Renk Multi-Sectoral Needs Assessment Brief

Renk County, Upper Nile State, South Sudan, June 2019

Introduction

Renk County, located in northern South Sudan bordering Sudan's White Nile, Blue Nile, and Sennar States, has regularly expressed concerning high prevalence of Global Acute Malnutrition (GAM)[1]. For the past 5 years, Renk host community has been assessed with Global Acute Malnutrition by weight for height (GAM by WHZ)[1] prevalence in the rainy season (lean season) above the 15% World Health Organization (WHO) emergency threshold[2], with 2016 and 2017 recording prevalence more than double the emergency threshold.

Medair regularly monitors the nutrition situation in Renk county, having conducted Standardized Monitoring and Assessment of Relief and Transition (SMART)[3] surveys in the rainy season since 2014. The May 2018 SMART survey determined a GAM prevalence in the host community of 26.9% (22.7-31.6 95% CI), and a SAM rate of 6.4% (4.8-8.6 95% CI)[4]. Furthermore, the January 2019 Integrated Phase Classification (IPC) analysis assessed Renk county as Phase 3 'Crisis' for Acute Food Insecurity (IPC AFI)[5] and Phase 3 'Serious' for Acute Malnutrition (IPC AMN)[5]. In September 2018, Renk was classified Phase 2 'Stressed' for IPC AFI and Phase 4 'Critical' for IPC AMN[6]. This high prevalence and classifications could have been related to the disruption of livelihoods due to conflict in 2014/2015, reduction in purchasing power for food due to the economic crisis, and border closures that have contributed to food price spikes in the markets.

Several humanitarian partners provide services in Renk county. Medair is the main nutrition partner in Renk county, providing integrated Outpatient Therapeutic Programs (OTP)[7] and Targeted Supplementary Feeding Programs (TSFP)[8]. Medair runs two static, primary health care clinics with integrated health and nutrition services in Abayok and Wunthow camp settlements, and a third static nutrition clinic at a Ministry of Health site located in Jelhak Centre town is in a host community populated area. Medair supports eight mobile nutrition clinics throughout the county. One Stabilization Center (SC)[9] is managed by Medair in Abayok. World Vision is the main health system strengthening partner and food security partner in the county.

Through REACH's support to the Nutrition Cluster and the Nutrition Information Working Group (NIWG), REACH provided technical support and consultation for SMART to Medair in May 2019 in order to continue monitoring the nutrition situation and to better understand the multi-sectoral needs and humanitarian situation in Renk county. Multi-sectoral indicators were also collected to inform key drivers of acute malnutrition in the population. This brief focuses on survey results for the host community only.

Key Findings

- **Global acute malnutrition (GAM) for Renk host community was 32.1% (27.4 – 37.2 95% CI), and severe acute malnutrition (SAM)[1] of 8.5% (6.0 – 11.9 95% CI), a value double the WHO recommended emergency threshold[2] and the highest GAM in South Sudan as of July for 2019. Some clustering of GAM was noted in southern Renk, Jelhak payam.**
- **Crude mortality rate (CMR) was 0.78 (0.5 – 1.19 95% CI) deaths per 10,000 people per day, with an under-five mortality rate (U5MR) of 0.30 (0.07 – 1.20 95% CI). This CMR is a decrease from rates exceeding WHO emergency threshold in May 2018 (1.65 deaths per 10,000 people per day)[6], and while high is similar to CMRs observed in previous years.**
- **More than half of households reported market purchase as their main source of cereals in the seven days prior to data collection. This market reliance together with high proportions of assessed households reportedly experiencing unusually high food prices (98%), high prices for non-food items/fuel/transport (94%) in the last 6 months prior to data collection, as well as borrowing money or purchasing food on credit (49%), suggest financial access, or resources, to food is a major challenge for the population.**
- **Approximately four in ten households (42%) reported using 'crisis' or 'emergency' livelihood coping strategies, such as consuming seed stocks, traveling to other villages to ask for food, or selling the last of household's livestock, demonstrating that negative coping strategies are being used to mitigate food consumption gaps.**
- **A measles outbreak was declared in Renk in June 2019, and a reactive vaccination campaign conducted the same month. However, confirmed measles coverage by checking vaccination cards was low (8% vaccination confirmed by card), suggesting the actual coverage may not have been as high as maternal reporting indicated (93% vaccination by card confirmation or maternal reporting).**
- **Poor health and water, sanitation and hygiene (WASH) environment likely contributed to high GAM, with the majority of households reporting lack of access to improved water sources (57%) and latrines (69%). The relatively poor health care access expected to deteriorate during the rainy season.**
- **Optimal infant and young child feeding practices were extremely low, with only a handful of children 0-23 months demonstrating a minimum acceptable diet (MAD) in the past 24 hours (3%).**

Methodology

Data collection in the host community occurred on 27 May to 08 June. Information captured included anthropometric measurements, demographics and mortality, food security, livelihoods, child morbidity and health seeking behaviour, infant and young child feeding, and key WASH variables. Standard SMART guidelines were followed throughout the design, data collection and analysis phases[3]. Sampling was conducted with a two-stage, cluster sampling design, with villages or neighbourhoods as the primary sampling unit (PSU), or cluster, selected using probability-proportional to size (PPS) sampling, and ten households within each PSU selected with simple random sampling. Target sample size was 403 households, 391 children 6-59 months and 50 clusters. The final results captured 458 households and 48 clusters, where two clusters were excluded either due to inaccessibility or the cluster was found abandoned. A total of 527 children 6-59 months old were measured, with measurements for 517 of these children being used in the final analysis of GAM by WHZ. A total of 155 PLWs were also assessed with MUAC for acute malnutrition. Anthropometric and mortality results were analysed using ENA for SMART (9th July, 2015 version) software and other variables using R v3.5.2. Anthropometric and mortality results were validated by the Nutrition Information Working Group (NIWG) in South Sudan, with a data quality plausibility score of 13% (good). GAM by WHZ is representative of the population at a 95%Limitations included slight age-ratio bias, with fewer older children ages 54-59 months than expected, and data collection occuring during the fasting month of Ramadhan, which may have affected food security and consumption indicators[10]. *Findings for GAM by WHZ can be interpreted at a 95% confidence level, with a precision of +/- 5%; CMR can be interpreted at a 95% confidence level with a precision of +/- 0.5 deaths per 10,000 people per day.*

Population and Livelihoods Profile

Renk county is in the Northern Sorghum and Livestock livelihood zone, located in the northeast bordering Sudan to the North and East, Manyo county to the west, Melut and Maban counties to the south[11]. Traditionally households in this livelihood zone rely on agriculture (sorghum, sesame, groundnut), gum arabic production, causal and seasonal labour, trading, fishing, as well as sale of natural resources or alcohol. Renk town notably is a destination for migrant workers due to availability of labour opportunities such as skilled and causal labour, and seasonal casual labour opportunities at commercial sesame and sorghum farms, as reflected in the survey results (see Figure 1). Renk town has seen increased labour in-migration in recent years due to the large market presence in town and decreased agricultural production in other regions[11].

