Standardized Expanded Nutrition Survey (SENS)

Gorom Refugee Camp, Central Equatoria State, South Sudan

Survey conducted:

15^{th} – 19^{th}

November 2021

UNHCR
The UN Refugee Agency

CROSS

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ACRONYMS AND ABBREVIATIONS

ACROSS	Association of Christian Resource Organization Serving South Sudan
ANC	Ante Natal Care
AWD	Acute Watery Diarrhoea
BSFP	Blanket Supplementary Feeding Programme
CDR	Crude Death Rate
CI	Confidence Interval
CMAM	Community Management of Acute Malnutrition
CRA	Commission for Refugee Affairs
CSB++	Corn-Soya Blend Plus Plus
ENA	Emergency Nutrition Assessment
EPI	Expanded Programme on Immunization
Epi Info	Name of CDC software for epidemiological investigations
GAM	Global Acute Malnutrition
GFR	General Food Ration
GFD	General Food Distribution
HAZ	Height-for-Age z-score
Hb	Haemoglobin
HH	Household
HIS	Health Information System
IYCF	Infant and Young Child Feeding
KCAL	Kilocalorie
MAM	Moderate Acute Malnutrition
MOH	Ministry of Health
MUAC	Middle Upper Arm circumference
OTP	Out-patient Therapeutic Programme
ProGres	UNHCR registration database for refugees
SAM	Severe Acute Malnutrition
SC	Stabilization Centre
SD	Standard Deviation
SENS	Standardised Expanded Nutrition Survey
SFP	Supplementary Feeding Programme
SMART	Standardized Monitoring & Assessment of Relief & Transitions
TSFP	Targeted Supplementary Feeding Program
TFP	Therapeutic Feeding Programme
UNHCR	United Nations High Commissioner for Refugees
UNICEF	United Nations Children's Fund
WASH	Water, Sanitation, and Hygiene Promotion
WAZ	Weight-for-Age z-score
WFH	Weight-for-height
WHZ	Weight-for-Height z-score
WFP	World Food Programme
WHO	World Health Organization

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Finally, we sincerely thank the refugee population in Gorom camp who gave their time to participate and allowed us to measure their children and, most importantly, to the children themselves. A complete list of key individuals involved can be found at **Appendix 1**.

EXECUTIVE SUMMARY

UNHCR and ACROSS carried out the standardized expended nutrition survey (SENS) in Gorom refugee camp from 15 to 19 November 2021 with the support from WFP. The overall aim of this survey was to assess the general nutrition and health status of refugee population and formulate workable recommendations for appropriate nutritional and public health interventions. This report summarizes the results of this SENS.

Methodology

The survey was based on the UNHCR SENS guidelines for refugee populations (version 3, 2019) http://sens.unhcr.org/. Following five modules of SENS were used (1. Demography, 2. Anthropometric and health, 3. Anaemia, 4. IYCF, and 5. Food Security). Modules 6. Water Sanitation and Hygiene and 7. Mosquito net coverage were not carried out as the KAP survey carried out in 2021, and access limitations required for module prioritization due to COVID-19 restriction on interview time per household. The camp has a WASH monitoring system in place and no blanket mosquito net distribution was carried out within the year.

UNHCR population figures from ProGres were used to determine the total population and that of children 6-59 months for survey planning purposes. The population in Gorom at the end of August 2021 was 2115 individuals (658 households). 15.2% (322) of these were children less than five years; and 49.7% (1051) were women. An exhaustive survey was conducted in relation to children as the total population size of Gorom camp was below 2,500 people rendering sampling unnecessary following UNHCR SENS guideline. All children aged 6-59 months in the camp were surveyed.

Results

The summary results are as below:

Table 1. Summary of results

	Number/total	% (95% CI)	Classification of public health significance or target (where applicable)
CHILDREN 6-59 months % [95% CI]			
Acute Malnutrition (WHO 2006 Growth Standards)			
Global Acute Malnutrition (GAM)	17/269	6.3% (4.0 - 9.9)	Very high/critical if ≥ 15% (WHO-UNICEF) UNHCR Target of < 10%
Moderate Acute Malnutrition (MAM)	15/269	5.6% (3.4 - 9.0)	
Severe Acute Malnutrition (SAM)	2/269	0.7% (0.2 - 2.7)	UNHCR Target of < 2%
Oedema	0/269	0.0% (0.0-0.0)	
Mid Upper Arm Circumference (MUAC)			
MUAC <125 mm and/or oedema	5/272	1.8% (0.8 - 4.2)	
MUAC 115-124 mm	4/272	1.5% (0.6 - 3.7)	
MUAC <115 mm and/or oedema	1/272	0.4% (0.1 - 2.1)	
Stunting (WHO 2006 Growth Standards)			
Total Stunting	27/263	10.3% (7.2 - 14.5)	Very high/critical if ≥ 30% (WHO-UNICEF)
Severe Stunting	1/263	0.4% (0.1 - 2.1)	

	Number/total	% (95% CI)	Classification of public health significance or target (where applicable)
Programme enrolment and coverage			
Measles vaccination with card or recall (9-59 months)	255/257	99.2% (97.2-99.9)	Target of ≥ 95%
Vitamin A supplementation within past the 6 months with card or recall	214/272	78.7% (73.3-83.4)	Target of ≥ 90%
Deworming coverage within the past 6 months (12-59 months)	158/232	68.1% (61.7-74.1)	
Therapeutic Feeding Program (OTP) (based on all admission criteria WHZ, oedema and MUAC)	0/3	0.0% (0.0-0.0)	Target of ≥ 90%
Targeted Supplementary Feeding Program (TSFP) (based on all admission criteria WHZ and MUAC)	3/19	15.8% (3.4-39.6)	Target of ≥ 90%
Blanket Supplementary Feeding Program (BSFP) for children 6-23 months	45/83	54.2% (42.9-65.2)	
Diarrhoea			
Diarrhoea in the last 2 weeks	18/269	6.7% (4.0-10.4)	
Anaemia (children 6-59 months)			
Total, Anaemia (Hb < 11 g/dl)	189/272	69.5% (63.6-74.9)	High if ≥ 40% Target of < 20%
Mild (Hb 10-10.9)	63/272	23.2% (18.3-28.6)	
Moderate (Hb 7-9.9)	116/272	42.7% (36.7-48.8)	
Severe (Hb < 7)	10/272	3.7% (1.8-6.7)	
Anaemia (children 6-23 months)			
Total, Anaemia (Hb < 11 g/dl)	74/84	88.1% (79.2-94.1)	High if ≥ 40% Target of < 20%
Mild (Hb 10-10.9)	21/84	25.0% (16.2-35.6)	
Moderate (Hb 7-9.9)	49/84	58.3% (47.1-69.0)	
Severe (Hb < 7)	4/84	4.8% (1.3-11.8)	
CHILDREN 0-23 months % [95% CI]			
IYCF indicators			
Timely initiation of breastfeeding	29/107	72.9% (63.5-81.0)	UNHCR Target of ≥ 85%
Exclusive breastfeeding under 6 months	16/23	69.6% (47.1-86.8)	UNHCR Target of ≥ 75%
Continued breastfeeding at 1year	24/24	100.0% (100.0-100.0)	
Continued breastfeeding at 2 years	7/15	46.6% (21.3-73.4)	
Introduction of solid, semi-solid or soft foods	9/15	60.0% (32.3-83.7)	
Consumption of iron-rich or iron-fortified foods	65/84	77.4% (66.9-85.8)	UNHCR Target of ≥ 60%
Bottle feeding	21/107	19.6% (12.6-28.4)	UNHCR Target of < 5%

