Sierra Leone

Multi-sectoral Nutrition Overview

February 2018

Scaling Up NUTRITION

UN Network

REACH

ACCELERATING THE SCALE-UP OF FOOD AND NUTRITION ACTIONS

WFP World Food Programme | Food and Agriculture Organization of the United Nations | unicef | World Health Organization

Nutrition Situation: Trends in malnutrition and of the most affected population groups

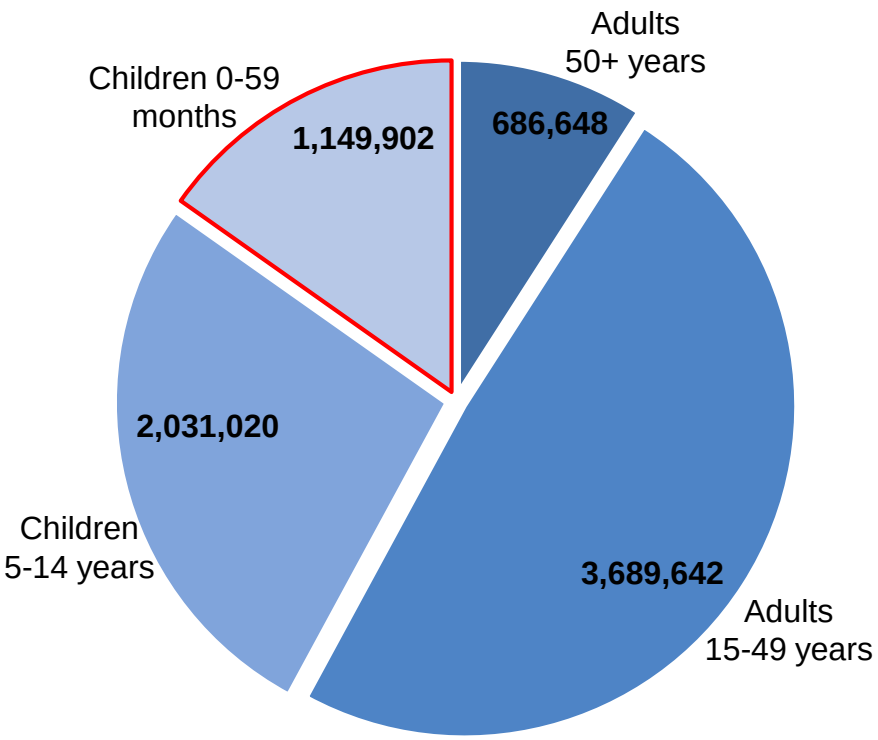
Key messages on the overall nutrition situation in Sierra Leone

- At the national level, chronic malnutrition, as measured by the prevalence of stunting, is 31.3% which is above the WHO medium threshold of 20%
- The prevalence of stunting is above the WHO medium threshold of 20% across all districts. The prevalence is highest in Pujehun (38.7%), Moyamba (35.1%) and Kenema (35%) districts
- Of the three districts with the highest prevalence of stunting, Pujehun has the highest absolute number of stunted children. Kenema and Kone also have a high number of stunted children
- At the national level, acute malnutrition, as measured by the prevalence of wasting, is 5.1% which is above the WHO medium threshold of 5%
- The prevalence of wasting is highest in Bombali (5.9%), Port Loko (5.8%), and Western Area Urban (5.8%) districts
- The prevalence of iron deficiency among children 6-59 months and non-pregnant women 15-49 years is low
- However, the prevalence of anaemia is high for both women and children, which is most likely caused by malaria, inflammation and/or parasitic infections
- The majority of non-pregnant women 15-49 years are folate deficient
- Vitamin A deficiency among pre-school aged children is a moderate public health problem
- Among the woman population, iodine deficiency is highest amongst those that are pregnant (46.1%)

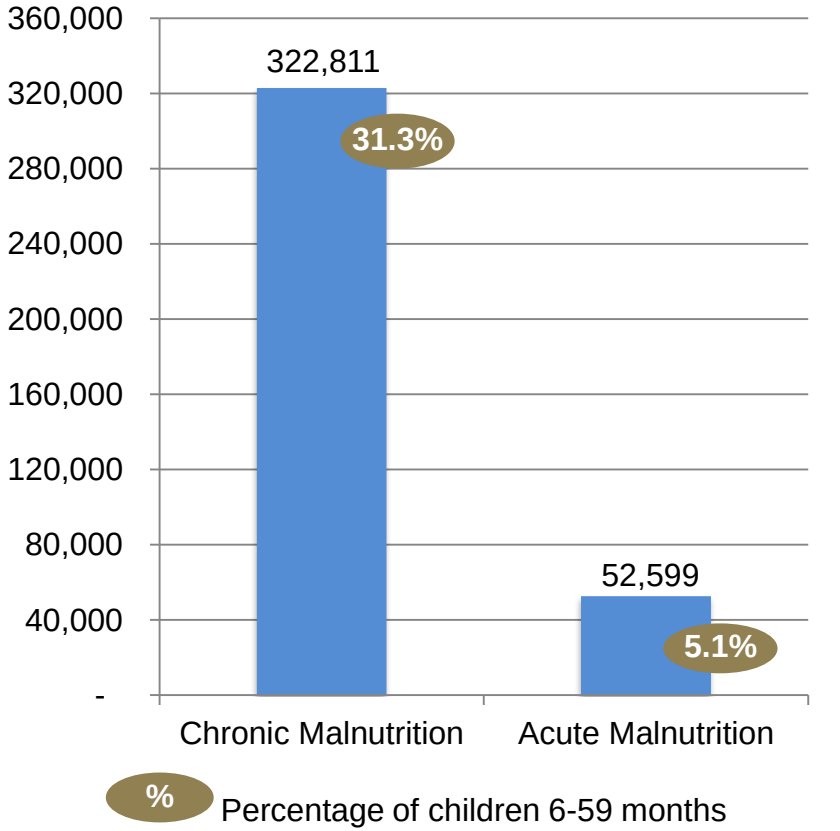
Demographic Statistics:
Key target population groups

Children under 5 years of age represent 15.2% of the total population

Estimated population, 2017

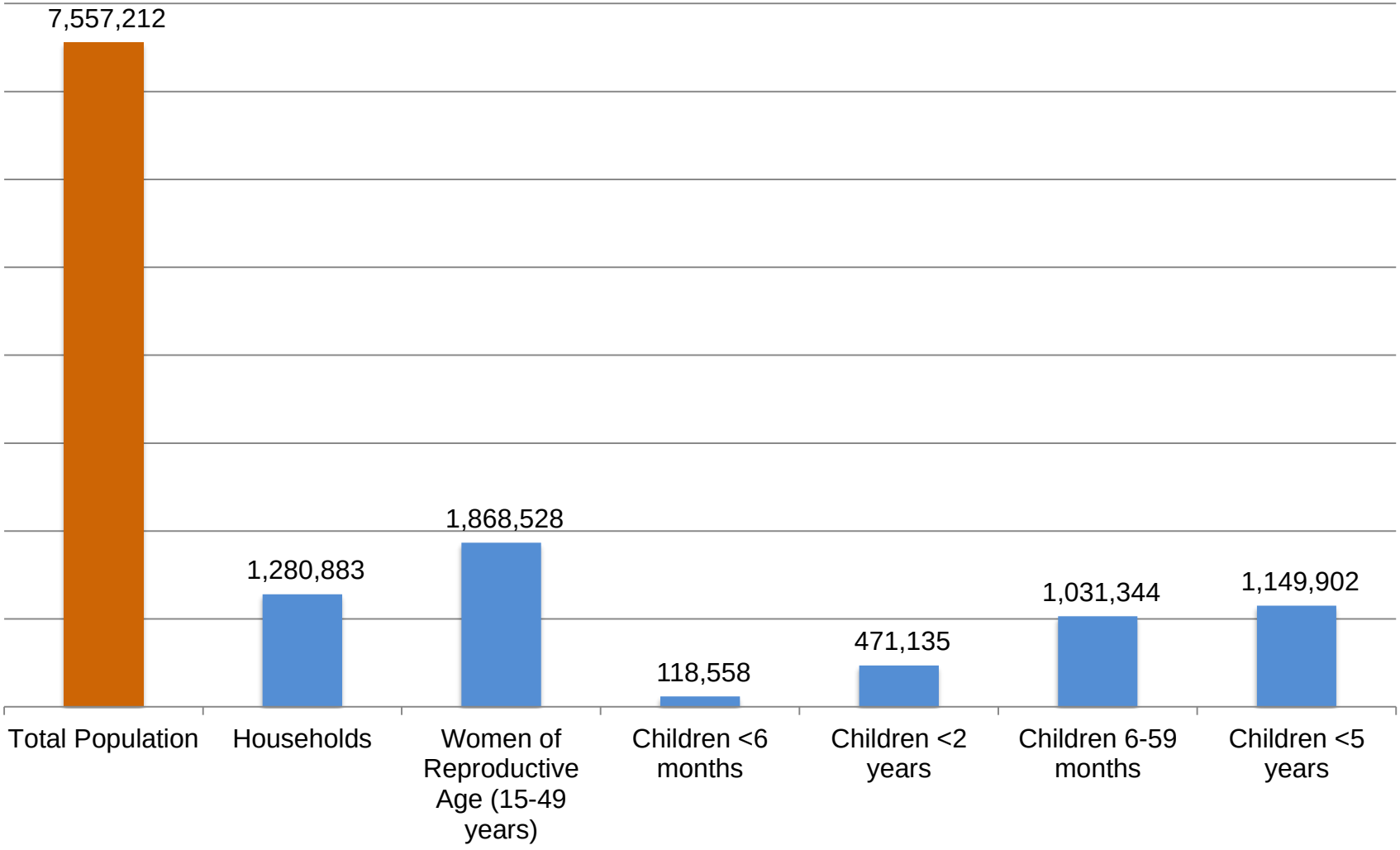


Estimated children 6-59 months with malnutrition, 2017



Sources: United Nations, Department of Economic and Social Affairs, Population Division (2015). World Population Prospects: The 2017 Revision, DVD Edition; SMART 2017

Composition of the main target groups in the fight against maternal and child malnutrition (2017)



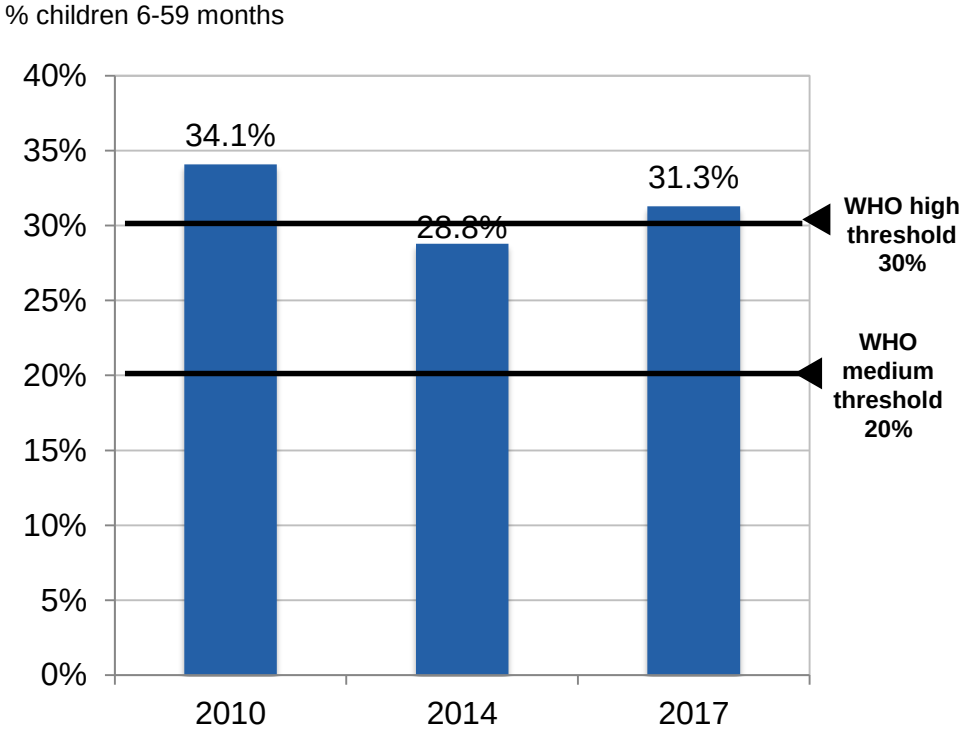
Sources: United Nations, Department of Economic and Social Affairs, Population Division (2015). World Population Prospects: The 2017 Revision, DVD Edition;

Anthropometric Indicators:

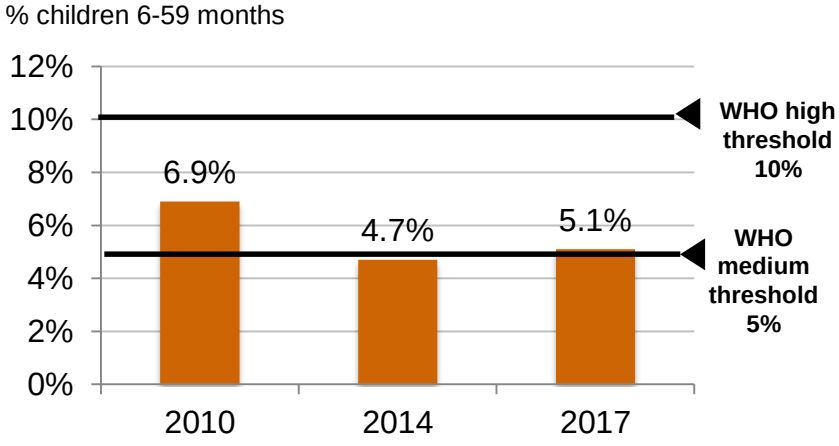
Chronic malnutrition, acute malnutrition and overweight

The prevalence of stunting and wasting increased between 2010 and 2017

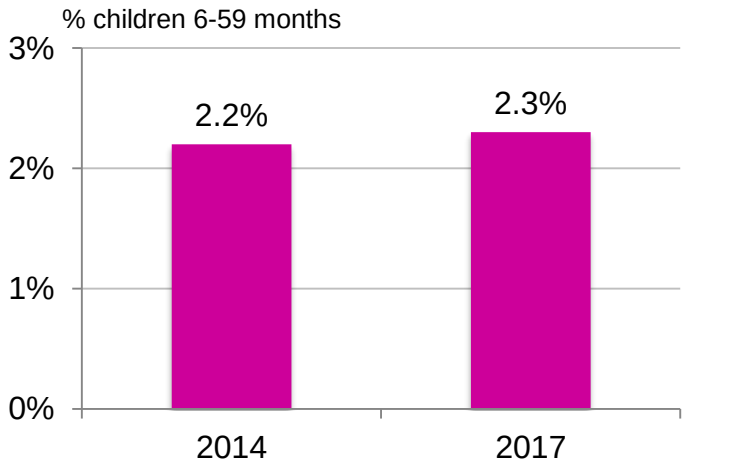
Chronic Malnutrition



Acute Malnutrition



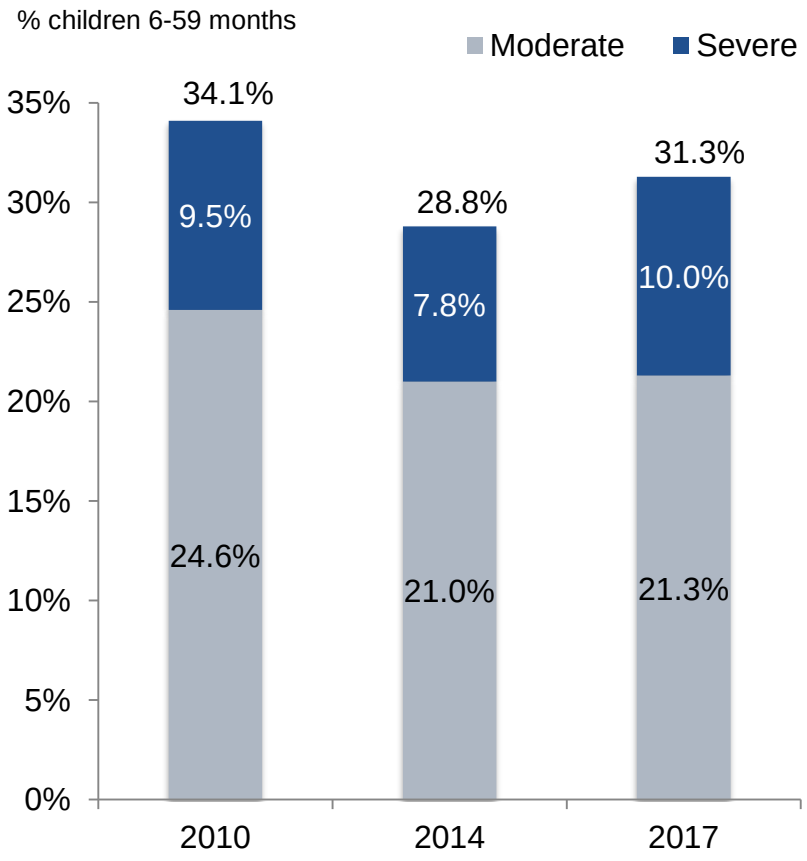
Overweight



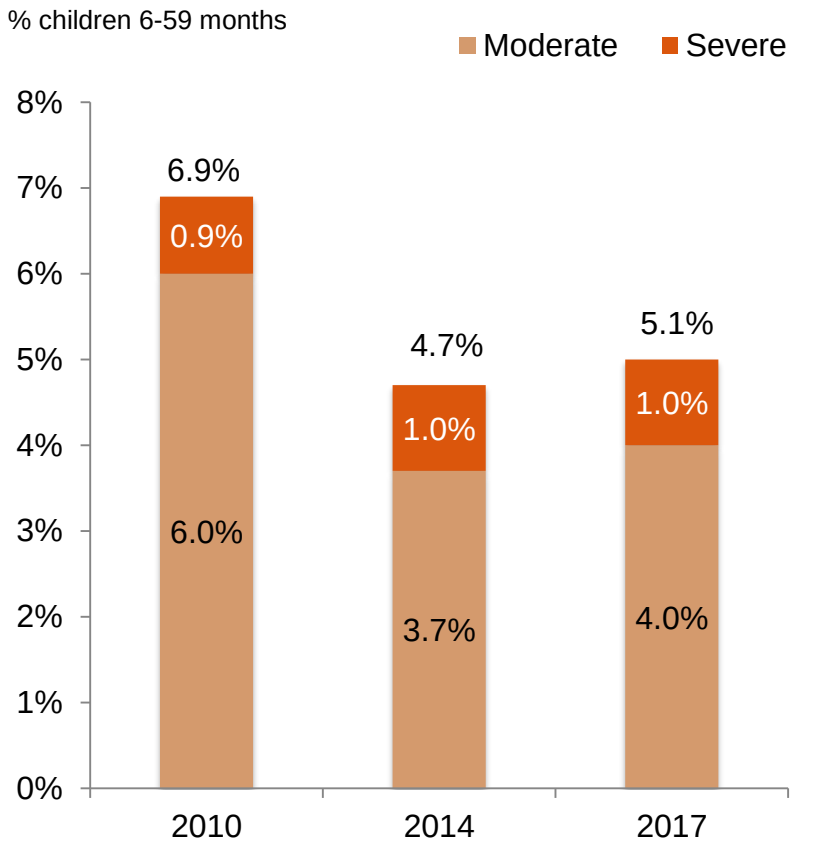
Note: The SLNNS national averages are excluding Kailahun and Bonthe districts due to the Ebola Virus Disease outbreak
Sources: SMART 2010, SLNNS 2014. SMART2017

Prevalence of both moderate stunting and wasting decreased between 2010 and 2017, but not the prevalence of severe wasting and stunting

Chronic Malnutrition



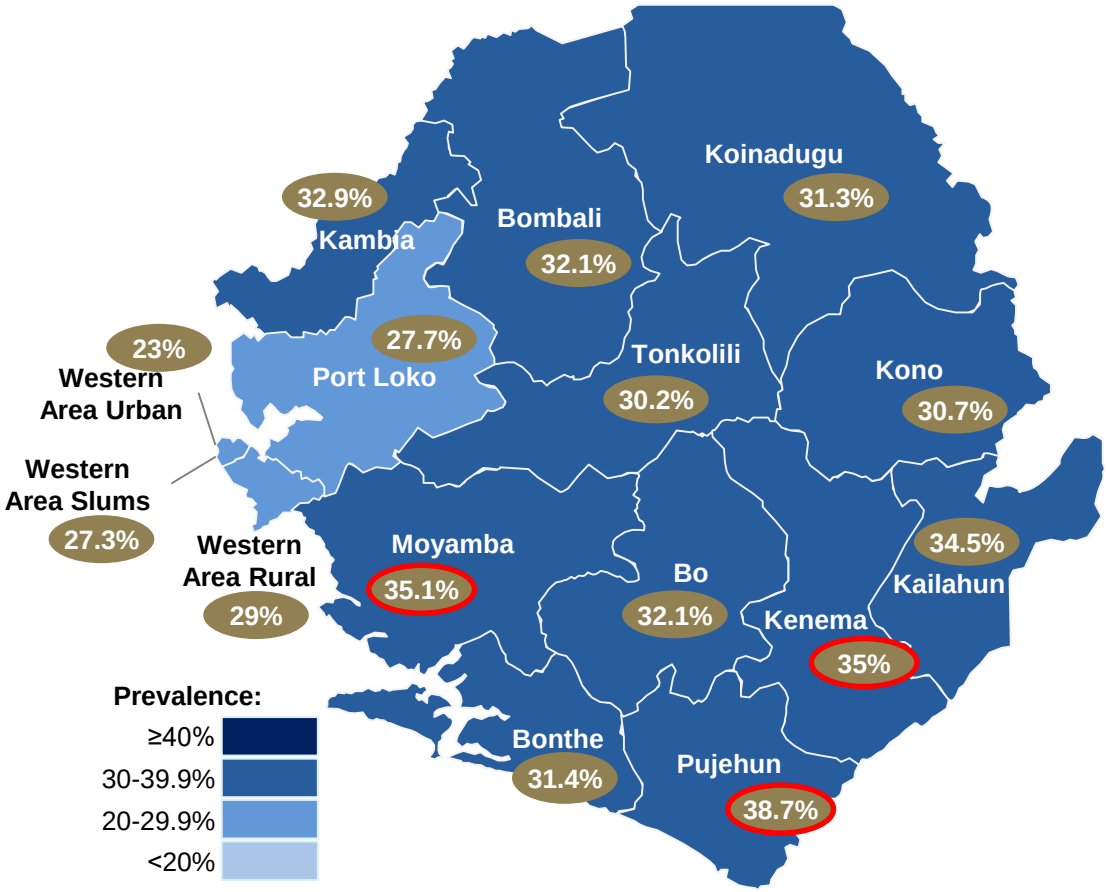
Acute Malnutrition



Note: The SLNNS national averages are excluding Kailahun and Bonthe districts due to the Ebola Virus Disease outbreak
Sources: SMART 2010, SLNNS 2014, SMART2017

Stunting is a public health concern across all districts. Pujehun Moyamba and Kenema have highest prevalence rates

Prevalence of chronic malnutrition among children 6-59 months

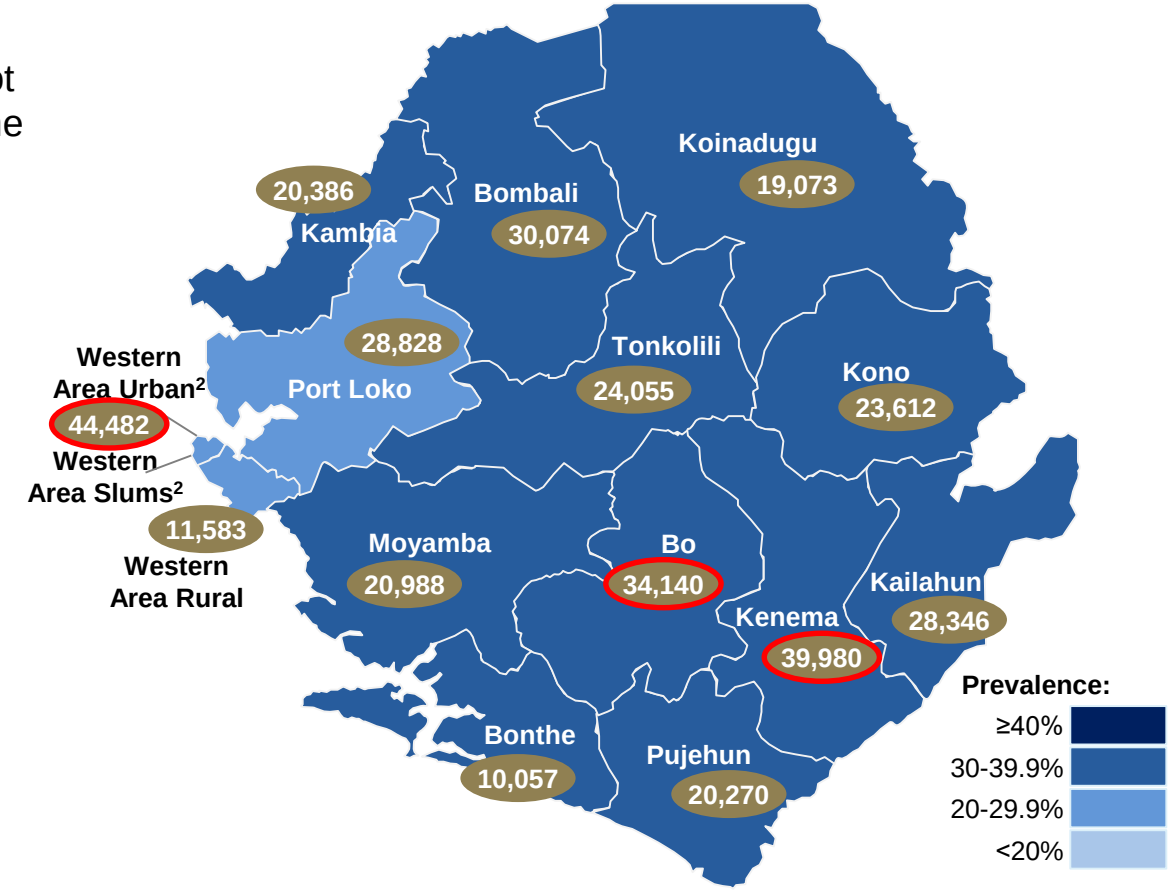


- In 4 of the districts, the prevalence of stunting is between 20-30%
- In 10 districts, the prevalence is between 30 and 40%
- Western Area districts and Port Loko have the lowest rates of stunting (20%-30%)

Kenema, Bo and Western area Urban + Slum have the highest absolute number of children who are stunted

- The districts with the highest number of stunted children do not always reflect the districts with the highest prevalence due to disparities in population density
- The districts with the highest number of children who are stunted is Kenema, Bo and Western Urban and Slum.
- Of the three districts with the highest prevalence of stunting, Kenema also has the highest absolute number of stunted children

Chronic Malnutrition: absolute numbers and prevalence



(1) Estimated absolute number of stunted children is not available for Western Area Urban and Western Area Slums due to lack of disaggregated population data

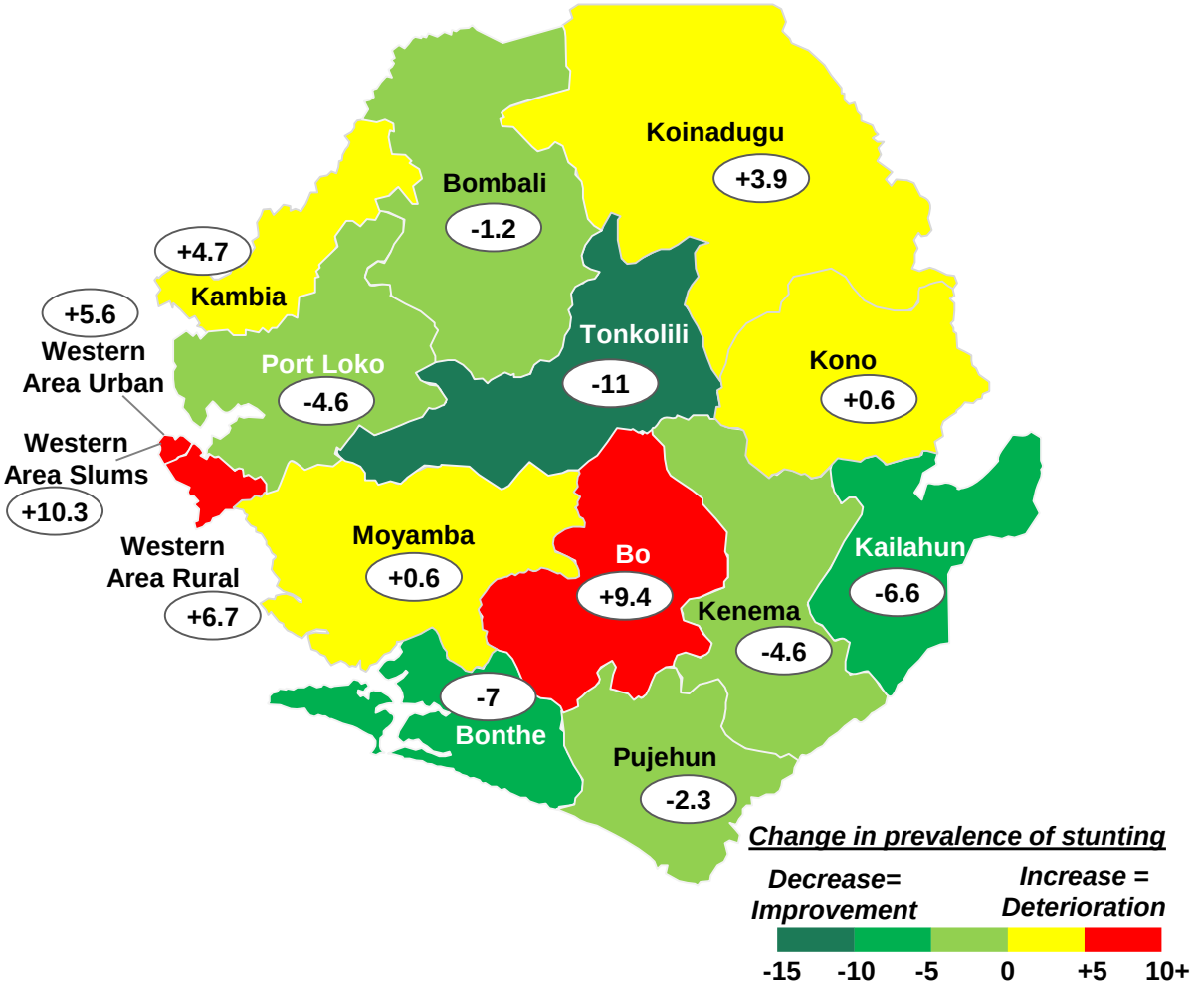
Sources: SMART 2017 United Nations, Department of Economic and Social Affairs, Population Division (2015). World Population Prospects: The 2015 Revision, DVD Edition;

Eight districts recorded and increase in chronic malnutrition between 2010 and 2017, while seven recorded a decrease

- Four districts, Bo, Wester Area districts recorded an increase (between 5 and 10 percentage points) in the overall prevalence of chronic malnutrition between 2010 and 2017 indicating deterioration of prevalence of malnutrition

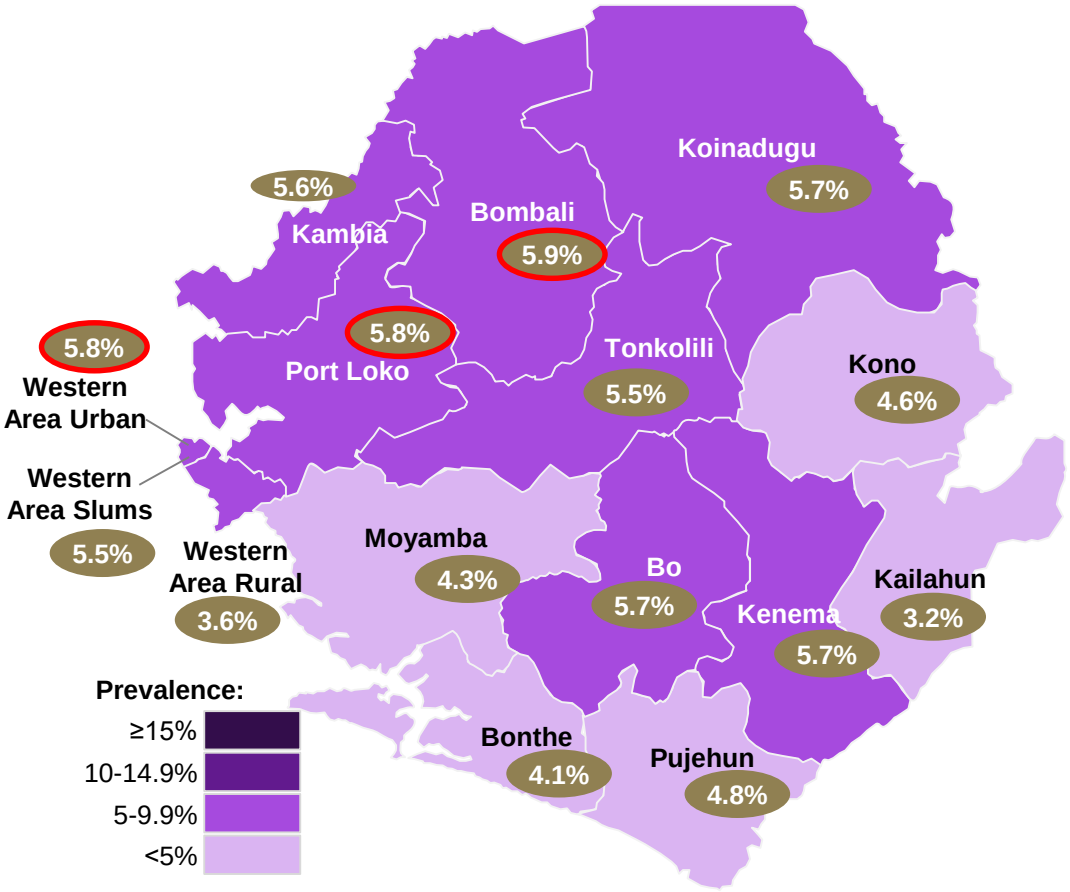
- Tonkolili, Kailahun and Bonthe districts showed a slight decrease (> 5 percentage points) in overall prevalence of chronic malnutrition between 2010 and 2017 indicating improvement in the prevalence of malnutrition

The change in chronic malnutrition prevalence (in % points) between 2010 and 2017



The prevalence of wasting is highest in Bombali , Port Loko and Bombali

Prevalence of acute malnutrition among children 6-59 months



- The prevalence of wasting is highest in all the districts in the northern and western provinces
- Bombali has the highest prevalence (5.9%) followed by Port Loko (5.6%) and Western Area Urban district (5.8%)
- In nine districts, the prevalence of wasting is in the “medium” range (5%-10%) as defined by the WHO Crisis Clasification. In 6 districts the prevalence is considered “low” <5%
- Kailahun and Western Area Rural have the lowest rates of acute malnutrition

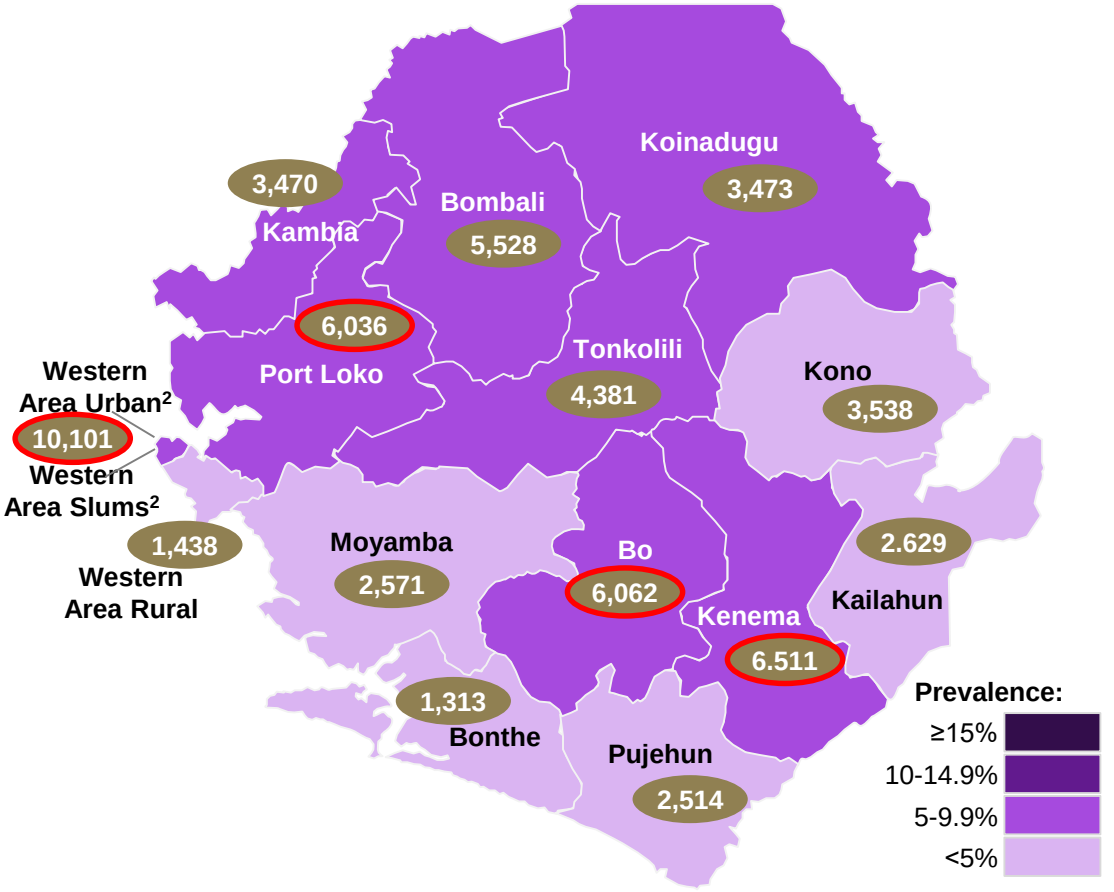
Source: SMART 2017; http://www.who.int/nutgrowthdb/about/introduction/en/index2.html

In general the districts with the highest absolute number of children with acute malnutrition are similar to those with the highest prevalence

- The districts with the highest number of children with acute malnutrition do not always reflect the districts with the highest prevalence due to disparities in population density

- The Western Area Urban and Slum, Port Loko, Bo and Kenema have the largest number of children with acute malnutrition

Acute Malnutrition: absolute numbers and prevalence



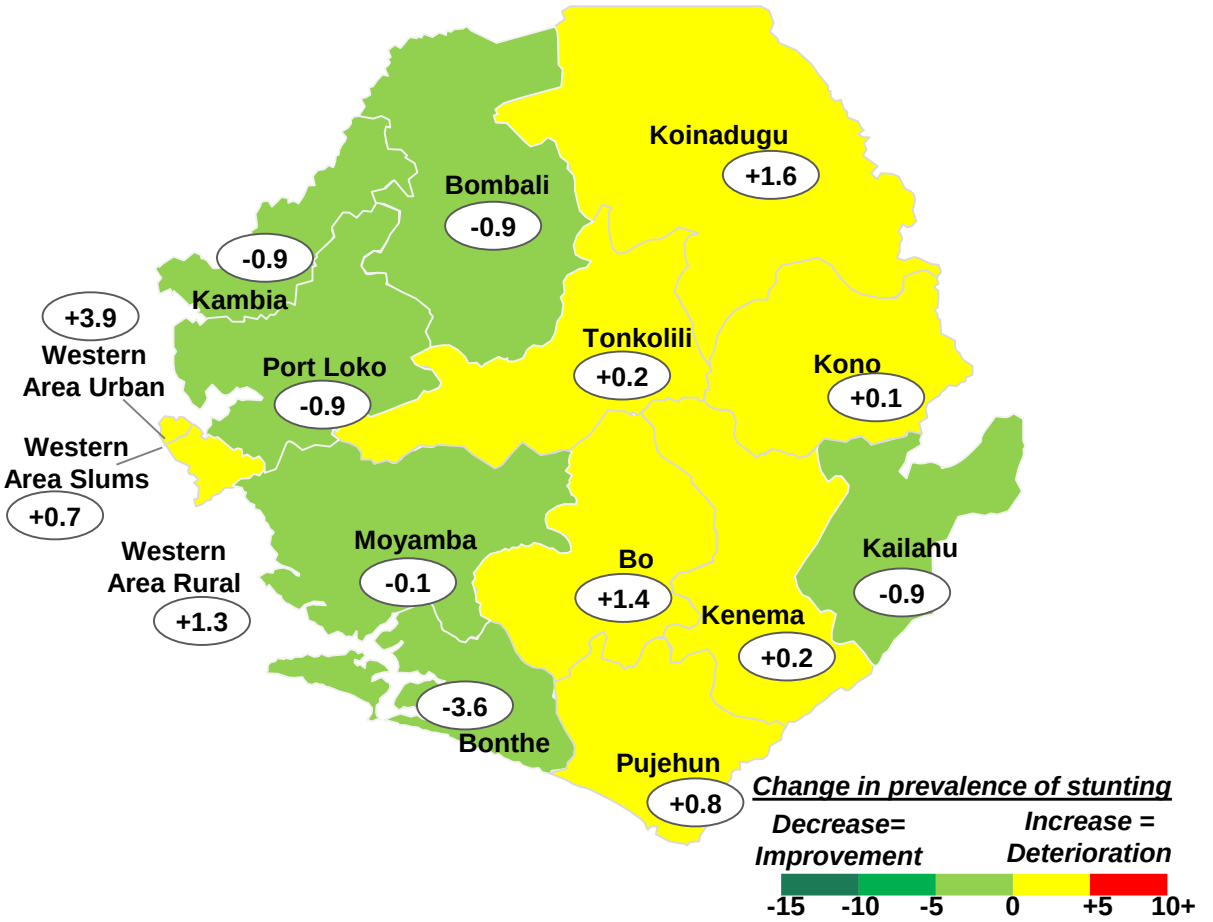
Note: (2) Estimated absolute number of stunted children is not available for Western Area Urban and Western Area Slums due to lack of disaggregated population data