A number of shocks over the past several years have negatively impacted livelihoods and agricultural production in the last several years. Insecurity in Renk county since 2013 has caused displacements from rural areas to Renk and Jelhak urban centres, and as a result there was reported reduction in the amount of land households perceived safe to cultivate[11]. The overall labour force has decreased and livelihoods assets such as agricultural equipment and livestock were lost. In 2015, border closures with Sudan severely affected market prices in Renk, notably the price of cereals imported from Sudan[11]. Recent border closures were reported in March 2019. Border closures would also affect the sales of exports of livestock, fish or other goods that are traded from Renk to Sudan. In 2017, inflation and currency devaluation considerably reduced the purchasing power of households in Renk county[12]. Due to this reduced overall production in the county, migration for labour opportunities has increased in recent years to Renk town, Khartoum and other locations.

There were no major population movements in Renk county reported as of July 2019, however an uptick of returnees to various locations in Upper Nile State was noted in December 2018 and January 2019, as observed by REACH Port and Road Monitoring (PRM) activities in Renk[13]. In May 2019, most of these households reported final destination to be the Malakal Protection of Civilian (PoC) site (45%), with only a few staying in Renk county (11%)[13]. Overall, most returnees are heading to areas other than Renk county and so influx may not be a major contributor to needs within the host community.

Figure 1: Proportion of HH reporting main income sources, last 3 months prior to data collection

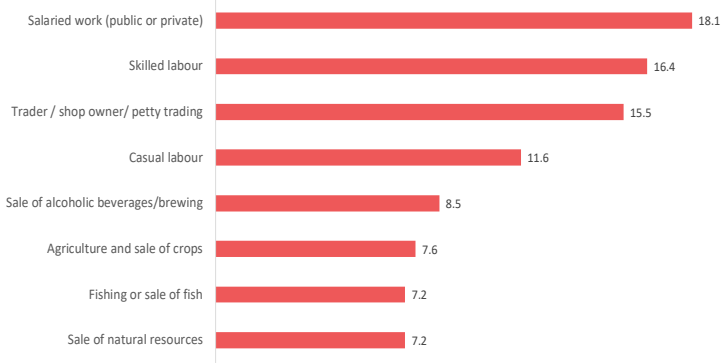
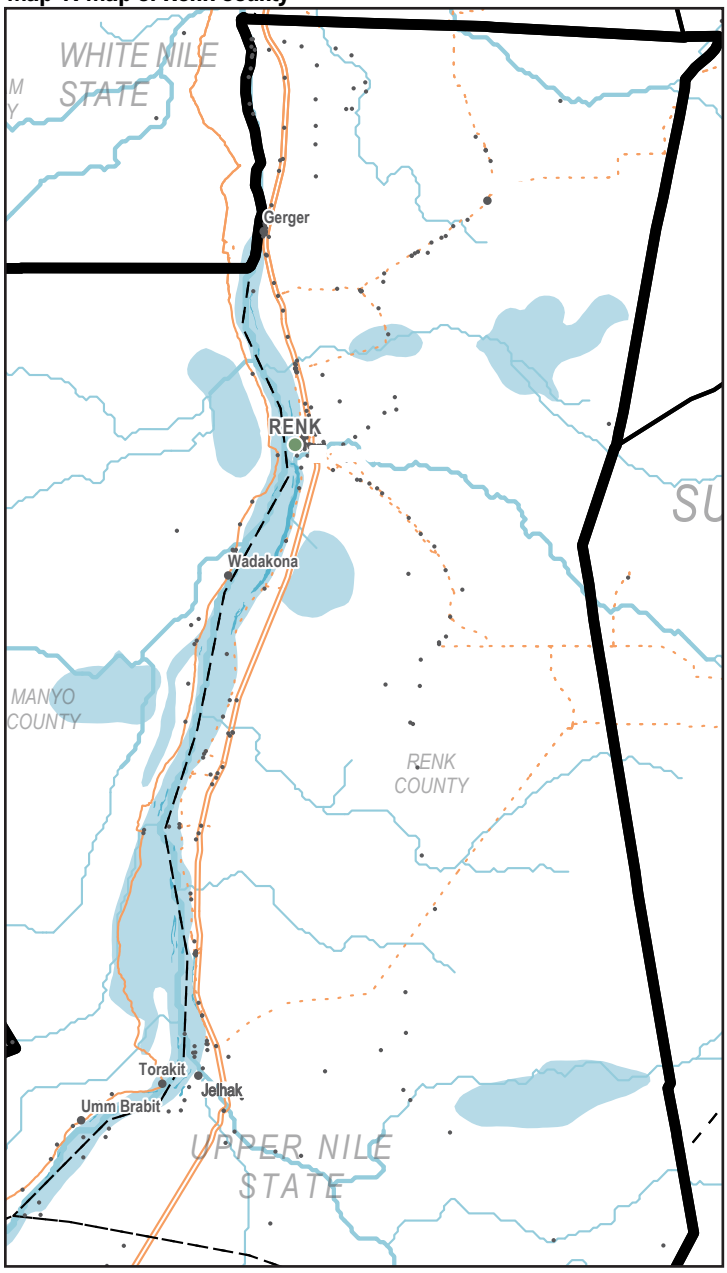


Table 2: Summary Population Demographics (n = 458 HH)

Household Composition	
Avg. Age of Head of Household	40.2
Avg. Household Size	6.7
% of children under 5 years of age	20.8%
Vulnerabilities	
% of HH with female head of household	58.2%
% of HH with a separated child	6.8%
% of HH with an unaccompanied child	5.2%
% of HH with a chronically ill/physically or mentally disabled member	5.0%
% of HH with a high age-dependency ratio[14]	12.3%

Map 1: Map of Renk county



Nutrition and Mortality Outcomes

Nearly one-third of host community children 6-59 months in Renk county acutely malnourished, with **a GAM prevalence of 32.1% (27.4 – 37.2 95% CI), and SAM of 8.5% (6.0 – 11.9 95% CI).** This GAM is more than double the WHO emergency threshold and shows an extremely serious situation. Proxy GAM by mid-upper arm circumference (MUAC)[15] for 6-59 month children was 9.3% (5.5 – 14.5 95% CI) and proxy SAM was 1.3% (0.6 – 2.8 95% CI)[16]. For assessed pregnant and lactating women (PLWs), less than one-fifth were acutely malnourished (16.8%).