	Number/total	% (95% CI)	Classification of public health significance or target (where applicable)
Proportion of children 6-23 months who received CSB++ in the last 24 hours	13/83	15.6% (8.6-25.3)	
WOMEN 15-49 years % [95% CI]			
Anaemia (non-pregnant)			
Total Anaemia (Hb <12 g/dl)	111/163	68.1% (60.4-75.2)	High if ≥ 40% (WHO) UNHCR Target of < 20%
Mild (Hb 11-11.9)	43/163	26.4% (19.8-33.8)	
Moderate (Hb 8-10.9)	65/163	39.9% (32.3-47.8)	
Severe (Hb <8)	3/163	1.8% (0.4-5.3)	
Pregnant women currently enrolled in ANC programme	12/15	80.0% (51.9-95.7)	
Pregnant women currently receiving iron-folic acid pills	10/14	71.4% (41.9-91.6)	
Pregnant and lactating women currently enrolled in BSFP programme	22/31	71.0% (52.0-85.8)	
DEMOGRAPHY % [95% CI]			
Household size and Composition			
Average household size (mean, SD / range)		6.3 (2.6) [1-18]	
Percent of children U2	118/1539	7.7%	
Percent of children U5	308/1539	20.0%	
Percent of pregnant women	25/1539	1.6%	
Household Head Profile			
Female headed households	139/244	57.0% (50.5-63.3)	
Male headed households	101/244	41.4% (35.2-47.9)	
Children headed households	0/244	0.0% (0.0-0.0)	
Age dependency ratio			
Average age dependency ratio (mean, SD / range)		1.4 (1.0) [0.0-6.0]	
FOOD SECURITY % [95% CI]			
Proportion of households receiving a food assistance (food vouchers)	122/130	93.9% (88.2-97.3)	
Food voucher			
Proportion of households receiving food vouchers to cover basic food needs	120/122	98.4% (94.2-99.8)	
Average number of days general food ration lasts out of [insert cycle] days (mean, SD or range)		14.7 (5.7) [2-30]	
Negative household coping strategies*			
Proportion of households reporting using the following coping strategies over the past 7 days:			
Rely on less preferred and/or less expensive foods	124/130	95.4% (90.2-98.3)	
Borrow food, or rely on help from a friend or relative	68/130	52.3% (43.4-61.1)	

	Number/total	% (95% CI)	Classification of public health significance or target (where applicable)
Reduce the number of meals eaten in a day	123/130	94.6% (89.2-97.8)	
Limit portion sizes at mealtime	122/130	93.9% (88.2-97.3)	
Reduce consumption by adults so children could eat	102/130	78.5% (70.4-85.2)	
Average rCSI (mean, SD / range)		19.3 (9.6) [0.0-56.0]	
Food Consumption Score (FCS)			
Average FCS (mean, SD / range)		29.1 (15.9) [2.0-81.0]	
FCS profiles:			
Acceptable	44/130	33.9% (25.8-42.7)	
Borderline	48/130	36.9% (28.6-45.8)	
Poor	38/130	29.2% (21.6-37.9)	

* The total is over 100% as households used several negative coping strategies.

Intepretation of results

Table 2. WHO prevalence thresholds for wasting in children aged 6-59 months (low weight-for-height)[1]

Previous prevalence ranges	Label	New prevalence ranges 2018	Label
-	-	<2.5	Very low
<5%	Acceptable	2.5 - < 5	Low
5 – 9%	Poor	5 - <10	Medium
10 – 14%	Serious	10 - <15	High
>15%	Critical	≥ 15	Very high

Table 3. WHO prevalence thresholds for stunting in children aged 6-59 months (low height-for-age)[8]

Previous prevalence ranges	Label	New prevalence ranges 2018	Label
-	-	<2.5	Very low
<20%	Acceptable	2.5 - < 10	Low
20 – 30%	Poor	10 - < 20	Medium
30 – 39%	Serious	20 - < 30	High
>40%	Critical	≥ 30	Very high

Table 4. Classification of public health significance for children under 5 years of age[2]

Prevalence %	Very High	High	Medium	Low	Very low
Low weight-for-height	≥15	10-<15	5-10	2.5-<5	<2.5
Low height-for-age[3]	≥30	20-<30	10-<20	2.5-<10	<2.5

[1] WHO–UNICEF Technical Expert Advisory Group on Nutrition Monitoring (TEAM) recommendations August 2018.
[2] WHO (1995) Physical Status: The Use and Interpretation of Anthropometry and WHO (2000) The Management of Nutrition in Major Emergencies
[3] WHO/UNICEF categorization, prevention of malnutrition threshold-children under 5 years of age, December 2018

Label	Critical	Serious	Poor	Acceptable	
Low weight-for-age[4]	≥30	20-29	10-19	<10	

- The survey results showed a prevalence of Global Acute Malnutrition (GAM) in children 6-59 months (U5) of 6.3% which is classified as poor or medium level, persistent as the level in 2019 (6.5%). The prevalence of severe acute malnutrition increased from 0% in 2018 to 1.6% in 2019 which is a concern and need to be address.
- The prevalence of global stunting among U5 children was 10.3% which is on medium level and higher than 6.9% in 2019. This increase indicated a protracted sub-optimal nutrition condition as compring to 2019. This medium level stunting, should be interpreted with caution, that 24% of the children 6-59 months had no reliable age documentation.
- The coverage of measles vaccination met the target coverage of ≥95%, but vitamin A supplementation covergate is less than the target (≥90%), which is lower than 2019 rate.
- The enrolment rate for BSFP among children and pregnant and lactating women were 54.2% and 71.0% respectively which didn't meet the target of (≥90%), and in 2019, this indicator is not available due to the pipeline was broken before the survey.
- In terms of OTP and TSFP for children 6-59 months, the enrolment rate was 0% and 15.8% respectively, which is far below the target and were equal or lower than the enrolment rate in 2019 (OTP was 0% and TSFP was 23.1%).
- 6.7% of children 6-59 months were reported to have had diarrhoea in the last two weeks prior to the survey, which is lower than the level on 2019 (17.9%). This may possibly indicates an improvement on health, water, and sanitation services provision.
- The pregnant women who are currently enrolled in the ANC was 80%, and 71.4% were receiving iron-folic acid (IFA) pills, these level were lower than 2019 (100% for ANC, and 71.4% for IFA).
- Total anaemia prevalence among children aged 6-59 months was 69.5% with 3.7% of children suffering from severe anaemia. The prevelace of anaemia among younger children aged 6-23 months is even higher 88.1% with 4.8% of children suffering from severe anaemia. The prevalence of anaemia among women of reproductive aged between 15-49 years (non-pregnant) was 68.1%. including 1.8% of women reported suffering from severe anaemia. The prevalence of anaemia among both categories are very high or critical (above 40%, level of public health significance of WHO classification). This anaemia level in children is persistent high comparing to 2019 (70.7%) with an increase in severe anaemia from 1.6% to 3.7% in 2021, while in women has deteriorated from 58.5% from 2019 with an increase in severe anaemia from 0.9 to 1.8% in 2021. This high or critical prevalence of anaemia among children aged 6-59 months and non-pregnant women aged 15-49 years remains a key concern in Gorom. It requires to be addressed through multi-sectoral preventive and curative interventions including detection, referral and treatment of those with severe anaemia though existing health care program in the camp.
- Under infant and young child feeding (IYCF) practices, the proportion of children aged 0-23 months that had timely initiation of breastfeeding within the first hour of delivery was 72.9%, the exclusive breastfeeding for the first six months was 69.6%, consumption of iron-rich or iron-fortified foods at a rate of 77.4%, and children were bottle fed is 19.6%. All these indicators except for consumption of iron-rich foods don't meet the UNHCR target and have deterioriated from the level reported in SENS 2019.. Appropriated practices around most of IYCF indicators remains suboptimal indicating the need to continue strengthening the IYCF program to improve feeding practices.
- The average household size surveyed is 6.3, which is much larger than the average size in ProGres (3.2). This indicates several registration groups would live together or eat from the same pot. Households headed by female are slightly more than those headed by male (57.0% vs. 41.4%), and no households are headed by children. The average age dependcy ration is 1.4, which means each working age person (15-64 years old) would shoulder 1.4 dependent people who are 0-14 years and >65 years. Notice that the disability or disease are not taken into consideration of dependency.
- There are only 33.9% households having the food consumption score (FCS) within acceptable range,36.9% border line, while 29.2% reported poor food consumption score (FCS). The average

[4] WHO (1995) Physical Status: The Use and Interpretation of Anthropometry and WHO (2000) The Management of Nutrition in Major Emergencies

reduced coping strategy index (rCSI) score is 19.3 which is the baseline for this indicator to be used among Gorom refugees. The negative coping strategies used the most to fill the food gap are relying on less preferred/less expensive foods, reducing the number of meals eaten in a day, and limiting portion sizes at mealtime. More than 90% households reported adopted these three strategies in past 7 days.