Sources: United Nations, Department of Economic and Social Affairs, Population Division (2015). World Population Prospects: The 2015 Revision, DVD Edition;

Nine districts recorded increases in acute malnutrition between 2010 and 2017, while six recorded decreases

- The Western Area Urban district recorded the highest increase of 3.9% points in prevalence of acute malnutrition between 2010 and 2017 indicating a worsening malnutrition situation
- In addition, three districts recorded slight increase in acute malnutrition ranging from 1 to 2 percentage point (Koinadufu, Western Area Rural and Bo district)
- Bonthe district recorded a highest improvement with decrease of -3.6% points in the prevalence of wasting

The change in acute malnutrition prevalence (in % points) between 2010 and 2017



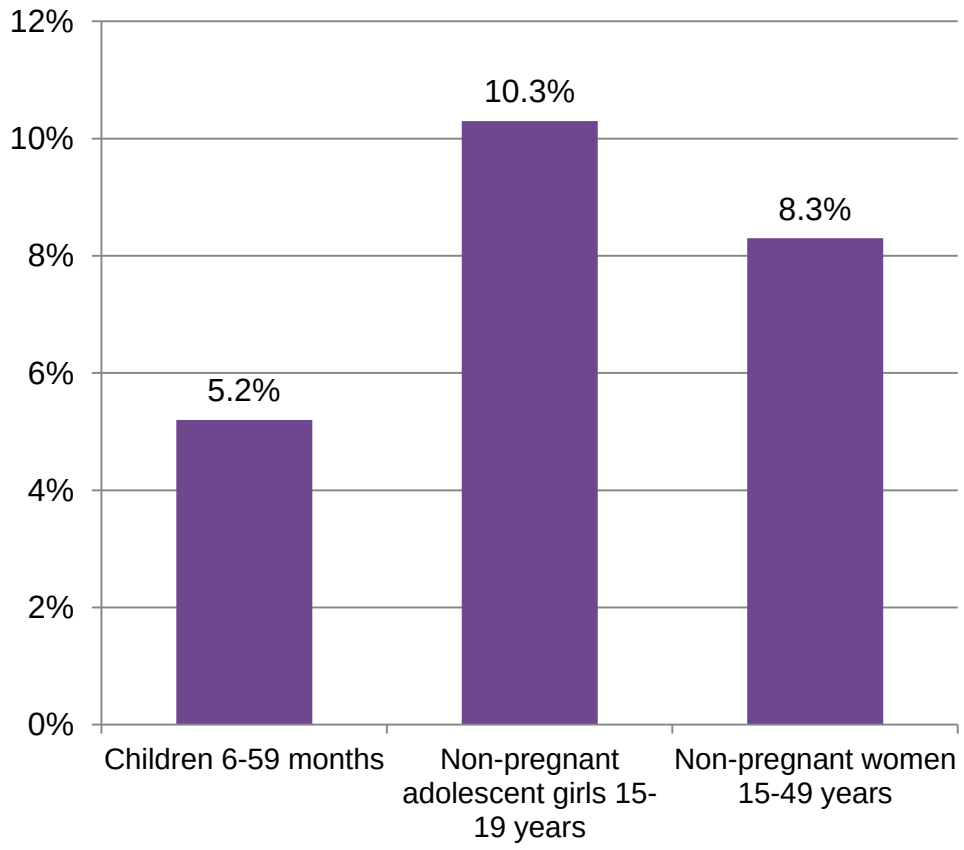
Sources:, SMART 2010, SMART 2017

Micronutrient Deficiencies:

Anaemia, Vitamin A deficiency and iodine deficiency

The prevalence of iron deficiency among children 6-59 months and non-pregnant women 15-49 years is low

Iron deficiency is slightly higher in adolescent girls 15-19 years



Consequences:

- Reduced immunity
- Increased risk of maternal and perinatal mortality
- Intrauterine growth retardation
- Premature birth
- Reduced cognitive and psychomotor development
- Reduced ability to concentrate and scholastic performance
- Fatigue and reduced physical activity

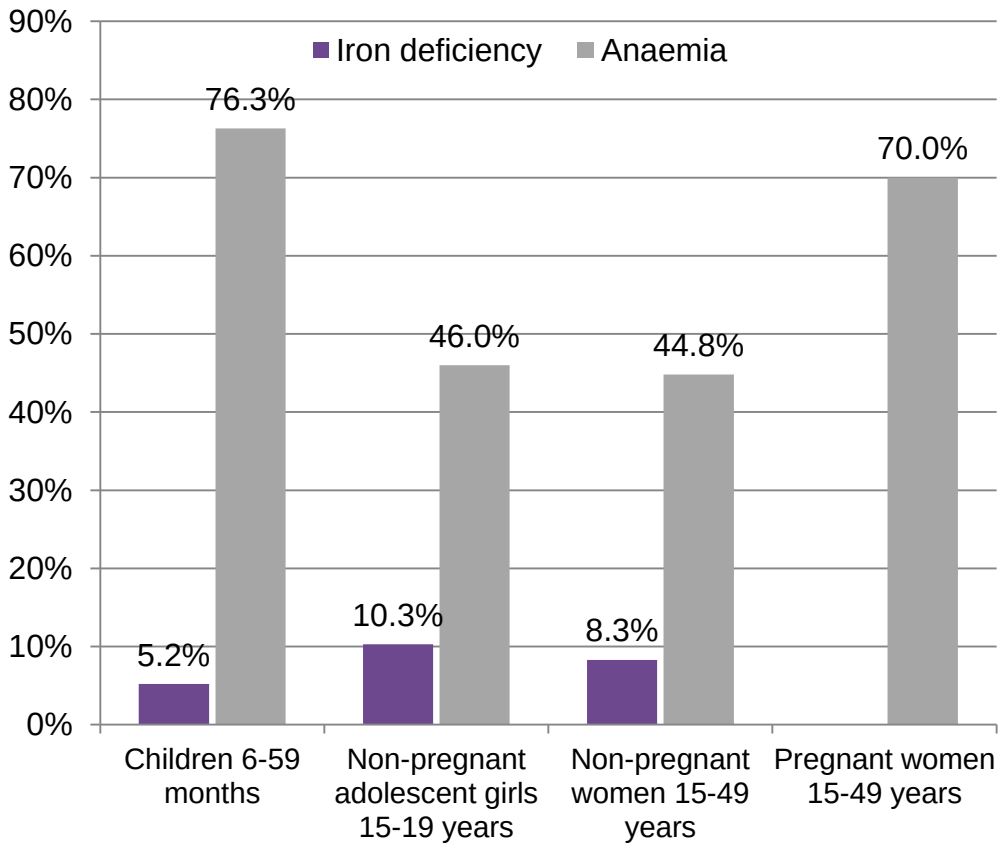
Measure:

- Iron deficiency is determined by measuring plasma ferritin

Source: SLMS 2013

It is estimated that half of anaemia cases are due to iron deficiency – however, in Sierra Leone the data suggests other causes

Anaemia across all age groups is considered a severe public health problem (>40%)



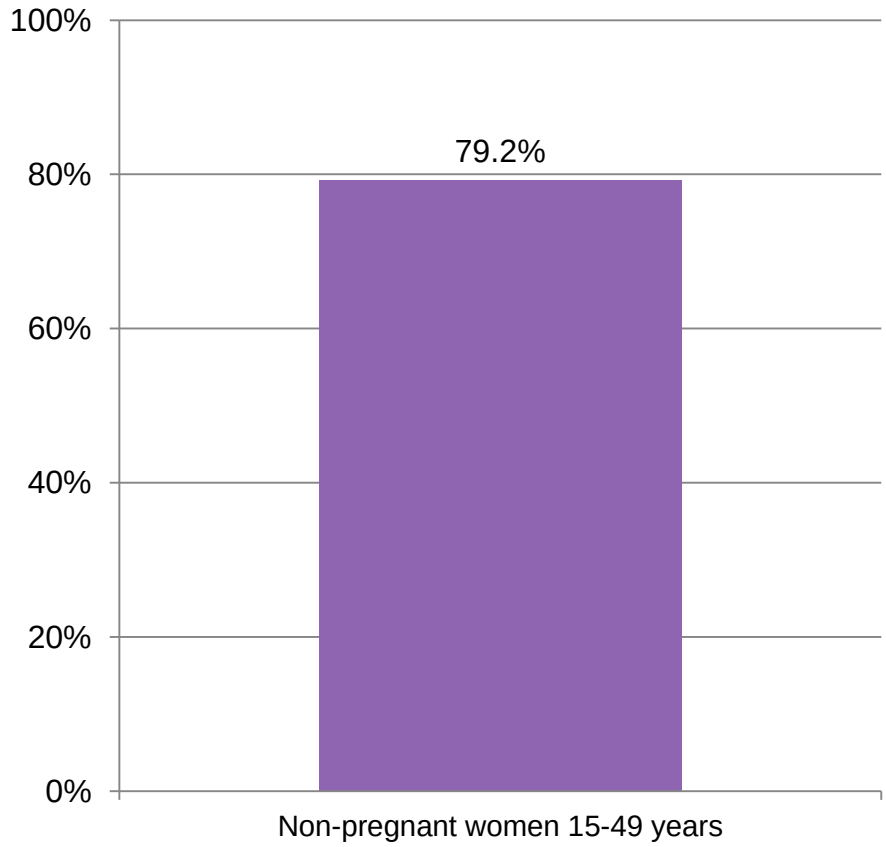
Causes of anaemia:

- Micronutrient deficiencies (e.g. iron, folate, riboflavin, vitamins A and B_{12})
- Malaria
- Acute and chronic inflammation
- Parasitic infections
- Haemoglobinopathies (e.g. sickle cell disorders)

Source: SLMS 2013; WHO. The global prevalence of anaemia in 2011. Geneva: WHO. 2015.

The majority of non-pregnant women 15-49 years are folate deficient

8 out of 10 non-pregnant women 15-49 years are folate deficient



Consequences:

- Anaemia
- Increased risk to mother and child during childbirth
- Increased risk of mothers delivering preterm or low birthweight infants
- Increased risk of neural tube defects in infants

Assessment:

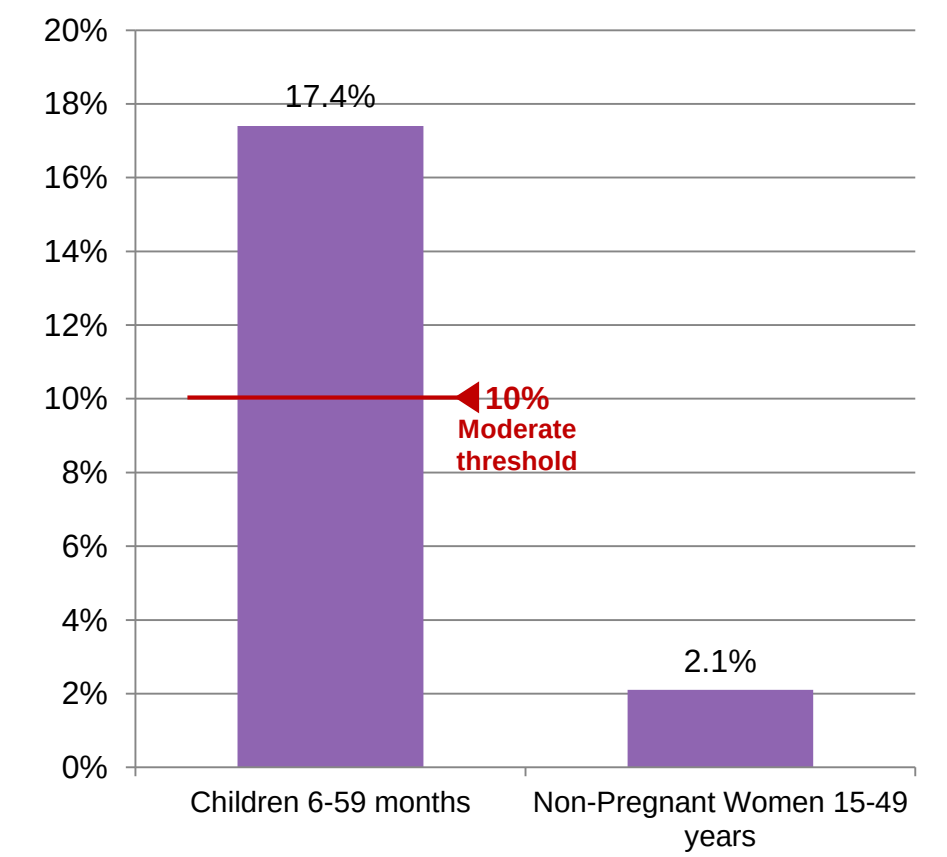
- Measuring concentrations of folate biomarkers in plasma where deficiency level is considered <10 ηmol/L

Data not available for pregnant women

Source: SLMS 2013; Serum and red blood cell folate concentrations for assessing folate status in populations. World Health Organization 2015.

Vitamin A deficiency among pre-school aged children is a moderate public health problem

Vitamin A deficiency in pre-school age children & women of child-bearing age



Consequences:

- Can compromise immunity and lead to preventable blindness
- Increased risk of mortality
- Reciprocal relationship with measles, a leading cause of death among young children

Assessment:

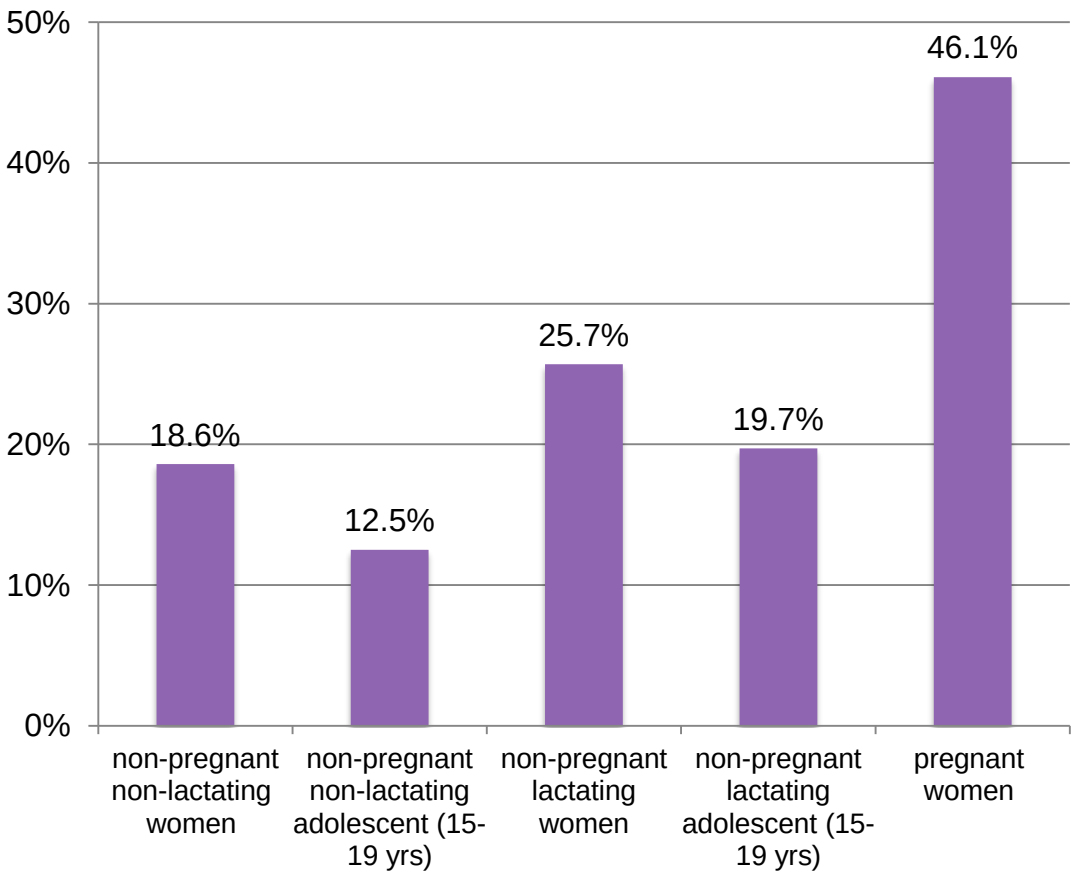
- Measuring *retinol levels in blood* is a biochemical indicator whereby levels <0.70µmol/l constitutes Vitamin A deficiency

No data on pregnant women

Source: SLMS 2013

Among the woman population, iodine deficiency is highest amongst those that are pregnant (46.1%)

Prevalence of iodine deficiency in women 15-49 years of age



Consequences:

- Goitre (swelling of thyroid gland)
- Stillbirth or miscarriages
- Impaired cognitive development/capacity, leading to mental retardation in severe cases, including Cretinism
- Deaf-mutism

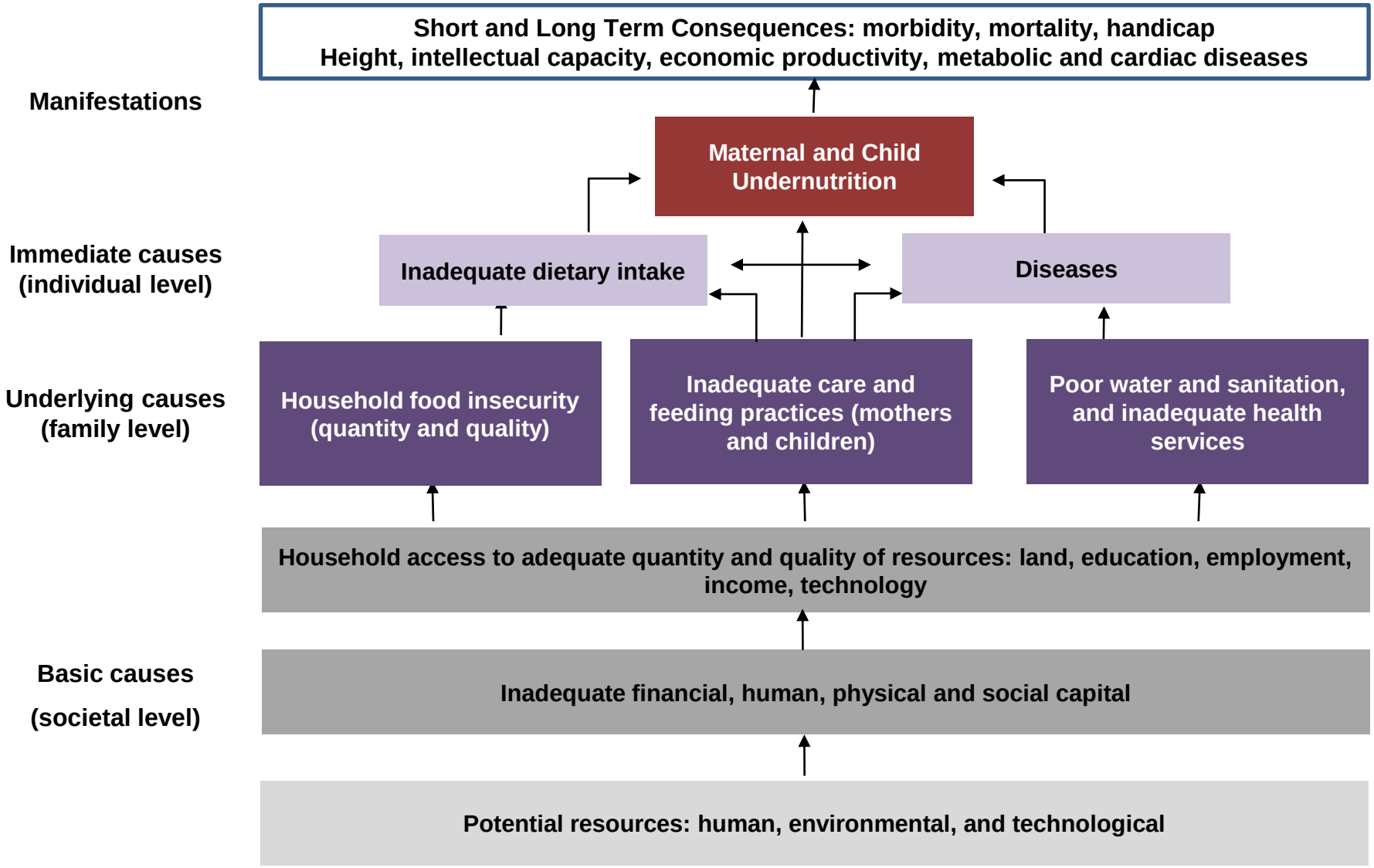
Assessment:

- Measuring *urinary iodine levels* is a biochemical indicator whereby low median urinary levels (<100 µg/L) indicate deficiency

No data on child iodine deficiency

Source: SLMS 2013

Only a multisectoral approach can solve the problem of undernutrition: a conceptual framework of the causes of malnutrition



Source: Adaptation of UNICEF conceptual framework

Underlying factors:

Care Practices

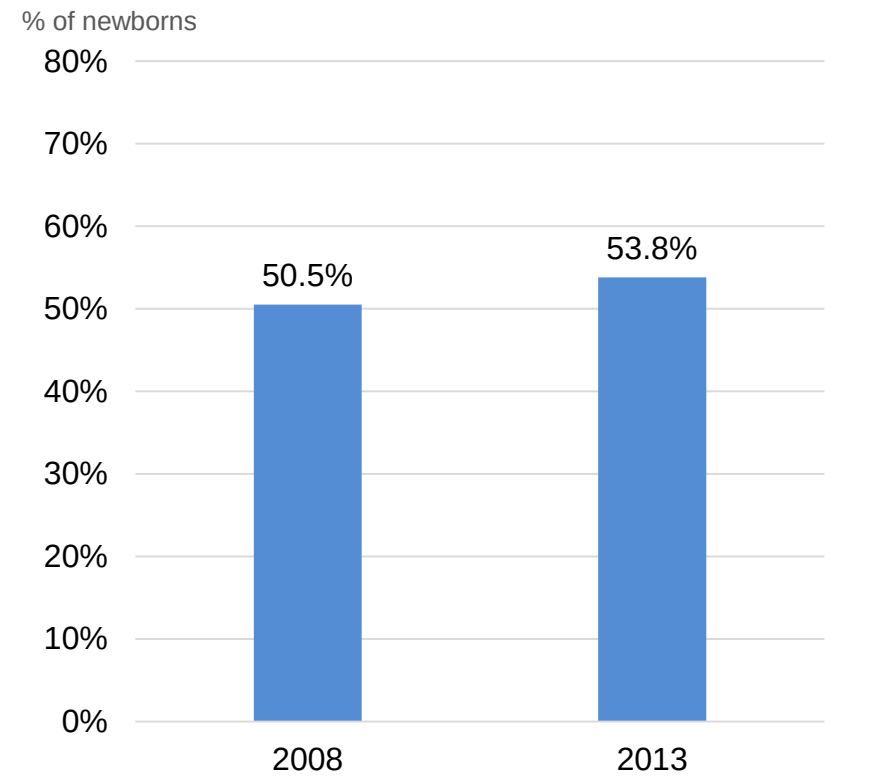
Figures, trends, causes

Key Messages

- Nationally, just over half (53.8%) of newborns are breastfed within the first hour of birth
- However, early initiation of breastfeeding varies significantly between districts and is more prevalent in rural areas than in urban areas
- Overall, more than two thirds (68.0%) of children 0-5 months are not exclusively breastfed, despite recommendations from WHO and UNICEF
- At 6-8 months of age, nearly two thirds (61.5%) of breastfed children receive complementary foods
- Few (7.0%) children 6-23 months are fed according to the appropriate infant and young child feeding (IYCF) practices
- More children in urban households are fed according to the appropriate IYCF practices than those in rural households, however very few (7.0%) children 6-23 months receive a minimum acceptable diet, and this varies greatly by district
- As children 6-23 months age, they are more likely to consume foods rich in vitamin A than foods rich in iron across age groups, household settings and districts
- The majority of households wash their hands after defecating and before eating, and use both soap and water
- Approximately one quarter of households in rural areas spend 30 minutes or more obtaining drinking water, and the majority of households do not treat their drinking water

Just over half (53.8%) of newborns are breastfed within the first hour of birth

Early initiation of breastfeeding increased slightly between 2008 and 2013



Colostrum is contained in the mother's first milk, just after birth.

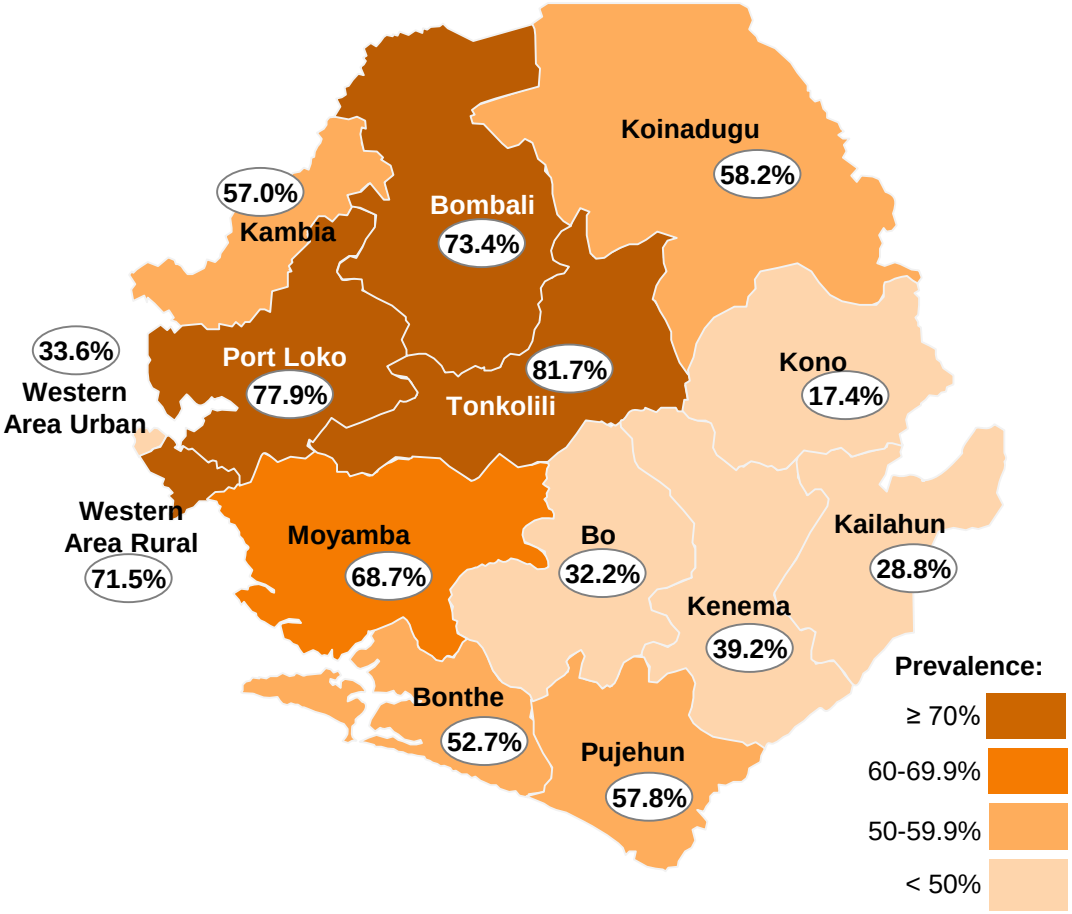
It contributes to the prevention of infections and is extremely rich in nutrients

Early initiation to breastfeeding promotes good lactation; it also presents a series of benefits for post-partum mothers

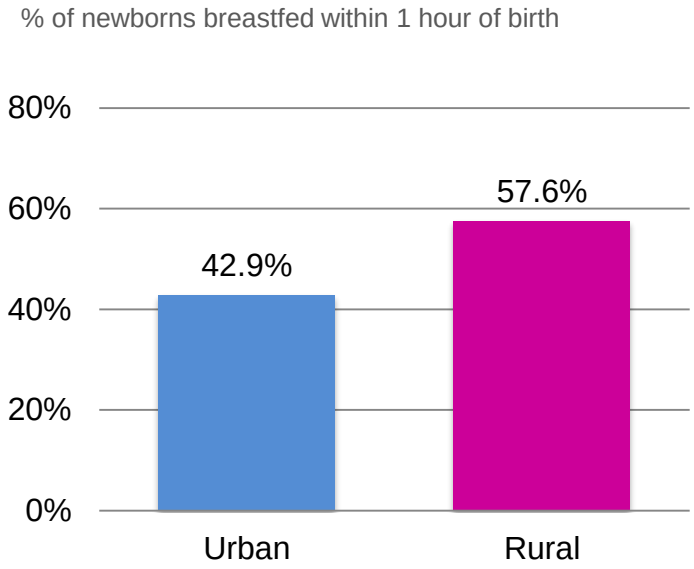
Source: DHS 2008, 2013; "Essential Nutrition Actions: Improving maternal, newborn, infant and young child health and nutrition." Geneva; WHO. (Early Initiation of Breastfeeding). e-Library of Evidence for Nutrition Actions (eLENA). Available at http://www.who.int/elena/titles/early_breastfeeding/en/.

Early initiation of breastfeeding varies significantly between districts and settings

The highest rates of early initiation of breastfeeding can be found in the Northern Region, while the lowest rates in the Eastern and Southern Regions



Prevalence of early initiation

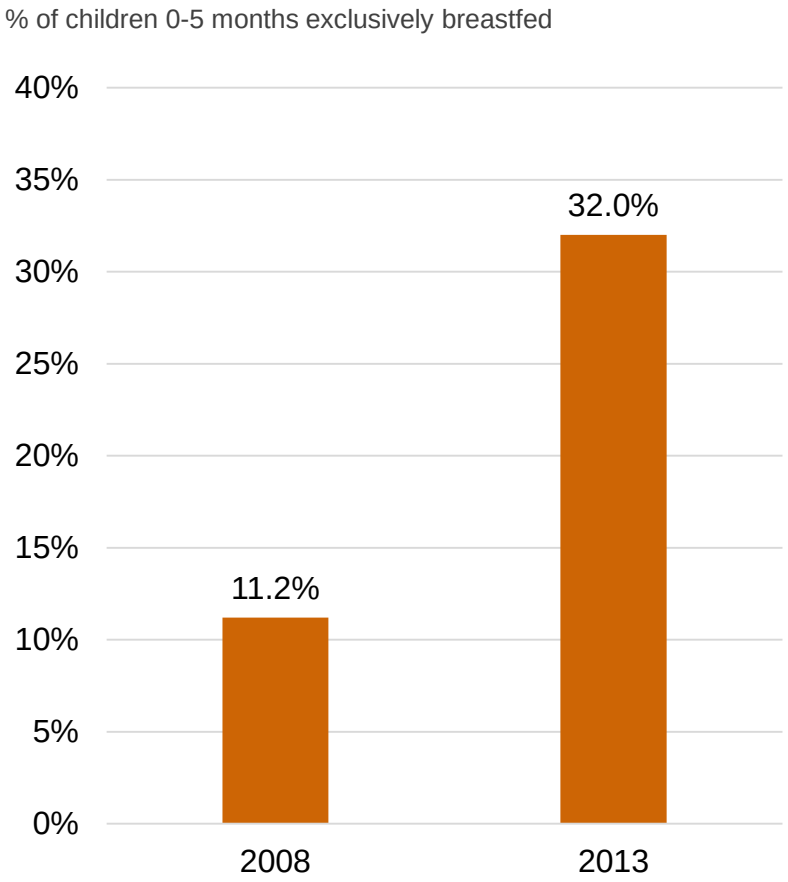


- Breastfeeding within the first hour is more prominent in the rural areas (57.6%) than in the urban areas (42.9%)

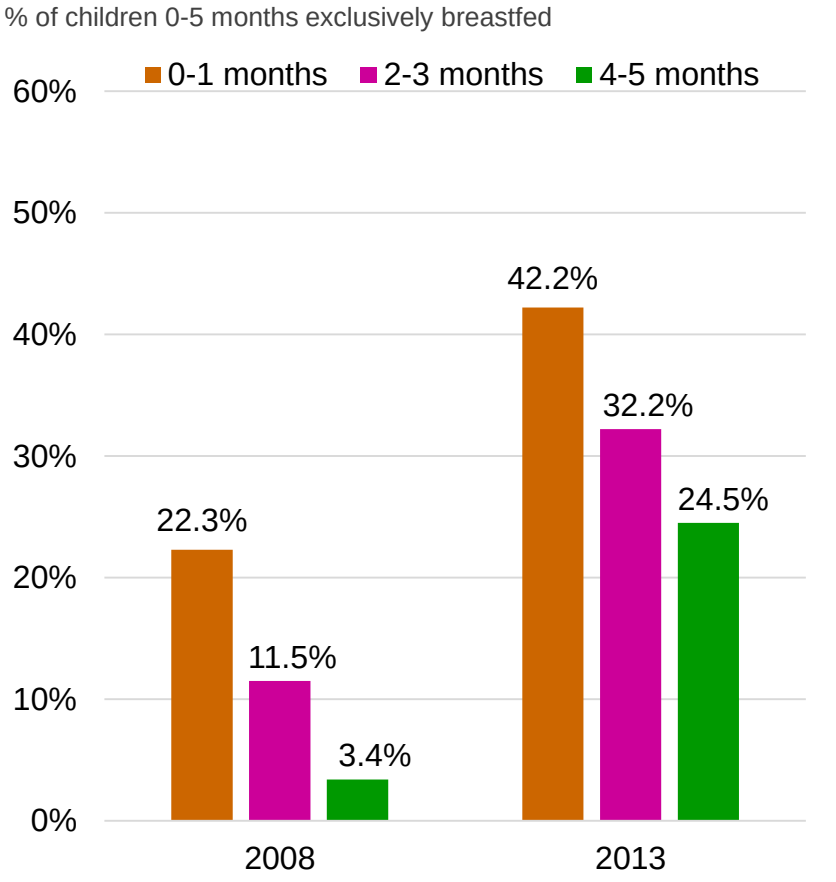
Source: DHS 2013

One third (32.0%) of children under 6 months are exclusively breastfed

The prevalence of exclusive breastfeeding for infants 0-5 months of age has almost tripled since 2008

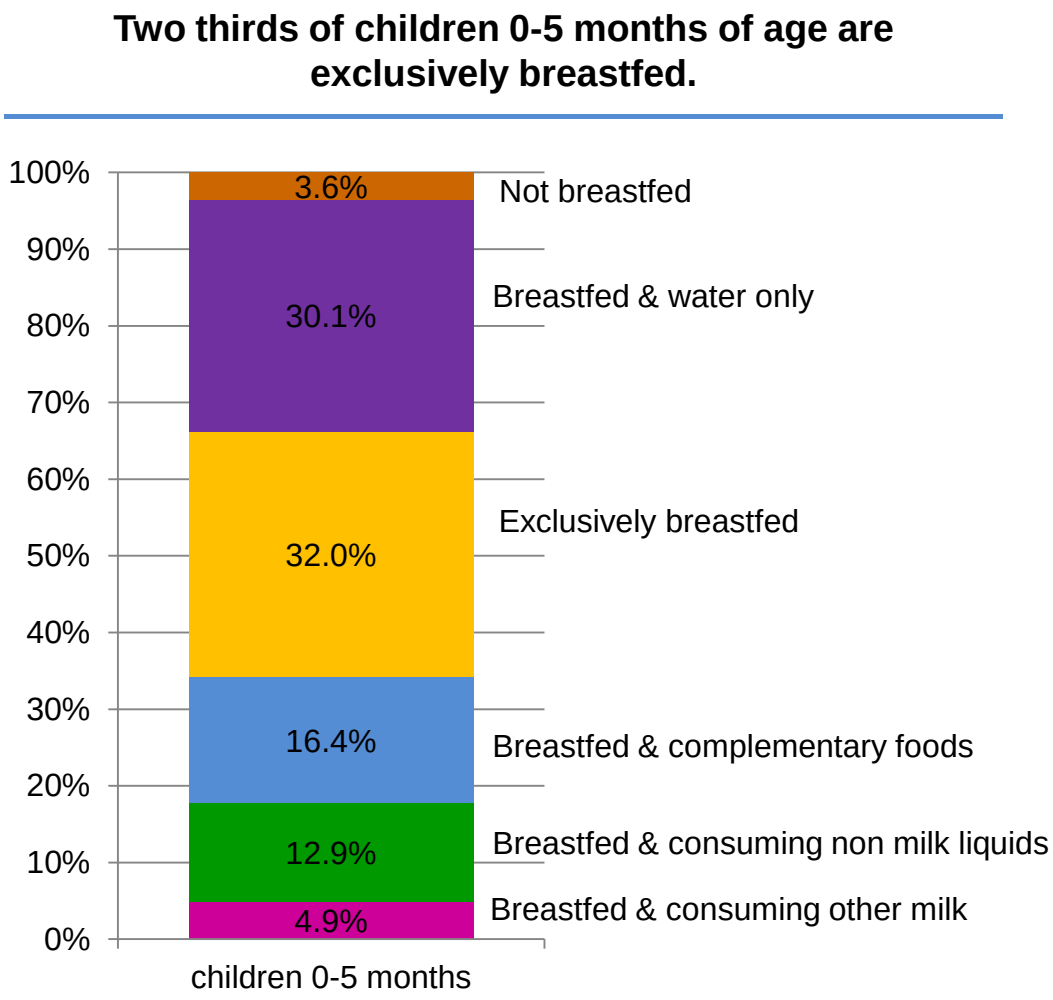


Despite improvements, the prevalence of exclusive breastfeeding drops below 30% after three months



Source: DHS 2008, 2013

Two thirds of children 0-5 months (68.0%) of age are not exclusively breastfed, despite WHO and UNICEF recommendations



Recommendations:

- According to UNICEF and WHO recommendations, all children should be exclusively breastfed from birth to six months of age

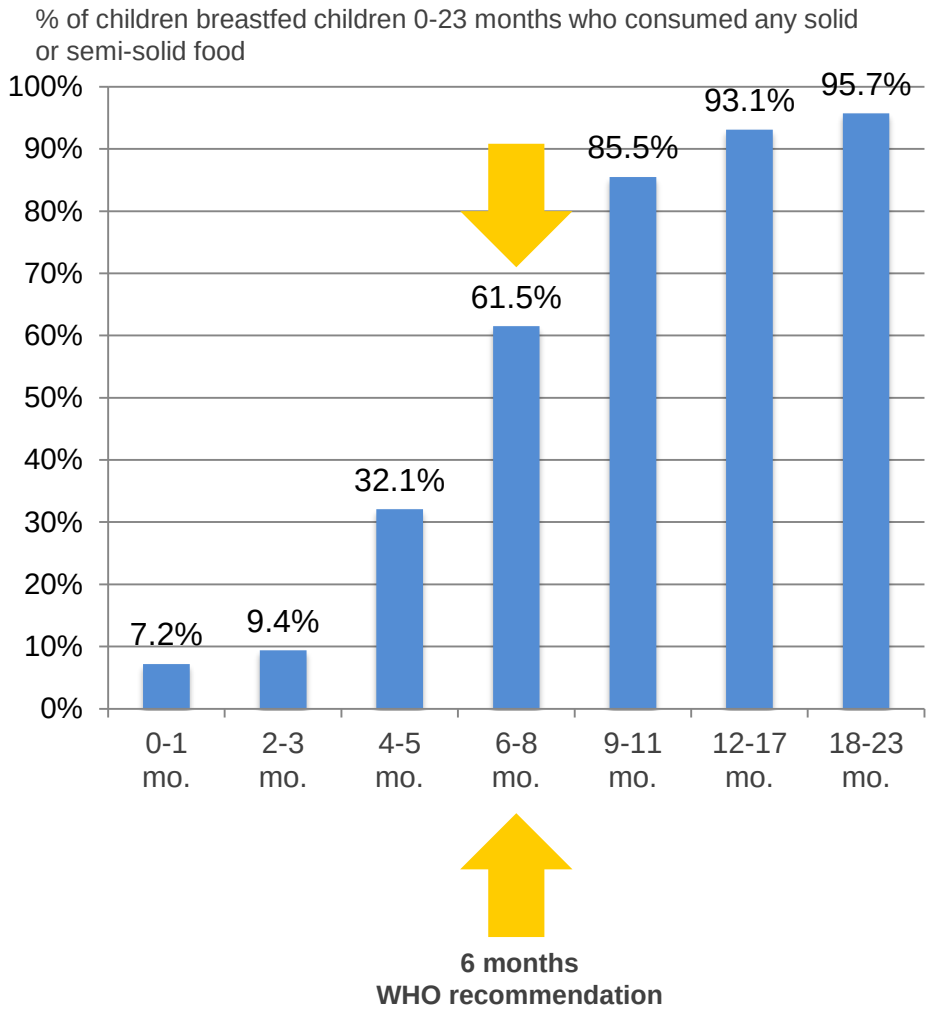
Consequences:

- Early introduction to complementary foods exposes children to pathogens and increases their risk of disease, especially diarrhoea
- Complementary foods often have low nutritional value

Source: DHS 2013

Nearly two thirds (61.5%) of breastfed children receive complementary feeding between 6 and 8 months of age

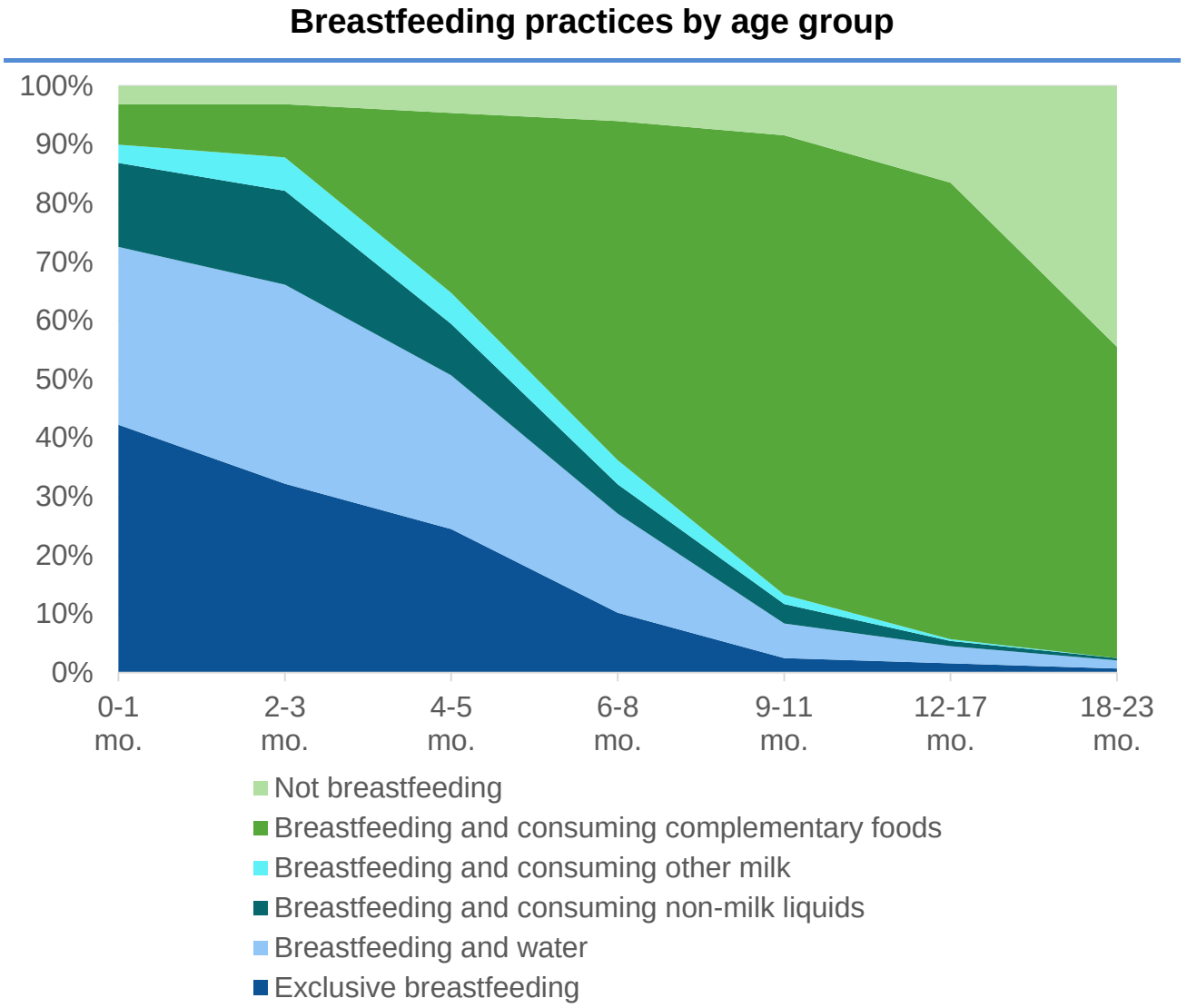
Percentage of breastfeeding children receiving complementary feeding by age group



- Many breastfed children (61.5%) consume solid or semi-solid foods at 6-8 months of age
- However, over one third (38.5%) of children breastfed do not received complementary feeding at 6-8 months of age
- It is recommended to reduce the early rates of complementary feeding, as 7.2% of 0-1 month olds, 9.4% of 2-3 month olds, and 32.1% of 4-5 month olds are receiving complementary foods too young

Source: DHS 2013

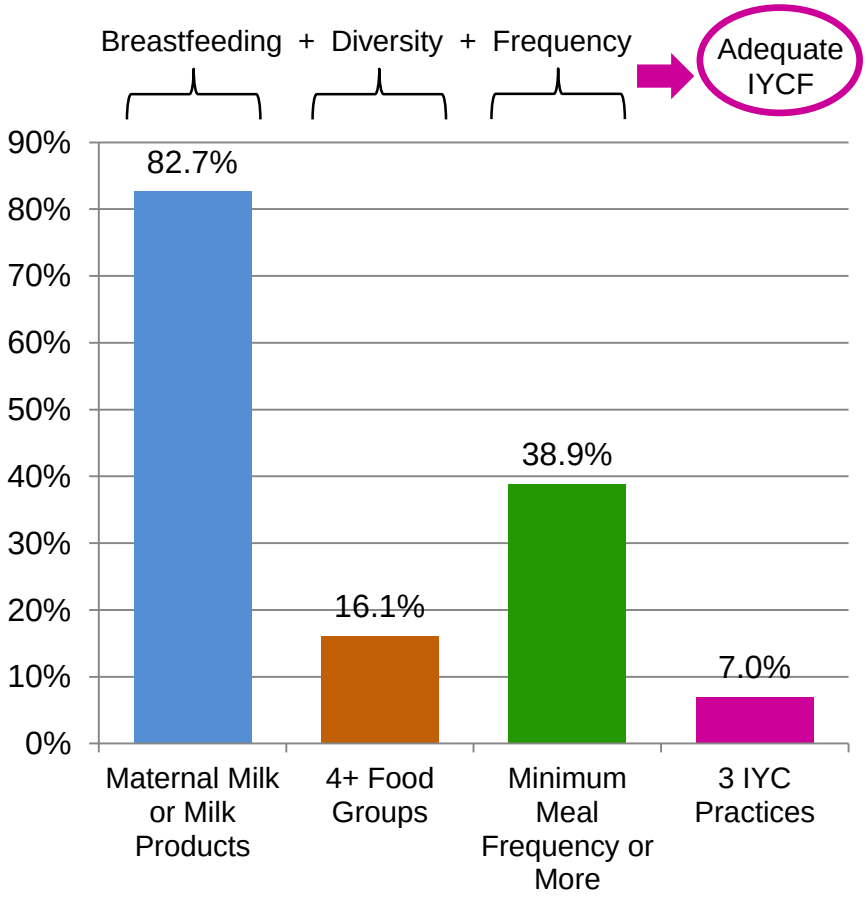
After 4 months of age, the rate of exclusive breastfeeding declines more rapidly as introduction of complementary foods increases



Source: DHS 2013

Few (7.0%) children 6-23 months are fed according to the appropriate infant and young child feeding (IYCF) practices

While consumption of breast milk or milk products is high, other IYCF practices are relatively low

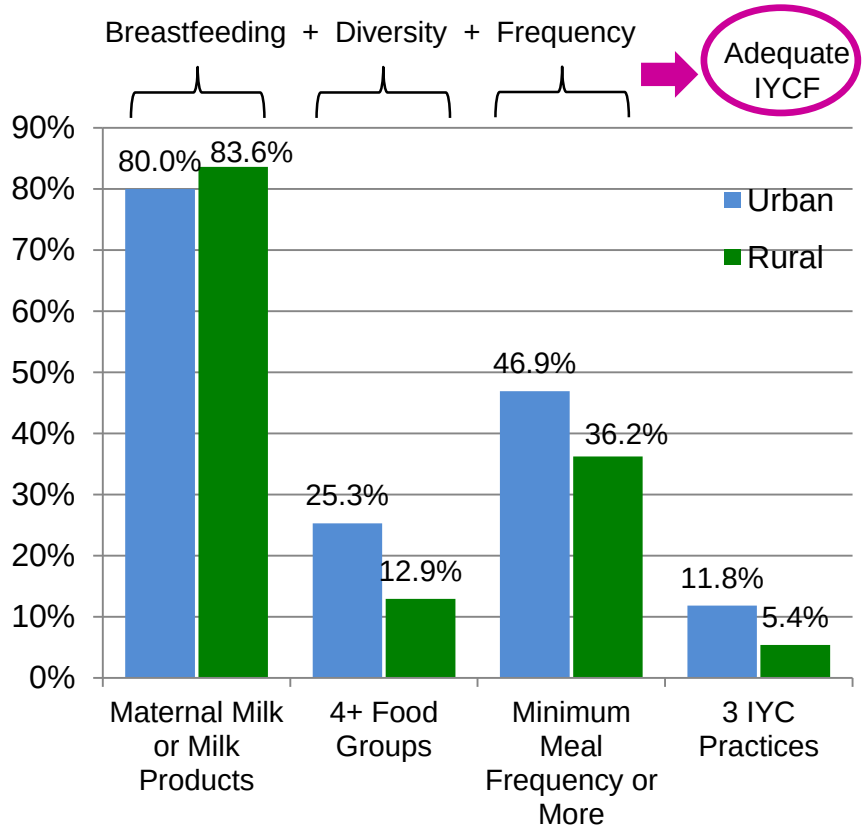


- The vast majority (82.7%) of all children 6-23 months of age receive breastmilk, breastmilk substitutes or milk products at least twice per day
- Less than a quarter (16.1%) of children 6-23 months of age received a diverse diet of 4 or more different food groups
- Less than half (38.9%) of the children 6-23 months of age were fed the minimum recommended number of times per day according to their age
- As a result, only 7.0% of children 6-23 months of age received a minimum acceptable diet according to the three IYCF feeding practices.

Source: DHS 2013

More children in urban households are fed according to the appropriate IYCF practices than those in rural households

Of the IYCF feeding practices, breastfeeding is the only practice that is higher in rural settings than in urban settings

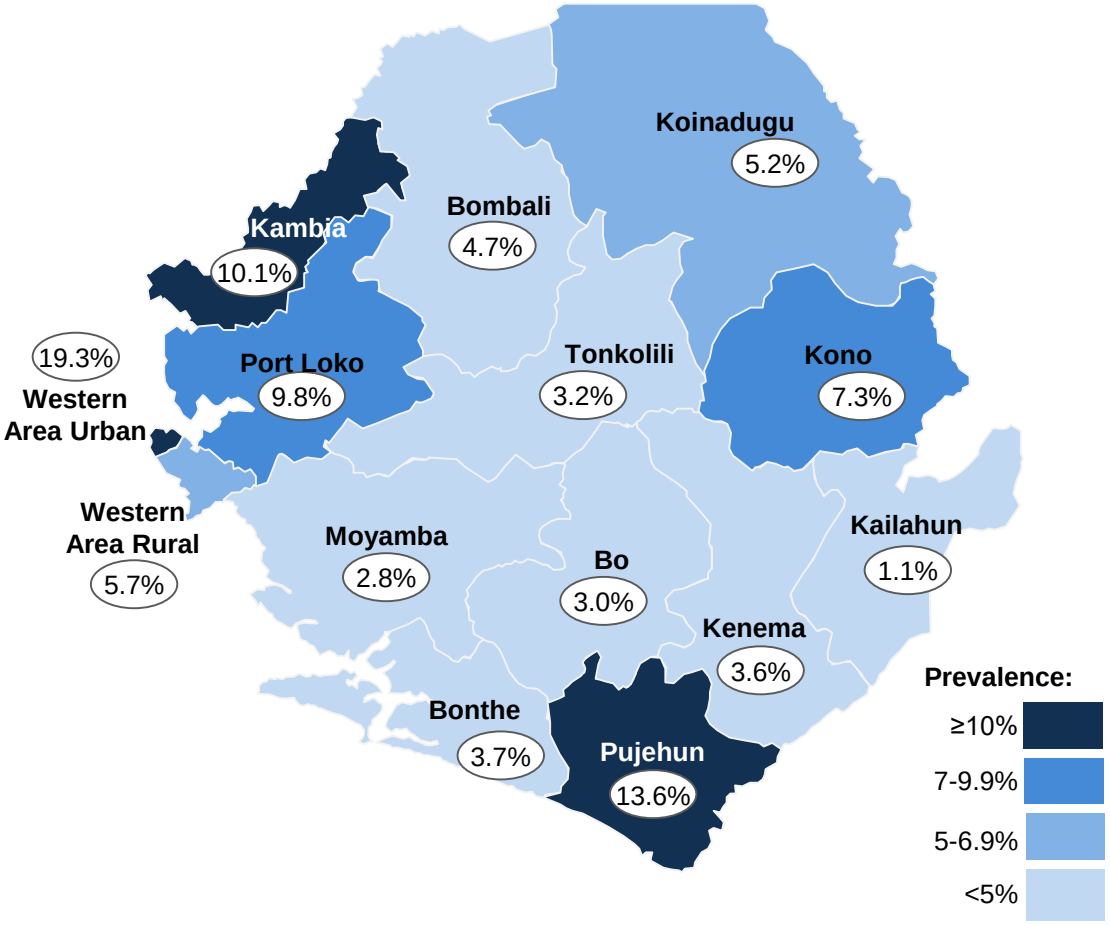


- The vast majority of all children 6-23 months of age are breastfed, though there is difference between urban (80.0%) and rural (83.6%) areas.
- Urban children aged 6-23 months received a more diverse diet of 4 or more food groups than rural children
- The frequency of meals is higher for children in urban contexts than in rural ones
- As a result, urban children 6-23 months of age received a more adequately diverse diet according to the three IYCF feeding practices than the rural children aged 6-23 months

Source: DHS 2013

The percentage of children 6-23 months receiving a minimum acceptable diet remains low (7%) and varies greatly by district

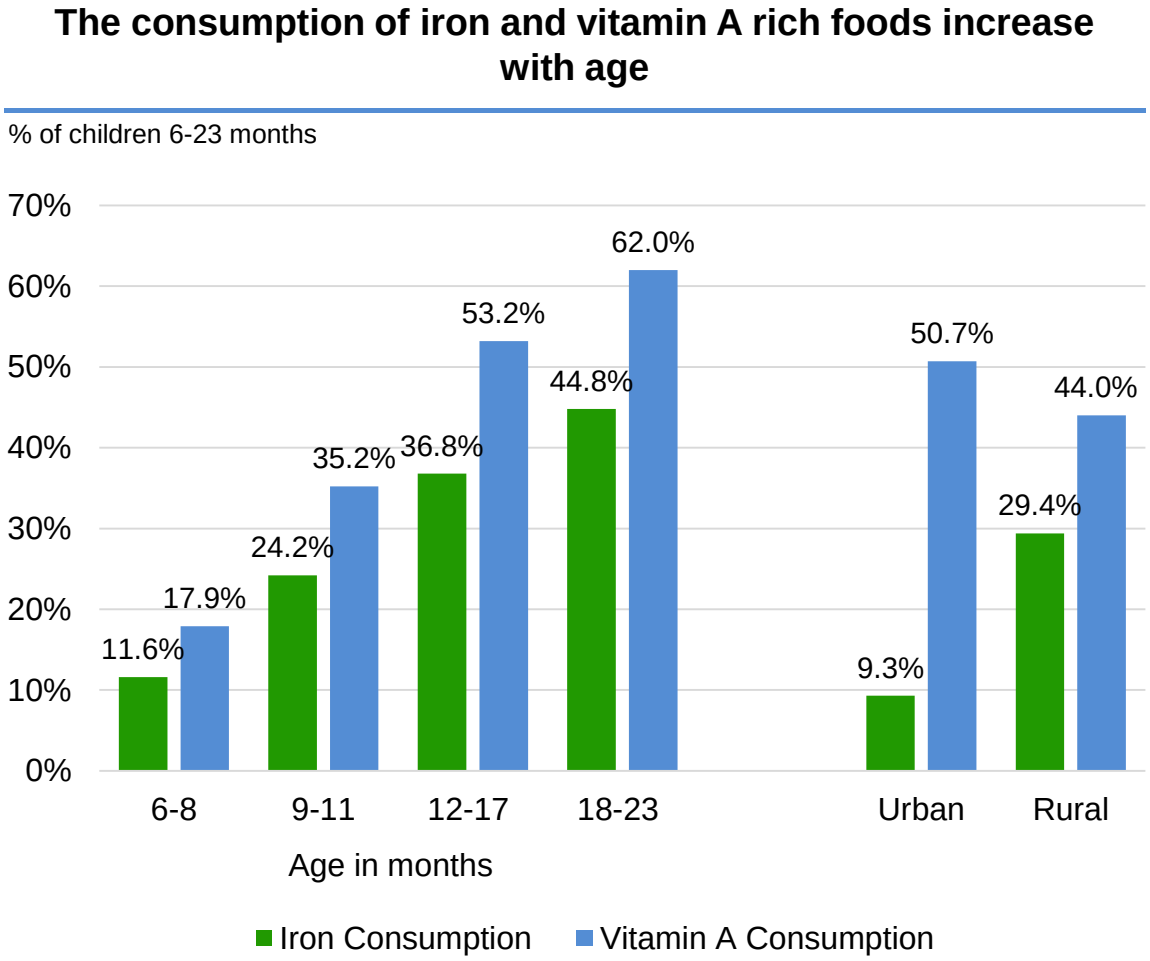
Children 6-23 months that are fed with 3 IYCF feeding practices varies from a high in Western Area Urban to a low in Kailahun



- In the majority of districts, less than 5% of all children 6-23 months are fed with 3 IYCF feeding practices
- In Kono and Port Loko, 7.3% and 9.8% of all children 6-23 months are fed with 3 IYCF feeding practices, respectively
- Western Area Urban, followed by Pujehun and Kambia have the highest percentage of children that are fed with 3 IYCF practices

Source: DHS 2013

Children 6-23 months age are more likely to consume foods rich in vitamin A than food rich in iron

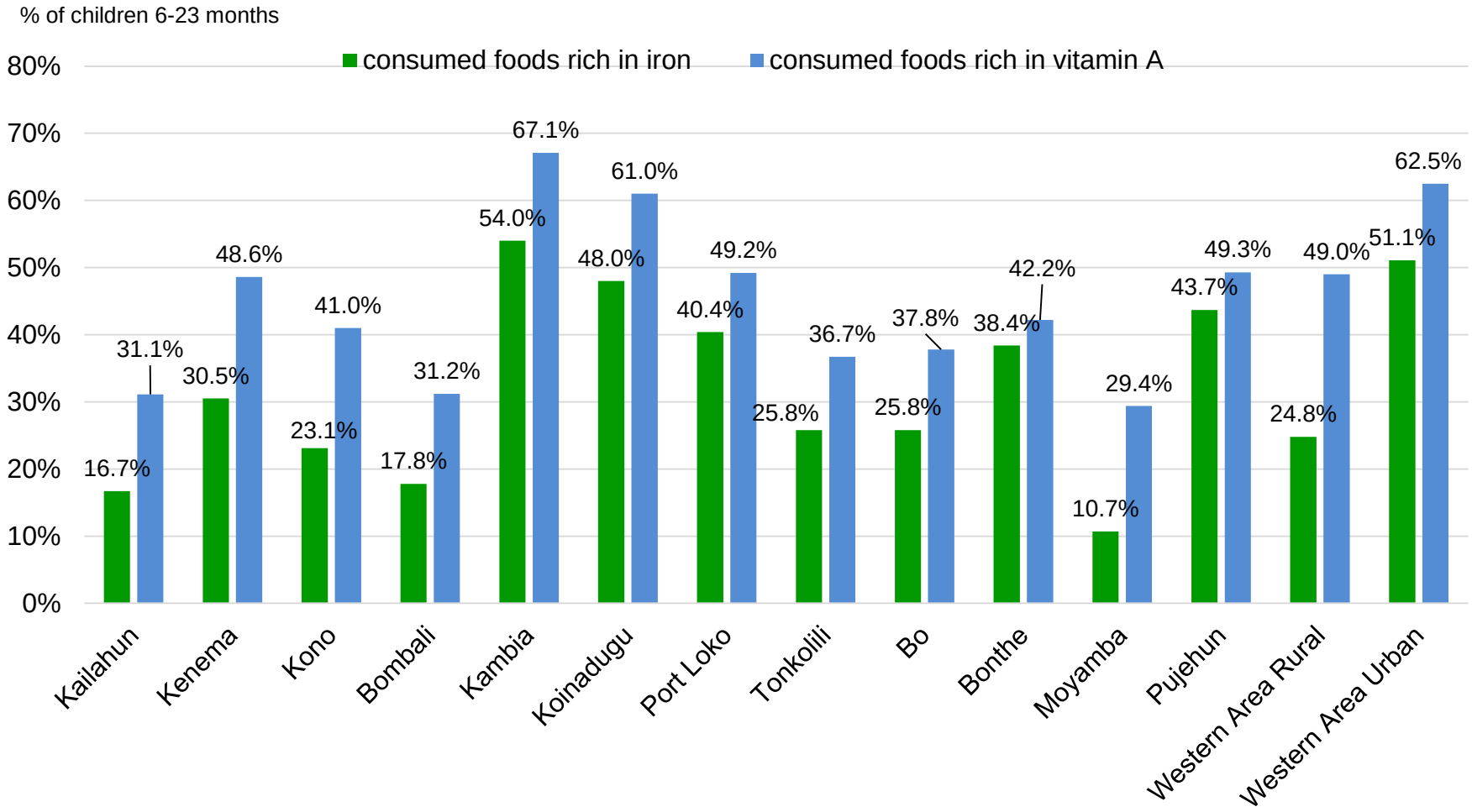


- Consumption of foods rich in vitamin A increases with age, but is higher in urban areas than rural areas
- Consumption of foods rich in iron increases with age, but is lower in urban areas than rural areas

Source: DHS 2013

The percentage of children who consume foods rich in vitamin A and iron varies across districts

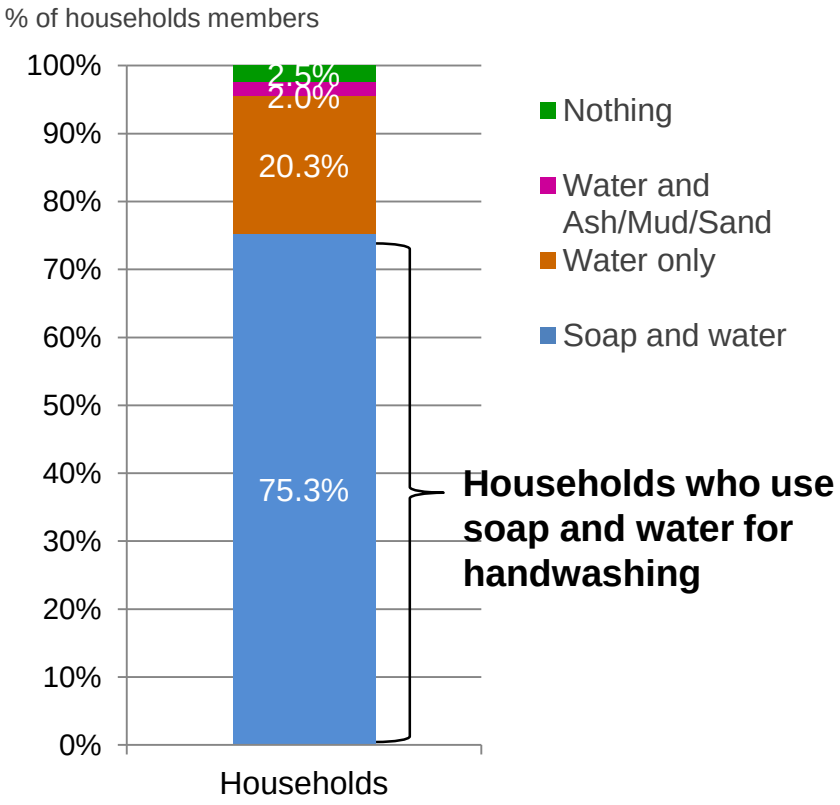
The consumption of vitamin A varies across districts but is higher than consumption of iron rich foods



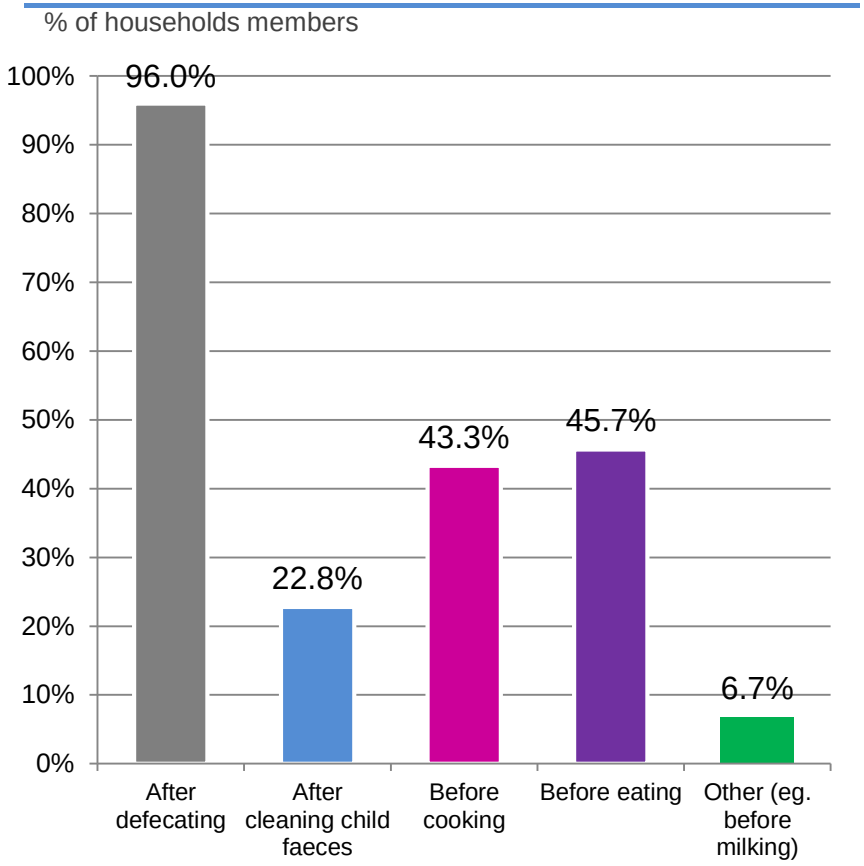
Source: DHS 2013

The majority of households wash their hands after defecating and before eating

Two thirds of households use soap and water for handwashing (2014)



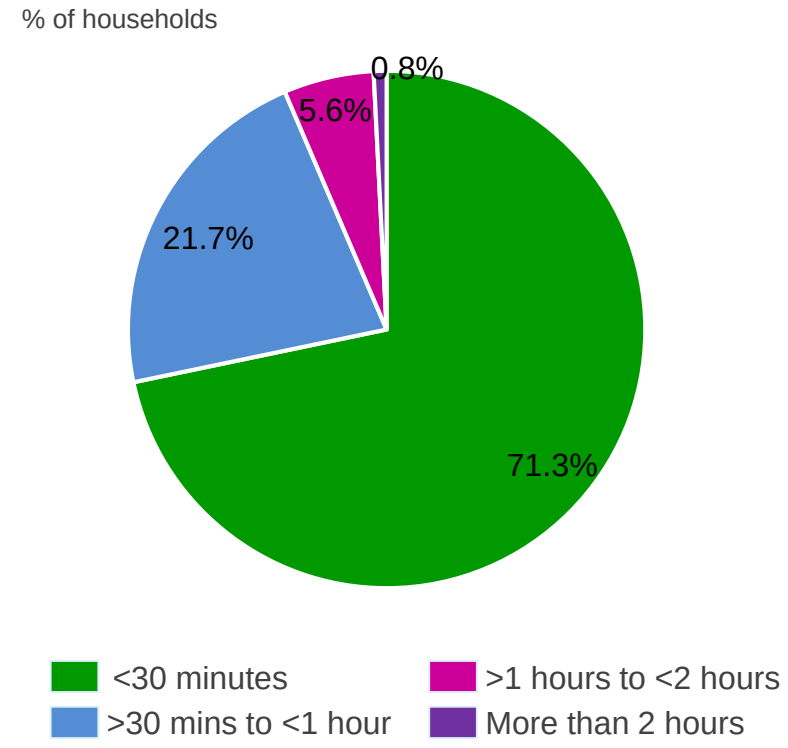
The majority of households wash their hands (2017)



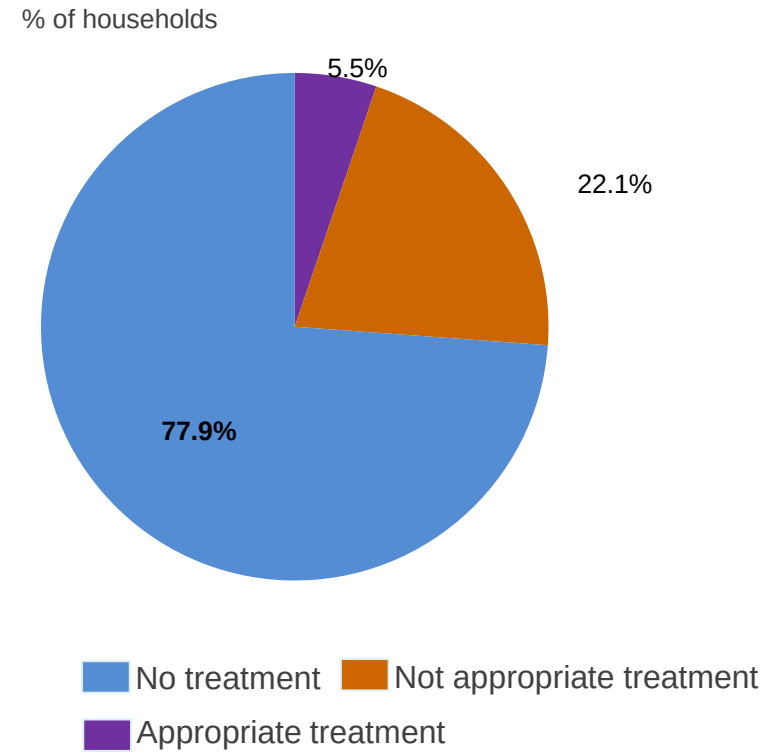
Source:
SLNNS 2014 : The 2017 SMART survey did not include an indicator on the use of soap or water for handwashing. Therefore, the 2014 SLNNS was used for this graph instead.
SMART 2017 : This survey did include an indicator on the percentage of households who wash their hands.

While most households can access water in less than 30 minutes, they very rarely treat it properly to avoid water-borne illnesses

While the majority of households have access to water on their premises



The vast majority of households do not treat their water or do so inappropriately



Source: SLNNS 2014; SMART 2017

Underlying factors:

Health Services and the Environment

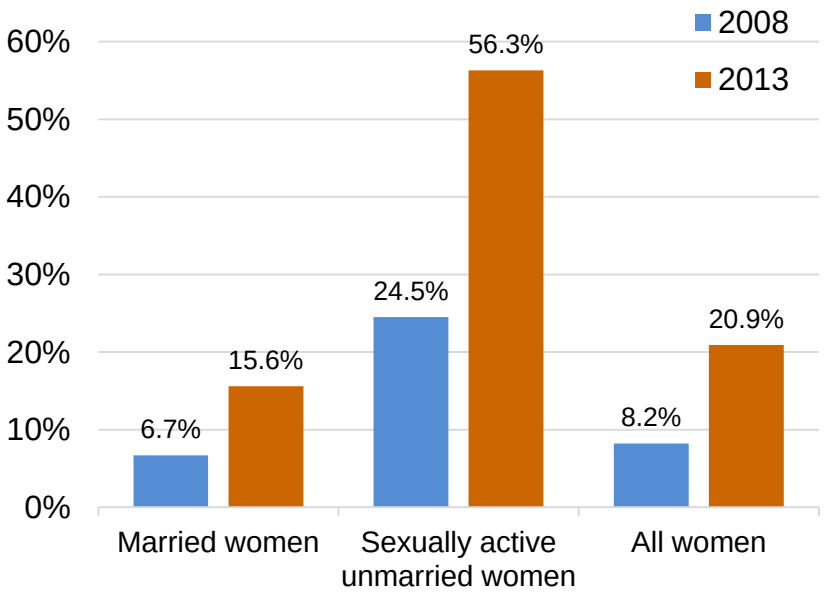
Figures, trends, causes

Key Messages

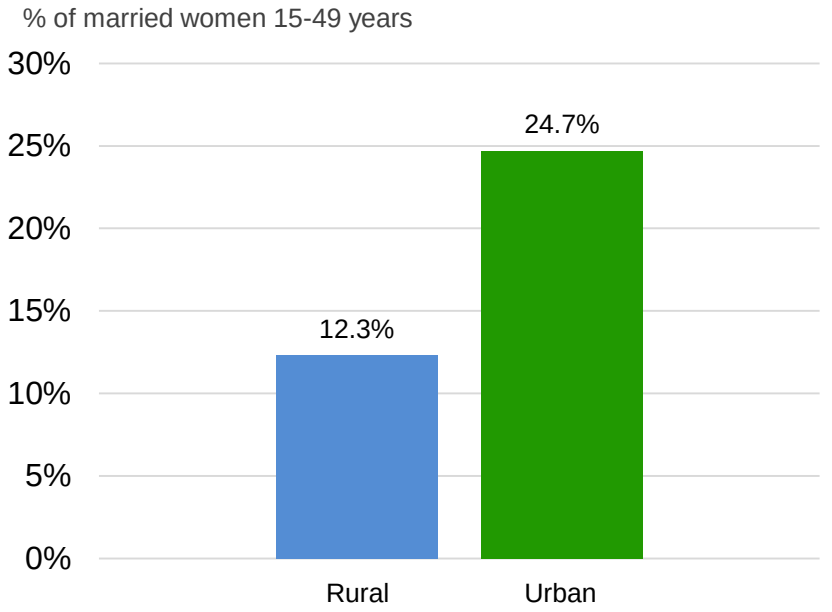
- The use of modern contraceptives has increased over time, however use is higher for women who are unmarried and sexually active
- The use of modern contraceptives increases with the education level of women
- One in four women do not have their contraceptive needs met
- In 2013, the majority (97.1%) attended at least one antenatal care visit
- While attendance of four or more ANC visits is high, over half (55.5%) of pregnant women do not receive their first ANC visit until after 4 four months of pregnancy
- The four recommended prenatal care services are not always performed during ANC visits
- The increase in assisted deliveries at the national level can be associated to the increase in the rate in rural areas since 2008
- Over a third (36.8%) of women do not receive postnatal care or receive it too late after childbirth
- Two thirds of children receive all recommended vaccination in both urban (65.6%) and rural (68.9%) areas
- The prevalence of diarrhoea among children is higher in the northern region (13.5%) and western region (12.5%)
- Two thirds of caregivers (65.3%) seek medical advice or treatment when a child has diarrhoea, however very few zinc supplements are given (3.8%)
- More than half of households own mosquito nets, however not all household members are likely to use them regularly
- Over half of pregnant women receive intermittent preventive treatment for malaria at least once during pregnancy
- Approximately two thirds of children under 5 years of age with fever received medical attention
- Though vitamin A supplementation is high (83.2%), there are some disparities between districts
- Coverage of households using an improved water source has increased since 2008, but is still lacking in rural areas
- Over half (53.5%) of rural households do not have access to an improved source of drinking water and very few treat their water properly
- Less than a sixth of households (15.6%) have access to improved sanitation facilities, with access being significantly higher (43.9%) in urban areas, than in rural areas (4.3%)

The use of modern contraceptives has increased over time, however use is higher for women who are unmarried and sexually active

The use of modern contraceptives for women has increased since 2008



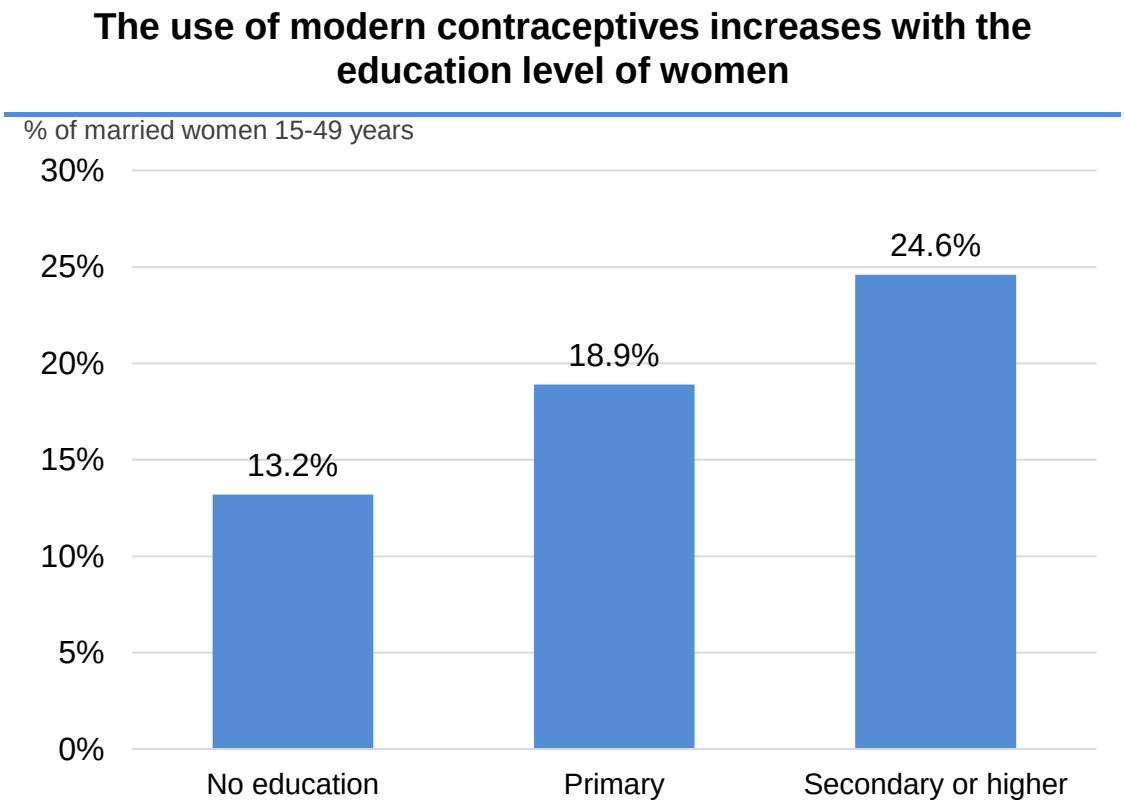
The use of modern contraceptives for married women varies significantly between urban and rural areas



- For married women, Western Area Urban (25.5%), and Western Area Rural (23.0%) have the highest use of modern contraception rate. Kambia has the lowest use of modern contraception rate (5.4%)
- As the prevention of adolescent pregnancy is a priority to reduce maternal nutrition and health, the increasing rates of contraceptive use among the sexual active unmarried population shows progress