Cases of acute malnutrition were unevenly distributed among the sampled population. Geographically, clustering of cases were noted in Southern Renk (Jelhak payam) and some neighbourhoods of Renk town. **By age, nearly half of children 6-17 months were acutely malnourished (47%), indicating a higher concentration of cases in younger children.** Lastly by sex, boys were significantly more likely to be malnourished than girls, though the reason for this was not evident from the survey findings. Geographical differences may be due to the differences in access to services or food in parts of the county. Differences in GAM by age may be related to poor infant and young child feeding (IYCF) practices. Such high malnutrition overall likely indicates multi-sectoral causes, with large food consumption gaps, widespread morbidity and other contributing causes in effect - discussed further in the following sections.

The crude mortality rate (CMR) was 0.78 (0.5 – 1.19 95% CI) deaths per 10,000 people per day, with an under-five mortality rate (U5MR) of 0.30 (0.07 – 1.20 95% CI). Both mortality rates were below the WHO recommended emergency thresholds for CMR is 1, and 2 for U5MR. However, the upper confidence interval for CMR remains above the emergency threshold, which suggests caution should be taken in interpreting the CMR. Mortality rates have significantly decreased from 1.65 (1.15 – 2.36) CMR recorded in May 2018 for the Renk host community, suggesting an improvement since last year. The most common cause of death reported was illness (89% of reported deaths) with a minority trauma/injury related (11%). Most deaths were reported to have occurred in the current location (78%), followed by during migration (11%) or in place of last residence (11%).

There are likely multiple aggravating factors contributing to the high GAM. Financial access to food may be a major contributor, as many households rely on the market as their primary source of cereals and were subject to high market prices at the time of the assessment. Household agricultural production has reduced in recent years[17], possibly related to households being unable to fully recover since insecurity affected Renk county in 2014/2015, particularly in Jelhak payam. In addition to this, Renk host community has limited access to primary health care facilities and lack of access to secondary healthcare according to Medair. The host community relies on mostly unsafe drinking water sources such as rivers, unprotected wells and donkey cart vendors. Sub-optimal infant and young child feeding practices also make under-2 children particularly vulnerable to acute malnutrition.

Figure 2: GAM prevalence for Renk host community, 2014 - 2019

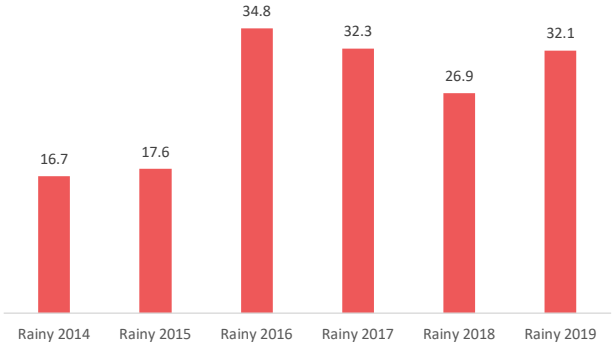


Figure 3: Proxy GAM for PLWs

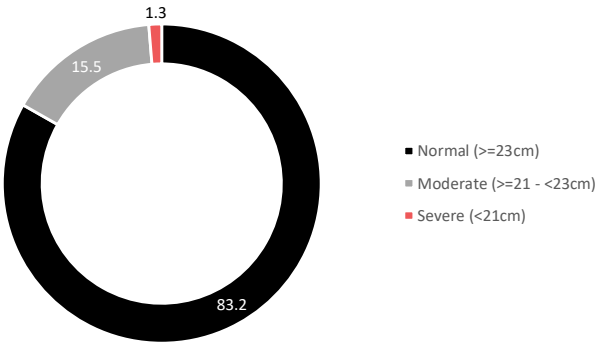


Figure 4: Distribution of acute malnutrition by age group (months)

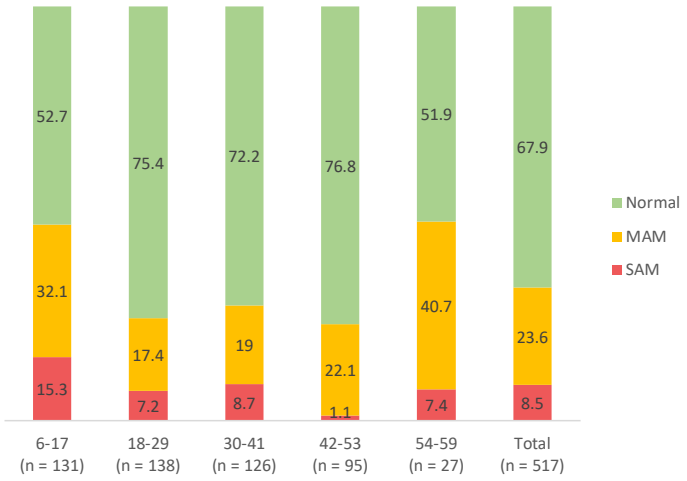
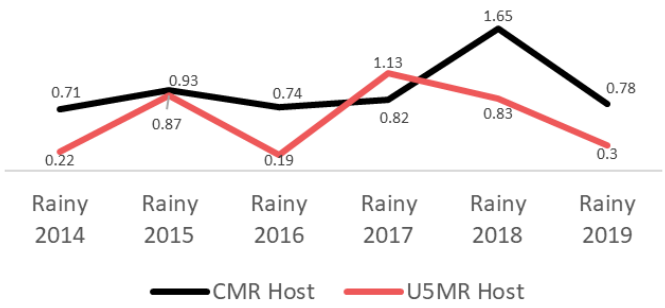


Figure 5: Mortality rates for Renk host community, 2014 - 2019



Contributing Factors, Shocks and Outcomes

Food Security and Livelihoods

Household food insecurity can negatively influence children's nutritional status in several ways. Less food availability in the household may mean reduced food consumption for the child, that caregivers are too busy coping to properly breastfeed or prepare food for the child, or generally provide proper attention and care for the child. Given the severity of acute malnutrition in Renk county, it is likely food consumption gaps are contributing factors.

Last year household level agriculture may have been limited due to inadequate rain, which may likely have affected harvests throughout much of Upper Nile State including Renk county[17]. Additionally, only slightly more than half of assessed households reported a need for agricultural land for their livelihood either in 2018 or in 2019 (57%). Of these households, three-quarters reported having access to land for household agricultural use this planting season (76%), an apparent increase from last season where two-thirds reported having access (63%). The increase in reported land access may be due to a perceived improvement in security as perceived insecurity has reportedly been a reason for reduced production in the past several years. However, still nearly two-thirds of assessed households (64%) either do not rely on household agriculture for food, or reportedly do not have access to land for household agricultural use this season.