Key Recommendations

Nutrition related

1. Ensure early preposition of BSFP supplies for both children U2 and PLW to ensure consistent regular distribution all year round (UNHCR, WFP, and ACROSS).
2. Resume two-stage screening of MUAC and subsequent Weight for Height (for children with MUAC at risk) through monthly screening at the BSFP distribution sites to identify and admit malnourished children in condition of Infection Prevention Control measures (ACROSS).
3. Intensify the family-MUAC approach to identify the malnutrition cases to improve the enrollment rate (ACROSS).
4. Use multi-sectoral approach to strengthen IYCF interventions following UNHCR IYCF framework for action (ACROSS, UNHCR, UNICEF, and partners on other sectors).
5. Increase staffing and capacity building for IYCF program (ACROSS and UNHCR).
6. Conduct an in-depth assessment of causes of anaemia, which has been ongoing for more than five years now (UNHCR and ACROSS).
7. Ensure buffer stock of Vitamin A supplementation to maintain routine Expanded Program of Immunization (EPI) and campaigns in case of pipeline break or delay (UNHCR, UNICEF, and ACROSS).

Food security

8. Advocate for an increase in the refugee food basket to reach the minimum daily recommended allowance (2100 kcal/person per day) of both macro and micronutrients through including fortified food (UNHCR and WFP).
9. Monitor the market prices, performance, and complaints of retailors in camp who are providing food basket (WFP, ACROSS, and UNHCR).
10. Scale up livelihood projects through extension of various agro-nutrition sites, backyard gardening, school gardening for improvement of the household food security to bring positive impact at household level (ACROSS, UNHCR, and WFP).

Health/WASH/Nutrition Linkages related

11. Strengthen malaria prevention interventions including blanket mosquito net distribution and bi-yearly indoor residue spraying and monitoring to include mosquito net module into the next SENS survey (UNHCR and ACROSS).
12. Strengthen the good reproductive practices through education on healthy timing and spacing of pregnancies, continued breastfeeding until 24 months, iron-folic acid supplementation to pregnant women (UNHCR and ACROSS).
13. Distribute jerrycans to ensure provision of adequate water storage containers per household (UNHCR and ACROSS).
14. Improve the WASH facilities (hand wash, latrines, etc) in health and school facilities (UNHCR and ACROSS).
15. Promote support on latrine construction to improve latrine coverage (UNHCR and ACROSS).
16. Strengthen severe anaemia treatment to children and women through screening, detection, and referral for treatment on facility level (UNHCR and ACROSS).

1. INTRODUCTION

This report presents the results of nutrition survey conducted in Gorom refugee camp from 15 to 19 November 2021. This report is divided into the following sections:

- *Background*: This section sets out background information related to the health, nutrition, and food security and WASH situation for Gorom camp
- *Methodology*
- *Results:* presents the findings following five modules of SENS were used (1. Demography, 2. Anthropometric and Health, 3. Anaemia, 4. IYCF, and 5. Food Security). Modules 6 Water Sanitation and Hygiene and 7 Mosquito net coverage were not carried out as covered by other surveyes, and module prioritization
- *Discussion*
- *Recommendations*

1.1. BACKGROUND

Gorom Refugee camp is located 24 km from Juba city. It has an estimated refugee population of 2115[5] who are mainly of Ethiopian nationality. The Anyuak refugees from Ethiopia have been in Gorom settlement since 2011.

Key partners in terms of the provision of the health, nutrition and food assistance services include UNHCR, WFP, UNICEF and ACROSS. UNHCR is mainly involved in providing funding for implementation of various services, coordination, technical support, monitoring and evaluation of the services offered to refugees through partners. WFP's main role is to ensure that the refugee's food security is adequately addressed through the food assistance in the modality of voucher with business-to-business support to retailors. This new modality was introduced to Gorom in September 2021, before which in-kind general food distribution was given. UNICEF in collaboration with UNHCR provides support to the nutrition programme. ACROSS implements the health, nutrition, and food assistance programme.

1.2. FOOD SECURITY

Refugees in the Gorom camp continue to mainly depend on the WFP provided general food assistance with limited access to additional sources of food/income. The food assistance was provided in-kind to all refugees in the ration of 70% from January 2020 to March 2021, then cut to 50% ration from July 2021. From September 2021, the modality of assistance was changed into voucher for food, with the amount of money calculated based on 50% ration of the food basket. The in-kind food assistance basket consists of 250g sorghum or maize, 25g of beans, 15ml of vegetable oil and 2g salt. This cumulates to approximately 292 grams/person/day providing 1065 kilocalories/person/day. This provided 50.7% of the recommended food ration of 2100 kcal/person/day.

From the NutVal analysis, the reduced ration has an inadequate micronutrient profile. The ration does not provide a fortified flour option like CSB+. It provided only 27% of the daily iron requirements. Sorghum, which contributed the bulk of the iron (non-heme iron form), is high in phytates, which is the anti-nutrients that inhibit iron absorption in the body. Vitamin C, a nutrient that plays a key role in the facilitating iron absorption was also barely available from the GFD ration. The ration provided only 3% of vitamin C. In addition, vitamin C is very easily destroyed when cooking at high temperatures. Other key micronutrients including Vitamin A, folate and Vitamin B12 were also insufficient as the ration provided 30%, 46% and 0% of these respectively. Ways to fill the nutrient gap should thus continue to be explored to avert the consequences.

See breakdown below showing the monthly ration provision

Table 5. General food ration provision by month and the amount of cash provided in voucher – Gorom refugee camp, Central Equatoria, 2021

Ration provided in g/p/d	Recommended	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug
Cereal	500g	350	350	350	350	350	350	250	250
Pulses	50g	35	35	35	35	35	35	25	25

[5] UNHCR ProGres August 2021 population

Vegetable oil	30g	21	21	21	21	21	21	15	15
Salt	5g	3.3	3.3	3.3	3.3	3.3	3.3	2.5	2.5
CSB+	50g	0	0	0	0	0	83	0	0
Kcal	2100	1491	1491	1491	1491	1491	1807	1065	1065
	% of recommended met	71.0	71.0	71.0	71.0	71.0	86.0	50.7	50.7

The use of the Global Distribution Tool (GDT) for food distribution was rolled out in May 2019 allowing for better accountability. Following this cash for milling was rolled out in July 2019. However, only 610 SSP was given in January 2021 for milling.