Source: DHS 2008, 2013

The use of modern contraceptives increases with the education level of women



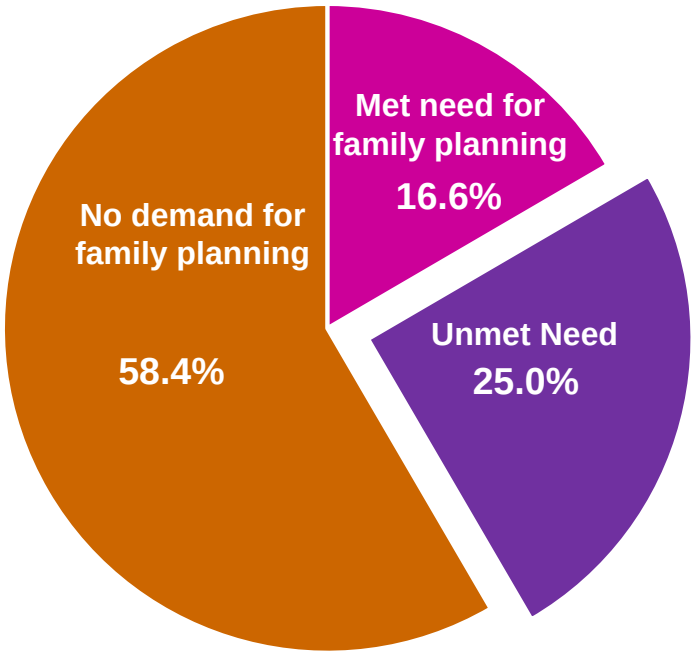
- Women with higher education are more likely to use modern methods of contraception (24.6%) than women who have no education (13.2%)

Source: DHS 2008, 2013

One in four women do not have their contraceptive needs met

Among all married women, just over one sixth are currently using contraceptives

% of married women 15-49 years



The reasons for family planning among contraception for married women are because they:

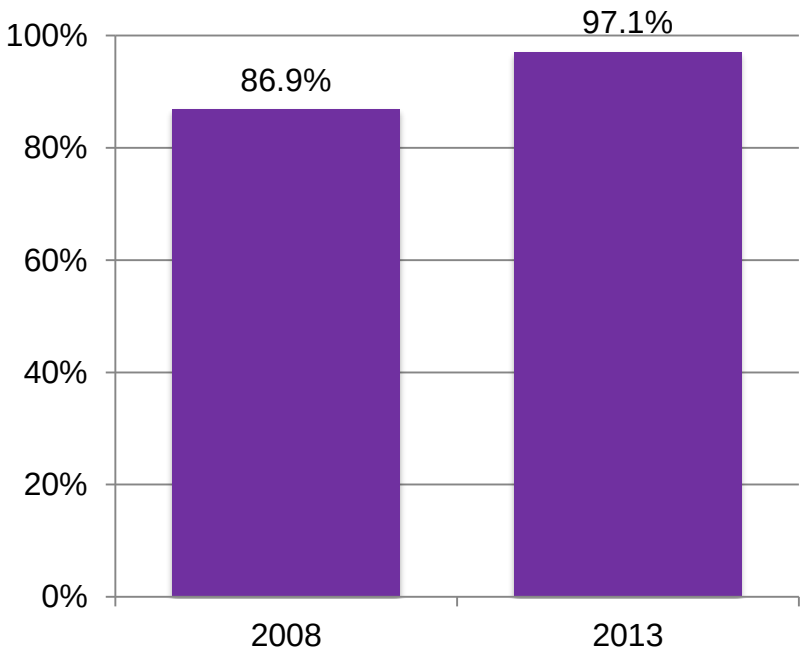
- Want to wait before having another child (16.7%)
- Do not want more children (8.3%)

Source: DHS 2013

In 2013, the majority (97.1%) of women attended at least one antenatal care (ANC) visit

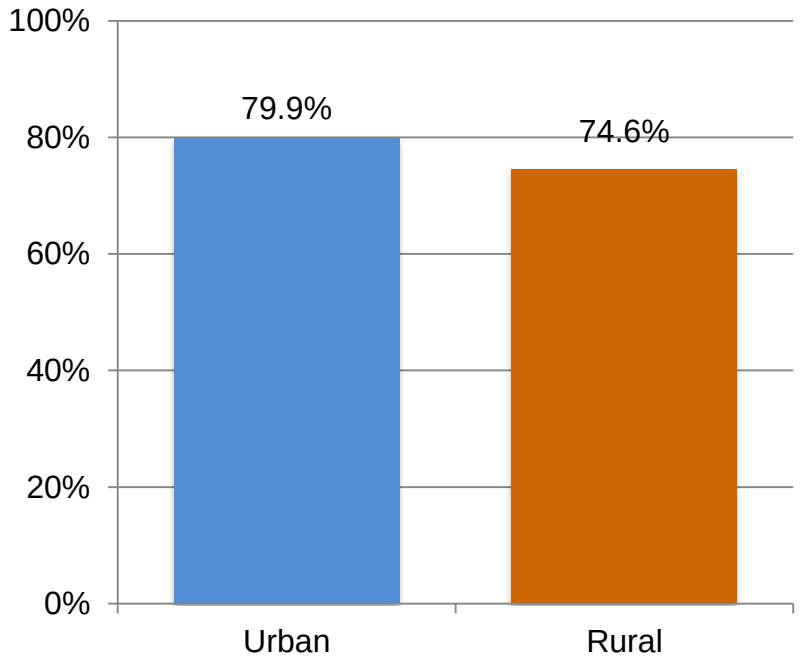
The proportion of women who benefit from ANC has increased since 2008

% of women15-49 years of age having given birth



In both rural and urban areas, at least three fourths of women have at least four ANC visits

% of women15-49 years of age having given birth and having had at least 4 antenatal care visits



- The demand for family planning for spacing is higher in urban areas (33.5%) than in rural areas (25.0%)
- The demand for family planning for limiting is higher in urban areas (19.2%) than in rural areas (12.6%)

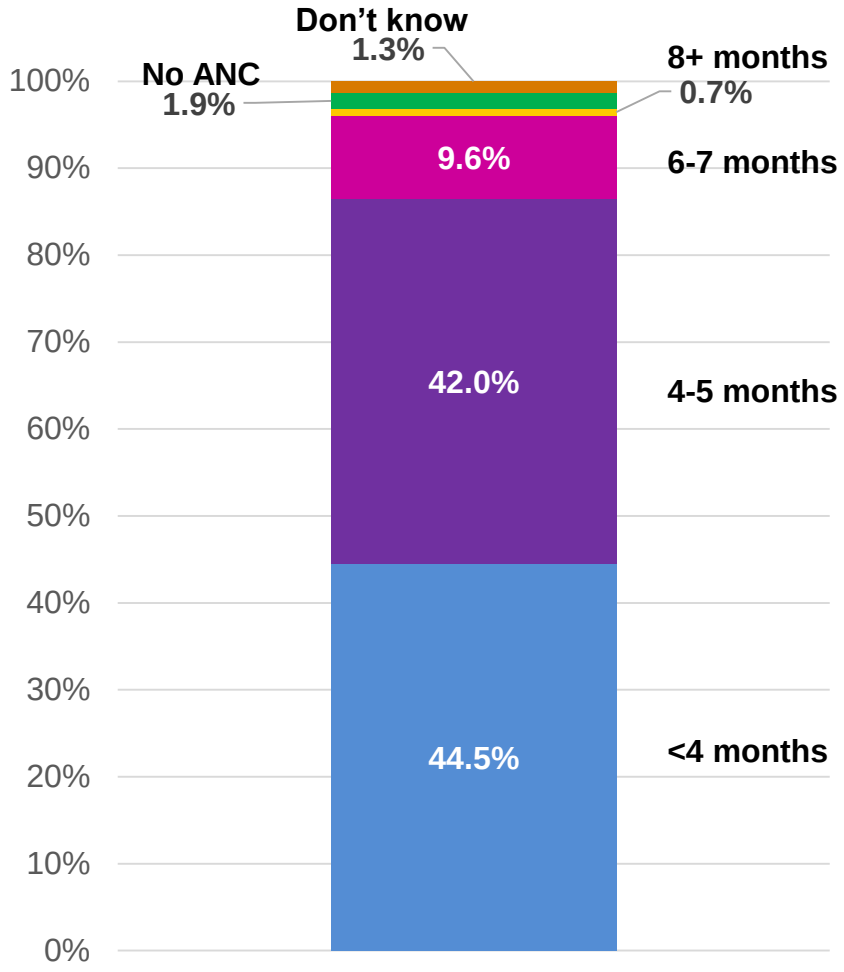
ANC = Antenatal Care
Source: DHS 2008, 2013

While attendance of four or more ANC visits is high, over half (55.5%) of pregnant women do not receive their first ANC visit until after 4 four months of pregnancy

- On average, the median months pregnant at first antenatal care visit is past the first trimester, at 4.1 months
- WHO recommends the first ANC visit to take place within the first 12 weeks

Less than half of women attended their first antenatal care visit within the first 4 months of pregnancy

% of women 15-49 years who had a live birth in the five years

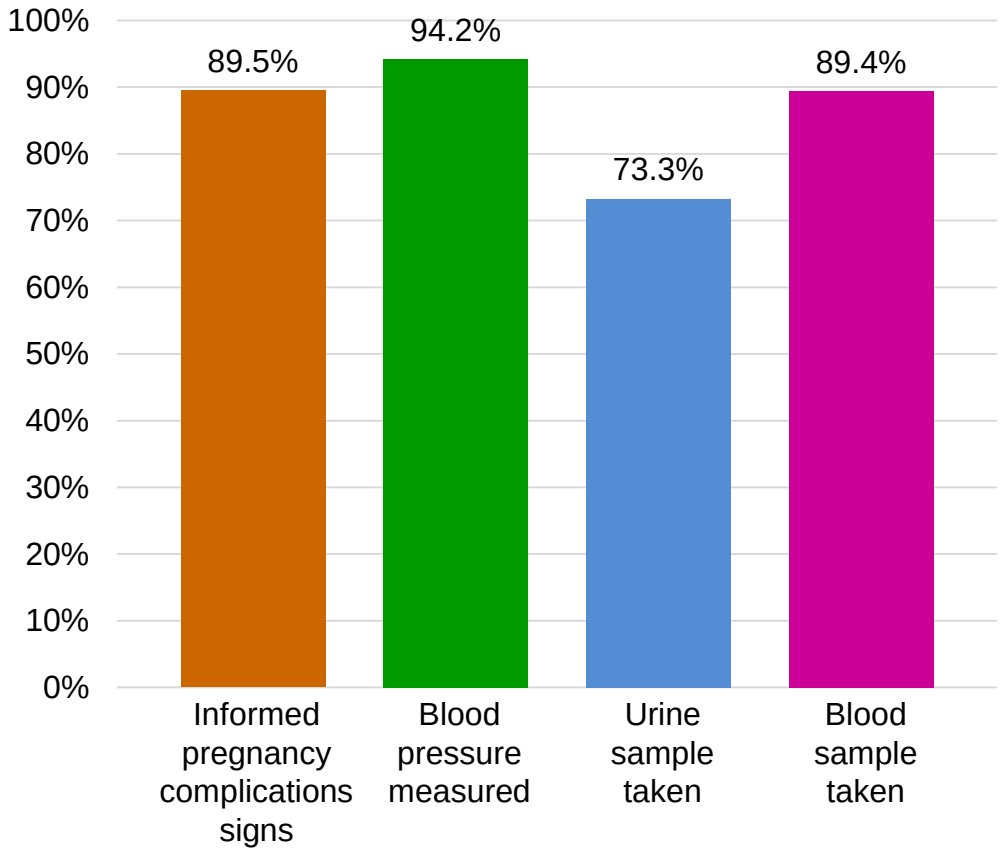


ANC = Antenatal Care
Source: DHS 2013

The four recommended prenatal care services are not always performed during ANC visits

Not all women who attend antenatal care visits received the same level of care

% of women having received specific care during antenatal care visits

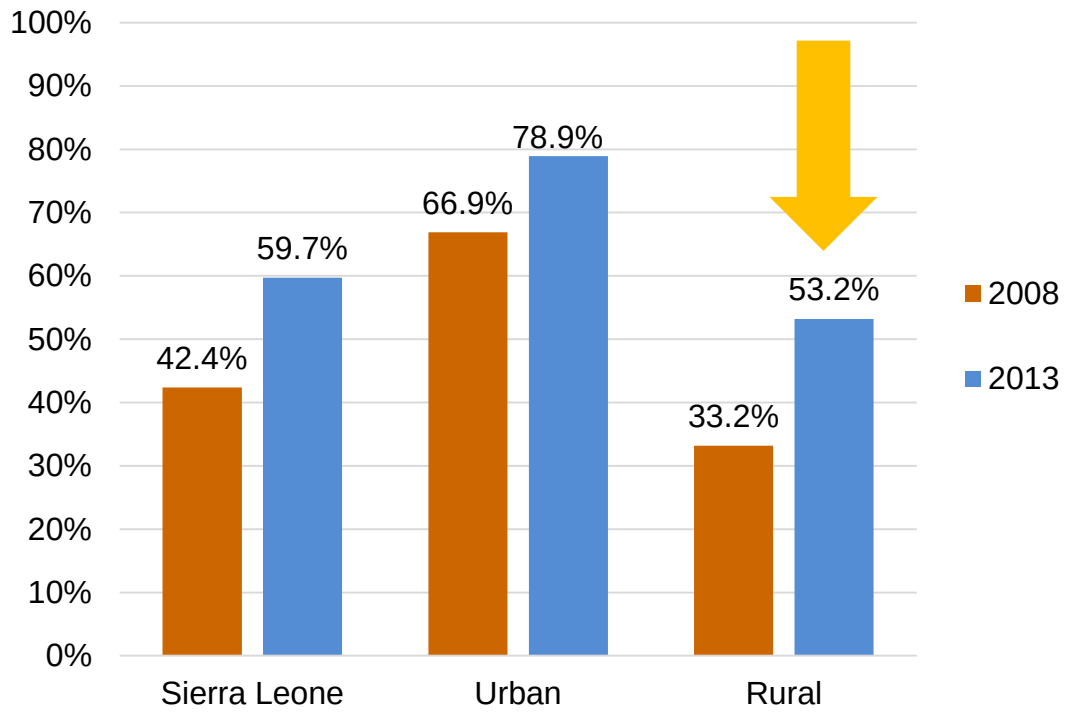


- The effectiveness of antenatal care depends on the type of examinations conducted during consultations as well as the advice given to women
- Undernutrition in pregnant women can lead to complications during childbirth and problems for their weight, such as underweight
- Prenatal visits are therefore essential to ensure the good nutrition of pregnant women, as well as their health and that of their children
- For example, blood tests can detect anaemia in pregnant women, who must then receive iron supplements

ANC = Antenatal Care
Source: DHS 2013

The increase in assisted deliveries at the national level can be associated to the increase in the rate in rural areas since 2008

As of 2013, the over half of women are assisted by a skilled provider during childbirth

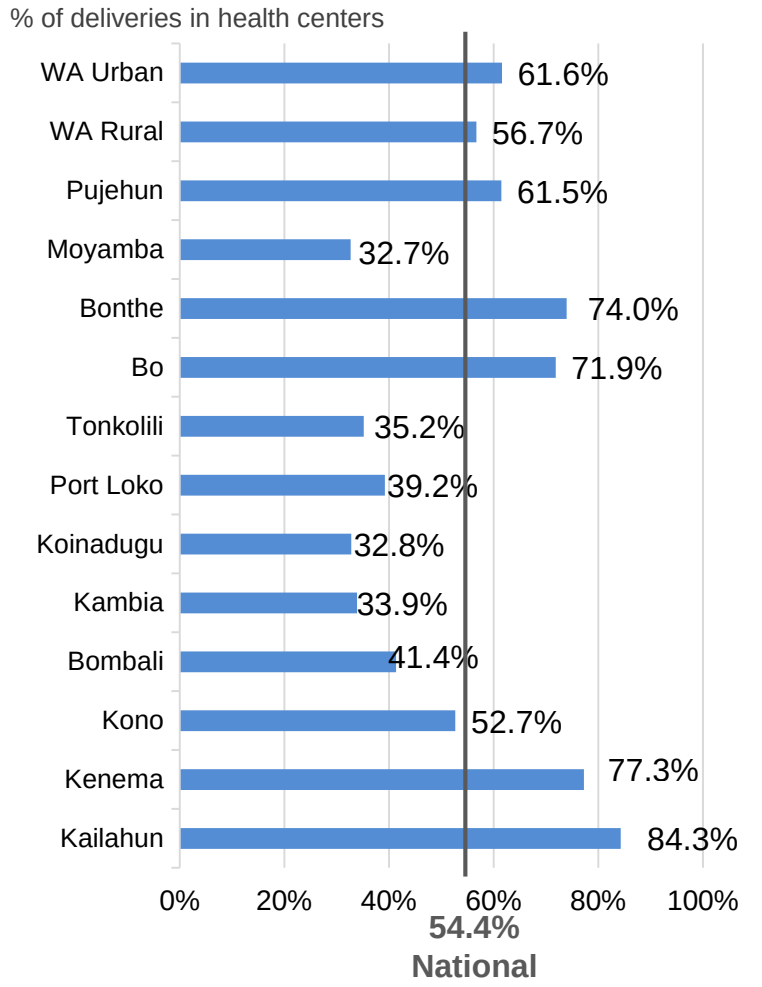


- Over half (59.7%) of deliveries are assisted by skilled providers (doctor, midwife, nurse, or nurse assistant)
- There has been a steady increase in assisted deliveries by a skilled provider since 2008 (42.4%)
- The most notable increase has been in the rural areas, where rates have jumped from a third (33.2%) in 2008 to a just over half (53.2%) in 2013

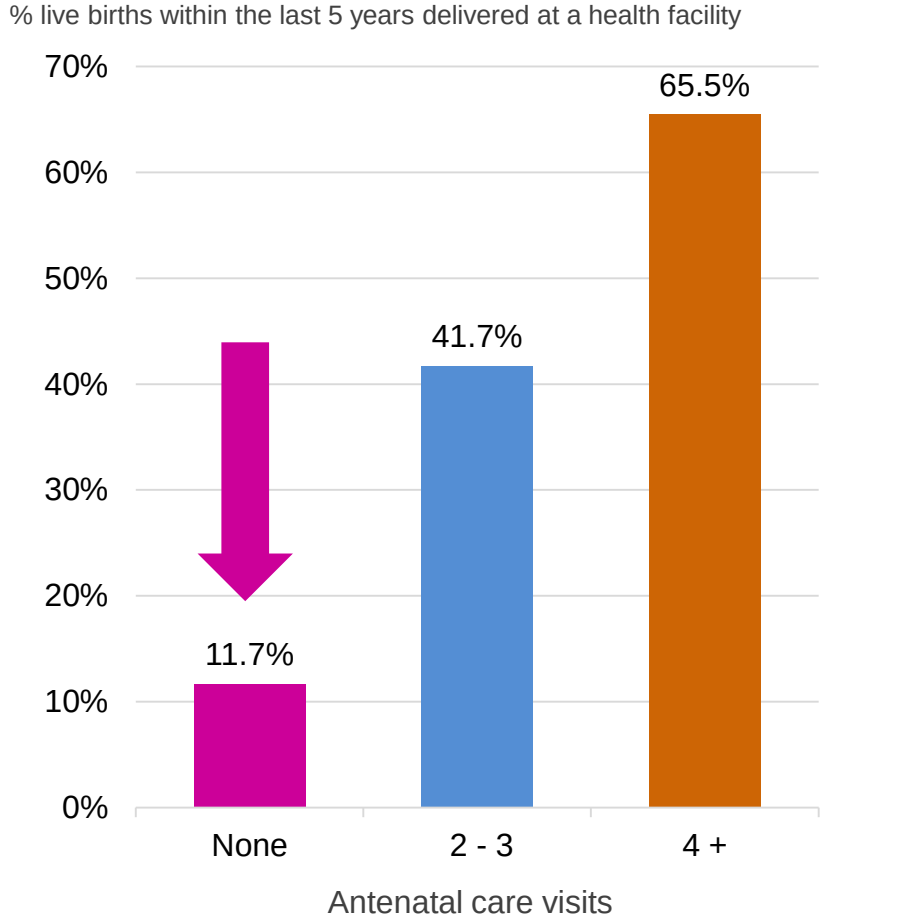
Source: DHS 2008, 2013

While just over half (54.4%) of women give birth in facilities, the rate fluctuates by districts

The rate of deliveries in health facilities varies between districts



Women who do not attend ANC visits are least likely to give birth in a health facility

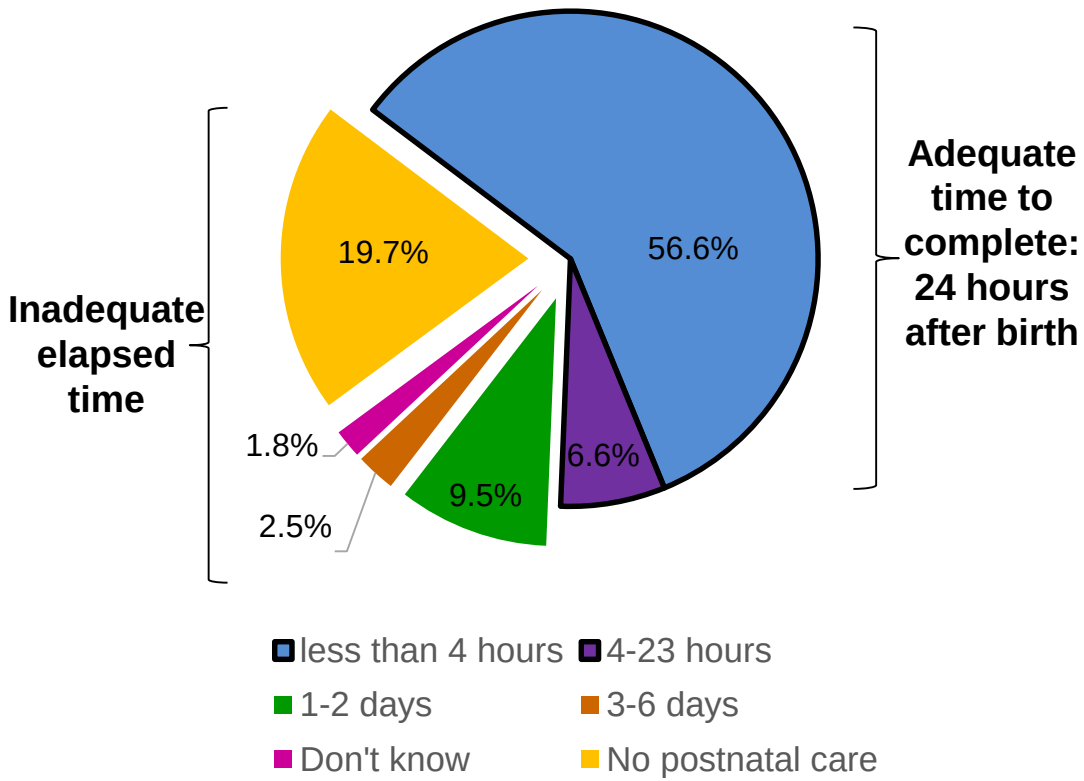


WA = Western Area, ANC = Antenatal Care
Source: DHS 2013

Over a third (36.8%) of women do not receive postnatal care or receive it too late after childbirth

Duration from delivery to when the mother received her first postnatal care

% women who gave birth in the 2 years preceding the survey

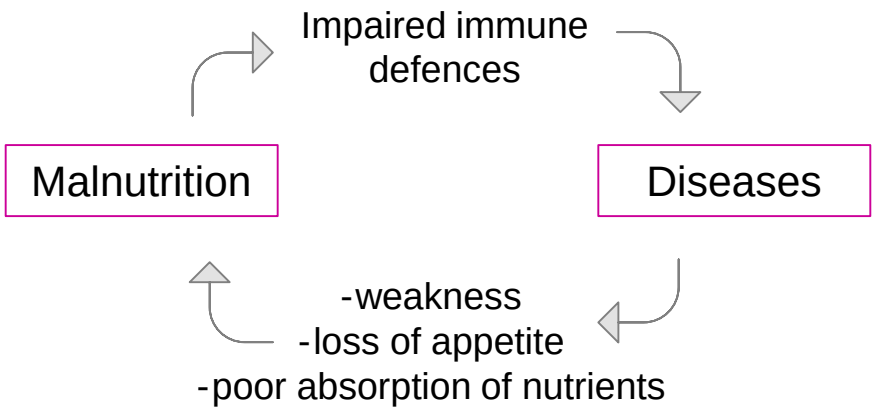


- It is recommended that all women carry out a postnatal visit and that all newborns receive postnatal care within 24 hours of childbirth
- Women can receive counseling on breastfeeding and nutrition education, and children can be screened for acute malnutrition and referred to a food supplementation program, among other care
- The majority of women and newborn deaths occur within the first day after childbirth
- On average, 63.2% of women received postnatal care within 24 hours of birth

Source: DHS 2013; Opportunities for Africa's Newborns (WHO, 2006)

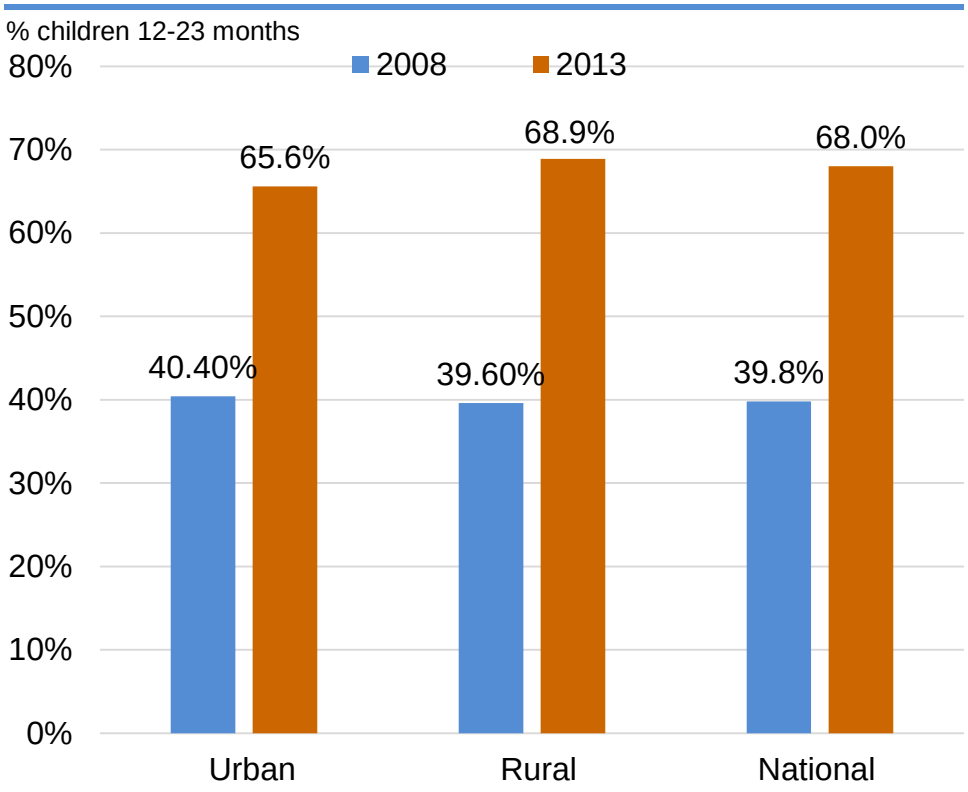
Infectious diseases increase the risk of malnutrition, and vice versa

The vicious circle of malnutrition-infection



Two thirds of children receive all recommended vaccination in both urban (65.6%) and rural (68.9%) areas

The percent of children receiving all basic vaccinations* has increased significantly between 2008 and 2013



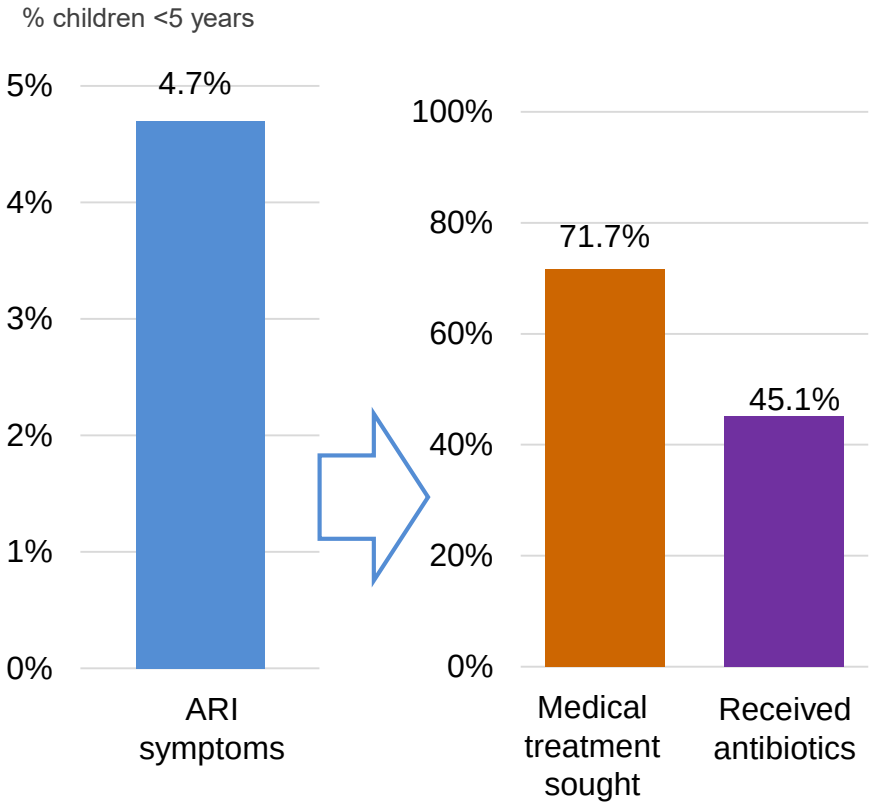
- Over two thirds (68.0%) of children 12-23 months received all basic vaccinations at the national level
- Vaccination rates increased from 39.8% in 2008 to 68.0% in 2013
- In 2013, the vaccination rates were slightly higher in the rural areas compared to the urban areas

*All basic vaccinations include: BCG vaccination; three doses of DPT; three doses of polio vaccine; and a measles vaccine. The MoH has recommended that children receive three doses of the hepatitis B vaccine, and has introduced the pentavalent vaccine, which also contains the hepatitis B vaccine and a vaccine against, Haemophilus influenzae type B (Hib)

Source**:** DHS 2008, 2013

Infectious diseases such as acute respiratory infections expose children to acute malnutrition

Three fourths of children with acute respiratory infections seek medical treatment

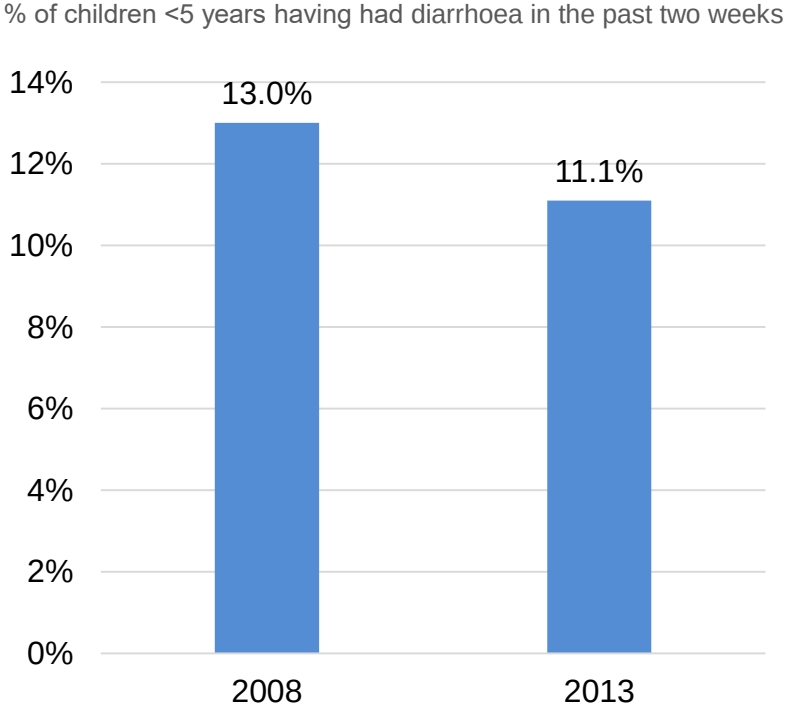


- Acute respiratory infections (ARI), particularly pneumonia, are one of the leading causes of child mortality in developing countries
- Infectious diseases in young children can lead to moderate acute malnutrition in the short term and contribute to long-term growth retardation due to the additional nutritional requirements needed to fight infections or reduced nutrient uptake
- Similarly, chronic malnutrition, acute malnutrition, and underweight contribute to a high risk of infant mortality by infectious diseases

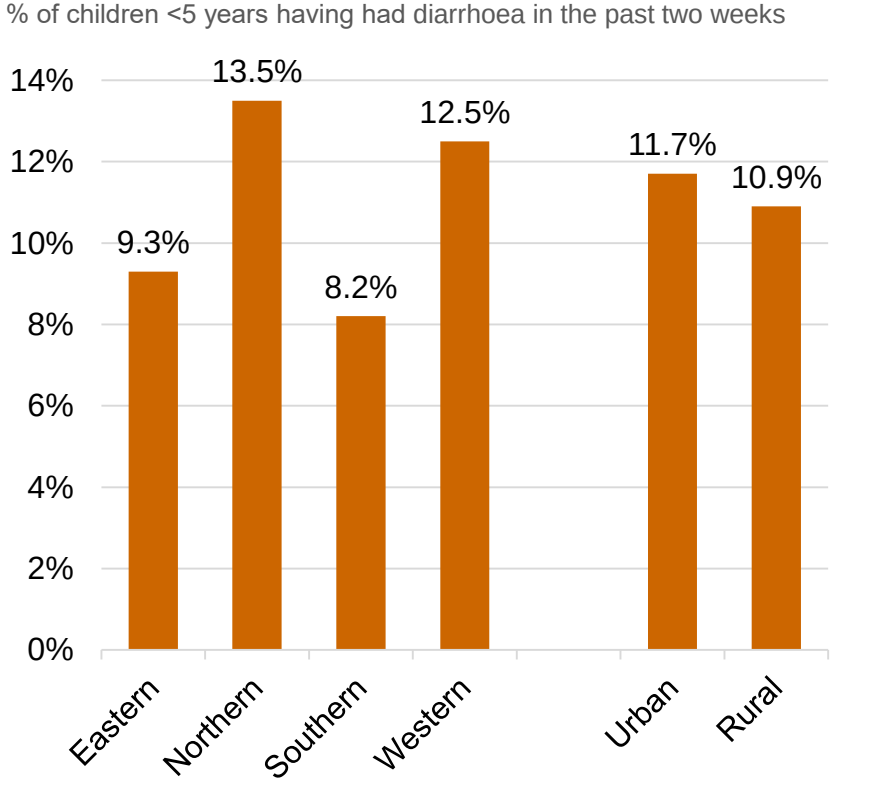
Source**:** DHS 2013; Black RE, Victora CG, Walker SP, Bhutta ZA, Christian P, de Onis M, Ezzati M, Grantham-McGregor S, Katz J, Martorell R, Uauy R and the Maternal and Child Nutrition Study Group (2013) 'Maternal and Child Nutrition 1: Maternal and child undernutrition and overweight in low-income and middle-income countries. *The Lancet*, published online at http://dx.doi.org/10.1016/S0140-6736(13)60937-X
Brian G Williams,Eleanor Gouws,Cynthia Boschi-Pinto,Jennifer Bryce,Christopher Dye, 'Estimates of world-wide distribution of child deaths from acute respiratory infections'. T*he Lancet Infectious Diseases* - 1 January 2002 (Vol. 2, Issue 1, Pages 25-32)

The prevalence of diarrhoea among children is higher in the northern region (13.5%) and western region (12.5%)

The prevalence of diarrhoea has slightly decreased since 2008



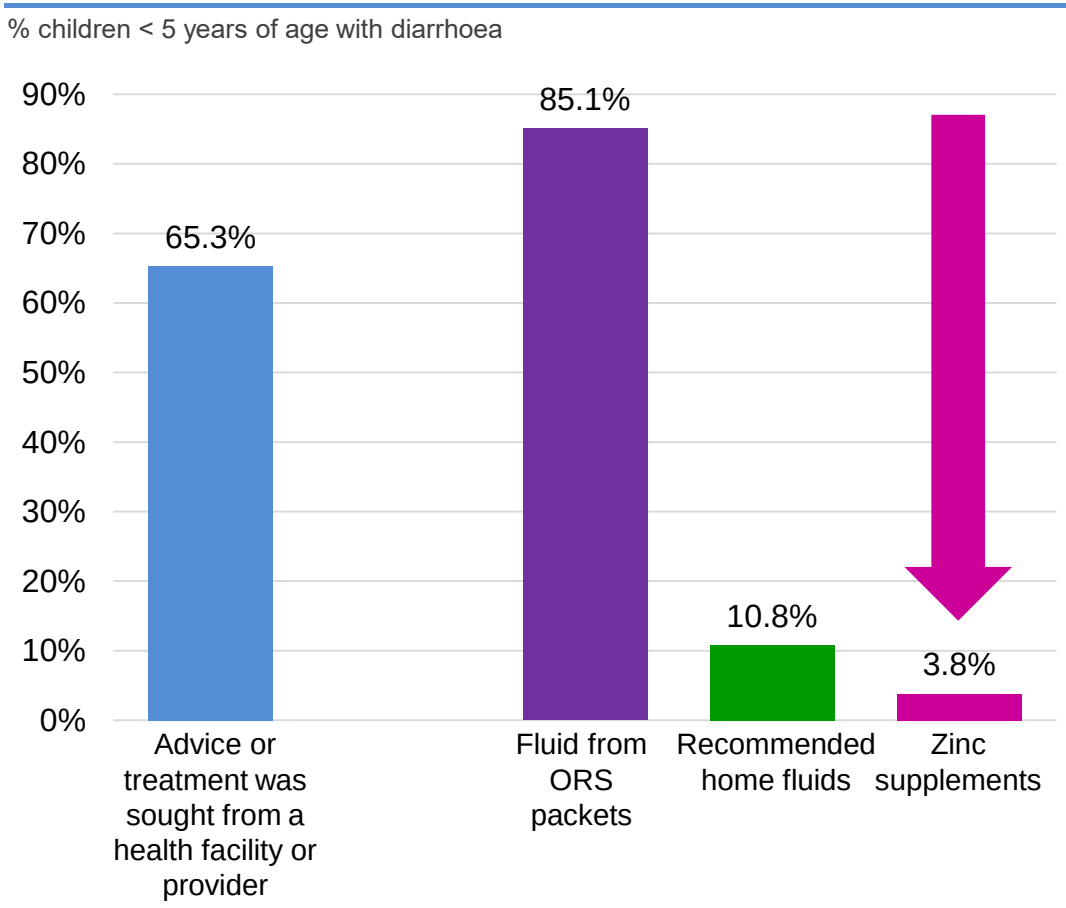
Diarrhoeal prevalence varies across regions and household settings



Source: DHS 2008, 2013

Two thirds (65.3%) of caregivers seek medical advice or treatment when a child has diarrhoea, however very few (3.8%) zinc supplements are given

Diarrhoea treatment practices for children under 5 years of age



- Zinc supplementation is essential because it helps decrease the number and duration of diarrhoeal episodes
- Diarrhoea can interfere with the absorption of nutrients by the body, making one more vulnerable to undernutrition
- Advice and treatment was sought much more often for bloody diarrhoea (73.5%) compared with non-bloody diarrhoea (63.3%).
- Very few children receive zinc supplements for diarrhoea in Sierra Leone (3.8%)

Source: DHS 2013, Lancet Series on child undernutrition(2008)

The multiple causes of anaemia require a multidimensional response

Causes of anaemia

Iron Deficiency

- Insufficient consumption of iron-rich foods
- Presence of iron inhibitors in the diet and insufficient spacing between consumption of these foods and iron sources

Malaria

- Plasmodium falciparum is the dominant parasite, but Sierra Leone also has cases of Plasmodium malariae and ovale
- Transmission is high and stable with seasonal peaks at the beginning and end of the rainy season

