 95% CI) |

The prevalence of Oedema is 0.6 per cent



The global acute malnutrition (GAM) rates (WHZ<-2 and Oedema) varied from acceptable/low (GAM rate 2.5-<5 per cent) to poor or medium levels (GAM rates 5-<10 per cent). Low GAM rates (<5 per cent) were recorded in: Falaba (3.6 per cent; 95 per cent CI: 1.9-6.8), Moyamba (3.5 per cent; 95 per cent CI: 2.2-5.5), Kono (3.7 per cent; 95 per cent CI: 2.1-6.5), Koinadugu (4.3 per cent; 95 per cent CI: 2.8-6.4), Bombali (4.3 per cent; 95 per cent CI: 2.6-7.1), Kailahun (4.7 per cent; 95 per cent CI: 3.6-6.2); Tonkolili (4.8 per cent; 95 per cent CI: 3.2-7.1), Karene (4.8 per cent; 95 per cent CI: 2.8-8.1), and Bo (4.9 per cent; 95 per cent

CI: 3.0-7.8) in that order (**Figure 6**). Poor or medium GAM (WHZ<-2 or Oedema) rates were recorded in: Kambia (5.4 per cent; 95 per cent CI: 3.6-7.9); Kenema (5.5 per cent; 95 per cent CI: 3.6-8.4); Port Loko (5.5 per cent; 95 per cent CI: 3.2-9.3); Pujehun (5.6 per cent; 95 per cent CI: 4.2-7.3); Western Area Rural (5.9 per cent; 95 per cent CI: 3.7-9.3); Bonthe (6.2 per cent; 95 per cent CI: 3.7-10.2), Western Area Slums (7.6 per cent; 95 per cent CI: 5.2-11.1); and highest in Western Area Urban (9.6 per cent; 95 per cent CI: 6.1-14.8). **Table 7** shows the distribution of acute malnutrition rates by district.

Figure 6: GAM (WHZ<-2 and Oedema) by district

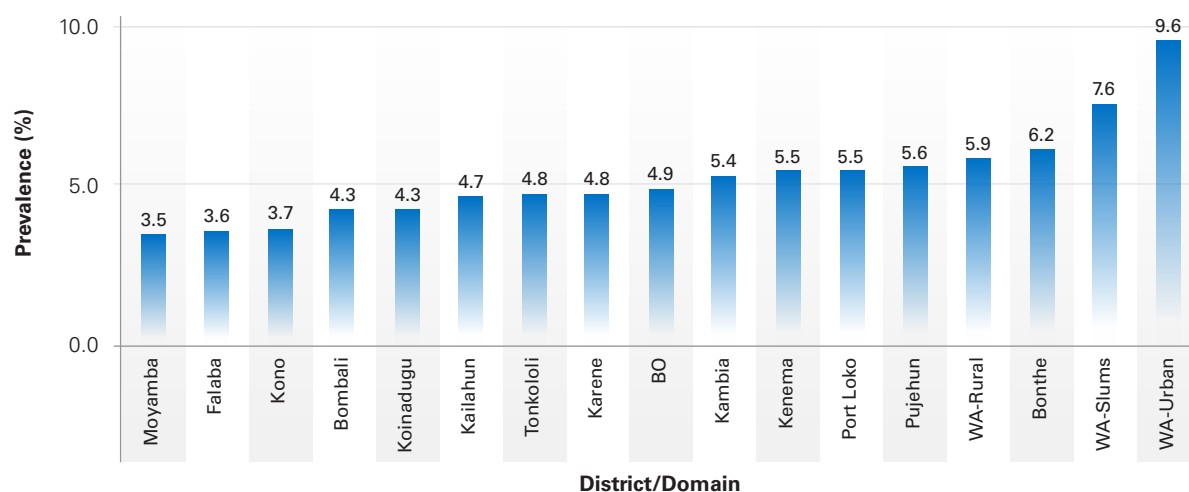


Table 7: Prevalence of global, moderate and severe acute malnutrition in children (6-59 months) based on weight for height z-scores by district

| Indicator | District | Global Acute Malnutrition (GAM) [WHZ<-2 and/or Oedema] | | | | Moderate Acute Malnutrition (MAM) [-3≤WHZ≤-2 and no Oedema] | | | Severe Acute Malnutrition (SAM) [WHZ<-3 and/or Oedema] | | |
|-----------|----------|--|----|-----|---------|---|-----|---------|--|-----|---------|
| | | N | n | % | 95% CI | n | % | 95% CI | n | % | 95% CI |
| Eastern | Kailahun | 467 | 22 | 4.7 | 3.6-6.2 | 17 | 3.6 | 2.5-5.3 | 5 | 1.1 | 0.5-2.5 |
| | Kenema | 580 | 32 | 5.5 | 3.6-8.4 | 22 | 3.8 | 2.3-6.1 | 10 | 1.7 | 0.8-3.5 |
| | Kono | 514 | 19 | 3.7 | 2.1-6.5 | 14 | 2.7 | 1.4-5.3 | 5 | 1.0 | 0.4-2.2 |

| Indicator | District | Global Acute Malnutrition (GAM) [WHZ<-2 and/or Oedema] | | | | Moderate Acute Malnutrition (MAM) [-3≤WHZ≤-2 and no Oedema] | | | Severe Acute Malnutrition (SAM) [WHZ<-3 and/or Oedema] | | |
|-----------------|-----------|--|------------|------------|----------------|---|------------|----------------|--|------------|----------------|
| | | N | n | % | 95% CI | n | % | 95% CI | n | % | 95% CI |
| Northern | Bombali | 556 | 24 | 4.3 | 2.6-7.1 | 18 | 3.2 | 1.8-5.6 | 6 | 1.1 | 0.5-2.3 |
| | Falaba | 390 | 14 | 3.6 | 1.9-6.8 | 13 | 3.3 | 1.7-6.6 | 1 | 0.3 | 0.0-2.0 |
| | Koinadugu | 514 | 22 | 4.3 | 2.8-6.4 | 15 | 2.9 | 1.7-4.9 | 7 | 1.4 | 0.5-3.8 |
| | Tonkolili | 604 | 29 | 4.8 | 3.2-7.1 | 22 | 3.6 | 2.3-5.7 | 7 | 1.2 | 0.5-2.6 |
| N. Western | Kambia | 502 | 27 | 5.4 | 3.6-7.9 | 24 | 4.8 | 3.2-7.1 | 3 | 0.6 | 0.2-1.8 |
| | Karene | 546 | 26 | 4.8 | 2.8-8.1 | 20 | 3.7 | 2.1-6.4 | 6 | 1.1 | 0.4-3.0 |
| | Port Loko | 420 | 23 | 5.5 | 3.2-9.3 | 22 | 5.2 | 2.9-9.2 | 1 | 0.2 | 0.0-1.8 |
| Southern | Bo | 554 | 27 | 4.9 | 3.0-7.8 | 23 | 4.2 | 2.5-6.8 | 5 | 0.9 | 0.4-2.1 |
| | Bonthe | 453 | 28 | 6.2 | 3.7-10.2 | 27 | 6.0 | 3.5-9.9 | 1 | 0.2 | 0.0-1.7 |
| | Moyamba | 456 | 16 | 3.5 | 2.2-5.5 | 13 | 2.9 | 1.6-4.9 | 3 | 0.7 | 0.2-2.0 |
| | Pujehun | 611 | 34 | 5.6 | 4.2-7.3 | 28 | 4.6 | 3.3-6.3 | 6 | 1.0 | 0.4-2.7 |
| Western | WA-Rural | 474 | 28 | 5.9 | 3.7-9.3 | 22 | 4.6 | 2.8-7.6 | 6 | 1.3 | 0.6-2.7 |
| | WA-Slums | 419 | 32 | 7.6 | 5.2-11.1 | 23 | 5.5 | 3.5-8.5 | 9 | 2.1 | 1.1-4.1 |
| | WA-Urban | 407 | 39 | 9.6 | 6.1-14.8 | 28 | 6.9 | 4.3-10.9 | 11 | 2.7 | 1.4-5.2 |
| National | | 8457 | 439 | 5.2 | 4.7-5.8 | 353 | 4.2 | 3.7-4.7 | 86 | 1.0 | 0.8-1.3 |

The quality of the survey evaluated by the ENA software is considered good, with a plausibility score of 14 per cent. In the districts, the quality was either excellent (plausibility scores of 0-9 per cent), good

(plausibility score of 10-15 per cent), or acceptable (15-24 per cent). Mild penalties were meted on age measurements and sample distribution parameters (see **Table 8**).

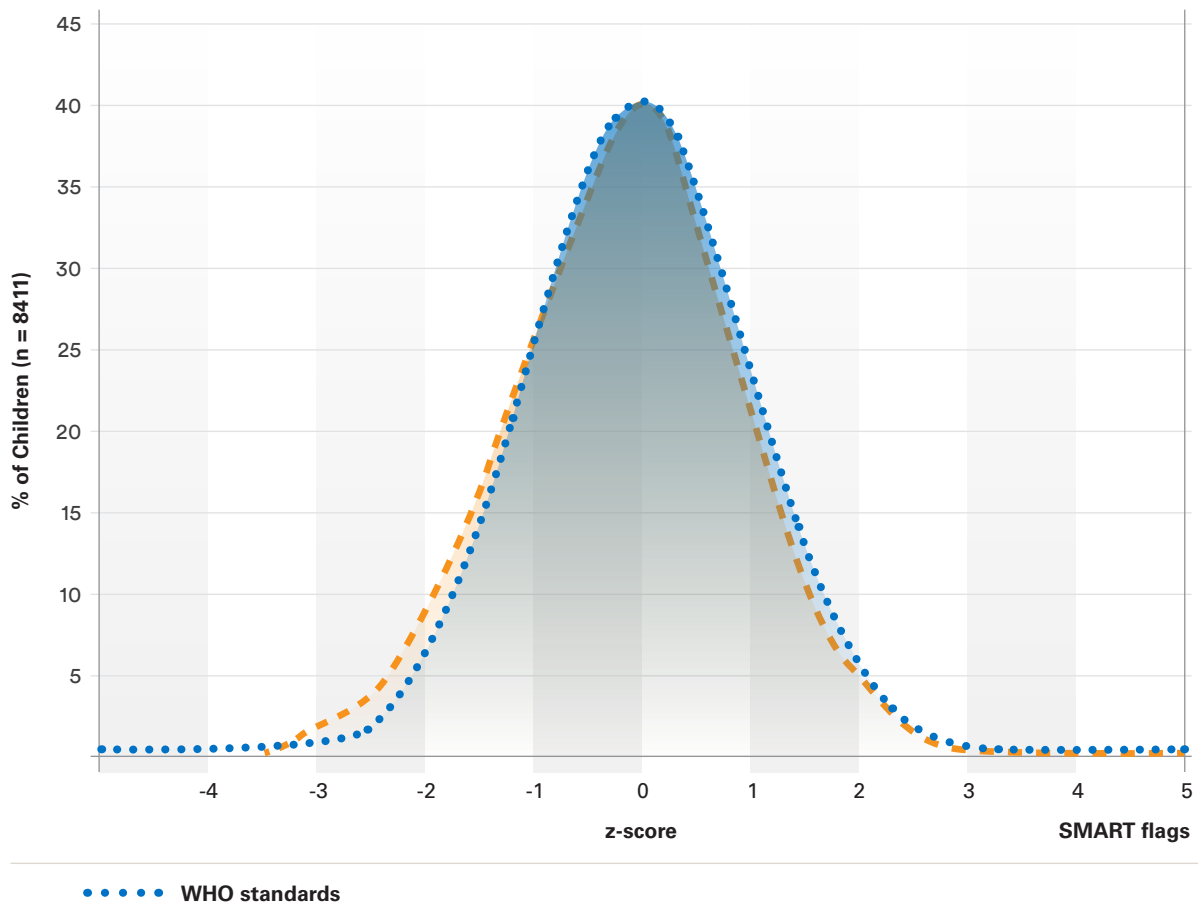
Table 8: Data quality evaluation report for the SLNNS 2021

| District | | Flags (SMART) | | Overall Sex Ratio (χ^2) | | Age Ratio (6-29: 30-59 Mo) (χ^2) | | DPS - Wt | | DPS - Ht | | DPS - MUAC | | SD WHZ | | Skewness WHZ | | Kurtosis WHZ | | Poisson Distribution SMART WHZ <- 2 (χ^2) | | Overall | |
|----------|-----------|---------------|-------|--------------------------------|-------|---|-------|----------|-------|----------|-------|------------|-------|--------|-------|--------------|-------|--------------|-------|--|-------|---------|---------|
| Code | Name | % | Score | p | Score | p | Score | # | Score | # | Score | # | Score | SD | Score | # | Score | # | Score | p | Score | Score | Quality |
| 1 | Kailahun | 2.7 | 5 | 0.715 | 0 | 0.049 | 4 | 5 | 0 | 7 | 0 | 7 | 0 | 1.03 | 0 | -0.03 | 0 | 0.00 | 0 | 0.979 | 0 | 9 | Excell |
| 2 | Kenema | 3.0 | 5 | 0.414 | 0 | 0.723 | 0 | 6 | 0 | 8 | 2 | 10 | 2 | 1.06 | 0 | -0.20 | 1 | 0.06 | 0 | 0.228 | 0 | 10 | Good |
| 3 | Kono | 2.3 | 0 | 0.794 | 0 | 0.402 | 0 | 7 | 0 | 10 | 2 | 8 | 2 | 1.02 | 0 | -0.08 | 0 | 0.04 | 0 | 0.006 | 3 | 7 | Excell |
| 4 | Bombali | 1.4 | 0 | 0.866 | 0 | 0.44 | 0 | 6 | 0 | 8 | 2 | 4 | 0 | 0.96 | 0 | -0.18 | 0 | 0.45 | 3 | 0.044 | 1 | 6 | Excell |
| 5 | Falaba | 3.7 | 5 | 0.026 | 4 | 0.691 | 0 | 4 | 0 | 10 | 2 | 5 | 0 | 1.05 | 0 | -0.16 | 0 | -0.12 | 0 | 0.032 | 1 | 12 | Good |
| 6 | Koinadugu | 4.7 | 5 | 0.229 | 0 | 0.387 | 0 | 5 | 0 | 10 | 2 | 8 | 2 | 1.07 | 0 | -0.03 | 0 | -0.07 | 0 | 0.157 | 0 | 9 | Excell |
| 7 | Tonkolili | 3.4 | 5 | 0.247 | 0 | 0.151 | 0 | 4 | 0 | 9 | 2 | 7 | 0 | 1.08 | 0 | -0.02 | 0 | 0.13 | 0 | 0.585 | 0 | 7 | Excell |
| 8 | Kambia | 1.0 | 0 | 0.007 | 4 | 0.291 | 0 | 5 | 0 | 7 | 0 | 7 | 0 | 1.03 | 0 | -0.12 | 0 | -0.14 | 0 | 0.206 | 0 | 4 | Excell |
| 9 | Karene | 1.8 | 0 | 0.204 | 0 | 0.695 | 0 | 4 | 0 | 8 | 2 | 4 | 0 | 1.00 | 0 | -0.08 | 0 | 0.45 | 3 | 0.035 | 1 | 6 | Excell |
| 10 | Port Loko | 1.9 | 0 | 0.562 | 0 | 0.271 | 0 | 3 | 0 | 8 | 2 | 9 | 2 | 0.99 | 0 | -0.08 | 0 | 0.16 | 0 | 0.002 | 3 | 7 | Excell |
| 11 | Bo | 2.3 | 0 | 0.071 | 2 | 0.424 | 0 | 7 | 0 | 11 | 2 | 6 | 0 | 1.11 | 5 | -0.24 | 1 | -0.01 | 0 | 0.038 | 1 | 11 | Good |
| 12 | Bonthe | 4.0 | 5 | 0.017 | 4 | 0.134 | 0 | 3 | 0 | 4 | 0 | 5 | 0 | 1.09 | 0 | -0.22 | 1 | -0.29 | 1 | 0.009 | 3 | 14 | Good |
| 13 | Moyamba | 4.2 | 5 | 0.160 | 0 | 0.013 | 4 | 3 | 0 | 7 | 0 | 4 | 0 | 1.00 | 0 | 0.02 | 0 | -0.36 | 1 | 0.544 | 0 | 10 | Excell |
| 14 | Pujehun | 2.3 | 0 | 0.034 | 4 | 0.862 | 0 | 7 | 0 | 11 | 2 | 9 | 2 | 1.02 | 0 | -0.23 | 1 | -0.31 | 1 | 0.952 | 0 | 10 | Good |
| 15 | WA-Rural | 2.1 | 0 | 0.467 | 0 | 0.432 | 0 | 4 | 0 | 6 | 0 | 8 | 2 | 1.07 | 0 | -0.26 | 1 | -0.16 | 0 | 0.013 | 1 | 4 | Excell |
| 16 | WA-Slums | 7.3 | 10 | 0.158 | 0 | 0.592 | 0 | 6 | 0 | 8 | 2 | 7 | 0 | 1.1 | 5 | -0.10 | 0 | 0.01 | 0 | 0.172 | 0 | 17 | Accep |
| 17 | WA-Urban | 3.4 | 5 | 0.407 | 0 | 0.356 | 0 | 7 | 0 | 3 | 0 | 4 | 0 | 1.16 | 10 | -0.19 | 0 | -0.24 | 1 | 0.001 | 5 | 21 | Accep |
| National | | 3.1 | 5 | 0.003 | 4 | 0.167 | 0 | 3 | 0 | 6 | 0 | 4 | 0 | 1.05 | 0 | -0.14 | 0 | -0.03 | 0 | 0.000 | 5 | 14 | Good |

The distribution curve for WHZ for the sample compared to WHO 2006 standard is presented below (see **Figure 7**). The exclusion of z-scores is computed from the observed mean SMART flags: WHZ-3 to 3; HAZ-3 to 3; WAZ-3 to 3.

The curve is slightly shifted to the left with a mean z-score of -0.15 and a standard deviation of 1.05, indicating that the surveyed population's nutritional status is

moderately poorer than the WHO reference population (see **Figure 7**). The standard deviation is within an acceptable range of 0.8 to 1.2 and with a high precision of ± 0.6 . The design effect (DEFF) determined was 1.41, which shows some heterogeneity for WHZ distribution among the clusters but is lower than the default DEFF of 1.5 used in the planning for sample size determination for this survey.

Figure 7: Distribution of weight-for-height z-scores

The cases of malnutrition, however, appeared to be clustered more in certain clusters and districts as indicated by index of dispersion (ID) values for $WHZ < -2$ (ID=1.43, $p < 0.05$) and for $WHZ < -3$ (ID=1.13, $p < 0.05$)¹⁰. For instance, some districts reported significantly more Oedema cases (Kailahun, Koinadugu, Karene, and Pujehun) than others.

The prevalence of acute malnutrition ($WHZ < -2$ and Oedema) by age is presented

in **Table 8**. It shows a higher proportion of acutely malnourished among the 6-17 months old children and the 18-29 months old children. Further analysis showed that the prevalence of acute malnutrition was significantly higher ($p < 0.05$) among the younger (6-29 months) children (GAM 7.1 per cent; 95 per cent CI: 6.3-8.0) than among the older (30-59 months) children (GAM 3.5 per cent; 95 per cent CI: 3.0-4.2).

¹⁰ The Index of Dispersion (ID) indicates the degree to which the cases are aggregated into certain clusters (the degree to which there are "pockets"). If ID has p value between 0.05 and 0.95 the cases are aggregated into certain cluster (there appear to be pockets of cases).

Table 9: Prevalence of acute malnutrition by age, based on weight-for-height z-scores and Oedema

| Age (mo) | Total no. | Severe wasting (<-3 z-score) | | Moderate wasting (>= -3 and <-2 z-score) | | Normal (> = -2 z-score) | | Oedema | |
|--------------|-------------|------------------------------|------------|--|------------|-------------------------|-------------|-----------|------------|
| | | No. | % | No. | % | No. | % | No. | % |
| 6-17 | 1977 | 10 | 0.5 | 121 | 6.1 | 1839 | 93.0 | 7 | 0.4 |
| 18-29 | 1949 | 14 | 0.7 | 105 | 5.4 | 1814 | 93.1 | 16 | 0.8 |
| 30-41 | 2105 | 9 | 0.4 | 60 | 2.9 | 2023 | 96.1 | 13 | 0.6 |
| 42-53 | 1912 | 4 | 0.2 | 51 | 2.7 | 1846 | 96.5 | 11 | 0.6 |
| 54-59 | 516 | 2 | 0.4 | 16 | 3.1 | 496 | 96.1 | 2 | 0.4 |
| Total | 8459 | 39 | 0.5 | 353 | 4.2 | 8018 | 94.8 | 49 | 0.6 |

Table 9 shows the distribution of acute malnutrition based on WHZ and Oedema. The difference in the distribution of acute malnutrition among the younger (6-29 months) and older (30-59 months) age groups is not entirely unexpected, given

that this age bracket includes the critical of children ages 6-23 months. This age group is more vulnerable to the risks of poor IYCF practices and associated infections and malnutrition. Forty-nine kwashiorkor cases were reported (**see Table 10**).

Table 10: Distribution of acute malnutrition and Oedema based on weight-for-height z-scores

| | <-3 z-score | >=-3 z-score |
|----------------|---------------------------------|--|
| Oedema present | Marasmic kwashiorkor. 5 (0.1 %) | Kwashiorkor. 44 (0.5 %) |
| Oedema absent | Marasmic No. 216 (2.5 %) | Not severely malnourished. 8459 (97.0 %) |

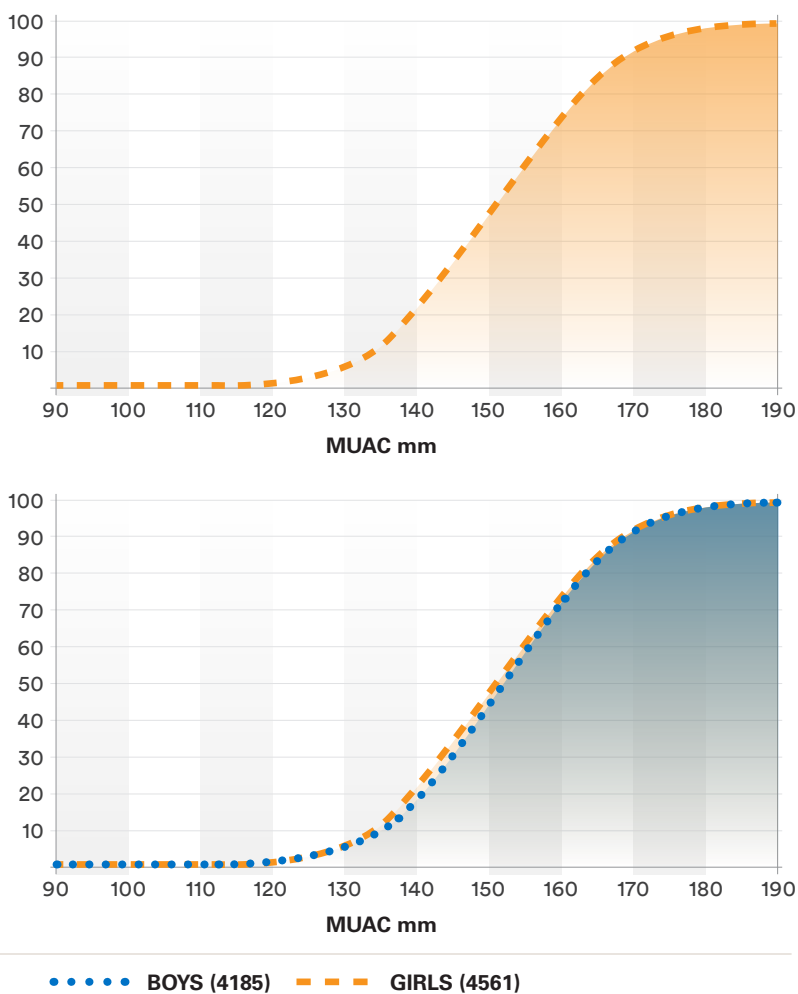
6.2.2 Prevalence of acute malnutrition based on mid upper arm circumference

As shown in **Table 11**, the national prevalence of global acute malnutrition based on MUAC (<125mm) and Oedema was **2.7 per cent** (95 per cent CI: 2.3-3.1), moderate acute malnutrition based on

MUAC (MUAC \geq 115mm and \leq 125 mm, and no Oedema) was 1.6 per cent (95 per cent CI: 1.3-2.0) and of severe acute malnutrition (MUAC<115mm and Oedema) was 1.0 per cent (95 per cent CI: 0.8-1.3). Acute malnutrition by MUAC (<125 mm/Oedema) was equally distributed among boys (2.3 per cent; 95 per cent CI: 1.9-2.8) and girls (3.0 per cent; 95 per cent CI: 2.5-3.6).

Table 11: Prevalence of acute malnutrition based on mid-upper arm circumference cut off's (and Oedema) and by sex

| | All n = 8748 | Boys n = 4235 | Girls n = 4513 |
|--|-----------------------------------|----------------------------------|-----------------------------------|
| Prevalence of global malnutrition – GAM MUAC (< 125 mm and/or Oedema) | (233) 2.7 % (2.3 - 3.1 95% CI) | (97) 2.3 % (1.9 - 2.8 95% CI) | (136) 3.0 % (2.5 - 3.6 95% CI) |
| Prevalence of moderate malnutrition (< 125 mm and >= 115 mm, no Oedema) | (143) 1.6 % (1.3 - 2.0 95% CI) | (59) 1.4 % (1.1 - 1.8 95% CI) | (84) 1.9 % (1.5 - 2.4 95% CI) |
| Prevalence of severe malnutrition (< 115 mm and/or Oedema) | (90) 1.0 % (0.8 - 1.3 95% CI) | (38) 0.9 % (0.7 - 1.2 95% CI) | (52) 1.2 % (0.9 - 1.5 95% CI) |

Figure 8: Cumulative distributions of wasting based on MUAC, SLNNS 2021

The national cumulative distribution of MUAC shows a sigmoid curve characteristic of a normally distributed population sample with a mean MUAC of 151.6 mm and a standard deviation of 13.7 mm (see **Figure 8**). The design effect of 1.58 for MUAC < 125 mm indicates a low degree of heterogeneity in the distribution of wasted children in the districts and clusters.

The prevalence of acute malnutrition based on MUAC ranged from 1.2 per cent (95 per cent CI: 0.4-3.6) in Kambia to 5.2 per cent (95 per cent CI: 2.9-9.3) in WA-Urban. **Table 12** shows the distribution of acute malnutrition based on MUAC by the district.

Table 12: Prevalence of global, moderate and severe acute malnutrition in children (6-59 months) based on mid upper arm circumference by district

| Province | District | Global Acute Malnutrition (MUAC<125 mm and/or Oedema) | | | | Moderate Acute Malnutrition (MUAC≥115 mm and ≤-125 mm and no Oedema) | | | Severe Acute Malnutrition (SAM) (MUAC<115mm and/or Oedema) | | |
|-----------------|-----------|---|------------|------------|----------------|--|------------|----------------|--|------------|----------------|
| | | N | n | % | 95% CI | n | % | 95% CI | n | % | 95% CI |
| Eastern | Kailahun | 480 | 17 | 3.5 | 2.2-5.7 | 9 | 1.9 | 0.9-3.7 | 8 | 1.7 | 0.9-3.0 |
| | Kenema | 599 | 27 | 4.5 | 3.0-6.7 | 17 | 2.8 | 1.8-4.6 | 10 | 1.7 | 1.0-2.9 |
| | Kono | 527 | 9 | 1.7 | 0.7-3.9 | 5 | 0.9 | 0.3-3.2 | 4 | 0.8 | 0.2-2.5 |
| Northern | Bombali | 564 | 9 | 1.6 | 0.8-3.0 | 4 | 0.7 | 0.2-2.3 | 5 | 0.9 | 0.4-2.0 |
| | Falaba | 407 | 7 | 1.7 | 0.8-3.6 | 3 | 0.7 | 0.2-2.2 | 4 | 1.0 | 0.3-2.8 |
| | Koinadugu | 539 | 21 | 3.9 | 2.2-6.9 | 10 | 1.9 | 0.9-3.6 | 11 | 2.0 | 1.0-4.2 |
| | Tonkolili | 626 | 8 | 1.3 | 0.6-2.7 | 6 | 1.0 | 0.4-2.4 | 2 | 0.3 | 0.1-1.3 |
| N. Western | Kambia | 497 | 6 | 1.2 | 0.4-3.6 | 5 | 1.0 | 0.3-3.6 | 1 | 0.2 | 0.0-1.5 |
| | Karene | 558 | 11 | 2.0 | 1.0-4.0 | 5 | 0.9 | 0.4-2.0 | 6 | 1.1 | 0.4-3.0 |
| | Port Loko | 428 | 15 | 3.5 | 1.6-7.6 | 12 | 2.8 | 1.3-5.9 | 3 | 0.7 | 0.2-3.0 |
| Southern | Bo | 567 | 10 | 1.8 | 0.9-3.4 | 6 | 1.1 | 0.5-2.3 | 4 | 0.7 | 0.3-1.9 |
| | Bonthe | 476 | 14 | 2.9 | 1.6-5.5 | 11 | 2.3 | 1.2-4.4 | 3 | 0.6 | 0.2-1.9 |
| | Moyamba | 487 | 11 | 2.3 | 1.3-3.9 | 7 | 1.4 | 0.6-3.2 | 4 | 0.8 | 0.3-2.1 |
| | Pujehun | 625 | 12 | 1.9 | 1.0-3.8 | 6 | 1.0 | 0.4-2.4 | 6 | 1.0 | 0.3-2.6 |
| Western | WA-Rural | 485 | 11 | 2.3 | 1.0-5.0 | 8 | 1.6 | 0.7-4.1 | 3 | 0.6 | 0.2-1.9 |
| | WA-Slums | 452 | 22 | 4.9 | 2.7-8.5 | 13 | 2.9 | 1.3-6.3 | 9 | 2.0 | 1.0-3.8 |
| | WA-Urban | 421 | 22 | 5.2 | 2.9-9.3 | 15 | 3.6 | 1.5-8.3 | 7 | 1.7 | 0.8-3.3 |
| National | | 8748 | 233 | 2.7 | 2.3-3.1 | 143 | 1.6 | 1.3-2.0 | 90 | 1.0 | 0.8-1.3 |



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Table 13 shows the national prevalence of acute malnutrition based on MUAC by age. Again, a higher proportion of the younger

children aged 6-29 months were acutely malnourished using MUAC ($p < 0.05$) than the older counterparts (30-59 months).

Table 13: Prevalence of acute malnutrition by age, based on mid upper arm circumference cut-offs and Oedema

| Age (mo) | N | Severe wasting (<115 mm) | | Moderate wasting (≥ 115 mm and <125 mm) | | Normal (≥ 125 mm) | | Oedema | |
|--------------|-------------|--------------------------|------------|---|------------|-------------------------|-------------|-----------|------------|
| | | n | % | n | % | n | % | n | % |
| 6-17 | 2044 | 26 | 1.3 | 83 | 4.1 | 1934 | 94.6 | 7 | 0.3 |
| 18-29 | 2037 | 6 | 0.3 | 46 | 2.3 | 1984 | 97.4 | 16 | 0.8 |
| 30-41 | 2169 | 2 | 0.1 | 8 | 0.4 | 2159 | 99.5 | 13 | 0.6 |
| 42-53 | 1974 | 6 | 0.3 | 6 | 0.3 | 1962 | 99.4 | 11 | 0.6 |
| 54-59 | 524 | 2 | 0.4 | 1 | 0.2 | 521 | 99.4 | 2 | 0.4 |
| Total | 8748 | 42 | 0.5 | 144 | 1.6 | 8560 | 97.9 | 49 | 0.6 |

6.2.2.1 Age disaggregated levels of wasting in children 6-59 months based on WAZ-scores

Age disaggregated analysis of global acute malnutrition (GAM) shows that the prevalence of wasting among the younger children in the breastfeeding age (6-23 months) of 6.9 per cent (95 per cent CI: 6.0-8.0). This was significantly higher than the prevalence among the older children aged 24-59 months ($p < 0.05$) at 4.3 per cent (95

per cent CI: 3.7-4.9), indicating the higher relative risk of sub-optimal IYCF practices to child undernutrition. As shown in **Table 14**, the SAM prevalence of 1.0 per cent (95 per cent CI: 0.7-1.5) among the breastfeeding age (6-23 months) was, however, similar among the older children with a SAM rate of 1.0 per cent (95 per cent CI: 0.7-1.3). In the breastfeeding age group (6-23 months), the GAM rate (8.4 per cent vs 5.6 per cent) was significantly higher among boys than among girls ($p < 0.05$).

Table 14: Age disaggregated wasting among 6-23 months and 24-59 months

| Age group | Sex | N | Global Acute Malnutrition (WHZ<-2 and/or Oedema) | | | Severe Acute Malnutrition (WHZ<-3 and/or Oedema) | | |
|--------------|-------|------|--|-----|----------|--|-----|---------|
| | | | n | % | 95% CI | n | % | 95% CI |
| 6-23 months | All | 2782 | 193 | 6.9 | 6.0-8.0 | 29 | 1.0 | 0.7-1.5 |
| | Boys | 1345 | 113 | 8.4 | 7.0-10.0 | 13 | 1.0 | 0.6-1.7 |
| | Girls | 1347 | 80 | 5.6 | 4.5-6.9 | 16 | 1.1 | 0.7-1.8 |
| 24-59 months | All | 5677 | 244 | 4.3 | 3.7-4.9 | 55 | 1.0 | 0.7-1.3 |
| | Boys | 2747 | 120 | 4.4 | 3.6-5.2 | 21 | 0.8 | 0.5-1.2 |
| | Girls | 2930 | 124 | 4.2 | 3.5-5.1 | 34 | 1.2 | 0.8-1.6 |

6.2.2.2 Age disaggregated levels of wasting in children 6-59 months based on MUAC

Based on the MUAC cut-off (**Table 15**), the prevalence of GAM and SAM were 5.4 per cent (95 per cent CI: 4.5-6.4) and 1.3 per

cent (95 per cent CI: 1.0-1.8), respectively, among the 6-23 months and was similarly higher than GAM and SAM rates of 1.3 per cent (95 per cent CI: 1.1-1.7) and 0.9 per cent (95 per cent CI: 0.7-1.2) among the 24-59-month-old ($p < 0.05$).

Table 15: Age disaggregated wasting (based on mid upper arm circumference) among 6-23 months and 24-59 months

| Age group | Sex | N | Global Acute Malnutrition (MUAC<125 and/or Oedema) | | | Severe Acute Malnutrition (MUAC<115 and/or Oedema) | | |
|--------------|-------|------|--|-----|---------|--|-----|---------|
| | | | n | % | 95% CI | n | % | 95% CI |
| 6-23 months | All | 2874 | 154 | 5.4 | 4.5-6.4 | 38 | 1.3 | 1.0-1.8 |
| | Boys | 1393 | 65 | 4.7 | 3.6-5.9 | 16 | 1.1 | 0.7-1.8 |
| | Girls | 1481 | 89 | 6.0 | 4.8-7.4 | 22 | 1.5 | 1.0-2.2 |
| 24-59 months | All | 5874 | 79 | 1.3 | 1.1-1.7 | 52 | 0.9 | 0.7-1.2 |
| | Boys | 2842 | 32 | 1.1 | 0.8-1.6 | 22 | 0.8 | 0.5-1.2 |
| | Girls | 3032 | 47 | 1.6 | 1.2-2.1 | 30 | 1.0 | 0.7-1.4 |

In all the districts, the prevalence of acute malnutrition by MUAC was lower than that of weight-for-height z-scores.

6.2.3 Prevalence of combined GAM and SAM based on WHZ and MUAC and or/Oedema cut off

The national prevalence of combined Global Acute Malnutrition (cGAM), defined as

WHZ<-2 and MUAC<125 mm, and Oedema was 6.6 per cent (95 per cent CI: 5.9-7.2). The combined Severe Acute Malnutrition (cSAM) defined as WHZ<-3 and MUAC<115 mm and Oedema was 1.4 per cent (95 per cent CI: 1.2-1.7), rates higher than respective acute malnutrition based either on weight-for-height z-scores or MUAC alone (see **Table 16**).

Table 16: Prevalence of combined global acute malnutrition and severe acute malnutrition based on weight-for-height z-scores and mid upper arm circumference cut-offs by sex*

| | All n = 8749 | Boys n = 4235 | Girls n = 4514 |
|--|-----------------------------------|-----------------------------------|-----------------------------------|
| Prevalence of combined GAM (WHZ <-2 and/or MUAC < 125 mm and/or Oedema) | (574) 6.6 % (5.9 - 7.2 95% CI) | (293) 6.9 % (6.1 - 7.8 95% CI) | (281) 6.2 % (5.5 - 7.1 95% CI) |
| Prevalence of combined SAM (WHZ < -3 and/or MUAC < 115 mm and/or Oedema) | (126) 1.4 % (1.2 - 1.7 95% CI) | (58) 1.4 % (1.1 - 1.8 95% CI) | (68) 1.5 % (1.2 - 1.9 95% CI) |

*With SMART or WHO flags a missing MUAC/WHZ or not plausible WHZ value is considered as normal when the other value is available.

6.2.4 Prevalence of Underweight based on Weight-for-Age z-scores (WAZ)

6.2.4.1 Prevalence of national underweight based on weight-for-age z-scores (WAZ) by age and sex

The national prevalence of children underweight was **11.0 per cent** (95 per

cent CI: 10.1-12.0), with 8.9 per cent (95 per cent CI: 8.1-9.7) moderately underweight and 2.2 per cent (95 per cent CI: 1.8-2.6) severely underweight (**Table 17**). The level of underweight was equally distributed ($p>0.05$) among boys (11.7 per cent; 95 per cent CI: 10.6-12.9) and girls (10.4 per cent; 95 per cent CI: 9.3-11.7). **Table 18** shows the national distribution of underweight by age, and **Figure 9** shows the national distributions of WAZ-scores.

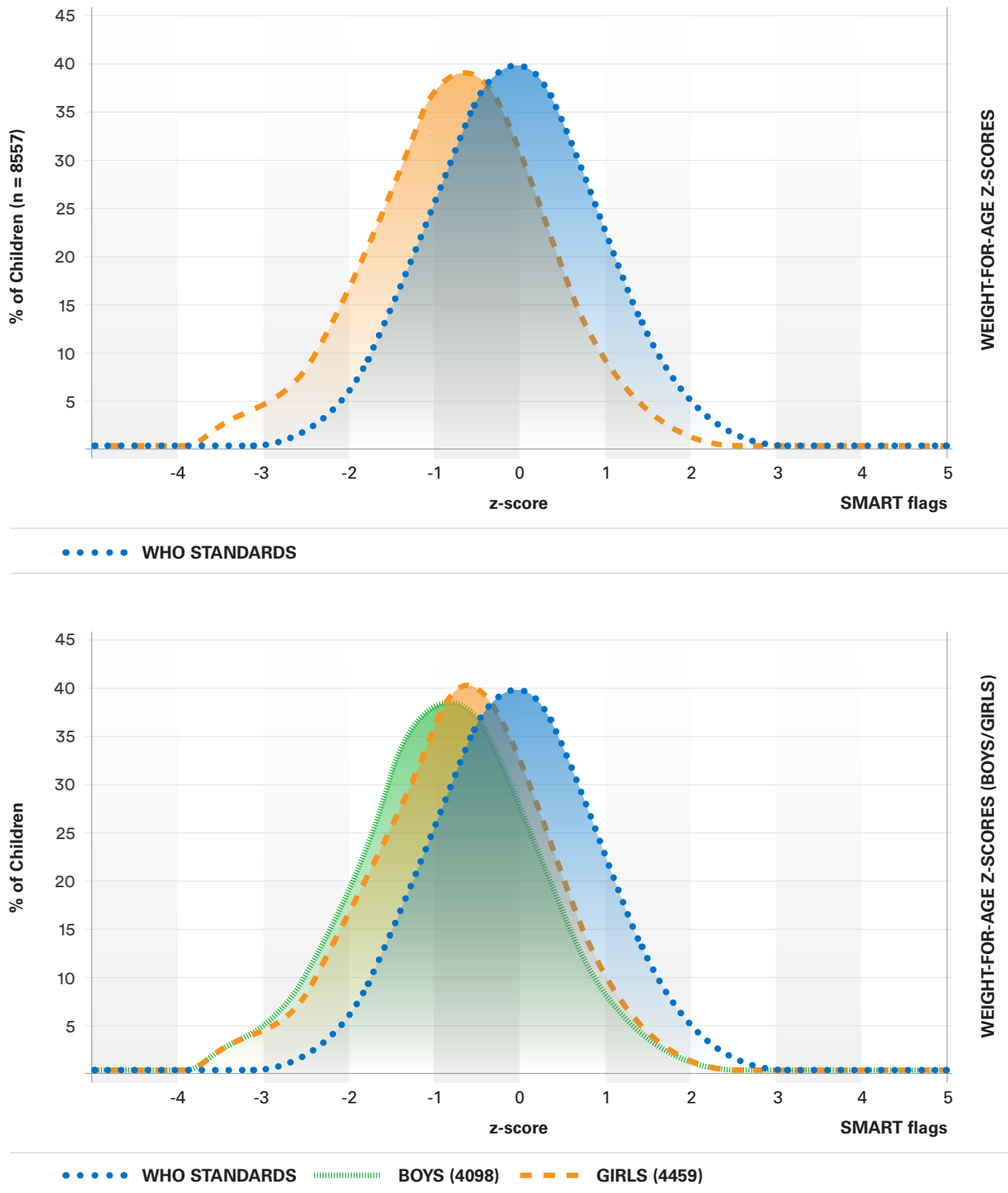
Table 17: Prevalence of underweight based on weight-for-age z-scores by sex

| | All n = 8560 | Boys n = 4145 | Girls n = 4415 |
|---|--------------------------------------|--------------------------------------|-------------------------------------|
| Prevalence of underweight (<-2 z-score) | (944) 11.0 % (10.1 - 12.0 95% CI) | (484) 11.7 % (10.6 - 12.9 95% CI) | (460) 10.4 % (9.3 - 11.7 95% CI) |
| Prevalence of moderate underweight (<-2 z-score and >=-3 z-score) | (759) 8.9 % (8.1 - 9.7 95% CI) | (389) 9.4 % (8.4 - 10.5 95% CI) | (370) 8.4 % (7.4 - 9.4 95% CI) |
| Prevalence of severe underweight (<-3 z-score) | (185) 2.2 % (1.8 - 2.6 95% CI) | (95) 2.3 % (1.9 - 2.8 95% CI) | (90) 2.0 % (1.6 - 2.6 95% CI) |

Table 18: Prevalence of underweight by age, based on weight-for-age z-scores

| Age (mo) | Total No. | Severe underweight (<-3 z-score) | | Moderate underweight (>= -3 and <-2 z-score) | | Normal (> = -2 z-score) | | Oedema | |
|--------------|-------------|----------------------------------|------------|---|------------|-------------------------|-------------|-----------|------------|
| | | n | % | n | % | n | % | n | % |
| 6-17 | 1980 | 49 | 2.5 | 185 | 9.3 | 1746 | 88.2 | 7 | 0.4 |
| 18-29 | 1983 | 61 | 3.1 | 226 | 11.4 | 1696 | 85.5 | 16 | 0.8 |
| 30-41 | 2134 | 46 | 2.2 | 169 | 7.9 | 1919 | 89.9 | 13 | 0.6 |
| 42-53 | 1947 | 25 | 1.3 | 135 | 6.9 | 1787 | 91.8 | 11 | 0.6 |
| 54-59 | 516 | 4 | 0.8 | 44 | 8.5 | 468 | 90.7 | 2 | 0.4 |
| Total | 8560 | 185 | 2.2 | 759 | 8.9 | 7616 | 89.0 | 49 | 0.6 |

Figure 9: Distributions of weight-for-age z-scores in children 6-59 months, SLNNS 2017



As shown in **Table 19**, the prevalence of underweight by district ranged from 7.6 per cent (95 per cent CI: 5.0-11.3) in Bo to 19.3 per cent (95 per cent CI: 15.4-23.9) in Kenema district.