With the majority of assessed households reportedly reliant on the market to access food in the 7 days prior to data collection (59%), many households are likely vulnerable to market price shocks. This is corroborated by the fact that nearly all assessed households reported facing shocks[18] of unusually high prices for food (97%) and non-food costs including transport/fuel (94%) in the last 6 months. Along with the fact that approximately two-thirds of households reported loss or reduced employment of a household member (67%), or reduced income for household members (70%), this suggests a widespread reduction in household purchasing power. Despite high prices, households have still been relying on market purchase for food, which suggests there may be few available alternative food sources and that increasing food expenditure could limit households' ability to purchase other non-food items. **While Renk is commonly a large producer of cereals, associated with high availability, the financial constraints have severely limited food access, likely contributing to increasing food consumption gaps and acute malnutrition at a population level.**

Household food consumption was assessed using food consumption scores (FCS)[19] and household dietary diversity scores (HDDS)[20], typically used to assess the quality of food consumed. Findings suggest low quality of food being consumed, with greater than one-third of households assessed were found to have 'borderline' or 'poor' by FCS (38%) and nearly half with 'medium' or 'poor' HDDS (9.4%). Food coping strategies were assessed using the reduced Coping Strategies Index (rCSI)[21], and is a proxy for quantity of food consumed. Findings suggest reduced household food consumption, as more than two-thirds of households were found to have 'medium' or 'high' rCSI scores. Perceived household hunger was assessed

Figure 6: % of households by main source of cereals in last 7 days, Renk host community

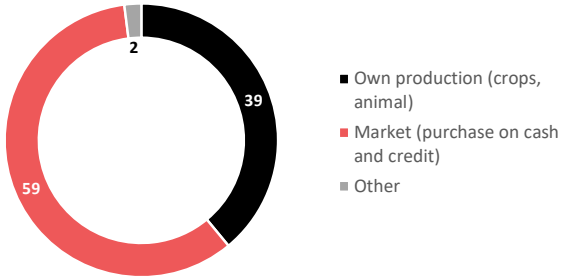


Figure 7: % of households by agricultural land access in 2018 and 2019, of Renk host community needing land for agriculture

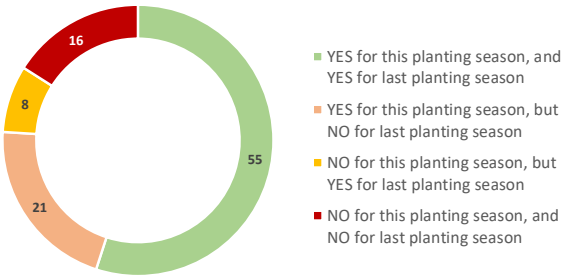


Figure 8: % of households by shocks experienced in last 6 months

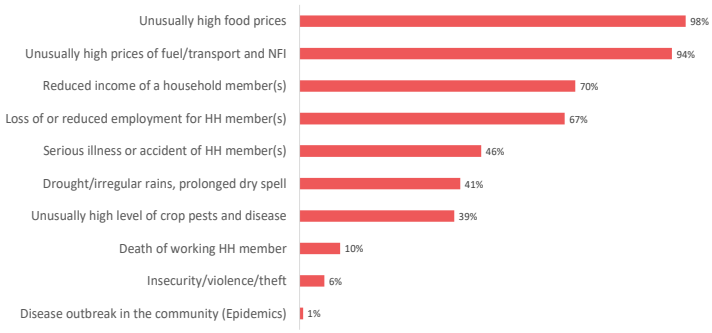


Figure 9: % of households by food consumption scores, Renk host community

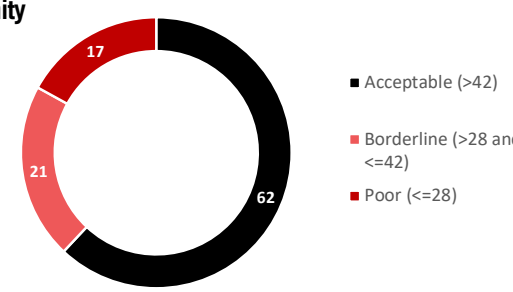
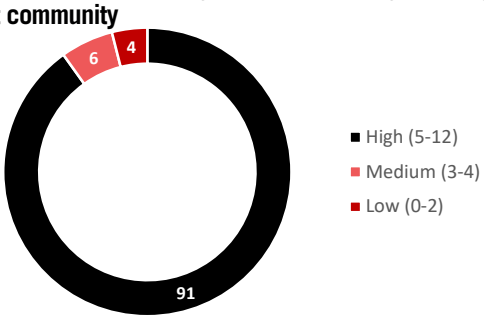


Figure 10: % of households by household dietary diversity scores, Renk host community



with household hunger scale (HHS)[22], another indicator of food quantity and used to distinguish higher levels of food consumption gaps. More than two-thirds of households were found to have 'moderate' levels of hunger, implying possible marginal reduction in foods consumed. These HHS scores suggest some households are occasionally experiencing situations such as not having food in the house or going to sleep hungry.

Food consumption results from this survey should be interpreted with caution as data collection occurred during the fasting month of Ramadhan and during Eid-al-Fitr festivities as Renk has a significant Muslim population. Examples in other contexts have noted an increase in dietary diversity during fasting and feasting periods, even though overall food consumption and consumption of staple foods may decrease[23]. Fasting/feasting effects possibly have masked food consumption gaps given the high GAM, or are not reflective of food consumption patterns for younger children as evidenced by the infant and young child feeding (IYCF) results.

Despite the masking effects, some food consumption gaps are apparent from rCSI and HHS scores. This coupled with moderate levels of reduced quality of food as shown by FCS and HDDS suggest households are able to access food, but may likely be reducing the quantity or quality of food being consumed.

With reported food consumption gaps it is likely households are engaging in livelihood coping strategies to mitigate these gaps. Approximately four out of ten households reported either using in the past 30 days, or having exhausted in the past 12 months, 'crisis' or 'emergency' livelihood coping strategies[24] (42%) due to inability to access food or resources to get food. The most frequently reported being selling or eating seeds intended for planting this season (crisis - 27%), asking other community members for food support (crisis - 23%), selling or slaughtering the last cows or goats (emergency - 17%), and traveling to another village to ask for food or other resources (emergency - 15%). Nearly half of households also reported having borrowed money or purchased food on credit during the same periods (stress - 49%). **The generally high reliance on markets combined with the increase in prices was reflected by the strategies used by households, such as borrowing, exhausting productive resources like livestock or seeds, or taking on debt to purchase food.** Exhaustion of these assets to meet current food consumption gaps may reduce households' ability to cope in the future, with the reduction of household assets for food production driving reliance on markets for food.