Parasitic Infections

- Helminths and schistosomiasis

Multiple responses

Food diversification

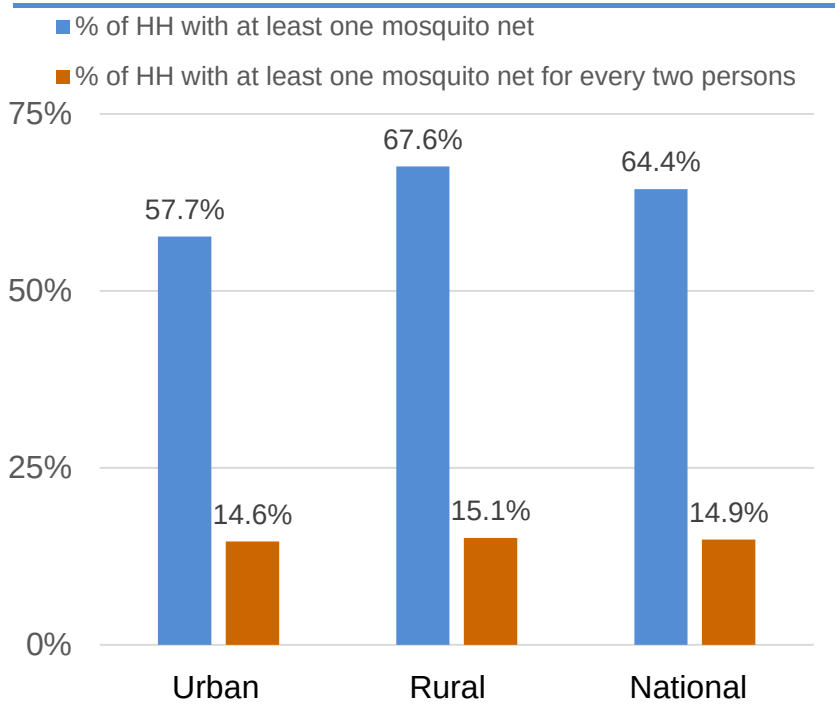
Iron supplementation

Malaria prevention

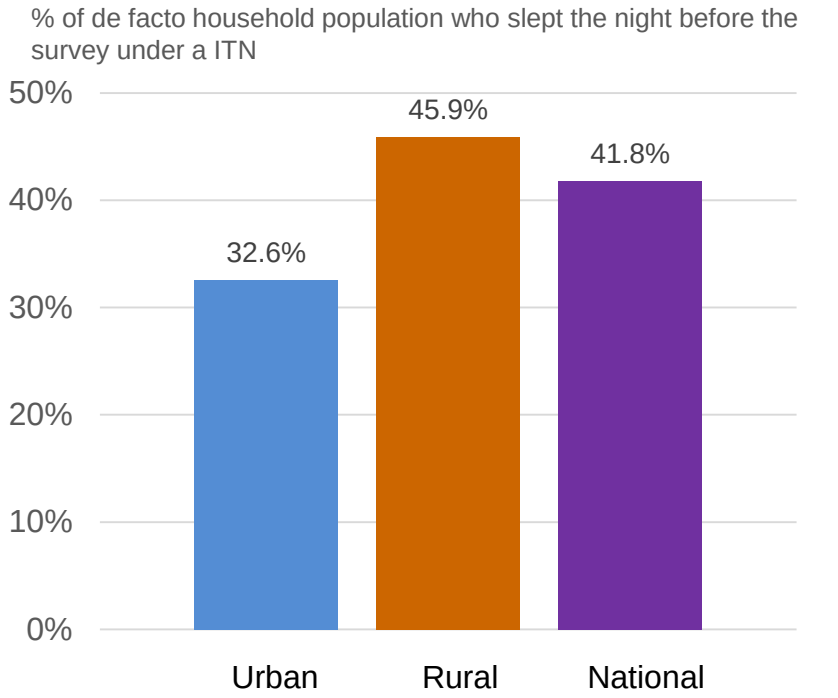
Deworming

More than half of households own mosquito nets, however not all household members are likely to use them regularly

Over half of all households have at least one insecticide-treated net, however few have enough for all household members



Less than half of household populations sleep under a insecticide-treated net



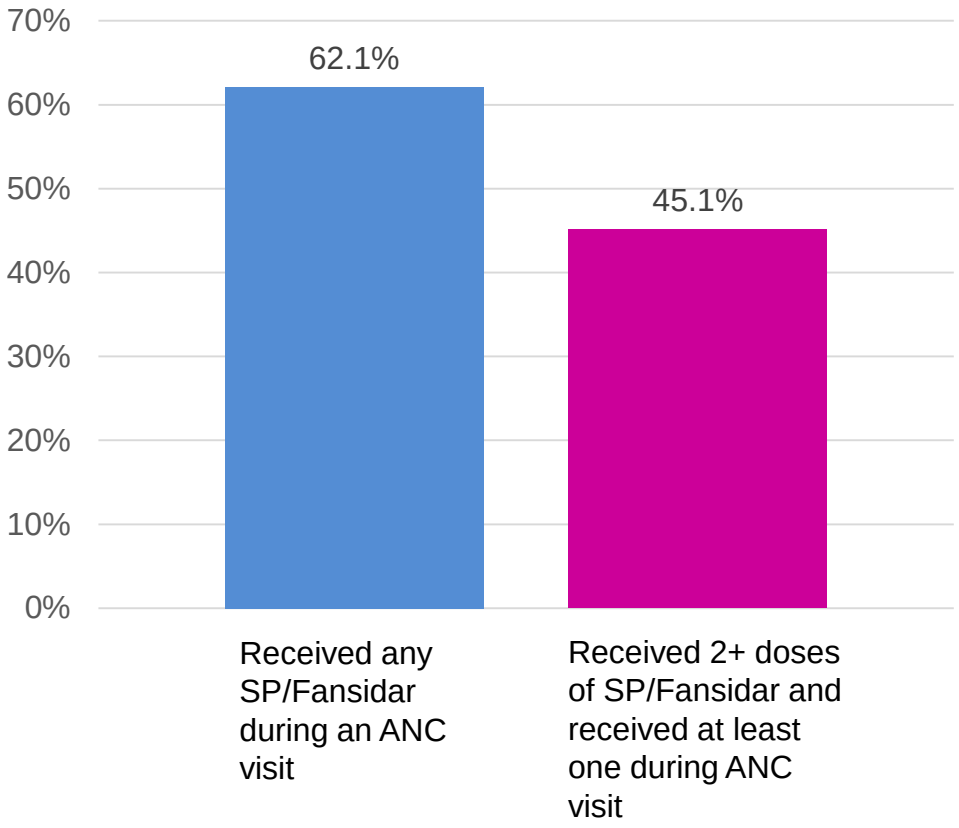
In 2013, over half (52.6%) of all children under 5 years old had malaria and about two thirds of pregnant and non-pregnant women (28.6% and 35.1%, respectively) had malaria

Source: DHS 2013, SLMS 2013

Over half of pregnant women receive intermittent preventive treatment for malaria at least once during pregnancy

Less than half of pregnant women receive two doses of IPT as recommended

% women 15-49 years with a live birth in the past two years

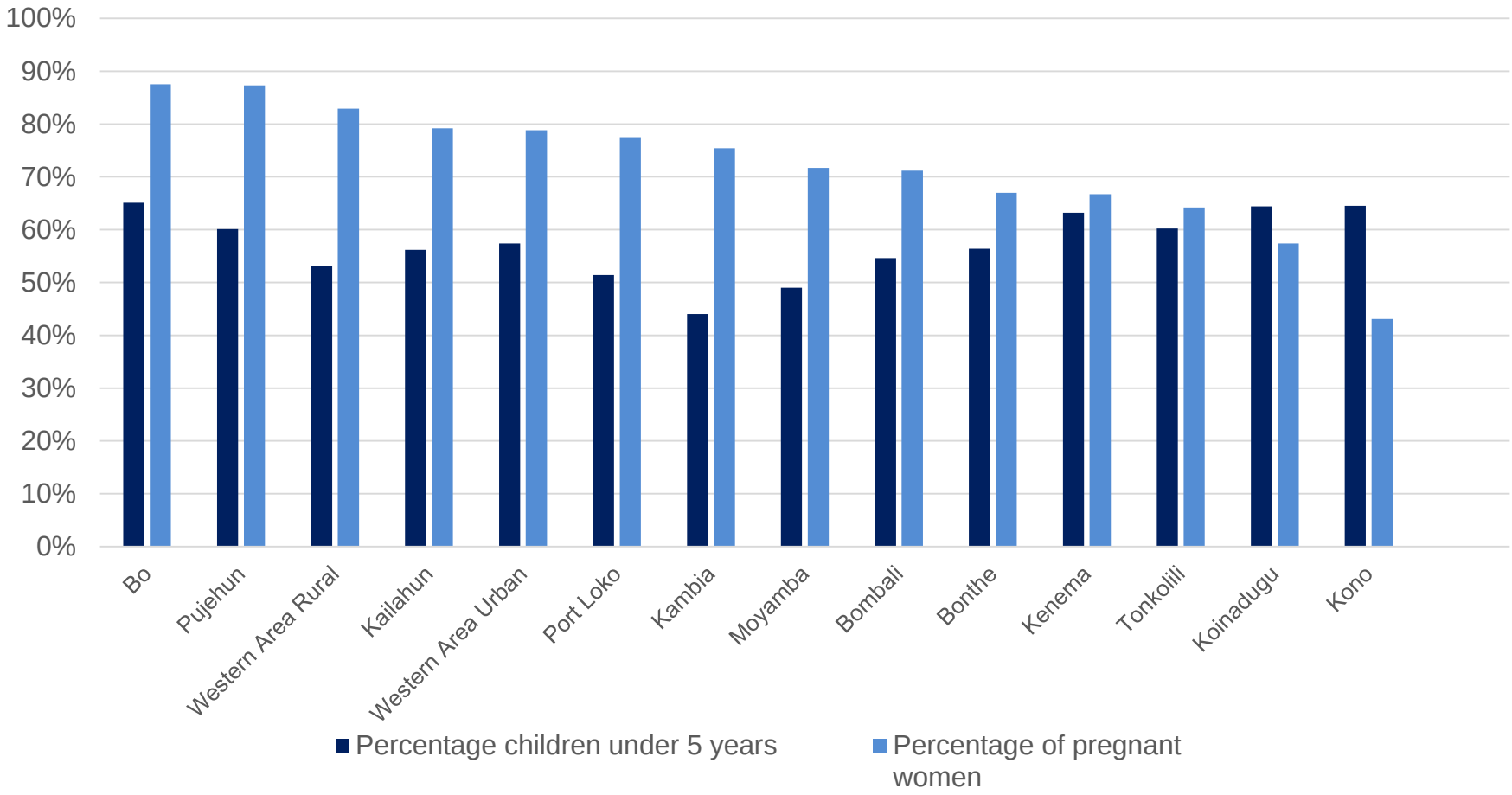


- Pregnancy weakens a woman's immune system and puts her at a higher risk of contracting malaria
- Malaria can also increase the risk of pregnancy anaemia and low birth weight of the child
- The percentage of pregnant women who took 2+ doses of SP/Fansidar and received at least one during ANC visit is higher in urban areas (47.0%) than in rural areas (44.4%)

IPT = intermittent preventive treatment for malaria
Source: DHS 2013

Deworming of children and pregnant women is one of the interventions to combat parasitic infections

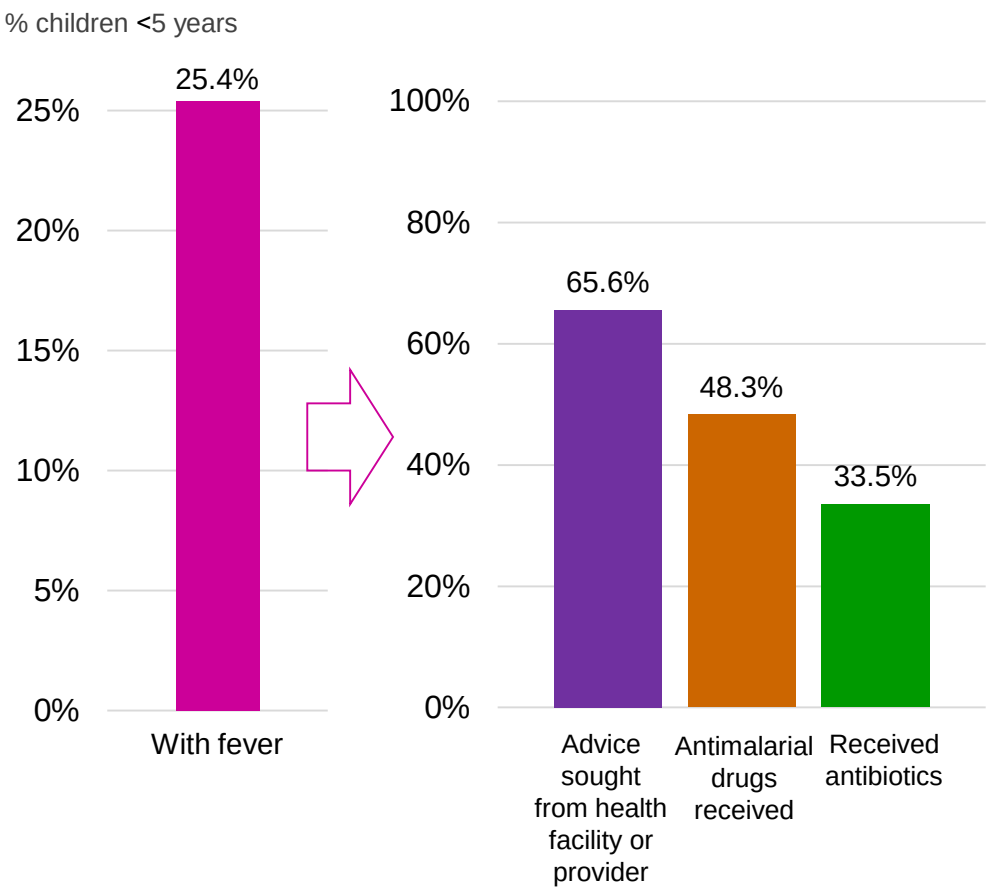
On average, six out of ten (57.6%) of children under 5 and seven out of ten (72.4%) of pregnant women receive deworming medication. However, coverage of deworming varies across districts



Source: DHS 2013

Approximately two thirds of children under 5 years of age with fever receive medical attention

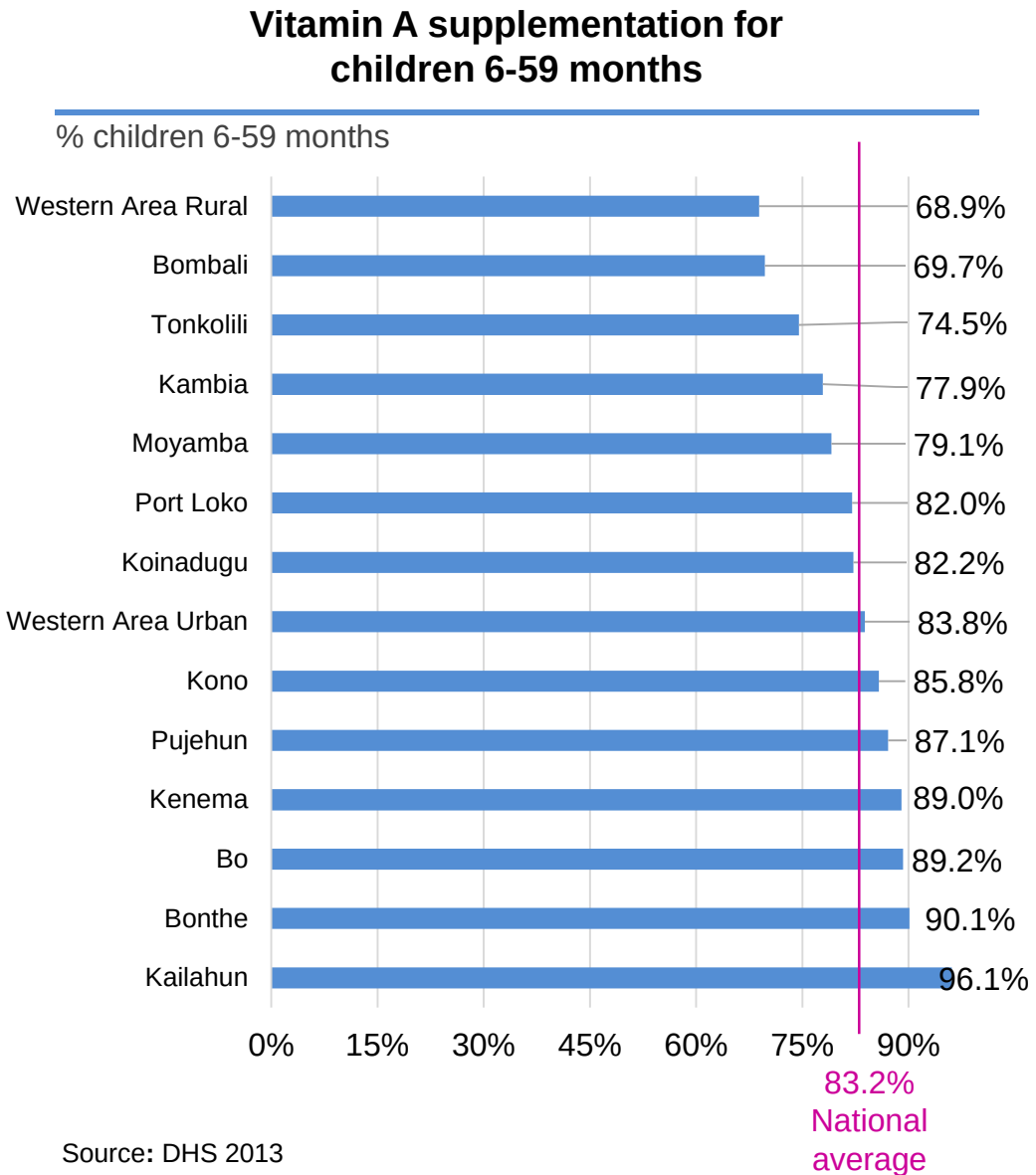
Most mothers with children under 5 years of age with fever seek medical advice



- Fever is a symptom of numerous illnesses including pneumonia, common cold, and influenza
- Children in urban areas are slightly more likely to have had a fever (27.1%) compared with children in rural areas (24.9%)
- Children in the Eastern region are more likely to have taken an antimalarial for recent fever (60.0%) and children in the Western region are least likely (37.2%)
- Children in the Western region are most likely to have taken an antibiotic for recent fever (42.6 %), and children in the Eastern region are least likely (38.0%)

Source: DHS 2013

Though vitamin A supplementation is high (83.2%), there are some disparities between districts

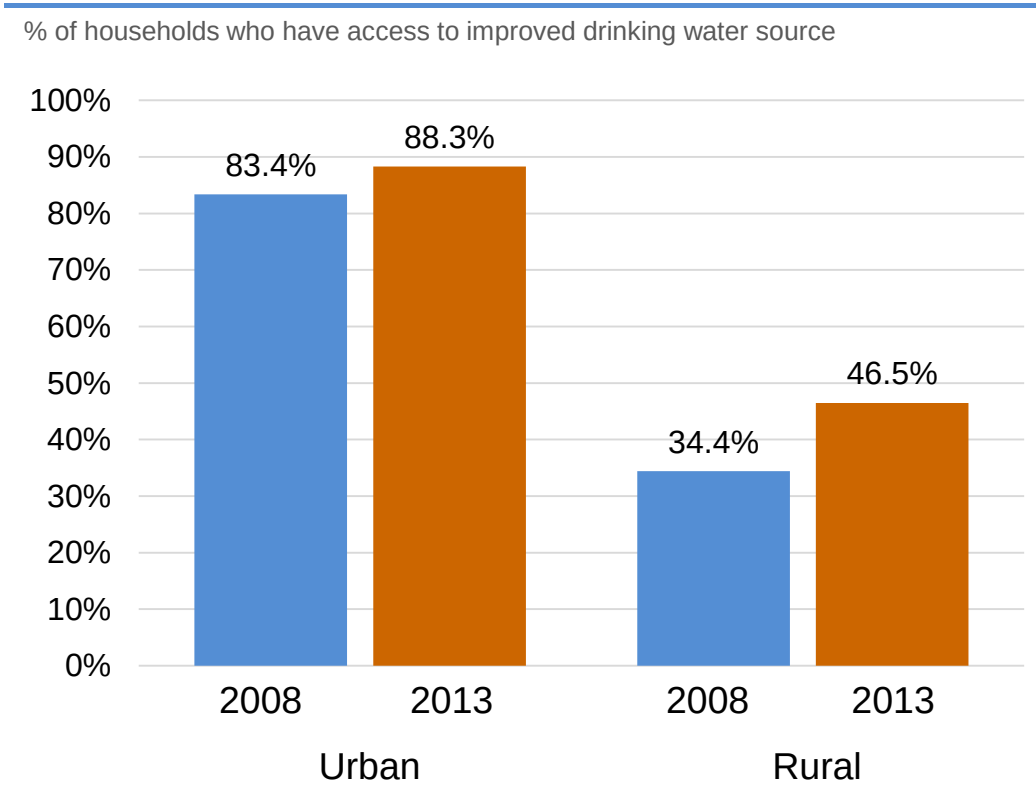


- Vitamin A deficiency affects the immune system of the child and pregnant or nursing women, as well as other health problems
- Supplements can help children who do not have a balanced diet to receive the vitamins they need
- On average, 83.2% of children 6-59 months receive vitamin A supplementation

Source: DHS 2013

Coverage of households using an improved water source has increased since 2008, but is still lacking in rural areas

Despite improvements, less than half of rural households have access to improved water sources



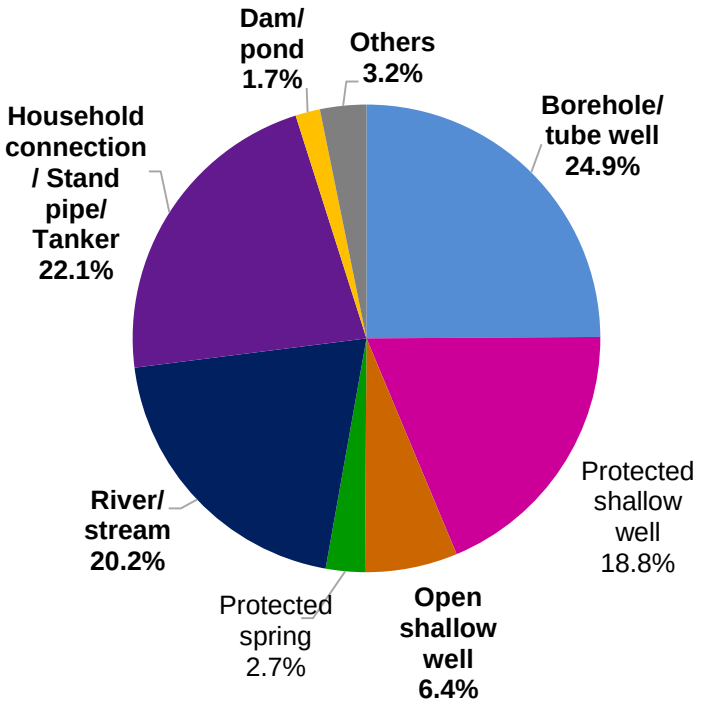
- Consumption of contaminated drinking water can lead to water-borne diseases and affect the body's ability to absorb nutrients
- The proportion of rural households with access to an improved water source increased significantly between 2008 and 2013 (8.5 percentage points)
- In 2013, coverage of households with access to an improved water source was higher in urban areas compared to rural areas

Source: DHS 2008, 2013

One in three households do not have access to drinking water from safe sources and in sufficient quantities

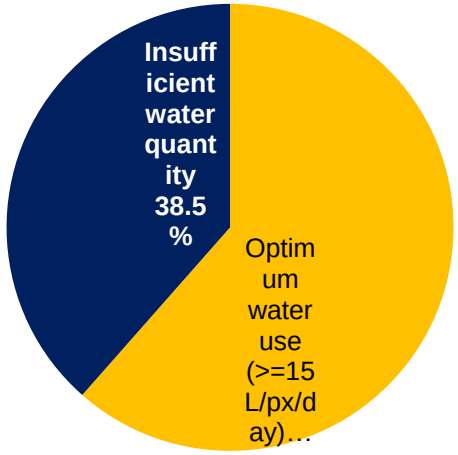
One in three households do not have access to safe sources of drinking water

% of households



One third of households have access to an insufficient quantity of water (<15 L/px/day)

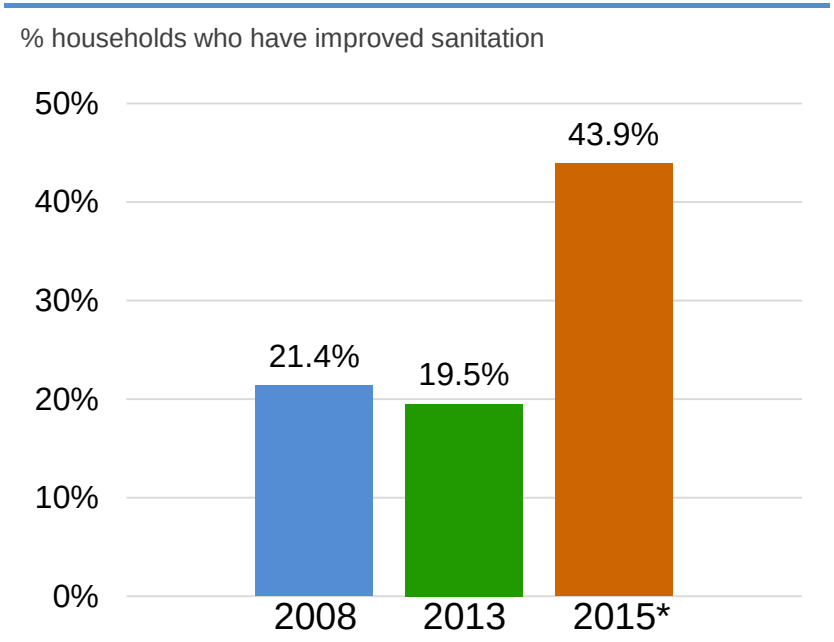
% of households



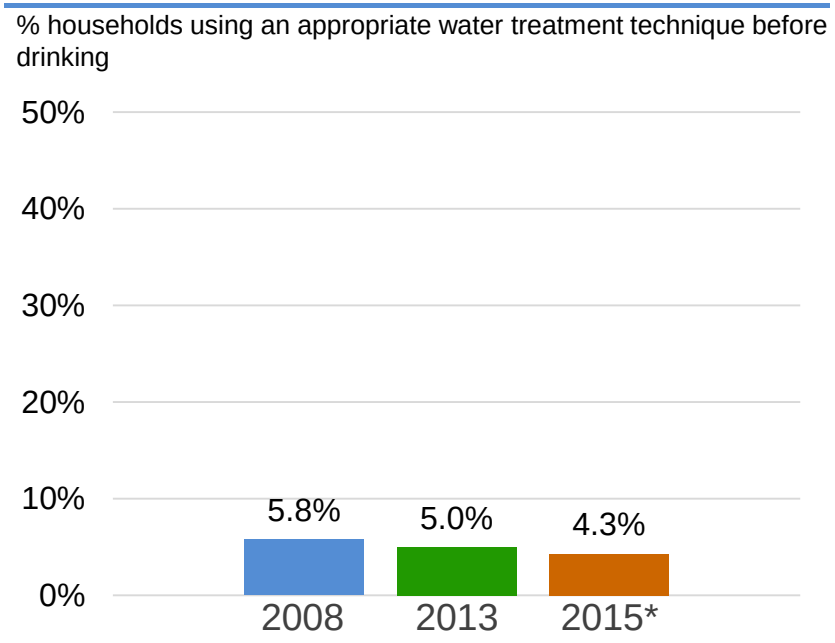
Source: SMART 2017

Less than a sixth of households (15.6%) have access to improved sanitation facilities, with access being significantly higher (43.9%) in urban areas, than in rural areas (4.3%)

Less than half of urban households do not have access to improved sanitation



Very few households use appropriate water treatment techniques



- In ten of the 13 districts, less than 10.0 % of households have access to improved sanitation
- Inadequate disposal of human excreta is associated with a series of problems such as environmental enteropathy and other gastrointestinal diseases that make it difficult to absorb nutrients. This can lead to various forms of undernutrition

*The 2015 data comes from the CFVSA and not the DHS
Source: DHS 2008, 2013, CFVSA 2015

Underlying factors:

Food Security and Livelihoods

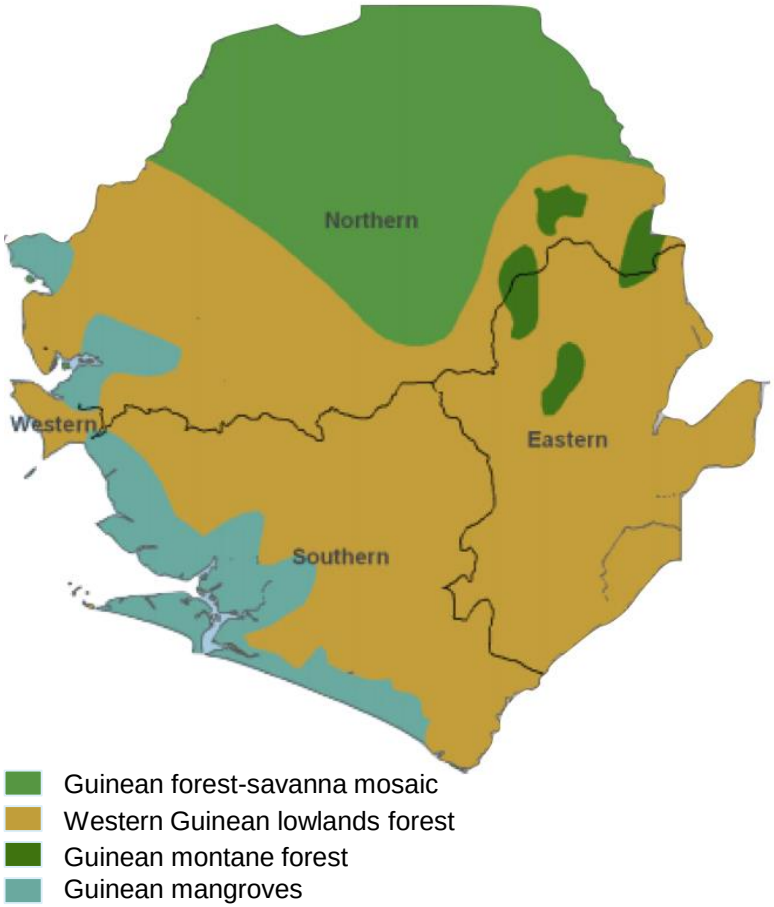
Figures, trends, causes

Key Messages

- Nationally, 68.6% of the working age population is economically active, and 6 out of 10 work in the agricultural sector
- The majority of agricultural households live in rural areas and are involved in crop farming, followed by animal husbandry and fisheries
- The majority (77.3%) of rural households depend on agriculture-related livelihoods
- As the primary staple crop, very few rice farmers produce enough rice to be self-sufficient, leaving many vulnerable
- Very few farmers produce enough rice to be self-sufficient throughout the year, which makes them vulnerable during the lean season and dependent on import food prices
- When faced with failing rice crops, cassava is the most common contingency crop grown to meet household needs
- Road access to markets is a key factor contributing to overall food security and vulnerability status
- At the national level, households spend 59% of their income on food, however disparities exist across urban and rural settings
- The majority of households do not have an acceptable food intake, and those whose food consumption score is borderline might easily become food insecure the event of a shock
- Approximately half (49.8%) of Sierra Leone's population is food insecure
- The overall (moderate and severe) food insecurity is highest in livelihood zone 5 (68.2%), followed by zone 2 (63.1%) and zone 4 (59.6%)
- On average, less than half (43.3%) of households consume foods from more than four groups
- On average, more than one in ten (12.3%) households receives food and/or non-food assistance to cope with food insecurity and shocks
- Owning one fifth of the land, women play an important role in agricultural production
- Unavailability of improved seeds is the biggest constraint preventing farmers from increasing agricultural production

Climatic changes affect farmers across Sierra Leone and all its agro-ecological zones

There are four main agro-climatic zones



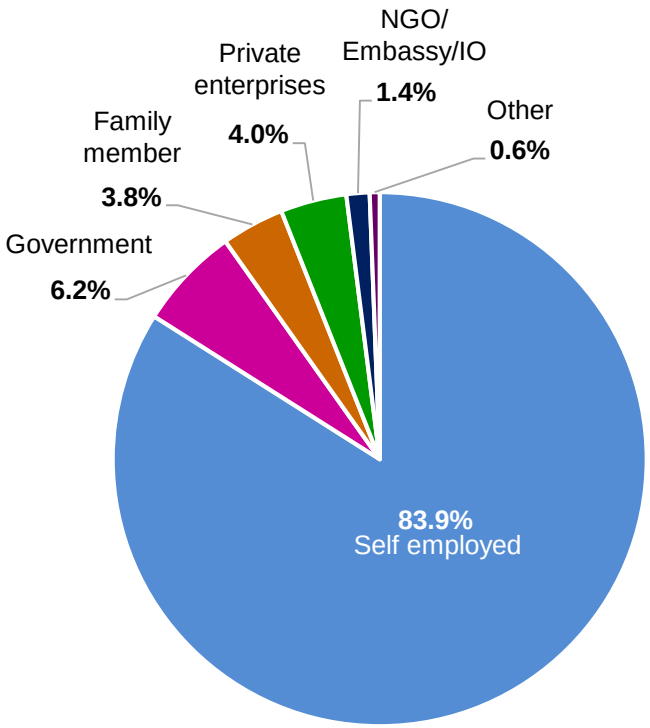
- The four agro-climatic zones are: the Guinean forest-savanna mosaic, the west Guinean lowlands forest, the Guinean montane forest and the Guinean mangroves
- These four zones are divided into two ecological zones: the lowlands, which are parallel to the coast and continue eastward, and the uplands in the northeast
- An estimated 75% of the land is arable, and upland and lowland ecologies make up 78.0% and 22.0% respectively of total arable land area
- The most common natural hazard in Sierra Leone is flooding, which occurs mainly from June to September. The intense rainy season, considered the lean season, is from May to October

Source: Agricultural Profile for Sierra Leone, World Bank 2014, CFSVA 2015

Nationally, 68.6% of the working age population is economically active, of which 6 out of 10 work in the agriculture sector

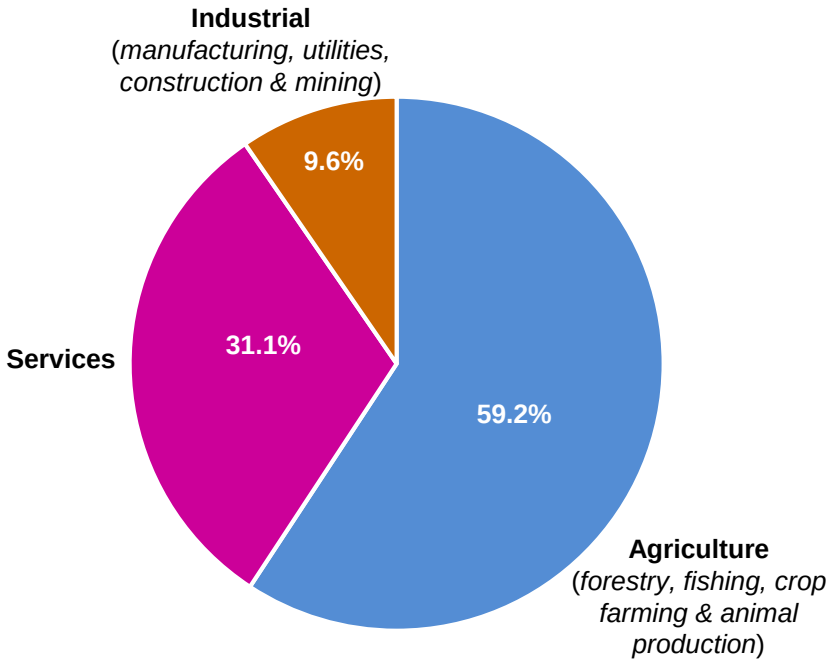
Employment by employer type

% of employed population



Employment by sector

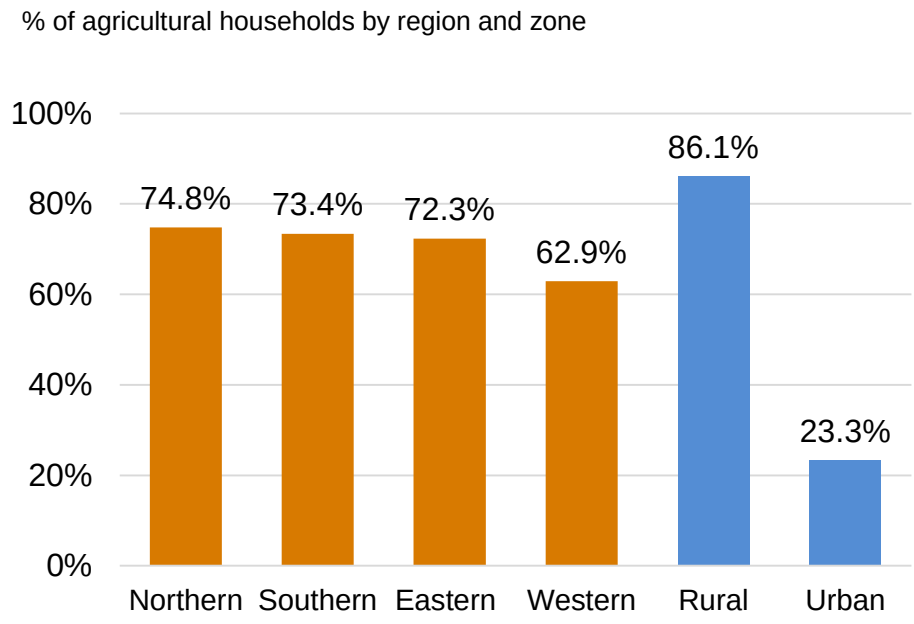
% of employed population



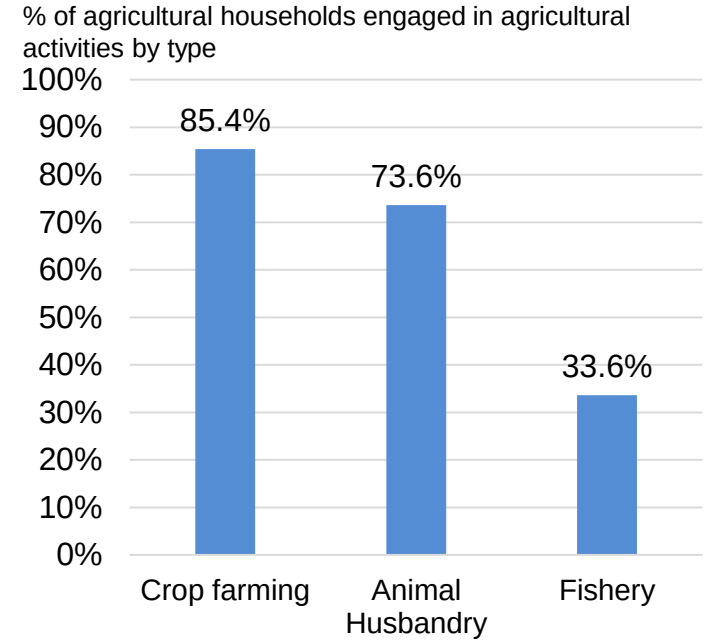
Working age population = population 15-64 years; NGO = Non-governmental organization; IO = International Organization
Source: 2015 Census

The majority of agricultural households live in rural areas and are involved in crop farming, followed by animal husbandry and fisheries