Table 19: Prevalence of national, moderate and severe underweight in children (6-59 months) based on weight-for-age z-scores by district

| Province | District | Global Underweight (WAZ<-2) | | | | Moderate Underweight (-3≤WAZ≤-2) | | | Severe Underweight (WAZ<-3) | | |
|-----------------|-----------|-----------------------------|------------|-------------|------------------|----------------------------------|------------|----------------|-----------------------------|------------|----------------|
| | | N | n | % | 95% CI | n | % | 95% CI | n | % | 95% CI |
| Eastern | Kailahun | 468 | 62 | 13.2 | 10.3-17.0 | 47 | 10.1 | 7.2-13.9 | 15 | 3.2 | 2.0-5.0 |
| | Kenema | 576 | 111 | 19.3 | 15.4-23.9 | 87 | 15.1 | 12.1-18.7 | 24 | 4.2 | 2.6-6.7 |
| | Kono | 522 | 42 | 8.0 | 5.5-11.7 | 39 | 7.5 | 5.1-10.9 | 3 | 0.6 | 0.2-1.8 |
| Northern | Bombali | 552 | 44 | 8.0 | 5.6-11.3 | 35 | 6.3 | 4.1-9.7 | 9 | 1.6 | 0.9-3.1 |
| | Falaba | 400 | 41 | 10.3 | 7.1-14.5 | 31 | 7.8 | 5.1-11.6 | 10 | 2.5 | 1.5-4.1 |
| | Koinadugu | 515 | 58 | 11.3 | 8.7-14.5 | 44 | 8.5 | 6.1-11.9 | 14 | 2.7 | 1.6-4.5 |
| | Tonkolili | 616 | 71 | 11.5 | 8.9-14.8 | 58 | 9.4 | 7.3-12.1 | 13 | 2.1 | 1.2-3.6 |
| N. Western | Kambia | 503 | 56 | 11.1 | 8.0-15.4 | 43 | 8.5 | 6.0-12.0 | 13 | 2.6 | 1.4-4.9 |
| | Karene | 547 | 56 | 10.2 | 7.1-14.6 | 48 | 8.8 | 5.9-12.8 | 8 | 1.5 | 0.6-3.7 |
| | Port Loko | 418 | 37 | 8.9 | 6.0-12.8 | 22 | 5.2 | 2.9-9.2 | 8 | 1.9 | 0.7-4.8 |
| Southern | Bo | 565 | 43 | 7.6 | 5.0-11.3 | 36 | 6.4 | 4.2-9.5 | 7 | 1.2 | 0.5-2.8 |
| | Bonthe | 471 | 48 | 10.2 | 6.9-14.8 | 33 | 7.0 | 4.7-10.2 | 15 | 3.2 | 1.6-6.1 |
| | Moyamba | 480 | 59 | 12.3 | 9.2-16.3 | 50 | 10.4 | 7.7-13.9 | 9 | 1.9 | 1.0-3.6 |
| | Pujehun | 613 | 62 | 10.1 | 7.1-14.2 | 57 | 9.3 | 6.4-13.3 | 5 | 0.8 | 0.3-2.3 |
| Western | WA-Rural | 480 | 48 | 10.0 | 6.6-14.8 | 43 | 9.0 | 5.8-13.5 | 5 | 1.0 | 0.4-2.4 |
| | WA-Slums | 431 | 59 | 13.7 | 8.1-22.1 | 42 | 9.7 | 6.1-15.3 | 17 | 3.9 | 1.9-7.9 |
| | WA-Urban | 413 | 51 | 12.3 | 6.4-22.4 | 37 | 9.0 | 4.9-15.8 | 14 | 3.4 | 1.2-9.0 |
| National | | 8560 | 943 | 11.0 | 10.1-12.0 | 758 | 8.9 | 8.1-9.7 | 183 | 2.1 | 1.8-2.5 |

6.2.4.2 Age disaggregated levels of underweight based on weight-for-age z-scores

Analysis of age disaggregated underweight levels shows that the prevalence of underweight among the younger children (6-23 months) at 12.4 per cent (95 per cent CI: 11.0-13.9) was higher than the prevalence among the older children aged 24-59 months at 10.3 per cent (95 per cent CI:

9.3-11.4), though not statistically significant. The SAM prevalence of 2.5 per cent (95 per cent CI: 2.0-3.2) among the younger children was also slightly higher than among the older children at 2.0 per cent (95 per cent CI: 1.6-2.5), indicating a potential higher vulnerability of this age group to undernutrition. In both younger and older age groups, global underweight and severe underweight rates were equally distributed among boys and girls (**see Table 20**).



Table 20: Age disaggregated underweight among 6-23 months and 24-59 months

| Age group | Sex | N | Global Underweight (WAZ<-2) | | | Severe Underweight (WAZ<-3) | | |
|--------------|-------|------|-----------------------------|------|-----------|-----------------------------|-----|---------|
| | | | n | % | 95% CI | n | % | 95% CI |
| 6-23 months | All | 2777 | 344 | 12.4 | 11.0-13.9 | 69 | 2.5 | 2.0-3.2 |
| | Boys | 1350 | 189 | 14.0 | 12.1-16.1 | 42 | 3.1 | 2.3-4.2 |
| | Girls | 1427 | 155 | 10.9 | 9.2-12.8 | 27 | 1.9 | 1.3-2.8 |
| 24-59 months | All | 5784 | 596 | 10.3 | 9.3-11.4 | 113 | 2.0 | 1.6-2.5 |
| | Boys | 2793 | 292 | 10.5 | 9.2-11.8 | 50 | 1.8 | 1.3-2.4 |
| | Girls | 2991 | 304 | 10.2 | 8.9-11.6 | 63 | 2.1 | 1.6-2.8 |

6.2.5 Prevalence of stunting based on height-for-age z-scores

6.2.5.1 Prevalence of National Stunting based on Height-for-Age z-scores (HAZ) by age and sex

The national prevalence of stunting (HAZ<-2) was **26.2 per cent** (95 per cent CI: 25.0-27.5), with 19.5 per cent (95 per cent CI: 18.5-20.6) moderately stunted and 6.7 per

cent (95 per cent CI: 6.1-7.4) severely stunted (see **Table 21**). A higher percentage of boys (29.2 per cent; 95 per cent CI: 27.6-30.9) than girls (23.4 per cent; 95 per cent CI: 21.9-25.0) were stunted ($p<0.05$). Stunting levels are, however, distributed equally among the younger (6-29 months) and older (30-59 months) age groups at 25.8 per cent (95 per cent CI: 24.1-27.5) and 26.5 per cent (95 per cent CI: 24.9-28.1). **Table 22** shows the national distribution of stunting by the child's age, and **Figure 10** shows the national distributions of HAZ-scores.

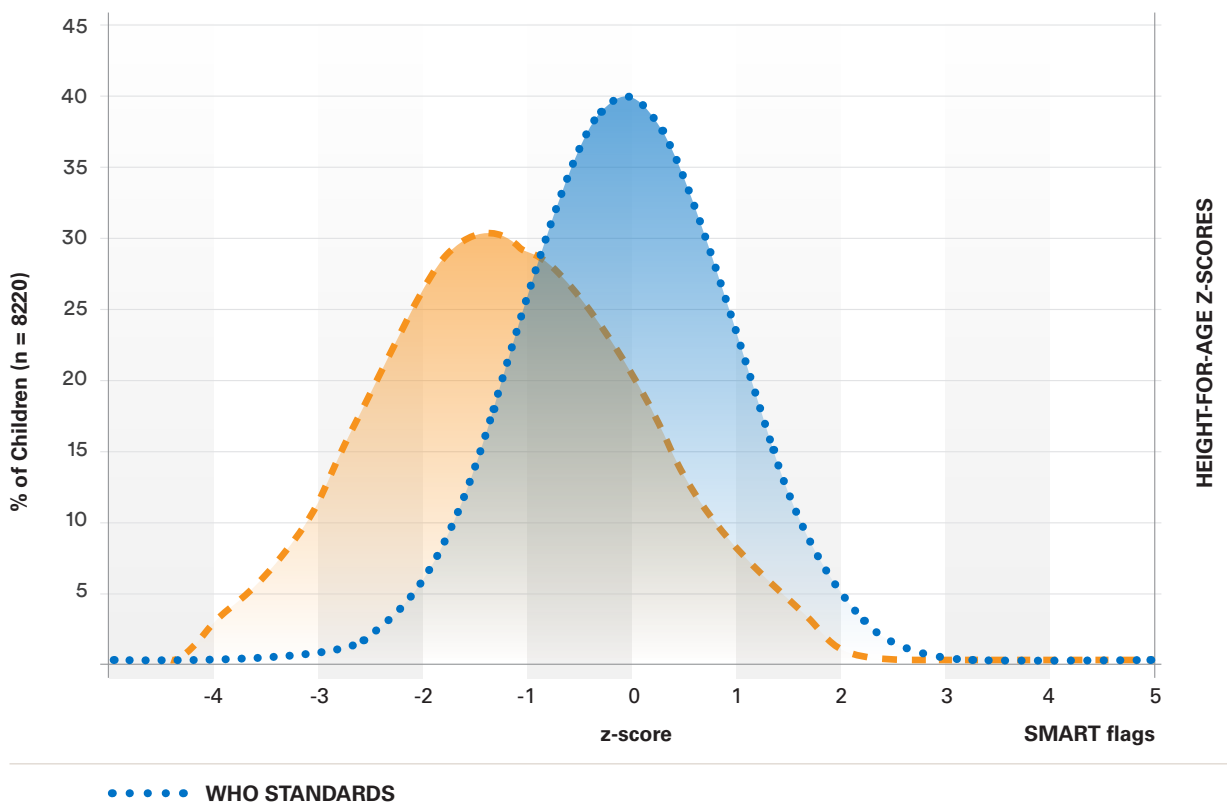
Table 21: Prevalence of stunting based on height-for-age z-scores and sex

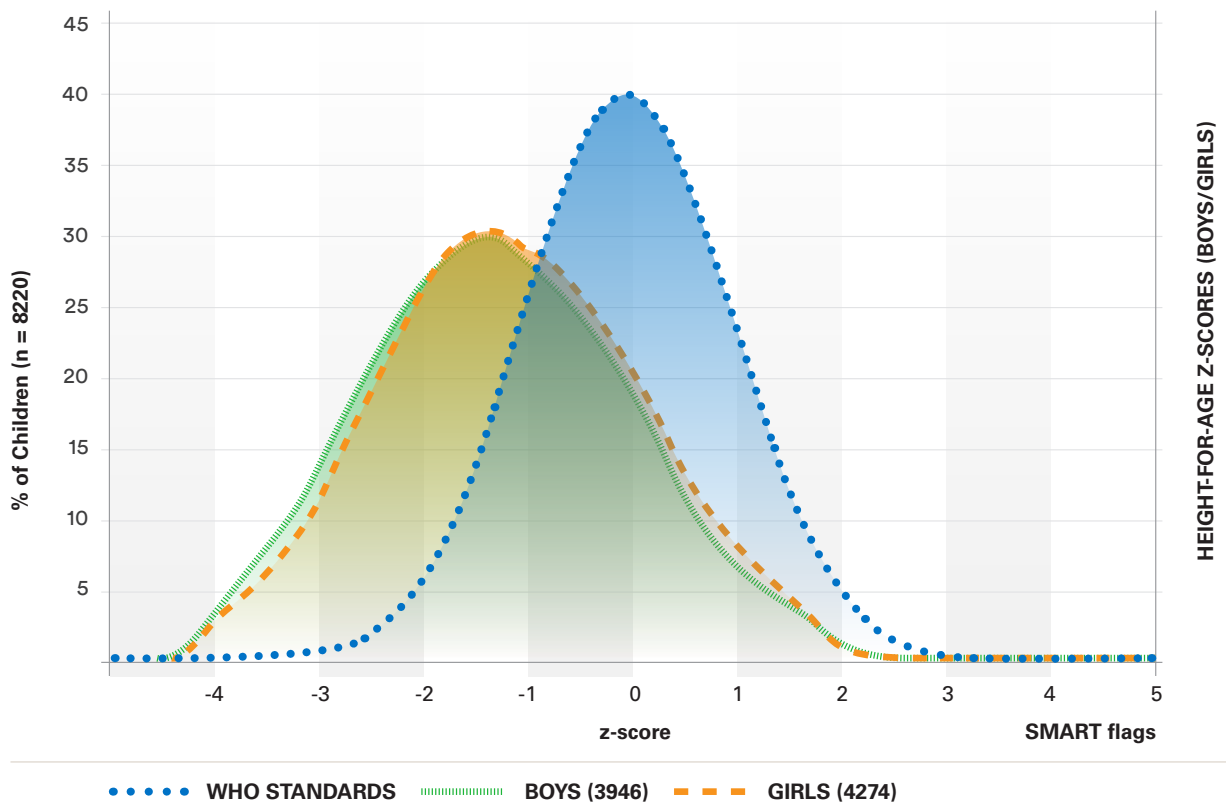
| | All n = 8220 | Boys n = 3993 | Girls n = 4227 |
|--|---------------------------------------|---------------------------------------|--------------------------------------|
| Prevalence of stunting (<-2 z-score) | (2157) 26.2 % (25.0 - 27.5 95% CI) | (1167) 29.2 % (27.6 - 30.9 95% CI) | (990) 23.4 % (21.9 - 25.0 95% CI) |
| Prevalence of moderate stunting (<-2 z-score and >=-3 z-score) | (1605) 19.5 % (18.5 - 20.6 95% CI) | (843) 21.1 % (19.8 - 22.5 95% CI) | (762) 18.0 % (16.8 - 19.3 95% CI) |
| Prevalence of severe stunting (<-3 z-score) | (552) 6.7 % (6.1 - 7.4 95% CI) | (324) 8.1 % (7.2 - 9.1 95% CI) | (228) 5.4 % (4.7 - 6.2 95% CI) |

Table 22: National prevalence of stunting by age based on height-for-age z-scores

| Age (mo) | Total No. | Severe Stunting (<-3 z-score) | | Moderate Stunting (>= -3 and <-2 z-score) | | Normal (>= -2 z-score) | |
|--------------|-------------|-------------------------------|------------|--|-------------|------------------------|-------------|
| | | No. | % | No. | % | No. | % |
| 6-17 | 1848 | 105 | 5.7 | 294 | 15.9 | 1449 | 78.4 |
| 18-29 | 1888 | 199 | 10.5 | 388 | 20.6 | 1301 | 68.9 |
| 30-41 | 2068 | 129 | 6.2 | 438 | 21.2 | 1501 | 72.6 |
| 42-53 | 1904 | 96 | 5.0 | 381 | 20.0 | 1427 | 74.9 |
| 54-59 | 512 | 23 | 4.5 | 104 | 20.3 | 385 | 75.2 |
| Total | 8220 | 552 | 6.7 | 1605 | 19.5 | 6063 | 73.8 |

The HAZ curves are shifted to the left, showing a poorer stunting level in Sierra Leone compared to the WHO (2006) international reference population (see **Figure 10**).

Figure 10: Distributions of height-for age z-scores in children 6-59 Months, SLNNS 2021



The prevalence of stunting ranged from the lowest of 20.3 per cent (95 per cent CI: 16.1-25.3) in Western Area Urban and 20.6 per cent (95 per cent CI: 15.4-27.0) in Western Area Slums. The stunting rates go above 30

per cent in four districts – Kailahun, Tonkolili, and Koinadugu with the highest stunting prevalence of 32.9 per cent (95 per cent CI: 28.7-37.4) reported in the Kenema district (see **Figure 11**).

Figure 11: Stunting (HAZ<-2) Rates by District/Domain

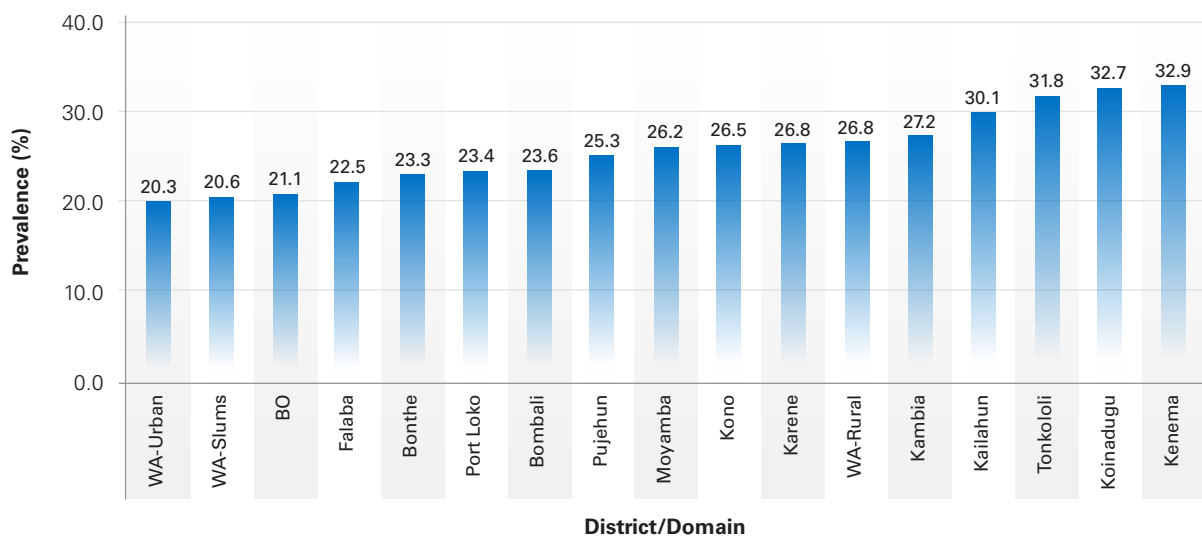


Table 23 presents the prevalence of stunting rates by type (global, moderate, and severe stunting) and district or domain.

Table 23: Prevalence of national, moderate and severe stunting in children (6-59 months) based on HAZ-scores by District

| Province | District | Global Stunting (HAZ<-2) | | | | Moderate Stunting (-3≤HAZ≤-2) | | | Severe Stunting (HAZ<-3) | | |
|-----------------|-----------|--------------------------|-------------|-------------|------------------|-------------------------------|-------------|------------------|--------------------------|------------|----------------|
| | | N | n | % | 95% CI | n | % | 95% CI | n | % | 95% CI |
| Eastern | Kailahun | 448 | 135 | 30.1 | 25.8-34.9 | 99 | 22.1 | 18.4-26.2 | 36 | 8.0 | 5.7-11.1 |
| | Kenema | 553 | 182 | 32.9 | 28.7-37.4 | 114 | 20.6 | 17.5-24.1 | 68 | 12.3 | 9.2-16.3 |
| | Kono | 491 | 130 | 26.5 | 22.8-30.5 | 105 | 21.4 | 17.4-25.9 | 25 | 5.1 | 3.5-7.4 |
| Northern | Bombali | 539 | 127 | 23.6 | 17.7-30.6 | 94 | 17.4 | 12.8-23.3 | 33 | 6.1 | 3.7-10.0 |
| | Falaba | 364 | 82 | 22.5 | 17.0-29.2 | 67 | 18.4 | 13.7-24.2 | 15 | 4.1 | 2.6-6.4 |
| | Koinadugu | 486 | 159 | 32.7 | 27.2-38.8 | 114 | 23.5 | 19.0-28.5 | 45 | 9.3 | 6.8-12.5 |
| | Tonkolili | 579 | 184 | 31.8 | 25.9-38.3 | 124 | 21.4 | 17.2-26.4 | 60 | 10.4 | 7.9-13.5 |
| N. Western | Kambia | 486 | 132 | 27.2 | 21.6-33.5 | 99 | 20.4 | 15.9-25.7 | 33 | 6.8 | 4.2-10.7 |
| | Karene | 527 | 141 | 26.8 | 21.8-32.3 | 107 | 20.3 | 16.3-25.0 | 34 | 6.5 | 4.3-9.6 |
| | Port Loko | 418 | 98 | 23.4 | 18.2-29.7 | 78 | 18.7 | 14.5-23.6 | 20 | 4.8 | 2.9-7.8 |
| Southern | Bo | 555 | 117 | 21.1 | 16.8-26.1 | 94 | 17.0 | 13.3-21.4 | 23 | 4.1 | 2.6-6.5 |
| | Bonthe | 443 | 103 | 23.3 | 18.3-29.0 | 75 | 16.9 | 13.0-21.7 | 28 | 6.3 | 4.3-9.2 |
| | Moyamba | 461 | 121 | 26.2 | 21.9-31.1 | 88 | 19.1 | 15.8-22.9 | 33 | 7.2 | 4.8-10.4 |
| | Pujehun | 588 | 149 | 25.3 | 21.0-30.2 | 116 | 19.7 | 16.2-23.8 | 33 | 5.6 | 4.0-7.8 |
| Western | WA-Rural | 471 | 126 | 26.8 | 22.6-31.4 | 104 | 22.1 | 18.5-26.2 | 22 | 4.7 | 3.0-7.2 |
| | WA-Slums | 423 | 87 | 20.6 | 15.4-27.0 | 67 | 15.8 | 11.2-21.9 | 20 | 4.7 | 2.9-7.7 |
| | WA-Urban | 399 | 81 | 20.3 | 16.1-25.3 | 28 | 6.9 | 4.3-10.9 | 20 | 5.0 | 2.8-8.8 |
| National | | 8220 | 2157 | 26.2 | 25.0-27.5 | 1605 | 19.5 | 18.5-20.6 | 553 | 6.7 | 6.1-7.4 |

6.2.5.2 Age disaggregated levels of stunting based on height-for-age z-scores

The prevalence of stunting was 24.8 per cent (95 per cent CI: 22.9-26.7), with severe stunting of 6.5 per cent (95 per cent CI: 5.6-7.7) among the younger children in the breastfeeding age (6-23 months) and was slightly higher among the older children aged 24-59 months (see **Table 24**). The prevalence of stunting and severe stunting was 26.9 per cent (95 per cent CI: 25.4-28.4) and 6.8 per cent (95 per cent CI: 6.0-7.6),

respectively. However, the difference was not statistically significant. It is important to note that stunting is cumulative, and if not prevented in the first two years of life (first 1000 days), the effects are irreversible, thus likely to be higher in later years. However, the stunting (HAZ<-2) rate was significantly more prevalent among boys (30.0 per cent; 95 per cent CI: 27.4-32.7) than among girls (19.7 per cent; 95 per cent CI: 17.5-22.2) in the breastfeeding (6-23 months) age group ($p<0.05$) but equally distributed among the older (24-59 months) age group.

Table 24: Age disaggregated stunting rates among 6-23 months and 24-59 months

| Age group | Sex | N | Stunting (HAZ<-2) | | | Severe Stunting (HAZ<-3) | | |
|--------------|-------|------|-------------------|------|-----------|--------------------------|-----|----------|
| | | | n | % | 95% CI | n | % | 95% CI |
| 6-23 months | All | 2618 | 648 | 24.8 | 22.9-26.7 | 171 | 6.5 | 5.6-7.7 |
| | Boys | 1280 | 384 | 30.0 | 27.4-32.7 | 115 | 9.0 | 7.5-10.8 |
| | Girls | 1338 | 264 | 19.7 | 17.5-22.2 | 56 | 4.2 | 3.2-5.5 |
| 24-59 months | All | 5618 | 1509 | 26.9 | 25.4-28.4 | 381 | 6.8 | 6.0-7.6 |
| | Boys | 2711 | 778 | 28.7 | 26.8-30.7 | 204 | 7.5 | 6.5-8.7 |
| | Girls | 2907 | 731 | 25.1 | 23.3-27.1 | 177 | 6.1 | 5.2-7.2 |

6.2.6 Prevalence of overweight of children (6-59) based on weight-for-age z-scores

The national prevalence of overweight (WHZ>2) in children 6-59 months was 2.0 per cent (95 per cent CI: 1.7-2.4), with zero severe overweight recorded (**Table 25**). This rate could be high if the WHO flags exclusion criterion were used. Due to high flags (extreme or missing values) arising

from many wrong measurements, the analysis used the SMAFT exclusion criterion for measuring flags. **Table 26** shows the national prevalence of overweight among children under-five. The prevalence of overweight was equally distributed among the boys (2.0 per cent; 95 per cent CI: 1.6-2.5) and girls (2.0 per cent; 95 per cent CI: 1.6-2.6per cent) assessed. Similarly, the distribution of overweight was even among the younger (6-29 months) and the older (30-59 months) age groups at 1.2 per cent and 0.9 per cent, respectively.

Table 25: National prevalence of overweight based on weight for height cut-offs and by sex (no Oedema)

| | All n = 8459 | Boys n = 4093 | Girls n = 4366 |
|---|-------------------------------------|------------------------------------|------------------------------------|
| Prevalence of overweight (WHZ > 2) | (172) 2.0 % (1.7 - 2.4 95% C.I.) | (83) 2.0 % (1.6 - 2.5 95% C.I.) | (89) 2.0 % (1.6 - 2.6 95% C.I.) |
| Prevalence of severe overweight (WHZ > 3) | (0) 0.0 % (0.0 - 0.0 95% C.I.) | (0) 0.0 % (0.0 - 0.0 95% C.I.) | (0) 0.0 % (0.0 - 0.0 95% C.I.) |

Table 26: National prevalence of overweight by age based on weight-for-height z-scores

| Age (mo) | Total No. | Overweight (WHZ>2) | | Severe Overweight (WHZ>3) | |
|--------------|-------------|--------------------|------------|---------------------------|------------|
| | | No. | % | No. | % |
| 6-17 | 1977 | 37 | 1.9 | 0 | 0.0 |
| 18-29 | 1949 | 44 | 2.3 | 0 | 0.0 |
| 30-41 | 2105 | 43 | 2.0 | 0 | 0.0 |
| 42-53 | 1912 | 44 | 2.3 | 0 | 0.0 |
| 54-59 | 516 | 4 | 0.8 | 0 | 0.0 |
| Total | 8459 | 172 | 2.0 | 0 | 0.0 |

Table 27 shows the distribution of the sample statistics for the survey. The mean z-scores for wasting (WHZ), underweight (WAZ) and stunting (HAZ) were -0.15 ± 1.05 ; -0.72 ± 1.04 and -0.16 ± 1.23 , respectively, all indicating a poorer nutrition situation

compared to WHO reference population. The standard deviations are within the acceptable range of 0.8-1.2 for WHZ (SD=1.05) and WAZ (SD=1.04) but, as expected, higher (1.23) for HAZ.

Table 27: Mean z-scores, design effects and excluded subjects

| Indicator | n | Mean z-scores \pm SD | Design Effect (z-score<-2) | z-scores not available* | z-scores out of range |
|-------------------|------|---------------------------|-------------------------------|-------------------------|-----------------------|
| Weight-for-Height | 8410 | -0.15 ± 1.05 | 1.48 | 80 | 265 |
| Weight-for-Age | 8560 | -0.72 ± 1.04 | 2.01 | 53 | 142 |
| Height-for-Age | 8220 | -1.16 ± 1.23 | 1.72 | 7 | 528 |

* Contains for WHZ and WAZ the children with edema.

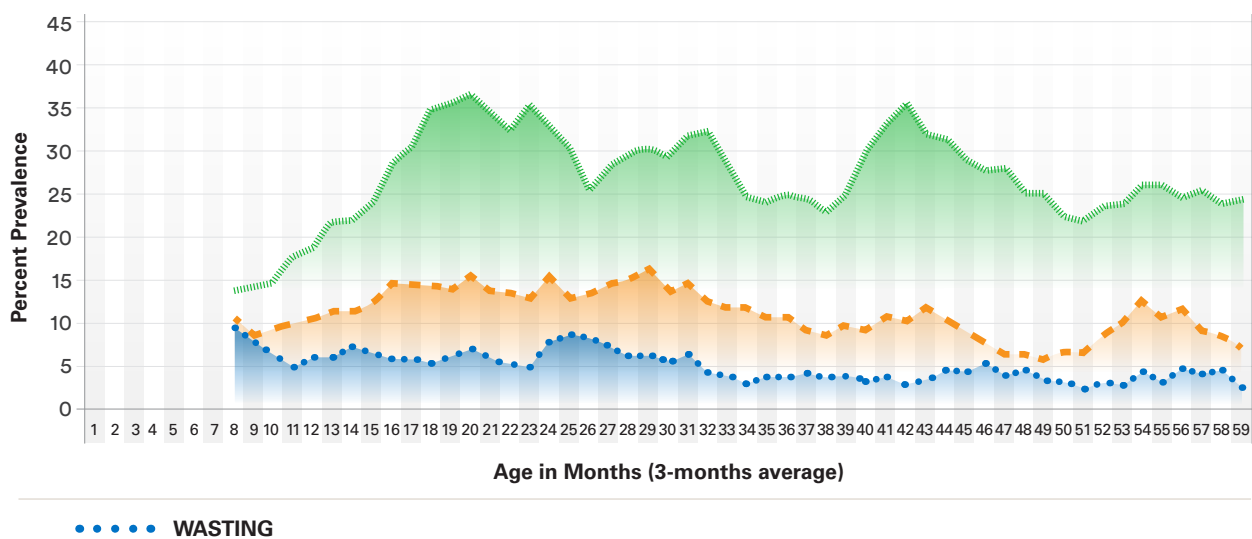
6.2.7 Trends of acute malnutrition over child's age in months

Figure 12 shows malnutrition trends by the age of the child in months, demonstrating which age bands are more critical regarding risks of malnutrition—stunting increases until it peaks around 19-21 months and 40-42 months of age. Underweight increases less and reaches its peak earlier in age (between 12 and 24 months). The prevalence of global acute malnutrition

based on WHZ shows a corresponding decreasing trend from 24 months onwards.

A child's future is determined by the quality of nutrition in the early stages of life, specifically during the first 1,000 days. This period – which spreads from conception to the child's second birthday – is a critical window during which the brain and body grow rapidly. The damage is often irreversible if children do not get the right nutrients during this period. So good nutrition is essential to lay the foundation for healthy cognitive and physical development.

Figure 12: Trends of wasting, underweight and stunting by age in months (plotted values are smoothed by a moving average of three months)



6.3 Adolescent and maternal health and nutrition

6.3.1 Demographic distribution of adolescents and women of reproductive age assessed

A total of 21,727 adolescents (girls and boys) and women of reproductive age (AWRA) were assessed; 3489 were adolescent girls with a mean age of 12.1 (± 1.44) years, 4941 were adolescent boys

with mean age of 14.1 years (± 2.8) years, and 13297 were women of mean age of 27.4 (± 8.48) years. About one quarter (25.3 per cent) of the 13297 women aged 15-49 years assessed nationally were pregnant or lactating (**Table 26**), while 1.8 per cent of the assessed adolescent girls (10-14 years) were pregnant or lactating. Therefore, 20.4 per cent were pregnant/lactating (PL) of the assessed adolescent girls and women of reproductive age. **Table 28** summarises the demographic distribution of adolescents and women assessed.

Table 28: Demographic distribution of adolescents and women assessed by district

| District | Demographic group of AWRA | | | | | | | Physiological Status of Adolescent girls and WRA | | | | |
|--------------|------------------------------|-------------|-----------------------------|-------------|-----------------|-------------|--------------|--|-------------|-------------|-------------|--------------|
| | Adolescent girls (10-14 yrs) | | Adolescent boys (10-19 yrs) | | WRA (15-49 yrs) | | Total | Not PL | | PLW | | Total |
| | n | % | n | % | n | % | N | n | % | n | % | N |
| Kailahun | 119 | 13.1 | 165 | 18.2 | 621 | 68.6 | 905 | 553 | 74.7 | 187 | 25.3 | 740 |
| Kenema | 203 | 15.8 | 298 | 23.2 | 786 | 61.1 | 1287 | 725 | 73.3 | 264 | 26.7 | 989 |
| Kono | 246 | 19.1 | 293 | 22.7 | 750 | 58.2 | 1289 | 781 | 78.4 | 215 | 21.6 | 996 |
| Bombali | 243 | 16.8 | 387 | 26.7 | 820 | 56.6 | 1450 | 844 | 79.4 | 219 | 20.6 | 1063 |
| Falaba | 150 | 16.4 | 185 | 20.2 | 582 | 63.5 | 917 | 617 | 84.3 | 115 | 15.7 | 732 |
| Koinadugu | 251 | 17.1 | 344 | 23.5 | 870 | 59.4 | 1465 | 940 | 83.9 | 181 | 16.1 | 1121 |
| Tonkolili | 222 | 15.0 | 353 | 23.9 | 904 | 61.1 | 1479 | 875 | 77.7 | 251 | 22.3 | 1126 |
| Kambia | 156 | 15.4 | 199 | 19.7 | 657 | 64.9 | 1012 | 652 | 80.2 | 161 | 19.8 | 813 |
| Karene | 249 | 17.4 | 372 | 26.1 | 807 | 56.5 | 1428 | 827 | 78.3 | 229 | 21.7 | 1056 |
| Port Loko | 118 | 12.6 | 177 | 18.9 | 642 | 68.5 | 937 | 588 | 77.4 | 172 | 22.6 | 760 |
| Bo | 244 | 16.4 | 385 | 25.9 | 858 | 57.7 | 1487 | 868 | 78.8 | 234 | 21.2 | 1102 |
| Bonthe | 124 | 12.6 | 170 | 17.3 | 687 | 70.0 | 981 | 616 | 76.0 | 195 | 24.0 | 811 |
| Moyamba | 132 | 12.5 | 215 | 20.3 | 711 | 67.2 | 1058 | 648 | 76.9 | 195 | 23.1 | 843 |
| Pujehun | 297 | 18.3 | 422 | 26.0 | 901 | 55.6 | 1620 | 928 | 77.5 | 270 | 22.5 | 1198 |
| WA-Rural | 232 | 17.2 | 285 | 21.1 | 832 | 61.7 | 1349 | 885 | 83.2 | 179 | 16.8 | 1064 |
| WA-Slums | 212 | 14.4 | 325 | 22.1 | 933 | 63.5 | 1470 | 941 | 82.2 | 204 | 17.8 | 1145 |
| WA-Urban | 291 | 18.3 | 366 | 23.0 | 936 | 58.8 | 1593 | 1075 | 87.6 | 152 | 12.4 | 1227 |
| Total | 3489 | 16.1 | 4941 | 22.7 | 13297 | 61.2 | 21727 | 13363 | 79.6 | 3423 | 20.4 | 16786 |

6.3.2 Acute malnutrition by mid upper arm circumference among adolescent girls, adolescent boys and women of reproductive age

The national prevalence of global acute malnutrition using MUAC (MUAC<185 mm)

among adolescent girls (10-14 years) was 12.4 per cent, with severe wasting (MUAC<160 mm) rate of 1.9 per cent. Prevalence of GAM MUAC in girls varied from the lowest in Port Loko (6.8 per cent) to the highest in Kailahun (23.5 per cent). The prevalence of undernutrition based on MUAC among the WRA was 1.8 per cent, 0.3 per cent severely (**Table 29**).

Table 29: Acute malnutrition by mid upper arm circumference in adolescents and women by district

| District | Adolescent Girls (10-14 yrs) | | | | | All WRA (15-49 yrs) | | | | |
|---------------|------------------------------|-------------|-----------|------------|-------------|---------------------|------------|-----------|------------|--------------|
| | GAM MUAC | | SAM MUAC | | Total | GAM MUAC | | SAM MUAC | | Total |
| | n | % | n | % | N | n | % | n | % | N |
| Kailahun | 33 | 23.5 | 9 | 6.7 | 139 | 19 | 2.6 | 6 | 0.8 | 725 |
| Kenema | 67 | 21.7 | 17 | 5.4 | 309 | 56 | 4.7 | 14 | 1.1 | 1196 |
| Kono | 22 | 9.3 | 2 | 0.8 | 231 | 8 | 1.2 | 2 | 0.3 | 704 |
| Bombali | 26 | 10.7 | 2 | 0.8 | 247 | 11 | 1.3 | 3 | 0.4 | 833 |
| Falaba | 7 | 9.3 | 1 | 0.7 | 75 | 4 | 1.6 | 1 | 0.3 | 289 |
| Koinadugu | 17 | 13.9 | 4 | 3.6 | 119 | 11 | 2.8 | 3 | 0.8 | 409 |
| Tonkolili | 32 | 8.6 | 7 | 1.8 | 378 | 14 | 0.9 | 2 | 0.1 | 1536 |
| Kambia | 12 | 9.7 | 1 | 0.6 | 125 | 9 | 1.7 | 1 | 0.2 | 529 |
| Karene | 26 | 15.1 | 0 | 0.0 | 172 | 12 | 2.1 | 2 | 0.4 | 567 |
| Port Loko | 13 | 6.8 | 3 | 1.7 | 187 | 21 | 2.0 | 2 | 0.2 | 1019 |
| Bo | 57 | 16.0 | 1 | 0.4 | 357 | 16 | 1.3 | 3 | 0.2 | 1254 |
| Bonthe | 8 | 12.9 | 3 | 4.0 | 63 | 7 | 2.0 | 3 | 0.7 | 348 |
| Moyamba | 10 | 8.3 | 3 | 2.3 | 119 | 13 | 2.0 | 0 | 0.0 | 639 |
| Pujehun | 34 | 16.8 | 5 | 2.7 | 202 | 7 | 1.1 | 1 | 0.2 | 611 |
| WA-Rural | 14 | 6.9 | 3 | 1.3 | 208 | 6 | 0.8 | 1 | 0.1 | 745 |
| WA-Slums | 29 | 13.7 | 3 | 1.4 | 211 | 11 | 1.2 | 2 | 0.2 | 917 |
| WA-Urban | 69 | 10.0 | 10 | 1.4 | 696 | 31 | 1.4 | 2 | 0.1 | 2227 |
| Total* | 476 | 12.4 | 73 | 1.9 | 3838 | 256 | 1.8 | 47 | 0.3 | 14550 |

*Weighted analysis for aggregated national rates

However, the prevalence of global acute malnutrition using MUAC (MUAC<185 mm) among reconstituted adolescent girls (10-19 years) was 8.5 per cent, with severe wasting (MUAC<160 mm) rate of 1.4 per cent (**Table 30**). Prevalence of GAM MUAC in adolescent girls (10-19 years) varied from the lowest in WA-Rural (4.8 per cent) to the highest in Kenema (16.3 per cent).

Among the assessed adolescent boys (10-19 years), the global and severe acute malnutrition using MUAC was 10.7 per cent and 1.0 per cent, respectively. The GAM MUAC among adolescent boys (10-19 years) ranged from 6.1 per cent in Kambia to 23.6 per cent in Kailahun (**see Table 30**):

Table 30: Acute malnutrition based on mid upper arm circumference among reconstituted adolescent groups

| District | Adolescent boys (10-19 years) | | | | | Adolescent Girls (10-19 years) | | | | |
|--------------|-------------------------------|-------------|-----------|------------|-------------|--------------------------------|------------|-----------|------------|-------------|
| | GAM MUAC | | SAM MUAC | | Total | GAM MUAC | | SAM MUAC | | Total |
| | n | % | n | % | N | n | % | n | % | N |
| Kailahun | 46 | 23.6 | 11 | 5.5 | 193 | 42 | 14.9 | 12 | 4.1 | 282 |
| Kenema | 79 | 17.4 | 9 | 2.0 | 453 | 91 | 16.3 | 27 | 4.9 | 560 |
| Kono | 24 | 8.6 | 0 | 0.0 | 275 | 24 | 6.0 | 3 | 0.7 | 394 |
| Bombali | 32 | 8.0 | 1 | 0.3 | 394 | 30 | 7.0 | 2 | 0.5 | 423 |
| Falaba | 12 | 13.0 | | 0.5 | 92 | 9 | 6.7 | 1 | 0.7 | 134 |
| Koinadugu | 21 | 13.2 | 2 | 1.5 | 161 | 20 | 9.7 | 5 | 2.3 | 204 |
| Tonkolili | 48 | 8.0 | 2 | 0.3 | 599 | 37 | 5.1 | 7 | 0.9 | 732 |
| Kambia | 10 | 6.1 | 1 | 0.5 | 160 | 16 | 7.4 | 2 | 0.7 | 217 |
| Karene | 16 | 6.2 | 1 | 0.3 | 261 | 31 | 9.9 | 1 | 0.2 | 313 |
| Port Loko | 24 | 8.5 | 5 | 1.7 | 279 | 24 | 6.3 | 3 | 0.8 | 379 |
| Bo | 77 | 13.8 | 3 | 0.5 | 563 | 64 | 10.2 | 4 | 0.7 | 628 |
| Bonthe | 8 | 9.5 | 1 | 0.6 | 86 | 9 | 7.6 | 3 | 2.5 | 121 |
| Moyamba | 24 | 12.6 | 3 | 1.4 | 192 | 16 | 7.3 | 3 | 1.2 | 220 |
| Pujehun | 29 | 10.0 | 2 | 0.7 | 287 | 37 | 11.2 | 5 | 1.6 | 335 |
| WA-Rural | 17 | 6.7 | 1 | 0.4 | 256 | 17 | 4.8 | 3 | 0.8 | 356 |
| WA-Slums | 38 | 11.9 | 7 | 2.2 | 318 | 34 | 8.5 | 4 | 1.0 | 402 |
| WA-Urban | 77 | 8.8 | 7 | 0.8 | 866 | 79 | 7.1 | 12 | 1.1 | 1113 |
| Total | 580 | 10.7 | 55 | 1.0 | 5433 | 580 | 8.5 | 96 | 1.4 | 6813 |

These were disaggregated by physiological status; global acute malnutrition by MUAC (MUAC<230 mm) among pregnant and lactating women (PLW) was **5.5 per cent**. Those with severe acute malnutrition (MUAC<210 mm) of 0.9 per cent; while among the non-pregnant and lactating women (15-49 years), GAM

MUAC (MUAC<185 mm) and SAMMUC (MUAC<160 mm) were much lower at 0.5 per cent and 0.2 per cent respectively (**Table 31**). Among the PLWs, the prevalence of acute malnutrition (MUAC<23 cm) varied from 1.9 per cent in Pujehun to 11.4 per cent in Kenema.

Table 31: Acute malnutrition by mid upper arm circumference among pregnant and non-pregnant women (15-49 years)

| District | Pregnant/Lactating WRA | | | | | Non-pregnant/lactating WRA | | | | |
|---------------|------------------------|------------|-----------|------------|-------------|----------------------------|------------|-----------|------------|--------------|
| | GAM MUAC | | SAM MUAC | | Total | GAM MUAC | | SAM MUAC | | Total |
| | n | % | n | % | N | n | % | n | % | N |
| Kailahun | 16 | 7.7 | 4 | 1.6 | 213 | 2 | 0.5 | 2 | 0.5 | 512 |
| Kenema | 44 | 11.4 | 8 | 2.0 | 388 | 12 | 1.5 | 6 | 0.8 | 808 |
| Kono | 6 | 2.9 | 0 | 0.0 | 197 | 3 | 0.6 | 2 | 0.4 | 507 |
| Bombali | 9 | 4.1 | 2 | 0.9 | 222 | 2 | 0.3 | 1 | 0.2 | 612 |
| Falaba | 2 | 3.5 | 1 | 0.9 | 57 | 2 | 1.1 | 1 | 0.2 | 232 |
| Koinadugu | 3 | 4.0 | 1 | 1.7 | 83 | 8 | 2.5 | 2 | 0.6 | 326 |
| Tonkolili | 12 | 2.9 | 0 | 0.0 | 416 | 2 | 0.2 | 2 | 0.2 | 1121 |
| Kambia | 6 | 4.4 | 0 | 0.0 | 129 | 3 | 0.8 | 1 | 0.2 | 400 |
| Karene | 11 | 6.8 | 1 | 0.9 | 154 | 1 | 0.3 | 1 | 0.2 | 413 |
| Port Loko | 19 | 7.1 | 0 | 0.0 | 270 | 2 | 0.2 | 2 | 0.2 | 749 |
| Bo | 13 | 3.9 | 0 | 0.0 | 341 | 3 | 0.3 | 3 | 0.3 | 913 |
| Bonthe | 5 | 5.2 | 1 | 1.0 | 97 | 2 | 0.8 | 2 | 0.6 | 251 |
| Moyamba | 11 | 6.2 | 0 | 0.0 | 175 | 2 | 0.4 | 0 | 0.0 | 464 |
| Pujehun | 3 | 1.9 | 0 | 0.0 | 180 | 3 | 0.8 | 1 | 0.3 | 431 |
| WA-Rural | 4 | 2.3 | 0 | 0.0 | 158 | 3 | 0.5 | 1 | 0.2 | 587 |
| WA-Slums | 9 | 4.5 | 1 | 0.5 | 199 | 2 | 0.3 | 1 | 0.1 | 718 |
| WA-Urban | 26 | 7.5 | 2 | 0.7 | 352 | 5 | 0.3 | 0 | 0.0 | 1876 |
| Total* | 199 | 5.5 | 21 | 0.6 | 3630 | 57 | 0.5 | 26 | 0.2 | 10921 |

*Weighted analysis for aggregated national rates

6.3.3 Nutrition status by body mass index among adolescent girls, adolescent boys and women of reproductive age

The national prevalence of underweight (BMI<18.5) and severe underweight (BMI<16.0) among the assessed adolescent girls (10-14 years) was 2.4 per cent and 0.6 per cent, respectively. Furthermore, 0.7 per cent and 0.1 per cent were overweight and obese, respectively. The highest underweight in girls was reported in

Moyamba (5.3 per cent) and Port Loko (5.2 per cent); however, the lowest underweight rates were reported in Tonkolili, Karene and Koinadugu (<1.0 per cent) districts (see **Table 32**). When reconstituted to include the 10-19 years, the adolescent girl demographic group has a national prevalence of underweight (BMI<18.5) and severe underweight (BMI<16.0) among the assessed adolescent girls (10-14 years) is 5.9 per cent and 1.0 per cent, respectively. However, the prevalence of overweight and obese is 3.6 per cent and 0.6 per cent, respectively (see **Table 33**).