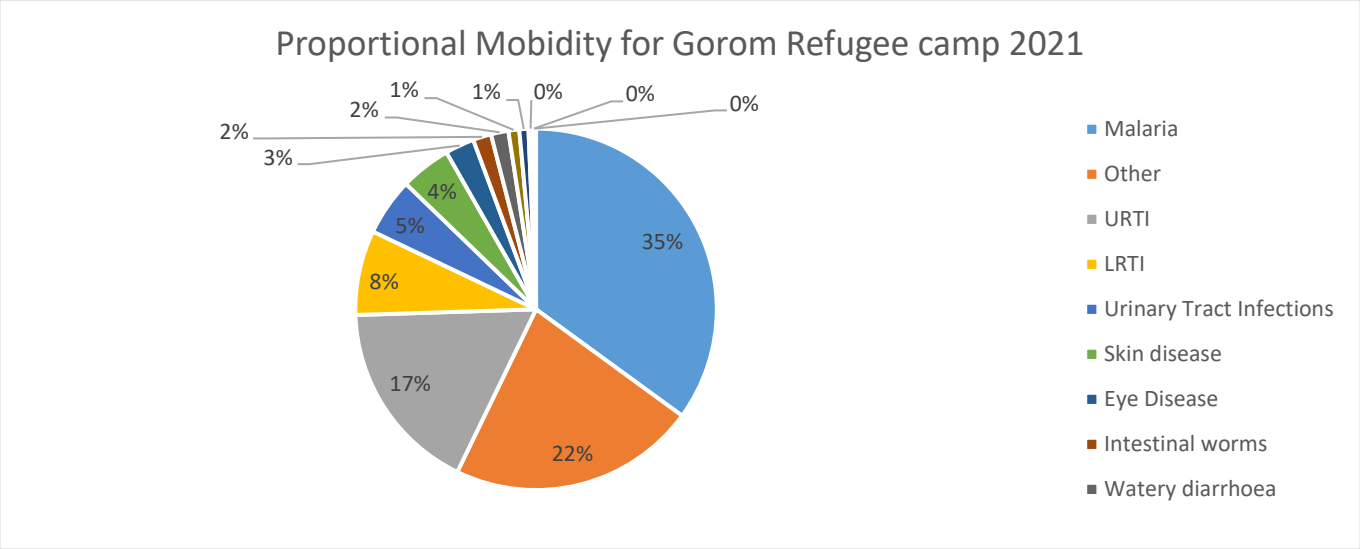
1.3. HEALTH SITUATION

Gorom refugee camp has one Primary Health Care Centre (PHCC) which is providing services including treatment of common illnesses, antenatal care (ANC) and post-natal care (PNC), immunization (EPI), TSFP and OTP.

The overall crude mortality rate for Gorom camp from the UNHCR health information system (January to December 2019) was 0.12/1000/month while under-five mortality rate was 0.16/1000/month, which was below the emergency threshold of <1 and <2 respectively. The U5MR has dramatically dropped down from 0.82/1000/month. [6]

The main causes of illness in 2021 were malaria, respiratory tract infections, skin diseases, eye diseases, intestinal parasites, and diarrhoea.

Figure 1. Under-five proportional morbidity from January-December 2021; Gorom, Central Equatoria camps (UNHCR iRHIS)



1.4. NUTRITION SITUATION

Results from the first rapid nutrition survey carried out at the end of the 2016 showed the prevalence of global acute malnutrition (GAM) prevalence of 6.6%. This indicated a poor or medium level nutrition situation based on the WHO classification (acute malnutrition between 5-9% is considered poor or medium level). Recommendations from the survey highlighted the need to set up a comprehensive nutrition program to prevent malnutrition and rehabilitate all identified malnourished cases. In 2017, 2018, and 2019 the GAM prevalence was 5%, 4%, and 6.5% respectively indicating fluctuation of the malnutrition status. Stunting remained the same in 2017 and 2018 at approximately 17% and dropped to 6.9% in 2019. Despite the acceptable wasting and stunting levels, anaemia levels remained critical since 2017 to 2019. A follow up survey was noted as necessary to evaluate the impact of initiated and on-going interventions to ensure provision of optimal health and nutritional care for the refugee population.

[6] UNHCR irHIS

Nutrition services and activities in the camp at the time of the survey included:

- Targeted Supplementary Feeding Programmes (TSFP) for moderately acute malnourished children 6-59 months using PlumpySup, acute malnourished Pregnant and Lactating Women (PLW) and patients with HIV or TB using Corn Soya Blend Plus Plus (CSB++).
- Outpatient therapeutic feeding programmes (OTP) for severely acute malnourished children 6-59 months (without medical complication) using RUTF.
- Blanket Supplementary Feeding Program (BSFP) using CSB++ targeting children 6 to 23 months and PLW. Children are receiving Lipid-based nutrient supplement – medium quantity (LNS-MS); while PLW is receiving CSB++.
- Infant and young child feeding support and promotion programme. At the facility level this is integrated into the primary health care components, i.e. Outpatient Department (OPD); Expanded Programme for Immunisation (EPI); Ante Natal Care (ANC), Post-Natal Care (PNC) Maternity and Nutrition. At the community level, community structures are used and include Community Nutrition Volunteers (CNVs), and Mother-to-mother Support Groups (MtMSGs) who are engaged in active screening and promotion of MIYCN activities.
- Outreaches activities this is also integrated with the EPI team in the near by host community.
- Nutrition education, cooking demonstration and kitchen gardening activities.
- Biannual Vitamin A supplementation and deworming campaign for children U5.
- MUAC screening of children 6-59 months and PLW at both facility level (the triage area and nutrition centres), and at community level, which includes active case finding on daily basis by CHPs, quarterly mass MUAC screening, and Family-MUAC by mothers or caregivers of children after COVID-19 pandemic.

Any severe acute malnourished children with medical complications requiring stabilisation care in Gorom would be referred to Juba Al-sabah hospital.

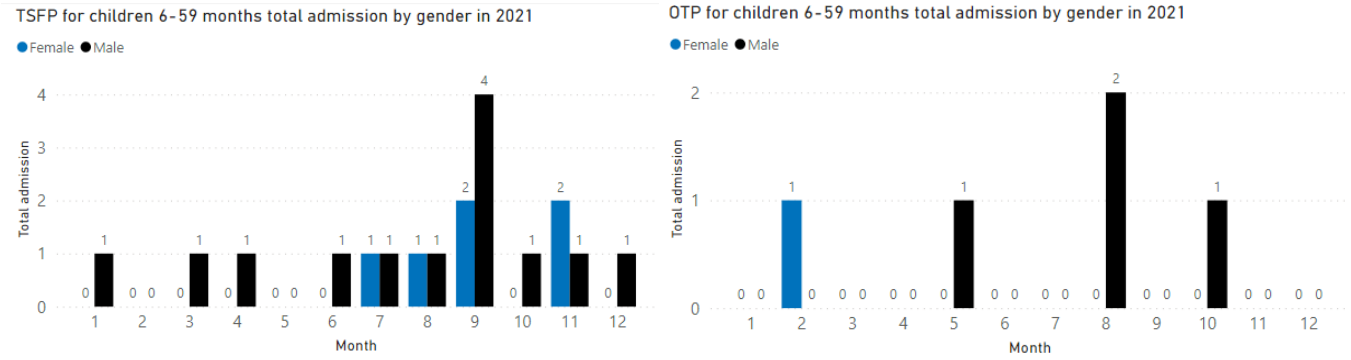
Active case finding through routine programming have been conducted both at community and health facility level at different point of contacts. In March and September 2021, two rounds of mass Mid-Upper Arm Circumstance (MUAC) screening were conducted targeting children 6-59 months and PLW. The proportion of children 6-59 months that had MUAC <12.5cm is as per below table.

Table 6. 2021 Mass MUAC and/or Oedema screening trend for U5; Gorom refugee camp

	March	September
Proportion of MUAC<12.5cm and/or Oedema in children 6-59 months screened	1.2%	2.6%
Proportion of MUAC<23.0cm in PLW screened	21.8%	18.4%

From January to December 2021 there were 24 children 6-59 admissions of which 5 were admitted to the Outpatient Therapeutic Program (OTP) and 19 in the Targeted Supplementary Feeding Program (TSFP). There were no SC cases reported within the reporting period. PLW admitted to the TSFP program in the same time period were 79. The number of admissions (children) in 2021 decreased by 32.1% compared to 2020, and by 63.5% compared to 2019. There was no pipeline break for ready to use therapeutic food, while for supplementary foods, there was a break of pipeline for CSB++ for PLW since November to the end of 2021. Double distribution which provided ration for two months was done for BSFP at January, March, May, and July, while resumed back to monthly distribution since September till December. The average coverage for these months was 88.7% for children (6-23months) and 101.8% for PLWs.