Figure 11: % of households by reduced coping strategies index, Renk host community

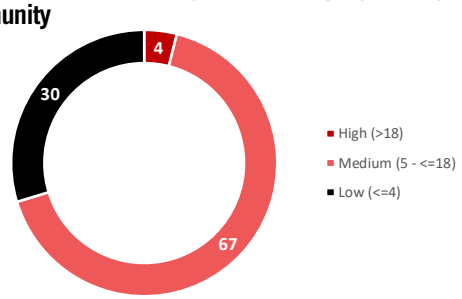


Figure 12: % of households by household hunger scale, Renk host community

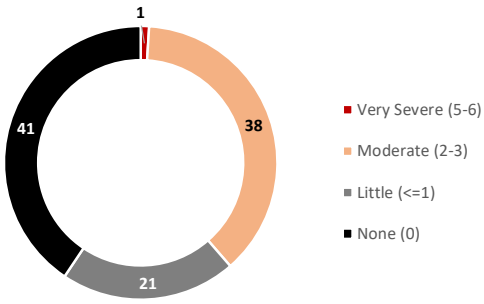
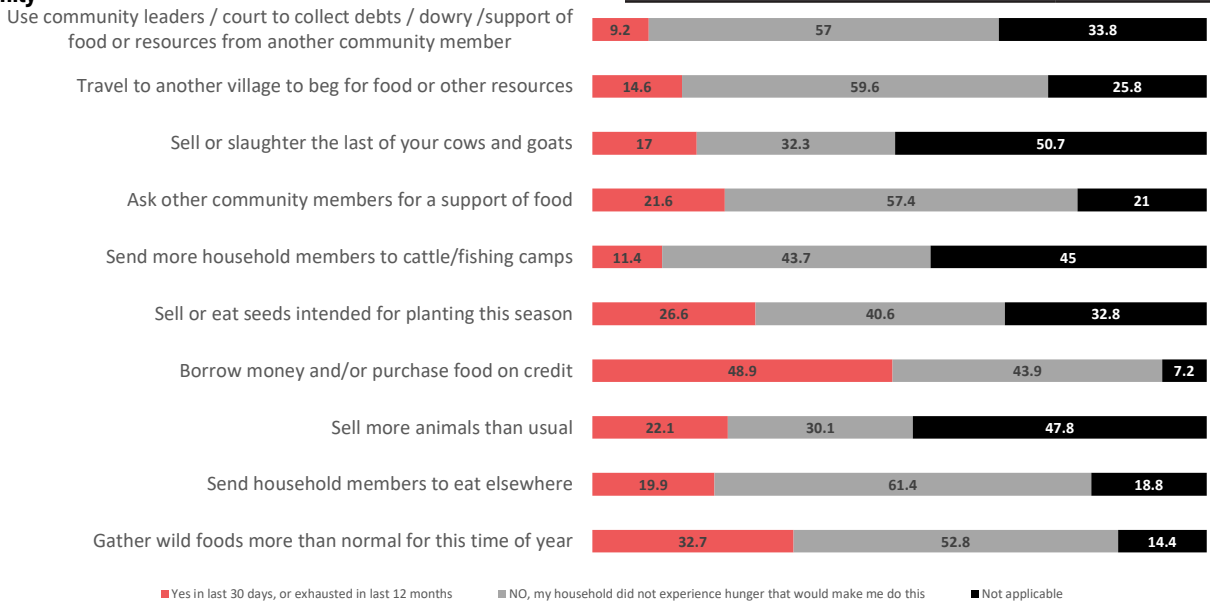


Table 3: Summary Livelihood Coping Strategies

Livelihoods Coping Strategies N = 458	
None	33.2% (25.4 – 40.9 95% CI)
Stress Coping	25.1% (17.6 – 32.6 95% CI)
Crisis Coping	19.0% (13.4 – 24.6 95% CI)
Emergency Coping	22.7% (15.6 – 29.8 95% CI)

Figure 13: % of households by Livelihoods coping strategies, Renk host community



Health

Childhood illness can directly contribute to acute malnutrition by increasing a child's caloric and nutrient needs, decreasing the absorption of nutrients, and reduced appetite[25]. In order to understand the relationship between health and acute malnutrition in Renk county, retrospective two-week morbidity, treatment seeking behaviours, and coverage for measles vaccination and supplementation activities were assessed for children 6-59 months.

Access to primary health care and preventative services and timely health seeking behaviours can help reduce the severity and duration of illness and mortality outcomes, and can prevent acute malnutrition. However, slightly more than half of caregivers reported seeking treatment at a primary health care centre (PHCC) or primary health care unit (PHCU) (55%), suggesting relatively poor health seeking behaviours as these should be the most accessible facilities. Distance may be a possible reason for low health care seeking at PHCC/PHCUs as areas outside of Renk town are far from health services, and very few caregivers reported utilizing mobile clinics for treatment. While some assessed caregivers reported seeking treatment at hospital or private clinics (27%) instead of PHCC/PHCU, this may indicate caregivers delaying treatment until cases are more severe.

Low utilization of preventative health services suggests children are more likely to become ill which can contribute to poor nutritional status. Only two-thirds of caregivers reported their children had received Vitamin A supplementation (68%) and deworming treatment (67%) within the last six months. Biannual, national immunization day (NID) campaigns typically distribute these supplements widely; however findings suggests coverage gaps still exist. While measles vaccination coverage for children 9-59 months was high if considering caregiver self-reporting (93%), vaccination confirmed by card was extremely low (8%) and far below the Sphere recommended 95% coverage[26], giving low confidence that there is adequate coverage.

The high GAM prevalence is both driven by and increases the risk of infectious disease outbreaks such as malaria, diarrhoea, pneumonia and measles due to compromised immunity. More than one-third of children were ill in the two weeks prior to data collection (36%) as reported by caregivers with the most common symptoms reported as fever, followed by cough/fast difficulty breathing, and diarrhoea. Fever is often treated as a proxy for suspected malaria, and the fact that nearly one-fourth of children were reported with it suggests malaria may be a main driver of morbidity in the population. Sub-optimal usage of long-lasting insecticide treated nets (LLITN) may be related to high suspected malaria, with less than three-quarters of children reportedly sleeping under an LLITN the previous night (69%). Both diarrhoea and fast/difficult breathing (a proxy for pneumonia) were found to be relatively minor contributors to morbidity at the time of data collection. Of greater concern, a measles outbreak was declared in Renk county in June 2019, and a mass measles vaccination campaign was conducted in response the same month according to Medair. The low confirmed measles vaccine coverage and Vitamin A supplementation are therefore particularly concerning[27], and suggest that aside from the high GAM, inadequate access to preventative services may contribute to the recent outbreak.