Table 32: Nutrition status by **body mass index (Kg/m²)** among adolescent girls (10-14 yrs)

| District | Malnutrition by BMI-non-pregnant Girls (10-14 yrs) | | | | | | | | | | |
|---------------|--|------------|-------------|------------|-------------|-------------|------------|------------|----------|------------|-------------|
| | Severe Underweight | | Underweight | | Healthy | | Overweight | | Obese | | Total |
| | n | % | n | % | n | % | n | % | n | % | N |
| Kailahun | 0 | 0.0 | 6 | 4.4 | 127 | 95.6 | 0 | 0.0 | 0 | 0.0 | 133 |
| Kenema | 0 | 0.0 | 9 | 3.1 | 285 | 96.4 | 2 | 0.5 | 0 | 0.0 | 295 |
| Kono | 0 | 0.0 | 5 | 2.1 | 219 | 96.7 | 2 | 0.8 | 1 | 0.4 | 227 |
| Bombali | 1 | 0.4 | 4 | 1.7 | 240 | 97.5 | 1 | 0.4 | 0 | 0.0 | 246 |
| Falaba | 1 | 1.3 | 3 | 4.7 | 68 | 91.3 | 1 | 2.0 | 1 | 0.7 | 74 |
| Koinadugu | 3 | 2.8 | 1 | 0.8 | 111 | 95.9 | 1 | 0.4 | 0 | 0.0 | 116 |
| Tonkolili | 2 | 0.5 | 0 | 0.0 | 364 | 99.5 | 0 | 0.0 | 0 | 0.0 | 366 |
| Kambia | 0 | 0.0 | 3 | 2.6 | 120 | 96.8 | 1 | 0.6 | 0 | 0.0 | 124 |
| Karene | 1 | 0.4 | 1 | 0.8 | 163 | 98.3 | 1 | 0.4 | 0 | 0.0 | 166 |
| Port Loko | 0 | 0.0 | 10 | 5.2 | 175 | 94.8 | 0 | 0.0 | 0 | 0.0 | 184 |
| Bo | 4 | 1.2 | 6 | 1.6 | 343 | 96.7 | 1 | 0.4 | 0 | 0.0 | 355 |
| Bonthe | 1 | 1.7 | 1 | 1.7 | 57 | 93.3 | 2 | 3.3 | 0 | 0.0 | 61 |
| Moyamba | 1 | 0.8 | 6 | 5.3 | 111 | 93.9 | 0 | 0.0 | 0 | 0.0 | 119 |
| Pujehun | 0 | 0.0 | 2 | 1.0 | 196 | 99.0 | 0 | 0.0 | 0 | 0.0 | 198 |
| WA-Rural | 0 | 0.0 | 3 | 1.3 | 202 | 98.3 | 1 | 0.4 | 0 | 0.0 | 206 |
| WA-Slums | 3 | 1.4 | 8 | 3.8 | 197 | 93.4 | 3 | 1.4 | 0 | 0.0 | 211 |
| WA-Urban | 7 | 1.0 | 24 | 3.5 | 641 | 93.7 | 10 | 1.4 | 2 | 0.3 | 684 |
| Total* | 24 | 0.6 | 92 | 2.4 | 3621 | 96.1 | 25 | 0.7 | 4 | 0.1 | 3766 |

*Weighted analysis for aggregated national rates

Table 33: Nutrition status by **body mass index** (Kg/m²) among reconstituted adolescent girls (10-19 yrs)

| District | Malnutrition by BMI-non-pregnant Girls (10-19 yrs) | | | | | | | | | | |
|--------------|--|------------|-------------|------------|-------------|-------------|------------|------------|-----------|------------|-------------|
| | Severe Underweight | | Underweight | | Healthy | | Overweight | | Obese | | Total |
| | n | % | n | % | n | % | n | % | n | % | N |
| Kailahun | 1 | 0.5 | 12 | 5.2 | 205 | 91.6 | 6 | 2.6 | 0 | 0.0 | 223 |
| Kenema | 2 | 0.3 | 21 | 4.3 | 447 | 91.0 | 21 | 4.3 | 0 | 0.0 | 492 |
| Kono | 3 | 0.8 | 17 | 4.6 | 331 | 90.3 | 13 | 3.6 | 3 | 0.8 | 367 |
| Bombali | 2 | 0.5 | 21 | 5.4 | 351 | 89.1 | 17 | 4.4 | 2 | 0.5 | 394 |
| Falaba | 1 | 1.2 | 11 | 8.7 | 109 | 86.2 | 4 | 3.2 | 1 | .8 | 126 |
| Koinadugu | 4 | 2.2 | 12 | 6.2 | 168 | 87.9 | 7 | 3.5 | | 0.2 | 191 |
| Tonkolili | 2 | 0.3 | 41 | 6.1 | 613 | 91.8 | 10 | 1.5 | 2 | 0.3 | 668 |
| Kambia | 1 | 0.4 | 14 | 6.9 | 178 | 88.7 | 8 | 4.0 | 0 | 0.0 | 200 |
| Karene | 3 | 1.0 | 14 | 4.9 | 258 | 90.4 | 7 | 2.5 | 4 | 1.2 | 285 |
| Port Loko | 5 | 1.4 | 33 | 9.8 | 297 | 87.0 | 5 | 1.4 | 2 | 0.5 | 341 |
| Bo | 9 | 1.5 | 19 | 3.2 | 544 | 92.3 | 15 | 2.5 | 3 | 0.5 | 589 |
| Bonthe | 2 | 1.4 | 6 | 5.7 | 89 | 83.4 | 8 | 7.1 | 3 | 2.4 | 107 |
| Moyamba | 3 | 1.4 | 17 | 8.7 | 173 | 87.7 | 4 | 2.3 | 0 | 0.0 | 197 |
| Pujehun | 1 | 0.2 | 8 | 2.6 | 293 | 95.4 | 5 | 1.5 | 1 | 0.2 | 308 |
| WA-Rural | 3 | 0.8 | 20 | 5.8 | 304 | 89.4 | 12 | 3.4 | 2 | 0.5 | 340 |
| WA-Slums | 7 | 1.8 | 37 | 9.7 | 311 | 81.2 | 24 | 6.3 | 4 | 1.0 | 383 |
| WA-Urban | 19 | 1.8 | 67 | 6.2 | 926 | 85.2 | 62 | 5.7 | 14 | 1.3 | 1086 |
| Total | 66 | 1.0 | 370 | 5.9 | 5596 | 88.9 | 228 | 3.6 | 39 | 0.6 | 6297 |

Table 34: Nutrition status by body mass index (Kg/m²) among adolescent boys (10-19 yrs)

| District | Malnutrition by BMI - Boys (10-19 yrs) | | | | | | | | | | |
|---------------|--|------------|-------------|------------|-------------|-------------|------------|------------|----------|------------|-------------|
| | Severe Underweight | | Underweight | | Healthy | | Overweight | | Obese | | Total |
| | n | % | n | % | n | % | n | % | n | % | N |
| Kailahun | 1 | 0.6 | 8 | 4.2 | 179 | 92.7 | 5 | 2.4 | 0 | 0.0 | 193 |
| Kenema | 6 | 1.3 | 5 | 1.0 | 434 | 95.6 | 9 | 2.0 | 0 | 0.0 | 453 |
| Kono | 1 | 0.3 | 11 | 4.1 | 258 | 93.8 | 5 | 1.7 | 0 | 0.0 | 275 |
| Bombali | 6 | 1.6 | 7 | 1.8 | 380 | 96.4 | 1 | 0.3 | 0 | 0.0 | 394 |
| Falaba | 4 | 4.3 | 7 | 7.6 | 81 | 87.6 | 1 | 0.5 | 0 | 0.0 | 92 |
| Koinadugu | 5 | 2.9 | 5 | 3.2 | 151 | 93.8 | 0 | 0.0 | 0 | 0.0 | 161 |
| Tonkolili | 5 | 0.9 | 15 | 2.6 | 572 | 96.0 | 3 | 0.6 | 0 | 0.0 | 596 |
| Kambia | 0 | 0.0 | 5 | 3.0 | 155 | 96.5 | 1 | 0.5 | 0 | 0.0 | 161 |
| Karene | 1 | 0.5 | 6 | 2.2 | 254 | 97.3 | 0 | 0.0 | 0 | 0.0 | 261 |
| Port Loko | 3 | 1.1 | 16 | 5.6 | 262 | 93.2 | 0 | 0.0 | 0 | 0.0 | 281 |
| Bo | 9 | 1.6 | 7 | 1.3 | 545 | 96.9 | 1 | 0.3 | 0 | 0.0 | 563 |
| Bonthe | 2 | 1.8 | 3 | 2.9 | 78 | 90.6 | 4 | 4.7 | 0 | 0.0 | 86 |
| Moyamba | 0 | 0.0 | 6 | 3.3 | 185 | 95.8 | 2 | 0.9 | 0 | 0.0 | 193 |
| Pujehun | 1 | 0.5 | 7 | 2.4 | 277 | 96.7 | 1 | 0.5 | 0 | 0.0 | 287 |
| WA-Rural | 4 | 1.8 | 5 | 2.1 | 245 | 95.8 | 1 | 0.4 | 0 | 0.0 | 256 |
| WA-Slums | 11 | 3.5 | 19 | 6.0 | 287 | 90.3 | 1 | 0.3 | 0 | 0.0 | 318 |
| WA-Urban | 19 | 2.2 | 26 | 3.0 | 809 | 93.4 | 12 | 1.4 | 0 | 0.0 | 866 |
| Total* | 79 | 1.5 | 159 | 2.9 | 5150 | 94.8 | 47 | 0.9 | 0 | 0.0 | 5435 |

*Weighted analysis for aggregated national rates

Among the assessed non-pregnant women of reproductive age (15 to 49 years), the national prevalence of underweight (BMI<18.5) and severe underweight

(BMI<16.0) was 4.8 per cent and 0.6 per cent, respectively. However, the overweight and obesity rates were high at 21.4 per cent respectively and 8.5 per cent, respectively,

indicating the country's double burden of malnutrition. The levels of underweight in WRA ranged from 2.1 per cent in Kenema to 7.6 per cent in Koinadugu; while overweight ranged from 15.5 per cent in Tonkolili to 27.8

per cent in Western Area Urban; and other obesity ranged from 5.0 per cent in Pujehun to 15.2 per cent in the Western Area Slums population (see **Table 35**).

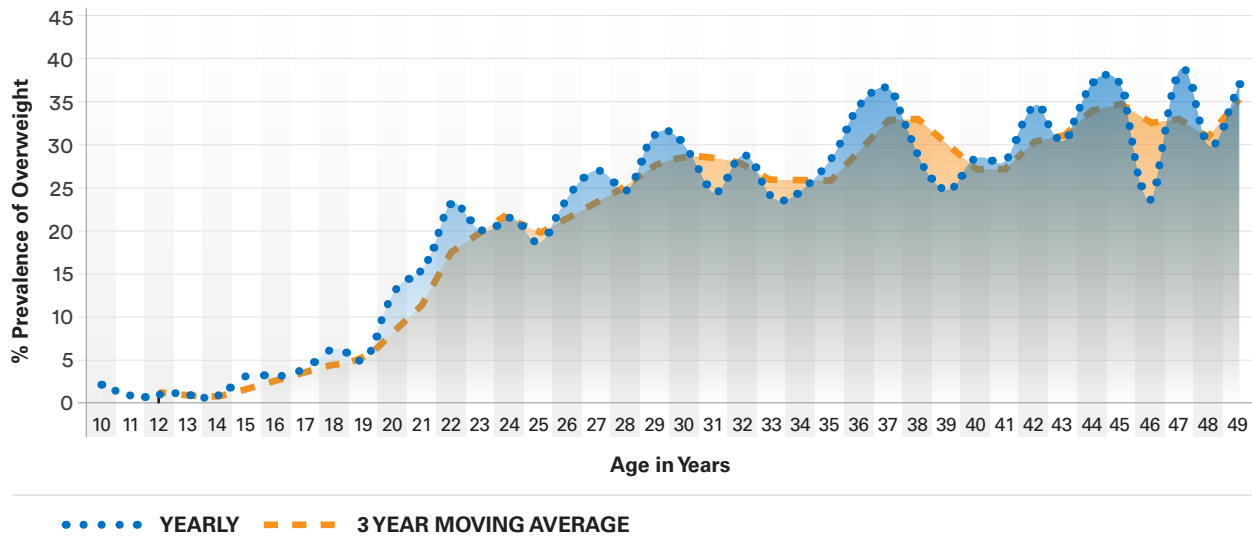
Table 35: Nutrition status by **body mass index** (Kg/m²) among non-pregnant women (15-49 yrs)

| District | Malnutrition by BMI-non pregnant women (15-49 yrs) | | | | | | | | | | |
|--------------|--|------------|-------------|------------|-------------|-------------|-------------|-------------|------------|------------|--------------|
| | Severe Underweight | | Underweight | | Healthy | | Overweight | | Obese | | Total |
| | n | % | n | % | n | % | n | % | n | % | N |
| Kailahun | 5 | 0.9 | 19 | 3.6 | 349 | 68.1 | 113 | 22.1 | 27 | 5.2 | 513 |
| Kenema | 5 | 0.6 | 17 | 2.1 | 537 | 66.5 | 190 | 23.5 | 59 | 7.3 | 808 |
| Kono | 8 | 1.5 | 26 | 5.2 | 324 | 64.0 | 106 | 21.0 | 42 | 8.3 | 507 |
| Bombali | 1 | 0.2 | 35 | 5.6 | 409 | 66.8 | 119 | 19.4 | 49 | 8.0 | 613 |
| Falaba | 3 | 1.3 | 15 | 6.4 | 154 | 66.1 | 42 | 18.2 | 18 | 7.9 | 232 |
| Koinadugu | 4 | 1.3 | 24 | 7.4 | 222 | 67.8 | 58 | 17.7 | 19 | 5.8 | 327 |
| Tonkolili | 2 | 0.2 | 73 | 6.5 | 811 | 72.2 | 174 | 15.5 | 63 | 5.6 | 1122 |
| Kambia | 1 | 0.2 | 23 | 5.6 | 282 | 70.4 | 71 | 17.7 | 24 | 6.0 | 400 |
| Karene | 2 | 0.5 | 26 | 6.3 | 281 | 68.0 | 74 | 17.9 | 30 | 7.3 | 413 |
| Port Loko | 5 | 0.6 | 49 | 6.6 | 506 | 67.6 | 143 | 19.1 | 46 | 6.1 | 749 |
| Bo | 4 | 0.5 | 26 | 2.9 | 609 | 66.7 | 208 | 22.7 | 66 | 7.2 | 913 |
| Bonthe | 1 | 0.2 | 11 | 4.4 | 150 | 59.9 | 63 | 25.2 | 26 | 10.3 | 251 |
| Moyamba | 3 | 0.6 | 27 | 5.8 | 298 | 64.3 | 102 | 22.1 | 33 | 7.2 | 464 |
| Pujehun | 1 | 0.3 | 11 | 2.5 | 313 | 72.5 | 85 | 19.7 | 22 | 5.0 | 432 |
| WA-Rural | 4 | 0.6 | 24 | 4.1 | 391 | 66.6 | 118 | 20.2 | 50 | 8.5 | 588 |
| WA-Slums | 9 | 1.3 | 49 | 6.8 | 404 | 56.2 | 148 | 20.6 | 109 | 15.2 | 719 |
| WA-Urban | 12 | 0.6 | 69 | 3.7 | 1026 | 54.7 | 522 | 27.8 | 246 | 13.1 | 1876 |
| Total | 68 | 0.6 | 524 | 4.8 | 7068 | 64.7 | 2337 | 21.4 | 930 | 8.5 | 10928 |

Further analysis shows that overweight tends to pick from below 5 per cent in teenage, increases rapidly to around 30 per

cent at age 28-30 years and peaks above 35 per cent after 45 years (see **Figure 13**).

Figure 13: Trends of overweight by age among adolescents and women of reproductive age



6.3.4 Dietary diversity among adolescent girls, adolescent boys and women (15-49 years)

The dietary consumption pattern was characterized by the most frequent intake of foods from grains among the assessed adolescent girls (98.9 per cent), adolescent boys (99.1 per cent), and WRA (98.7). This is followed by meat, poultry & fish products (86.7 per cent, 87.9 per cent and 87.8 per cent in girls, boys and WRA respectively), and dark green leafy vegetables (83.9 per cent, 85.6 per cent and 84.8 per cent in

girls, boys and WRA respectively) food groups in a 24-hour recall. Eggs (17.8 per cent, 17.9 per cent and 19.3 per cent in girls, boys and WRA, respectively) are the least frequently consumed, followed by dairy products (23.1 per cent, 22.0 per cent and 23.1 per cent in girls, boys and WRA respectively), and other fruits (28.8 per cent, 30.1 per cent and 30.1 per cent in girls, boys and WRA respectively). The consumption pattern is similar for all the three assessed demographic groups of adolescent girls (see **Table 36**), adolescent boys (see **Table 37**) and women of reproductive age (see **Table 38**).

Table 36: Consumption pattern for different food groups among adolescent girls (10-14 yrs)

| District | Grains, white roots & tubers [A+B] | | Pulses [C] | | Nuts and seeds [D] | | Dairy [E] | | Meat, poultry & fish [F+G+H] | | Eggs [I] | | Dark green leafy vegetables [J] | | Other vitamin-A-rich fruits and vegetables [K+L] | | Other vegetables [M] | | Other fruits [N] | | Total |
|--------------|------------------------------------|-------------|-------------|-------------|--------------------|-------------|------------|-------------|------------------------------|-------------|------------|-------------|---------------------------------|-------------|--|-------------|----------------------|-------------|------------------|-------------|-------------|
| | n | % | n | % | n | % | n | % | n | % | n | % | n | % | n | % | n | % | n | % | |
| Bo | 349 | 98.4 | 114 | 32.1 | 253 | 71.2 | 96 | 27.2 | 345 | 97.1 | 73 | 20.6 | 326 | 91.8 | 257 | 72.4 | 234 | 65.8 | 118 | 33.3 | 355 |
| Bombali | 246 | 99.6 | 100 | 40.3 | 167 | 67.5 | 37 | 14.8 | 224 | 90.5 | 49 | 19.8 | 221 | 89.3 | 140 | 56.8 | 128 | 51.9 | 60 | 24.3 | 247 |
| Bonthe | 61 | 97.6 | 28 | 45.2 | 31 | 50.0 | 7 | 11.3 | 48 | 76.6 | 10 | 15.3 | 55 | 87.9 | 43 | 67.7 | 31 | 50.0 | 22 | 35.5 | 63 |
| Falaba | 74 | 99.3 | 28 | 37.3 | 40 | 54.0 | 8 | 10.7 | 49 | 66.0 | 6 | 8.7 | 48 | 64.7 | 33 | 44.0 | 32 | 42.7 | 10 | 13.3 | 75 |
| Kailahun | 137 | 98.3 | 43 | 31.1 | 76 | 54.6 | 13 | 9.2 | 116 | 83.2 | 18 | 12.6 | 125 | 89.9 | 85 | 61.3 | 72 | 52.1 | 37 | 26.9 | 139 |
| Kambia | 126 | 100 | 50 | 39.7 | 78 | 62.2 | 17 | 13.5 | 92 | 73.1 | 9 | 7.1 | 115 | 91.0 | 98 | 77.6 | 99 | 78.8 | 66 | 52.6 | 126 |
| Karene | 172 | 98.4 | 79 | 45.4 | 97 | 55.4 | 29 | 16.5 | 158 | 90.4 | 22 | 12.9 | 164 | 93.6 | 89 | 50.6 | 95 | 54.2 | 59 | 33.7 | 175 |
| Kenema | 304 | 98.5 | 122 | 39.4 | 205 | 66.5 | 38 | 12.3 | 266 | 86.2 | 59 | 19.2 | 278 | 90.1 | 196 | 63.5 | 192 | 62.1 | 91 | 29.6 | 309 |
| Koinadugu | 118 | 99.2 | 48 | 40.2 | 77 | 64.5 | 11 | 9.2 | 81 | 68.1 | 6 | 5.2 | 77 | 65.3 | 58 | 48.6 | 55 | 46.2 | 17 | 14.7 | 119 |
| Kono | 230 | 99.6 | 99 | 42.7 | 134 | 58.1 | 35 | 15.0 | 199 | 86.2 | 37 | 15.9 | 202 | 87.4 | 150 | 65.0 | 139 | 60.2 | 93 | 40.2 | 231 |
| Moyamba | 119 | 100 | 57 | 47.7 | 63 | 53.0 | 14 | 12.1 | 94 | 79.5 | 14 | 12.1 | 109 | 91.7 | 91 | 76.5 | 92 | 77.3 | 44 | 37.1 | 119 |
| Port Loko | 187 | 100 | 89 | 47.5 | 111 | 59.3 | 24 | 12.7 | 152 | 81.4 | 29 | 15.3 | 168 | 89.8 | 156 | 83.1 | 152 | 81.4 | 98 | 52.5 | 187 |
| Pujehun | 200 | 99.7 | 75 | 37.5 | 150 | 74.7 | 25 | 12.5 | 191 | 94.9 | 30 | 14.9 | 186 | 92.6 | 168 | 83.8 | 153 | 76.0 | 74 | 36.8 | 201 |
| Tonkolili | 375 | 99.1 | 160 | 42.3 | 215 | 56.8 | 78 | 20.7 | 342 | 90.5 | 82 | 21.6 | 317 | 83.8 | 245 | 64.9 | 225 | 59.5 | 136 | 36.0 | 378 |
| WA-Rural | 207 | 99.6 | 98 | 47.0 | 141 | 67.7 | 71 | 34.1 | 196 | 94.0 | 63 | 30.2 | 176 | 84.5 | 132 | 63.4 | 134 | 64.2 | 64 | 30.6 | 208 |
| WA-Slums | 209 | 99.5 | 85 | 40.5 | 153 | 72.9 | 91 | 43.3 | 172 | 81.9 | 51 | 24.3 | 154 | 73.3 | 104 | 49.5 | 121 | 57.6 | 25 | 11.9 | 210 |
| WA-Urban | 682 | 97.9 | 246 | 35.4 | 459 | 66.0 | 294 | 42.3 | 603 | 86.6 | 124 | 17.9 | 498 | 71.5 | 285 | 40.9 | 450 | 64.6 | 89 | 12.7 | 696 |
| Total | 3797 | 98.9 | 1521 | 39.6 | 2451 | 63.9 | 888 | 23.1 | 3329 | 86.7 | 682 | 17.8 | 3219 | 83.9 | 2330 | 60.7 | 2404 | 62.6 | 1105 | 28.8 | 3838 |

Table 37: Consumption pattern for different food groups among adolescent boys (10-19 yrs)

| District | Grains, white roots & tubers [A+B] | | Pulses [C] | | Nuts and seeds [D] | | Dairy [E] | | Meat, poultry & fish [F+G+H] | | Eggs [I] | | Dark green leafy vegetables [J] | | Other vitamin-A-rich fruits and vegetables [K+L] | | Other vegetables [M] | | Other fruits [N] | | Total | |
|--------------|------------------------------------|-------------|-------------|-------------|--------------------|-------------|-------------|-------------|------------------------------|-------------|------------|-------------|---------------------------------|-------------|--|-------------|----------------------|-------------|------------------|-------------|-------------|---|
| | n | % | n | % | n | % | n | % | n | % | n | % | n | % | n | % | n | % | n | % | n | % |
| Bo | 561 | 99.7 | 208 | 36.9 | 411 | 73.0 | 121 | 21.6 | 539 | 95.8 | 102 | 18.2 | 516 | 91.7 | 424 | 75.3 | 412 | 73.2 | 181 | 32.2 | 563 | |
| Bombali | 392 | 99.5 | 154 | 39.0 | 251 | 63.8 | 68 | 17.3 | 351 | 89.1 | 77 | 19.6 | 361 | 91.7 | 232 | 58.9 | 187 | 47.5 | 102 | 25.8 | 394 | |
| Bonthe | 86 | 99.4 | 42 | 48.2 | 44 | 51.2 | 7 | 8.2 | 72 | 83.5 | 14 | 16.5 | 75 | 87.6 | 60 | 69.4 | 51 | 58.8 | 30 | 34.7 | 86 | |
| Falaba | 91 | 98.9 | 36 | 39.5 | 53 | 57.3 | 11 | 11.9 | 60 | 64.9 | 4 | 4.9 | 65 | 70.8 | 41 | 44.3 | 41 | 44.9 | 12 | 13.5 | 92 | |
| Kailahun | 189 | 98.2 | 62 | 32.1 | 101 | 52.1 | 18 | 9.1 | 168 | 87.3 | 23 | 12.1 | 157 | 81.2 | 113 | 58.8 | 111 | 57.6 | 57 | 29.7 | 193 | |
| Kambia | 161 | 100 | 70 | 43.7 | 112 | 69.8 | 19 | 11.6 | 125 | 77.9 | 18 | 11.1 | 143 | 88.9 | 126 | 78.4 | 123 | 76.9 | 85 | 52.8 | 161 | |
| Karene | 260 | 99.5 | 91 | 34.7 | 161 | 61.6 | 36 | 13.7 | 214 | 82.0 | 41 | 15.9 | 231 | 88.4 | 142 | 54.3 | 112 | 43.0 | 103 | 39.5 | 262 | |
| Kenema | 449 | 99.0 | 167 | 36.9 | 248 | 54.7 | 91 | 20.1 | 434 | 95.6 | 114 | 25.2 | 391 | 86.2 | 286 | 63.1 | 286 | 63.1 | 132 | 29.2 | 453 | |
| Koinadugu | 160 | 98.5 | 60 | 37.2 | 111 | 68.0 | 17 | 10.2 | 111 | 68.6 | 12 | 7.6 | 103 | 63.4 | 67 | 41.3 | 69 | 42.4 | 21 | 13.1 | 162 | |
| Kono | 275 | 100 | 115 | 41.6 | 164 | 59.4 | 41 | 15.0 | 241 | 87.4 | 53 | 19.1 | 242 | 87.7 | 183 | 66.6 | 165 | 60.1 | 87 | 31.7 | 275 | |
| Moyamba | 192 | 99.5 | 92 | 47.4 | 118 | 60.9 | 7 | 3.7 | 152 | 78.6 | 20 | 10.2 | 170 | 87.9 | 146 | 75.3 | 140 | 72.6 | 83 | 42.8 | 193 | |
| Port Loko | 278 | 98.9 | 156 | 55.4 | 183 | 65.0 | 35 | 12.4 | 237 | 84.2 | 33 | 11.9 | 265 | 94.4 | 235 | 83.6 | 233 | 83.1 | 165 | 58.8 | 281 | |
| Pujehun | 285 | 99.5 | 134 | 46.9 | 216 | 75.4 | 41 | 14.2 | 274 | 95.7 | 37 | 12.8 | 256 | 89.3 | 242 | 84.6 | 226 | 78.9 | 113 | 39.6 | 287 | |
| Tonkolili | 591 | 98.3 | 324 | 53.8 | 371 | 61.8 | 94 | 15.6 | 530 | 88.1 | 141 | 23.5 | 542 | 90.1 | 380 | 63.2 | 366 | 60.9 | 271 | 45.0 | 601 | |
| WA-Rural | 252 | 98.6 | 100 | 38.9 | 157 | 61.4 | 83 | 32.6 | 249 | 97.5 | 80 | 31.2 | 209 | 81.8 | 164 | 64.2 | 155 | 60.7 | 74 | 28.8 | 256 | |
| WA-Slums | 316 | 98.8 | 140 | 43.8 | 224 | 70.0 | 128 | 40.0 | 262 | 81.9 | 75 | 23.4 | 231 | 72.2 | 149 | 46.6 | 171 | 53.4 | 45 | 14.1 | 320 | |
| WA-Urban | 866 | 98.9 | 297 | 33.9 | 586 | 66.9 | 385 | 44.0 | 775 | 88.5 | 132 | 15.0 | 713 | 81.4 | 440 | 50.3 | 548 | 62.6 | 81 | 9.3 | 876 | |
| Total | 5405 | 99.1 | 2246 | 41.2 | 3509 | 64.3 | 1202 | 22.0 | 4795 | 87.9 | 978 | 17.9 | 4670 | 85.6 | 3430 | 62.9 | 3399 | 62.3 | 1644 | 30.1 | 5454 | |

Table 38: Consumption pattern for different food groups among all women of reproductive age (15-49 yrs)

| District | Grains, white roots & tubers [A+B] | | Pulses [C] | | Nuts and seeds [D] | | Dairy [E] | | Meat, poultry & fish [F+G+H] | | Eggs [I] | | Dark green leafy vegetables [J] | | Other vitamin-A-rich fruits and vegetables [K+L] | | Other vegetables [M] | | Other fruits [N] | | Total N |
|--------------|------------------------------------|-------------|-------------|-------------|--------------------|-------------|-------------|-------------|------------------------------|-------------|-------------|-------------|---------------------------------|-------------|--|-------------|----------------------|-------------|------------------|-------------|--------------|
| | n | % | n | % | n | % | n | % | n | % | n | % | n | % | n | % | n | % | n | % | |
| Bo | 1244 | 99.3 | 495 | 39.6 | 887 | 70.8 | 295 | 23.6 | 1185 | 94.6 | 286 | 22.9 | 1139 | 90.9 | 963 | 76.9 | 905 | 72.2 | 466 | 37.2 | 1253 |
| Bombali | 828 | 99.4 | 344 | 41.3 | 555 | 66.5 | 147 | 17.6 | 738 | 88.5 | 150 | 17.9 | 767 | 92.1 | 478 | 57.4 | 402 | 48.2 | 207 | 24.8 | 833 |
| Bonthe | 342 | 98.4 | 136 | 39.0 | 151 | 43.5 | 23 | 6.7 | 272 | 78.2 | 55 | 15.7 | 300 | 86.2 | 239 | 68.6 | 168 | 48.3 | 103 | 29.5 | 348 |
| Falaba | 287 | 99.0 | 119 | 41.1 | 172 | 59.3 | 38 | 13.2 | 193 | 66.7 | 26 | 8.9 | 210 | 72.5 | 122 | 42.1 | 118 | 40.5 | 46 | 15.8 | 290 |
| Kailahun | 711 | 98.1 | 266 | 36.8 | 422 | 58.2 | 71 | 9.8 | 624 | 86.1 | 101 | 13.9 | 633 | 87.4 | 473 | 65.3 | 438 | 60.5 | 283 | 39.0 | 725 |
| Kambia | 527 | 99.4 | 225 | 42.5 | 332 | 62.6 | 75 | 14.2 | 437 | 82.5 | 56 | 10.7 | 491 | 92.7 | 433 | 81.6 | 427 | 80.5 | 245 | 46.1 | 530 |
| Karene | 563 | 99.4 | 223 | 39.3 | 340 | 60.0 | 100 | 17.6 | 501 | 88.3 | 82 | 14.5 | 520 | 91.8 | 300 | 53.0 | 269 | 47.5 | 194 | 34.2 | 567 |
| Kenema | 1184 | 99.0 | 470 | 39.3 | 749 | 62.6 | 173 | 14.5 | 1096 | 91.6 | 196 | 16.4 | 1090 | 91.1 | 752 | 62.8 | 730 | 61.1 | 358 | 29.9 | 1196 |
| Koinadugu | 404 | 98.4 | 156 | 38.0 | 265 | 64.6 | 47 | 11.4 | 287 | 69.9 | 35 | 8.5 | 267 | 65.1 | 186 | 45.2 | 176 | 42.8 | 46 | 11.3 | 410 |
| Kono | 701 | 99.5 | 299 | 42.4 | 429 | 60.8 | 124 | 17.6 | 635 | 90.0 | 148 | 20.9 | 623 | 88.4 | 494 | 70.0 | 415 | 58.8 | 277 | 39.3 | 705 |
| Moyamba | 636 | 99.6 | 271 | 42.3 | 350 | 54.7 | 37 | 5.8 | 519 | 81.2 | 69 | 10.8 | 552 | 86.4 | 480 | 75.1 | 466 | 72.9 | 235 | 36.8 | 639 |
| Port Loko | 1002 | 98.3 | 519 | 50.9 | 640 | 62.8 | 154 | 15.1 | 818 | 80.2 | 162 | 15.9 | 952 | 93.5 | 859 | 84.3 | 844 | 82.9 | 506 | 49.7 | 1019 |
| Pujehun | 608 | 99.3 | 251 | 41.0 | 462 | 75.6 | 96 | 15.8 | 579 | 94.6 | 90 | 14.7 | 559 | 91.3 | 493 | 80.6 | 469 | 76.7 | 249 | 40.7 | 612 |
| Tonkolili | 1506 | 97.9 | 732 | 47.6 | 976 | 63.5 | 347 | 22.6 | 1408 | 91.6 | 409 | 26.6 | 1361 | 88.5 | 1053 | 68.4 | 935 | 60.8 | 717 | 46.6 | 1538 |
| WA-Rural | 725 | 97.1 | 337 | 45.1 | 469 | 62.9 | 270 | 36.2 | 718 | 96.2 | 227 | 30.4 | 602 | 80.6 | 491 | 65.7 | 462 | 61.9 | 244 | 32.7 | 747 |
| WA-Slums | 907 | 98.2 | 448 | 48.5 | 664 | 71.9 | 404 | 43.7 | 807 | 87.3 | 262 | 28.4 | 626 | 67.7 | 430 | 46.5 | 505 | 54.7 | 150 | 16.2 | 924 |
| WA-Urban | 2206 | 98.8 | 816 | 36.5 | 1414 | 63.3 | 957 | 42.9 | 1969 | 88.2 | 464 | 20.8 | 1658 | 74.3 | 1060 | 47.5 | 1414 | 63.3 | 323 | 14.5 | 2232 |
| Total | 14380 | 98.7 | 6107 | 41.9 | 9276 | 63.7 | 3360 | 23.1 | 12784 | 87.8 | 2817 | 19.3 | 12351 | 84.8 | 9304 | 63.9 | 9143 | 62.8 | 4649 | 31.9 | 14568 |

There was no significant difference in the consumption pattern of different food groups or dietary diversity between the pregnant or lactating and non-pregnant groups of WRA. **Table 39** shows the consumption pattern among pregnant or lactating WRA, while **Table 40** shows consumption patterns among assessed non-pregnant or lactating WRA.

Table 39: Consumption pattern for different food groups among pregnant/lactating women of reproductive age (15-49 yrs)

| District | Grains, white roots & tubers [A+B] | | Pulses [C] | | Nuts and seeds [D] | | Dairy [E] | | Meat, poultry & fish [F+G+H] | | Eggs [I] | | Dark green leafy vegetables [J] | | Other vitamin-A-rich fruits and vegetables [K+L] | | Other vegetables [M] | | Other fruits [N] | | Total N |
|--------------|------------------------------------|-------------|-------------|-------------|--------------------|-------------|------------|-------------|------------------------------|-------------|------------|-------------|---------------------------------|-------------|--|-------------|----------------------|-------------|------------------|-------------|-------------|
| | n | % | n | % | n | % | n | % | n | % | n | % | n | % | n | % | n | % | n | % | |
| Kailahun | 208 | 97.8 | 60 | 28.0 | 125 | 58.8 | 23 | 11.0 | 180 | 84.6 | 47 | 22.0 | 191 | 89.6 | 143 | 67.0 | 125 | 58.8 | 54 | 25.3 | 213 |
| Kenema | 387 | 99.6 | 140 | 36.1 | 268 | 69.0 | 55 | 14.1 | 341 | 87.8 | 47 | 12.2 | 356 | 91.8 | 234 | 60.4 | 239 | 61.6 | 107 | 27.5 | 388 |
| Kono | 196 | 99.5 | 96 | 48.6 | 127 | 64.3 | 42 | 21.4 | 180 | 91.0 | 59 | 30.0 | 176 | 89.0 | 152 | 77.1 | 118 | 59.5 | 97 | 49.0 | 197 |
| Bombali | 221 | 99.5 | 78 | 35.3 | 157 | 70.6 | 37 | 16.5 | 182 | 82.1 | 42 | 18.8 | 209 | 94.0 | 142 | 64.2 | 109 | 49.1 | 69 | 31.2 | 222 |
| Falaba | 55 | 97.4 | 20 | 35.1 | 33 | 57.9 | 10 | 17.5 | 39 | 69.3 | 6 | 11.4 | 41 | 71.9 | 19 | 34.2 | 24 | 42.1 | 11 | 20.2 | 57 |
| Koinadugu | 82 | 98.3 | 23 | 27.3 | 53 | 63.6 | 9 | 11.4 | 54 | 64.8 | 9 | 10.2 | 51 | 61.9 | 27 | 32.4 | 32 | 38.1 | 8 | 9.7 | 83 |
| Tonkolili | 409 | 98.4 | 189 | 45.5 | 295 | 70.9 | 90 | 21.7 | 356 | 85.7 | 131 | 31.6 | 361 | 86.9 | 313 | 75.4 | 250 | 60.2 | 209 | 50.4 | 416 |
| Kambia | 128 | 99.4 | 67 | 51.9 | 88 | 68.1 | 19 | 15.0 | 97 | 75.0 | 13 | 10.0 | 119 | 92.5 | 115 | 89.4 | 116 | 90.0 | 74 | 57.5 | 129 |
| Karene | 154 | 100.0 | 59 | 38.4 | 98 | 63.9 | 20 | 12.8 | 129 | 83.6 | 25 | 16.4 | 143 | 93.2 | 82 | 53.4 | 70 | 45.2 | 64 | 41.6 | 154 |
| Port Loko | 264 | 97.6 | 138 | 51.2 | 159 | 58.8 | 44 | 16.5 | 208 | 77.1 | 41 | 15.3 | 249 | 92.4 | 254 | 94.1 | 240 | 88.8 | 135 | 50.0 | 270 |
| Bo | 338 | 99.6 | 126 | 37.1 | 238 | 70.3 | 76 | 22.4 | 333 | 98.3 | 72 | 21.1 | 310 | 91.4 | 235 | 69.4 | 231 | 68.1 | 99 | 29.3 | 339 |
| Bonthe | 96 | 99.5 | 41 | 41.9 | 44 | 45.0 | 6 | 6.3 | 82 | 84.3 | 16 | 16.8 | 83 | 85.3 | 70 | 72.3 | 49 | 50.3 | 27 | 28.3 | 97 |
| Moyamba | 175 | 100.0 | 75 | 43.1 | 102 | 58.5 | 8 | 4.6 | 139 | 79.5 | 13 | 7.2 | 155 | 88.7 | 146 | 83.1 | 142 | 81.0 | 67 | 38.5 | 175 |
| Pujehun | 179 | 99.6 | 61 | 34.0 | 146 | 81.1 | 26 | 14.3 | 173 | 96.2 | 21 | 11.7 | 165 | 91.7 | 140 | 77.7 | 143 | 79.6 | 56 | 31.3 | 180 |
| WA-Rural | 154 | 97.7 | 57 | 36.4 | 95 | 60.2 | 56 | 35.2 | 154 | 97.7 | 43 | 27.3 | 128 | 81.2 | 94 | 59.7 | 94 | 59.7 | 45 | 28.4 | 158 |
| WA-Slums | 197 | 98.0 | 79 | 39.3 | 145 | 72.1 | 85 | 42.3 | 177 | 88.1 | 49 | 24.4 | 154 | 76.6 | 108 | 53.7 | 125 | 62.2 | 22 | 10.9 | 201 |
| WA-Urban | 342 | 97.9 | 103 | 29.5 | 218 | 62.3 | 132 | 37.7 | 301 | 86.3 | 48 | 13.7 | 246 | 70.5 | 177 | 50.7 | 199 | 56.8 | 31 | 8.9 | 349 |
| Total | 3585 | 98.8 | 1412 | 38.9 | 2390 | 65.9 | 738 | 20.4 | 3125 | 86.1 | 682 | 18.8 | 3138 | 86.5 | 2453 | 67.6 | 2304 | 63.5 | 1177 | 32.4 | 3628 |

Table 40: Consumption pattern for different food groups among non-pregnant/lactating women of reproductive age (15-49 yrs)

| District | Grains, white roots & tubers [A+B] | | Pulses [C] | | Nuts and seeds [D] | | Dairy [E] | | Meat, poultry & fish [F+G+H] | | Eggs [I] | | Dark green leafy vegetables [J] | | Other vitamin-A-rich fruits and vegetables [K+L] | | Other vegetables [M] | | Other fruits [N] | | Total | | |
|--------------|------------------------------------|-------------|-------------|-------------|--------------------|-------------|-------------|-------------|------------------------------|-------------|-------------|-------------|---------------------------------|-------------|--|-------------|----------------------|-------------|------------------|-------------|--------------|---|--------------|
| | n | % | n | % | n | % | n | % | n | % | n | % | n | % | n | % | n | % | n | % | n | % | N |
| Kailahun | 503 | 98.2 | 207 | 40.4 | 297 | 58.0 | 48 | 9.4 | 444 | 86.8 | 54 | 10.5 | 443 | 86.5 | 331 | 64.6 | 313 | 61.2 | 229 | 44.7 | 512 | | 512 |
| Kenema | 797 | 98.7 | 330 | 40.9 | 481 | 59.5 | 119 | 14.7 | 755 | 93.4 | 149 | 18.5 | 733 | 90.8 | 517 | 64.0 | 492 | 60.8 | 251 | 31.1 | 808 | | 808 |
| Kono | 505 | 99.4 | 203 | 40.0 | 302 | 59.4 | 82 | 16.1 | 455 | 89.6 | 88 | 17.4 | 447 | 88.1 | 341 | 67.2 | 297 | 58.5 | 180 | 35.6 | 508 | | 508 |
| Bombali | 607 | 99.3 | 266 | 43.4 | 398 | 65.1 | 110 | 18.0 | 556 | 90.8 | 108 | 17.6 | 559 | 91.3 | 336 | 54.9 | 293 | 47.9 | 137 | 22.5 | 612 | | 612 |
| Falaba | 232 | 99.4 | 99 | 42.5 | 139 | 59.6 | 28 | 12.2 | 154 | 66.0 | 19 | 8.3 | 169 | 72.6 | 103 | 44.0 | 94 | 40.2 | 34 | 14.7 | 233 | | 233 |
| Koinadugu | 322 | 98.4 | 133 | 40.7 | 212 | 64.8 | 37 | 11.4 | 233 | 71.1 | 26 | 8.1 | 216 | 65.9 | 159 | 48.5 | 144 | 44.0 | 38 | 11.7 | 327 | | 327 |
| Tonkolili | 1097 | 97.7 | 543 | 48.4 | 681 | 60.7 | 257 | 22.9 | 1053 | 93.8 | 278 | 24.7 | 1000 | 89.1 | 739 | 65.9 | 685 | 61.0 | 508 | 45.2 | 1122 | | 1122 |
| Kambia | 399 | 99.4 | 158 | 39.4 | 244 | 60.8 | 56 | 13.9 | 341 | 84.9 | 44 | 10.9 | 372 | 92.8 | 317 | 79.1 | 311 | 77.5 | 170 | 42.5 | 401 | | 401 |
| Karene | 409 | 99.1 | 164 | 39.7 | 242 | 58.6 | 80 | 19.4 | 372 | 90.1 | 57 | 13.8 | 377 | 91.3 | 218 | 52.8 | 200 | 48.4 | 130 | 31.5 | 413 | | 413 |
| Port Loko | 738 | 98.5 | 381 | 50.8 | 481 | 64.2 | 110 | 14.6 | 610 | 81.4 | 121 | 16.1 | 703 | 93.9 | 605 | 80.7 | 605 | 80.7 | 371 | 49.6 | 749 | | 749 |
| Bo | 906 | 99.2 | 370 | 40.5 | 649 | 71.0 | 219 | 24.0 | 852 | 93.3 | 215 | 23.5 | 829 | 90.7 | 728 | 79.7 | 674 | 73.8 | 367 | 40.2 | 913 | | 913 |
| Bonthe | 246 | 98.0 | 95 | 37.9 | 108 | 42.9 | 17 | 6.9 | 190 | 75.8 | 38 | 15.3 | 217 | 86.5 | 169 | 67.1 | 120 | 47.6 | 75 | 30.0 | 251 | | 251 |
| Moyamba | 461 | 99.4 | 195 | 42.1 | 247 | 53.3 | 29 | 6.2 | 379 | 81.8 | 57 | 12.2 | 396 | 85.5 | 334 | 72.1 | 324 | 69.8 | 168 | 36.2 | 464 | | 464 |
| Pujehun | 428 | 99.2 | 189 | 43.9 | 316 | 73.3 | 71 | 16.4 | 405 | 93.9 | 69 | 15.9 | 394 | 91.2 | 353 | 81.8 | 326 | 75.5 | 193 | 44.7 | 432 | | 432 |
| WA-Rural | 571 | 97.0 | 279 | 47.4 | 374 | 63.6 | 214 | 36.4 | 564 | 95.7 | 184 | 31.3 | 474 | 80.5 | 397 | 67.4 | 368 | 62.5 | 199 | 33.8 | 589 | | 589 |
| WA-Slums | 710 | 98.2 | 369 | 51.0 | 519 | 71.8 | 319 | 44.1 | 630 | 87.1 | 213 | 29.5 | 472 | 65.3 | 322 | 44.5 | 380 | 52.6 | 128 | 17.7 | 723 | | 723 |
| WA-Urban | 1864 | 99.0 | 713 | 37.9 | 1196 | 63.5 | 825 | 43.8 | 1668 | 88.6 | 416 | 22.1 | 1412 | 75.0 | 883 | 46.9 | 1215 | 64.5 | 292 | 15.5 | 1883 | | 1883 |
| Total | 10795 | 98.7 | 4695 | 42.9 | 6886 | 62.9 | 2621 | 24.0 | 9659 | 88.3 | 2136 | 19.5 | 9213 | 84.2 | 6851 | 62.6 | 6838 | 62.5 | 3472 | 31.7 | 10940 | | 10940 |

Substantial consumption of other unhealthy foods – savoury and fried snacks, sweets and sugar-sweetened beverages were

reported among the adolescent girls (26.1 per cent, 31.6 per cent and 26.4 per cent, respectively); among the adolescent boys

(26.0 per cent, 29.4 per cent and 27.0 per cent respectively) and WRA (23.8 per cent, 23.5 per cent and 25.2 per cent respectively). The consumption of red palm oil was also high among adolescent girls (88.5 per cent), adolescent boys (87.2 per cent), and WRA (88.0 per cent). Red palm oil is extremely high in retinol – a form of vitamin A and is available in most regions of Sierra Leone.

These are usually nutrient-poor and energy-dense (empty calories), and high consumption of these foods has been associated with health risk factors (unhealthy outcomes) in several studies and meta-analyses, including overweight and obesity (Malik et al., 2013; Xi et al., 2015). The consumption of the unhealthy food groups among adolescent girls, boys and WRA is presented in **Table 41**, **Table 42**, and **Table 43**, respectively.