Figure 2. Admissions to the selective feeding program (OTP & TSFP) in 2021 by gender



1.5.WASH SITUATION

Access to water in Gorom in 2021 was maintained through 11 boreholes, 6 within the refugee camp and 5 in the surrounding host community. Of the 6 pumps in the refugee camp, 2 are solarized and 4 are India Mark II hand pumps. The camp has a 53,000 liters storage PVC tanks capacity. Routine water quality management (testing and chlorination of boreholes) and maintenance was carried out regularly during the year. Gorom has 14 trained pump mechanics and 6 water user management committees that facilitate the maintenance at the community level. An average of 20 litres per person per day was available in 2021[7] which meets the minimum SPHERE standard which meets UNHCR standard of ≥20 liters per person per day. The population in Gorom will continue to require the water to be maintained within the minimum standards.

As of end of November 2021, Gorom had 160 household functional latrines and 7 public communal institutional latrines serving a population of 2115 individuals (658 households). There are 5 hygiene promoters. The overall average number of persons/hygiene promoter ratio was 423 in Gorom. Soap is distributed on monthly Bases at 250g per person per month. This does not meet the 500g per person per month standard.

1.6. SURVEY OBJECTIVES

Specific primary objectives of the survey:

a. To measure the prevalence of acute malnutrition among children 6-59 months.
b. To measure the prevalence of stunting among children 6-59 months.
c. To determine the coverage of measles vaccination among children 9-59 months.
d. To determine the coverage of vitamin A supplementation in the last six months among children 6-59 months.
e. To determine the coverage of de-worming in the last six months among children 12-59 months.
f. To determine the two-week period prevalence of diarrhoea among children 6-59 months.
g. To measure the prevalence of anaemia among children 6-59 months and women of reproductive aged 15-49 years (non-pregnant).
h. To investigate IYCF practices among children 0-23 months.
i. To determine the coverage of ration cards and the duration the GFD ration lasts for recipient households.
j. To determine the extent to which negative coping strategies are used by households.
k. To assess household dietary diversity.
l. To establish workable recommendations on actions to be taken to address the situation.

Secondary objectives:

[7] Water monitoring report_ACROSS WASH report

a. To determine the coverage of of targeted supplementary and therapeutic feeding programmes for children 6-59 months.
b. To determine the coverage of of blanket supplementary feeding programmes for children 6-59 months and pregnant and lactating women.
c. To determine enrolment into Antenatal Care clinic and coverage of iron-folic acid supplementation in pregnant women.

2. METHODOLOGY

2.1. SAMPLING PROCEDURE

The refugee population in Gorom at the end of August 2021 was 2,115 individuals (658 households). 322 (15.2%) of these were children less than five years; and 49.7% (1051) were women. The average household size was 3.2.

An exhaustive survey was conducted as the total refugee population size of Gorom camp was below 2,500 people rendering sampling unnecessary. All children 0-59 months (0-23 months for IYCF and 6-59 momths for anthropometry and other children's questions) in the camp were surveyed. All households were included for demogary, anthropometry, anaemia and IYCF modules. For the women questionnaire and the food security modules, half of the households were sampled. The survey was designed in accordance with UNHCR Standardised Expanded Nutrition Survey (SENS) version 3, 2019 guidelines (http://sens.unhcr.org/). Data was collected using Mobile Data Collection tools.

Module	Households sampled
Households to be included for Demography module (UNHCR SENS Guidelines)	658
Households to be included for Anthropometry and Health module (UNHCR SENS guidelines)	658
Households to be included for children Anaemia module (UNHCR SENS guidelines)	658
Households to be included for IYCF module (UNHCR SENS Guidelines)	658
Households to be included for women Anaemia module (UNHCR SENS guidelines)	329
Households to be included for Food Security module (UNHCR SENS Guidelines)	329

The surveys were undertaken by six teams composed of four members each (one team leader, one haemoglobin measurer, one anthropometric measurer/translator and one anthropometric/haemoglobin measurement assistant). Each team has at least one refugee and one female member. Blocks were allocated to each team, the locations and boundaries was discussed during the training to ensure all teams knew where to go.

If an individual or an entire household was absent the teams were instructed to return to the household or revisit the absent individual on the same or the next survey day. If they were unsuccessful after this, the individual or the household was recorded as absent, and they were not replaced with another individual.

If the individual or an entire household refused to participate then it was considered a refusal and the individual or the household were not replaced with another.

If a selected child was living with a disability or a physical deformity preventing certain anthropometric measurements the child was still included in the assessment of the other indicators.

If it was determined that a selected household did not have any eligible children, the other relevant questionnaires were administered to the household (anaemia measurement for women and food security)

2.2. QUESTIONNAIRES

The paper version of the questionnaires is attached under **Appendix 3.**

Mobile phone questionnaires using Open Data Kit (ODK) android software for all the modules was used for data collection. The questionnaires were prepared in English language and administered in the local language with the help of the enumerators that spoke the local language (Anyuak). The questionnaires were pre-tested before the survey.

Four independent questionnaires were designed for different targeting group based on five standard SENS modules to provide information on the relevant indicators of the different target groups as indicated in the survey objectives. The five modules covered the following areas and the following measurements:

Module 1: Demography - this included question on information on demographic profile of the surveyed population

Module 2: Anthropometry and Health – this included questions and measurements of children aged 6-59 months. Information was collected on anthropometric status, oedema, and enrollment in selective feeding programmes, immunization (measles), Vitamin A supplementation, deworming, and morbidity from diarrhoea in past two weeks before the survey.

Module 3: Anaemia - this included measurement of levels of haemoglobin in children aged 6 – 59 months and women of childbearing age (15 – 49 years) who are not pregnant.
Further information collected from women was pregnancy status, enrolment in ANC, coverage of iron-folic acid pills.

Module 4: IYCF - this included question on infant and young child feeding for children aged 0- 23 months.

Module 5: Food security - this included question on access and use of the GFD ration, negative coping mechanisms used by household members and household dietary diversity.

2.3. MEASUREMENT METHODS

Household-level indicators

Demography: Demographic variables are assessed using interviews through questionnaire designed from SENS Version 3 (2019).

Food security: Food security variables are assessed using interviews through questionnaire designed from SENS Version 3 (2019). The list of food items/commodities were adjusted to the locally available type in consultation with community nutrition workers.

Individual-level indicators

Sex of children: gender was recorded as male or female.

Birth date or age in months for children 0-59 months: the exact date of birth (day, month, and year) was recorded from either an EPI card, child health card or birth notification if available. If no reliable proof of age was available, age was estimated in months using a local event calendar and recorded in months on the questionnaire/Phone. If the child's age could not be determined by using a local events calendar or by probing, the child's length/height was used for inclusion; the child had to measure between 65 cm and 110

cm.

Age of women 15-49 years: Reported age was recorded in years.

Weight of children 6-59 months: measurements were taken to the closest 100 grams using an electronic scale (SECA scale). All children were weighed without clothes. The double-weighing technique was used to weigh young children unable to stand on their own or unable to understand instructions not to move while on the scale.

Height/Length of children 6-59 months: children's height or length was taken to the closest millimetre using a wooden height board (Shorr Productions). Height was used to decide on whether a child should be measured lying down (length) or standing up (height). Children less than 87cm were measured lying down, while those greater than or equal to 87cm were measured standing up.

Oedema in children 6-59 months: bilateral oedema was assessed by applying gentle thumb pressure on to the tops of both feet of the child for a period of three seconds and thereafter observing for the presence or absence of an indent.

MUAC of children 6-59 months: MUAC was measured at the mid-point of the left upper arm between the elbow and the shoulder and taken to the closest millimetre using a standard tape. MUAC was recorded in millimetres.

Child enrolment in selective feeding programme for children 6-59 months: selective feeding programme coverage was assessed for the outpatient therapeutic programme and for the supplementary feeding programme. This was verified by card or by showing images of the products given at the different programs (e.g., plumpysup, plumpynuts, CSB++)

Measles vaccination in children 6-59 months: measles vaccination was assessed by checking for the measles vaccine on the EPI card if available or by asking the caregiver to recall if no EPI card was available. For ease of data collection, results were recorded on all children but were only analysed for children aged 9-59 months

Vitamin A supplementation in last 6 months in children 6-59 months: whether the child received a vitamin A capsule over the past six months was recorded from the EPI card or health card if available or by asking the caregiver to recall if no card is available. A vitamin A capsule image was shown to the caregiver when asked to recall.