Findings suggest a poor health environment for the host community, with poor access to preventative and primary care services. Relatively low care seeking at primary health care facilities, low confirmed measles coverage and below standard coverage for Vitamin A and deworming[28] suggest many children are not accessing preventative services as recommended to prevent morbidity, mortality and acute malnutrition. **These factors have likely contributed to moderately high levels of morbidity at the time of data collection; however the risk of malaria and diarrhoeal disease may increase in the coming months with the rainy season due to increased exposure to vectors and pathogens, and decreased access to health care facilities.**

Figure 14: Prevalence of illness for 6-59 month children in two weeks prior to data collection, Renk host community

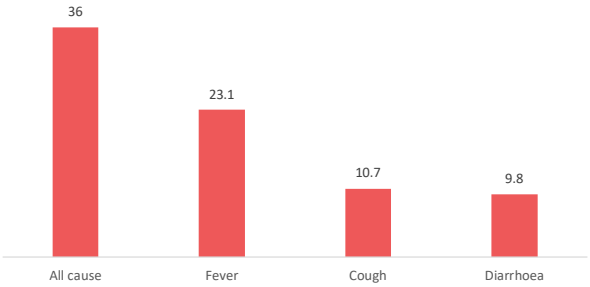


Figure 15: Proportion sick children 6-59 months whose caregivers sough treatment in the two weeks prior to data collection, Renk host community (N = 201)

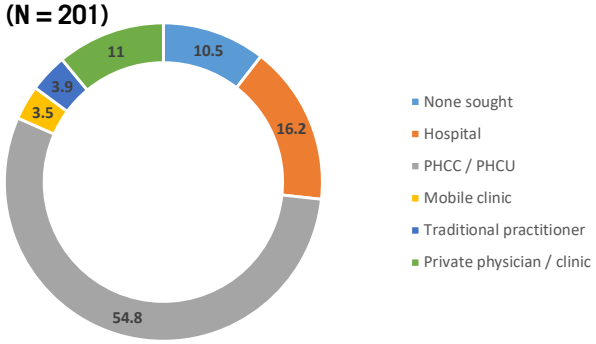


Table 4: Measles vaccination, supplementation coverage and LLITN usage, Renk host community

Measles vaccination coverage of children 9-59 months of age N = 515	
Yes, maternal report or vaccination card	92.6% (89.7 – 95.5 95% CI)
Yes, vaccination card only	8.0% (3.9 – 12.0 95% CI)
Vitamin A coverage: Children between 6-59 months of age who received vitamin A supplementation N = 560	68.2% (56.8 – 79.6 95% CI)
U-5 Deworming coverage: Children between 12-59 months of age who received deworming treatment N = 486	66.7% (55.4 – 77.9 95% CI)
Net usage: % of children age 0-59 months that slept under an LLITN the night preceding the survey N = 559	69.4 (61.3 – 77.5 95% CI)

Water, Sanitation and Hygiene

Poor access to safe and sufficient drinking water sources and lack of sanitation facilities increases the risk of diarrhoeal diseases especially for children under five years of age, and therefore the risk of acute malnutrition. **While Renk host community showed relatively adequate access to sufficient quantity of water, the majority of assessed households relied on unsafe sources of water and reported lack of access to latrines. This overall poor WASH environment likely contributes to the high prevalence of GAM in Renk county.**

Sufficient quantity of water promotes proper hygiene practices and adequate food utilization in cooking. Findings showed quantity of water for household use was adequate for the majority of the host community. On average, household water consumption for all purposes (drinking, cleaning, washing, bathing) was 27 litres per person per day (lpd), with more than two-thirds of host community households meeting the Sphere standard of 15 lpd (69%).

Despite this, there are concerns over quality of water from most water sources people are accessing. The majority of households reported unimproved or surface sources for drinking water, utilizing either rivers (19%), unprotected wells (11%), or purchasing from donkey cart water vendors (20%) who source water from the river. Tapstands were the most frequently reported improved drinking water source by households (43%), and were available within Renk town, some of Jelhak town and a few other villages. According to Medair, the geological makeup of the area often does not support boreholes, therefore surface water treatment fitted to tap stand systems are the main safe water option in Renk county.

Long water collection times can affect households' ability to get enough water daily, or may suggest access issues to their water sources. The majority of assessed households reported accessing water within 30 minutes (72%), including travel and queuing times, and nearly all within one hour (85%). A portion of households reported taking longer than one hour for water collection (15%), with most of these reports in Renk town coming from Hai-Salam and Muraba Block 12 and relying on donkey carts for water. Additional households with long collection times were noted in Kor Ajais, and communities in Jelhak payam relying on river water or donkey carts.

Open defecation causes an unhygienic environment at the household and community levels, and increases the risk of diarrhoea and other illnesses. More than two-thirds of the assessed households reported not having access to a latrine, with lack of latrine access similarly low both in and out of Renk town. Despite most households having access to sufficient water, poor sanitation conditions may limit the positive aspects of high water access.

Given the high GAM prevalence, children likely have compromised immunity to illnesses. The unimproved water sources and lack of sanitation in the host community suggest these children are at risk of more frequent and severe illness. This is particularly true as the rainy season continues and exposure to water-borne pathogens and vector-borne diseases increases.