Table 41: Consumption pattern for unhealthy food categories among adolescent girls (10-14 years)

| District | Insects | | Red Palm | | Oils & Fats | | Savoury (Fries) | | Sweets | | Sweet beverages | | Condiments | | Other beverages | | Total N |
|--------------|------------|-------------|-------------|-------------|-------------|-------------|-----------------|-------------|-------------|-------------|-----------------|-------------|-------------|-------------|-----------------|------------|-------------|
| | n | % | n | % | n | % | n | % | n | % | n | % | n | % | n | % | |
| Kailahun | 15 | 10.9 | 131 | 94.1 | 39 | 27.7 | 44 | 31.9 | 49 | 35.3 | 21 | 15.1 | 69 | 49.6 | 7 | 5.0 | 139 |
| Kenema | 27 | 8.9 | 289 | 93.6 | 114 | 36.9 | 78 | 25.1 | 149 | 48.3 | 73 | 23.6 | 178 | 57.6 | 18 | 5.9 | 309 |
| Kono | 16 | 6.9 | 212 | 91.9 | 115 | 49.6 | 58 | 25.2 | 91 | 39.4 | 57 | 24.8 | 133 | 57.3 | 27 | 11.8 | 231 |
| Bombali | 26 | 10.7 | 221 | 89.3 | 97 | 39.1 | 44 | 17.7 | 64 | 25.9 | 51 | 20.6 | 124 | 50.2 | 33 | 13.2 | 247 |
| Falaba | 3 | 4.7 | 49 | 66.0 | 13 | 17.3 | 12 | 16.0 | 16 | 21.3 | 10 | 14.0 | 34 | 45.3 | 2 | 3.3 | 75 |
| Koinadugu | 9 | 7.6 | 86 | 72.5 | 20 | 17.1 | 23 | 19.1 | 20 | 17.1 | 19 | 15.9 | 61 | 51.4 | 6 | 5.2 | 119 |
| Tonkolili | 58 | 15.3 | 344 | 91.0 | 165 | 43.7 | 119 | 31.5 | 129 | 34.2 | 73 | 19.4 | 232 | 61.3 | 51 | 13.5 | 378 |
| Kambia | 4 | 3.2 | 115 | 91.7 | 18 | 14.1 | 13 | 10.3 | 6 | 5.1 | 10 | 7.7 | 19 | 15.4 | 6 | 4.5 | 126 |
| Karene | 12 | 6.8 | 157 | 90.0 | 64 | 36.5 | 35 | 20.1 | 41 | 23.3 | 24 | 13.7 | 78 | 44.6 | 15 | 8.4 | 175 |
| Port Loko | 5 | 2.5 | 179 | 95.8 | 19 | 10.2 | 16 | 8.5 | 8 | 4.2 | 3 | 1.7 | 32 | 16.9 | 8 | 4.2 | 187 |
| Bo | 45 | 12.7 | 343 | 96.3 | 151 | 42.2 | 98 | 27.5 | 158 | 44.3 | 89 | 25.0 | 206 | 57.8 | 28 | 7.8 | 357 |
| Bonthe | 6 | 9.7 | 52 | 83.1 | 12 | 19.4 | 6 | 9.7 | 6 | 9.7 | 5 | 7.3 | 10 | 16.1 | 2 | 2.4 | 63 |
| Moyamba | 7 | 6.1 | 100 | 84.1 | 17 | 14.4 | 9 | 7.6 | 5 | 4.5 | 4 | 3.8 | 21 | 17.4 | 5 | 4.5 | 119 |
| Pujehun | 31 | 15.5 | 191 | 94.6 | 64 | 31.6 | 50 | 24.9 | 70 | 34.7 | 20 | 10.1 | 105 | 51.9 | 19 | 9.4 | 202 |
| WA-Rural | 29 | 13.8 | 187 | 89.7 | 109 | 52.2 | 75 | 36.2 | 88 | 42.2 | 71 | 34.1 | 125 | 59.9 | 28 | 13.4 | 208 |
| WA-Slums | 30 | 14.2 | 165 | 77.8 | 135 | 64.0 | 71 | 33.6 | 72 | 34.1 | 118 | 55.9 | 96 | 45.5 | 9 | 4.3 | 211 |
| WA-Urban | 84 | 12.0 | 579 | 83.2 | 388 | 55.7 | 251 | 36.1 | 239 | 34.4 | 366 | 52.6 | 469 | 67.4 | 53 | 7.6 | 696 |
| Total | 408 | 10.6 | 3402 | 88.5 | 1538 | 40.0 | 1003 | 26.1 | 1213 | 31.6 | 1015 | 26.4 | 1990 | 51.8 | 316 | 8.2 | 3841 |

Table 42: Consumption pattern for unhealthy food categories among adolescent boys (10-19 years)

| District | Insects | | Red Palm | | Oils & Fats | | Savoury (Fries) | | Sweets | | Sweet beverages | | Condiments | | Other beverages | | Total |
|--------------|------------|-------------|-------------|-------------|-------------|-------------|-----------------|-------------|-------------|-------------|-----------------|-------------|-------------|-------------|-----------------|-------------|-------------|
| | n | % | n | % | n | % | n | % | n | % | n | % | n | % | n | % | N |
| Kailahun | 21 | 10.9 | 182 | 94.5 | 64 | 33.3 | 69 | 35.8 | 75 | 38.8 | 44 | 23.0 | 113 | 58.8 | 8 | 4.2 | 193 |
| Kenema | 107 | 23.5 | 408 | 89.9 | 151 | 33.2 | 169 | 37.2 | 193 | 42.6 | 143 | 31.5 | 239 | 52.7 | 68 | 15.1 | 453 |
| Kono | 9 | 3.4 | 258 | 93.5 | 115 | 41.6 | 81 | 29.4 | 105 | 38.2 | 72 | 26.3 | 167 | 60.8 | 17 | 6.1 | 275 |
| Bombali | 46 | 11.6 | 345 | 87.6 | 159 | 40.3 | 85 | 21.7 | 86 | 22.0 | 81 | 20.7 | 168 | 42.6 | 52 | 13.2 | 394 |
| Falaba | 4 | 4.9 | 71 | 76.8 | 18 | 20.0 | 23 | 24.9 | 26 | 28.6 | 14 | 15.1 | 51 | 55.1 | 4 | 4.3 | 92 |
| Koinadugu | 6 | 3.8 | 112 | 68.9 | 39 | 24.3 | 35 | 21.7 | 22 | 13.8 | 25 | 15.5 | 73 | 45.5 | 13 | 8.2 | 161 |
| Tonkolili | 95 | 16.0 | 555 | 92.4 | 237 | 39.6 | 198 | 33.0 | 216 | 36.2 | 138 | 23.1 | 341 | 57.0 | 135 | 22.5 | 598 |
| Kambia | 8 | 5.0 | 148 | 92.5 | 22 | 13.6 | 12 | 7.5 | 4 | 2.5 | 4 | 2.5 | 20 | 12.6 | 9 | 5.5 | 161 |
| Karene | 28 | 10.8 | 234 | 89.5 | 105 | 40.3 | 70 | 26.6 | 68 | 26.1 | 39 | 15.1 | 110 | 42.2 | 22 | 8.3 | 262 |
| Port Loko | 6 | 2.3 | 260 | 92.7 | 40 | 14.1 | 32 | 11.3 | 11 | 4.0 | 5 | 1.7 | 52 | 18.6 | 11 | 4.0 | 281 |
| Bo | 83 | 14.8 | 525 | 93.2 | 248 | 44.2 | 140 | 24.9 | 227 | 40.3 | 152 | 27.0 | 320 | 56.9 | 32 | 5.7 | 563 |
| Bonthe | 6 | 6.5 | 66 | 76.5 | 16 | 18.2 | 11 | 12.4 | 8 | 8.8 | 4 | 4.1 | 12 | 14.1 | 1 | 1.2 | 86 |
| Moyamba | 9 | 4.7 | 156 | 80.9 | 22 | 11.2 | 7 | 3.7 | 4 | 2.3 | 4 | 1.9 | 28 | 14.4 | 3 | 1.4 | 193 |
| Pujehun | 48 | 16.6 | 268 | 93.4 | 94 | 32.7 | 58 | 20.4 | 94 | 32.7 | 38 | 13.3 | 146 | 50.9 | 24 | 8.5 | 287 |
| WA-Rural | 32 | 12.6 | 230 | 89.8 | 136 | 53.0 | 96 | 37.5 | 94 | 36.8 | 91 | 35.4 | 160 | 62.5 | 38 | 14.7 | 256 |
| WA-Slums | 36 | 11.3 | 250 | 76.9 | 201 | 63.0 | 92 | 28.8 | 107 | 33.5 | 173 | 54.2 | 146 | 45.8 | 39 | 12.2 | 319 |
| WA-Urban | 103 | 11.8 | 694 | 79.2 | 490 | 56.5 | 239 | 27.5 | 256 | 29.5 | 443 | 51.0 | 512 | 59.0 | 91 | 10.5 | 868 |
| Total | 648 | 11.9 | 4762 | 87.2 | 2156 | 39.6 | 1417 | 26.0 | 1598 | 29.4 | 1470 | 27.0 | 2659 | 48.9 | 567 | 10.4 | 5441 |

Table 43: Consumption pattern for unhealthy food categories among women (15-49 years)

| District | Insects | | Red Palm | | Oils & Fats | | Savoury (Fries) | | Sweets | | Sweet beverages | | Condiments | | Other beverages | | Total |
|----------|---------|------|----------|------|-------------|------|-----------------|------|--------|------|-----------------|------|------------|------|-----------------|------|-------|
| | n | % | n | % | n | % | n | % | n | % | n | % | n | % | n | % | N |
| Kailahun | 90 | 12.4 | 674 | 92.9 | 143 | 19.6 | 186 | 25.6 | 185 | 25.4 | 123 | 16.9 | 392 | 53.9 | 30 | 4.2 | 726 |
| Kenema | 167 | 14.0 | 1114 | 93.1 | 434 | 36.3 | 275 | 23.0 | 353 | 29.5 | 240 | 20.1 | 697 | 58.3 | 96 | 8.0 | 1196 |
| Kono | 27 | 3.9 | 651 | 92.3 | 306 | 43.3 | 227 | 32.1 | 220 | 31.2 | 195 | 27.6 | 462 | 65.5 | 86 | 12.3 | 705 |
| Bombali | 80 | 9.6 | 742 | 88.9 | 323 | 38.7 | 164 | 19.6 | 191 | 22.9 | 190 | 22.8 | 377 | 45.2 | 92 | 11.0 | 834 |

| District | Insects | | Red Palm | | Oils & Fats | | Savoury (Fries) | | Sweets | | Sweet beverages | | Condiments | | Other beverages | | Total |
|--------------|-------------|-------------|--------------|-------------|-------------|-------------|-----------------|-------------|-------------|-------------|-----------------|-------------|-------------|-------------|-----------------|------------|--------------|
| | n | % | n | % | n | % | n | % | n | % | n | % | n | % | n | % | N |
| Falaba | 12 | 4.1 | 223 | 76.8 | 62 | 21.5 | 54 | 18.8 | 46 | 16.0 | 38 | 13.1 | 136 | 47.0 | 11 | 4.0 | 290 |
| Koinadugu | 35 | 8.6 | 291 | 70.8 | 98 | 23.9 | 81 | 19.7 | 55 | 13.3 | 57 | 13.8 | 195 | 47.5 | 13 | 3.1 | 410 |
| Tonkolili | 272 | 17.7 | 1419 | 92.1 | 715 | 46.5 | 480 | 31.2 | 519 | 33.7 | 351 | 22.8 | 969 | 62.9 | 252 | 16.4 | 1540 |
| Kambia | 14 | 2.6 | 484 | 91.3 | 88 | 16.6 | 33 | 6.2 | 27 | 5.2 | 27 | 5.2 | 98 | 18.4 | 17 | 3.2 | 530 |
| Karene | 52 | 9.2 | 509 | 89.7 | 209 | 36.9 | 144 | 25.4 | 145 | 25.5 | 112 | 19.8 | 276 | 48.6 | 48 | 8.4 | 567 |
| Port Loko | 27 | 2.6 | 956 | 93.8 | 94 | 9.2 | 106 | 10.4 | 56 | 5.5 | 19 | 1.9 | 211 | 20.7 | 30 | 3.0 | 1019 |
| Bo | 174 | 13.9 | 1172 | 93.5 | 560 | 44.6 | 374 | 29.8 | 377 | 30.1 | 362 | 28.9 | 753 | 60.0 | 137 | 11.0 | 1254 |
| Bonthe | 36 | 10.5 | 284 | 81.7 | 57 | 16.3 | 30 | 8.6 | 26 | 7.4 | 17 | 4.8 | 71 | 20.4 | 7 | 2.0 | 348 |
| Moyamba | 33 | 5.2 | 544 | 85.1 | 101 | 15.8 | 42 | 6.6 | 32 | 5.1 | 26 | 4.1 | 128 | 20.0 | 9 | 1.4 | 639 |
| Pujehun | 90 | 14.8 | 569 | 93.0 | 221 | 36.2 | 131 | 21.4 | 168 | 27.5 | 78 | 12.8 | 325 | 53.2 | 45 | 7.4 | 612 |
| WA-Rural | 110 | 14.8 | 667 | 89.3 | 431 | 57.8 | 258 | 34.5 | 239 | 32.0 | 271 | 36.3 | 446 | 59.8 | 118 | 15.9 | 746 |
| WA-Slums | 167 | 18.1 | 714 | 76.5 | 544 | 58.9 | 283 | 30.7 | 247 | 26.8 | 484 | 52.4 | 453 | 49.1 | 134 | 14.5 | 923 |
| WA-Urban | 397 | 17.8 | 1828 | 81.6 | 1335 | 59.9 | 603 | 27.0 | 538 | 24.1 | 1074 | 48.2 | 1366 | 61.3 | 285 | 12.8 | 2230 |
| Total | 1786 | 12.3 | 12839 | 88.0 | 5720 | 39.3 | 3471 | 23.8 | 3425 | 23.5 | 3665 | 25.2 | 7354 | 50.5 | 1412 | 9.7 | 14569 |

Minimum dietary diversity for adolescents and women

Based on dietary diversity scores from 10 food groups, the mean dietary diversity score (MDDS-W) was 5.7 ± 1.8 food groups and 5.8 ± 1.9 food groups among adolescent girls (10-14 years and WRA, respectively (see **Table 39**). The proportion of assessed adolescent girls (10-14 years) and WRA

meeting the minimum dietary diversity were 72.0 per cent and 74.2 per cent, respectively (**Table 44**). The proportion meeting minimum dietary diversity was; however, lower (<50 per cent) in the northern districts of Koinadugu (45.8 per cent, and 46.5 per cent among adolescent girls and WRA, respectively) and Falaba (44.7 per cent and 48.5 per cent among adolescent girls and WRA respectively).

Table 44: Proportion consuming minimum dietary diversity and mean dietary diversity scores among adolescent girls and WRA

| District | Girls (10-14 yrs) | | | | | Women (15-49 yrs) | | | | |
|--------------|-------------------|-------------|------------|-------------|-------------|-------------------|-------------|------------|-------------|--------------|
| | n | % | MDDS | SD | N | n | % | MDDS | SD | N |
| Kailahun | 83 | 59.7 | 5.2 | ±1.9 | 139 | 490 | 67.6 | 5.6 | ±1.9 | 725 |
| Kenema | 219 | 70.9 | 5.7 | ±1.9 | 309 | 855 | 71.5 | 5.7 | ±1.8 | 1196 |
| Kono | 177 | 76.4 | 5.7 | ±1.7 | 231 | 556 | 78.8 | 5.9 | ±1.7 | 705 |
| Bombali | 184 | 74.5 | 5.6 | ±1.6 | 247 | 593 | 71.2 | 5.5 | ±1.6 | 833 |
| Falaba | 33 | 44.7 | 4.4 | ±2.2 | 75 | 141 | 48.5 | 4.6 | ±2.1 | 290 |
| Koinadugu | 54 | 45.8 | 4.6 | ±1.9 | 119 | 191 | 46.5 | 4.6 | ±2.0 | 410 |
| Tonkolili | 272 | 72.1 | 5.8 | ±1.9 | 378 | 1243 | 80.8 | 6.1 | ±1.7 | 1538 |
| Kambia | 102 | 81.4 | 6.0 | ±1.6 | 126 | 443 | 83.6 | 6.1 | ±1.7 | 530 |
| Karene | 123 | 70.3 | 5.5 | ±1.7 | 175 | 387 | 68.4 | 5.5 | ±1.7 | 567 |
| Port Loko | 152 | 81.4 | 6.2 | ±2.0 | 187 | 848 | 83.2 | 6.3 | ±1.9 | 1019 |
| Bo | 270 | 76.1 | 6.1 | ±1.9 | 355 | 995 | 79.5 | 6.3 | ±1.9 | 1253 |
| Bonthe | 40 | 62.9 | 5.4 | ±2.2 | 63 | 201 | 57.8 | 5.1 | ±2.0 | 348 |
| Moyamba | 91 | 76.5 | 5.9 | ±1.8 | 119 | 480 | 75.1 | 5.7 | ±1.8 | 639 |
| Pujehun | 166 | 82.8 | 6.2 | ±1.6 | 201 | 524 | 85.7 | 6.3 | ±1.6 | 612 |
| WA-Rural | 170 | 81.5 | 6.2 | ±1.9 | 208 | 575 | 77.0 | 6.1 | ±2.0 | 747 |
| WA-Slums | 152 | 72.4 | 5.6 | ±1.6 | 210 | 648 | 70.1 | 5.6 | ±1.9 | 924 |
| WA-Urban | 474 | 68.0 | 5.4 | ±1.7 | 696 | 1636 | 73.3 | 5.5 | ±1.8 | 2232 |
| Total | 2763 | 72.0 | 5.7 | ±1.8 | 3838 | 10807 | 74.2 | 5.8 | ±1.9 | 14568 |

When adolescent age was reconstituted for adolescent girls to 10-19 years to synchronize with adolescent boys' group, the mean dietary diversity score (MDDS) remained at 5.7 ± 1.8 food groups among both adolescent girls (10-19 years) and

adolescent boys (10-19 years) respectively (**Table 45**). The proportion of assessed adolescent girls and boys (10-19 years) meeting the minimum dietary diversity remained the same at 74.0 per cent and 73.6 per cent, respectively (**Table 45**).

Table 45: Proportion consuming minimum dietary diversity and mean dietary diversity scores among adolescent girls (10-19 years) and adolescent boys (10-19 years)

| District | MDD for Girls (10-19 yrs) | | | | | MDD for Boys (10-19 yrs) | | | | |
|--------------|---------------------------|-------------|------------|-------------|-------------|--------------------------|-------------|------------|-------------|-------------|
| | n | % | MDDS | SD | N | n | % | MDDS | SD | N |
| Kailahun | 187 | 66.4 | 5.5 | ±1.9 | 282 | 116 | 60.0 | 5.2 | ±1.9 | 193 |
| Kenema | 405 | 72.3 | 5.7 | ±1.8 | 560 | 335 | 73.8 | 5.7 | ±1.8 | 453 |
| Kono | 308 | 78.3 | 5.9 | ±1.7 | 394 | 208 | 75.4 | 5.7 | ±1.8 | 275 |
| Bombali | 306 | 72.4 | 5.6 | ±1.6 | 423 | 278 | 70.5 | 5.5 | ±1.6 | 394 |
| Falaba | 60 | 45.1 | 4.5 | ±2.2 | 134 | 42 | 45.9 | 4.5 | ±2.0 | 92 |
| Koinadugu | 94 | 46.1 | 4.5 | ±2.0 | 204 | 71 | 43.9 | 4.5 | ±2.0 | 162 |
| Tonkolili | 576 | 78.6 | 6.0 | ±1.7 | 732 | 467 | 77.6 | 6.0 | ±1.7 | 601 |
| Kambia | 184 | 84.1 | 6.1 | ±1.7 | 219 | 128 | 79.9 | 6.1 | ±1.7 | 161 |
| Karene | 223 | 70.6 | 5.5 | ±1.7 | 316 | 168 | 64.2 | 5.3 | ±1.7 | 262 |
| Port Loko | 314 | 82.8 | 6.2 | ±2.0 | 379 | 238 | 84.7 | 6.5 | ±1.9 | 281 |
| Bo | 507 | 80.9 | 6.3 | ±1.9 | 627 | 438 | 77.9 | 6.2 | ±1.8 | 563 |
| Bonthe | 71 | 59.2 | 5.2 | ±2.2 | 121 | 56 | 65.3 | 5.6 | ±2.0 | 86 |
| Moyamba | 171 | 77.6 | 5.8 | ±1.8 | 220 | 155 | 80.0 | 5.8 | ±1.8 | 193 |
| Pujehun | 291 | 86.8 | 6.4 | ±1.6 | 335 | 251 | 87.7 | 6.4 | ±1.5 | 287 |
| WA-Rural | 287 | 80.6 | 6.2 | ±1.9 | 356 | 192 | 75.1 | 6.0 | ±1.9 | 256 |
| WA-Slums | 285 | 70.9 | 5.5 | ±1.7 | 402 | 220 | 68.8 | 5.4 | ±1.8 | 320 |
| WA-Urban | 775 | 69.4 | 5.4 | ±1.7 | 1117 | 653 | 74.6 | 5.5 | ±1.5 | 876 |
| Total | 5045 | 74.0 | 5.7 | ±1.8 | 6821 | 4016 | 73.6 | 5.7 | ±1.8 | 5454 |

Minimum meal frequency for adolescents and women

Nutrition experts recommend eating three small, balanced meals and two snacks daily for an optimal healthy lifestyle. Fewer meals may lead to undernutrition, and more meals may lead to harmful outcomes such as for overweight and obesity.

Nationally, only 19.6 per cent, 19.4 per cent, 19.7 per cent and 19.9 per cent of the assessed adolescent girls 10-14 years (**Table 46**), adolescent girls 10-19 years (**Table 47**), adolescent boys (**Table 48**) and women of reproductive age (**Table 49**) had at least 5 meals per day (including snacks) respectively. The mean number of meals taken in the previous 24 hours was 3.7 ± 1.5 , 3.6 ± 1.3 , 3.6 ± 1.4 , and 3.6 ± 1.5 among adolescent girls (10-14 years), girls (10-19 years), adolescent boys and WRA respectively.

Table 46: Minimum meal frequency for adolescent girls (10-14 years) by district

| District | No (< 3 meals) | | Medium (3-4 Meals) | | High (5 or more meals) | | Mean Number of Meals | | Total |
|--------------|----------------|-------------|--------------------|-------------|------------------------|-------------|----------------------|-------------|-------------|
| | n | % | n | % | n | % | Mean | SD | N |
| Kailahun | 42 | 30.3 | 72 | 52.1 | 25 | 17.6 | 3.4 | ±1.5 | 139 |
| Kenema | 97 | 31.5 | 157 | 50.7 | 55 | 17.7 | 3.5 | ±1.7 | 309 |
| Kono | 21 | 8.9 | 177 | 76.4 | 34 | 14.6 | 3.6 | ±1.0 | 231 |
| Bombali | 20 | 8.2 | 219 | 88.5 | 8 | 3.3 | 3.2 | ±0.8 | 247 |
| Falaba | 14 | 19.3 | 48 | 64.0 | 12 | 16.7 | 3.2 | ±1.3 | 75 |
| Koinadugu | 13 | 10.8 | 91 | 76.5 | 15 | 12.7 | 3.2 | ±1.0 | 119 |
| Tonkolili | 26 | 6.8 | 307 | 81.1 | 46 | 12.2 | 3.5 | ±0.9 | 378 |
| Kambia | 56 | 44.9 | 54 | 42.9 | 15 | 12.2 | 2.9 | ±1.6 | 126 |
| Karene | 11 | 6.0 | 157 | 89.6 | 8 | 4.4 | 3.4 | ±0.8 | 175 |
| Port Loko | 40 | 21.2 | 122 | 65.3 | 25 | 13.6 | 3.1 | ±1.3 | 187 |
| Bo | 91 | 25.4 | 194 | 54.5 | 72 | 20.1 | 3.7 | ±1.5 | 357 |
| Bonthe | 36 | 57.3 | 19 | 29.8 | 8 | 12.9 | 2.8 | ±1.3 | 63 |
| Moyamba | 60 | 50.8 | 42 | 35.6 | 16 | 13.6 | 3.0 | ±1.4 | 119 |
| Pujehun | 52 | 25.6 | 123 | 60.9 | 27 | 13.5 | 3.6 | ±1.5 | 202 |
| WA-Rural | 18 | 8.6 | 152 | 72.8 | 39 | 18.5 | 3.8 | ±1.4 | 208 |
| WA-Slums | 0 | 0.0 | 134 | 63.5 | 77 | 36.5 | 4.4 | ±1.6 | 211 |
| WA-Urban | 7 | 1.0 | 419 | 60.1 | 270 | 38.8 | 4.6 | ±1.7 | 696 |
| Total | 603 | 15.7 | 2485 | 64.7 | 752 | 19.6 | 3.7 | ±1.5 | 3841 |

Table 47: Minimum meal frequency for adolescent girls (10-19 years) by district

| District | No (< 3 meals) | | Medium (3-4 Meals) | | High (5 or more meals) | | Mean Number of Meals | | Total N |
|--------------|----------------|-------------|--------------------|-------------|------------------------|-------------|----------------------|-------------|-------------|
| | n | % | n | % | n | % | Mean | SD | |
| Kailahun | 92 | 32.8 | 131 | 46.5 | 58 | 20.7 | 3.4 | ±1.6 | 282 |
| Kenema | 157 | 28.0 | 265 | 47.3 | 138 | 24.7 | 3.5 | ±1.4 | 560 |
| Kono | 38 | 9.5 | 296 | 75.2 | 60 | 15.3 | 3.6 | ±1.0 | 394 |
| Bombali | 34 | 7.9 | 379 | 89.4 | 11 | 2.6 | 3.2 | ±0.6 | 423 |
| Falaba | 26 | 19.8 | 85 | 63.4 | 22 | 16.8 | 3.3 | ±1.2 | 134 |
| Koinadugu | 27 | 13.2 | 148 | 72.5 | 29 | 14.4 | 3.4 | ±1.0 | 204 |
| Tonkolili | 53 | 7.2 | 606 | 82.8 | 73 | 10.0 | 3.5 | ±0.8 | 732 |
| Kambia | 91 | 41.7 | 104 | 47.6 | 23 | 10.7 | 2.9 | ±1.3 | 219 |
| Karene | 18 | 5.6 | 282 | 89.3 | 16 | 5.1 | 3.4 | ±0.7 | 316 |
| Port Loko | 78 | 20.5 | 259 | 68.2 | 43 | 11.3 | 3.2 | ±1.2 | 379 |
| Bo | 134 | 21.4 | 364 | 57.9 | 130 | 20.7 | 3.5 | ±1.3 | 628 |
| Bonthe | 69 | 57.1 | 37 | 31.1 | 14 | 11.8 | 2.8 | ±1.3 | 121 |
| Moyamba | 109 | 49.4 | 84 | 38.4 | 27 | 12.2 | 2.9 | ±1.3 | 220 |
| Pujehun | 82 | 24.5 | 207 | 61.7 | 46 | 13.8 | 3.4 | ±1.2 | 335 |
| WA-Rural | 30 | 8.3 | 259 | 72.8 | 67 | 18.9 | 3.7 | ±1.2 | 356 |
| WA-Slums | 1 | 0.2 | 251 | 62.4 | 150 | 37.3 | 4.3 | ±1.4 | 402 |
| WA-Urban | 10 | 0.9 | 694 | 62.2 | 412 | 36.9 | 4.5 | ±1.4 | 1115 |
| Total | 1047 | 15.4 | 4451 | 65.3 | 1322 | 19.4 | 3.6 | ±1.3 | 6820 |

Table 48: Minimum meal frequency for adolescent boys (10-19 years) by district

| District | No (< 3 meals) | | Medium (3-4 Meals) | | High (5 or more meals) | | Mean Number of Meals | | Total N |
|--------------|----------------|-------------|--------------------|-------------|------------------------|-------------|----------------------|-------------|-------------|
| | n | % | n | % | n | % | Mean | SD | |
| Kailahun | 55 | 28.5 | 83 | 43.0 | 55 | 28.5 | 3.6 | ±1.6 | 193 |
| Kenema | 134 | 29.5 | 158 | 34.9 | 161 | 35.6 | 3.9 | ±1.8 | 453 |
| Kono | 28 | 10.3 | 213 | 77.7 | 33 | 12.0 | 3.7 | ±1.2 | 275 |
| Bombali | 40 | 10.1 | 340 | 86.3 | 14 | 3.6 | 3.3 | ±0.8 | 394 |
| Falaba | 13 | 14.6 | 66 | 71.4 | 13 | 14.1 | 3.4 | ±1.2 | 92 |
| Koinadugu | 19 | 12.1 | 111 | 69.1 | 30 | 18.8 | 3.4 | ±1.1 | 161 |
| Tonkolili | 29 | 4.8 | 504 | 84.3 | 65 | 10.8 | 3.4 | ±0.9 | 598 |
| Kambia | 78 | 48.7 | 66 | 41.2 | 16 | 10.1 | 2.9 | ±1.5 | 161 |
| Karene | 18 | 7.0 | 235 | 89.8 | 8 | 3.2 | 3.3 | ±0.7 | 262 |
| Port Loko | 71 | 25.4 | 186 | 66.1 | 24 | 8.5 | 3.1 | ±1.2 | 281 |
| Bo | 151 | 26.8 | 319 | 56.6 | 94 | 16.6 | 3.5 | ±1.4 | 563 |
| Bonthe | 48 | 55.9 | 28 | 32.4 | 10 | 11.8 | 2.7 | ±1.4 | 86 |
| Moyamba | 95 | 49.3 | 75 | 38.6 | 23 | 12.1 | 2.8 | ±1.2 | 193 |
| Pujehun | 73 | 25.6 | 176 | 61.4 | 37 | 13.0 | 3.5 | ±1.4 | 287 |
| WA-Rural | 21 | 8.1 | 183 | 71.6 | 52 | 20.4 | 3.9 | ±1.4 | 256 |
| WA-Slums | 2 | 0.6 | 201 | 63.0 | 116 | 36.4 | 4.3 | ±1.6 | 319 |
| WA-Urban | 17 | 1.9 | 534 | 61.4 | 318 | 36.6 | 4.4 | ±1.5 | 868 |
| Total | 893 | 16.4 | 3477 | 63.9 | 1070 | 19.7 | 3.6 | ±1.4 | 5440 |

Table 49: Minimum meal frequency for WRA (15-49 yrs) by district

| District | No (< 3 meals) | | Medium (3-4 Meals) | | High (5 or more meals) | | Mean Number of Meals | | Total |
|--------------|----------------|-------------|--------------------|-------------|------------------------|-------------|----------------------|-------------|--------------|
| | n | % | n | % | n | % | Mean | SD | N |
| Kailahun | 217 | 30.0 | 360 | 49.7 | 147 | 20.3 | 3.5 | ±1.7 | 725 |
| Kenema | 388 | 32.4 | 545 | 45.5 | 263 | 22.0 | 3.4 | ±1.6 | 1196 |
| Kono | 64 | 9.1 | 519 | 73.6 | 122 | 17.3 | 3.5 | ±1.1 | 705 |
| Bombali | 77 | 9.3 | 730 | 87.4 | 27 | 3.3 | 3.2 | ±0.7 | 834 |
| Falaba | 66 | 22.7 | 176 | 60.9 | 47 | 16.4 | 3.3 | ±1.2 | 290 |
| Koinadugu | 63 | 15.3 | 293 | 71.5 | 54 | 13.1 | 3.3 | ±1.2 | 409 |
| Tonkolili | 82 | 5.3 | 1340 | 87.1 | 118 | 7.6 | 3.5 | ±1.0 | 1540 |
| Kambia | 249 | 47.0 | 206 | 38.8 | 75 | 14.2 | 2.9 | ±1.4 | 530 |
| Karene | 36 | 6.3 | 508 | 89.6 | 23 | 4.1 | 3.3 | ±0.8 | 567 |
| Port Loko | 273 | 26.8 | 600 | 58.9 | 146 | 14.3 | 3.2 | ±1.4 | 1019 |
| Bo | 227 | 18.1 | 735 | 58.6 | 292 | 23.3 | 3.6 | ±1.6 | 1254 |
| Bonthe | 190 | 54.8 | 102 | 29.3 | 55 | 15.9 | 3.1 | ±1.6 | 347 |
| Moyamba | 327 | 51.2 | 200 | 31.4 | 111 | 17.4 | 3.1 | ±1.5 | 639 |
| Pujehun | 141 | 23.0 | 375 | 61.4 | 96 | 15.6 | 3.5 | ±1.5 | 612 |
| WA-Rural | 44 | 5.9 | 504 | 67.6 | 197 | 26.5 | 3.9 | ±1.5 | 746 |
| WA-Slums | 6 | 0.7 | 573 | 62.2 | 342 | 37.1 | 4.3 | ±1.5 | 921 |
| WA-Urban | 24 | 1.1 | 1419 | 63.6 | 787 | 35.3 | 4.4 | ±1.7 | 2230 |
| Total | 2474 | 17.0 | 9186 | 63.1 | 2904 | 19.9 | 3.6 | ±1.5 | 14564 |

6.4 Mortality results

The crude death rate (CDR) was **0.14** (95 per cent CI: 0.11-0.18) and the under-five mortality rate (U5DR) was **0.29** (95 per cent CI; 0.20-0.44) (**Table 50**). Both CDR and U5DR rates nationally and by the district are below the SPHERE *alert* thresholds of 1/10,000/day and 2/10,000/day, respectively. The design effects for CDR and U5DR were

1.36 and 1.24, respectively, indicating little inter-cluster variations (clustering of deaths) in the population. Illnesses were the main cause of mortality among U5s (69.9 per cent). Injuries contributed least to mortality, while 15.1 per cent of the deaths were of unknown cause to the respondents.

Table 50: Mortality rates SLNNS 2021

| District | Crude Death Rate (deaths/10,000/day) | | | | Under five Death Rate (U5 deaths/10,000/day) | | |
|-----------------|--------------------------------------|-------------|------------------|-------------|--|------------------|-------------|
| | N | CDR | 95% CI | DEFF | U5DR | 95% CI | DEFF |
| Kailahun | 616 | 0.17 | 0.05-0.59 | 1.42 | 0.21 | 0.03-1.65 | 1.03 |
| Kenema | 693 | 0.18 | 0.09-0.39 | 1.00 | 0.00 | - | 1.00 |
| Kono | 594 | 0.17 | 0.07-0.43 | 1.00 | 0.22 | 0.03-1.65 | 1.00 |
| Bombali | 529 | 0.14 | 0.05-0.41 | 1.24 | 0.62 | 0.18-2.04 | 1.35 |
| Falaba | 593 | 0.12 | 0.04-0.38 | 1.00 | 0.19 | 0.03-1.48 | 1.00 |
| Koinadugu | 655 | 0.12 | 0.03-0.39 | 1.39 | 0.16 | 0.02-1.16 | 1.00 |
| Tonkolili | 634 | 0.07 | 0.02-0.27 | 1.00 | 0.00 | - | 1.00 |
| Kambia | 607 | 0.12 | 0.03-0.41 | 1.45 | 0.46 | 0.10-2.07 | 1.63 |
| Karene | 532 | 0.10 | 0.03-0.31 | 1.00 | 0.33 | 0.08-1.42 | 1.00 |
| Port Loko | 578 | 0.23 | 0.09-0.56 | 1.31 | 0.70 | 0.26-1.87 | 1.00 |
| Pujehun | 654 | 0.08 | 0.01-0.61 | 2.91 | 0.00 | - | 1.00 |
| Bonthe | 629 | 0.12 | 0.03-0.54 | 1.54 | 0.22 | 0.03-1.66 | 1.00 |
| Bo | 627 | 0.14 | 0.05-0.39 | 1.28 | 0.47 | 0.15-1.48 | 1.00 |
| Moyamba | 673 | 0.25 | 0.11-0.56 | 1.25 | 0.29 | 0.07-1.23 | 1.00 |
| WA-Rural | 687 | 0.16 | 0.05-0.49 | 1.84 | 0.43 | 0.10-1.85 | 1.55 |
| WA-Slums | 626 | 0.09 | 0.03-0.27 | 1.00 | 0.16 | 0.02-1.19 | 1.00 |
| WA-Urban | 674 | 0.20 | 0.06-0.67 | 2.69 | 0.77 | 0.14-4.20 | 3.50 |
| National | 10601 | 0.14 | 0.11-0.18 | 1.36 | 0.29 | 0.20-0.44 | 1.24 |



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6.5 Children's morbidity

The national prevalence of retrospective child morbidity was 12.3 per cent in the 14-day recall. The prevalence varied from 4.7 per cent in Koinadugu to 23.7 per cent in Kono district, reporting children getting ill 14 days before the survey (**Table 51**). Overall, the most reported illnesses were fever (8.0 per cent), cough (3.8 per cent) and diarrhoea (1.7 per cent), contributing to 64.8 per cent, 31.2 per cent and 13.5 per cent, respectively of the morbidity burden in the assessed children. Other illnesses reported included skin infections and eye

infections, contributing to 7.6 per cent and 1.8 per cent of the illnesses, respectively. The morbidity incidences could be underreported/underestimated given that the prevalence is generally lower than the DHS 2019 levels of 17 per cent, 2 per cent, and 7 per cent for fever, cough/ARI, and diarrhoea, respectively. It is important to note that the survey was conducted during the COVID-19 pandemic, and these illnesses are part of the main symptoms experienced by suspected COVID-19 cases.

Table 51: Prevalence of reported common child illnesses by district

| | Child got ill | | | Type of illness | | | | | | | | | | |
|--------------|---------------|-------------|-------------|-----------------|------------|------------|------------|------------|------------|----------------|------------|---------------|------------|-------------|
| | | | | Fever | | Cough | | Diarrhoea | | Skin infection | | Eye Infection | | Total |
| | n | % | N | n | % | n | % | n | % | n | % | n | % | N |
| Kailahun | 116 | 20.5 | 566 | 83 | 14.7 | 34 | 6.0 | 9 | 1.7 | 4 | 0.6 | 1 | 0.2 | 566 |
| Kenema | 116 | 12.6 | 916 | 87 | 9.5 | 38 | 4.2 | 6 | 0.7 | 9 | 1.0 | 0 | 0.0 | 916 |
| Kono | 120 | 23.7 | 509 | 68 | 13.3 | 39 | 7.8 | 24 | 4.8 | 12 | 2.4 | 2 | 0.4 | 509 |
| Bombali | 76 | 13.2 | 580 | 36 | 6.1 | 28 | 4.9 | 10 | 1.8 | 9 | 1.6 | 4 | 0.7 | 580 |
| Falaba | 13 | 6.6 | 204 | 11 | 5.4 | 2 | 1.2 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 204 |
| Koinadugu | 12 | 4.7 | 259 | 9 | 3.3 | 3 | 1.3 | 1 | 0.5 | | 0.2 | 0 | 0.0 | 259 |
| Tonkolili | 218 | 20.2 | 1080 | 109 | 10.1 | 61 | 5.7 | 53 | 4.9 | 20 | 1.9 | 9 | 0.8 | 1080 |
| Kambia | 40 | 9.7 | 414 | 34 | 8.2 | 19 | 4.5 | 6 | 1.4 | 4 | 1.0 | 0 | 0.0 | 414 |
| Karene | 58 | 14.7 | 397 | 25 | 6.2 | 21 | 5.3 | 11 | 2.7 | 6 | 1.4 | 1 | 0.2 | 397 |
| Port Loko | 41 | 6.1 | 679 | 33 | 4.9 | 10 | 1.4 | 5 | 0.7 | 5 | 0.7 | 0 | 0.0 | 679 |
| Bo | 82 | 9.7 | 840 | 45 | 5.4 | 32 | 3.8 | 1 | 0.2 | 3 | 0.3 | 1 | 0.2 | 840 |
| Bonthe | 26 | 10.8 | 244 | 18 | 7.5 | 8 | 3.1 | 1 | 0.4 | 2 | 0.8 | 0 | 0.0 | 244 |
| Moyamba | 41 | 9.4 | 438 | 32 | 7.4 | 7 | 1.6 | 2 | .4 | 2 | 0.4 | 0 | 0.0 | 438 |
| Pujehun | 45 | 10.3 | 433 | 30 | 6.9 | 15 | 3.4 | 1 | 0.3 | 2 | 0.5 | 0 | 0.0 | 433 |
| WA-Rural | 42 | 9.7 | 436 | 30 | 6.8 | 13 | 3.1 | 4 | 0.8 | 2 | 0.4 | 0 | 0.0 | 436 |
| WA-Slums | 60 | 13.2 | 455 | 52 | 11.4 | 19 | 4.2 | 20 | 4.4 | 6 | 1.3 | 3 | 0.7 | 455 |
| WA-Urban | 55 | 5.4 | 1014 | 53 | 5.2 | 12 | 1.2 | 2 | 0.2 | 2 | 0.2 | 0 | 0.0 | 1014 |
| Total | 1163 | 12.3 | 9464 | 753 | 8.0 | 362 | 3.8 | 157 | 1.7 | 88 | 0.9 | 21 | 0.2 | 9464 |

Most child illnesses were treated at public health facilities, especially Community Health Centers (CHC) or Community Health Posts (CHP), at 63.1 per cent. Some children sought treatment in government hospitals (9.4 per cent) or private hospitals

and clinics (2.1 per cent). Yet, others were treated by field workers and CHWs (13.4 per cent), at the pharmacies (10.3 per cent) or by traditional practitioners (4.4 per cent). **Table 52** shows the type of health facilities or services sought for child illnesses by

district and nationally. No treatment or health services from any health providers were sought for a few (4.3 per cent) children who fell ill. Reasons given include because the illness was not serious (61.4 per cent),

the health facility is far away and the lack of transport (28.0 per cent), lack of money (25.2 per cent) or fear of COVID-19 (7.2 per cent).

Table 52: Health facility where treatment services are sought for children (6-59 months) by the district

| | None | | Government Hospital | | CHC/CHP | | CHWs | | Private Hospital | | Traditional Practitioners | | Pharmacy | | Other HPs | | Total N |
|--------------|-----------|------------|---------------------|------------|------------|-------------|------------|-------------|------------------|------------|---------------------------|------------|------------|-------------|-----------|------------|-------------|
| | n | % | n | % | n | % | n | % | n | % | n | % | n | % | n | % | |
| Bo | 1 | 1.8 | 12 | 14.3 | 60 | 73.2 | 4 | 5.4 | 0 | 0.0 | 1 | 1.8 | 4 | 5.4 | 3 | 3.6 | 82 |
| Bombali | 1 | 1.3 | 12 | 16.0 | 34 | 44.0 | 18 | 24.0 | 4 | 5.3 | 9 | 12.0 | 3 | 4.0 | 1 | 1.3 | 76 |
| Bonthe | 1 | 1.9 | 2 | 5.8 | 13 | 48.1 | 2 | 7.7 | 1 | 3.8 | 3 | 11.5 | 4 | 15.4 | 1 | 3.8 | 26 |
| Falaba | | 3.7 | 5 | 37.0 | 6 | 44.4 | 1 | 7.4 | 0 | 0.0 | 1 | 7.4 | 1 | 11.1 | 1 | 7.4 | 13 |
| Kailahun | 1 | 1.0 | 6 | 5.1 | 96 | 82.8 | 11 | 9.1 | 0 | 0.0 | 8 | 7.1 | 7 | 6.1 | 1 | 1.0 | 116 |
| Kambia | 2 | 4.0 | 1 | 2.0 | 30 | 74.0 | 4 | 10.0 | 0 | 0.0 | 9 | 22.0 | 1 | 2.0 | 1 | 2.0 | 40 |
| Karene | 3 | 4.8 | 2 | 3.6 | 34 | 59.0 | 17 | 28.9 | 0 | 0.0 | 2 | 3.6 | 4 | 7.2 | 1 | 1.2 | 58 |
| Kenema | 0 | 0.0 | 8 | 6.6 | 102 | 88.2 | 8 | 6.6 | 2 | 1.3 | 6 | 5.3 | 6 | 5.3 | 2 | 1.3 | 116 |
| Koinadugu | | 3.8 | 5 | 42.3 | 5 | 38.5 | 1 | 7.7 | | 3.8 | 0 | 0.0 | 3 | 23.1 | | 3.8 | 12 |
| Kono | 7 | 5.5 | 6 | 4.7 | 73 | 60.9 | 14 | 11.7 | 3 | 2.3 | 4 | 3.1 | 6 | 4.7 | 3 | 2.3 | 120 |
| Moyamba | 0 | 0.0 | 0 | 0.0 | 36 | 87.0 | 1 | 2.2 | 1 | 2.2 | 2 | 4.3 | 0 | 0.0 | 2 | 4.3 | 41 |
| Port Loko | 11 | 26.9 | 0 | 0.0 | 27 | 65.4 | 3 | 7.7 | 0 | 0.0 | 0 | 0.0 | 2 | 3.8 | 2 | 3.8 | 41 |
| Pujehun | 1 | 3.0 | 5 | 10.6 | 37 | 81.8 | 2 | 4.5 | 0 | 0.0 | 2 | 4.5 | 2 | 4.5 | 0 | 0.0 | 45 |
| Tonkolili | 17 | 7.8 | 20 | 9.4 | 121 | 55.5 | 43 | 19.5 | 0 | 0.0 | 3 | 1.6 | 5 | 2.3 | 5 | 2.3 | 218 |
| WA-Rural | 0 | 0.0 | 4 | 8.5 | 22 | 53.2 | 6 | 14.9 | 7 | 17.0 | 0 | 0.0 | 11 | 25.5 | 0 | 0.0 | 42 |
| WA-Slums | 2 | 3.3 | 9 | 15.0 | 27 | 45.0 | 16 | 26.7 | 4 | 6.7 | 0 | 0.0 | 27 | 45.0 | 1 | 1.7 | 60 |
| WA-Urban | 2 | 4.3 | 14 | 26.1 | 12 | 21.7 | 5 | 8.7 | 2 | 4.3 | 0 | 0.0 | 33 | 60.9 | 2 | 4.3 | 55 |
| Total | 50 | 4.3 | 110 | 9.4 | 734 | 63.1 | 156 | 13.4 | 24 | 2.1 | 51 | 4.4 | 120 | 10.3 | 25 | 2.2 | 1163 |

6.6 Health programmes coverage

The national coverage for vitamin A supplementation among children 6-59 months was 93.9 per cent, above the SPHERE recommended 80 per cent, and 91.6 per cent of the assessed children (12-59 months) had been dewormed in the preceding 6 months (see **Table 53**). It is worth noting that the SMART survey was conducted just one month after the last round of mass Vitamin A supplementation and deworming, and the results reflect

the current coverage. Previous post-event coverage surveys performed within the recommended one month have all shown deworming coverage well over 85 per cent. Furthermore, 80.5 per cent of the assessed (6-59 months) children had slept under treated mosquito nets; and 97.9 per cent of children (12-35 months) had received at least one dosage of measles vaccine (see **Table 53**).