Deworming in last 6 months in children 12-59 months: whether the child received a deworming tablet over the past six months was recorded by asking the caregiver to recall if information was not available on the EPI card. A deworming tablet sample was shown to the caregiver when asked to recall.

Haemoglobin concentration in children 6-59 months and women 15-49 years: Hb concentration was taken from a capillary blood sample from the fingertip and recorded to the closest gram per decilitre by using the portable HemoCue Hb 301 Analyser (HemoCue, Sweden). If severe anaemia was detected, the child or the woman was referred for treatment immediately.

Diarrhoea in last 2 weeks in children 6-59 months: an episode of diarrhoea is defined as three loose stools or more in 24 hours. Caregivers were asked if their child had suffered episodes of diarrhoea in the past two

weeks prior to the survey.

ANC enrolment and iron and folic acid pills coverage: if the surveyed woman was pregnant, it was assessed whether she was enrolled in the ANC programme and was receiving iron-folic acid pills. An iron-folic acid pill image was shown to the pregnant woman when asked to recall.

Infant and young child feeding practices in children 0-23 months: IYCF indicators are assessed using interviews with mothers or the main caregiver of young children through questionnaire designed from SENS Version 3 (2019). The list of food items/commodities were adjusted to the locally available type in consultation with community nutrition workers.

Referrals: Children aged 6-59 months were referred to health centre/post for treatment when MUAC was < 12.5 cm, WHZ <-2 z-score or oedema was present.

2.4. CASE DEFINITIONS AND CALCULATIONS

Household: in household surveys, a household is typhically defined as a group of people who live together and routinely eat out of the same pot.

Head of household: The person responsible for making the decisions for the household as a whole.

Age dependency ratio: According to the United Nations Population Division and the World Bank, the age dependency ratio is defined as the 'ratio of dependents --people younger than 15 (aged 0-14 years) or older than 64 (65+ years)--to the working-age population--those aged 15-64.'

Age dependency ratio = Number of people aged 0 - 14 years and those aged 65 years and over/Number of people aged 15-64 years

Non-response rate: in sample surveys, the failure to obtain information from a designated individual or household for any reason (e.g. absence, refusal) is called a non-response. The proportion of non-responders (individuals or households) over the planned sample size is the non-response rate.

Malnutrition in children 6-59 months: Acute malnutrition was defined using weight-for-height index values or the presence of oedema and classified as show in the table below. Main results are reported after analysis using the WHO 2006 Growth Standards.

Table 7. Definitions of acute malnutrition using weight-for-height and/or oedema in children 6–59 months

Categories of acute malnutrition	Z-scores (WHO Growth Standards 2006)	Bilateral oedema
Global acute malnutrition	< -2 z-scores	Yes/No
Moderate acute malnutrition	< -2 z-scores and ≥ -3 z-scores	No
Severe acute malnutrition	> -3 z-scores	Yes
	< -3 z-scores	Yes/No

Stunting, also known as chronic malnutrition, was defined using height-for-age index values and was classified as severe or moderate based on the cut-offs shown below. Main results are reported according to the WHO Growth Standards 2006.

Table 8. Definitions of stunting using height-for-age in children 6–59 months

Categories of stunting	Z-scores (WHO Growth Standards 2006)
Stunting	<-2 z-scores
Moderate stunting	<-2 z-score and >=-3 z-score
Severe stunting	<-3 z-scores

Underweight was defined using the weight-for-age index values and was classified as severe or moderate based on the following cut-offs. Main results are reported according to the WHO Growth Standards 2006.

Table 9. Definitions of underweight using weight-for-age in children 6–59 months

Categories of underweight	**Z-scores (WHO Growth Standards 2006)**
Underweight	<-2 z-scores
Moderate underweight	<-2 z-scores and >=-3 z-scores
Severe underweight	<-3 z-scores

Mid Upper Arm Circumference (MUAC) values were used to define malnutrition according to the following cut-offs in children 6-59 months:

Table 10. MUAC malnutrition cut-offs in children 6-59 months

Categories of MUAC values
<125 mm
≥ 115 mm and <125 mm
< 115 mm

Child enrolment in selective feeding programme for children 6-59 months: Feeding programme coverage is estimated during the nutrition survey using the direct method as follows (reference: Emergency Nutrition Assessment: Guidelines for field workers. (Save the Children 2004):

Coverage of SFP programme (%) =

$$\frac{\text{No. of surveyed children with MAM according to SFP criteria who reported being registered in SFP}}{\text{No. of surveyed children with MAM } \textit{according to SFP admission criteria}} \times 100$$

Coverage of OTP programme (%) =

$$\frac{\text{No. of surveyed children with SAM according to OTP criteria who reported being registered in OTP}}{\text{No. of surveyed children with SAM } \textit{according to OTP admission criteria}} \times 100$$

Child enrolment in blanket supplementary feeding programme

Enrollment into BSFP (%) =

$$\frac{\text{No. of surveyed children in the eligible age range who reported being registered in BSFP}}{\text{No. of surveyed children in the eligible age range}} \times 100$$

Woman enrolment in blanket supplementary feeding programme

Enrollment into BSFP (%) =

$$\frac{\text{No. of surveyed women in the eligible category (e.g. PLW) who reported being registered in BSFP}}{\text{No. of surveyed women in the eligible category (e.g. PLW)}} \times 100$$

Infant and young child feeding practices in children 0-23 months*:* Infant and young child feeding practices were assessed based on the UNHCR SENS IYCF module (Version 3, 2019) that is based on WHO recommendations (WHO, 2007 as follows):

Timely initiation of breastfeeding in children aged 0-23 months: Proportion of children 0-23 months who were put to the breast within one hour of birth

$$\frac{\text{Children 0-23 months who were put to the breast within one hour of birth}}{\text{Children 0-23 months of age}}$$

Exclusive breastfeeding under 6 months: Proportion of infants 0–5 months of age who are fed exclusively with breast milk: (including expressed breast milk or from a wet nurse, ORS, drops or syrups (vitamins, breastfeeding minerals, medicines)

Infants 0–5 months of age who received only breast milk during the previous day
Infants 0–5 months of age

Continued breastfeeding at 1 year: Proportion of children 12–15 months of age who are fed breast milk

Children 12–15 months of age who received breast milk during the previous day
Children 12–15 months of age

Introduction of solid, semi-solid or soft foods: Proportion of infants 6–8 months of age who receive solid, semi-solid or soft foods

Infants 6–8 months of age who received solid, semi-solid or soft foods during the previous day
Infants 6–8 months of age

Children ever breastfed: Proportion of children born in the last 24 months who were ever breastfed

Children born in the last 24 months who were ever breastfed
Children born in the last 24 months

Continued breastfeeding at 2 years: Proportion of children 20–23 months of age who are fed breast milk

Children 20–23 months of age who received breast milk during the previous day
Children 20–23 months of age

Consumption of iron rich or iron fortified foods in children aged 6-23 months: Proportion of children 6–23 months of age who receive an iron-rich or iron-fortified food that is specially designed for infants and young children, or that is fortified in the home.

Children 6–23 months of age who received an iron-rich food or a food that was specially designed for infants and young children and was fortified with iron, or a food that was fortified in the home with a product that included iron during the previous day
Children 6–23 months of age

Bottle feeding: Proportion of children 0-23 months of age who are fed with a bottle

Children 0–23 months of age who were fed with a bottle during the previous day
Children 0–23 months of age

Anaemia in children 6-59 months and women of reproductive age: Anaemia is classified according to the following cut-offs in children 6-59 months and non-pregnant women of reproductive age. Anaemia cut-offs for pregnant women should be adjusted depending on the stage of pregnancy (gestational age). Pregnant women are not included in routine UNHCR nutrition surveys for the assessment of anaemia due sample size issues (usually a small number of pregnant women is found) as well as the difficulties in assessing gestational age in pregnant women.