The Western zone has the smallest percentage of agricultural households



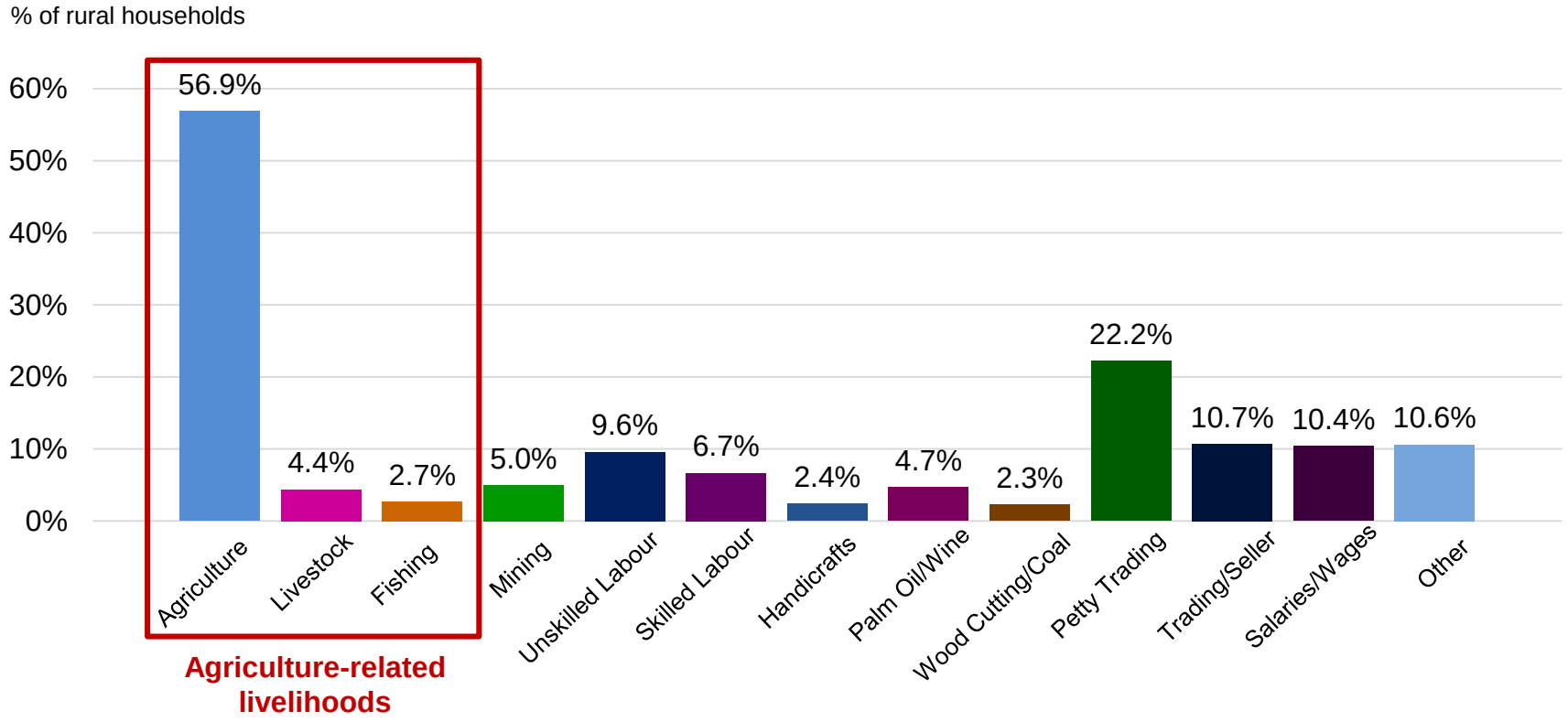
The majority of agricultural households are involved in crop farming



Source: 2015 Census

The majority of rural households have agriculture, livestock and fishing production as their main sources of livelihoods

Agricultural production is the main livelihood for the majority of households in rural areas (59.6%) followed by petty trading (22.2%)



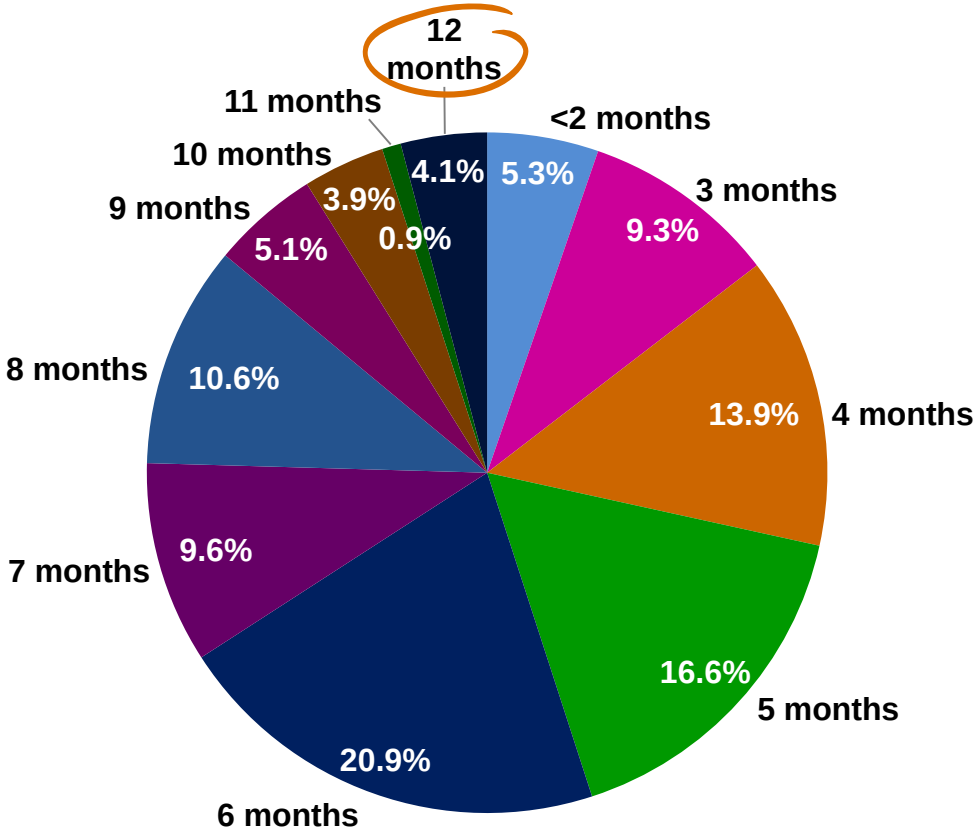
- In urban areas, the prominent source of income is petty trading (37.6%) followed by salaried work (27.3%)

Source: 2015 CFSVA

As the primary staple crop, very few rice farmers produce enough rice to be self-sufficient, leaving many vulnerable

Very few households are self-sufficient in rice year-round

Number of months during which households are self-sufficient in rice

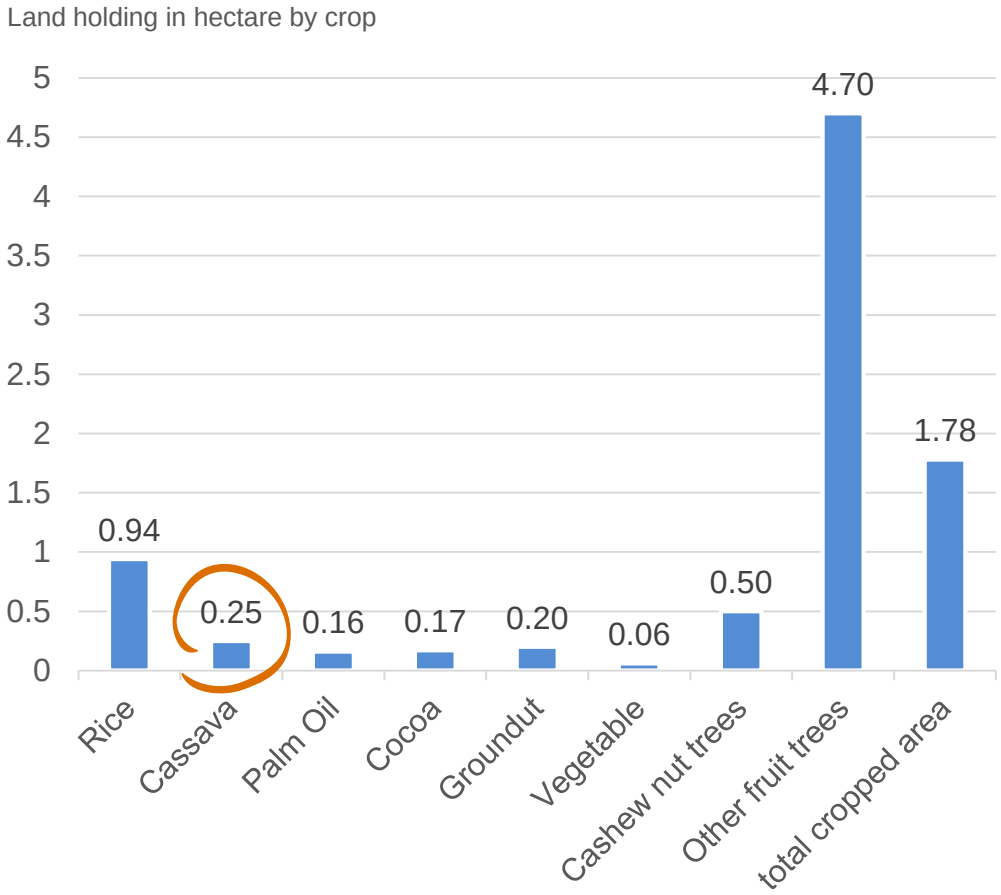


- Two thirds of households (66.0%) produce enough rice to meet the needs of their household for six months or less
- One in five households are self-sufficient in rice for 6 months of the year
- Only 4.1% of farming households are able to produce enough rice year round to meet their needs, making the rest of the population particularly vulnerable during the lean season

Source: 2015 CFSVA

When faced with failing rice crops, cassava is the most common contingency crop grown to meet household needs

An average cassava field size is about a quarter of the size of rice fields



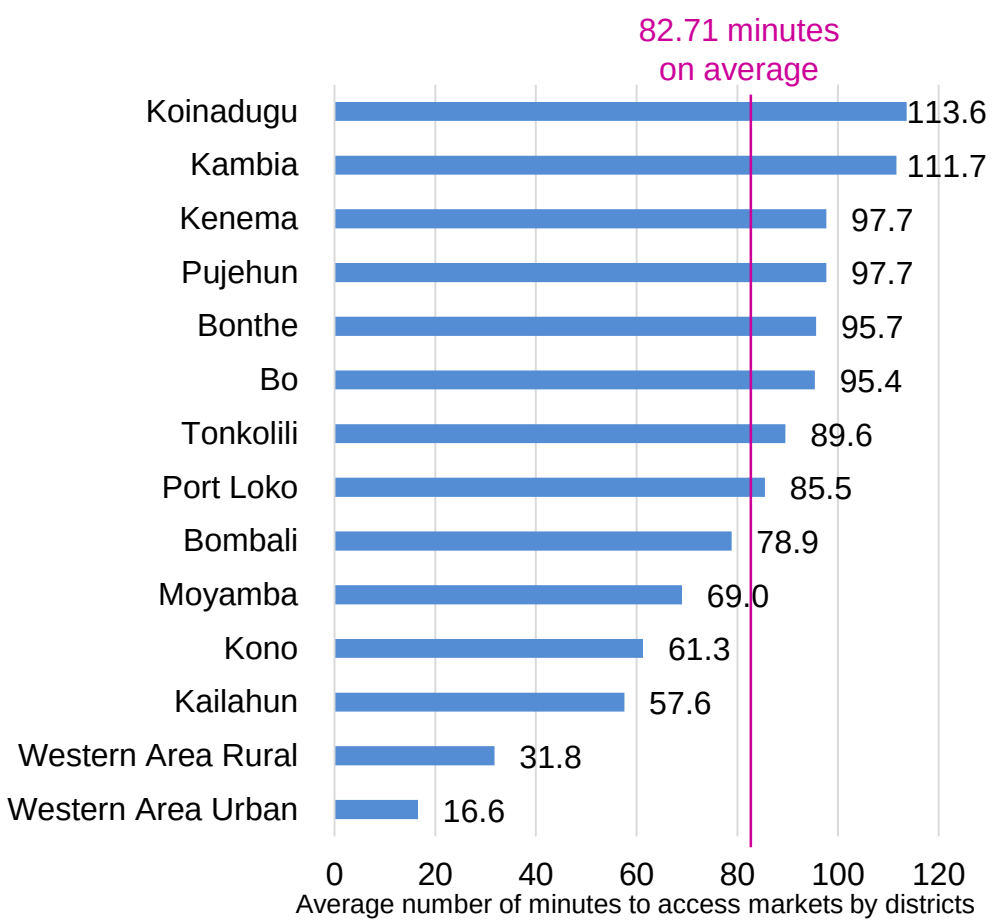
- The majority of agricultural activity is done manually in poor settings, using low agricultural technology, and few agricultural inputs, contributing to low productivity
- The largest rice crop land holdings, larger than 1 hectare, are located in Moyamba (1.31 ha), Bo (1.12 ha), Kambia (1.07 ha) and Kono (1.05)
- The largest cassava crops are in Moyamba (0.76 ha), Bonthe (0.69 ha) and Pujehun (0.41 ha)

ha = hectare
Source: 2015 CFSVA

Road access to markets is a key factor contributing to overall food security and vulnerability status

- Road access is a strong determinant of food security; farmers need to reach markets to sell goods produced and purchase others
- Approximately half (47.7%) of the roads become inaccessible at some point of the year, particularly when rivers overflow due to heavy rainfall, aggravating the difficulty in accessing markets

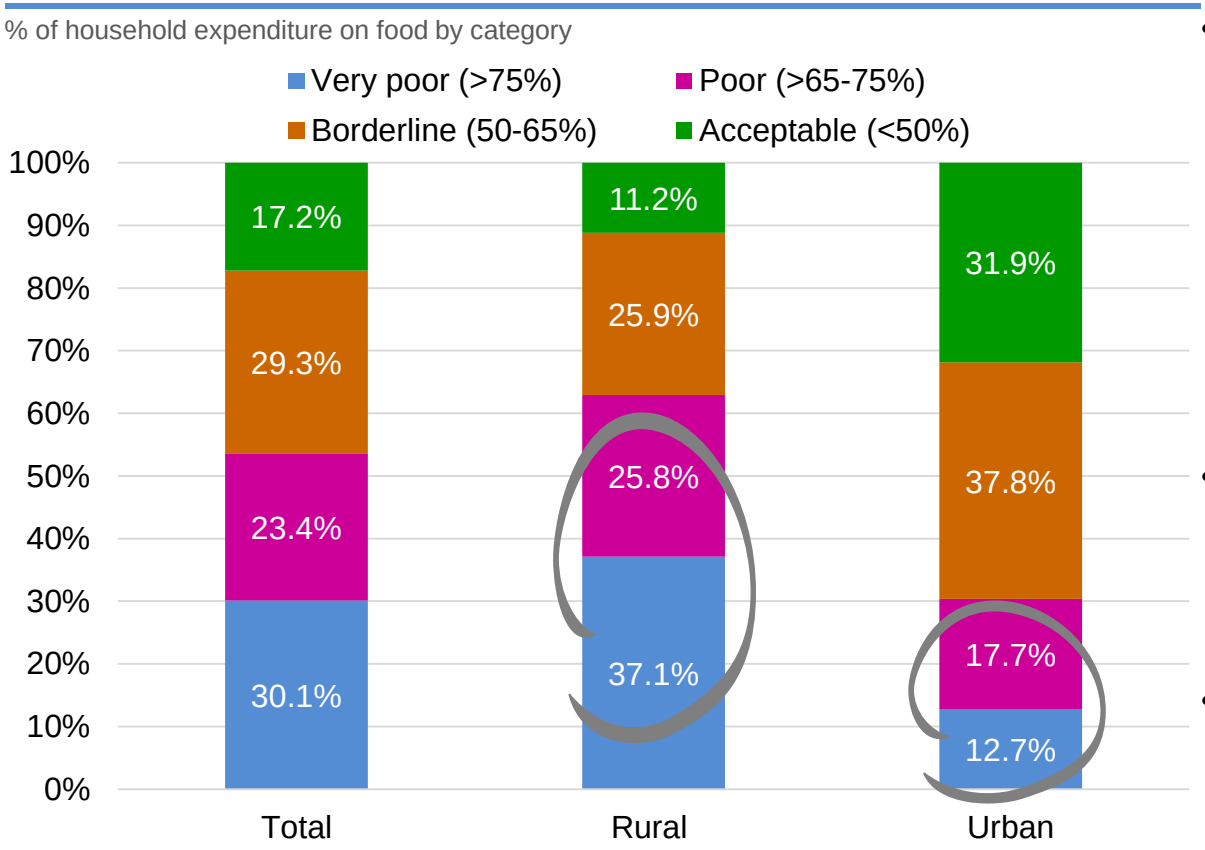
In 11 of the 14 districts, it takes over more than one hour to access market



Source: 2015 CFSVA

At the national level, households spend 59% of their income on food, however disparities exist across urban and rural settings

Rural households are more likely to spend the majority of their income on food expenditures compared to urban households

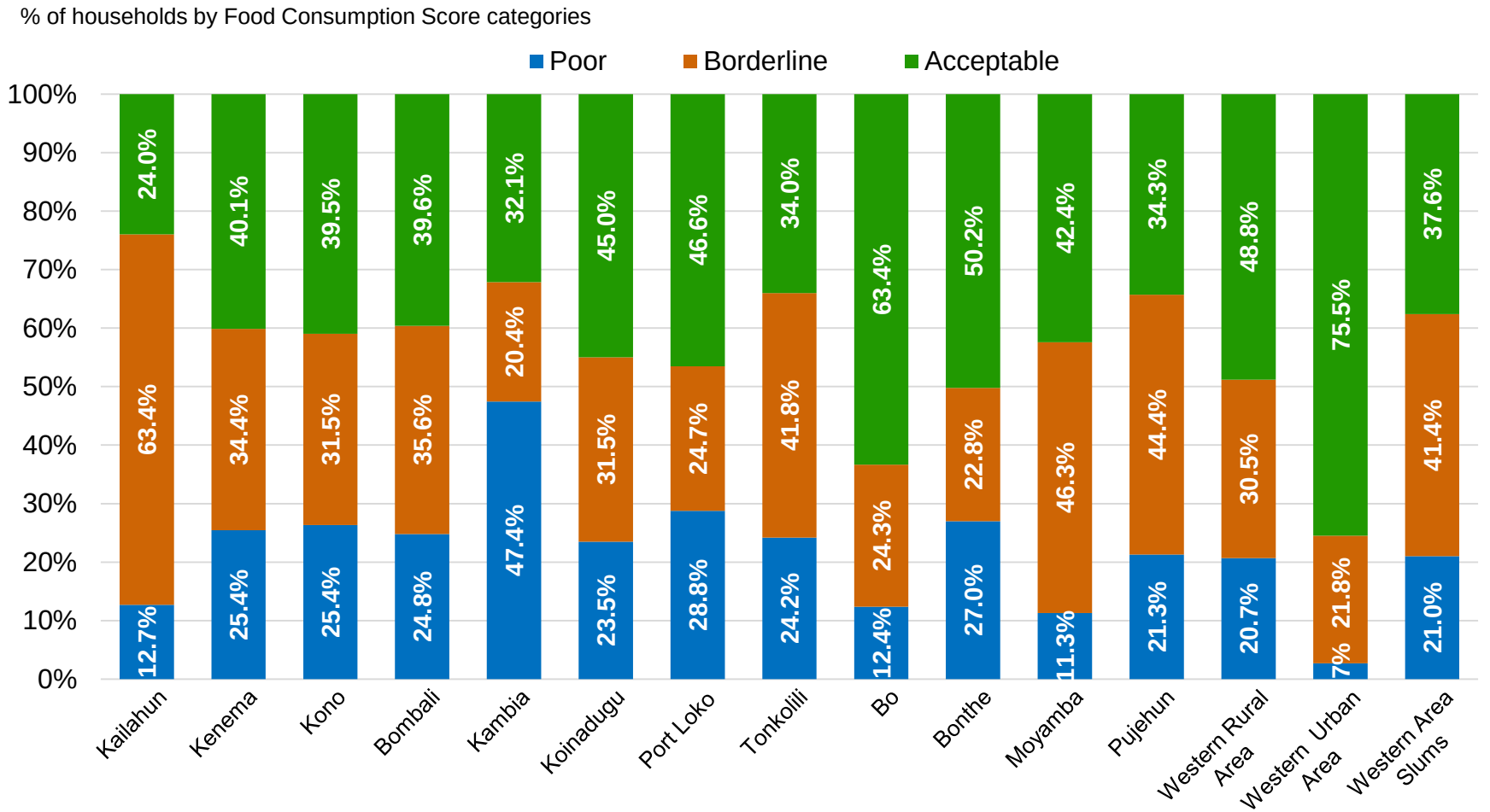


- At the national level, over half (53.5%) of households spend more than 65% of their income on food; one third (30.1%) spending more than 75% of their income and one quarter (23.4%) spending between 65% to 75% of their income
- In rural areas, almost two thirds (62.9%) of households spend more than 65% of their income on food
- In urban areas, less than a third (30.4%) of households spend more than 65% of their income on food

Source: 2015 CFSVA

The majority of households do not have an acceptable food intake, and those whose food consumption score is borderline might easily become food insecure the event of a shock

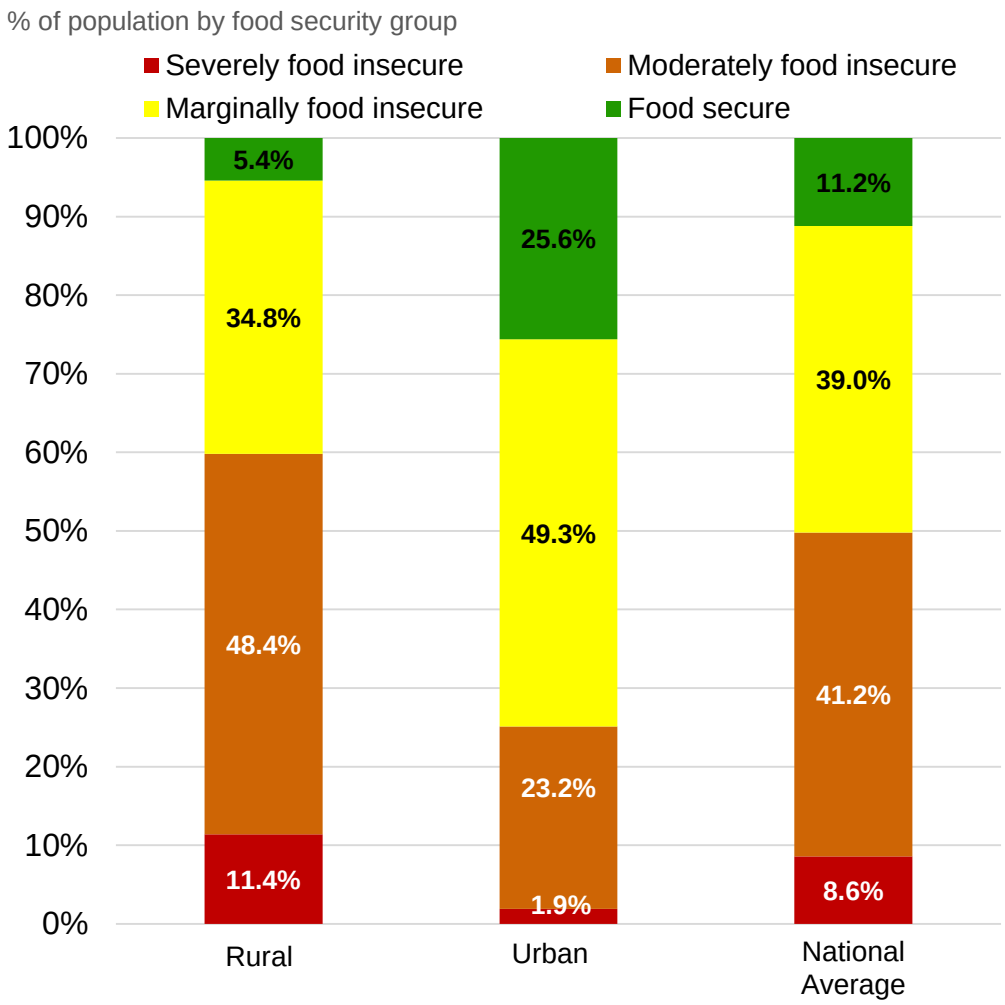
Though there are variations across districts, only 46.5% of households in Sierra Leone have acceptable food consumption, 33.5% have borderline and 19.9% of households have poor food consumption



Source: 2015 CFSVA

Approximately half (49.8%) of Sierra Leone's population is food insecure

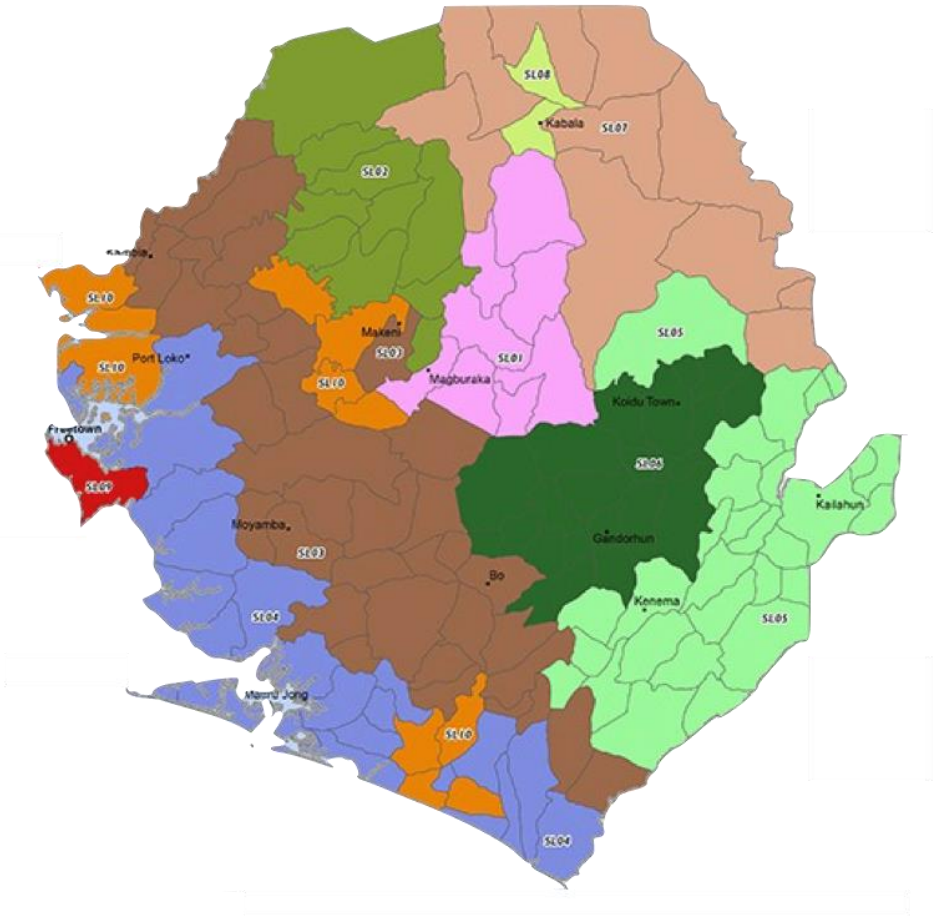
Households in rural areas are twice as likely to be food insecure than households in rural areas



- On average, one in ten is severely food insecure (8.6%), 4 out of ten are moderately insecure, 4 out of ten are marginally insecure (39.0%), and only 1 is food secure
- Rural households have a higher percentage of severely food insecurity (11.4%) than urban households (1.9%)
- The districts with the highest percentage of severely food insecure households are Pujehun (18.8%), Port Loko (17.1%) and Kambia (15.4%)

Source: 2015 CFSVA

The ten livelihood zones of Sierra Leone influence the distribution of food security

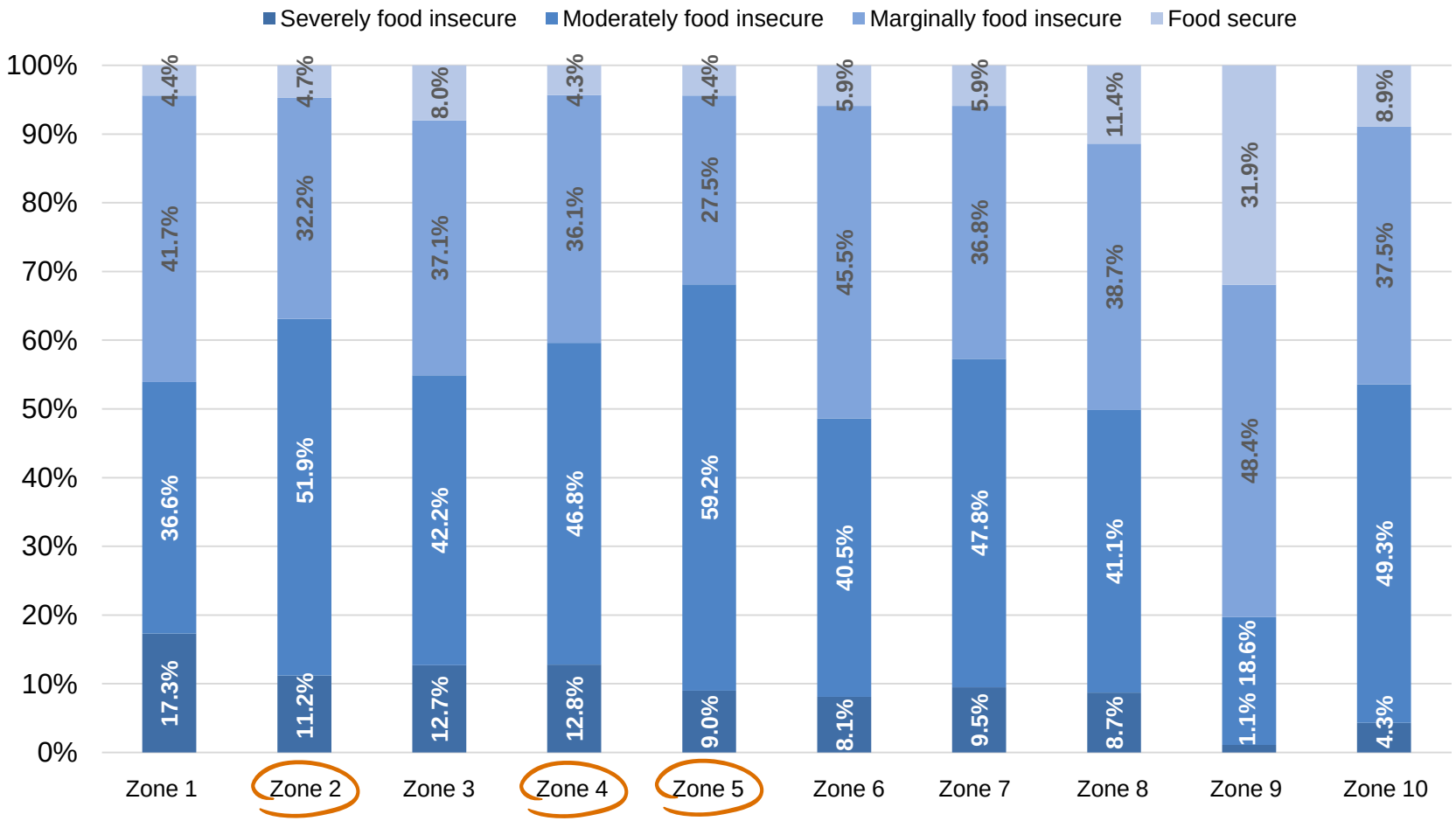


- Livelihood Zone 1: Rice and Secondary Gold Mines
- Livelihood Zone 2: Formerly Mixed (NW) - Crops, Livestock, Rice, Cassava, Sweet Potato
- Livelihood Zone 3: Degradation, Short Cycle, Root Crops, Trade, Cassava, Yam (Formerly Trade Based)
- Livelihood Zone 4: Fish and Food Crop
- Livelihood Zone 5: Cash Crop, Food Crop, Trade (SE)
- Livelihood Zone 6: Rice and Trees
- Livelihood Zone 7: Livestock Trade, Food Crop
- Livelihood Zone 8: Vegetable Production Area
- Livelihood Zone 9: Freetown peri-Urban
- Livelihood Zone 10: Rice Bowl Area

Source: FEWS NET 2010 http://www.fews.net/west-africa/sierra-leone/livelihood-zone-map/november-2010
Note: While there is a more updates 2016 FEWS NET report, the CFSVA report cited in the next slides uses the 2010 Livelihood Zones Map, therefore the 2010 map is shown here for reference.

The overall (moderate and severe) food insecurity is highest in livelihood zone 5 (68.2%), followed by zone 2 (63.1%) and zone 4 (59.6%)

Severely food insecure households are found predominantly in the food crop production zones, specifically zone 1 (17.3%), zone 4 (12.8%), and zone 3 (12.7%)

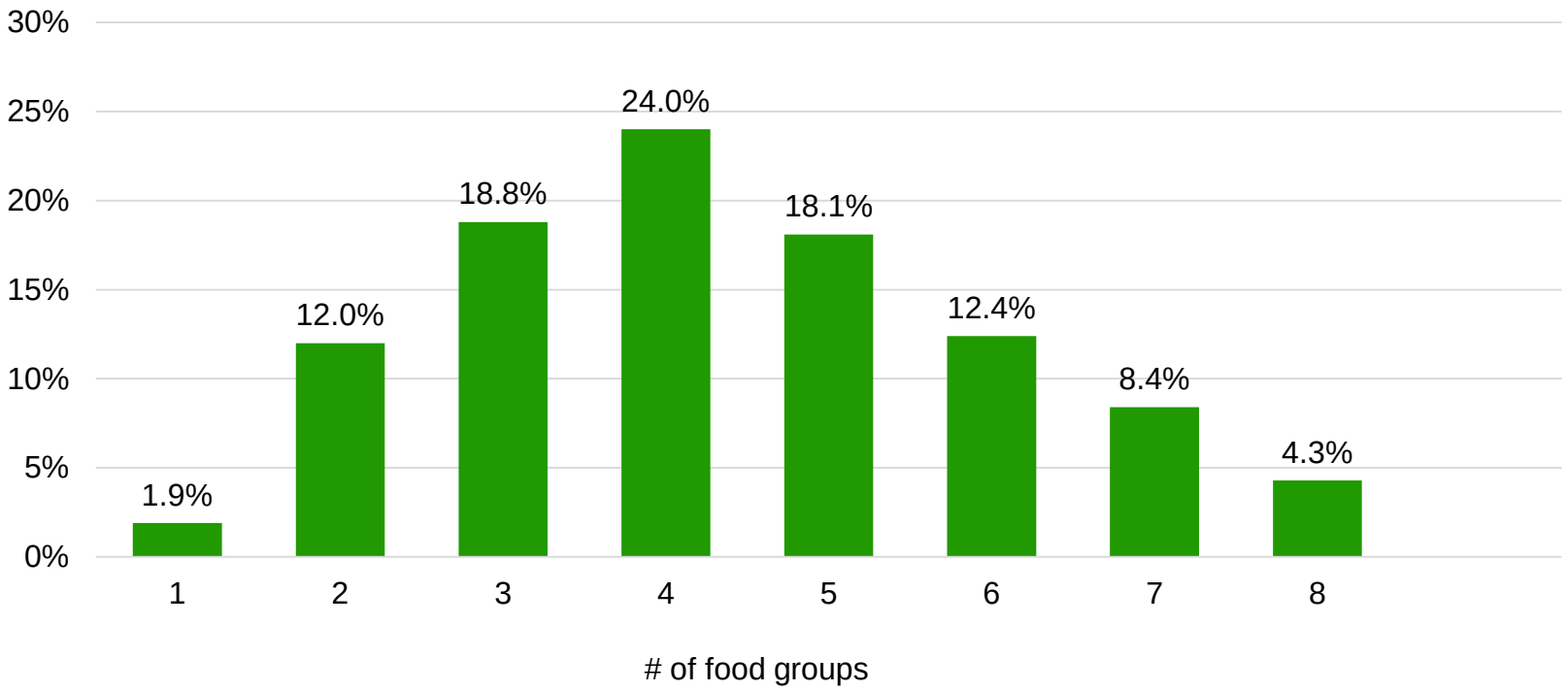


Source: 2015 CFSVA (report uses Livelihood Zones Map from 2010)

On average, less than half (43.3%) of households consume foods from more than four groups

On average, the majority (56.7%) of households consume foods from 4 or less food groups

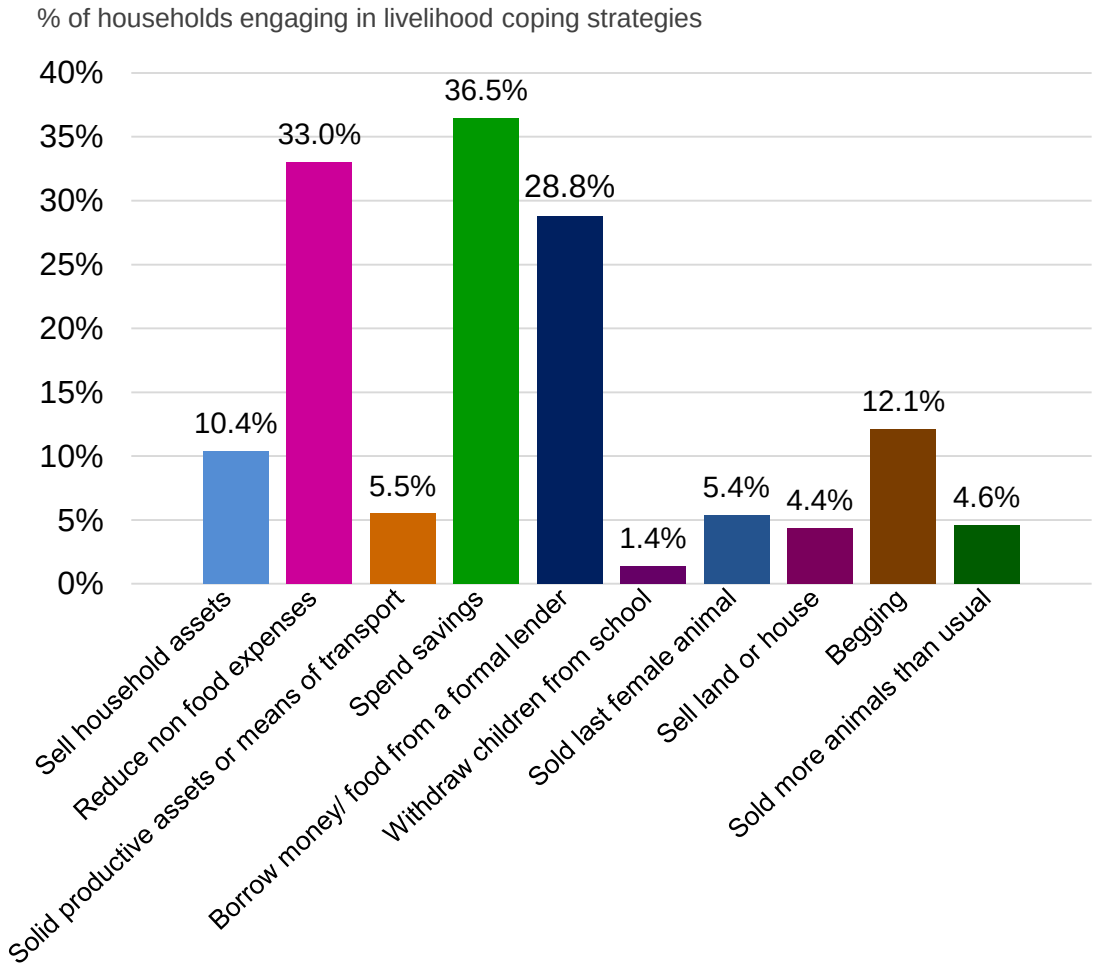
% of household by number of food groups consumed (Household Dietary Diversity Index)



Source: 2015 CFSVA

At the national level, over half (60.3%) of households have used one or more coping strategies to mitigate the effect of a shock

Among coping strategies spending savings, reducing non-food expenditures and borrowing are the most common



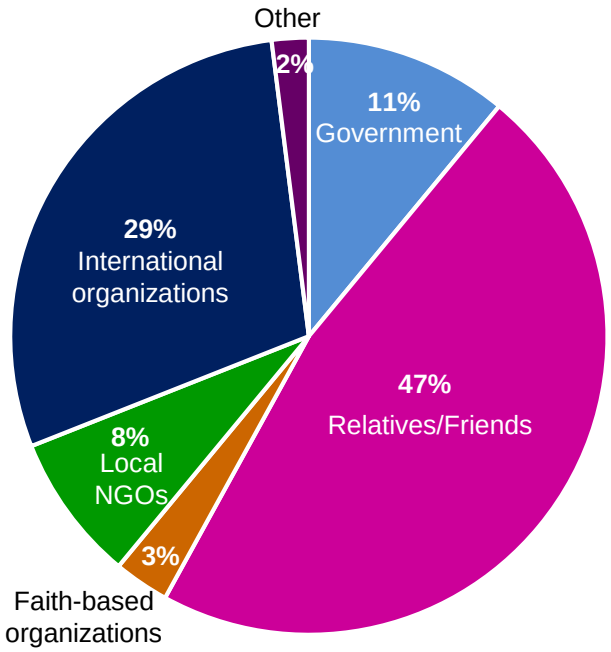
- Between 2014 and 2015, more than half (52.1%) of all households faced at least one shock
- These shocks include:
  - Ebola Virus Disease (71.0%)
  - Drought/irregular rain (53.0%)
  - Market price fluctuations (53.1%)
  - Theft of crops or livestock (50.7%)
  - Death of a household member engaged in income generating activities (49.5%)
  - Floods (46.7%)
- Due to the Ebola Virus Disease, reduced access to food was reported by 54.1% of households

Source: 2015 CFSVA

On average, more than one in ten (12.3%) households receives food and/or non-food assistance to cope with food insecurity and shocks

The main sources of assistance are from relatives and friends, followed by international organizations