Table 53: Health programmes coverage in children (6-59 months) by district

| | Children 6-59 months with (who had) | | | | | | | Children 12-59 months | | | Children 9-59 months | | |
|-----------|-------------------------------------|------|-------------|------|-----------------|------|-------|-----------------------|------|-----|-----------------------------|------|------|
| | EPI_Card | | Vit A Suppl | | Slept under net | | Total | Dewormed | | | Any dose of Measles Vaccine | | |
| | n | % | n | % | n | % | N | n | % | N | n | % | N |
| Kailahun | 468 | 83.5 | 531 | 94.8 | 483 | 86.2 | 560 | 486 | 94.8 | 513 | 526 | 98.0 | 536 |
| Kenema | 784 | 86.0 | 829 | 91.0 | 807 | 88.5 | 911 | 705 | 87.9 | 802 | 823 | 96.4 | 854 |
| Kono | 385 | 77.0 | 484 | 97.0 | 440 | 88.1 | 499 | 428 | 94.0 | 455 | 466 | 97.8 | 477 |
| Bombali | 497 | 86.4 | 477 | 83.0 | 413 | 71.9 | 575 | 423 | 84.2 | 503 | 510 | 94.9 | 537 |
| Falaba | 157 | 77.4 | 189 | 93.4 | 165 | 81.3 | 203 | 141 | 77.7 | 181 | 183 | 94.8 | 193 |
| Koinadugu | 143 | 55.7 | 237 | 92.6 | 198 | 77.5 | 256 | 202 | 88.0 | 229 | 241 | 97.9 | 246 |
| Tonkolili | 879 | 82.4 | 1020 | 95.7 | 879 | 82.4 | 1066 | 870 | 91.6 | 950 | 988 | 97.8 | 1010 |
| Kambia | 395 | 96.5 | 405 | 98.8 | 316 | 77.0 | 410 | 358 | 97.4 | 367 | 378 | 99.2 | 382 |
| Karene | 319 | 81.4 | 353 | 90.0 | 271 | 69.2 | 392 | 302 | 85.1 | 354 | 361 | 96.8 | 373 |
| Port Loko | 648 | 95.6 | 657 | 97.0 | 476 | 70.3 | 678 | 576 | 94.0 | 613 | 624 | 96.6 | 646 |
| Bo | 754 | 90.5 | 794 | 95.3 | 735 | 88.2 | 833 | 700 | 93.0 | 753 | 769 | 96.3 | 798 |
| Bonthe | 223 | 92.6 | 235 | 97.3 | 195 | 80.9 | 241 | 213 | 97.7 | 218 | 228 | 99.8 | 228 |
| Moyamba | 415 | 94.9 | 432 | 98.8 | 289 | 66.1 | 438 | 374 | 96.3 | 388 | 407 | 99.6 | 409 |

| | Children 6-59 months with (who had) | | | | | | | Children 12-59 months | | | Children 9-59 months | | |
|--------------|-------------------------------------|-------------|-------------|-------------|-----------------|-------------|-------------|-----------------------|-------------|-------------|-----------------------------|-------------|-------------|
| | EPI_Card | | Vit A Suppl | | Slept under net | | Total | Dewormed | | | Any dose of Measles Vaccine | | |
| | n | % | N | % | n | % | N | n | % | N | n | % | N |
| Pujehun | 383 | 90.2 | 399 | 93.9 | 388 | 91.4 | 424 | 339 | 90.2 | 375 | 386 | 97.9 | 394 |
| WA-Rural | 393 | 90.5 | 406 | 93.4 | 338 | 77.9 | 434 | 372 | 95.2 | 390 | 405 | 99.3 | 407 |
| WA-Slums | 355 | 78.4 | 436 | 96.2 | 390 | 86.1 | 453 | 373 | 92.3 | 404 | 420 | 98.6 | 426 |
| WA-Urban | 780 | 77.3 | 931 | 92.2 | 770 | 76.3 | 1010 | 811 | 91.9 | 883 | 909 | 97.9 | 928 |
| Total | 7977 | 85.0 | 8814 | 93.9 | 7554 | 80.5 | 9384 | 7671 | 91.6 | 8379 | 8624 | 97.5 | 8845 |

The national coverage for vitamin A supplementation among children 12-35 months was 95.0 per cent, and 97.9 per cent

of the assessed children (12-35 months) had received at least the first dose of measles vaccine (see **Table 54**).

Table 54: Vitamin A supplementation and measles vaccination among children 12-35 months by district

| | Vitamin A supplementation (12-35 Months) | | | Measles vaccination (12-35 months) | | | | | | | | | | |
|-----------|--|------|-----|------------------------------------|------|-----------------|------|-----------------|------|------------------|------|----------|------|-----|
| | | | | Once with card | | Twice with card | | Once, by recall | | Twice, by recall | | Any dose | | N |
| | n | % | N | n | % | n | % | n | % | n | % | | | |
| Kailahun | 283 | 95.3 | 297 | 180 | 60.6 | 78 | 26.4 | 28 | 9.4 | 4 | 1.2 | 290 | 97.7 | 297 |
| Kenema | 388 | 94.4 | 411 | 195 | 47.4 | 167 | 40.7 | 26 | 6.3 | 11 | 2.6 | 399 | 97.0 | 411 |
| Kono | 216 | 97.5 | 222 | 74 | 33.5 | 107 | 48.3 | 18 | 8.1 | 19 | 8.5 | 218 | 98.3 | 222 |
| Bombali | 201 | 85.0 | 237 | 97 | 40.8 | 103 | 43.3 | 17 | 7.3 | 15 | 6.4 | 232 | 97.9 | 237 |
| Falaba | 83 | 95.4 | 87 | 20 | 22.9 | 37 | 42.3 | 19 | 22.3 | 8 | 9.7 | 85 | 97.1 | 87 |
| Koinadugu | 98 | 93.7 | 105 | 23 | 21.6 | 34 | 32.9 | 30 | 28.8 | 15 | 14.0 | 102 | 97.3 | 105 |
| Tonkolili | 473 | 96.9 | 489 | 189 | 38.7 | 227 | 46.3 | 34 | 7.0 | 32 | 6.6 | 482 | 98.6 | 489 |
| Kambia | 181 | 99.6 | 182 | 62 | 34.2 | 111 | 60.9 | 2 | 1.3 | 3 | 1.8 | 178 | 98.2 | 182 |
| Karene | 167 | 93.3 | 179 | 56 | 31.5 | 89 | 49.6 | 12 | 6.7 | 17 | 9.4 | 174 | 97.2 | 179 |
| Port Loko | 316 | 96.6 | 327 | 110 | 33.5 | 198 | 60.7 | 3 | 1.0 | 3 | 1.0 | 314 | 96.1 | 327 |

| | Vitamin A supplementation (12-35 Months) | | | Measles vaccination (12-35 months) | | | | | | | | | | |
|--------------|--|-------------|-------------|------------------------------------|-------------|-----------------|-------------|-----------------|------------|------------------|------------|-------------|-------------|-------------|
| | | | | Once with card | | Twice with card | | Once, by recall | | Twice, by recall | | Any dose | | N |
| | n | % | N | n | % | n | % | n | % | n | % | | | |
| Bo | 365 | 95.4 | 383 | 224 | 58.4 | 115 | 30.2 | 25 | 6.5 | 10 | 2.7 | 374 | 97.7 | 383 |
| Bonthe | 111 | 98.2 | 113 | 36 | 31.8 | 70 | 62.3 | 2 | 1.8 | 5 | 4.0 | 113 | 100.0 | 113 |
| Moyamba | 206 | 99.1 | 208 | 75 | 36.4 | 120 | 57.6 | 5 | 2.6 | 5 | 2.6 | 206 | 99.1 | 208 |
| Pujehun | 172 | 94.8 | 182 | 112 | 61.6 | 54 | 29.9 | 10 | 5.2 | 4 | 2.2 | 180 | 98.9 | 182 |
| WA-Rural | 190 | 95.1 | 200 | 90 | 44.8 | 87 | 43.5 | 16 | 8.1 | 5 | 2.7 | 198 | 99.1 | 200 |
| WA-Slums | 190 | 96.4 | 197 | 89 | 45.2 | 56 | 28.4 | 32 | 16.2 | 16 | 8.1 | 193 | 98.0 | 197 |
| WA-Urban | 354 | 90.8 | 390 | 189 | 48.5 | 122 | 31.3 | 53 | 13.5 | 19 | 4.9 | 383 | 98.2 | 390 |
| Total | 3996 | 95.0 | 4207 | 1820 | 43.3 | 1776 | 42.2 | 333 | 7.9 | 192 | 4.6 | 4121 | 97.9 | 4207 |

Disaggregated by age, vitamin A supplementation coverage was equally high at 95.7 per cent among the children 12-23 months of age and 94.2 per cent among the children 24-35 months of age (see **Table 55**).

Among the children 12-23 months, 97.8 per cent had received at least the first dose of the measles vaccine, while 60.3 per cent of children 24-35 months had received the two recommended doses either by card or recall (see **Table 55**).

Table 55: Vitamin-A supplementation and measles vaccination among children 12-23 months and 24-35 months by district

| | Vitamin A supplement (12-23 months) | | | Vitamin A supplement (24-35 months) | | | At least 1 st dose of measles vaccine (12-23 months) | | | 2 nd measles dose (24-35 months) | | |
|-----------|-------------------------------------|------|-----|-------------------------------------|------|-----|---|------|-----|---|------|-----|
| | n | % | N | n | % | N | n | % | N | n | % | N |
| Kailahun | 154 | 95.7 | 161 | 177 | 93.8 | 189 | 157 | 97.1 | 161 | 92 | 48.8 | 189 |
| Kenema | 193 | 95.5 | 202 | 94 | 81.4 | 115 | 196 | 97.0 | 202 | 69 | 60.2 | 115 |
| Kono | 108 | 97.5 | 111 | 65 | 97.7 | 67 | 109 | 98.3 | 111 | 53 | 79.5 | 67 |
| Bombali | 108 | 88.3 | 122 | 42 | 96.6 | 43 | 118 | 96.7 | 122 | 26 | 60.9 | 43 |
| Falaba | 41 | 94.3 | 44 | 129 | 94.8 | 136 | 42 | 95.5 | 44 | 48 | 35.3 | 136 |
| Koinadugu | 50 | 92.1 | 54 | 100 | 99.2 | 101 | 51 | 94.7 | 54 | 77 | 76.0 | 101 |

| | Vitamin A supplement (12-23 months) | | | Vitamin A supplement (24-35 months) | | | At least 1 st dose of measles vaccine (12-23 months) | | | 2 nd measles dose (24-35 months) | | |
|--------------|-------------------------------------|-------------|-------------|-------------------------------------|-------------|-------------|---|-------------|-------------|---|-------------|-------------|
| | n | % | N | n | % | N | n | % | N | n | % | N |
| Tonkolili | 237 | 97.9 | 242 | 77 | 91.6 | 84 | 240 | 99.3 | 242 | 60 | 71.4 | 84 |
| Kambia | 81 | 100.0 | 81 | 195 | 93.4 | 208 | 81 | 100.0 | 81 | 110 | 52.6 | 208 |
| Karene | 90 | 94.8 | 95 | 49 | 95.4 | 51 | 91 | 96.3 | 95 | 32 | 62.0 | 51 |
| Port Loko | 160 | 98.1 | 164 | 108 | 97.5 | 111 | 157 | 96.1 | 164 | 70 | 62.7 | 111 |
| Bo | 189 | 97.0 | 194 | 112 | 99.2 | 113 | 189 | 97.0 | 194 | 95 | 84.1 | 113 |
| Bonthe | 46 | 98.9 | 46 | 156 | 95.1 | 164 | 46 | 100.0 | 46 | 144 | 88.3 | 164 |
| Moyamba | 93 | 99.0 | 94 | 85 | 93.3 | 91 | 93 | 99.0 | 94 | 41 | 44.8 | 91 |
| Pujehun | 88 | 96.3 | 91 | 237 | 95.9 | 247 | 90 | 98.5 | 91 | 153 | 62.1 | 247 |
| WA-Rural | 100 | 95.7 | 104 | 91 | 94.4 | 96 | 104 | 100.0 | 104 | 58 | 60.7 | 96 |
| WA-Slums | 95 | 95.0 | 100 | 95 | 97.9 | 97 | 99 | 99.0 | 100 | 45 | 46.4 | 97 |
| WA-Urban | 182 | 91.6 | 199 | 172 | 90.0 | 191 | 194 | 97.6 | 199 | 96 | 50.0 | 191 |
| Total | 2014 | 95.7 | 2104 | 1982 | 94.2 | 2103 | 2057 | 97.8 | 2104 | 1269 | 60.3 | 2103 |



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6.7 Infant and young child feeding practices

6.7.1 Breastfeeding practices

Among the assessed infants and young children (0-23 months), 97.7 per cent was ever-breastfed nationally, 78.1 per cent was currently breastfeeding (breastfed the

previous day); 59.1 per cent were put to the breast immediately, and 30.8 per cent within the first hour of birth (89.9 per cent timely introduced to breastmilk). A few (9.7 per cent) of children aged 0-23 months were bottle-feeding (see **Table 56**).

Table 56: Breastfeeding practices among infant and young children (0-23 months) by district

| District | Ever Breastfed | | How long after birth child was put to breast | | | | | | | | Breast feeding | | Bottle feeding | | Total N |
|--------------|----------------|-------------|--|-------------|-------------|-------------|------------|------------|-----------|------------|----------------|-------------|----------------|------------|-------------|
| | EvBF | | Immediately | | <1 hr | | 1-24 hrs | | >48 hrs | | BF | | BoF | | |
| | n | % | n | % | n | % | n | % | n | % | n | % | n | % | |
| Kailahun | 252 | 98.2 | 159 | 61.8 | 61 | 23.6 | 32 | 12.3 | 4 | 1.4 | 203 | 79.1 | 28 | 10.9 | 257 |
| Kenema | 399 | 98.5 | 224 | 55.3 | 135 | 33.5 | 40 | 9.8 | 5 | 1.1 | 313 | 77.4 | 35 | 8.6 | 405 |
| Kono | 231 | 97.2 | 141 | 59.3 | 75 | 31.6 | 20 | 8.3 | 1 | 0.4 | 186 | 78.3 | 24 | 10.3 | 238 |
| Bombali | 255 | 97.3 | 139 | 53.1 | 99 | 37.6 | 21 | 8.1 | 1 | 0.4 | 211 | 80.2 | 26 | 10.1 | 263 |
| Falaba | 77 | 95.7 | 45 | 56.2 | 26 | 32.7 | 6 | 7.4 | 1 | 1.9 | 64 | 79.6 | 8 | 10.5 | 81 |
| Koinadugu | 116 | 98.8 | 69 | 59.0 | 35 | 30.1 | 11 | 9.2 | 0 | 0.0 | 84 | 71.5 | 15 | 12.9 | 118 |
| Tonkolili | 489 | 97.3 | 303 | 60.3 | 148 | 29.5 | 41 | 8.1 | 0 | 0.0 | 419 | 83.4 | 72 | 14.2 | 502 |
| Kambia | 204 | 98.4 | 123 | 59.1 | 63 | 30.4 | 19 | 8.9 | 2 | 1.2 | 160 | 77.0 | 19 | 8.9 | 207 |
| Karene | 183 | 95.6 | 105 | 54.9 | 56 | 28.9 | 28 | 14.7 | 3 | 1.5 | 156 | 81.3 | 23 | 12.1 | 192 |
| Port Loko | 364 | 99.1 | 202 | 55.0 | 141 | 38.5 | 19 | 5.2 | 2 | 0.4 | 292 | 79.7 | 33 | 9.1 | 367 |
| Bo | 396 | 97.8 | 247 | 61.0 | 113 | 27.8 | 35 | 8.7 | 7 | 1.8 | 303 | 74.7 | 39 | 9.7 | 405 |
| Bonthe | 104 | 98.1 | 65 | 61.4 | 30 | 28.1 | 10 | 9.0 | 1 | 0.5 | 85 | 79.5 | 17 | 15.7 | 106 |
| Moyamba | 225 | 97.3 | 125 | 54.1 | 79 | 34.2 | 22 | 9.7 | 0 | 0.0 | 179 | 77.4 | 14 | 6.2 | 231 |
| Pujehun | 198 | 98.0 | 113 | 55.9 | 69 | 34.0 | 18 | 8.8 | 1 | 0.3 | 157 | 77.8 | 14 | 6.7 | 202 |
| WA-Rural | 217 | 98.0 | 131 | 59.1 | 64 | 28.7 | 24 | 10.9 | 1 | 0.4 | 162 | 73.3 | 13 | 6.1 | 222 |
| WA-Slums | 247 | 97.2 | 166 | 65.4 | 67 | 26.4 | 19 | 7.5 | 1 | 0.4 | 195 | 76.8 | 30 | 11.8 | 254 |
| WA-Urban | 517 | 99.1 | 345 | 66.1 | 146 | 28.0 | 29 | 5.5 | 0 | 0.0 | 402 | 77.1 | 31 | 6.0 | 522 |
| Total | 4475 | 97.9 | 2702 | 59.1 | 1407 | 30.8 | 392 | 8.6 | 29 | 0.6 | 3571 | 78.1 | 443 | 9.7 | 4570 |

Nationally, 89.4 per cent of assessed children 0-23 months were initiated early to breastfeeding (EIBF), and 52.7 per cent of children 0-5 months were exclusively breastfed (EBF). However, 53.1 per cent of the children continued breastfeeding (CBF)

at 23 months. **Table 57** shows the district's prevalence of exclusive and continued breastfeeding, even though some districts' disaggregated sample sizes are small. So interpretation at the national level is more meaningful.

Table 57: Exclusive and continued breastfeeding indicators

| District | Prelacteals (0-23 months) | | Early Initiation of Breastfeeding | | | Exclusive Breastfeeding (0-5 months) | | | Continued BF at 23 Months | | |
|--------------|---------------------------|-------------|-----------------------------------|-------------|-------------|--------------------------------------|-------------|-------------|---------------------------|-------------|-------------|
| | | | EIBF | | Total | BF | | | CBF | | |
| | n | % | n | % | N | n | % | N | N | % | N |
| Kailahun | 50 | 19.5 | 229 | 89.1 | 257 | 34 | 49.2 | 69 | 83 | 64.0 | 130 |
| Kenema | 70 | 17.3 | 355 | 87.6 | 405 | 78 | 52.6 | 148 | 99 | 57.0 | 173 |
| Kono | 33 | 13.8 | 203 | 85.4 | 238 | 44 | 54.7 | 81 | 58 | 54.9 | 106 |
| Bombali | 71 | 27.1 | 243 | 92.6 | 263 | 47 | 57.5 | 81 | 71 | 59.8 | 119 |
| Falaba | 15 | 19.1 | 72 | 88.9 | 81 | 17 | 61.4 | 28 | 22 | 59.5 | 37 |
| Koinadugu | 19 | 16.1 | 106 | 90.4 | 118 | 11 | 40.0 | 28 | 20 | 43.9 | 46 |
| Tonkolili | 72 | 14.2 | 448 | 89.2 | 502 | 44 | 31.7 | 140 | 100 | 46.1 | 218 |
| Kambia | 36 | 17.1 | 187 | 90.3 | 207 | 36 | 56.2 | 65 | 47 | 50.4 | 93 |
| Karene | 35 | 18.3 | 171 | 89.0 | 192 | 31 | 47.3 | 65 | 41 | 50.0 | 82 |
| Port Loko | 52 | 14.3 | 332 | 90.5 | 367 | 48 | 42.9 | 111 | 84 | 57.0 | 148 |
| Bo | 67 | 16.6 | 371 | 91.7 | 405 | 67 | 56.8 | 118 | 91 | 50.0 | 181 |
| Bonthe | 26 | 24.8 | 96 | 90.0 | 106 | 19 | 54.3 | 35 | 29 | 55.8 | 53 |
| Moyamba | 40 | 17.5 | 217 | 94.2 | 231 | 33 | 46.8 | 71 | 47 | 46.0 | 102 |
| Pujehun | 41 | 20.5 | 178 | 88.2 | 202 | 37 | 55.1 | 67 | 46 | 56.2 | 82 |
| WA-Rural | 23 | 10.5 | 194 | 87.4 | 222 | 41 | 64.8 | 64 | 55 | 55.0 | 100 |
| WA-Slums | 57 | 22.4 | 221 | 87.0 | 254 | 45 | 57.7 | 78 | 57 | 48.3 | 118 |
| WA-Urban | 89 | 17.0 | 462 | 88.5 | 522 | 110 | 68.7 | 160 | 127 | 52.5 | 242 |
| Total | 798 | 17.5 | 4085 | 89.4 | 4570 | 743 | 52.7 | 1410 | 1077 | 53.1 | 2029 |

6.7.2 Introduction to complementary foods and feeding frequency

The prevalence of timely introduction of complementary (solid, semi-solid or soft) foods among 6-8 months was 60.2 per cent (see **Table 58**). On average, children (6-23

months) are fed on solid, semi-solid, or soft foods twice (2.1 ± 1.9 times) in a day, including once (0.8 ± 1.7 times) on milk feeds (see Table 58). The mean number of food groups consumed by children aged 6-23 months was 3.1 (± 1.7) nationally out of a total of 8 food groups and varied from 2.4 food groups in Port Loko (± 1.2) and Tonkolili (± 1.4) to a mean of 4.1 (± 1.9) food groups in Kono.

Table 58: Complementary feeding and child dietary diversity by district

| | Introduction of solid, semi-solid or soft foods (6-8 months) | | | Meal Frequency and Food Groups (6-23 months) | | | | | | |
|--------------|--|-------------|------------|--|------------|------------------------|------------|-------------------|------------|-------------|
| | ISSSF | | Total | Milk Feed Frequency | | Feeding/Meal Frequency | | Child Food Groups | | Total |
| | n | % | N | Mean | SD | Mean | SD | Mean | SD | N |
| Kailahun | 9 | 61.5 | 15 | 0.7 | 1.7 | 2.3 | 1.7 | 3.6 | 1.7 | 187 |
| Kenema | 17 | 61.1 | 27 | 0.3 | 1.3 | 1.6 | 1.5 | 3.2 | 1.6 | 256 |
| Kono | 8 | 57.1 | 13 | 1.1 | 1.6 | 2.7 | 2.2 | 4.1 | 1.9 | 156 |
| Bombali | 7 | 43.8 | 16 | 0.5 | 1.5 | 2.2 | 1.8 | 3.1 | 1.7 | 178 |
| Falaba | 5 | 76.9 | 6 | 0.7 | 1.5 | 2.0 | 1.6 | 3.5 | 1.6 | 52 |
| Koinadugu | 6 | 41.9 | 15 | 0.9 | 1.6 | 2.2 | 1.5 | 2.8 | 1.5 | 88 |
| Tonkolili | 39 | 76.7 | 51 | 0.5 | 1.2 | 2.1 | 1.8 | 2.4 | 1.4 | 363 |
| Kambia | 10 | 59.1 | 18 | 0.5 | 1.3 | 2.2 | 1.8 | 2.7 | 1.2 | 141 |
| Karene | 8 | 48.0 | 18 | 0.6 | 1.4 | 1.8 | 1.6 | 3.4 | 1.6 | 125 |
| Port Loko | 17 | 47.8 | 37 | 0.7 | 1.7 | 2.2 | 2.3 | 2.4 | 1.2 | 252 |
| Bo | 13 | 45.0 | 29 | 0.6 | 1.3 | 2.0 | 1.7 | 2.7 | 1.3 | 281 |
| Bonthe | 4 | 53.3 | 8 | 0.6 | 1.2 | 2.3 | 1.9 | 2.8 | 1.5 | 71 |
| Moyamba | 14 | 59.3 | 24 | 0.2 | 0.9 | 1.7 | 1.6 | 3.0 | 1.5 | 159 |
| Pujehun | 8 | 50.0 | 16 | 0.6 | 1.5 | 2.1 | 1.7 | 3.9 | 1.9 | 131 |
| WA-Rural | 13 | 58.3 | 22 | 1.5 | 2.4 | 2.4 | 2.2 | 3.3 | 1.8 | 158 |
| WA-Slums | 15 | 71.4 | 21 | 1.6 | 2.4 | 2.2 | 2.5 | 2.6 | 1.4 | 174 |
| WA-Urban | 33 | 77.8 | 43 | 1.2 | 2.3 | 1.9 | 2.3 | 2.5 | 1.3 | 361 |
| Total | 228 | 60.2 | 379 | 0.8 | 1.7 | 2.1 | 1.9 | 3.1 | 1.7 | 3134 |

6.7.3 Child meal frequency dietary diversity among children (6-23 months)

The proportion of children meeting minimum meal frequency for their specific ages was 33.0 per cent nationally and varied by district ranging from 17.3 per cent in Kenema to 43.4 per cent in the Port Loko district. The proportion of children meeting minimum

dietary diversity for their breastfeeding status was only 22.9 per cent nationally and varied by district ranging from 8.6 per cent in Koinadugu and WA-Urban to 47.6 per cent in Kono (see **Table 59**).

The proportion of children meeting the minimum acceptable diet (MAD)¹¹ was very low, at only 4.9 per cent, indicating poor feeding practices for children 6-23 months (see **Table 59**).

Table 59: Proportion of children 6-23 months meeting Minimum Dietary Diversity and Meal Frequency

| | Minimum Meal Frequency | | Minimum Dietary Diversity | | Minimum Acceptable Diet | | Total N |
|---------------|------------------------|-------------|---------------------------|-------------|-------------------------|------------|-------------|
| | n | % | n | % | n | % | |
| Kailahun | 63 | 33.7 | 64 | 34.4 | 12 | 6.2 | 187 |
| Kenema | 44 | 17.3 | 68 | 26.8 | 6 | 2.4 | 256 |
| Kono | 55 | 35.5 | 74 | 47.6 | 32 | 20.5 | 156 |
| Bombali | 57 | 32.0 | 55 | 30.9 | 10 | 5.7 | 178 |
| Falaba | 18 | 34.3 | 6 | 11.4 | 2 | 3.8 | 52 |
| Koinadugu | 30 | 34.2 | 8 | 8.6 | | 0.5 | 88 |
| Tonkolili | 140 | 38.5 | 152 | 41.8 | 32 | 8.9 | 363 |
| Kambia | 52 | 37.1 | 14 | 9.7 | 1 | 0.6 | 141 |
| Karene | 34 | 27.5 | 33 | 26.4 | 6 | 4.5 | 125 |
| Port Loko | 110 | 43.4 | 38 | 15.1 | 10 | 3.8 | 252 |
| Bo | 98 | 34.9 | 64 | 22.9 | 9 | 3.1 | 281 |
| Bonthe | 24 | 34.3 | 10 | 13.6 | 0 | 0.0 | 71 |
| Moyamba | 58 | 36.2 | 15 | 9.6 | 1 | 0.6 | 159 |
| Pujehun | 38 | 29.0 | 28 | 21.2 | 3 | 2.1 | 131 |
| WA-Rural | 60 | 38.1 | 41 | 26.1 | 10 | 6.2 | 158 |
| WA-Slums | 60 | 34.5 | 17 | 9.8 | 12 | 6.9 | 174 |
| WA-Urban | 91 | 25.2 | 31 | 8.6 | 10 | 2.6 | 361 |
| Total* | 1033 | 33.0 | 718 | 22.9 | 155 | 4.9 | 3134 |

¹¹ MAD is an indicator that combines information on both minimum dietary diversity and minimum meal frequency, with the extra requirement that non-breastfed children should have received milk at least twice on the previous day.

Table 60 shows the diversity and consumption of the various food groups assessed children (6-23) months old by district and nationally. Most of the child's diet comprises the staple grains, roots &

tubers in all the districts, with consumption ranging from 87.1 per cent in Bonthe to 98.1 per cent in Port Loko. Consumption of other food groups is low (below 50 per cent) nationally and across most districts.

Table 60: Consumption of different food groups among children (6-23 months) by district

| Consumption of the 8 different food groups for children 6-23 months | | | | | | | | | | | | | | | | | | | |
|---|-------------|-------------|------------------------|-------------|----------------|-------------|----------------|-------------|----------------------|-------------|------------|-------------|--------------------------------|-------------|---------------------------|-------------|-------------|---|-------------|
| | Breastmilk | | Grains, roots & tubers | | Legumes & nuts | | Dairy products | | Meats, poultry, fish | | Eggs | | Vit A rich fruits & vegetables | | Other fruits & vegetables | | Total | | |
| | n | per cent | n | % | n | % | n | % | n | % | n | % | n | % | n | % | n | % | N |
| Kailahun | 136 | 72.0 | 173 | 91.9 | 21 | 11.3 | 34 | 18.0 | 105 | 55.9 | 28 | 14.9 | 101 | 53.4 | 78 | 41.6 | 188 | | 188 |
| Kenema | 166 | 64.5 | 230 | 89.3 | 26 | 10.1 | 29 | 11.2 | 114 | 44.4 | 37 | 14.2 | 116 | 45.0 | 99 | 38.5 | 257 | | 257 |
| Kono | 105 | 67.1 | 144 | 91.6 | 34 | 21.7 | 64 | 40.7 | 82 | 52.1 | 38 | 24.1 | 95 | 60.5 | 81 | 51.5 | 157 | | 157 |
| Bombali | 129 | 71.3 | 174 | 96.1 | 24 | 13.5 | 46 | 25.3 | 84 | 46.6 | 28 | 15.8 | 92 | 50.6 | 63 | 34.8 | 181 | | 181 |
| Falaba | 36 | 68.6 | 47 | 89.5 | 5 | 10.5 | 9 | 17.1 | 11 | 21.9 | 1 | 2.9 | 13 | 25.7 | 4 | 8.6 | 52 | | 52 |
| Koinadugu | 56 | 63.0 | 84 | 93.7 | 10 | 11.6 | 16 | 18.0 | 21 | 23.3 | 2 | 2.1 | 17 | 18.5 | 11 | 12.7 | 89 | | 89 |
| Tonkolili | 281 | 77.5 | 344 | 94.8 | 94 | 25.9 | 72 | 19.7 | 181 | 49.8 | 78 | 21.7 | 209 | 57.7 | 165 | 45.5 | 363 | | 363 |
| Kambia | 96 | 67.2 | 134 | 93.8 | 2 | 1.7 | 26 | 18.1 | 55 | 38.4 | 4 | 2.9 | 40 | 27.7 | 26 | 18.1 | 143 | | 143 |
| Karene | 91 | 72.2 | 117 | 92.8 | 15 | 12.4 | 25 | 19.4 | 65 | 51.7 | 13 | 10.1 | 73 | 57.8 | 36 | 28.3 | 127 | | 127 |
| Port Loko | 181 | 70.8 | 251 | 98.1 | 8 | 3.1 | 63 | 24.8 | 102 | 39.8 | 3 | 1.3 | 73 | 28.6 | 37 | 14.3 | 256 | | 256 |
| Bo | 186 | 64.8 | 259 | 90.3 | 31 | 10.7 | 47 | 16.3 | 130 | 45.4 | 38 | 13.3 | 123 | 42.9 | 86 | 30.1 | 286 | | 286 |
| Bonthe | 50 | 70.0 | 62 | 87.1 | 6 | 7.9 | 19 | 26.4 | 29 | 40.7 | 4 | 5.8 | 16 | 22.1 | 14 | 20.0 | 71 | | 71 |
| Moyamba | 109 | 68.0 | 144 | 89.9 | 4 | 2.3 | 31 | 19.1 | 78 | 48.9 | 3 | 1.7 | 33 | 20.8 | 23 | 14.6 | 160 | | 160 |
| Pujehun | 90 | 66.8 | 124 | 92.0 | 11 | 8.1 | 10 | 7.5 | 62 | 45.7 | 10 | 7.1 | 57 | 42.2 | 43 | 32.2 | 135 | | 135 |
| WA-Rural | 99 | 62.5 | 150 | 94.9 | 10 | 6.2 | 57 | 35.8 | 62 | 39.2 | 37 | 23.3 | 60 | 38.1 | 40 | 25.6 | 158 | | 158 |
| WA-Slums | 119 | 67.6 | 163 | 92.6 | 15 | 8.5 | 64 | 36.4 | 29 | 16.5 | 17 | 9.7 | 36 | 20.5 | 22 | 12.5 | 176 | | 176 |
| WA-Urban | 242 | 66.9 | 340 | 94.0 | 29 | 8.0 | 100 | 27.8 | 48 | 13.2 | 41 | 11.3 | 57 | 15.9 | 45 | 12.6 | 361 | | 361 |
| Total | 2171 | 68.7 | 2938 | 93.0 | 345 | 11.0 | 710 | 22.5 | 1258 | 39.8 | 381 | 12.1 | 1210 | 38.3 | 875 | 27.7 | 3160 | | 3160 |

The consumption of protein source foods was generally poor among children, including animal source foods was generally poor, especially legumes, nuts & seeds (11.0 per cent), eggs (12.1 per cent), and animal flesh - meat, poultry, and fish products (39.8 per cent). Consumption of Vitamin A-rich

foods - yellow- or orange-coloured fruits & vegetables (38.3 per cent) as was for other fruits & vegetables (27.7 per cent) was similarly poor (see **Figure 13**).

Figure 14 summarizes the national rates for key IYCF indicators.

Figure 14: Chart showing consumption pattern for different food groups by children 6-23 months

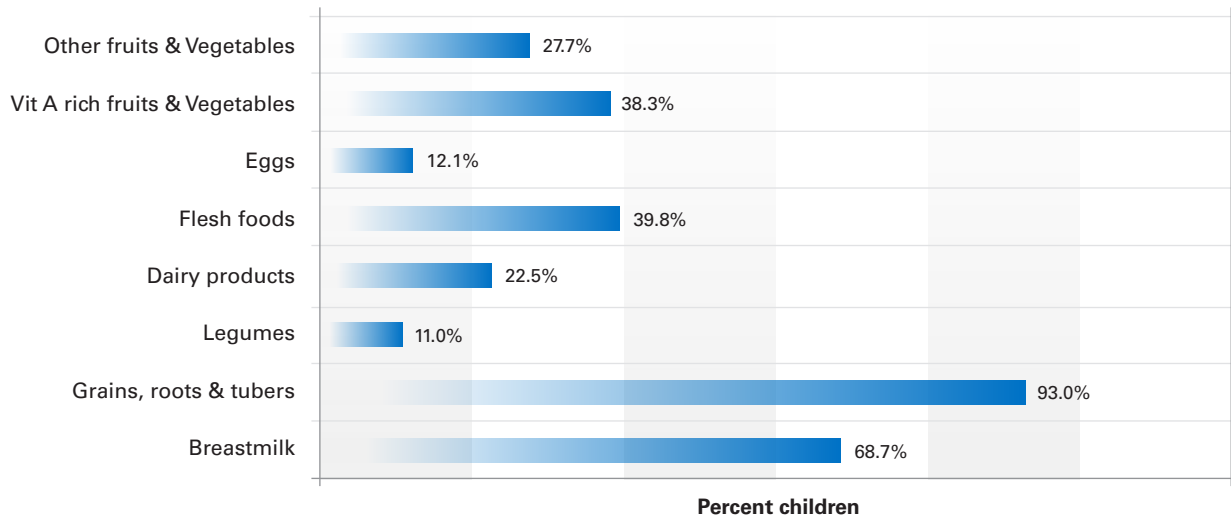
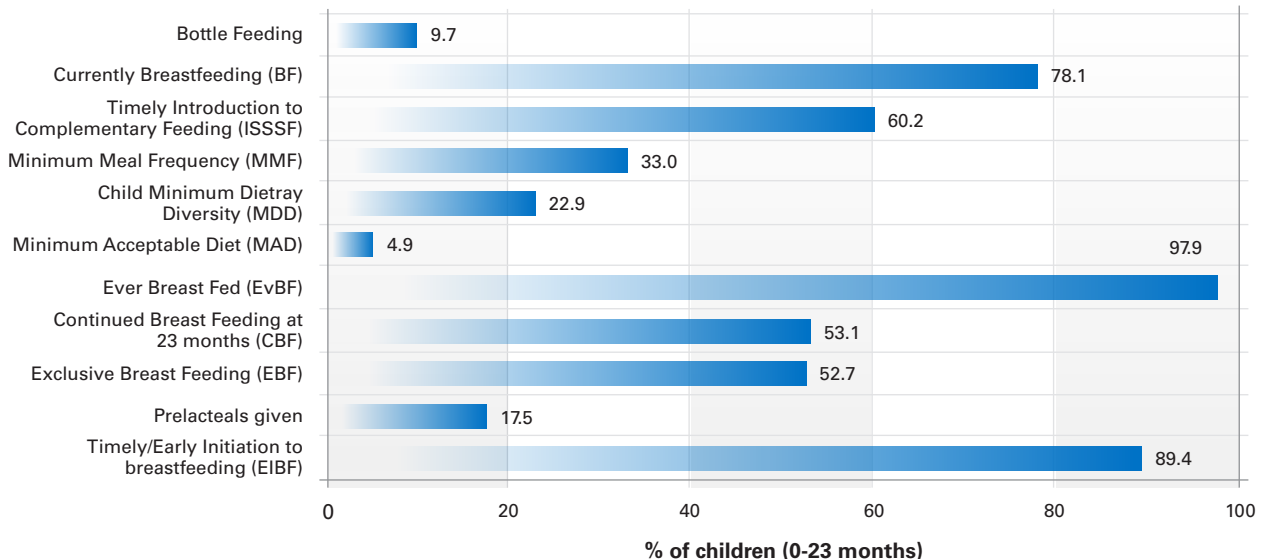


Figure 15: National rates for key infant and young child feeding indicators – SLNNS 2021



6.7.4 Unhealthy food consumption among children 6–23 months

The consumption of sweet foods such as chocolates, candies, pastries, cakes,

cookies, biscuits, or frozen treats like ice cream and popsicles was 11.7 per cent; while the consumption of fries such as chips, crisps, puffs, French fries, fried dough, and instant noodles among children 6-23 months was 6.7 per cent (see **Table 61**).

Table 61: Unhealthy food consumption among children 6-23 months by district

| | Unhealthy food consumption (UFC) for children 6-23 months | | | | |
|--------------|---|-------------|------------|------------|-------------|
| | Sweet foods | | Fries | | Total |
| | n | % | n | % | N |
| Kailahun | 63 | 33.5 | 28 | 14.9 | 188 |
| Kenema | 46 | 17.8 | 33 | 13.0 | 257 |
| Kono | 37 | 23.4 | 12 | 7.8 | 157 |
| Bombali | 19 | 10.7 | 13 | 7.3 | 181 |
| Falaba | 4 | 8.6 | 2 | 3.8 | 52 |
| Koinadugu | 4 | 4.8 | 3 | 3.2 | 89 |
| Tonkolili | 43 | 11.7 | 15 | 4.2 | 363 |
| Kambia | 2 | 1.7 | 1 | 0.6 | 143 |
| Karene | 10 | 7.8 | 8 | 6.1 | 127 |
| Port Loko | 10 | 3.7 | 5 | 1.9 | 256 |
| Bo | 41 | 14.3 | 31 | 10.7 | 286 |
| Bonthe | 2 | 2.1 | 1 | 0.7 | 71 |
| Moyamba | 2 | 1.1 | 2 | 1.1 | 160 |
| Pujehun | 18 | 13.1 | 7 | 5.0 | 135 |
| WA-Rural | 23 | 14.8 | 17 | 10.8 | 158 |
| WA-Slums | 25 | 14.2 | 14 | 8.0 | 176 |
| WA-Urban | 22 | 6.0 | 22 | 6.0 | 361 |
| Total | 370 | 11.7 | 213 | 6.7 | 3160 |

Higher intakes of commercially prepared food products and other unhealthy foods that are energy-dense, nutrient-poor, and high in salt, sugar, saturated and trans-fatty acids, added sugars, fats, salt, or refined carbohydrates, have been associated with increased obesity risk and stunting among children.

These foods contribute no nutrients other than energy and may displace more nutritious foods or limit the intake of essential vitamins and minerals (WHO, 2003; WHO, 2005). For instance, unhealthy snack food and beverage consumption have recently been associated with a higher risk of nutrient inadequacy and lower length-for-age among one-year-olds (Pries et al., 2019).

6.8 Water, sanitation and hygiene (WASH)

6.8.1 Water access and quality

At the time of the survey – during the rainy season, most households reportedly drew their drinking water from protected sources (see **Table 55**). This includes boreholes (32.9 per cent), household connections or public

standpipes (22.6 per cent) and protected shallow wells (13.6 per cent) considered to be safe (75.8 per cent). Many other households, however, draw their drinking water from unprotected sources such as rivers/streams/dams (20.5 per cent), shallow open wells (3.0 per cent) or rainwater (see **Table 62**).



Table 62: Households' main source of drinking water by district

| Main source of drinking water | | | | | | | | | | | | | | | | | | | | | |
|-------------------------------|------------------------|-------------|------------------------------|-------------|-------------------------|------------|---------------------|------------|---------------------------------|-------------|--|-------------|-----------------------|------------|----------------------------|------------|-----------|------------|-----------|------------|--------------|
| | Borehole/ tube well | | Protected shallow well | | Open shallow well | | Protected spring | | River/ stream/ spring/dam | | HH connection/ Public standpipe | | Tanker/ truck/cart | | Bottle/ sachet water | | Rainwater | | Total | | |
| | n | % | n | % | n | % | n | % | n | % | n | % | n | % | n | % | n | % | n | % | N |
| Kailahun | 395 | 55.0 | 74 | 10.2 | 19 | 2.6 | 1 | 0.2 | 120 | 16.7 | 105 | 14.6 | 0 | 0.0 | 2 | 0.3 | 2 | 0.3 | 2 | 0.3 | 719 |
| Kenema | 548 | 51.9 | 157 | 14.8 | 6 | 0.6 | 2 | 0.1 | 163 | 15.4 | 170 | 16.1 | 5 | 0.4 | 5 | 0.4 | 2 | 0.1 | 2 | 0.1 | 1056 |
| Kono | 196 | 34.7 | 105 | 18.7 | 9 | 1.7 | 5 | 0.8 | 101 | 17.8 | 139 | 24.7 | 1 | 0.2 | 6 | 1.0 | 3 | 0.5 | 3 | 0.5 | 564 |
| Bombali | 198 | 36.1 | 60 | 10.9 | 5 | 0.9 | 11 | 2.0 | 162 | 29.4 | 95 | 17.2 | 1 | 0.2 | 12 | 2.2 | 5 | 0.9 | 5 | 0.9 | 549 |
| Falaba | 44 | 14.7 | 15 | 5.0 | 59 | 19.9 | 1 | 0.5 | 154 | 51.6 | 23 | 7.8 | 0 | 0.0 | 0 | 0.0 | 1 | 0.5 | 1 | 0.5 | 299 |
| Koinadugu | 44 | 14.1 | 68 | 21.7 | 64 | 20.6 | | 0.2 | 89 | 28.6 | 46 | 14.7 | 0 | 0.0 | 0 | 0.0 | 0 | 0.2 | 0 | 0.2 | 312 |
| Tonkolili | 301 | 27.7 | 191 | 17.6 | 54 | 5.0 | 48 | 4.4 | 264 | 24.3 | 211 | 19.4 | 0 | 0.0 | 3 | 0.3 | 14 | 1.3 | 14 | 1.3 | 1087 |
| Kambia | 203 | 38.0 | 107 | 20.0 | 20 | 3.8 | 1 | 0.2 | 182 | 34.2 | 17 | 3.2 | 0 | 0.0 | 2 | 0.5 | 1 | 0.2 | 1 | 0.2 | 533 |
| Karene | 84 | 22.3 | 67 | 17.8 | 1 | 0.4 | 1 | 0.2 | 165 | 43.4 | 56 | 14.8 | 0 | 0.0 | 1 | 0.4 | 3 | 0.7 | 3 | 0.7 | 379 |
| Port Loko | 502 | 52.5 | 140 | 14.6 | 2 | 0.2 | 2 | 0.2 | 267 | 27.9 | 37 | 3.8 | 2 | 0.2 | 5 | 0.5 | 2 | 0.2 | 2 | 0.2 | 956 |
| Bo | 398 | 41.3 | 156 | 16.3 | 4 | 0.5 | 0 | 0.0 | 127 | 13.2 | 248 | 25.8 | 0 | 0.0 | 23 | 2.4 | 4 | 0.5 | 4 | 0.5 | 962 |
| Bonthe | 199 | 62.0 | 17 | 5.2 | 13 | 3.9 | 0 | 0.0 | 92 | 28.7 | 1 | 0.2 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 321 |
| Moyamba | 157 | 25.8 | 120 | 19.6 | 6 | 1.0 | 1 | 0.1 | 306 | 50.2 | 17 | 2.8 | 0 | 0.0 | 0 | 0.0 | 2 | 0.3 | 2 | 0.3 | 608 |
| Pujehun | 228 | 50.9 | 15 | 3.3 | 5 | 1.1 | 0 | 0.0 | 107 | 23.9 | 92 | 20.5 | 0 | 0.0 | 0 | 0.0 | 1 | 0.3 | 1 | 0.3 | 448 |
| WA-Rural | 182 | 29.0 | 159 | 25.3 | 12 | 1.9 | 9 | 1.4 | 2 | 0.3 | 212 | 33.7 | 2 | 0.3 | 51 | 8.1 | 0 | 0.0 | 0 | 0.0 | 628 |
| WA-Slums | 59 | 9.3 | 34 | 5.4 | 4 | 0.6 | 0 | 0.0 | 11 | 1.7 | 378 | 59.7 | 6 | 0.9 | 137 | 21.6 | 4 | 0.6 | 4 | 0.6 | 633 |
| WA-Urban | 105 | 6.5 | 108 | 6.7 | 69 | 4.3 | 0 | 0.0 | 81 | 5.0 | 787 | 48.8 | 7 | 0.4 | 445 | 27.6 | 10 | 0.6 | 10 | 0.6 | 1613 |
| Total | 3843 | 32.9 | 1591 | 13.6 | 354 | 3.0 | 81 | 0.7 | 2393 | 20.5 | 2634 | 22.6 | 23 | 0.2 | 693 | 5.9 | 54 | 0.5 | 54 | 0.5 | 11666 |

The majority have access to safe water sources (75.8 per cent), and it takes less than 30 minutes to fetch water (return trip including queuing/waiting) as recommended by SPHERE (69.2 per cent). The majority (98.8 per cent) of the assessed households reported taking drinking water treated both at the source and the household, and 86.9 per cent reported the drinking water had

been appropriately treated by chlorination (see **Table 63**). Although the survey was conducted during the rainy season when water is available in the main water points or sources, this finding may be overestimated (from how the enumerators asked the question). However, reports from the WASH sector have reported a very low percentage of water treatment at the household level.