Table 11. Definition of anaemia (WHO 2000)

Age/Sex groups	Categories of Anaemia (Hb g/dL)			
	Total	Mild	Moderate	Severe
Children 6 - 59 months	<11.0	10.9 - 10.0	9.9 - 7.0	< 7.0
Non-pregnant adult females 15-49 years	<12.0	11.9 - 11.0	10.9 - 8.0	< 8.0

Food security: Food security were assessed based on the UNHCR SENS Food Security module (Version 3, 2019) in which FCS and rCSI indicators are based on WFP and UNICEF recommendations (2016).

General food distribution: Duration of the food from GFD is adjusted to the food assistance cycle (30 days cycle).

2.5. CLASSIFICATION OF PUBLIC HEALTH PROBLEMS AND TARGETS

Anthropometric data: UNHCR's target for the prevalence of global acute malnutrition (GAM) for children 6-59 months of age by camp, country and region is < 10% and the target for the prevalence of severe acute malnutrition (SAM) is <2%. The table below shows the classification of public health significance of the anthropometric results for children under-5 years of age according to WHO:

Table 12. WHO prevalence thresholds for wasting in children aged 6-59 months (low weight-for-height)[8]

Previous prevalence ranges	Label	New prevalence ranges 2018	Label
-	-	<2.5	Very low
<5%	Acceptable	2.5 - < 5	Low
5 – 9%	Poor	5 - <10	Medium
10 – 14%	Serious	10 - <15	High
>15%	Critical	≥ 15	Very high

Table 13. WHO prevalence thresholds for stunting in children aged 6-59 months (low height-for-age)[8]

Previous prevalence ranges	Label	New prevalence ranges 2018	Label
-	-	<2.5	Very low
<20%	Acceptable	2.5 - < 10	Low
20 – 30%	Poor	10 - < 20	Medium
30 – 39%	Serious	20 - < 30	High
>40%	Critical	≥ 30	Very high

Table 14. Classification of public health significance for children under 5 years of age[9]

Prevalence %	Very High	High	Medium	Low	Very low
Low weight-for-height	≥15	10-<15	5-10	2.5-<5	<2.5
Low height-for-age[10]	≥30	20-<30	10-<20	2.5-<10	<2.5
Label	Critical	Serious	Poor	Acceptable	
Low weight-for-age[11]	≥30	20-29	10-19	<10	

Selective feeding programmes:

UNHCR Strategic Plan for Nutrition and Food Security 2008-2012 includes the following indicators. The table below shows the targeted performance indicators for malnutrition treatment programmes according to UNHCR Strategic Plan for Nutrition and Food Security 2008-2012 (same as Sphere Standards).

Table 15. Performance indicators for selective feeding programmes (UNHCR Strategic Plan for Nutrition and Food Security 2008-2012)*

	Recovery	Case	Defaulter	Coverage

[8] WHO–UNICEF Technical Expert Advisory Group on Nutrition Monitoring (TEAM) recommendations August 2018.
[9] WHO (1995) Physical Status: The Use and Interpretation of Anthropometry and WHO (2000) The Management of Nutrition in Major Emergencies
[10] WHO/UNICEF categorization, prevention of malnutrition threshold-children under 5 years of age, December 2018
[11] WHO (1995) Physical Status: The Use and Interpretation of Anthropometry and WHO (2000) The Management of Nutrition in Major Emergencies

		fatality	rate	Rural areas	Urban areas	Camps
SFP	>75%	<3%	<15%	>50%	>70%	>90%
TFP	>75%	<10%	<15%	>50%	>70%	>90%

* Also meet SPHERE standards for performance

Measles vaccination coverage: UNHCR recommends target coverage of ≥95% (same as Sphere Standards).

Vitamin A supplementation coverage: UNHCR Strategic Plan for Nutrition and Food Security (2008-2012) states that the target for vitamin A supplementation coverage for children aged 6-59 months by camp, country and region should be >90%.

Anaemia data: UNHCR Global Strategy for Public Health (2017-2019) states that the targets for the prevalence of anaemia in children 6-59 months of age and in women 15-49 years of age should be <20%. The severity of the public health situation should be classified according to WHO criteria as shown in the table below.

Table 16. Classification of public health significance (WHO 2000)

Prevalence %	High	Medium	Low
Anaemia	≥40	20-39	5-19

Food consumpation score: the Food Consumption Score (FCS) is a proxy measure of household food access using dietary diversity and food frequency. Focusing on the seven days before the interview, it records how many days nine categories of foods (including super cereals) were eaten by anyone in the household. It is therefore a household variable and does not measure food frequency or diversity for any single individual in the household. Each food category is given a weight based on the energy and the macro- and micronutrient content of the food/food group. This weight is multiplied by the number of days in the preceding week each food category was eaten. The sub-scores for each food group are then summed up to produce a composite FCS. The FCS also provides a measure of dietary diversity.

Table 17. Thresholds to determine food consumption profiles (WFP 2016)

Threshold	Profiles	Thresholds with oil and sugar eaten on a daily basis (~7 days per week)
0 – 21	Poor food consumption	0 – 28
21.5 - 35	Borderline food consumption	28.5 – 42
>35	Acceptable food consumption	>42

2.6. TRAINING, COORDINATION AND SUPERVISION

The survey was coordinated by Heqian Kuang (UNHCR Associate Nutrition and Food security officer) in collaboration with the ACROSS health and nutrition team including Dr Joice Dominic, Diana Wesley Anyango and Luate Samuel. Amulo Ociti (WFP nutritionist) assisted with training, survey supervision and data quality check.

The surveys were undertaken by six teams composed of four members each (one team leader, one haemoglobin measurer, one anthropometric measurer/translator and one anthropometric/haemoglobin measurement assistant). The team leaders/enumerators were qualified staff, while the anthropometric measurers were community health promoters or community nutrition volunteers.

Two sets of trainings, one for supervisors and the other for enumerators, were conducted. The supervisors training was conducted remotely for two days (11th to 12th Oct) jointly with supervisors who participated in SENS survey in other locations in South Sudan. A five-day training was carried out from 8-12 November 20. The training focused on: the purpose and objectives of the survey, roles and responsibilities of each team member, data collection techniques, familirization with the questionnaires, interviewing skills,

teamwork, interpretation of calendar of events and age determination, and data collection using the smartphone. This was to ensure high quality information is collected from respondents. Practical sessions on anthropometric and heamoglobin measurements blood sample taking, including standardization tests were conducted. The practical session on anthropometric measurements involved volunteer children for practice as well as a standardisation test. The practical session on haemoglobin measurements involved the trainees and trainers themselves as well as a standardisation test. For the pilot test, the day 1 morning of data collection was conducted as the pilot test, with teams gathered at noon to provide feedback.

2.7. DATA COLLECTION AND ANALYSIS

Data collection lasted for 5 days from 15-19 November 2021. Each survey team explained the purpose of the survey and issues of confidentiality and obtained verbal consent before proceeding with the survey in the selected households. The informed consent form is shown in **Appendix 3**.

The UNHCR Associate Nutrition and Food Security Officer (survey coordinator), WFP nutritionist, ACROSS nutrition coordinator and nutrition officer supported the data collection supervision during the whole data collection process. Data was collected using the ODK for Android platform using six Samsung tablets and recording on paper for key measurements conducted made for cross checking the data and retain backup where need be to verify. Additional three tablets were also provided as back up.

At the end of each day's data collection, the survey coordinator checked each questionnaire for completeness and then finalised the questionnaires on tablets. Once the questionnaires were finalised, they were sent to the server for synchronisation and exporting. checked each and every questionnaire on the phones for completeness, consistency with paper based data controlling sheet on key measurements, and range of data before exporting the data from the smartphones to the server. Feedback was provided to teams every morning in terms of the issues flagged from the daily check. Some data which are unclear are marked and the teams asked to returned to the particular households for correction or confirmation the following day. This feedback enabled the teams to learn the importance of accuracy and being keen in recording the measurements and responses. The ODK exported data were downloaded from the server each evening as csv files. All data files were cleaned before analysis and entries were double checked one after the other with the original questionnaire to ensure there were no data entry errors and duplicate entries.