Figure 16: % of households by main drinking water source, Renk host community`

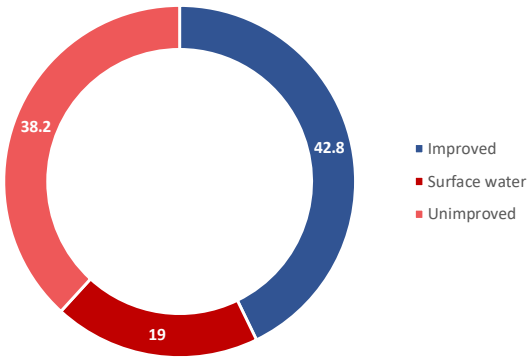


Figure 17: % of households by water collection times, Renk host community`

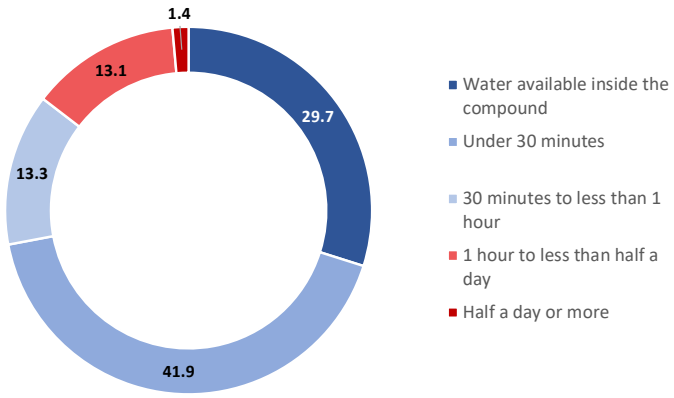
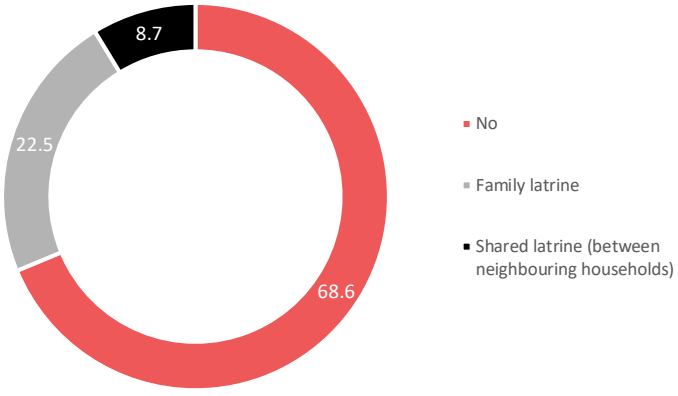


Figure 18: % of households by latrine access, Renk host community`



Infant and Young Child Feeding (IYCF)

IYCF practices are the set of optimal breastfeeding and complementary feeding practices recommended by the WHO. A 24-hour recall was used to assess the food consumption and complementary feeding practices of children 6-23 months old. Due to the small sample sizes, these IYCF results are only indicative for the survey population.

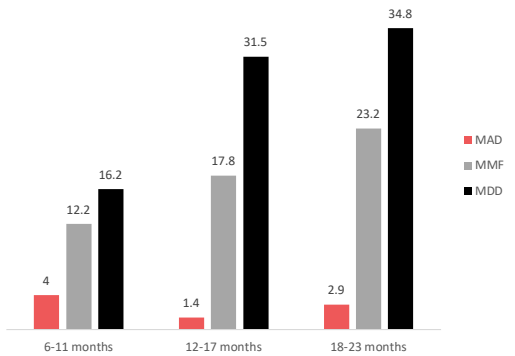
Breastfeeding practices in the Renk host population were found to be very poor at the time of the survey. Less than two thirds of caregivers reporting age appropriate breastfeeding practices such as early initiation of breastfeeding[29], exclusive breastfeeding[30] or continued breastfeeding[31]. Breastfeeding practices will likely deteriorate further as the rainy season continues, as caregivers are preoccupied with seasonal labour opportunities and planting, likely reducing their frequency of breastfeeding.

Complementary feeding practices were found to be extremely poor and suggest children were not getting either the dietary diversity or quantity of food needed for proper growth and development. Only about one-quarter of children 6-23 months were reportedly meeting the recommended minimum dietary diversity (MDD)[32] in the past 24 hours (27%), particularly for children 6-11 months old (16%). Less than one-fifth were meeting the recommended minimum meal frequency (MMF)[33]. Slightly more than half of children 6-8 months were found to be eating complementary foods, indicating caregivers are not weaning their children appropriately at 6 months. Children 6-11 months may be particularly vulnerable due to this delayed introduction to weaning foods, and inadequate diversity and frequency of complementary feeding, causing diminished growth and development and increased morbidity.

Table 5: Summary of IYCF indicators

Early initiation of breastfeeding N = 276	58.7 (47.5 – 69.9 95% CI)
Exclusive breastfeeding: N = 60	61.7 (43.6 – 79.7 95% CI)
Continued breastfeeding at 1 year N = 43	65.1 (47.7 – 82.6 95% CI)
Continued breastfeeding at 2 years N = 25	60.0 (44.1 – 75.9 95% CI)
Timely introduction of complementary foods (6-8 months) N = 18	55.6 (39.2 – 71.9 95% CI)
Minimum dietary diversity: (MDD) N = 216	27.3 (18.6 – 36.0 95% CI)
Minimum meal frequency (MMF) N = 216	17.6 (8.3 – 26.9 95% CI)
Minimum acceptable diet (MAD)[34] N = 216	2.8 (0.3 – 5.3 95% CI)

Figure19: Complementary feeding, by age group



Conclusion

The prevalence of GAM in Renk county was measured as 'extremely critical' and indicates a situation that needs to be immediately addressed by humanitarian actors to reduce acute malnutrition. The high GAM in past years has likely been due to a combination of effects including conflict-related displacements, reduced production, and poor health and WASH environments, as well as economic inflation and border closures which likely lead to food price shocks. The current high GAM likely continues to be related to severely limited financial access to food, as households are highly dependent on markets to access food while facing price shocks and poor macro-economic conditions. Additional contributing factors are the continually poor access to healthcare and safe water sources, and lost or reduced harvests last year due to inadequate rain. Poor IYCF practices also clearly demonstrate poor food consumption for infants in both dietary diversity and quantity, making them more vulnerable to acute malnutrition. Overall, food security, livelihoods, health and WASH are all likely contributing factors to the high GAM, suggesting multi-sectoral approaches are needed in order to reduce the risk of morbidity and mortality in the population.

Footnotes

1 Global acute malnutrition (GAM) is the proportion or prevalence of acute malnutrition in a population, including both severe acute malnutrition (SAM) and moderate acute malnutrition (MAM). GAM is typically determined as the proportion of children 6-59 months using weight-for-height z-scores (WHZ) of less than -2 (wasting or marasmus), or the presence of bilateral pitting oedema (kwashiorkor), which is an abnormal swelling of the feet associated with severe acute malnutrition. A child is classified as MAM if they have a WHZ greater than equal to -3 and less than -2. A child is classified as SAM if they have a WHZ of <-3 or the presence of bilateral pitting oedema. GAM is determined from the proportion of all children 6-59 months with either MAM or SAM out of all children 6-59 months.

2 The management of nutrition in major emergencies. WHO. 2000.

3 Standardized Methodology for Assessment in Relief and Transition (SMART). More information on SMART can be found here.

4 Medair SMART Survey Preliminary Report. Renk County. May 2018.

5 IPC Analysis Workshop, South Sudan, January 2019

6 IPC Analysis Workshop, South Sudan, September 2018

7 OTP services are used to provide outpatient nutrition treatment for severely acutely malnourished children.

8 TSFP services are used to provide outpatient, preventative nutrition treatment for moderately acutely malnourished children.