% of households receiving food assistance support, by source



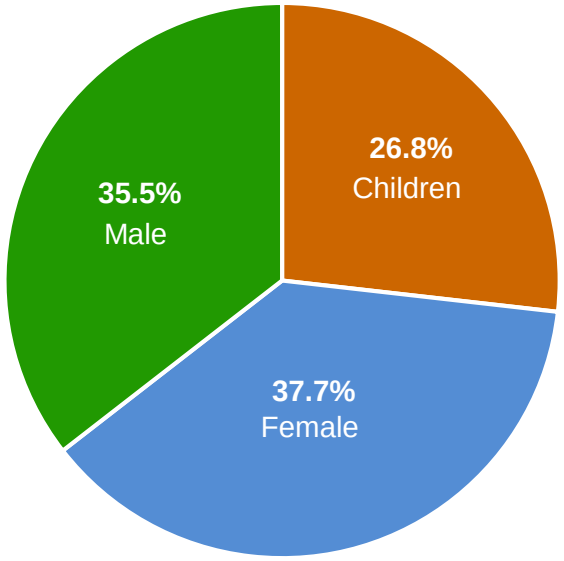
- The most common types of assistance to households are in the form of either food (44.3%) or cash (42.2%)
- On average, urban households receive slightly more assistance than rural households (14.8% vs.11.3% respectively)
- Rural households are more likely to received food assistance than urban households. Whereas, urban households are more likely to received assistance in the form of cash compared to rural households

Source: 2015 CFSVA

Although 40% of people who are engaged in farm work are women, only one fifth of women own land

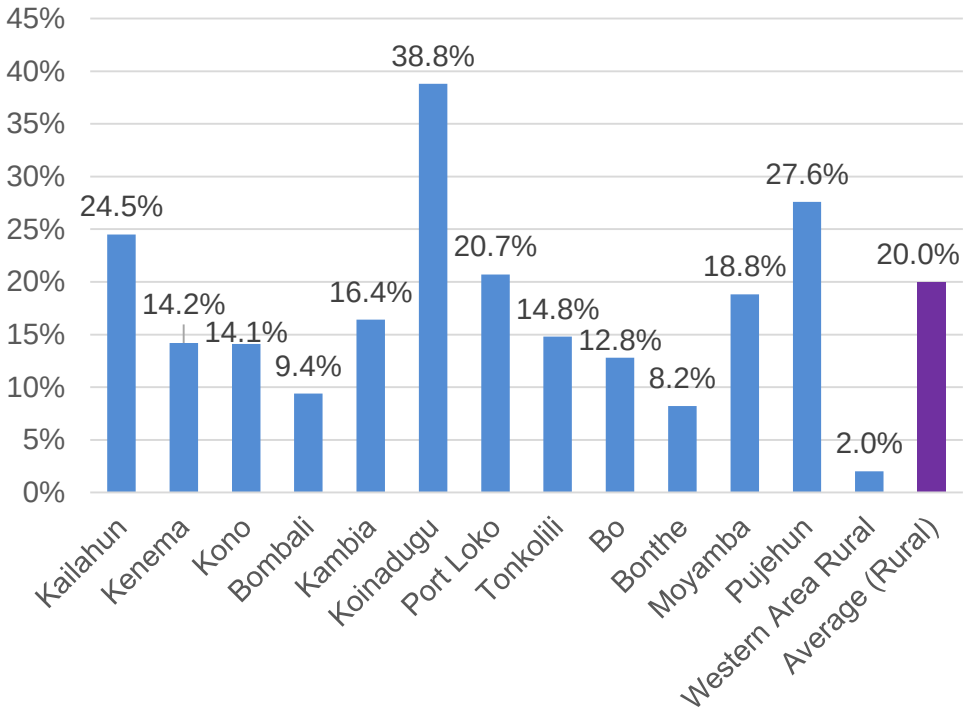
Slightly more women are engaged in farm work compared to men

% of women, men and children engaged in farming activities



One out of five women (20.0%) are landowners

% of women who own land in farming areas

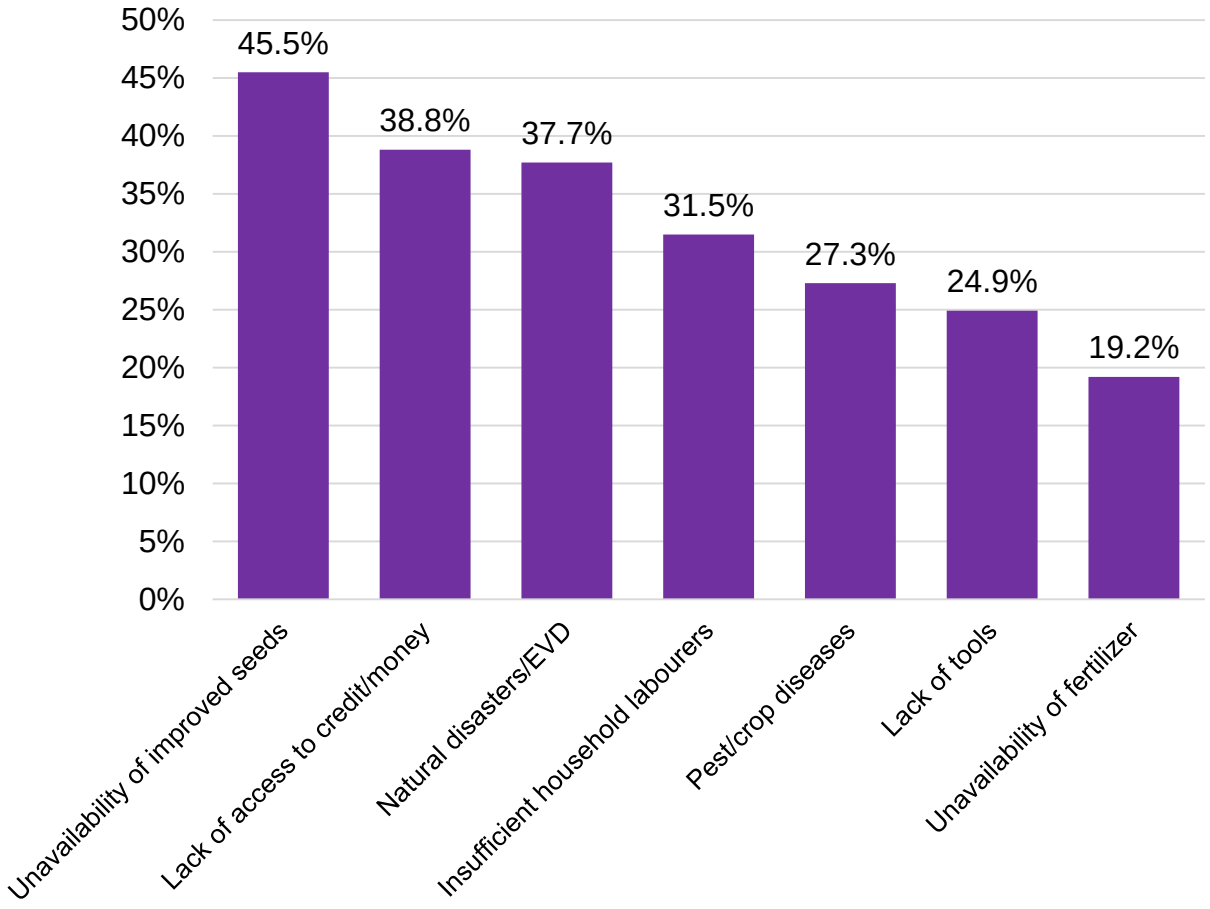


Source: 2015 CFSVA

Unavailability of improved seeds is the biggest constraint preventing farmers from increasing agricultural production

The lack of available improved seeds contributes most to the agricultural productivity, which remains a national concern

% of constraints to agricultural production for households by type



- Other prominent constraints to agricultural production include lack of access to credit and natural disasters, including the Ebola Virus Disease
- Use of irrigation in Sierra Leone is low (4.6%) and is another essential component to increasing crop production

EVD = Ebola Virus Disease
Source: 2015 CFSVA

Basic Causes

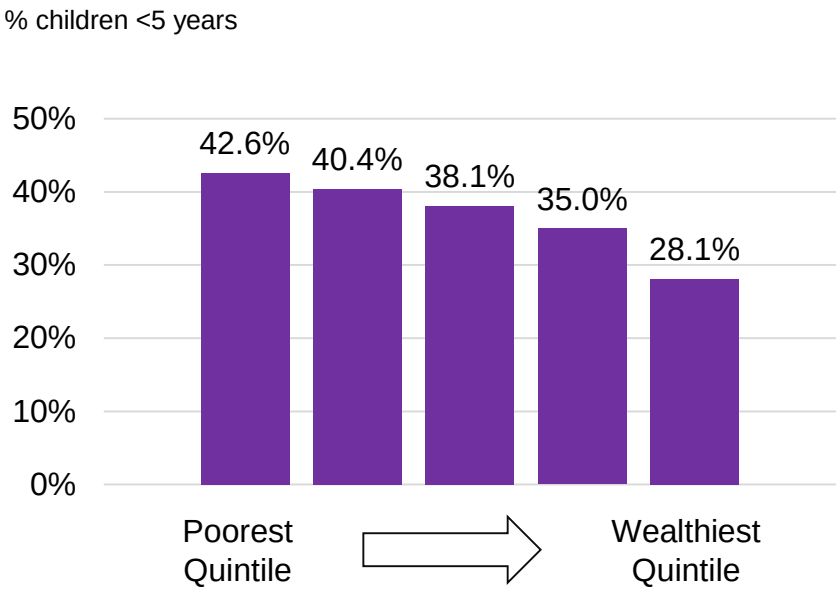
Figures, trends, causes

Key Messages

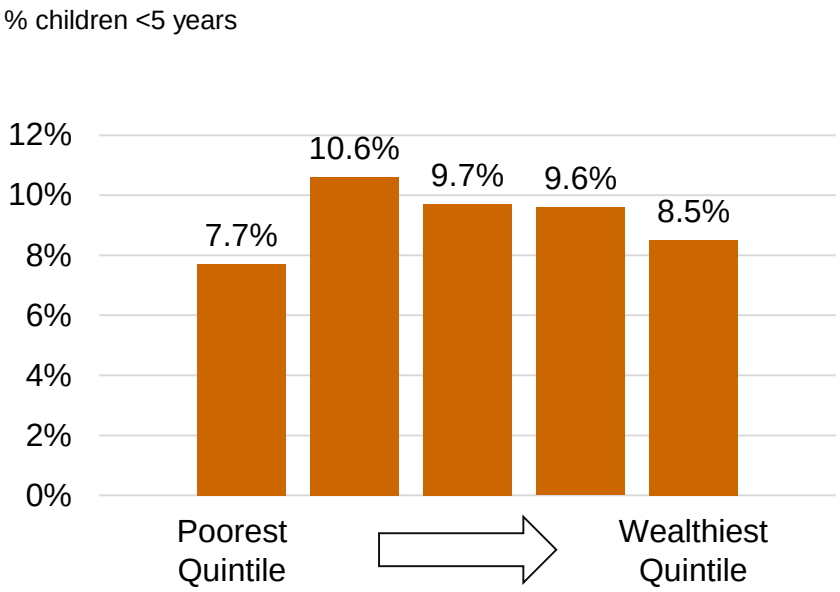
- Household poverty is correlated with the likelihood of a child suffering from chronic malnutrition
- On average, one in ten women make decision about their own health care and two thirds believe in justified beating, which may impact women's health and nutrition status and that of their children
- Early marriage and teenage pregnancy can have an impact on adolescents' health and that of their children; one in six women are married by age 15
- More than half of all adults experience physical and sexual abuse, regardless of gender, and this can have long term impacts on their health and that of their children
- While the total fertility rate varies between wealth quintiles and settings, the national average has changed little since 2008, averaging 4.9 children per woman in 2013
- The rate of teenage pregnancy has declined between 2008 and 2013, however by the age of 19 many girls have still begun child bearing
- Women with secondary or higher education typically have their first birth nearly two years later than women with less education, which can have beneficial impacts on their health
- Almost three quarters of women in Sierra Leone reported at least one problem in accessing health care for themselves
- The mother's level of education is a factor that affects many aspects of her health and nutrition, including that of her child; children of mothers with secondary or higher education are less likely to be stunted
- The 2014 Ebola Virus Disease (EVD) outbreak had deep socioeconomic impacts affecting more than half of all households

Household poverty is correlated with the likelihood of a child suffering from chronic malnutrition

Chronic malnutrition is less common in wealthier households



Acute malnutrition varies between wealth quintiles less



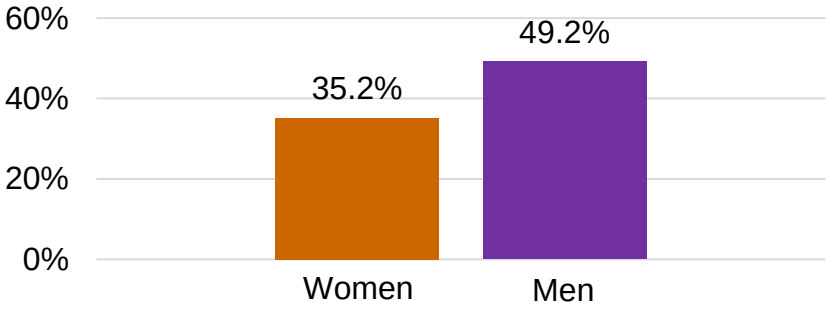
- Chronic malnutrition decreases in households with higher income, but it remains high even in the wealthiest quintile, where over a quarter of children (28.1%) are stunted
- Acute malnutrition, being more susceptible to short term shocks, fluctuates across wealth quintiles

Source: DHS 2013

Inequalities faced by women may impact the health and nutrition of women and their children

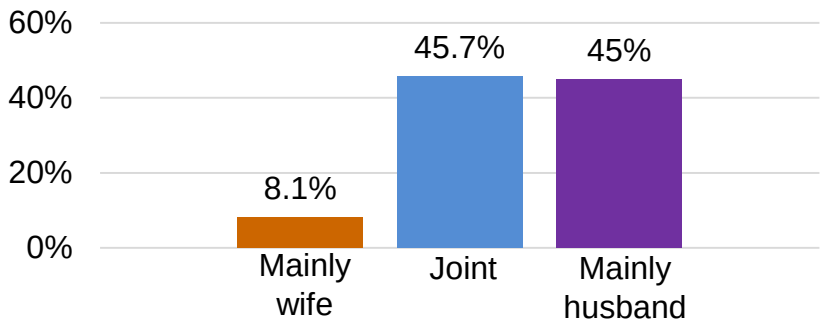
Men are more likely to complete primary education or higher than women

% of adults (age 15-49) by sex who have completed primary education or higher



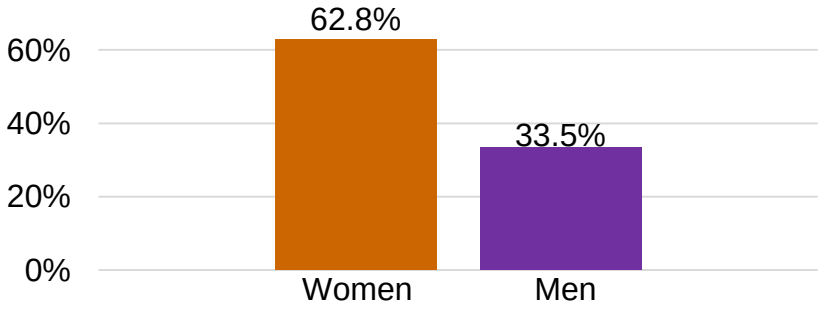
Few women make decisions about their own health care

% of married women age 15-49 who usually make decisions about own health care



Two thirds of women believe their husbands are justified to beat them for specific reasons

% of 15-49 year olds who agree that a husband is justified in hitting or beating his wife for specific reasons

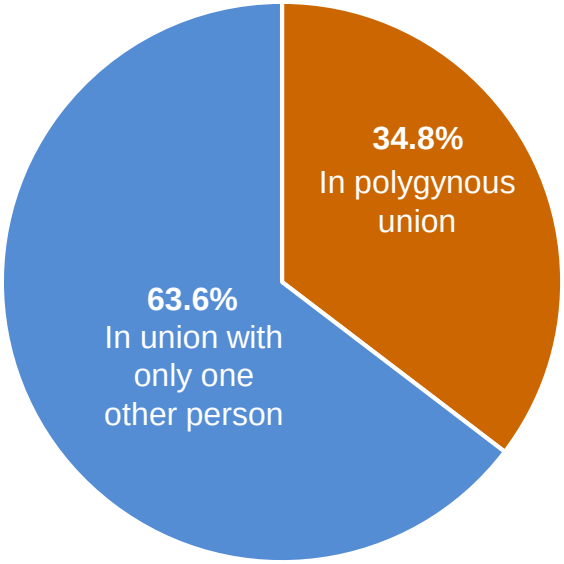


Source: DHS 2013

Early marriage and teenage pregnancy can have an impact on adolescents' health and that of their children

Over a third of married women are in polygynous* unions

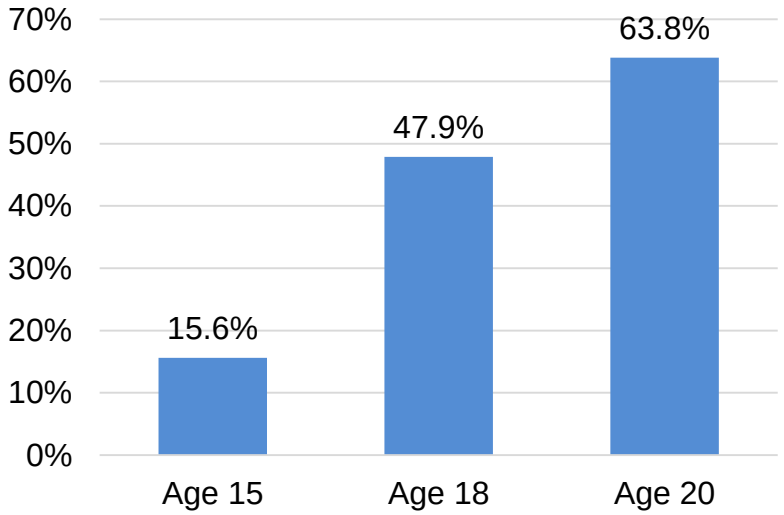
% of married women 15-49 years of age



- The proportion of women living in polygynous unions increases with age: 1 in 5 women age 15-19 compared to 1 in 2 women age 45-49 (18.9% and 46.6% respectively)
- Polygynous unions are almost twice as prevalent in rural areas (39.4%) than in urban areas (22.3%)

One in six women age 20-49 are married by age 15, and half are married by age 18

% of women married by age



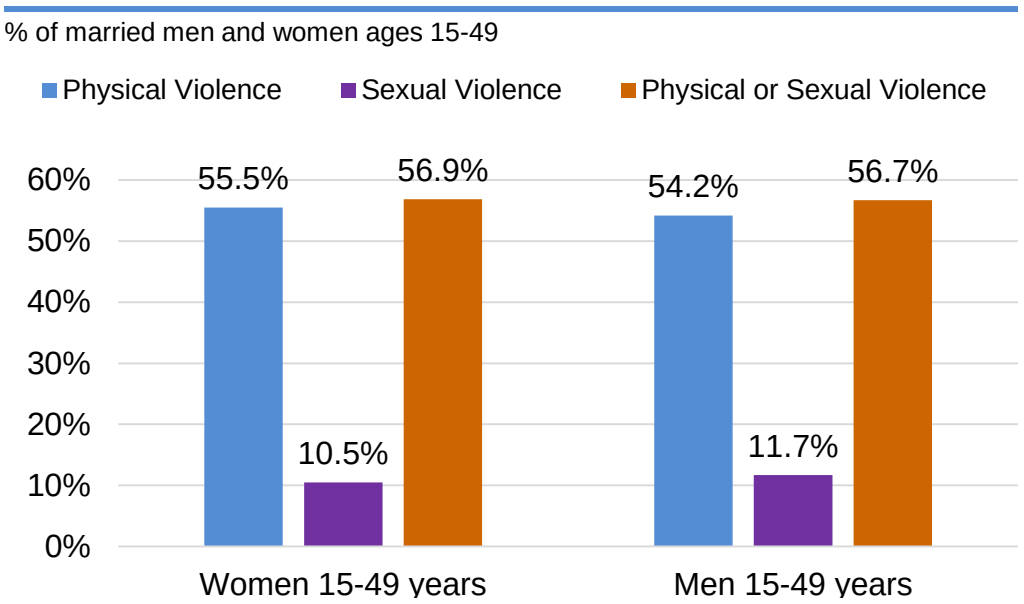
- Gender based violence and gender inequality are contributing factors to teenage pregnancy and early marriage in Sierra Leone
- Teenage pregnancy can occur as a result of early or forceful marriage, and conversely, early marriage can result from teenage pregnancy

***** Polygyny is one form of polygamy, in which a male has more than one wife or female mate at a time.

Source: DHS 2013; Search for Common Ground. 2015: The Worst Forms Of Violence Against Children And Youth In Sierra Leone

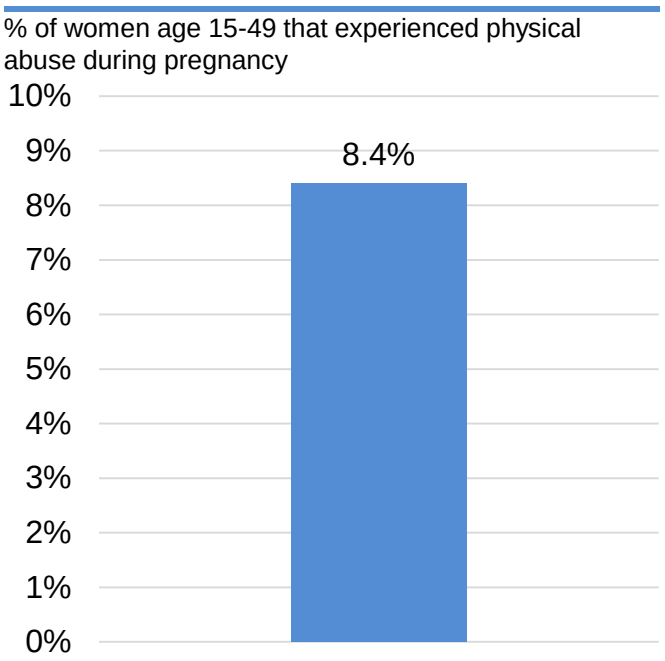
More than half of all adults experience physical and sexual abuse, regardless of gender, and this can have long term impacts on their health and that of their children

One in ten adults suffer sexual violence and more than half have suffered physical violence



- There is little variation between urban and rural instances of abuse, but the prevalence does vary between districts:
  - Physical violence is highest in Port Loko and Tonkolili for women, while for men it is highest in Pujehun and Tonkolili
  - Sexual violence is highest in Tonkolili and Kambia for women, while for men it is highest in Western Area Urban and Tonkolili

Almost one in ten women is physically abused while pregnant

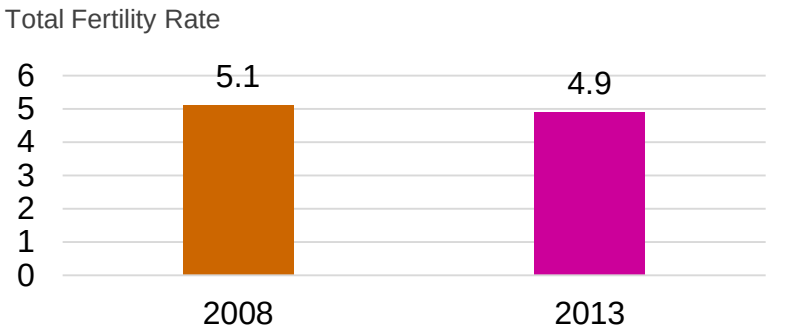


- The rates of physical and sexual violence are high, which can affect the psychological and physical health status of women of reproductive age, and can be harmful to the health of their children

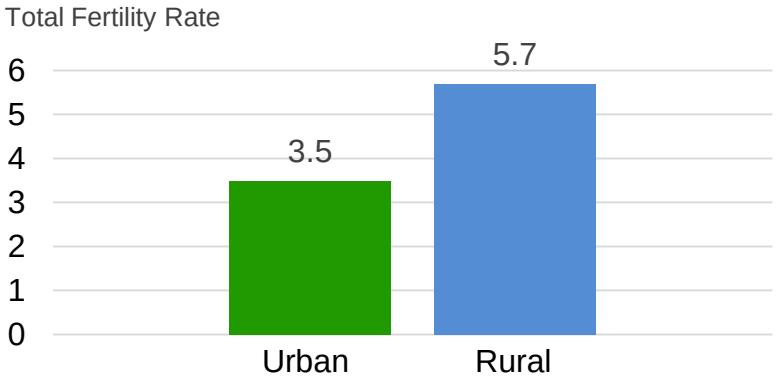
Source: DHS 2013

While the total fertility rate varies between wealth quintiles and settings, the national average has changed little since 2008

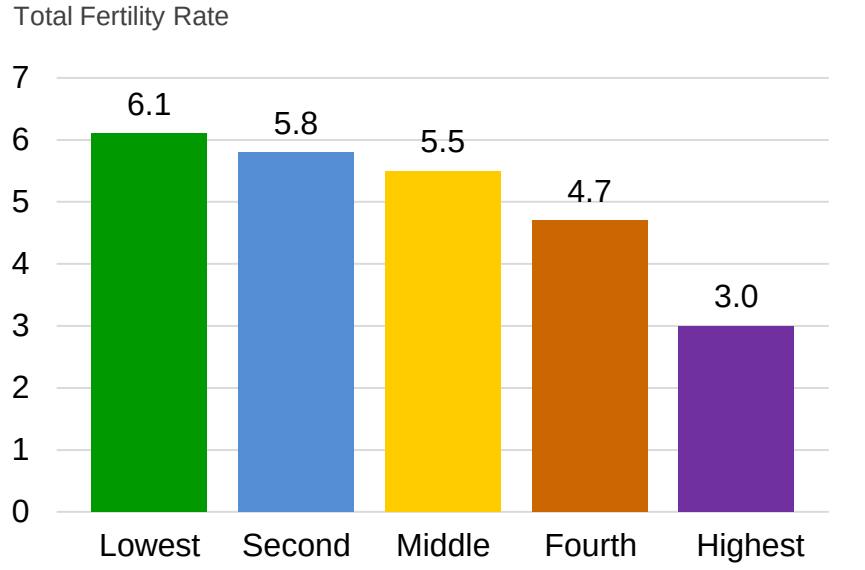
The fertility rate is high, and has not decreased in recent years, which can affect the health of women and children



The total fertility rate is higher in rural areas than in urban areas



Households in higher wealth quintiles have lower total fertility rates

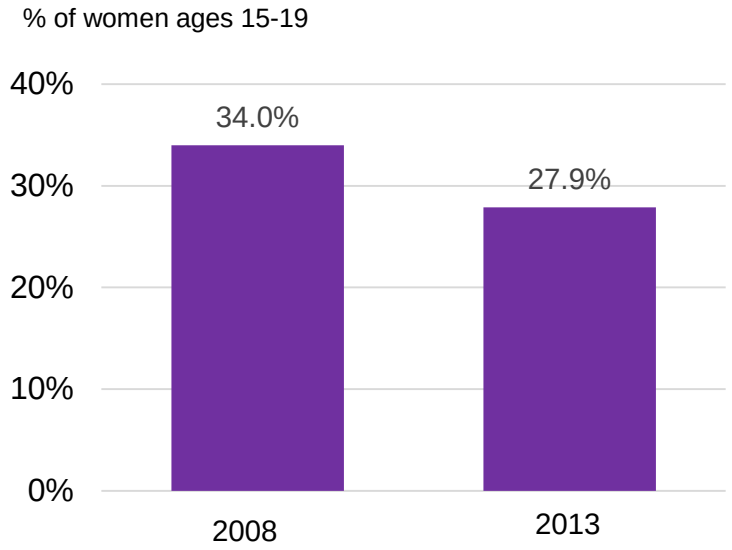


A high fertility rate is a barrier to good nutrition in a country. For example, when women have intervals between births of less than 6 months, they are much more likely to suffer from anaemia (32%) and have a stillbirth (40%)

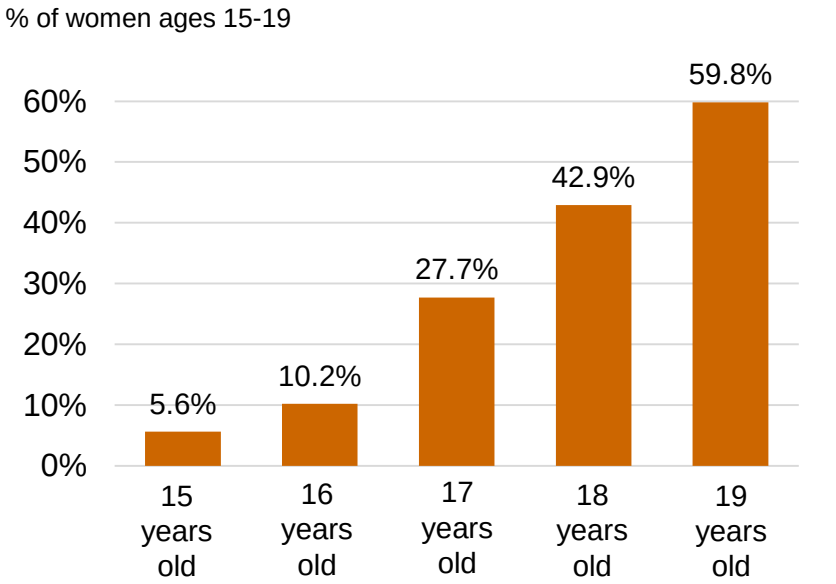
Source: DHS 2008, 2013; Bhutte et al. (2013) *Evidence-based interventions for improvement of maternal and child nutrition: what can be done and at what cost?* The Lancet

The rate of teenage pregnancy has declined between 2008 and 2013, however by the age of 19 many girls have still begun child bearing

Fewer women ages 15-19 have begun childbearing in 2013 compared to 2008



More than half of women 15-19 years of age have begun childbearing by age 19

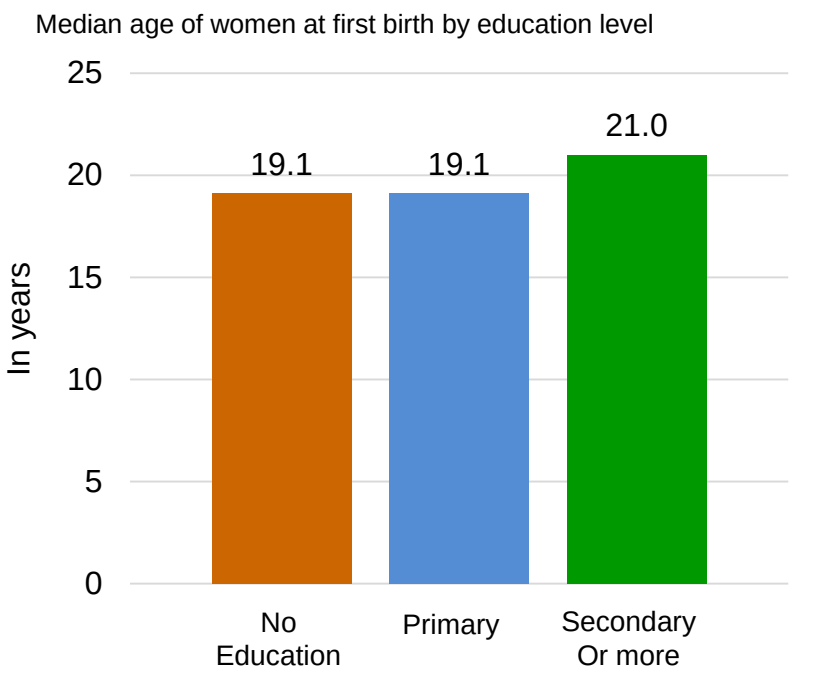


Adolescent girls who give birth to children who have not completed their own growth are at risk of complications at the time of childbirth, and their children may suffer from chronic malnutrition

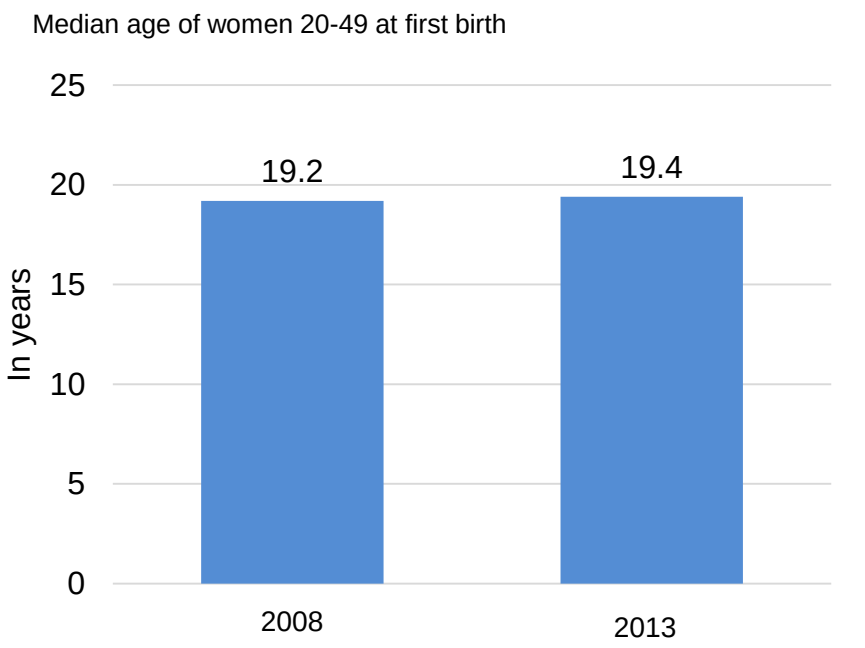
Source: DHS 2008, 2013, Articles 1 and 2 of the Lancet series on Maternal and Child Health (2013); Adolescent Pregnancy (WHO 2004)

Women with secondary or higher education typically have their first birth nearly two years later than women with less education, which can have beneficial impacts on their health

The age at which women have their first birth is higher for those with higher education



The median age of women at first birth has not changed significantly since 2008

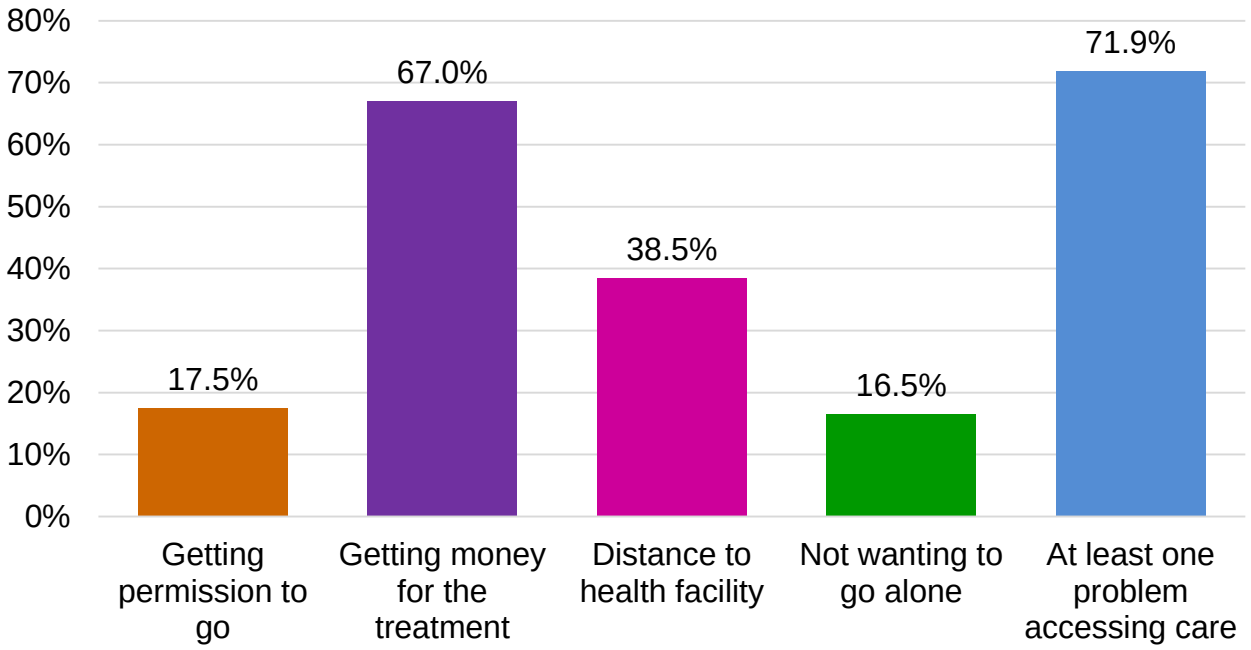


Source: DHS 2008, 2013

Almost three quarters of women in Sierra Leone reported at least one problem in accessing health care for themselves

Women are most likely to have problems getting money for treatment or getting to a health facility

% of women 15-49 year who reported that they have serious problems in accessing health care

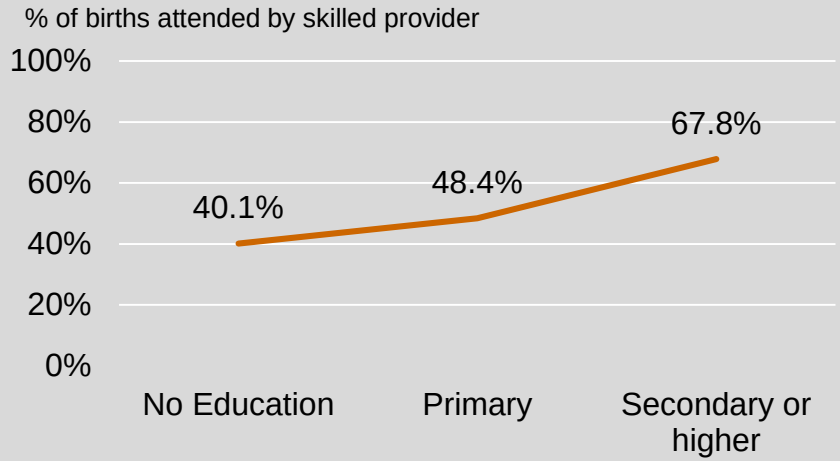


- Access to health care reduces the burden of maternal, child and newborn health challenges
- Addressing such barriers in Sierra Leone can contribute to the reduction in the prevalence of both stunting and wasting

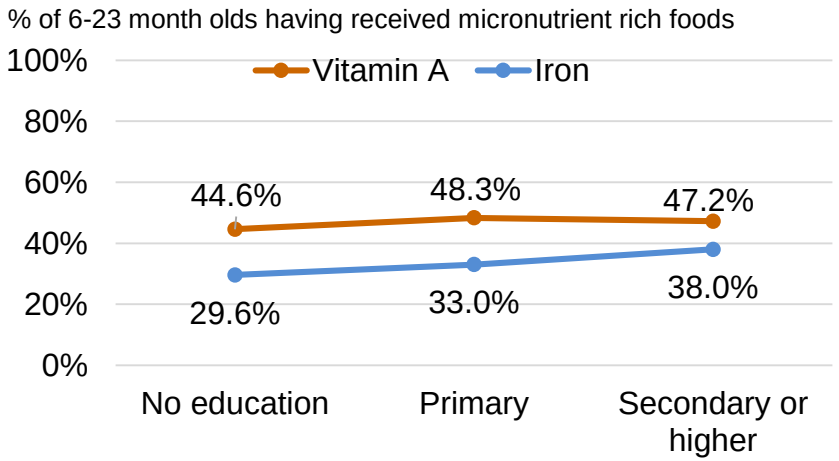
Source: DHS 2013

The mother's level of education is a factor that affects many aspects of her health and nutrition, including that of her child

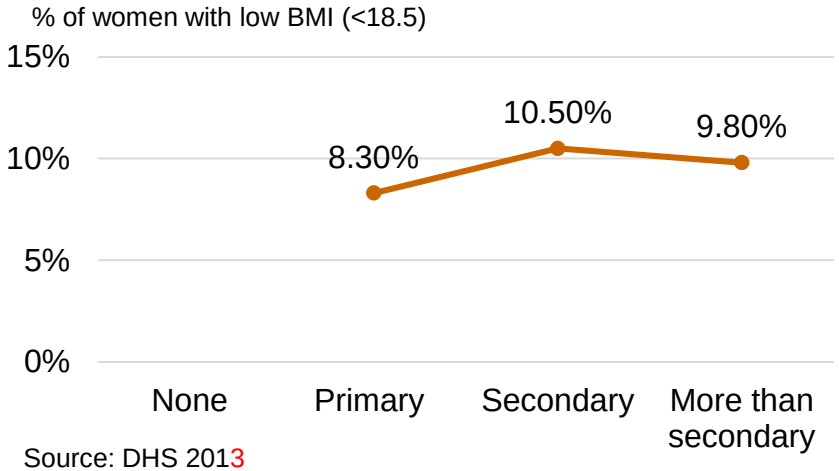
Births attended by a skilled provider increase with the mother's education level