Table 63: Household's access to drinking water and water use

| | Household has access to safe water source | | HHs taking recommended time to access water (<=30 mins) | | Households Treatment of Drinking Water | | | | HHs meeting optimal water use | | Total N |
|-----------|---|------|---|------|--|------|-----------------------------|------|-------------------------------|------|------------|
| | | | | | Any Water Treatment | | Appropriate water treatment | | | | |
| | n | % | n | % | n | % | n | % | n | % | |
| Kailahun | 577 | 80.3 | 444 | 61.8 | 716 | 99.7 | 705 | 98.0 | 415 | 57.7 | 719 |
| Kenema | 881 | 83.4 | 756 | 71.6 | 1051 | 99.6 | 934 | 88.5 | 692 | 65.6 | 1056 |
| Kono | 450 | 79.8 | 401 | 71.2 | 556 | 98.5 | 511 | 90.7 | 356 | 63.2 | 564 |
| Bombali | 376 | 68.5 | 496 | 90.2 | 542 | 98.7 | 492 | 89.6 | 265 | 48.1 | 549 |
| Falaba | 84 | 28.0 | 222 | 74.3 | 296 | 99.0 | 228 | 76.3 | 224 | 75.0 | 299 |
| Koinadugu | 158 | 50.6 | 263 | 84.2 | 308 | 98.9 | 254 | 81.4 | 212 | 67.9 | 312 |
| Tonkolili | 754 | 69.4 | 853 | 78.5 | 1051 | 96.7 | 1000 | 92.0 | 623 | 57.4 | 1087 |
| Kambia | 329 | 61.8 | 329 | 61.8 | 528 | 99.1 | 505 | 94.8 | 254 | 47.7 | 533 |
| Karene | 210 | 55.5 | 295 | 77.9 | 373 | 98.5 | 322 | 85.0 | 220 | 58.1 | 379 |
| Port Loko | 684 | 71.6 | 544 | 57.0 | 951 | 99.5 | 900 | 94.2 | 621 | 65.0 | 956 |
| Bo | 826 | 85.9 | 595 | 61.9 | 956 | 99.4 | 856 | 89.1 | 741 | 77.1 | 962 |
| Bonthe | 216 | 67.4 | 220 | 68.6 | 321 | 99.8 | 315 | 98.1 | 190 | 59.1 | 321 |
| Moyamba | 295 | 48.4 | 386 | 63.5 | 606 | 99.6 | 577 | 94.8 | 293 | 48.2 | 608 |
| Pujehun | 335 | 74.7 | 253 | 56.5 | 445 | 99.4 | 407 | 90.8 | 306 | 68.2 | 448 |
| WA-Rural | 613 | 97.6 | 406 | 64.6 | 616 | 98.0 | 428 | 68.1 | 489 | 77.9 | 628 |
| WA-Slums | 608 | 96.1 | 533 | 84.2 | 618 | 97.6 | 490 | 77.4 | 523 | 82.6 | 633 |

| | Household has access to safe water source | | HHs taking recommended time to access water (<=30 mins) | | Households Treatment of Drinking Water | | | | HHs meeting optimal water use | | Total |
|--------------|---|-------------|---|-------------|--|-------------|-----------------------------|-------------|-------------------------------|-------------|--------------|
| | | | | | Any Water Treatment | | Appropriate water treatment | | | | |
| | n | % | n | % | n | % | n | % | n | % | N |
| WA-Urban | 1445 | 89.6 | 1069 | 66.3 | 1591 | 98.7 | 1208 | 74.9 | 1323 | 82.0 | 1613 |
| Total | 8842 | 75.8 | 8067 | 69.2 | 11525 | 98.8 | 10133 | 86.9 | 7746 | 66.4 | 11666 |

All people should have safe and equitable access to enough water for drinking and personal & domestic hygiene, excluding water for washing clothes. Based on the size of the household, most 66.4 per cent). The assessed households met the recommended average water requirement for drinking, cooking, and personal hygiene of 15 litres/person/day in any household (SPHERE, 2011). However, distance to the water source, the time it takes to fetch water, including queuing time, and the number of water collecting and storage containers may limit access to enough water for household use. This is among the remaining 38.6 per cent of households

that do not meet the daily minimum water requirement (see **Table 63**).

6.9.2 Access to sanitation facilities

Nearly two-thirds (62.6 per cent) of the assessed households nationally reported having access to sanitation facilities (latrine or toilet). Access to latrines was highest in WA-rural (89.7 per cent), WA-Urban (88.6 per cent) and Kenema (84.9 per cent) districts (see Table 64). Another 25.4 per cent used hole/bucket, while the remaining used open defecation in the bush (18.4 per cent) or open fields (7.2 per cent).

Table 64: Households' access to sanitation facilities

| | Bush | | Open Field | | Hole/bucket | | Latrine | | Total |
|-----------|------|------|------------|-----|-------------|------|---------|------|-------|
| | n | % | n | % | n | % | n | % | |
| Kailahun | 139 | 19.7 | 36 | 5.1 | 105 | 14.9 | 475 | 67.1 | 707 |
| Kenema | 120 | 11.5 | 21 | 2.0 | 99 | 9.5 | 887 | 84.9 | 1045 |
| Kono | 60 | 11.1 | 22 | 4.0 | 183 | 33.7 | 352 | 64.7 | 543 |
| Bombali | 135 | 24.9 | 10 | 1.9 | 114 | 20.9 | 382 | 70.1 | 544 |
| Falaba | 72 | 24.5 | 5 | 1.9 | 145 | 49.4 | 129 | 44.1 | 293 |
| Koinadugu | 61 | 20.1 | 10 | 3.4 | 168 | 55.3 | 133 | 43.8 | 303 |
| Tonkolili | 215 | 20.6 | 80 | 7.7 | 356 | 34.1 | 625 | 59.9 | 1044 |

| | Bush | | Open Field | | Hole/bucket | | Latrine | | Total |
|--------------|-------------|-------------|------------|------------|-------------|-------------|-------------|-------------|--------------|
| | n | % | n | % | n | % | N | % | N |
| Kambia | 170 | 32.3 | 123 | 23.2 | 165 | 31.3 | 207 | 39.3 | 528 |
| Karene | 101 | 27.0 | 18 | 4.9 | 115 | 30.6 | 253 | 67.5 | 375 |
| Port Loko | 348 | 36.6 | 213 | 22.4 | 470 | 49.4 | 181 | 19.0 | 951 |
| Bo | 222 | 23.3 | 1 | 0.2 | 104 | 10.9 | 699 | 73.3 | 953 |
| Bonthe | 95 | 29.8 | 68 | 21.3 | 115 | 36.3 | 90 | 28.3 | 318 |
| Moyamba | 244 | 40.5 | 197 | 32.6 | 197 | 32.6 | 95 | 15.8 | 604 |
| Pujehun | 127 | 28.8 | 18 | 4.2 | 62 | 14.0 | 298 | 67.6 | 441 |
| WA-Rural | 3 | 0.4 | 0 | 0.0 | 87 | 13.9 | 561 | 89.7 | 625 |
| WA-Slums | 3 | 0.5 | 3 | 0.5 | 230 | 37.3 | 412 | 66.9 | 616 |
| WA-Urban | 2 | 0.2 | 2 | 0.2 | 201 | 12.6 | 1412 | 88.6 | 1593 |
| Total | 2118 | 18.4 | 829 | 7.2 | 2915 | 25.4 | 7190 | 62.6 | 11484 |

6.9.3 Hygiene practices

Most households have their members wash hands with running water after defecation (97.4 per cent) or before eating (90.1 per cent). However, less than half of the assessed households reportedly have their members wash their hands before cooking (21.6 per cent) and, where applicable, before

feeding the baby (11.1 per cent), with the rates varying from district to district (see **Table 65**). Slightly more than half (53.8) of the assessed households reported using soap while washing hands. However, only 12.2 per cent of the households had their members consistently wash their hands at all three critical times (after defecation, before eating and before cooking/preparing food).

Table 65: Household's handwashing practices by district

| | Handwashing & Hygiene Practices | | | | | | | | | | | | | | Total |
|--------------|---------------------------------|-------------|----------------|-------------|---------------|-------------|---------------------|-------------|-----------------|-------------|-------------------------------|-------------|-----------------------|-------------|--------------|
| | After defecation | | Before cooking | | Before eating | | Before feeding baby | | Any other times | | Handwashing at critical times | | Handwashing with soap | | |
| | n | % | n | % | n | % | n | % | n | % | n | % | n | % | |
| Kailahun | 714 | 99.3 | 188 | 26.2 | 656 | 91.2 | 81 | 11.2 | 691 | 96.1 | 118 | 16.4 | 262 | 36.4 | 719 |
| Kenema | 1032 | 97.7 | 309 | 29.3 | 998 | 94.5 | 155 | 14.7 | 1012 | 95.8 | 195 | 18.4 | 566 | 53.6 | 1056 |
| Kono | 522 | 92.5 | 161 | 28.5 | 518 | 91.8 | 118 | 21.0 | 516 | 91.5 | 79 | 14.0 | 363 | 64.3 | 564 |
| Bombali | 539 | 98.1 | 168 | 30.6 | 483 | 88.0 | 54 | 9.8 | 478 | 87.0 | 88 | 15.9 | 317 | 57.8 | 549 |
| Falaba | 283 | 94.8 | 15 | 5.0 | 221 | 74.0 | 10 | 3.3 | 238 | 79.6 | 2 | 0.8 | 141 | 47.1 | 299 |
| Koinadugu | 302 | 96.8 | 16 | 5.0 | 231 | 74.2 | 11 | 3.6 | 257 | 82.4 | 5 | 1.5 | 122 | 39.1 | 312 |
| Tonkolili | 1037 | 95.5 | 363 | 33.4 | 904 | 83.2 | 208 | 19.1 | 887 | 81.7 | 165 | 15.2 | 639 | 58.8 | 1087 |
| Kambia | 529 | 99.4 | 45 | 8.5 | 504 | 94.5 | 15 | 2.7 | 528 | 99.1 | 10 | 1.8 | 185 | 34.7 | 533 |
| Karene | 370 | 97.8 | 134 | 35.4 | 341 | 90.0 | 67 | 17.6 | 333 | 87.9 | 68 | 18.0 | 238 | 62.9 | 379 |
| Port Loko | 954 | 99.8 | 83 | 8.6 | 925 | 96.8 | 30 | 3.2 | 937 | 98.0 | 33 | 3.5 | 273 | 28.6 | 956 |
| Bo | 925 | 96.2 | 297 | 30.9 | 855 | 88.9 | 183 | 19.0 | 877 | 91.2 | 216 | 22.5 | 405 | 42.1 | 962 |
| Bonthe | 311 | 96.8 | 17 | 5.2 | 284 | 88.3 | 19 | 6.0 | 299 | 93.2 | 2 | 0.5 | 134 | 41.6 | 321 |
| Moyamba | 598 | 98.2 | 31 | 5.2 | 587 | 96.5 | 28 | 4.6 | 599 | 98.4 | 10 | 1.6 | 138 | 22.7 | 608 |
| Pujehun | 427 | 95.3 | 137 | 30.6 | 405 | 90.3 | 90 | 20.0 | 419 | 93.5 | 88 | 19.5 | 190 | 42.4 | 448 |
| WA-Rural | 625 | 99.6 | 177 | 28.1 | 547 | 87.0 | 84 | 13.4 | 555 | 88.3 | 99 | 15.7 | 448 | 71.3 | 628 |
| WA-Slums | 619 | 97.8 | 120 | 19.0 | 582 | 91.9 | 55 | 8.7 | 590 | 93.2 | 67 | 10.6 | 487 | 76.9 | 633 |
| WA-Urban | 1572 | 97.5 | 263 | 16.3 | 1471 | 91.2 | 86 | 5.3 | 1502 | 93.2 | 182 | 11.3 | 1371 | 85.0 | 1613 |
| Total | 11360 | 97.4 | 2523 | 21.6 | 10512 | 90.1 | 1294 | 11.1 | 10717 | 91.9 | 1426 | 12.2 | 6278 | 53.8 | 11666 |

7.

DISCUSSION



7.1 Nutrition situation

7.1.1 Current prevalence of malnutrition

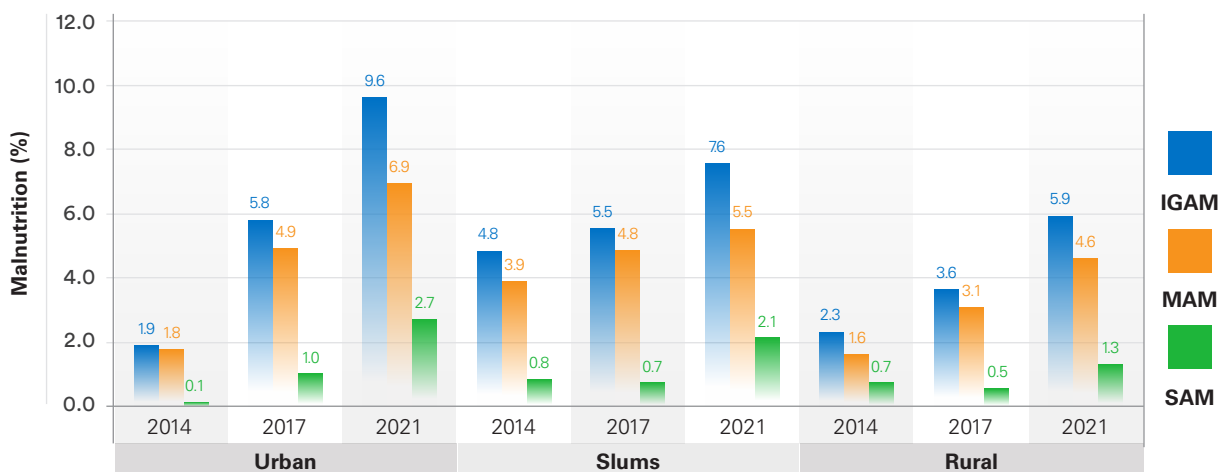
The prevalence of global acute malnutrition (GAM) rate of 5.2 per cent (**95 per cent** CI: 4.7-5.8), moderate acute malnutrition of **4.2 per cent** (95 per cent CI: 3.7-4.7), and severe acute malnutrition (SAM) rate (WHZ<-3 or Oedema) of **1.0 per cent** (95 per cent CI: 0.8-1.3) in the Sierra Leone National Nutrition Survey 2021. This indicates a **poor** nutrition situation phase (GAM rate of 5.0-9.9 per cent) of malnutrition in the country's population according to WHO (2006) classification (see Table 59) and **medium** according to UNICEF (2008) classification (see **Table 66**). The national prevalence of acute malnutrition using MUAC was 12.4 per cent (95 per cent CI: 10.9-13.9), 10.7 per cent (95 per cent CI:

9.5-11.9), and 1.8 per cent (95 per cent CI: 1.4-2.1) among adolescent girls, adolescent boys and WRA respectively; further the wasting prevalence was 5.5 per cent (95 per cent CI: 4.5-6.5) among pregnant/lactating women. The national prevalence of acute malnutrition/underweight (BMI<18.5 kg/m²) was 2.4 per cent (95 per cent CI: 1.8-3.1), 2.9 per cent (95 per cent CI: 2.3-3.5), and 4.8 per cent (95 per cent CI: 4.3-5.3) among adolescent girls, adolescent boys and WRA respectively. The prevalence of overweight and obesity was 0.7 per cent and 0.1 per cent, respectively, in adolescent girls; 0.9 per cent and 0.0 per cent, respectively, in adolescent boys; and very high at 21.4 per cent and 8.5 per cent, respectively, among the assessed WRA, indicating the double burden of malnutrition in the general population.

When compared to the immediate past assessment of 2017, the results indicate the situation has not changed from the *poor* phase with respective GAM, MAM, and SAM rates of 5.1 per cent (95 per cent CI: 4.6-5.6), 4.0 per cent (95 per cent CI: 3.6-4.5) and 1.0 per cent (95 per cent CI: 0.8-1.3). Although the national prevalence did not change, steady deterioration was observed in the Western Area districts of Urban, Slums and Rural domains, where GAM rates changed from 5.8 per cent (95 per cent CI: 4.1-8.1), 5.5 per cent (95 per cent CI: 3.6-8.2) and 3.6 per cent (95 per cent CI: 2.2-5.9) in 2017 to 9.6 per cent (95 per cent CI: 6.1-14.8), 7.6 per cent (95 per

cent CI: 5.2-11.1), and 5.9 per cent (95 per cent CI: 3.7-9.3) respectively (**Figure 16**). It is remarkable to note that the Western Area and indeed the Urban areas of the country have since 2017 experienced multiple shocks with devastating effects. These include crowding from rapid rural-Urban migration, food shortage, loss of income and employment from COVID-19, mudslides and landslides, floods, and watery diarrhoea outbreaks, besides Ebola outbreak in the past decade. The increase of acute malnutrition in those areas with a predominant cash economy may correspond to the sudden increase in income poverty due to sudden shocks such as COVID-19.

Figure 16: Changes in acute malnutrition in Western Area domains (2014-2021)



Significant increases in GAM rates were also noted in Bonthe (from 4.1 per cent to 6.5 per cent) and Pujehun (from 4.8 per cent to 5.6 per cent) from acceptable or low nutrition in 2017 to poor or medium nutrition situation in 2021. However, Koinadugu (from 5.7 per cent to 4.3 per cent), Bombali (from 5.9 per cent to 4.3 per cent) and Tonkolili (from 5.5 per cent to 4.8 per cent) recorded an improvement in nutrition situation from poor/medium (GAM rate of 5-9.9) to acceptable/low (GAM rates of <5 per cent) levels. The remaining districts showed no significant change in phase or GAM rates.

Most districts in the southern province (such as Bonthe, Pujehun) and eastern provinces (such as Kailahun and Kenema) that had poor or deteriorated acute nutrition (GAM 5-9.9 per cent) were also reported to have poor food insecurity (>60 per cent). This is in the most recent comprehensive food security and vulnerability assessment (CFSVA 2020). However, this is not the case for the Falaba and Karene districts of Northern Province, where high levels of food insecurity were reported but have low GAM rates in the SLNNS 2021. Similarly, WA districts also reported low levels of food insecurity (<30 per cent) in the CFSVA but had the highest rates of GAM (6-10 per cent).

Table 66: WHO classification of severity of malnutrition in a community

| WHO Classification of severity of malnutrition in a community | | | |
|--|--------------------|---------------|--------------------------|
| Type of Malnutrition | Prevalence cut-off | Mean z-scores | Severity of Malnutrition |
| Prevalence of Global Acute Malnutrition (WHZ<-2 and/or Oedema) | <5% | >-0.40 | Acceptable |
| | 5.0-9.9% | -0.40-0.69 | Poor |
| | 10.0-14.9% | -0.70-0.99 | Serious |
| | >=15% | <-1.00 | Critical |
| Prevalence of Underweight (WAZ<-2) | <10% | - | Low (Acceptable) |
| | 10.0-19.9% | - | Medium (Poor) |
| | 20.0-29.9% | - | High (Serious) |
| | >=30% | - | Very high (Critical) |
| Prevalence of Stunting (HAZ<-2) | <20% | - | Low (Acceptable) |
| | 20.0-29.9% | - | Medium (Poor) |
| | 30.0-39.9% | - | High (Serious) |
| | >=40% | - | Very high (Critical) |

Table 67: UNICEF 2018 classification for severity of malnutrition by prevalence among children under-five¹²

| Prevalence of Wasting (WHZ) | Prevalence of Stunting (HAZ) | Prevalence of Overweight (WAZ) | Label |
|-----------------------------|------------------------------|--------------------------------|-----------|
| <2.5% | <2.5% | <2.5% | Very low |
| 2.5-<5% | 2.5-<10% | 2.5-<5% | Low |
| 5-<10% | 10-<20% | 5-<10% | Medium |
| 10-<15% | 20-<30% | 10-<15% | High |
| ≥15% | ≥30% | ≥15% | Very High |

According to the UNICEF framework, malnutrition may result from inadequate food intake or a recent episode of illness. Wasting, the main indicator of acute malnutrition, occurs because of recent rapid weight loss or a failure to gain weight

within a relatively short period. Wasting occurs more commonly in children under five years old, often during the stage when complementary foods are being introduced. Children are more susceptible to infectious diseases, explaining why acute malnutrition

¹² WHO Cut-off Points and Summary Statistics www.who.int/nutgrowthdb/about/introduction/en/index5.html

was ($p < 0.05$) higher among the younger (6-29 months) than the older children (30-59 months) and the breastfeeding age than the non-breastfeeding age. The younger age group includes the critical breastfeeding age (6-23.9 months), during which the child experiences multiple challenges regarding the quality and quantity of food consumed and frequent infections resulting from poor feeding practices and conditions.

Recovery from wasting is relatively quick once optimal feeding, health, and care are restored. Wasting occurs because of deficiencies in macronutrients (fat, carbohydrate, and protein) and some micronutrients (vitamins and minerals). When combined with bilateral Oedema (which presents as swelling in both feet), an essential indicator for determining the presence of Severe Acute Malnutrition or kwashiorkor, the Global Acute Malnutrition prevalence is a universal measure of the severity of malnutrition and the health of a community. Oedema results from excessive extracellular fluid accumulation because of severe nutritional deficiencies and is a serious cause for concern. The prevalence of combined Global Acute Malnutrition (cGAM) was identified by low WHZ, presence of Oedema and low MUAC as WHZ < -2 and MUAC < 125 mm, and Oedema was higher (6.6 per cent; CI: 5.9-7.2) than the prevalence of GAM (WHZ and Oedema) alone (5.2 per cent; 95 per cent CI: 4.7-5.8) or MUAC and Oedema alone (2.7 per cent; 95 per cent CI: 2.3-3.1), indicating that more cases can be identified using both criteria. All children identified with bilateral Oedema and or low MUAC were referred immediately for their management and treatment at the nearest health facility using a referral form or slip (**Annex H**). Forty-nine cases were identified during the SLNNS 2021 since the presence of bilateral Oedema is classified as severe malnutrition.

Stunting, an indicator of chronic malnutrition refers to linear growth retardation and cumulative growth deficits in children. It reflects the failure to grow in stature, which

occurs because of inadequate nutrition over a longer period. Stunting – especially stunting of children below five years of age – is thus a stronger indicator of hunger and endemic poverty than underweight¹³. Stunting is common in areas of low food security, and acute malnutrition is instigated by economic and agricultural production, lack of access to diversified diets, consumption of insufficient essential nutrients, and health-related factors. The national prevalence of global stunting (HAZ < -2) of **26.2 per cent** (95 per cent CI: 25.0-27.5), with 19.5 per cent (95 per cent CI: 18.5-20.6) moderate and 6.7 per cent (95 per cent CI: 6.1-7.4) severely stunting indicates *poor* or *high* situation of chronic malnutrition according to WHO/UNICEF Classifications respectively. There was a significant improvement (reduction in stunting rate) from the 2017 findings of **31.3 per cent** (95 per cent CI: 30.0-32.6); 21.3 per cent (95 per cent CI: 20.3-22.3) moderate, and 10.0 per cent (95 per cent CI: 9.2-10.7) for global, moderate, and severe stunting respectively. The consequences of stunting can be looked at in the short term in terms of mortality from infections, in particular, pneumonia, malaria, and diarrhoea. In the medium term, cognitive, education and behavioural aspects of child development, and in the long term, the risk of poor health and lower attainment of socio-economic productivity throughout a lifetime are irreversible.

7.1.2 Trends of malnutrition

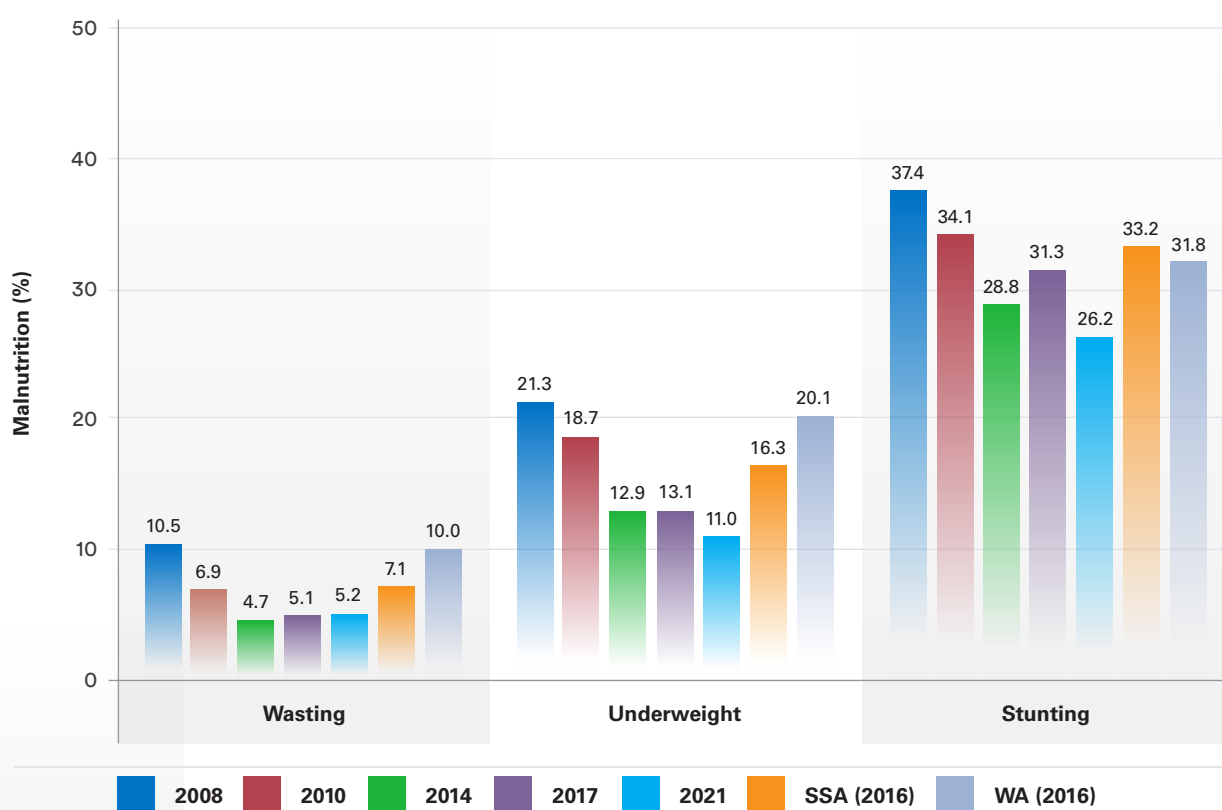
The analysis of trends in the prevalence of malnutrition has generally shown a decrease (see **Figure 16**) in acute and chronic (stunting) since 2008. The rates are also better than the regional prevalence in Sub-Saharan Africa (SSA) and West Africa (WA) subregions, as shown in **Figure 15**. A meta-analysis of child malnutrition from 10-year demographic and health surveys (2006-2016) in 32 countries of Sub-Saharan Africa (SSA) reported regional and subregional wasting prevalence of 7.1 per cent (95 per cent CI: 6.0-8.2) and 10.0 per cent (95 per cent CI: 8.1-11.9) in SSA and WA respectively;

¹³ The Nutrition Challenge in Sub-Saharan Africa, Regional Bureau for Africa, UNDP 2012.

stunting prevalence of 33.2 per cent (95 per cent CI: 30.4-36.1) and 31.8 per cent (95 per cent CI: 28.1-35.5); and underweight prevalence of 16.3 per cent (95 per cent CI: 12.8-19.9) and 20.1 per cent (95 per cent CI: 15.9-24.4) in SSA and WA respectively (Akombi et al., 2017).

The gender differential levels observed in the results with a higher prevalence of chronic malnutrition seen in boys compared to girls cannot be explained by this single survey. They would require further study on causal analysis and Knowledge, Attitude and Practices (KAP) analysis for any preferential treatment or exposure of the boy child at this critical age (6-59 months).

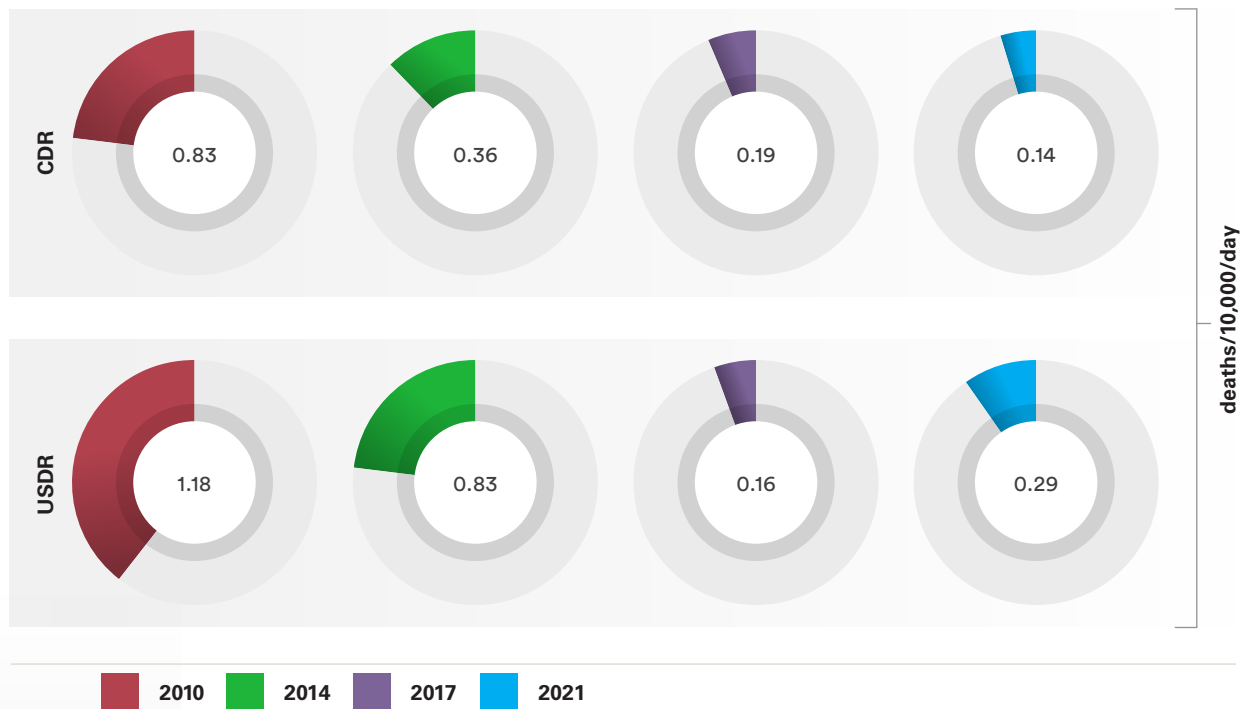
Figure 17: Trends in levels of malnutrition in Sierra Leone (SLNNS 2021) compared with regional levels



7.2 Death rates

The retrospective crude and under-five death rates of **0.14** (95 per cent CI: 0.11-0.18) and **0.29** (95 per cent CI: 0.20-0.44) are below the SPHERE *alert* thresholds of 1/10,000/day and 2/10,000/day respectively. The findings indicate a stable situation from the CDR of 0.19 deaths/10,000/day and U5DR of 0.16 under five deaths/10,000/day reported in SLNNS 2017 and the 2010 rates of 0.83

(95 per cent CI: 0.75-0.91) and 1.18 (95 per cent CI: 1.03-1.35) for CDR and U5DR respectively. Most deaths by the recall were caused by illnesses (69.9 per cent) and occurred in their last residences (75.3 per cent). **Figure 18** shows that mortality rates have remained within the SPHERE acceptable thresholds since 2010.

Figure 18: Trends in mortality rates (2010-2021) in Sierra Leone

7.3 Infant and young child feeding practices

Breastfeeding is a widespread practice among the population, with nearly all the assessed children 0-23 months ever breastfed (97.9 per cent), 89.4 per cent timely initiated early breastfeeding, and 78.1 per cent still breastfeeding at the time of the survey, although only 52.7 per cent of 0-6 months breastfed exclusively. Cumulative evidence suggests that infants who receive mixed feeding (foods and liquids in addition to breast milk) before they are six months are nearly three times more likely to die than those exclusively breastfed (Sanker et al., 2015). Exclusive breastfeeding protects against diarrhoea, lower respiratory infections, ear infections, childhood overweight, and obesity (Victora et al., 2016). The breastfeeding rate drops steadily with age; only 53.1 per cent of continued

breastfeeding at 23 months. Breastfeeding guarantees food and fluid security in infants for the first six months and provides active immune protection. There is, however, a significant variation in rates of breastfeeding indicators and some districts, especially Western Area Urban, Moyamba, Bonthe and Tonkolili, would require more effort to promote optimum breastfeeding benefits.

Complementary foods are still introduced to many children (39.8 per cent) prematurely before six months or late after six months. This is contrary to the WHO's recommendation that mothers exclusively breastfeed their children (give an infant no other liquids or foods apart from breast milk up until six months of age). Early introduction to complementary foods or

failing to exclusively breastfeed a child exposes the child to unhygienic feeding conditions and increases their vulnerability to infection and other illnesses. However, the late introduction of solid and semisolid foods denies the child the extra caloric and nutrient requirements required for child growth and vitality besides breastmilk beyond six months old. This is especially a greater risk in the congested Slums and Urban and rural environments in some districts such as Bonthe, Moyamba, Falaba, Koinadugu and Port Loko, where access to sanitation facilities and safe drinking water is poor. In these districts, regular handwashing with soap is not universally practised making the children more vulnerable to diarrheal infections.

More than three-quarters of the children do not receive a diversified diet (minimum

dietary diversity), with poor monotonous diets reported widely in all the districts but most particularly in Koinadugu, Falaba, Port Loko, Bonthe and Pujehun. More than two-thirds of the children (6 -24 months) assessed do not meet the recommended minimum meal frequency for their age and breastfeeding status, and few (38.3 per cent) are fed on vitamin-A-rich foods. Most importantly, very few children 6-23 months are fed a diversified diet at the right frequency (the prevalence of minimum acceptable diet is only 4.9 per cent).

Poor breastfeeding and complementary feeding habits expose children to morbidity, malnutrition and even death. The rates of acute and chronic malnutrition higher among the breastfeeding age indicate the effect of sub-optimal IYCF practices among the population.



7.4 Possible factors associated with malnutrition in Sierra Leone

In Sierra Leone, like many other developing countries in the region, and based on the UNICEF conceptual framework of malnutrition, morbidity and dietary intake remain the immediate causes of malnutrition underlain by food insecurity, poor maternal and childcare (including poor diversity and quality of diet and inadequate child feeding) and poor or unhygienic environment. Morbidity and malnutrition have an interchangeable cause-effect relationship and may result in the mortality of affected groups in the population.

Illness and infection affect nutrition by reducing appetite for adequate food intake and the metabolism and utilization of the nutrients already ingested into the body. Frequent illnesses were reported in nearly one in every eight assessed children from one or more communicable childhood diseases (e.g., fever, cough, diarrhoea, among others). This is detected in the two weeks before the assessment is a possible contributive factor to the poor nutrition situation. MoHS also enlists malaria and pneumonia as the commonly reported causes of morbidity in health facilities during the rainy season. Morbidity levels are

aggravated by the poor WASH conditions in many parts of the country, characterized by poor access to safe drinking water, lack of sanitation facilities and poor hand-washing practices at critical times.

Inadequate food consumption directly results in nutrient intake deficits and contributes significantly to poor nutrition. Many food insecure households may not consume sufficient food in terms of quantity and variety of nutrients for health and vitality. Although this survey did not include food security indicators, dietary diversity and IYCF analysis reported high consumption of bland, starchy staple diets. However, poor consumption of iron-rich animal source foods such as milk, meat, and eggs by households across the districts, and very few (4.9 per cent) children eat the minimum acceptable diet that meets both diversity (quality) and frequency (quantity) of the diet. In addition, increasing consumption of unhealthy food and snacks among adolescents and women is likely to be contributing to increasing levels of overweight and obesity, especially in Urban areas.

8.

CONCLUSIONS & RECOMMENDATIONS

8.1 Conclusions

In conclusion, the nutrition situation in the country is *poor*, with global acute malnutrition (GAM) rate of **5.2 per cent** (95 per cent CI: 4.7-5.8), underweight of **11.0 per cent** (95 per cent CI: 10.1-12.0) and stunting rate of **26.2 per cent** (95 per cent CI: 25.0-27.5). The crude and under-five mortality rates of **0.14** (95 per cent CI: 0.11-0.18) and **0.29** (95 per cent CI: 0.20-0.44) remain below the SPHERE *alert* levels. Although the levels of both wasting and stunting have shown an improving trend in the previous national surveys, the current survey has mixed findings. There are stagnated wasting levels but reduced stunting levels considered from *serious/very high* phase (>30 per cent) to *poor/high* (20-29.9 per cent) chronic malnutrition according to WHO/UNICEF Classification. These current rates were equivalent to 58,380 wasted children, 123,497 underweight children and 294,147 stunted children, respectively, in 2021, considering a total population of 7,534,883 persons and an under-five population of 1,122,698 children.

Although the national prevalence did not change, the deteriorating trend of acute malnutrition observed in the Western Area districts of Urban, Slums and Rural domains and nutrition programming need to focus on the WA and other Urban areas. The country's Urban areas have experienced multiple shocks in the immediate and medium past, including rapid rural-Urban migration, unemployment, food inaccessibility due to COVID-19, mudslides and landslides, and floods.

The existence of under and over-nutrition in children, adolescent girls and boys, and women of reproductive age indicates the emerging double burden and complexity of malnutrition in the country. Concerning this phenomenon of the double burden of nutrition is the substantial consumption of

unhealthy foods – savoury and fried snacks, sweets and sugar-sweetened beverages reported among adolescent girls (>25 per cent); among adolescent boys (>25 per cent) and WRA (>20 per cent). There is also low consumption of eggs in the diets; further studies would need to find reasons for this. The national prevalence of overweight and obesity based on BMI of non-pregnant and lactating women is particularly worrying, especially in Western districts, and requires timely intervention.

Key underlying factors affecting the nutritional status of the children, i.e., morbidity, food insecurity, poor childcare, lack of safe drinking water and limited sanitation and hygiene facilities, remain key risk factors. However, it is important to note that malnutrition is multifaceted and chronic malnutrition is hinged on the basal socio-economic, education and cultural structures. The unmet target of reducing the prevalence of stunting from 25.7 per cent to 11.7 per cent by 2020 as per Nutrition for Growth (N4G), commitments that GoSL undertook in 2013 required continued concerted and integrated efforts among all the relevant sectors in the country. Similarly, by 2025, the internationally agreed targets on stunting and wasting in children under-five years and addressing the nutritional needs of adolescent girls, pregnant and lactating women, and older persons as part of the 2030 Agenda for Sustainable Development require renewed commitments and comprehensive stunting reduction strategies.

8.2 Recommendations

The **country's poor/medium acute nutrition and serious and high chronic nutrition are attributed to multiple** interrelated factors that call for continued integrated interventions. These efforts should address both immediate needs and develop long-term strategies to enhance access to public health services; support to sustain livelihood systems and social protection mechanisms. Specific recommendations include:

Immediate Interventions

- Maintain interventions to prevent all forms of malnutrition, including wasting and stunting. Maintain nutrition programmes for rehabilitation of acutely malnourished children through sustained active case finding and early detection, continued self-referrals through scale-up of the Family MUAC approach, and capacity building of the existing CHC, CHP and MCHP staff and the community (CHW/MSG networks) to manage and treat acutely malnourished children. Improve treatment services, especially MAM services and quality of care, especially in Western Area domains (rural, Urban and Slums), Bonthe and Pujehun.
- Treatment of acute malnutrition among WRA, especially the pregnant and lactating women, treats wasting among WRA and contributes to preventing low birth among newborns. This, considering that wasting is highest among children under 18 months, and low birth weight is a possible contributing factor to child malnutrition, especially if breastfeeding practices in the first 6 months.
- Facilitate sharing of experience and best practices across districts and replicate the practices from districts that have had a good impact on other districts.
- Intensify supportive supervision with a focus on mentoring HW staff on the correct use of anthropometric tools, collection and recording and maintaining MUAC and weight-for-height z-scores for admissions for maximum identification of malnutrition cases. Encourage caregivers to take their children for regular growth monitoring programme (GMP) services and self-referral through the Family MUAC approach.
- Implement the strategy developed from the qualitative assessment for IYCF in the country.
- Based on the Nutrition Strategy 2020-2030, with emphasis on a systems approach, integrate social protection schemes to improve household food security among vulnerable groups (e.g., promoting backyard gardening and livestock keeping) with health and nutrition education and counselling activities on good IYCF practices. This can be done through media targeting caregivers to promote exclusive breastfeeding, appropriate young child feeding, diet diversification and meal frequency, and improvements in household hygiene. This includes health-seeking behaviours and practices through women support groups within the communities advocating for optimal IYCF. Continued health education to sensitize the community on the domestic treatment of drinking water and proper disposal of human faecal waste to avoid contamination of water sources is encouraged.
- Introduce social protection interventions, particularly for the Urban poor whose livelihood depends on cash incomes. Promote care practices or 'parenting' for Urban and rural households differently and with particular attention to those children who do not live with biological parents.



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- Improve and popularize adequate consumption of locally available foods using the complimentary food recipe book.
- Scale up the BFHI activities.

Long term Interventions

- Implementation of the proven interventions based on the outcomes of operational research, such as social protection measures and nutrition-sensitive livelihood/agricultural interventions (Bhutta et al., 2015).
- Evidence creation: an in-depth analysis of adolescent dietary practices and influencers (including the environment – food market and parenting arrangement); a formative study on overweight and obesity – dietary practices, lifestyle (including physical activity). Conduct a qualitative study to understand the factors, barriers and promoters affecting adolescent malnutrition.
- Implement programmes for managing and preventing the emerging overweight and obesity in adolescents and adults, such as behaviour change communication (BCC) for adopting and maintaining lifestyle behaviours that contribute to dietary intake and physical activity. It is critical to strengthen nutrition counselling within the ANC package considering the high prevalence of overweight among pregnant women. Design nutrition programs incorporating adolescents in schools, religious institutions, colleges and communities; use FBDs, and agricultural clubs. Advocate for National surveys to investigate the prevalence of anaemia among adolescent girls. Incorporate practice-based nutrition education in the school curriculum.

- Review policies relating to nutrition and dietary diversity based on the new evidence presented by the SMART survey. More specifically, the survey data should be used in the process of reviewing the Nutrition for Growth (N4G) targets to pave the way for integrated multisectoral and multistakeholder coordination to address undernutrition in Sierra Leone.
- Improve the policy environment to promote and deliver IYCF practices and services by ensuring the availability of legislation on the Regulation of the Marketing of breast milk substitutes. Implementation/roll out of the Infant feeding policy and the breastfeeding Act.
- In-depth analysis of operational research to assess feasibility and cost-effectiveness of nutrition-sensitive cash transfer programme, nutrition-sensitive livelihood and agriculture programme (incl. family farming), school health and nutrition interventions (such as nutrition education with practicum – agriculture and food preparation).
- Develop strategies for; Urban nutrition and adolescent nutrition for Sierra Leone.
- Strengthen the national nutrition surveillance system (including family MUAC assessments linked to health facilities) with emergency response mechanisms and triggers in integration with HMIS to monitor the nutrition trends better and implement nutrition-sensitive and nutrition-specific programmes. Given the prevailing COVID-19 situation and recurrent food deficit during hunger gap periods, encourage partners to support periodic annual rapid SMART or LOAS surveys in specific intervention districts, especially during the lean seasons, to provide timely data for monitoring and any early warning signs. Continue the 3-year periodic national nutrition SMART surveys to provide data in between 3-year periodic full SMART surveys on the nutrition situation and assess the progress toward global, regional, and national commitments to eliminate hunger in the country.
- The communities are to be trained on sanitation and maintenance of the water systems to address the issues of limited access to safe water. Sanitary facilities, including building latrines provision at the household level in settled populations or strategic locations in the bomas and villages for appropriate disposal of human excretal waste. This should be coupled with an awareness of the need to use such facilities.
- Assessing WASH indicators during the peak of rainy seasons is not sufficient. The next survey questions should differentiate WASH sources/facilities during both dry and rainy seasons.

9.