9 SC services are used to provided inpatient nutrition services for severely acutely malnourished children with complications.

10 Food security indicators such as FCS and HDDS have been observed to increase during fasting/feasting holidays in other contexts, which may falsely make these indicators look better than they actually are.

11 Livelihoods Zone Map and Descriptions for The Republic of South Sudan (Updated). FEWSNET. August 2018.

12 Regional Displacement of South Sudanese Movement and Trade between Renk County, Upper Nile State, South Sudan and White Nile State, Sudan. REACH Initiative. May 2018.

13 Cross-Border Population Movement Factsheet. Renk Port and Road Monitoring. Renk County, Upper Nile State, South Sudan. May 2019.

14 Age dependency ratios show the ratio of dependent household members who are either children (<18 years) or elderly (>65 years) of all household members. A high proportion suggests there are fewer productive members supporting the household. For this analysis, a household was classified with a high age-dependency ratio if it was 75% or greater.

15 Mid-upper arm circumference (MUAC) is one anthropometric measure used to determine the nutritional status of a child, where the circumference around the mid-point of the left arm is measured. If MUAC is <11.5cm, the child is considered SAM, and if between 11.5 - <12.5cm then the child is classified with moderate acute malnutrition (MAM).

16 Proxy GAM or proxy SAM are terms used to describe the proportion or prevalence of acute malnutrition as defined by low MUAC measurements and should only be used in the absence of GAM by WHZ. This is because MUAC is not completely representative of GAM in the population because it is more sensitive to younger children.

17 Special Report - FAO/WFP Crop and Food Security Assessment Mission to South Sudan. 15 March 2019.

18 Shocks are abnormal events that can negatively impact a household's ability to access food or household resilience, and were assessed for the last 6 months prior to data collection.

19 Food consumption score (FCS) is an indicator of the general quantity and quality of foods being consumed in a household, based on how many days any household members have consumed 9 distinct food groups within a 7 day recall period. Households are categorized into categories of severity based on their responses. . FCS is often used as a proxy for quality of food consumed. Standard FCS thresholds are <21 for 'poor', 21-<=35 for 'borderline' and 35+ for 'acceptable'. In contexts where sugar and oils are consumed daily by the population, elevated thresholds are used of <28 for 'poor', 28-<=42 for 'borderline, and >42 for 'acceptable'. Elevated thresholds were used for this survey More information on FCS can be found here.

20 Household dietary diversity score (HDDS) gives a proxy indication of a household's economic access to a variety of foods asking if anyone in the household has accessed 12 distinct food groups within a 24 hour recall period. Households are categorized into categories of severity based on their responses. HDDS is often used as a proxy for quality of food consumed. Thresholds used for analysis are those used for IPC AFI in South Sudan. More information on HDDS can be found here.

21 Reduced Coping Strategies Index (rCSI) measures a household's experience of coping with food insecurity by asking the frequency of five universal coping strategies over a 7 day recall period. rCSI is often used as a proxy for quantity of food consumed. Thresholds and categories used for analysis are those used for IPC AFI in South Sudan. More information on rCSI can be found here.

22 Household hunger scale (HHS) measures the perceived hunger by asking the frequency a household has experienced three common experiences associated with hunger in the past 30 days (no food in the house, slept hungry, gone whole day and night without food). HHS is often used as a proxy for quantity of food consumed. Thresholds and categories used for analysis are those used for IPC AFI in South Sudan. More information on HHS can be found here.

23 Ramadhan fasting alters food patterns, dietary diversity and body weight among Ghanaian adolescents. Nutrition Journal (2018) 17:75.

24 Livelihood coping strategies measure what extreme behaviours households are utilizing to access food or resources within the past 30 days. A household is categorized as 'none', 'stress', 'crisis' or 'emergency' based on the most extreme strategy reported out of a list of 10 coping strategies. The following strategies were classified as 'stress', (a) gathering wild foods more than normal for this time of year, (b) sending household members to eat elsewhere, (c) selling more animals than usual, (d) borrowing money or purchasing food on credit; 'crisis' strategies included (e) selling or eating seeds intended for planting this season, (f) sending more household members than normal to cattle or fishing camps, (g) asking other community members for a support of food; and 'emergency' included (h) selling or slaughtering the last of your cows and goats, (i) traveling to another village to beg for food or other resources, (j) use community leaders or a local court to collect debts or bride wealth/dowry, or to gain a support of food or othe resources from another community member.

25 The Harmonized Training Package. Module 8 Health assessment and the link with nutrition. Part 2: Technical Notes.

26 The Sphere Handbook. Humanitarian Charter and Minimum Standards in Humanitarian Response. 2018 Edition.

27 Vitamin A supplementation is an essential nutrition action identified by WHO for children 6-59 months, which evidence shows is associated with reduced mortality and incidence of diarrhoeal diseases, as well as improved recovery outcomes for measles. More information on this can be found here.

28 Sphere standard recommended coverage for Vitamin A supplementation and deworming is at least 95%.

29 Early initiation of breastfeeding within the first hour after a child is born is recommended in order to promote the consumption of colostrum, keep the child warm after birth and the development of the mother-child bond.

30 Exclusive breastfeeding is when a child only receives breastmilk for the first 6 months of life, excluding foods, water or any other liquids, and has been shown to decrease the risk of diarrhoeal diseases in children in this age group.

31 Continued breastfeeding is recommended up to 2 years of age or beyond to ensure the child is getting adequate energy and nutrients for optimal growth and development. Continued breastfeeding at one year is assessed by whether children 12-15 months had breastmilk the previous day, and continued breastfeeding at two years by whether children 20-23 months had breastmilk the previous day.

32 Minimum dietary diversity (MDD) measures whether children are getting enough variety of nutrients by consuming at least 4 out of 7 food groups the previous day and night.

33 Minimum meal frequency (MMF) measures whether children are consuming an appropriate daily quantity of food, accounting for the age and breastfeeding status of the child. WHO recommends for breastfed children ages 6-23 months at least 2 meals per day, for breastfed children 9-23 months at least 3 meals, and for non-breastfed children 6-23 months at least 4 meals per day.

34 Minimum acceptable diet (MAD) measures whether a child is meeting recommended MDD and MMF together.

About REACH

REACH is a leading humanitarian information provider that uses primary data collection and in-depth analysis as tools to enhance the capacity of aid actors to make evidence-based decisions in emergency, recovery and development settings.

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