Children's consumption of vitamin A and iron-rich foods are lowest when mothers have no education

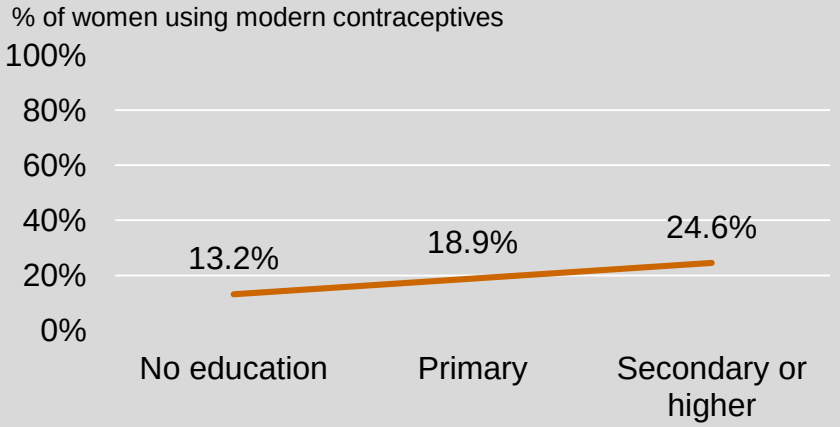


A woman being thin (low BMI) is not correlated with the mother's education level



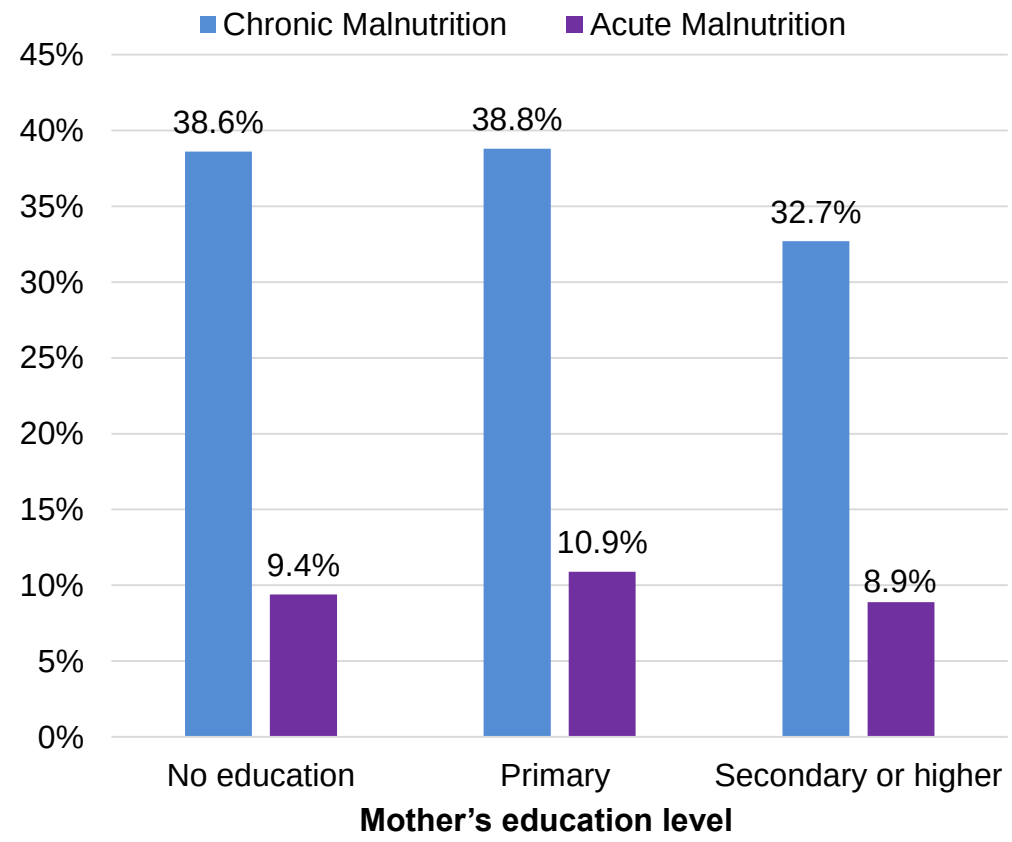
Source: DHS 2013

Contraceptive use is positively correlated with women's education level



A mother's level of education is a determinant of her children's nutrition status, especially for chronic malnutrition

Children of mothers with secondary or higher education are less likely to be stunted

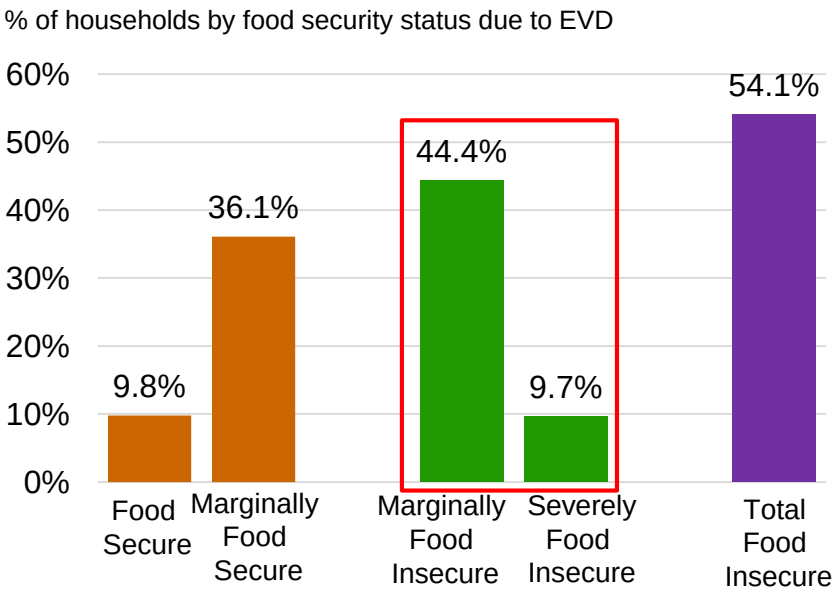


- The prevalence of stunting among children under 5 is 5.9 percentage points higher when the mother has completed only a primary school education compared to completing secondary school or higher
- The prevalence of acute malnutrition varies less according to mother's level of education than the prevalence of chronic malnutrition does, though it decreases slightly for those whose mothers have completed secondary education or higher

Source: DHS 2013

The 2014 Ebola Virus Disease (EVD) outbreak had deep socioeconomic impacts affecting more than half of all households

Nationally, more than half (54.1%) of households experienced a decrease in food security due to the impact of the EVD



- Agriculture was the sector most affected by EVD outbreak-related shocks, with 71.0% of households experiencing a shock

- The Ebola Virus Disease had significant indirect impacts across the country, resulting in increased food insecurity:
  - the difficulty in continuing agricultural activities
  - the restrictions in population movement to reduce the spread of the disease
  - the hardship in accessing markets

- Over half (52.9 %) of households experienced decrease in their income levels as a result of the EVD epidemic

- Shortly after the EVD outbreak, Sierra Leone was hit by a second exogenous shock: floods impacted food security further

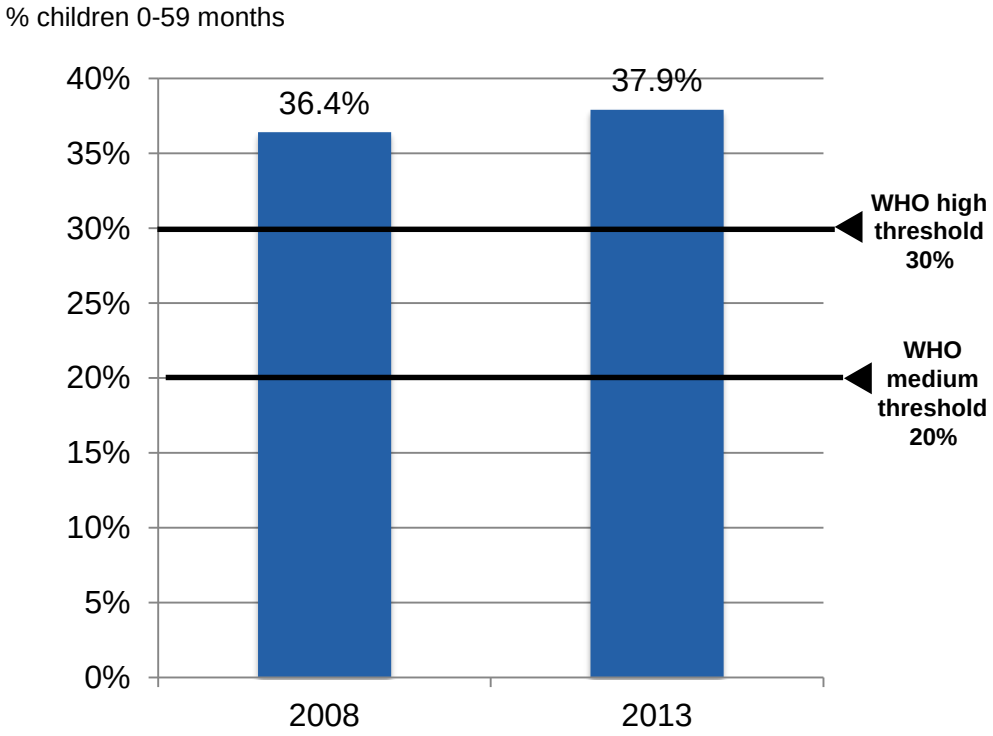
Source: CSFVA 2015

Anthropometric Indicators: using DHS to analyse trends over time

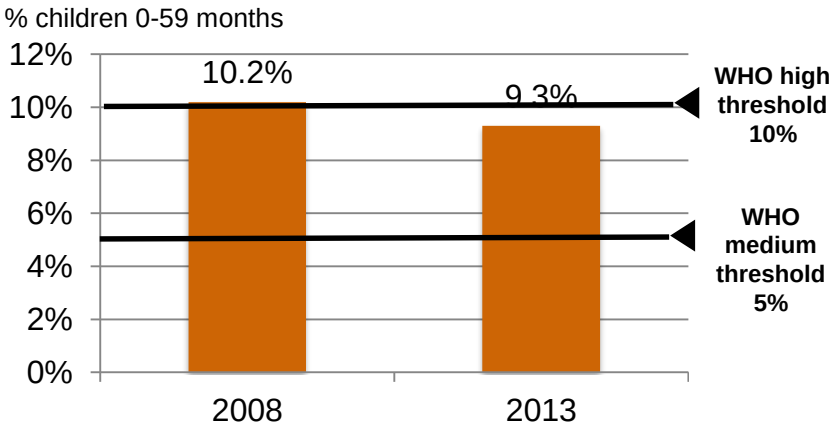
Chronic malnutrition, acute malnutrition and overweight

There has been little change in stunting, wasting and overweight between 2008 and 2013

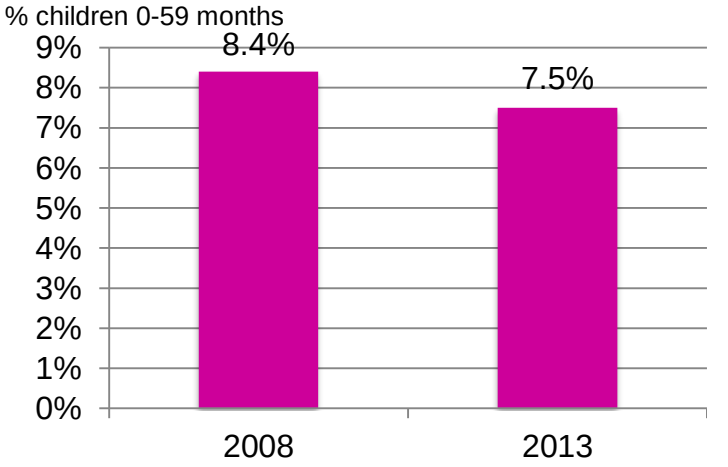
Chronic Malnutrition



Acute Malnutrition



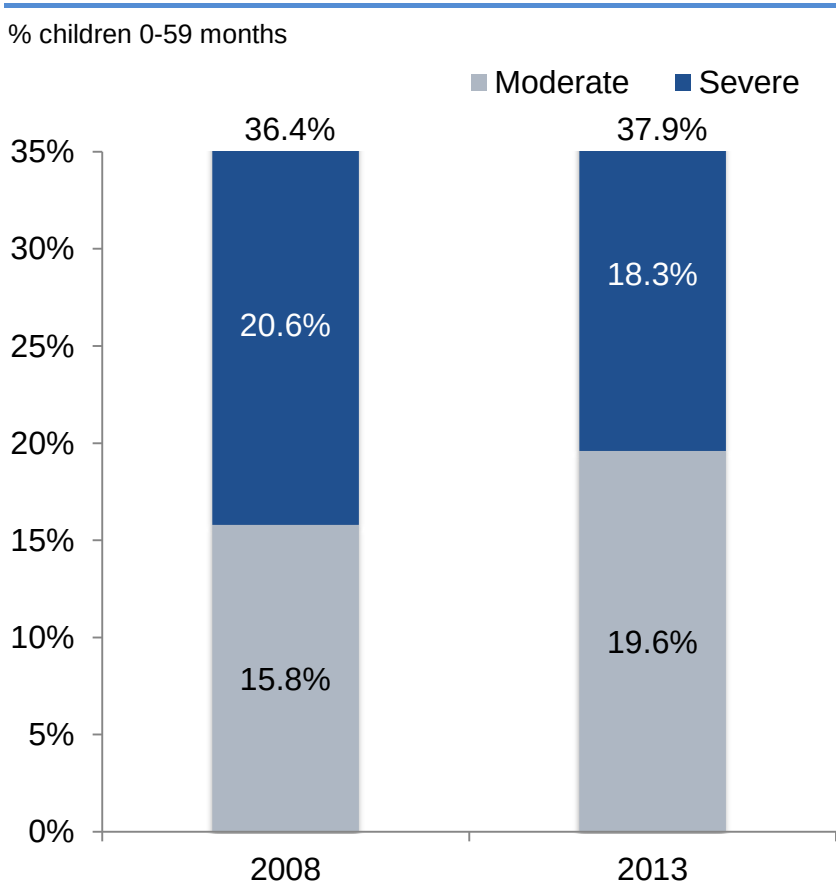
Overweight



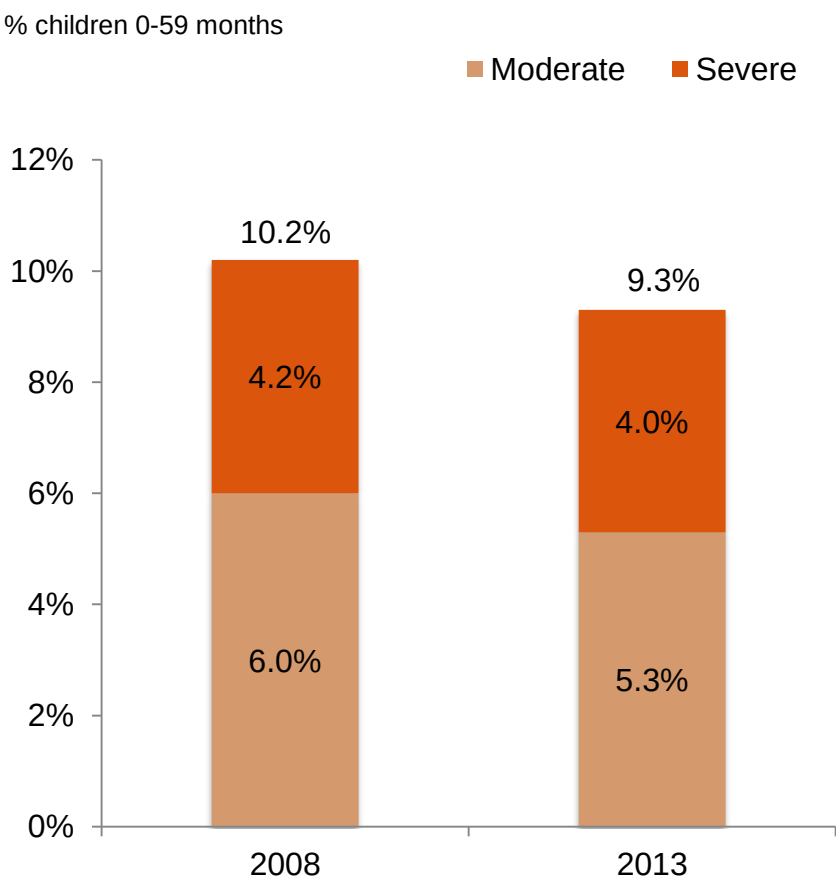
Sources: DHS 2008, DHS 2013

For both the prevalence of stunting and wasting, there has been little change between severe and moderate malnutrition

Chronic Malnutrition



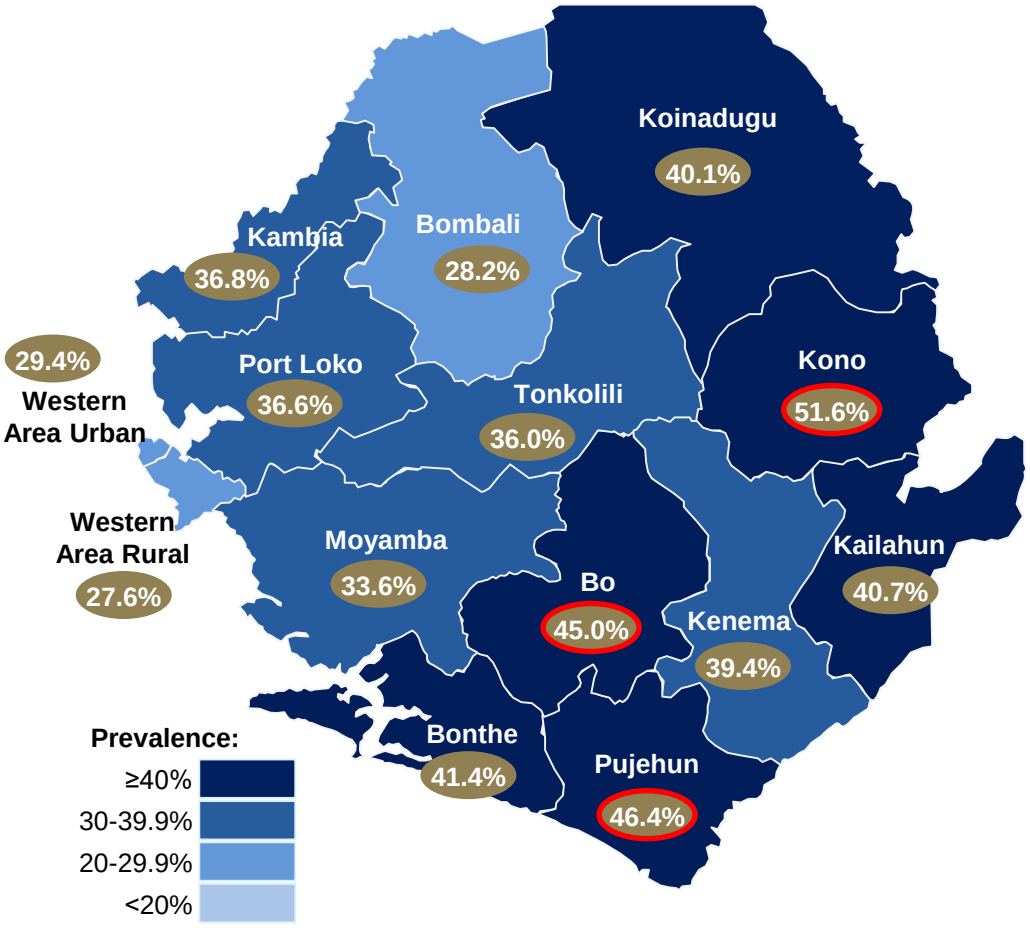
Acute Malnutrition



Sources: DHS 2008, DHS 2013

All regions continue to have high rates of chronic malnutrition, particularly among the eastern and southern districts

Prevalence of chronic malnutrition among children 0-59 months



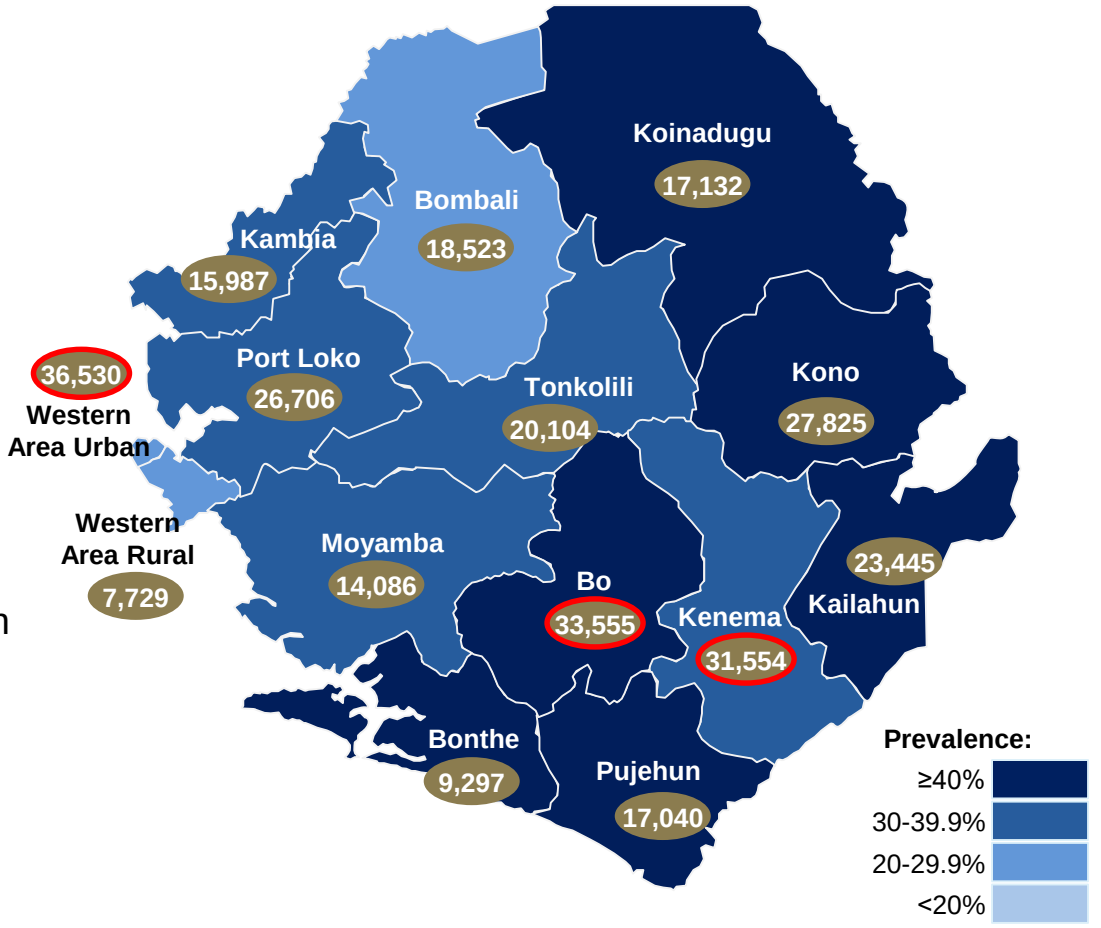
- All of the 14 districts are above the stunting threshold of 20%, used as a national reference
- The prevalence of stunting in the east is higher than in the west
- In 3 of the districts, the prevalence of stunting is between 20-30%
- In 5 of the 14 districts prevalence is just below the WHO severe threshold, between 30 and 40%
- 6 of the 14 districts have a prevalence of stunting above the WHO critical threshold (40%) of chronic malnutrition
- The western districts of Bombali, Western Area Urban and Rural have the lowest rates of chronic malnutrition

Source: DHS 2013

The district with the largest number of children under 5 with chronic malnutrition is the Western Area Urban

- The districts with the highest number of stunted children do not always reflect the districts with the highest prevalence due to disparities in population density
- The district with the highest number of children who are stunted is Western Area Urban, followed by Bo and Kenema
- Of the three districts that have the most critical prevalence of stunting, Bo also has one of the highest absolute numbers of stunted children

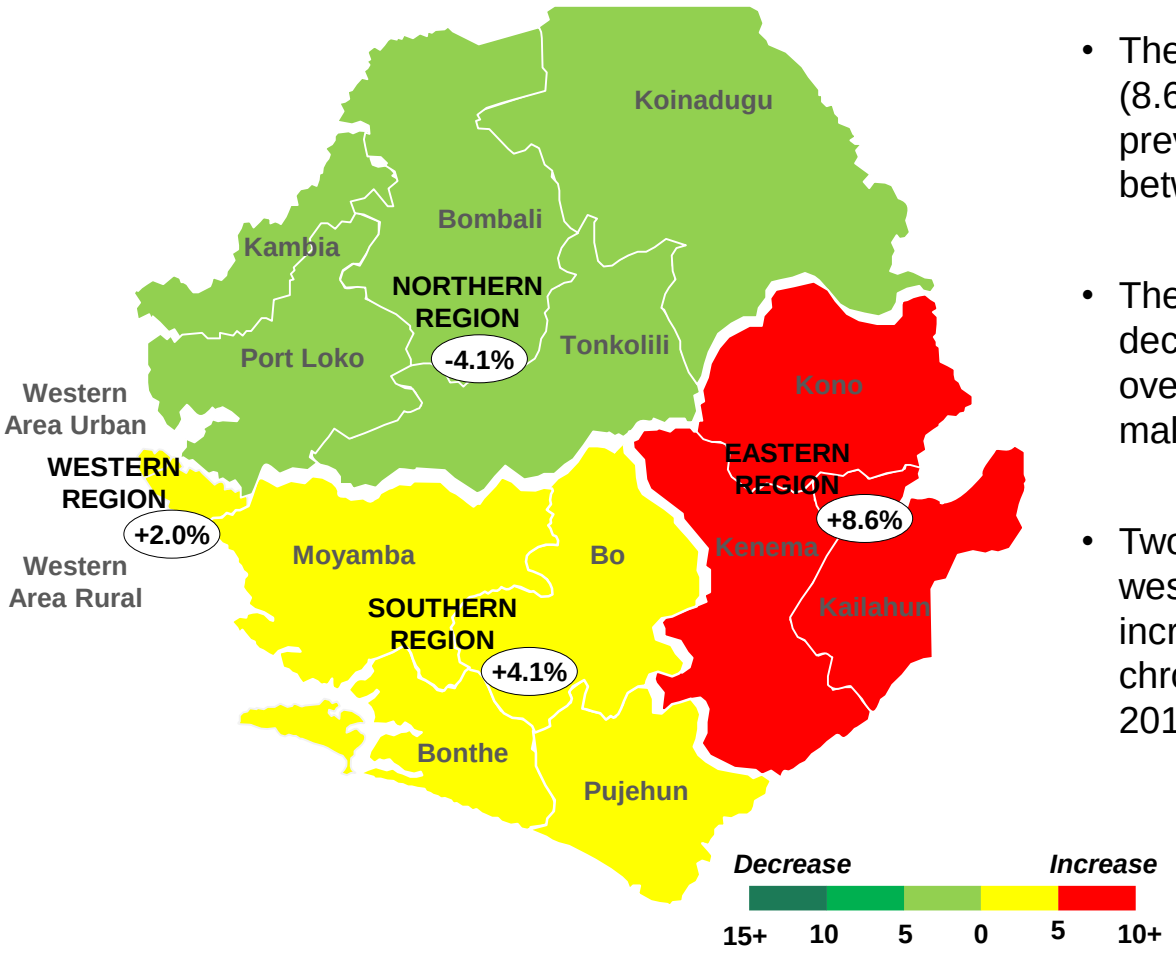
Chronic Malnutrition: absolute numbers and prevalence



Sources: DHS 2013, United Nations, Department of Economic and Social Affairs, Population Division (2015). World Population Prospects: The 2015 Revision, DVD Edition. 2004 Sierra Leone Population and Housing Census, Government of Sierra Leone

Only one region noted a decrease (4.1%) in the prevalence of chronic malnutrition between 2008 and 2013

The change in chronic malnutrition prevalence (in % points) between 2008 and 2013

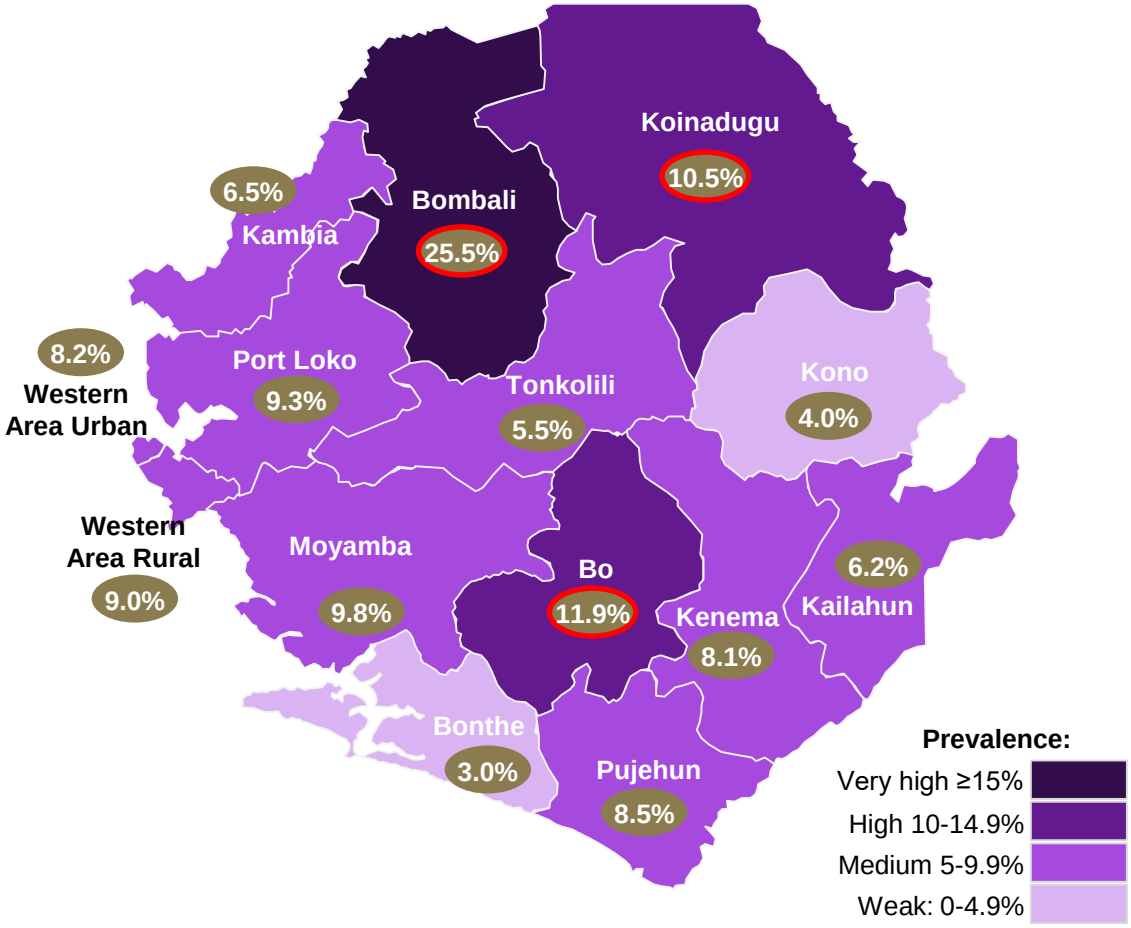


- The eastern region noted an increase (8.6 percentage points) in the overall prevalence of chronic malnutrition between 2008 and 2013
- The northern region recorded a slight decrease (4.1 percentage points) in the overall prevalence of chronic malnutrition between 2008 and 2013
- Two regions, (the southern region and western region) recorded a slight increase in the overall prevalence of chronic malnutrition between 2008 and 2013

Sources: DHS 2008, 2013

The prevalence of wasting is alarmingly high in three of the 14 districts

Prevalence of acute malnutrition among children 0-59 months



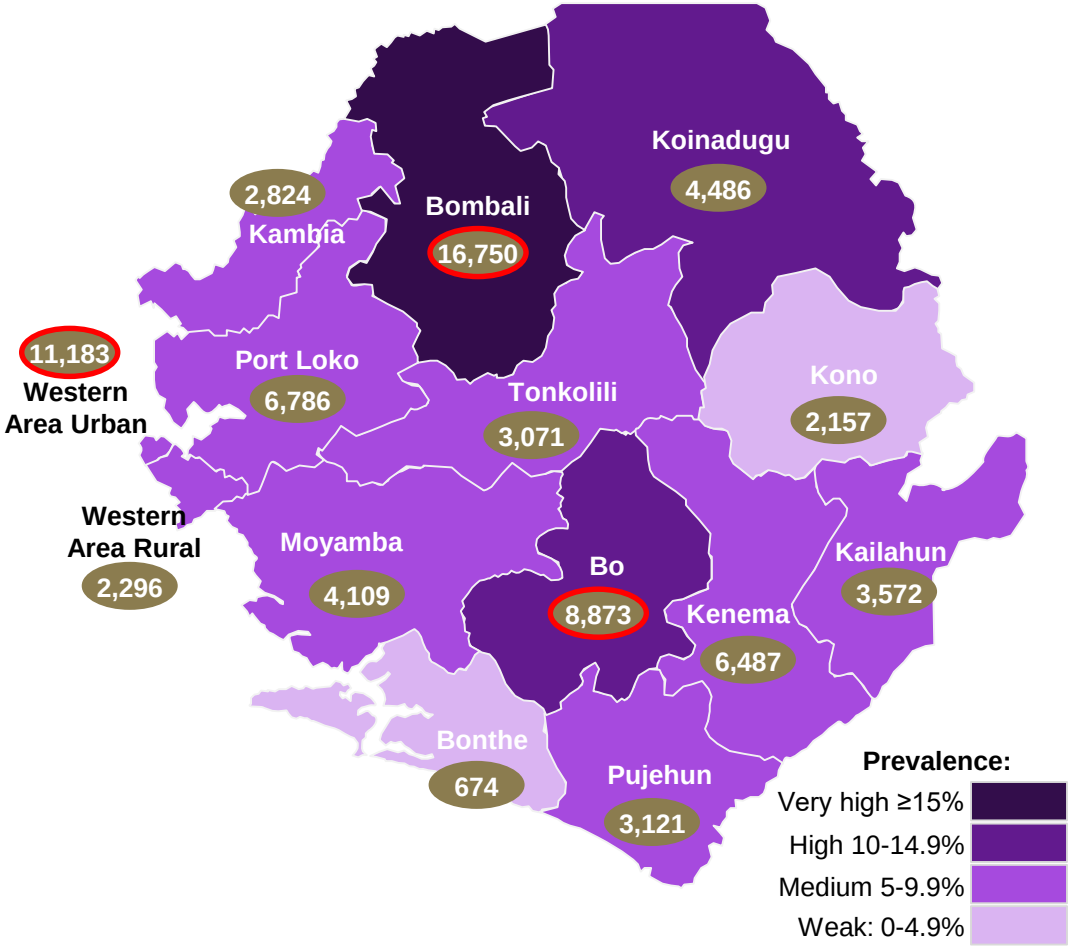
- The prevalence of wasting is highest in the Bombali district (25.5%), followed by Bo (11.9%) and Koinadugu (10.5%)
- The Bonthe district in the southern region has the lowest prevalence of acute malnutrition (3.0%), followed by Kono district in the eastern region (4.0%)

Source: DHS 2013

Similar to the district rates of wasting, the two districts with highest prevalence also have high absolute numbers of children with acute malnutrition

- Prevalence rates of the same order can reveal absolute numbers of very different malnourished children, depending on the population density of the district
- The northern district of Bombali has the largest number of children under 5 with acute malnutrition (16,750) and also the highest prevalence
- Though the prevalence is low, the population density in the Western Area Urban is high, resulting in a high number of children with acute malnutrition (11,183)

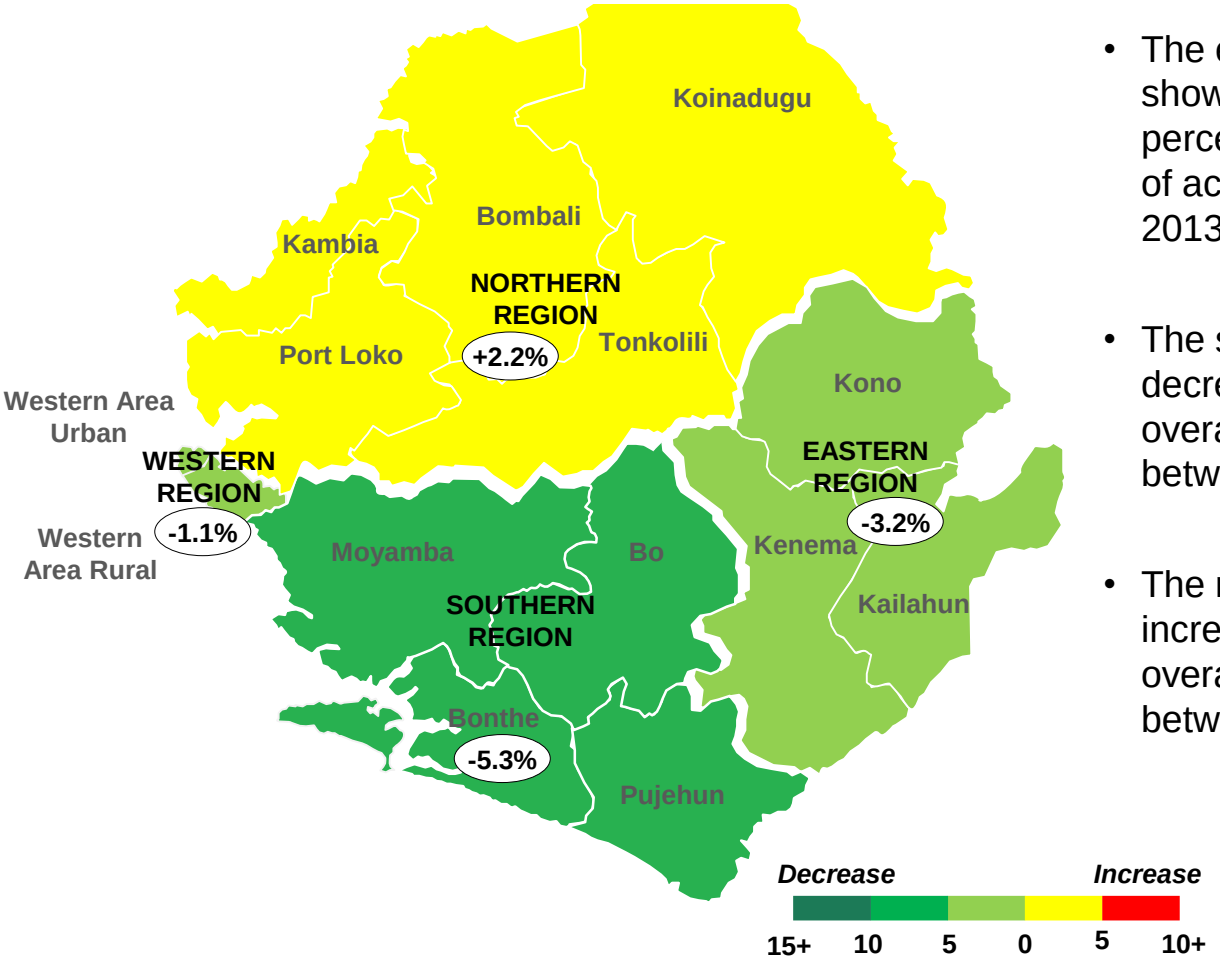
Acute Malnutrition: absolute numbers and prevalence



Sources: DHS 2013, United Nations, Department of Economic and Social Affairs, Population Division (2015). World Population Prospects: The 2015 Revision, DVD Edition. 2004 Sierra Leone Population and Housing Census, Government of Sierra Leone

Three of the four regions recorded decreases in acute malnutrition between 2008 and 2013

The change in acute malnutrition prevalence (in % points) between 2008 and 2013



- The eastern and western regions showed a slight decrease (>5 percentage points) in overall prevalence of acute malnutrition between 2008 and 2013
- The southern region recorded a larger decrease (5.3-percentage points) in the overall prevalence of acute malnutrition between 2008 and 2013
- The northern region recorded a slight increase (2.2 percentage points) in the overall prevalence of acute malnutrition between 2008 and 2013

Source: DHS 2008, 2013