ANNEXES

Annex A: Household Composition & Demography Tool

DEMOGRAPHY & MORTALITY QUESTIONNAIRE

| | | | | | | | | | |
|---|------|-----------|-----------------|--|----------------------|-------------------|-------------------|--|---|
| DATE OF INTERVIEW: [D][D]/[M][M]/[Y][Y] | | | | | GPS Coord: _____ | | | | |
| REGION: | | | DISTRICT: | | NAME OF INTERVIEWER: | | | | |
| CHIEFDOM | | | | VILLAGE: | | | | | |
| CLUSTER NO. [][][] | | | TEAM NO. [][] | | HHNO [][] | | | | |
| 7.1 | 7.2 | 7.3 | 7.4 | 7.5 | 7.6 | 7.7 | 7.8 | 7.9 | 7.10 |
| No. | Name | Sex (M/F) | Age (years) | Joined on or after: | Left on or after: | Born on or after: | Died on or after: | Cause of death 1 = unknown 2 = injury 3 = illness | Location of death 1 = current location 2 = during migration 3 = in place of last residence 4 = other, specify |
| | | | | 27/04/2021 | | | | | |
| | | | | (Start date of the recall period - DD, MM, 2021) | | | | | |
| a) List all the people that slept in this household last night. | | | | | | | | | |
| 1 | | | | | | | | | |
| 2 | | | | | | | | | |
| 3 | | | | | | | | | |
| 4 | | | | | | | | | |
| 5 | | | | | | | | | |
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| 16 | | | | | | | | | |
| 17 | | | | | | | | | |
| 18 | | | | | | | | | |
| b) List all the people that slept in this household on the first night of the recall period (FILL IN DATE/EVENT) but did NOT sleep in the household last night. | | | | | | | | | |
| 1 | | | | | | | | | |
| 2 | | | | | | | | | |
| 3 | | | | | | | | | |
| 4 | | | | | | | | | |
| 5 | | | | | | | | | |
| 6 | | | | | | | | | |
| c) List all the people that slept in this household on the first night of the recall period but have since died. | | | | | | | | | |
| 1 | | | | | | | | | |
| 2 | | | | | | | | | |
| 3 | | | | | | | | | |
| 4 | | | | | | | | | |

WATER AND SANITATION QUESTIONNAIRE

| | Date (DD/MM/YY): | Cluster No: | Team No: | Region: | District: | Chiefdom: | Village: | | | |
|-------|--|---|--|---|---|--|--|--|---|--|
| HH NO | 4.1 HH size (No. of people living in HH) | 4.2 Is the HH head male or female? 1 = Male 2 = Female | 4.3 What is the household's main source of drinking water? 1 = Borehole/tube well 2 = Protected shallow well 3 = Open shallow well 4 = Protected spring 5 = River / Stream / Spring / Dam / Pond 6 = HH connection / Public Stand pipe 7 = Tanker/ Truck /Cart 8 = Bottle / Sachet water 99 = Other (specify_____) | 4.4 How long does it take the HH to collect water (including travel to and from and waiting)? 1 = <30 min 2 = >30min to <1hr 3 = >1hr to <2hr 4 = >2hr to <4hr 5 = >4hr | 4.5 How many 20-Litre Jerricans of water did the HH use yesterday (excluding water for washing clothes and for animals)? (Define how many litres in a container if the population use differs from Jerrican (and specify, e.g. 5-L gallon). [Then, estimate the total amount in Liters = no of containers x capacity of container] | 4.6 What do you usually do to water to make it safer before household members drink it? 0 = Nothing 1 = Boiling 2 = Filtering with a cloth 3 = Letting it settle 4 = Water treatment chemicals / chlorine 99 = Others (Specify) | 4.7 When do you usually wash your hands (List all options mentioned - Do not prompt) 0 = Never 1 = After defecating 2 = After cleaning the baby feces 3 = Before cooking 4 = Before eating 5 = Before feeding or breastfeeding the baby 6 = Before milking | 4.8 What do you use to wash hands? (Choose one only) 0 = Nothing 1 = Water only 2 = Water + Soap 3 = Water + Ash/Mud/Sand 4 = Leaves/Plant extracts 99 = Other (specify_____) | 4.9 Where does the household usually defecate or relieve themselves (include more than one if necessary)? 1 = Undesignated open area (bush) 2 = Designated open area/field 3 = Open Hole (Pit or bucket) 4 = Latrine (Flush or Pour flush/ Pit latrine with slab 99 = Other (specify) | 4.10 For Households that use latrine (If 4.9 is 4): Do you share this facility with others who are not members of your Household? 0 = No 1 = Yes |
| | | | | | | | | | | |
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Annex B: Child Anthropometry & Health Tools

ANTHROPOMETRIC & HEALTH QUESTIONNAIRE

(To be conducted in EVERY SELECTED HH with children 6-59 months).

| | | | | | | | | |
|--|---|-----------------------------------|------|---|--|--|--|--|
| Date (DD/MM/YY):/...../..... Village: | Cluster No:..... Team No:..... Region: | District:..... Chiefdom: | 1.1 | Child No. (ID) | | | | |
| | | | 1.2 | HH NO | | | | |
| | | | 1.3 | Child Name | | | | |
| | | | 1.4 | Sex m = Male f = Female | | | | |
| | | | 1.5 | Date of Birth (DD/MMYY) <i>If no record, go to 1.6 (and use Events Calendar)</i> | | | | |
| | | | 1.6 | Age in months | | | | |
| | | | 1.7 | Weight in Kg (to 1dp e.g. 13.6) | | | | |
| | | | 1.8 | Height in cm (to 1dp e.g. 98.1) | | | | |
| | | | 1.9 | Oedema n = No, y = Yes | | | | |
| | | | 1.10 | MUAC in cm (to 1dp e.g. 12.3) | | | | |
| | | | 2.1 | Has [name] received Vit. A in last 6 months (show pill)? 0 = No, 1 = Yes | | | | |
| | | | 2.2 | How many times has [name] ever received a measles vaccination, that is, an injection in the arm - at 9 months or older - to prevent measles? 0 = None, 1 = Once confirmed with EPI card, 2 = Twice confirmed with EPI card; 3 = Once, by recall (no card), 4 = Twice by recall (no card) | | | | |
| | | | 2.3 | Has [name] had any illness in past 14 days? 0 = No, 1 = Yes, If no, go to 2.6 | | | | |
| | | | 2.4 | If yes, Type of Illness 1 = Fever, 2 = Cough, 3 = Diarrhoea, 9 = Other (specify) | | | | |
| 2.5 | If fell ill, where did you seek advice or treatment from? 0 = Not sought, 1 = Government Hospital, 2 = Community Health Centre/ Community Health Post, 3 = Field workers e.g, CHWs, 4 = Private hospital or clinic, 5 = Traditional practitioner, 6 = Pharmacy/chemist, 9 = Other (Specify) | | | | | | | |
| 2.6 | If no, in 2.5, why was the child (name) not taken for advice or treatment? (Select all responses mentioned), 1 = Not serious, 2 = Far away/lack of transport, 3 = Lack of money, 4 = Fear of Covid, 5 = Fear of EVD, 9 = Other, specify | | | | | | | |
| 2.7 | Did [name] sleep under a mosquito net (LLITN) last night?, 0 = No, 1 = Yes | | | | | | | |
| 2.8 | Has [name] been Dewormed in last 6 months (12-59 months)?, 0 = No, 1 = Yes, 9 = Don't Know | | | | | | | |

IYCF QUESTIONNAIRE - LIQUIDS

| 3.11 Liquids Now I would like to ask you about liquids that [NAME] had yesterday during the day or at night. Please tell me about all drinks, whether [NAME] had them at home, or somewhere else. | | Yesterday, during the day or at night, did [NAME] have any of the following liquids/foods? | | | | | | | | | | | | | | | | | | |
|--|--|---|----|----|----|----|----|----|----|----|---|---|---|----|----|---|----|----|----|--|
| | | A | B1 | B2 | C1 | C2 | C3 | D1 | D2 | D3 | E | F | G | H1 | H2 | I | J1 | J2 | J3 | |
| | | Plain water?, 0 = No, 1 = Yes, 9 = DK | | | | | | | | | | | | | | | | | | |
| | | Infant formula such as Lactogen, Peak milk or Nido)?, 0 = No, 1 = Yes, 9 = DK | | | | | | | | | | | | | | | | | | |
| | | If yes in B1, how many times? | | | | | | | | | | | | | | | | | | |
| | | Milk such as tinned, powdered, or fresh animal milk?, 0 = No, 1 = Yes, 9 = DK If "no" or "DK", skip to 3.11D | | | | | | | | | | | | | | | | | | |
| | | If yes in C1, how many times? | | | | | | | | | | | | | | | | | | |
| | | If "yes" in C1: Was the milk or were any of the milk drinks a sweet or flavoured type of milk?, 0 = No, 1 = Yes, 9 = DK | | | | | | | | | | | | | | | | | | |
| | | Yogurt drinks or drinkable fermented milks such as buttermilk, kefir, etc? If "no" or "DK", skip to 3.11E | | | | | | | | | | | | | | | | | | |
| | | If Yes in D1, how many times)? | | | | | | | | | | | | | | | | | | |
| | | If "yes" in D1: Was the yoghurt or were any of the yoghurt drinks a sweet or flavoured type of yogurt drink?, 0 = No, 1 = Yes, 9 = DK | | | | | | | | | | | | | | | | | | |
| | | Chocolate-flavoured drinks including those made from syrups or powders?, 0 = No, 1 = Yes, 9 = DK | | | | | | | | | | | | | | | | | | |
| | | Fruit juice or fruit-flavoured drinks including those made from syrups or powders? (e.g. sugarcane, coconut water, palm wine/poyo or other fruit drinks)?, 0 = No, 1 = Yes, 9 = DK | | | | | | | | | | | | | | | | | | |
| | | Sodas, malt drinks, sports drinks or energy drinks?, 0 = No, 1 = Yes, 9 = DK | | | | | | | | | | | | | | | | | | |
| | | Tea, coffee, or herbal drinks?, 0 = No, 1 = Yes, 9 = DK, If "no" or "DK", skip to 3.11I | | | | | | | | | | | | | | | | | | |
| | | If "yes" in H1: Was the drink/ Were any of these drinks sweetened?, 0 = No, 1 = Yes, 9 = DK | | | | | | | | | | | | | | | | | | |
| | | Clear broth or clear soup?, 0 = No, 1 = Yes, 9 = DK | | | | | | | | | | | | | | | | | | |
| | | Any other liquids?, 0 = No, 1 = Yes, 9 = DK, If "no" or "DK", skip to 3.12 | | | | | | | | | | | | | | | | | | |
| | | If "yes" in J1: what was the liquid or what were the liquids? _____ | | | | | | | | | | | | | | | | | | |
| | | If "yes" in J1: Was the drink or were any of these drinks sweetened?, 0 = No, 1 = Yes, 9 = DK | | | | | | | | | | | | | | | | | | |

IYCF QUESTIONNAIRE - SOLID, SEMI SOLID SOFT FOODS

| 3.13 | | 3.13 | | |
|---|---|---|--|----|
| 3.13 | | 3.13 | | |
| 3.12 Foods Now I would like to ask you about foods that [NAME] had yesterday during the day or at night. I am interested in foods your child ate whether at home or somewhere else. Please think about snacks and small meals as well as main meals. I will ask you about different types of foods, and I would like to know whether your child ate the food even if it was combined with other foods in a mixed dish. <i>[Please do not answer "yes" for any food or ingredient used in a small amount to add flavour to a dish].</i> | A1 | R1 | R2 | |
| | A2 | S1 | S2 | |
| | B | Q | P | O |
| | C | N | M | L |
| | D | K | J | I |
| | E | H | G | F |
| | F | E | D | C |
| | G | B | A2 | A1 |
| | H | Unhealthy foods | Yesterday, during the day or at night, did [NAME] eat: _____? 0 = No, 1 = Yes, 9 = DK | |
| | I | Chips, crisps, puffs, French fries, fried dough, instant noodles, etc | How many times did [NAME] eat any solid, semi-solid or soft foods yesterday during the day or night? If 7 or more times, record "7" If number of times not known, record "9" | |
| | J | Sweet foods such as chocolates, candies, pastries, cakes, cookies, biscuits, or frozen treats like ice cream and popsicles? | If "yes" probe: What kind of solid, semi-solid or soft foods did [NAME] eat? _____ [mark food group] | |
| | K | Hard or soft cheese such as [local examples]?, 0 = No, 1 = Yes, 9 = DK | Did [NAME] eat any solid, semi-solid or soft food yesterday during the day or at night? | |
| | L | Beans, peas, lentils, nuts , seeds, or foods from these)? | If yes in R1, what was the food _____ [Mark food group if it is not yet coded 'yes'] | |
| | M | Fresh or dried fish or shellfish? | Any other solid, semi-solid or soft food? | |
| | N | Eggs)? | Child No. (ID) | |
| | O | Any other meat or poultry, such as beef, pork, lamb, goat, chicken, or duck? | | |
| P | Sausages, hot dogs/ frankfurters, ham, bacon, salami, canned meat or any other processed meat products? | | | |
| Q | Liver, kidney, heart or any other organ meat? | | | |
| R1 | Any other fruits such as sweet bananas, apple, pears, dates, avocado, black berry, pineapple, orange, etc | | | |
| R2 | Ripe mangoes or ripe papayas, or pumpkin, or other fruits that are yellow or orange inside? | | | |
| S1 | Any other vegetables, such as cucumber, tomatoes, onions, cauliflower, cabbages, green peas or mushroom | | | |
| S2 | Dark green leafy vegetables, such as cassava leaves, pumpkin leaves, potato leaves, amaranth, kales, or spinach | | | |
| | Plantains, white potatoes, white yams, manioc, cassava or any other starchy roots or tubers white or pale inside | | | |
| | Pumpkin, carrots, sweet red peppers, squash or sweet potatoes that are yellow or orange inside? | | | |
| | Porridge, bread, rice, noodles, pasta, or any other foods from grains? | | | |
| | If "yes" in A1: How many times did [NAME] eat yogurt? If more than 7, record "7" If number of times not known, record "9" | | | |
| | Yogurt, other than yogurt drinks? | | | |

MDD-W QUESTIONNAIRE FOR ADOLESCENTS AND WRA

| | | | | | | | |
|---|------|---|--|--|--|--|--|
| Yesterday, during the day or at night, did you (woman) eat any foods from any of the following food groups? [0 = No, 1 = Yes] | 6.22 | V | Other beverages (unsweetened tea/coffee, pickles, clear broth, alcohol, etc)? | | | | |
| | 6.21 | U | Condiments & seasonings (chillies, spices, herbs, tomato sauce/paste, flavour cubes)? | | | | |
| | 6.20 | T | Sugar-sweetened beverages (soft drinks, sweetened fruit juices and "juice drinks", chocolate drinks (milo), malt drinks, yoghurt drinks, sweet tea or coffee with sugar) | | | | |
| | 6.19 | S | Sweets (Sugary foods, such as chocolates, candies, cookies/sweet biscuits and cakes, jam, sweet pastries or ice cream, honey)? | | | | |
| | 6.18 | R | Savoury and fried snacks (crisps and chips, fried dough (puffpuff), other fried snacks (beans akara, cheese straw), pop corn?) | | | | |
| | 6.17 | Q | Other oils and fats (Oil, fats or butter added to food or used for cooking, including vegetable oil, extracted oils from nuts or seeds, margarine (blue band), mayonnaise, shea butter, manshanu)? | | | | |
| | 6.16 | P | Red palm oil (Foods made with red palm oil, red palm nut, or red palm nut pulp sauces) | | | | |
| | 6.15 | O | Any insects and other small protein foods (Winged termite, cricket, snails, sea snails, periwinkle, African palm weevil larva, other edible insect larvae?) | | | | |
| | 6.14 | N | Other fruits (e.g. sweet bananas, apple, pears, dates, avocado, black berry, pineapple, orange, etc) | | | | |
| | 6.13 | M | Other vegetables (e.g cucumber, tomatoes, onions, cauliflower, cabbages, green peas mushroom, etc) | | | | |
| | 6.12 | L | Vitamin A-rich (yellow or orange fleshed) fruits (e.g. papaya, mango, red palm, passion fruit, apricot, etc) | | | | |
| | 6.11 | K | Vitamin A-rich vegetables, roots & tubers (yellow or orange coloured - e.g pumpkin, carrots, sweet potatoes, squash, red pepper, etc) | | | | |
| | 6.10 | J | Dark green leafy vegetables (e.g. cassava leaves, pumpkin leaves, potato leaves, amaranth, kales, spinach, etc) | | | | |
| | 7 | I | Eggs | | | | |
| | 6.8 | H | Fish & Sea foods (e.g. baracuda, lobster, crayfish and crabs etc) | | | | |
| | 6.7 | G | Meat & Poultry (beef, goat, pork, chicken, game meat, etc) | | | | |
| | 6.6 | F | Organ meat (liver, kidney, heart, gizzard, etc) | | | | |
| | 7 | E | Milk & milk products (milk, yoghurt, cheese, etc) | | | | |
| | 6.4 | D | Nuts & seeds (groundnut, peanut, cashewnut, sesame, etc) | | | | |
| | 6.3 | C | Pulses (beans, soybean, peas, lentils, green grams, etc) | | | | |
| 6.2 | B | White roots/tubers and plantains (e.g. White potatoes, white yams, cassava, arrow roots or any other foods made from white-fleshed roots or tubers, or plantains) | | | | | |
| 6.1 | A | Foods from grains (e.g. Porridge, bread, rice, pasta/noodles, maize, millet, sorghum or other foods made from grains) | | | | | |
| | | HHNO. | | | | | |
| | | SNo. | | | | | |

MEAL FREQUENCY FOR ADOLESCENTS & WOMEN OF REPRODUCTIVE AGE

For all adolescent boys (10-19 years), adolescent girls (10-14 years) and women of reproductive age (15-49 Years) in the household.

| | | | | | | |
|---|--|--|--|--|--|--|
| Now, I would like you to list for me all the foods and drinks you took at different times (as meals and snacks) yesterday during day and night (from the time you woke up in the morning until the time you went to sleep in the night, and if you woke up to eat deep in the night) Include all the meals and snacks taken at home or outside (neighbour's place, at a party/ceremony, workplace, school or restaurant). | 7.1 | SNo | | | | |
| | 7.1 | HHNO | | | | |
| | 7.2 | Name of Participant | | | | |
| | 7.3 | Age (Years) | | | | |
| | 7.4 | Sex, 1 = Male, 2 = Female | | | | |
| | 7.5 | If female, Physiological Status, 1 = Pregnant/ Lactating, 0 = Not pregnant/ lactating | | | | |
| | 7.6 | List all the foods and drinks taken yesterday, starting from the time you woke up in the morning till the time you went to sleep and deep in the night | | | | |
| | 7.7 | Morning (day break to mid-day)? ___ | | | | |
| | 7.8 | Afternoon (midday to 5 pm)? ___ | | | | |
| | 7.9 | Evening (5 pm to sunset)? ___ | | | | |
| | 7.10 | Night (sunset to midnight)? ___ | | | | |
| | 7.11 | Deep night (12 AM to day break)? ____ | | | | |
| | 7.12 | Total number of meals taken yesterday during day and night? | | | | |
| | Meal Location | 7.13 | Did you eat any of the meals or snacks outside home yesterday during day or night?, 0 = No, 1 = Yes | | | |
| | 7.14 | If yes in 7.13, where, 1 = At neighbour's or friend's place, 2 = At a party/ ceremony, 3 = workplace, 4 = school or 5=restaurant | | | | |
| | 7.15 | Do you suffer from any acute or chronic illness that affected your eating yesterday?, 0 = No, 1 = Yes | | | | |
| 7.16 | Which of these options best describes your food consumption yesterday?, 1 = Usual (I ate the same as usual), 2 = Less than usual (I ate a fewer number of meals than usual);, 3 = More than usual (I ate a higher number of meals than usual), 9 = DK | | | | | |

Annex F: List of Survey Team Members

| Field Coordinators and Monitors | | | |
|---------------------------------|-------------------------------|-----------------|--------------------|
| 1. Dr Tom Joseph Oguta | SMART Consultant | 254-712680803 | UNICEF |
| 2. Solade Pyna-Bailey | Regional monitor | 232-76624149 | MoHS/DFN |
| 3. Mutivah Kappia | Technical Assistant | 232-76 791969 | MoHS/DFN |
| 4. Kadiatu Y. Fofanah | Monitor, North Eastern | 232-76 713248 | MoHS, Bombali |
| 5. James P. Moriba | Monitor, Northern/ Western | 232-76 810410 | MoHS/DFN |
| 6. Merian Sam Mbomah | Monitor, South Eastern | 232-78 643246 | MoHS/NSAHP |
| 7. Abdulahi Kandeh | Monitor, North Eastern | 232-78 940893 | HKI |
| 8. Miriam Jalloh | Monitor Western Area | 232-76732330 | Stat SL |
| FIELD SURVEY TEAMS | | | STARTING DISTRICTS |
| TEAM 1 | | | |
| SUPERVISOR | Abdul Rahim Sheriff | 79634942 | KAILAHUN |
| TEAM LEADER | Hannah Y M Sandy | 30269535 | |
| MEASURER | Yayah Swarray | 78882296 | |
| ASSIST. MEASURER | Abu Bakarr Fofanah | 77513991 | |
| TEAM 2 | | | |
| SUPERVISOR | Abu Bakarr Sesay | 76984894 | BONTHE |
| TEAM LEADER | Alfred Sylvanus Walters | 76588822 | |
| MEASURER | Adama Tarawally | 88354678 | |
| ASSIST. MEASURER | Mustapha S Lolleh | 78563060 | |

| TEAM 3 | | | |
|-------------------|----------------------------|-----------------|-----------------|
| SUPERVISOR | Abu Bakarr Sowe | 77544405 | KONO |
| TEAM LEADER | Alhaji Salaam Fofanah | 77496324 | |
| MEASURER | Aisha A B Kamara | 76811945 | |
| ASSIST. MEASURER | Amidu Serry | 79051584 | |
| TEAM 4 | | | |
| SUPERVISOR | Amadu Wurie Bah | 78123469 | FALABA |
| TEAM LEADER | Ansumana Bawie Sandy | 078/077281 | |
| MEASURER | Tommy F Nyuma | 78757480 | |
| ASSIST. MEASURER | Peter M Francis | 99168141 | |
| TEAM 5 | | | |
| SUPERVISOR | Catherine R Keikula | 78606114 | FALABA |
| TEAM LEADER | Julian Sam Suale | 79011064 | |
| MEASURER | Alimamy Koroma | 88775358 | |
| ASSIST. MEASURER | Salum Solomon | 78183365 | |
| TEAM 6 | | | |
| SUPERVISOR | Francis Massallay | 78565785 | BONTHE |
| TEAM LEADER | Abdulrahman Tejan | 76885440 | |
| MEASURER | Neama Mando | 78138218 | |
| ASSIST. MEASURER | Ahmed Pakar Kamara | 78521222 | |
| TEAM 7 | | | |
| SUPERVISOR | Francis Tommy | 79466126 | KAILAHUN |
| TEAM LEADER | Ishmael Foday Kamara | 76188512 | |
| MEASURER | Boima Koroma | 76735652 | |
| ASSIST. MEASURER | Winifred Koroma | 31990684 | |

| TEAM 8 | | | |
|-------------------|------------------------------|-----------------|-----------------|
| SUPERVISOR | Ibrahim Alaffia Sesay | 79123432 | KAILAHUN |
| TEAM LEADER | Agnes Tucker | 76126252 | |
| MEASURER | Alimany Kargbo | 79328025 | |
| ASSIST. MEASURER | Osman M Kamara | 77556947 | |
| TEAM 9 | | | |
| SUPERVISOR | Idrissa Kamara | 76238126 | KONO |
| TEAM LEADER | Isata Kabba | 78180211 | |
| MEASURER | Aloysious Wai | 76760196 | |
| ASSIST. MEASURER | Daniel L Kamara | 78798579 | |
| TEAM 10 | | | |
| SUPERVISOR | James Ngebeh | 34933264 | BONTHE |
| TEAM LEADER | Mariama S Keita | 79014718 | |
| MEASURER | Samuel J Momoh | 31458228 | |
| ASSIST. MEASURER | Momodu L Bah | 76587858 | |
| TEAM 11 | | | |
| SUPERVISOR | Melissa Fortune | 78585927 | FALABA |
| TEAM LEADER | Foday D Vandy | 79040782 | |
| MEASURER | David S Suale (Jr) | 75427221 | |
| ASSIST. MEASURER | Alusine I F Kamara | 78366050 | |
| TEAM 12 | | | |
| SUPERVISOR | Mohamed Issa Bangura | 78444544 | BONTHE |
| TEAM LEADER | Santigie S Sesay | 78943611 | |
| MEASURER | Max J Yanguba | 78258912 | |
| ASSIST. MEASURER | Osman Momoh | 74376995 | |

| TEAM 13 | | | |
|-------------------|----------------------------|-----------------|-----------------|
| SUPERVISOR | Mohamed L A Foullah | 76929794 | KONO |
| TEAM LEADER | Sia Kema Kaku | 31607068 | |
| MEASURER | Alusine T Lavalie | 76737860 | |
| ASSIST. MEASURER | Edward Mando | 79506181 | |
| TEAM 14 | | | |
| SUPERVISOR | Mohamed Mambu Baika | 78837038 | KONO |
| TEAM LEADER | Minkailu Massaquoi | 79100384 | |
| MEASURER | Lahai Tapema | 76603771 | |
| ASSIST. MEASURER | Kelvin Sesay | 31543098 | |
| TEAM 15 | | | |
| SUPERVISOR | Prince J S Walters | 76143831 | KAILAHUN |
| TEAM LEADER | Baindu Ngevao | 79459825 | |
| MEASURER | Emmanuel Stevens | 76102015 | |
| ASSIST. MEASURER | David Kabo | 76220726 | |
| TEAM 16 | | | |
| SUPERVISOR | Rashid Kamara | 76935770 | KAILAHUN |
| TEAM LEADER | Boymah A. Shaw | 76278977 | |
| MEASURER | Anthony G Saffa | 78153667 | |
| ASSIST. MEASURER | James K Senessie | 78999132 | |
| TEAM 17 | | | |
| SUPERVISOR | Salamatou Conteh | 88860149 | FALABA |
| TEAM LEADER | Edmond Massaquoi | 76798805 | |
| MEASURER | John Tua | 76375269 | |
| ASSIST. MEASURER | Francis M Rogers | 76475761 | |

| TEAM 18 | | | |
|-------------------|---------------------------|-----------------|---------------|
| SUPERVISOR | Solomom Bomeh | 76449545 | FALABA |
| TEAM LEADER | Edna Mansaray-Fomba | 79267919 | |
| MEASURER | Foday A L Sesay | 77806435 | |
| ASSIST. MEASURER | Harold Lahai | 78172219 | |
| TEAM 19 | | | |
| SUPERVISOR | Sulaiman Bah | 75461349 | KONO |
| TEAM LEADER | Muctarr Sheriff | 78336324 | |
| MEASURER | Fatmata B Koroma | 76686799 | |
| ASSIST. MEASURER | Ibrahim Mondeh | 30732635 | |
| TEAM 20 | | | |
| SUPERVISOR | Sulaiman Massaquoi | 78479131 | BONTHE |
| TEAM LEADER | Yankuba K Janneh | 78316894 | |
| MEASURER | Joan Moody | 76439730 | |
| ASSIST. MEASURER | Ibrahim S Mansaray | 77878745 | |

Annex G: Roles and Responsibilities of Team Members

1. Enumerators *(Usually persons involved in nutrition, food security and health programs)*

- Ensure that only eligible children and women are surveyed (6 – 59 months for anthropometry, 0 – 23 months for IYCF, 10 – 14 years for adolescent girls, 10 – 19 years for adolescent boys, and 15 – 49 years for women of reproductive age).
- Administer mortality, anthropometry and health, IYCF, and adolescent/women nutrition questionnaires.
- Make accurate anthropometric measurements (including age, weight, height/length, oedema and MUAC).
- Record the data and answers/responses in the tablet in specified format/questionnaires.
- Ensure that all questions have been asked and answers recorded correctly before leaving each household.
- Carry and take good care of anthropometric questionnaires/forms under them to the supervisor in good order.
- Report any problems/difficulties to the supervisor for direction/advise.

2. Team Leaders *(Usually experienced Agency or Ministry Staff, experience in previous surveys)*

- If called upon, lead the team to consequent households selected for interview.
- Help introduce the team to each new household and obtain the necessary consent.
- Take and record the temperature of each team member every morning before the interviews.
- Assist the enumerators note the correct household number to be recorded in the household questionnaire and mortality questionnaire for each visit.
- Ensure that the household questionnaires (WASH, MDD-W/A) is administered and all questions answered and entered into the tablet before leaving each household and cluster.

- Help identify, verify and record oedema, measles and death cases.
- Ensure the safety of the survey equipment and tools (especially the tablets) under their care/use.
- Ensure that good quality and reliable data is collected by their teams.

3. Supervisors *(Usually experienced Agency or Ministry Staff, experience in previous surveys)*

- Help the team in demarcating/identifying their cluster boundaries
- Explain to the village/location leaders the purpose of the survey and the methods to be used – that children, adolescent and women participants will be weighed, measured and caregivers interviewed, etc.
- Facilitate their teams have all the necessary resources for each day. Ensure availability of survey equipment and tools (including the tablets) to their teams and their return after the survey. Observes on a daily basis the conduct of the interviews and measurements and performance of the equipment and act on these reports accordingly including replacement of faulty equipment.
- Ensure that at least the predetermined number of households has been surveyed, and all questionnaires completed in each cluster.
- Check and ensure that all anthropometric measurements have been taken and entered correctly. Submit/send the finalized forms to the server when and as required.
- Ensure that both household, mortality, child, adolescent and women data/questionnaires are correctly and completely answered/recorded before leaving each cluster according to the survey protocol.
- Help verify, and record oedema, measles, and death cases.
- Help the team in probing and obtaining accurate answers on sensitive matters such as COVID status screening, personal hygiene, etc.
- Ensure the good quality and reliable data is collected by their teams. In situations where measures are routinely making errors in taking and/or recording measurement, in manipulating children and/or equipment, and in reporting the information on the tablet, the supervisor should consult with the consultant/monitors and coordinator when necessary.
- Arrange for movement and transport of their teams during the survey.
- Identify and direct the team on cases that require follow up or revisits.
- Provides daily summary and update of progress to the Consultant/coordinators on the Cluster Control Form.

4. Regional Monitors *(must be experienced food security/nutritionists or public health researchers)*

The SLNS 2021 will have 5 regional monitors. The monitor will in overall oversee a group of 4 – 5 teams that cover 3 – 4 districts by travelling from one district to the other. The regional monitors will:

- Be responsible for closely monitoring the work of the teams to ensure that all sampled households are visited, and eligible children, adolescents and women are included.
- Make monitoring visit to teams on regular basis to check on their work and check that the right clusters are assessed.
- Periodically return to few selected households and conduct a short re-interview of listing of household members and comparing the list with what was reported originally by the team. The main aim of such re-interviews is to uncover any deliberate distortion of age or deliberate omission of some household members by interviewers (for instance so as to reduce their workload).
- Collaborate with the survey consultant to identify and assign roles and responsibilities to other suitable members of the survey team – including reconstitution of teams and replacement of team members who are not performing well or are absent
- Provide monitoring report after field visits — identifying challenges and mitigating measures suggested.
- Complete all exercises and/or tests given by the survey coordinator or consultant.
- Support the regular activities of the team based on feedback received from survey consultant/supervisors using data will be sent to the central server on daily basis.
- Collaborate with the survey consultant/supervisors to identify and support the team that needs reorganization/retraining support to improve the overall quality of the survey.
- Facilitate the data processing, analysis, presentation and reporting of the results.

5. National Coordinator *(DFN, MoHS Representative)*

The SLNS 2021 will comprise of 1 national coordinator, one technical assistant, and 5 regional coordinators working together with the consultant. The National Coordinator will:

- Lead in overall survey planning and implementation including calling and chairing TWG meetings, budgeting, assigning of staff, management of survey resources, seeking ethical approval, and ensuring validation of the survey.
- Provide guidance in selection/recruitment of competent regional survey monitors, and supervisors.

- With the technical assistant, ensure general availability of survey equipment, tools, and other necessary resources and logistics (including stationery, transport/fuel, data bundles and allowances) to all teams.
- With the technical assistant and the survey consultant, identify and effect changes to the survey team composition – including reconstitution/reshuffling of team and replacement of team members who are not performing to standards or abscond duty.
- Conduct monitoring visit to teams in the provinces at intervals to check on conduct and progress of the survey ad provide support and feedback to the regional monitors.

Annex H: Referral Form/Slip

Child Name: _____

Mother Name: _____

Age: _____

Sex: Female Male

Height: _____ cm

Weight: _____ kg

MUAC: _____ cm

Edema: Yes No

Village/Locality: _____ District: _____

Referral Center: _____ Opening Days: _____

Admission Criteria: _____

Supervisor: _____ Sign: _____

Referral Form

This slip must be cut and filled by the teams when a child should be referred to a feeding/ health center for acute malnutrition or any other health problem observed.

Child Name: _____

Mother Name: _____

Age: _____

Sex: Female Male

Height: _____ cm

Weight: _____ kg

MUAC: _____ cm

Edema: Yes No

Village/Locality: _____ District: _____

Referral Center: _____ Opening Days: _____

Admission Criteria: _____

Supervisor: _____ Sign: _____

Annex I: List of Selected EAs/ Clusters

| CLUSTER NO. | New_Prov | New_Dist | New_Chief | SECTION | URBRUR | Stratum measure/ size |
|-------------|----------|----------|-------------|-------------------|--------|-----------------------|
| 1 | Eastern | Kailahun | Dea | Dodo | Rural | 891 |
| 2 | Eastern | Kailahun | Jawie | Bobor | Rural | 891 |
| 3 | Eastern | Kailahun | Jawie | Lower Giebu | Rural | 891 |
| 4 | Eastern | Kailahun | Jawie | Sowa | Urban | 891 |
| 6 | Eastern | Kailahun | Kissi Kama | Kama Teng | Rural | 891 |
| 7 | Eastern | Kailahun | Kissi Teng | Bumasadu | Rural | 891 |
| 8 | Eastern | Kailahun | Kissi Teng | Kundu | Rural | 891 |
| 9 | Eastern | Kailahun | Kissi Teng | Torli | Urban | 891 |
| 10 | Eastern | Kailahun | Kissi Tongi | Lower Konio | Urban | 891 |
| 11 | Eastern | Kailahun | Kissi Tongi | Upper Konio | Rural | 891 |
| 12 | Eastern | Kailahun | Kissi Tongi | Upper Tongi Tingi | Rural | 891 |
| 14 | Eastern | Kailahun | Kpeje West | Golama | Rural | 891 |
| 15 | Eastern | Kailahun | Kpeje West | Kpeje Foiya | Urban | 891 |
| 16 | Eastern | Kailahun | Luawa | Gao | Urban | 891 |
| 17 | Eastern | Kailahun | Luawa | Gbela | Urban | 891 |
| 18 | Eastern | Kailahun | Luawa | Luawa Foguiya | Rural | 891 |
| 19 | Eastern | Kailahun | Luawa | Luawa Foguiya | Urban | 891 |
| 20 | Eastern | Kailahun | Luawa | Luawa Foguiya | Urban | 891 |
| 21 | Eastern | Kailahun | Luawa | Mano-Sewallu | Urban | 891 |
| 22 | Eastern | Kailahun | Luawa | Upper Kpombali | Urban | 891 |
| 23 | Eastern | Kailahun | Malema | Lower Sami | Rural | 891 |
| 24 | Eastern | Kailahun | Malema | Upper Sami | Rural | 891 |
| 25 | Eastern | Kailahun | Mandu | Levuma Jeigbla | Urban | 891 |
| 26 | Eastern | Kailahun | Mandu | Upper Kuiva | Rural | 891 |
| 27 | Eastern | Kailahun | Njaluahun | Gboo | Rural | 891 |

| CLUSTER NO. | New_Prov | New_Dist | New_Chief | SECTION | URBRUR | Stratum measure/ size |
|-------------|----------|----------|---------------|--------------------------------------|--------|-----------------------|
| 28 | Eastern | Kailahun | Njaluhun | Keimaya | Rural | 891 |
| 30 | Eastern | Kailahun | Njaluhun | Upper Nyawa | Rural | 891 |
| 31 | Eastern | Kailahun | Penguia | Kumatandu | Rural | 891 |
| 32 | Eastern | Kailahun | Penguia | Nimima | Rural | 891 |
| 33 | Eastern | Kailahun | Upper Bambara | Goleiwoma | Rural | 891 |
| 35 | Eastern | Kailahun | Yawei | Bendu | Urban | 891 |
| 36 | Eastern | Kailahun | Yawei | Kuiva Mende | Rural | 891 |
| 37 | Eastern | Kenema | Dama | Danyadejo | Urban | 1130 |
| 38 | Eastern | Kenema | Dama | Klajie | Rural | 1130 |
| 39 | Eastern | Kenema | Dodo | Bundoryama | Rural | 1130 |
| 40 | Eastern | Kenema | Gaura | Giebu | Rural | 1130 |
| 41 | Eastern | Kenema | Gaura | Sembehun | Rural | 1130 |
| 42 | Eastern | Kenema | Gorama Mende | Famanjo | Rural | 1130 |
| 43 | Eastern | Kenema | Gorama Mende | Kaklawa | Rural | 1130 |
| 45 | Eastern | Kenema | Kandu Leppiam | Sonnie | Rural | 1130 |
| 46 | Eastern | Kenema | Kenema City | Gbo Kakajama A-Burma | Urban | 1130 |
| 47 | Eastern | Kenema | Kenema City | Gbo Kakajama A-Kpayama | Urban | 1130 |
| 49 | Eastern | Kenema | Kenema City | Gbo Kakajama A-Njaguema | Urban | 1130 |
| 50 | Eastern | Kenema | Kenema City | Gbo Kakajama A-Shimbeck | Urban | 1130 |
| 51 | Eastern | Kenema | Kenema City | Gbo Kakajama A-Technical/ Gbongbotoh | Urban | 1130 |
| 52 | Eastern | Kenema | Kenema City | Gbo Kakajama A-Tilorma - Gbenderu | Urban | 1130 |
| 53 | Eastern | Kenema | Kenema City | Gbo Lambayama A-Gombu | Urban | 1130 |
| 54 | Eastern | Kenema | Kenema City | Gbo Lambayama A-Lekpetieh | Urban | 1130 |

| CLUSTER NO. | New_Prov | New_Dist | New_Chief | SECTION | URBRUR | Stratum measure/ size |
|-------------|----------|----------|---------------|----------------------------|--------|-----------------------|
| 55 | Eastern | Kenema | Kenema City | Gbo Lambayama A-Nyandeyama | Urban | 1130 |
| 57 | Eastern | Kenema | Koya | Koya Gbundohun | Rural | 1130 |
| 58 | Eastern | Kenema | Lower Bambara | Bonya | Rural | 1130 |
| 59 | Eastern | Kenema | Lower Bambara | Bonya | Urban | 1130 |
| 60 | Eastern | Kenema | Lower Bambara | Gboro | Rural | 1130 |
| 61 | Eastern | Kenema | Lower Bambara | Korjei Ngieya | Rural | 1130 |
| 62 | Eastern | Kenema | Lower Bambara | Nyawa | Urban | 1130 |
| 63 | Eastern | Kenema | Lower Bambara | Sei | Urban | 1130 |
| 65 | Eastern | Kenema | Niawa | Mabondor | Rural | 1130 |
| 66 | Eastern | Kenema | Nongowa | Dagbanya | Rural | 1130 |
| 67 | Eastern | Kenema | Nongowa | Gbo Lambayama B | Rural | 1130 |
| 68 | Eastern | Kenema | Nongowa | Kona Foiya | Rural | 1130 |
| 69 | Eastern | Kenema | Nongowa | Kona Kpindibu | Rural | 1130 |
| 71 | Eastern | Kenema | Small Bo | Gorama | Rural | 1130 |
| 72 | Eastern | Kenema | Small Bo | Niawa | Rural | 1130 |
| 73 | Eastern | Kenema | Tunkia | Giewoma | Rural | 1130 |
| 74 | Eastern | Kenema | Tunkia | Gorahun | Rural | 1130 |
| 75 | Eastern | Kenema | Wandor | Boryongor | Rural | 1130 |
| 76 | Eastern | Kenema | Wandor | Tongorwa | Rural | 1130 |
| 77 | Eastern | Kono | Fiama | Fiama | Rural | 787 |
| 79 | Eastern | Kono | Gbane | Mongo | Rural | 787 |
| 80 | Eastern | Kono | Gbense | Banfinfeh | Rural | 787 |
| 81 | Eastern | Kono | Gorama Kono | Bunabu | Rural | 787 |
| 82 | Eastern | Kono | Kamara | Dangbaidu | Rural | 787 |
| 83 | Eastern | Kono | Kamara | Kongofinja | Rural | 787 |
| 84 | Eastern | Kono | Koidu City | Gbense-Moindexeh A | Urban | 787 |

| CLUSTER NO. | New_Prov | New_Dist | New_Chief | SECTION | URBRUR | Stratum measure/ size |
|-------------|------------|----------|------------|----------------------|--------|-----------------------|
| 85 | Eastern | Kono | Koidu City | Gbense-Moindekor | Urban | 787 |
| 87 | Eastern | Kono | Koidu City | Gbense-Moindekor | Urban | 787 |
| 88 | Eastern | Kono | Koidu City | Gbense-Vaama | Urban | 787 |
| 89 | Eastern | Kono | Koidu City | Tankoro-Kinsey | Urban | 787 |
| 90 | Eastern | Kono | Koidu City | Tankoro-Lebanon | Urban | 787 |
| 91 | Eastern | Kono | Koidu City | Tankoro-New Sembehun | Urban | 787 |
| 92 | Eastern | Kono | Koidu City | Tankoro-Woafeh | Urban | 787 |
| 93 | Eastern | Kono | Lei | Lei | Rural | 787 |
| 94 | Eastern | Kono | Lei | Tingi-Kor | Rural | 787 |
| 96 | Eastern | Kono | Nimikoro | Bandafafeh | Rural | 787 |
| 97 | Eastern | Kono | Nimikoro | Gbogboafeh | Rural | 787 |
| 98 | Eastern | Kono | Nimikoro | Jaiama | Rural | 787 |
| 99 | Eastern | Kono | Nimikoro | Masayiefeh | Rural | 787 |
| 100 | Eastern | Kono | Nimiyama | Njagbakahun | Rural | 787 |
| 101 | Eastern | Kono | Nimiyama | Njaifeh | Rural | 787 |
| 102 | Eastern | Kono | Sandor | Bafinfah | Rural | 787 |
| 104 | Eastern | Kono | Sandor | Kawafeh | Rural | 787 |
| 105 | Eastern | Kono | Sandor | Samgbafeh | Rural | 787 |
| 106 | Eastern | Kono | Sandor | Sumunjifeh | Rural | 787 |
| 107 | Eastern | Kono | Sandor | Yawatanda | Rural | 787 |
| 108 | Eastern | Kono | Soa | Kokongokuma | Rural | 787 |
| 109 | Eastern | Kono | Soa | Sawa Fiama | Rural | 787 |
| 110 | Eastern | Kono | Tankoro | Tankoro | Rural | 787 |
| 111 | North West | Kambia | Bramaia | Fillighunyie | Rural | 576 |
| 112 | North West | Kambia | Bramaia | Kanku-Bramaia | Rural | 576 |
| 113 | North West | Kambia | Bramaia | Teneba/Bramaia | Rural | 576 |
| 114 | North West | Kambia | Gbinle | Katalan | Rural | 576 |

| CLUSTER NO. | New_Prov | New_Dist | New_Chief | SECTION | URBRUR | Stratum measure/ size |
|-------------|------------|----------|-------------|--------------|--------|-----------------------|
| 115 | North West | Kambia | Gbinle | Tawuya | Rural | 576 |
| 116 | North West | Kambia | Khonimaka | Konta | Rural | 576 |
| 117 | North West | Kambia | Magbema | Kamba | Rural | 576 |
| 118 | North West | Kambia | Magbema | Kamba | Urban | 576 |
| 119 | North West | Kambia | Magbema | Kamba | Urban | 576 |
| 120 | North West | Kambia | Magbema | Kambia | Urban | 576 |
| 121 | North West | Kambia | Magbema | Kambia | Urban | 576 |
| 123 | North West | Kambia | Magbema | Kambia | Rural | 576 |
| 124 | North West | Kambia | Magbema | Kargbulor | Rural | 576 |
| 125 | North West | Kambia | Magbema | Robat | Urban | 576 |
| 126 | North West | Kambia | Magbema | Robat | Urban | 576 |
| 127 | North West | Kambia | Magbema | Robat | Urban | 576 |
| 128 | North West | Kambia | Magbema | Rokupr | Urban | 576 |
| 129 | North West | Kambia | Magbema | Rokupr | Urban | 576 |
| 130 | North West | Kambia | Magbema | Tormina | Rural | 576 |
| 131 | North West | Kambia | Mambolo | Mambolo | Urban | 576 |
| 132 | North West | Kambia | Mambolo | Mayakie | Rural | 576 |
| 133 | North West | Kambia | Mambolo | Rowollon | Rural | 576 |
| 135 | North West | Kambia | Masungbala | Nonko | Rural | 576 |
| 136 | North West | Kambia | Muna Thalla | Mapolon | Rural | 576 |
| 137 | North West | Kambia | Samu | Bubuya | Rural | 576 |
| 139 | North West | Kambia | Samu | Kychom | Rural | 576 |
| 140 | North West | Kambia | Samu | Mafufuneh | Rural | 576 |
| 141 | North West | Kambia | Samu | Mange | Rural | 576 |
| 142 | North West | Kambia | Samu | Moribaia | Rural | 576 |
| 143 | North West | Kambia | Samu | Rosinor | Rural | 576 |
| 144 | North West | Kambia | Tonko Limba | Bubuya | Rural | 576 |
| 146 | North West | Kambia | Tonko Limba | Kathanthineh | Rural | 576 |

| CLUSTER NO. | New_Prov | New_Dist | New_Chief | SECTION | URBRUR | Stratum measure/ size |
|-------------|------------|----------|-----------------------------|--------------|--------|-----------------------|
| 147 | North West | Kambia | Tonko Limba | Magbonkoh | Rural | 576 |
| 148 | North West | Karene | Buya | Kamasundu | Rural | 435 |
| 149 | North West | Karene | Buya | Manungbu | Rural | 435 |
| 150 | North West | Karene | Dibia | Kayembor | Rural | 435 |
| 152 | North West | Karene | Gbanti | Gbenkfay | Rural | 435 |
| 153 | North West | Karene | Gbanti | Makulon | Rural | 435 |
| 154 | North West | Karene | Libeisyagahun/ Gbombahun | Batkanu | Rural | 435 |
| 155 | North West | Karene | Libeisyagahun/ Gbombahun | Mayankay | Rural | 435 |
| 156 | North West | Karene | Romende | Foredugu | Rural | 435 |
| 157 | North West | Karene | Romende | Gbaran Kamba | Rural | 435 |
| 158 | North West | Karene | Romende | Petifu Bana | Rural | 435 |
| 159 | North West | Karene | Romende | Rokel | Rural | 435 |
| 161 | North West | Karene | Sanda Loko | Kamalu | Rural | 435 |
| 162 | North West | Karene | Sanda Loko | Laminaya | Rural | 435 |
| 163 | North West | Karene | Sanda Loko | Makapa | Rural | 435 |
| 164 | North West | Karene | Sanda Loko | Rothatha | Rural | 435 |
| 165 | North West | Karene | Sanda Magbolontor | Gbogbodo | Rural | 435 |
| 166 | North West | Karene | Sanda Magbolontor | Magbolontor | Rural | 435 |
| 167 | North West | Karene | Sanda Tendaran | Kalangba | Rural | 435 |
| 169 | North West | Karene | Sanda Tendaran | Rosos | Rural | 435 |
| 170 | North West | Karene | Sella Limba | Kamakwie | Urban | 435 |
| 171 | North West | Karene | Sella Limba | Kamakwie | Urban | 435 |
| 172 | North West | Karene | Sella Limba | Kamankoh | Rural | 435 |
| 174 | North West | Karene | Sella Limba | Manonkoh | Rural | 435 |
| 175 | North West | Karene | Tambakha Simibungie | Simibue | Rural | 435 |
| 176 | North West | Karene | Tambakha Simibungie | Simibue | Rural | 435 |

| CLUSTER NO. | New_Prov | New_Dist | New_Chief | SECTION | URBRUR | Stratum measure/ size |
|-------------|------------|-----------|-------------------|-------------------|--------|-----------------------|
| 177 | North West | Karene | Tambakha Yobangie | Moria | Rural | 435 |
| 178 | North West | Karene | Tambakha Yobangie | Paramount Chief | Rural | 435 |
| 179 | North West | Port Loko | Bakeh Loko | Falaba | Urban | 1000 |
| 180 | North West | Port Loko | Bakeh Loko | Kondato | Urban | 1000 |
| 181 | North West | Port Loko | Bakeh Loko | Malal | Rural | 1000 |
| 183 | North West | Port Loko | Bureh | Kambia Morie | Rural | 1000 |
| 184 | North West | Port Loko | Kaffu Bullom | Foronkoya | Urban | 1000 |
| 185 | North West | Port Loko | Kaffu Bullom | Kasongha | Urban | 1000 |
| 186 | North West | Port Loko | Kaffu Bullom | Kasongha | Urban | 1000 |
| 187 | North West | Port Loko | Kaffu Bullom | Mahera | Urban | 1000 |
| 188 | North West | Port Loko | Kaffu Bullom | Rosint | Rural | 1000 |
| 189 | North West | Port Loko | Kamasondo | Kamasondo | Rural | 1000 |
| 190 | North West | Port Loko | Kamasondo | Katonga | Rural | 1000 |
| 191 | North West | Port Loko | Kasseh | Kagbanthama | Rural | 1000 |
| 192 | North West | Port Loko | Koya | Fondu | Urban | 1000 |
| 193 | North West | Port Loko | Koya | Foredugu | Rural | 1000 |
| 194 | North West | Port Loko | Koya | Magbeni | Rural | 1000 |
| 195 | North West | Port Loko | Koya | Marefa | Rural | 1000 |
| 197 | North West | Port Loko | Koya | Roponka | Rural | 1000 |
| 198 | North West | Port Loko | Lokomasama | Gbainty | Rural | 1000 |
| 199 | North West | Port Loko | Lokomasama | Mapiterr | Rural | 1000 |
| 200 | North West | Port Loko | Lokomasama | Yurika | Rural | 1000 |
| 201 | North West | Port Loko | Maconteh | Kaiyeabor | Rural | 1000 |
| 202 | North West | Port Loko | Maforki | Fenka | Rural | 1000 |
| 203 | North West | Port Loko | Maforki | Komrabai-Waterloo | Rural | 1000 |
| 204 | North West | Port Loko | Maforki | Mapolie | Rural | 1000 |
| 205 | North West | Port Loko | Maforki | Moria | Rural | 1000 |

| CLUSTER NO. | New_Prov | New_Dist | New_Chief | SECTION | URBRUR | Stratum measure/ size |
|-------------|------------|-----------|---------------------|------------------|--------|-----------------------|
| 206 | North West | Port Loko | Makama | Malakuray | Rural | 1000 |
| 207 | North West | Port Loko | Marampa | Marampa A | Urban | 1000 |
| 208 | North West | Port Loko | Marampa | Marampa A | Urban | 1000 |
| 210 | North West | Port Loko | Marampa | Marampa B | Rural | 1000 |
| 211 | North West | Port Loko | Marampa | Petifu Madina | Rural | 1000 |
| 212 | North West | Port Loko | Masimera | Katick | Rural | 1000 |
| 213 | North West | Port Loko | Masimera | Mayola-Thatha | Rural | 1000 |
| 215 | North East | Bombali | Biriwa | Bumban | Rural | 730 |
| 216 | North East | Bombali | Biriwa | Kamabai | Rural | 730 |
| 217 | North East | Bombali | Biriwa | Karassa | Rural | 730 |
| 218 | North East | Bombali | Bombali Sebor | Kafala | Rural | 730 |
| 220 | North East | Bombali | Bombali Sebor | Matotoka | Rural | 730 |
| 221 | North East | Bombali | Bombali Siari | Konta | Rural | 730 |
| 222 | North East | Bombali | Gbanti | Mabanta | Urban | 730 |
| 223 | North East | Bombali | Gbanti | Masuba | Urban | 730 |
| 224 | North East | Bombali | Gbanti | Rosint | Rural | 730 |
| 225 | North East | Bombali | Gbendembu | Makai | Rural | 730 |
| 226 | North East | Bombali | Kamaranka | Matandorkoh | Rural | 730 |
| 227 | North East | Bombali | Magbaimba Ndorwahun | Mambiama | Rural | 730 |
| 228 | North East | Bombali | Makari | Mangay | Rural | 730 |
| 230 | North East | Bombali | Makari | Tonkoba | Rural | 730 |
| 231 | North East | Bombali | Makari | Yainkassa | Rural | 730 |
| 232 | North East | Bombali | Makeni City | Kagbaran Dokom A | Urban | 730 |
| 233 | North East | Bombali | Makeni City | Kagbaran Dokom A | Urban | 730 |
| 234 | North East | Bombali | Makeni City | Kagbaran Dokom A | Urban | 730 |
| 235 | North East | Bombali | Makeni City | Market Ward | Urban | 730 |
| 236 | North East | Bombali | Makeni City | Mayanka I Ward | Urban | 730 |

| CLUSTER NO. | New_Prov | New_Dist | New_Chief | SECTION | URBRUR | Stratum measure/ size |
|-------------|------------|----------|-------------------|----------------|--------|-----------------------|
| 238 | North East | Bombali | Makeni City | Rogbaneh Ward | Urban | 730 |
| 239 | North East | Bombali | Makeni City | Rogbaneh Ward | Urban | 730 |
| 240 | North East | Bombali | Makeni City | Teko Ward | Urban | 730 |
| 241 | North East | Bombali | Makeni City | Wusum Ward | Urban | 730 |
| 242 | North East | Bombali | Mara | Manewa | Rural | 730 |
| 244 | North East | Bombali | N'gowahun | Masongbo | Rural | 730 |
| 245 | North East | Bombali | Paki Masabong | Mapaki | Rural | 730 |
| 246 | North East | Bombali | Paki Masabong | Rosanda | Rural | 730 |
| 247 | North East | Bombali | Safroko Limba | Binkolo | Rural | 730 |
| 248 | North East | Bombali | Safroko Limba | Kayassi | Rural | 730 |
| 249 | North East | Falaba | Delemandugu | Lower Deldugu | Rural | 354 |
| 250 | North East | Falaba | Delemandugu | Mankalia | Rural | 354 |
| 252 | North East | Falaba | Dembelia | Balandugu | Rural | 354 |
| 253 | North East | Falaba | Dembelia | Lagor | Rural | 354 |
| 254 | North East | Falaba | Dembelia | Sankan I | Rural | 354 |
| 255 | North East | Falaba | Dembelia-Sinkunia | Foraia | Rural | 354 |
| 256 | North East | Falaba | Dembelia-Sinkunia | Kunbulun | Rural | 354 |
| 258 | North East | Falaba | Dembelia-Sinkunia | Sinkunia I | Rural | 354 |
| 259 | North East | Falaba | Folosaba | Fissaya II | Rural | 354 |
| 260 | North East | Falaba | Folosaba | Kalia | Rural | 354 |
| 261 | North East | Falaba | Folosaba | Kamba | Rural | 354 |
| 262 | North East | Falaba | Kamadu Yiraia | Lower Kamadugu | Rural | 354 |
| 263 | North East | Falaba | Kamadu Yiraia | Yiraia | Rural | 354 |
| 264 | North East | Falaba | Kebelia | Ganya | Rural | 354 |
| 266 | North East | Falaba | Kulor Saradu | Lower Saradu | Rural | 354 |
| 267 | North East | Falaba | Mongo | Mongo I | Rural | 354 |
| 268 | North East | Falaba | Mongo | Mongo II | Rural | 354 |

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|-------------|------------|-----------|-------------------|----------------|--------|-----------------------|
| 269 | North East | Falaba | Mongo | Mongo III | Rural | 354 |
| 270 | North East | Falaba | Morifindugu | Morifindugu I | Rural | 354 |
| 271 | North East | Falaba | Morifindugu | Morifindugu II | Rural | 354 |
| 272 | North East | Falaba | Neya | Lower Neya I | Rural | 354 |
| 273 | North East | Falaba | Neya | Lower Neya I | Urban | 354 |
| 274 | North East | Falaba | Neya | Neya II | Rural | 354 |
| 275 | North East | Falaba | Neya | Upper Neya I | Rural | 354 |
| 276 | North East | Falaba | Nyedu | Nyedu | Rural | 354 |
| 278 | North East | Falaba | Sulima | Gberia-Timbako | Rural | 354 |
| 279 | North East | Falaba | Sulima | Kambaia | Rural | 354 |
| 280 | North East | Falaba | Sulima | Timbako | Rural | 354 |
| 281 | North East | Falaba | Wollay Barawa | Barawa | Urban | 354 |
| 282 | North East | Falaba | Wollay Barawa | Barawa | Rural | 354 |
| 283 | North East | Falaba | Wollay Barawa | Wallay | Rural | 354 |
| 284 | North East | Koinadugu | Diang | Darakuru | Rural | 394 |
| 285 | North East | Koinadugu | Diang | Darakuru | Rural | 394 |
| 287 | North East | Koinadugu | Diang | Kania | Urban | 394 |
| 288 | North East | Koinadugu | Diang | Kondembaia | Rural | 394 |
| 289 | North East | Koinadugu | Diang | Sokurala | Rural | 394 |
| 290 | North East | Koinadugu | Gbonkobon Kayaka | Gbonkobor | Rural | 394 |
| 291 | North East | Koinadugu | Gbonkobon Kayaka | Kayaka | Rural | 394 |
| 292 | North East | Koinadugu | Kalian | Kalian | Urban | 394 |
| 293 | North East | Koinadugu | Kalian | Kalian | Rural | 394 |
| 294 | North East | Koinadugu | Kalian | Kalian | Rural | 394 |
| 295 | North East | Koinadugu | Kalian | Kalian | Rural | 394 |
| 296 | North East | Koinadugu | Kamukeh | Pampakoh | Rural | 394 |
| 297 | North East | Koinadugu | Kasunko KaKellian | Kakallain | Rural | 394 |

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| 298 | North East | Koinadugu | Kasunko KaKellian | Kasunko | Urban | 394 |
| 299 | North East | Koinadugu | Nieni | Nieni | Rural | 394 |
| 300 | North East | Koinadugu | Nieni | Nieni | Rural | 394 |
| 302 | North East | Koinadugu | Nieni | Seradu | Rural | 394 |
| 303 | North East | Koinadugu | Nieni | Seradu | Rural | 394 |
| 304 | North East | Koinadugu | Sengbe | Bendugu | Rural | 394 |
| 305 | North East | Koinadugu | Sengbe | Heremakono | Rural | 394 |
| 306 | North East | Koinadugu | Sengbe | Koinadugu | Rural | 394 |
| 307 | North East | Koinadugu | Sengbe | Yogomaia | Urban | 394 |
| 308 | North East | Koinadugu | Sengbe | Yogomaia | Urban | 394 |
| 309 | North East | Koinadugu | Tamiso | Tamiso I | Rural | 394 |
| 310 | North East | Koinadugu | Wara Wara Bafodia | Bafodia | Urban | 394 |
| 312 | North East | Koinadugu | Wara Wara Bafodia | Kamannikie | Rural | 394 |
| 313 | North East | Koinadugu | Wara Wara Yagala | Zone 1 | Rural | 394 |
| 314 | North East | Koinadugu | Wara Wara Yagala | Zone 2 | Rural | 394 |
| 315 | North East | Koinadugu | Wara Wara Yagala | Zone 3 | Urban | 394 |
| 316 | North East | Koinadugu | Wara Wara Yagala | Zone 3 | Urban | 394 |
| 318 | North East | Koinadugu | Wara Wara Yagala | Zone 3 | Urban | 394 |
| 319 | North East | Koinadugu | Wara Wara Yagala | Zone 4 | Rural | 394 |
| 320 | North East | Koinadugu | Wara Wara Yagala | Zone 6 | Rural | 394 |
| 321 | North East | Tonkolili | Dansogoia | Bumbuna | Urban | 1041 |
| 322 | North East | Tonkolili | Dansogoia | Kemedugu | Rural | 1041 |
| 324 | North East | Tonkolili | Kalanthuba | Kakallain | Rural | 1041 |
| 325 | North East | Tonkolili | Kholifa Mabang | Mamanso | Rural | 1041 |
| 326 | North East | Tonkolili | Kholifa Mamuntha/ Mayosso | Mamuntha | Rural | 1041 |

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|-------------|------------|-----------|---------------------------|-----------------|--------|-----------------------|
| 327 | North East | Tonkolili | Kholifa Mamuntha/ Mayosso | Mayossoh | Rural | 1041 |
| 328 | North East | Tonkolili | Kholifa Rowala | Lal-Lenken | Rural | 1041 |
| 329 | North East | Tonkolili | Kholifa Rowala | Lal-Lenken | Rural | 1041 |
| 330 | North East | Tonkolili | Kholifa Rowala | Mayatha | Rural | 1041 |
| 331 | North East | Tonkolili | Kholifa Rowala | Old Magburaka | Urban | 1041 |
| 332 | North East | Tonkolili | Kunike Barina | Mamurie | Rural | 1041 |
| 333 | North East | Tonkolili | Kunike Folawusu | Semorkanie | Rural | 1041 |
| 334 | North East | Tonkolili | Kunike Folawusu | Wana | Rural | 1041 |
| 335 | North East | Tonkolili | Kunike Sanda | Sanda | Rural | 1041 |
| 336 | North East | Tonkolili | Kunike Sanda | Thamah | Rural | 1041 |
| 338 | North East | Tonkolili | Mayeppoh | Mayeppoh | Rural | 1041 |
| 339 | North East | Tonkolili | Mayeppoh | Petifu Bana | Rural | 1041 |
| 340 | North East | Tonkolili | Sambaya | Borowah | Rural | 1041 |
| 342 | North East | Tonkolili | Sambaya | Sambaya | Rural | 1041 |
| 343 | North East | Tonkolili | Simiria | Makelfa | Rural | 1041 |
| 344 | North East | Tonkolili | Tane | Makrugbeh | Rural | 1041 |
| 345 | North East | Tonkolili | Tane | Mathunkara | Rural | 1041 |
| 346 | North East | Tonkolili | Tane | Matotoka | Urban | 1041 |
| 347 | North East | Tonkolili | Yele | Yele Manowo | Rural | 1041 |
| 348 | North East | Tonkolili | Yele | Yele Manowo | Rural | 1041 |
| 349 | North East | Tonkolili | Yoni Mabanta | Makeni Rokefula | Rural | 1041 |
| 350 | North East | Tonkolili | Yoni Mabanta | Petifu | Rural | 1041 |
| 352 | North East | Tonkolili | Yoni Mamaila | Gaindema | Urban | 1041 |
| 353 | North East | Tonkolili | Yoni Mamaila | Gaindema | Urban | 1041 |
| 354 | North East | Tonkolili | Yoni Mamaila | Macrogba | Rural | 1041 |
| 355 | North East | Tonkolili | Yoni Mamaila | Masengbe | Rural | 1041 |

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|-------------|------------|-----------|----------------|--|--------|-----------------------|
| 356 | North East | Tonkolili | Yoni Mamaila | Yoni | Rural | 1041 |
| 357 | Southern | Bo | Bagbo | Gorapon | Rural | 1031 |
| 358 | Southern | Bo | Bagbo | Niagorehun | Rural | 1031 |
| 359 | Southern | Bo | Bagbwe (Bagbe) | Kemoh | Rural | 1031 |
| 360 | Southern | Bo | Bo Town | East Ward- Bumpeh-Wo - Torkpoi Town | Urban | 1031 |
| 361 | Southern | Bo | Bo Town | East Ward- Kindia Town- Yimoh Town | Urban | 1031 |
| 362 | Southern | Bo | Bo Town | East Ward- Lower Samamie- Durbar ground | Urban | 1031 |
| 363 | Southern | Bo | Bo Town | East Ward- Messima I | Urban | 1031 |
| 364 | Southern | Bo | Bo Town | East Ward- Moriba Town- New site | Urban | 1031 |
| 366 | Southern | Bo | Bo Town | North Ward- Kissy Town- Samamie | Urban | 1031 |
| 367 | Southern | Bo | Bo Town | West Ward- Kandeh Town -Korwama | Urban | 1031 |
| 368 | Southern | Bo | Bo Town | West Ward- Moriba Town -Sewa Road | Urban | 1031 |
| 369 | Southern | Bo | Bo Town | West Ward- Nikibu-Bo School | Urban | 1031 |
| 371 | Southern | Bo | Boama | Bambawo | Rural | 1031 |
| 372 | Southern | Bo | Boama | Mawojeh | Rural | 1031 |
| 373 | Southern | Bo | Boama | Upper Pataloo | Rural | 1031 |
| 374 | Southern | Bo | Bongor | Tongowa | Rural | 1031 |
| 375 | Southern | Bo | Bumpe Ngao | Bumpe | Rural | 1031 |
| 376 | Southern | Bo | Bumpe Ngao | Serabu | Rural | 1031 |
| 377 | Southern | Bo | Bumpe Ngao | Taninahun | Rural | 1031 |
| 378 | Southern | Bo | Gbo | Gbo | Rural | 1031 |

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|-------------|----------|----------|--------------|---------------|--------|-----------------------|
| 379 | Southern | Bo | Jaiama | Upper Kama | Rural | 1031 |
| 380 | Southern | Bo | Kakua | Nguabu | Rural | 1031 |
| 381 | Southern | Bo | Kakua | Samamie | Rural | 1031 |
| 382 | Southern | Bo | Kakua | Sewa | Rural | 1031 |
| 384 | Southern | Bo | Lugbu | Kamba | Rural | 1031 |
| 385 | Southern | Bo | Lugbu | Yorma | Rural | 1031 |
| 386 | Southern | Bo | Niawa Lenga | Yalenga | Rural | 1031 |
| 387 | Southern | Bo | Tikonko | Morku | Rural | 1031 |
| 388 | Southern | Bo | Tikonko | Njagbla II | Rural | 1031 |
| 390 | Southern | Bo | Valunia | Deilenga | Rural | 1031 |
| 391 | Southern | Bo | Valunia | Lunia | Rural | 1031 |
| 392 | Southern | Bo | Valunia | Vanjelu | Rural | 1031 |
| 393 | Southern | Bo | Wonde | Upper Kargoi | Rural | 1031 |
| 394 | Southern | Bonthe | Bendu-Cha | Sokenteh | Rural | 461 |
| 395 | Southern | Bonthe | Bendu-Cha | Yallan-gbokie | Rural | 461 |
| 396 | Southern | Bonthe | Bonthe Urban | Bonthe Town | Urban | 461 |
| 397 | Southern | Bonthe | Bum | Fikie | Rural | 461 |
| 398 | Southern | Bonthe | Bum | Gbondubum | Rural | 461 |
| 399 | Southern | Bonthe | Bum | Lanje | Rural | 461 |
| 400 | Southern | Bonthe | Bum | Torma | Rural | 461 |
| 401 | Southern | Bonthe | Bum | Yawma | Rural | 461 |
| 402 | Southern | Bonthe | Dema | Dema | Rural | 461 |
| 404 | Southern | Bonthe | Imperri | Babum | Urban | 461 |
| 405 | Southern | Bonthe | Imperri | Babum | Urban | 461 |
| 406 | Southern | Bonthe | Imperri | Bapus | Rural | 461 |
| 407 | Southern | Bonthe | Imperri | Bigo | Rural | 461 |
| 408 | Southern | Bonthe | Imperri | Moimaligie | Rural | 461 |
| 409 | Southern | Bonthe | Jong | Basiaka | Rural | 461 |

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|-------------|----------|----------|----------------|-----------------|--------|-----------------------|
| 410 | Southern | Bonthe | Jong | Bayengbe | Urban | 461 |
| 411 | Southern | Bonthe | Jong | Beyinga | Rural | 461 |
| 413 | Southern | Bonthe | Jong | Kumabeh-Kwe | Rural | 461 |
| 414 | Southern | Bonthe | Jong | Sopan-Cleveland | Rural | 461 |
| 415 | Southern | Bonthe | Jong | Tucker-Nyambe | Rural | 461 |
| 416 | Southern | Bonthe | Kpanda Kemo | Senjehun | Rural | 461 |
| 417 | Southern | Bonthe | Kwamebai Krim | Kpanga Koimato | Rural | 461 |
| 418 | Southern | Bonthe | Kwamebai Krim | Tubla | Rural | 461 |
| 419 | Southern | Bonthe | Nongoba Bullom | Baoma | Rural | 461 |
| 421 | Southern | Bonthe | Nongoba Bullom | Kessie | Rural | 461 |
| 422 | Southern | Bonthe | Nongoba Bullom | Salma | Rural | 461 |
| 423 | Southern | Bonthe | Sittia | Bamba | Rural | 461 |
| 424 | Southern | Bonthe | Sittia | Kamai | Rural | 461 |
| 425 | Southern | Bonthe | Sittia | Ngepay | Rural | 461 |
| 426 | Southern | Bonthe | Sittia | Sahn-Gbegu | Rural | 461 |
| 428 | Southern | Bonthe | Sogbeni | Pengor | Rural | 461 |
| 429 | Southern | Bonthe | Yawbeko | Kataway | Rural | 461 |
| 430 | Southern | Moyamba | Bagruwa | Benduma | Rural | 616 |
| 432 | Southern | Moyamba | Bagruwa | Moseilolo | Rural | 616 |
| 433 | Southern | Moyamba | Bumpeh | Bellentin | Rural | 616 |
| 434 | Southern | Moyamba | Bumpeh | Greema | Rural | 616 |
| 435 | Southern | Moyamba | Bumpeh | Mamu | Rural | 616 |
| 436 | Southern | Moyamba | Bumpeh | Mokebbie | Rural | 616 |
| 438 | Southern | Moyamba | Dasse | Foya Tewe | Rural | 616 |
| 439 | Southern | Moyamba | Dasse | Taninahun Gomoh | Rural | 616 |
| 440 | Southern | Moyamba | Fakunya | Kovella | Rural | 616 |

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| 441 | Southern | Moyamba | Fakunya | Njawa | Rural | 616 |
| 442 | Southern | Moyamba | Fakunya | To-Ndambalenga | Rural | 616 |
| 443 | Southern | Moyamba | Kagboro | Bumpetoke | Rural | 616 |
| 444 | Southern | Moyamba | Kagboro | Mobeh | Rural | 616 |
| 445 | Southern | Moyamba | Kagboro | Moyibo | Rural | 616 |
| 446 | Southern | Moyamba | Kagboro | Thumba A | Rural | 616 |
| 448 | Southern | Moyamba | Kaiyamba | Koromboya | Urban | 616 |
| 449 | Southern | Moyamba | Kaiyamba | Mosoe | Rural | 616 |
| 450 | Southern | Moyamba | Kamajei | Kowama | Rural | 616 |
| 451 | Southern | Moyamba | Kamajei | Tawovehun | Rural | 616 |
| 452 | Southern | Moyamba | Kongbora | Mongere | Rural | 616 |
| 453 | Southern | Moyamba | Kori | Zone-1 | Rural | 616 |
| 454 | Southern | Moyamba | Kori | Zone-3 | Rural | 616 |
| 455 | Southern | Moyamba | Kori | Zone-4 | Rural | 616 |
| 456 | Southern | Moyamba | Kori | Zone-7 | Rural | 616 |
| 457 | Southern | Moyamba | Kowa | Njagbahun | Rural | 616 |
| 458 | Southern | Moyamba | Lower Banta | Gbangbatoke | Rural | 616 |
| 459 | Southern | Moyamba | Lower Banta | Largoh | Rural | 616 |
| 460 | Southern | Moyamba | Lower Banta | Ndendemoya | Rural | 616 |
| 461 | Southern | Moyamba | Lower Banta | Wulbange | Rural | 616 |
| 463 | Southern | Moyamba | Ribbi | Masarakulay | Rural | 616 |
| 464 | Southern | Moyamba | Ribbi | Mokera | Rural | 616 |
| 465 | Southern | Moyamba | Ribbi | Upper Ribbi | Rural | 616 |
| 466 | Southern | Moyamba | Timdale | Kebail | Rural | 616 |
| 467 | Southern | Moyamba | Upper Banta | Kenafallay | Rural | 616 |
| 468 | Southern | Pujehun | Barri | Fallay | Rural | 582 |
| 469 | Southern | Pujehun | Barri | Jougba | Rural | 582 |

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| 470 | Southern | Pujehun | Barri | Malla | Rural | 582 |
| 471 | Southern | Pujehun | Barri | Sonjour II | Rural | 582 |
| 472 | Southern | Pujehun | Galliness | Jakema I | Rural | 582 |
| 474 | Southern | Pujehun | Kabonde | Kabonde | Rural | 582 |
| 475 | Southern | Pujehun | Kpaka | Jassende Ngoleima I | Rural | 582 |
| 476 | Southern | Pujehun | Kpaka | Sarbah | Rural | 582 |
| 477 | Southern | Pujehun | Makpele | Samagbe | Rural | 582 |
| 478 | Southern | Pujehun | Makpele | Selimeh | Rural | 582 |
| 479 | Southern | Pujehun | Makpele | Selimeh | Urban | 582 |
| 480 | Southern | Pujehun | Malen | Kahaimoh | Rural | 582 |
| 481 | Southern | Pujehun | Malen | Kemoh | Rural | 582 |
| 482 | Southern | Pujehun | Malen | Lower Pemba | Rural | 582 |
| 483 | Southern | Pujehun | Malen | Taukunor | Rural | 582 |
| 484 | Southern | Pujehun | Mono Sakrim | Kemoh | Rural | 582 |
| 485 | Southern | Pujehun | Mono Sakrim | Sowa | Rural | 582 |
| 486 | Southern | Pujehun | Panga | Banyande | Rural | 582 |
| 488 | Southern | Pujehun | Panga | Panga | Urban | 582 |
| 489 | Southern | Pujehun | Panga | Pessekeh | Rural | 582 |
| 490 | Southern | Pujehun | Panga | Setti- Yakanday | Rural | 582 |
| 491 | Southern | Pujehun | Panga krim | Fassei | Rural | 582 |
| 492 | Southern | Pujehun | Pejeh (Futa peje) | Koilenga | Rural | 582 |
| 493 | Southern | Pujehun | Pejeh (Futa peje) | Pejeh West | Rural | 582 |
| 494 | Southern | Pujehun | Perri | Gendema I | Rural | 582 |
| 496 | Southern | Pujehun | Perri | Mewah | Rural | 582 |
| 497 | Southern | Pujehun | Soro Gbema | Kemokai | Rural | 582 |
| 498 | Southern | Pujehun | Soro Gbema | Massaquoi I | Rural | 582 |
| 499 | Southern | Pujehun | Soro Gbema | Moiwebu | Rural | 582 |

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| 500 | Southern | Pujehun | Soro Gbema | Zoker I | Rural | 582 |
| 501 | Southern | Pujehun | Sowa | Sabba I | Rural | 582 |
| 502 | Southern | Pujehun | Sowa | Sabba II | Rural | 582 |
| 504 | Southern | Pujehun | Yakemu Kpukumu | Sowonde | Rural | 582 |
| 505 | Western Area | WA-Rural | Koya Rural | Magbafti | Rural | 700 |
| 506 | Western Area | WA-Rural | Koya Rural | Malambay | Urban | 700 |
| 507 | Western Area | WA-Rural | Koya Rural | Malambay | Urban | 700 |
| 508 | Western Area | WA-Rural | Koya Rural | Malambay | Urban | 700 |
| 510 | Western Area | WA-Rural | Koya Rural | Newton | Urban | 700 |
| 511 | Western Area | WA-Rural | Mountain Rural | Gloucester | Urban | 700 |
| 512 | Western Area | WA-Rural | Mountain Rural | Regent | Urban | 700 |
| 513 | Western Area | WA-Rural | Mountain Rural | Regent | Urban | 700 |
| 515 | Western Area | WA-Rural | Waterloo Rural | Deep Eye Water/ Devil Hole | Urban | 700 |
| 516 | Western Area | WA-Rural | Waterloo Rural | Deep Eye Water/ Devil Hole | Urban | 700 |
| 517 | Western Area | WA-Rural | Waterloo Rural | Hastings-Yams Farm | Urban | 700 |
| 518 | Western Area | WA-Rural | Waterloo Rural | Jui-Grafton | Urban | 700 |
| 519 | Western Area | WA-Rural | Waterloo Rural | Jui-Grafton | Urban | 700 |
| 520 | Western Area | WA-Rural | Waterloo Rural | Rokel | Urban | 700 |
| 521 | Western Area | WA-Rural | Waterloo Rural | Rokel | Urban | 700 |
| 523 | Western Area | WA-Rural | Waterloo Rural | Waterloo Benguema | Urban | 700 |
| 524 | Western Area | WA-Rural | Waterloo Rural | Waterloo Lumpa | Urban | 700 |
| 525 | Western Area | WA-Rural | Waterloo Rural | Waterloo Lumpa | Urban | 700 |
| 526 | Western Area | WA-Rural | Waterloo Rural | Waterloo Lumpa | Urban | 700 |

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| 527 | Western Area | WA-Rural | Waterloo Rural | Waterloo Lumpa | Urban | 700 |
| 528 | Western Area | WA-Rural | Waterloo Rural | Waterloo Campbell Town | Urban | 700 |
| 529 | Western Area | WA-Rural | Waterloo Rural | Waterloo Campbell Town | Urban | 700 |
| 531 | Western Area | WA-Rural | Waterloo Rural | Waterloo Campbell Town | Urban | 700 |
| 532 | Western Area | WA-Rural | Waterloo Rural | Waterloo Campbell Town | Urban | 700 |
| 533 | Western Area | WA-Rural | York Rural | Gbendembu | Urban | 700 |
| 534 | Western Area | WA-Rural | York Rural | Gbendembu | Urban | 700 |
| 535 | Western Area | WA-Rural | York Rural | Goderich-Adonkia/Milton Margai | Urban | 700 |
| 536 | Western Area | WA-Rural | York Rural | Goderich-Adonkia/Milton Margai | Urban | 700 |
| 537 | Western Area | WA-Rural | York Rural | Goderich-Adonkia/Milton Margai | Urban | 700 |
| 538 | Western Area | WA-Rural | York Rural | Goderich-Adonkia/Milton Margai | Urban | 700 |
| 539 | Western Area | WA-Rural | York Rural | Goderich-Funkia | Urban | 700 |
| 540 | Western Area | WA-Rural | York Rural | Hamilton | Urban | 700 |
| 541 | Western Area | WA-Rural | York Rural | Sattia/Tombo | Rural | 700 |
| 542 | Western Area | WA-Rural | York Rural | Sattia/Tombo | Urban | 700 |
| 544 | Western Area | WA-Rural | York Rural | York | Urban | 700 |
| 545 | Western Area | WA-Urban | Central I | Mountain Regent | Urban | 1582 |
| 546 | Western Area | WA-Urban | Central I | Sorie Town | Urban | 1582 |
| 547 | Western Area | WA-Urban (Slum) | Central I | Susan' s Bay | Slum | 301 |
| 549 | Western Area | WA-Urban (Slum) | Central I | Susan' s Bay | Slum | 301 |

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| 550 | Western Area | WA-Urban (Slum) | Central I | Susan's Bay | Slum | 301 |
| 551 | Western Area | WA-Urban (Slum) | Central II | Connaught Hospital | Slum | 301 |
| 552 | Western Area | WA-Urban (Slum) | Central II | Connaught Hospital | Slum | 301 |
| 553 | Western Area | WA-Urban | Central II | Sanders Brook | Urban | 1582 |
| 555 | Western Area | WA-Urban (Slum) | East I | Cline Town | Slum | 301 |
| 556 | Western Area | WA-Urban (Slum) | East I | Cline Town | Slum | 301 |
| 557 | Western Area | WA-Urban | East I | Fourah Bay | Urban | 1582 |
| 558 | Western Area | WA-Urban (Slum) | East I | Kossoh Town | Slum | 301 |
| 560 | Western Area | WA-Urban | East II | Foulah Town | Urban | 1582 |
| 561 | Western Area | WA-Urban | East II | Ginger Hall | Urban | 1582 |
| 562 | Western Area | WA-Urban (Slum) | East II | Magazine | Slum | 301 |
| 563 | Western Area | WA-Urban (Slum) | East II | Magazine | Slum | 301 |
| 564 | Western Area | WA-Urban | East II | Quarry | Urban | 1582 |
| 565 | Western Area | WA-Urban | East III | Allen Town I | Urban | 1582 |
| 567 | Western Area | WA-Urban | East III | Congo Water II | Urban | 1582 |
| 568 | Western Area | WA-Urban | East III | Congo Water II | Urban | 1582 |
| 569 | Western Area | WA-Urban (Slum) | East III | Grass Field | Slum | 301 |
| 571 | Western Area | WA-Urban | East III | Jalloh Terrace | Urban | 1582 |
| 572 | Western Area | WA-Urban | East III | Kissy Brook II | Urban | 1582 |
| 573 | Western Area | WA-Urban (Slum) | East III | Kissy Bye Pass(Dock) | Slum | 301 |
| 574 | Western Area | WA-Urban (Slum) | East III | Kissy Bye Pass(Term) | Slum | 301 |
| 575 | Western Area | WA-Urban | East III | Kissy Bye Pass(Term) | Urban | 1582 |

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| 576 | Western Area | WA-Urban | East III | Kissy Mess Mess | Urban | 1582 |
| 577 | Western Area | WA-Urban | East III | Lowcost Housing | Urban | 1582 |
| 578 | Western Area | WA-Urban | East III | Mamba Ridge II | Urban | 1582 |
| 579 | Western Area | WA-Urban | East III | Mayenkineh | Urban | 1582 |
| 580 | Western Area | WA-Urban (Slum) | East III | Old Warf | Slum | 301 |
| 581 | Western Area | WA-Urban (Slum) | East III | Old Warf | Slum | 301 |
| 582 | Western Area | WA-Urban (Slum) | East III | Pamuronko | Slum | 301 |
| 583 | Western Area | WA-Urban | East III | Pamuronko | Urban | 1582 |
| 584 | Western Area | WA-Urban (Slum) | East III | Portee | Slum | 301 |
| 585 | Western Area | WA-Urban (Slum) | East III | Portee | Slum | 301 |
| 586 | Western Area | WA-Urban | East III | Robis | Urban | 1582 |
| 587 | Western Area | WA-Urban (Slum) | East III | Rokupa | Slum | 301 |
| 588 | Western Area | WA-Urban (Slum) | East III | Rokupa | Slum | 301 |
| 589 | Western Area | WA-Urban | East III | Tasso Island | Urban | 1582 |
| 590 | Western Area | WA-Urban | West I | Ascension Town | Urban | 1582 |
| 591 | Western Area | WA-Urban (Slum) | West I | Kingtom | Slum | 301 |
| 592 | Western Area | WA-Urban (Slum) | West I | Kingtom | Slum | 301 |
| 593 | Western Area | WA-Urban (Slum) | West I | Kroo Town | Slum | 301 |
| 594 | Western Area | WA-Urban (Slum) | West I | Kroo Town | Slum | 301 |
| 595 | Western Area | WA-Urban | West I | Kroo Town | Urban | 1582 |
| 596 | Western Area | WA-Urban | West II | Brookfields-Congo | Urban | 1582 |
| 598 | Western Area | WA-Urban (Slum) | West II | CongoTown | Slum | 301 |

| CLUSTER NO. | New_Prov | New_Dist | New_Chief | SECTION | URBRUR | Stratum measure/ size |
|-------------|--------------|-----------------|--------------|------------------------|--------|-----------------------|
| 599 | Western Area | WA-Urban (Slum) | West II | CongoTown | Slum | 301 |
| 600 | Western Area | WA-Urban (Slum) | West II | CongoTown | Slum | 301 |
| 601 | Western Area | WA-Urban | West II | George Brook (Dwor | Urban | 1582 |
| 602 | Western Area | WA-Urban | West II | New England-Hannes | Urban | 1582 |
| 603 | Western Area | WA-Urban | West II | New England-Hill Cot | Urban | 1582 |
| 604 | Western Area | WA-Urban | West II | Sumaila Town | Urban | 1582 |
| 605 | Western Area | WA-Urban | West II | Tengbeh Town | Urban | 1582 |
| 606 | Western Area | WA-Urban (Slum) | West III | Cockerill-Aberdeen | Slum | 301 |
| 607 | Western Area | WA-Urban (Slum) | West III | Cockle-Bay/ Collegiate | Slum | 301 |
| 608 | Western Area | WA-Urban (Slum) | West III | Cockle-Bay/ Collegiate | Slum | 301 |
| 610 | Western Area | WA-Urban | West III | Hill Station | Urban | 1582 |
| 611 | Western Area | WA-Urban | West III | Juba/Kaningo | Urban | 1582 |
| 613 | Western Area | WA-Urban | West III | Lumley | Urban | 1582 |
| 614 | Western Area | WA-Urban | West III | Malama/ Kamayama | Urban | 1582 |
| 615 | Western Area | WA-Urban (Slum) | West III | Murray Town | Slum | 301 |
| 616 | Western Area | WA-Urban (Slum) | West III | Murray Town | Slum | 301 |
| 617 | Western Area | WA-Urban | West III | Pipeline/ Wilkinson | Urban | 1582 |
| 618 | Western Area | WA-Urban | West III | Wilberforce | Urban | 1582 |
| 103 (RC) | Eastern | Kono | Sandor | Dangbaidu | Rural | 787 |
| 122 (RC) | North West | Kambia | Magbema | Kambia | Urban | 576 |
| 13 (RC) | Eastern | Kailahun | Kpeje Bongre | Manowa | Urban | 891 |
| 134 (RC) | North West | Kambia | Masungbala | Benna | Rural | 576 |
| 138 (RC) | North West | Kambia | Samu | Kassiri | Urban | 576 |

| CLUSTER NO. | New_Prov | New_Dist | New_Chief | SECTION | URBRUR | Stratum measure/ size |
|-------------|------------|-----------|-------------------------|------------------|--------|-----------------------|
| 145 (RC) | North West | Kambia | Tonko Limba | Kamassassa | Rural | 576 |
| 151 (RC) | North West | Karene | Dibia | Mafonda | Rural | 435 |
| 160 (RC) | North West | Karene | Safroko | Maron | Rural | 435 |
| 168 (RC) | North West | Karene | Sanda Tendaran | Mateboi | Rural | 435 |
| 173 (RC) | North West | Karene | Sella Limba | Magbonkoni I | Rural | 435 |
| 182 (RC) | North West | Port Loko | Bakeh Loko | Sendugu | Urban | 1000 |
| 196 (RC) | North West | Port Loko | Koya | Mawoma | Urban | 1000 |
| 209 (RC) | North West | Port Loko | Marampa | Marampa A | Urban | 1000 |
| 214 (RC) | North West | Port Loko | Masimera | Rokon/Komboya | Rural | 1000 |
| 219 (RC) | North East | Bombali | Bombali Seborá | Kagbaran Dokom B | Rural | 730 |
| 229 (RC) | North East | Bombali | Makari | Mankneh Bana | Rural | 730 |
| 237 (RC) | North East | Bombali | Makeni City | Mayanka II Ward | Urban | 730 |
| 243 (RC) | North East | Bombali | N'gowahun | Kalangba | Rural | 730 |
| 251 (RC) | North East | Falaba | Delemandugu | Upper Deldugu | Rural | 354 |
| 257 (RC) | North East | Falaba | Dembelia-Sinkunia | Mawundea | Rural | 354 |
| 265 (RC) | North East | Falaba | Kulor Saradu | Kulor | Rural | 354 |
| 277 (RC) | North East | Falaba | Sulima | Falaba I | Rural | 354 |
| 286 (RC) | North East | Koinadugu | Diang | Gbenekoro | Rural | 394 |
| 29 (RC) | Eastern | Kailahun | Njaluahun | Sei I | Urban | 891 |
| 301 (RC) | North East | Koinadugu | Nieni | Nieni | Rural | 394 |
| 311 (RC) | North East | Koinadugu | Wara Wara Bafodia | Kdanso | Rural | 394 |
| 317 (RC) | North East | Koinadugu | Wara Wara Yagala | Zone 3 | Urban | 394 |
| 323 (RC) | North East | Tonkolili | Gbonkolenkeni/Masankong | Upper Massakong | Rural | 1041 |
| 337 (RC) | North East | Tonkolili | Malal | Malal | Rural | 1041 |
| 34 (RC) | Eastern | Kailahun | Upper Bambara | Korbu | Rural | 891 |
| 341 (RC) | North East | Tonkolili | Sambaya | Dayie | Rural | 1041 |

| CLUSTER NO. | New_Prov | New_Dist | New_Chief | SECTION | URBRUR | Stratum measure/ size |
|-------------|--------------|-----------|----------------|--------------------------------------|--------|-----------------------|
| 351 (RC) | North East | Tonkolili | Yoni Mabanta | Ronietta | Rural | 1041 |
| 365 (RC) | Southern | Bo | Bo Town | North Ward-Kissy Town-Kortubuma | Urban | 1031 |
| 370 (RC) | Southern | Bo | Bo Town | West Ward-Njagboima-Coronation Field | Urban | 1031 |
| 383 (RC) | Southern | Bo | Komboya | Kemoh | Rural | 1031 |
| 389 (RC) | Southern | Bo | Tikonko | Seiwa | Rural | 1031 |
| 403 (RC) | Southern | Bonthe | Dema | Yoh | Rural | 461 |
| 412 (RC) | Southern | Bonthe | Jong | Falewuja | Rural | 461 |
| 420 (RC) | Southern | Bonthe | Nongoba Bullom | Garinga | Rural | 461 |
| 427 (RC) | Southern | Bonthe | Sogbeni | Bakumba | Rural | 461 |
| 431 (RC) | Southern | Moyamba | Bagruwa | Kigbai | Rural | 616 |
| 437 (RC) | Southern | Moyamba | Bumpeh | Samu | Rural | 616 |
| 44 (RC) | Eastern | Kenema | Gorama Mende | Kualley | Rural | 1130 |
| 447 (RC) | Southern | Moyamba | Kaiyamba | Angigboya | Rural | 616 |
| 462 (RC) | Southern | Moyamba | Ribbi | Masanka | Rural | 616 |
| 473 (RC) | Southern | Pujehun | Galliness | Kemokai | Rural | 582 |
| 48 (RC) | Eastern | Kenema | Kenema City | Gbo Kakajama A-Lumbebu | Urban | 1130 |
| 487 (RC) | Southern | Pujehun | Panga | Lower Kayiemba | Rural | 582 |
| 495 (RC) | Southern | Pujehun | Perri | Jakema II | Rural | 582 |
| 5 (RC) | Eastern | Kailahun | Jawie | Sowa | Rural | 891 |
| 503 (RC) | Southern | Pujehun | Yakemu Kpukumu | Bapawa | Rural | 582 |
| 509 (RC) | Western Area | WA-Rural | Koya Rural | Malambay | Urban | 700 |
| 514 (RC) | Western Area | WA-Rural | Waterloo Rural | Deep Eye Water/ Devil Hole | Urban | 700 |
| 522 (RC) | Western Area | WA-Rural | Waterloo Rural | Waterloo Benguema | Urban | 700 |
| 530 (RC) | Western Area | WA-Rural | Waterloo Rural | Waterloo Campbell Town | Urban | 700 |

| CLUSTER NO. | New_Prov | New_Dist | New_Chief | SECTION | URBRUR | Stratum measure/ size |
|-------------|--------------|-----------------|-------------|-----------------------------|--------|-----------------------|
| 543 (RC) | Western Area | WA-Rural | York Rural | Sattia/Tombo | Urban | 700 |
| 548 (RC) | Western Area | WA-Urban (Slum) | Central I | Susan's Bay | Slum | 301 |
| 554 (RC) | Western Area | WA-Urban (Slum) | East I | Cline Town | Slum | 301 |
| 559 (RC) | Western Area | WA-Urban | East II | Foulah Town | Urban | 1582 |
| 56 (RC) | Eastern | Kenema | Kenema City | Gbo Lambayama A-Reservation | Urban | 1130 |
| 566 (RC) | Western Area | WA-Urban | East III | Congo Water I | Urban | 1582 |
| 570 (RC) | Western Area | WA-Urban (Slum) | East III | Grass Field | Slum | 301 |
| 597 (RC) | Western Area | WA-Urban | West II | Brookfields-Red Pu | Urban | 1582 |
| 609 (RC) | Western Area | WA-Urban (Slum) | West III | Cockle-Bay/ Collegiate | Slum | 301 |
| 612 (RC) | Western Area | WA-Urban | West III | Juba/Kaningo | Urban | 1582 |
| 64 (RC) | Eastern | Kenema | Malegohun | Konjo Buiima | Urban | 1130 |
| 70 (RC) | Eastern | Kenema | Simbaru | Fonde | Rural | 1130 |
| 78 (RC) | Eastern | Kono | Gbane | Gbikidakor | Rural | 787 |
| 86 (RC) | Eastern | Kono | Koidu City | Gbense-Moindekor | Urban | 787 |
| 95 (RC) | Eastern | Kono | Nimikoro | Bafinfeh | Rural | 787 |

The background is a solid blue color with several overlapping geometric shapes in various shades of blue, creating a layered effect. A thin white vertical line descends from the top edge of the page and ends just above the number '10'.

10.

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