Analysis was performed using ENA for SMART Jan 11th 2020 version and Epi Info software version 7.2.4.0. The SMART plausibility report was generated for each complete set of survey data in order to check the quality of the anthropometric data and to identify areas and teams that need more supervision or to be strengthened. Teams that required more supervision were given more attention the following day to improve on any identified weak areas. The final SMART plausibility report with a summary of the key quality criteria is shown in **Appendix 2**.

The nutritional indices were cleaned using flexible cleaning criteria from the observed mean (also known as SMART flags in the ENA for SMART software), rather than the reference mean (also known as WHO flags in the ENA for SMART software). This flexible cleaning approach is recommended in the UNHCR SENS Guidelines (Version 3, 2019) in accordance with SMART recommendations. For the weight-for-height index, a cleaning window of +/- 3 SD value contained in the SMART for ENA software was used.

Anthropometry indices were analysed using the ENA for SMART Jan 11th, 2020 version. Epi Info version 7.2.4.0 was used to analyse all the other data.

3. RESULTS

3.1. OVERVIEW

All children aged 6-59 months that were found in Gorom refugee camps during the survey period were surveyed. A total of 295 children 0-59 months, out of which 272 are 6-59 months, in Gorom refugee camp were surveyed (out of 322 children 0-59 months according to the data from ProGres as of August 2021). All the children who participated in the survey were considered using either available official age documentation or age estimation from local context calendar of event developed to estimate the age. Of the total surveyed children 6-59 months, 74.3% had official age documentation.

Table 18. Actual number of children and household captured during the survey in Gorom, Central Equatoria (November 2021)

Target group	Subjects measured/interviewed during the survey
All children 6-59 months in Gorom	272
All children 0-59 months in Gorom	295

Table 19. Distribution of age and sex of sample-Gorom camp, Central Equatoria (November 2021)

	Boys		Girls		Total		Ratio
AGE (mo)	**no.**	**%**	**no.**	**%**	**no.**	**%**	**Boy:girl**
6-17	30	47.6	33	52.4	63	23.2	0.9
18-29	27	51.9	25	48.1	52	19.1	1.1
30-41	35	61.4	22	38.6	57	21.0	1.6
42-53	37	53.6	32	46.4	69	25.4	1.2
54-59	10	32.3	21	67.7	31	11.4	0.5
Total	139	51.1	133	48.9	272	100.0	1.0

The overall sex ratio was 1.0 (sex ratio should be between 0.8-1.2) confirming that both sexes were equally distributed.

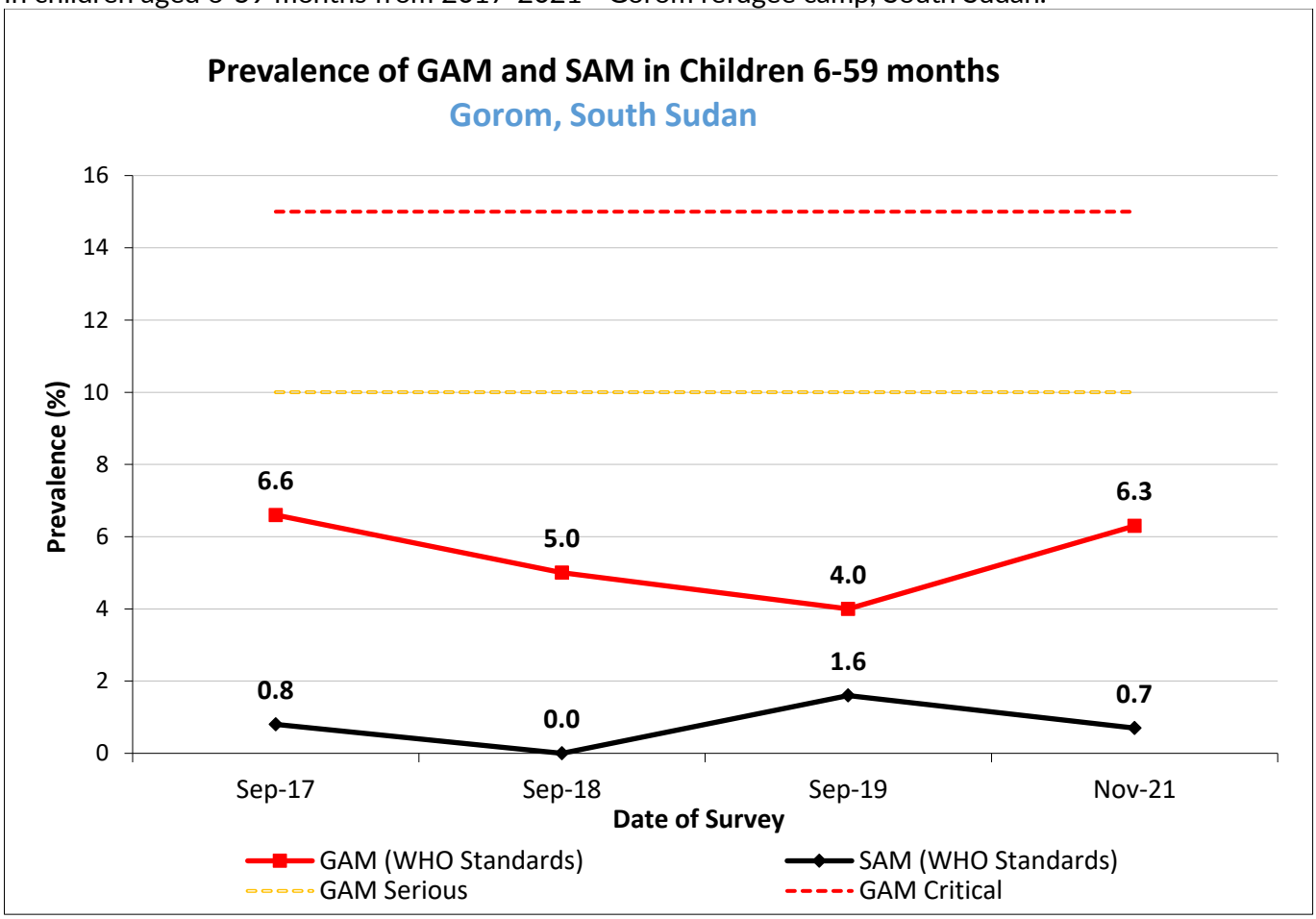
3.2. ANTHROPOMETRIC RESULTS (BASED ON WHO GROWTH STANDARDS 2006)

Table 20. Prevalence of acute malnutrition based on weight-for-height z-scores (and/or oedema) and by sex- Gorom camp, Central Equatoria (November 2021)

	All n = 269 (95% C.I.)	**Boys** n = 138 (95% C.I.)	**Girls** n = 131 (95% C.I.)
Prevalence of global malnutrition (<-2 z-score and/or oedema)	(17) 6.3 % (4.0 - 9.9)	(13) 9.4 % (5.6 - 15.5)	(4) 3.1 % (1.2 - 7.6)
Prevalence of moderate malnutrition (<-2 z-score and >=-3 z-score, no oedema)	(15) 5.6 % (3.4 - 9.0)	(12) 8.7 % (5.0 - 14.6)	(3) 2.3 % (0.8 - 6.5)
Prevalence of severe malnutrition (<-3 z-score and/or oedema)	(2) 0.7 % (0.2 - 2.7)	(1) 0.7 % (0.1 - 4.0)	(1) 0.8 % (0.1 - 4.2)

The prevalence of oedema was 0.0% and the data excluded SMART flags. Prevalence of acute malnutrition based on WFH z-score and/or oedema showed higher prevalence in boys (8.7%) than girls (2.3%) for moderate malnutrition, however, it's not significant based on the C.I. indicated.

Figure 3. Trends in the prevalence of global and severe acute malnutrition based on WHO growth standards in children aged 6-59 months from 2017-2021 - Gorom refugee camp, South Sudan.

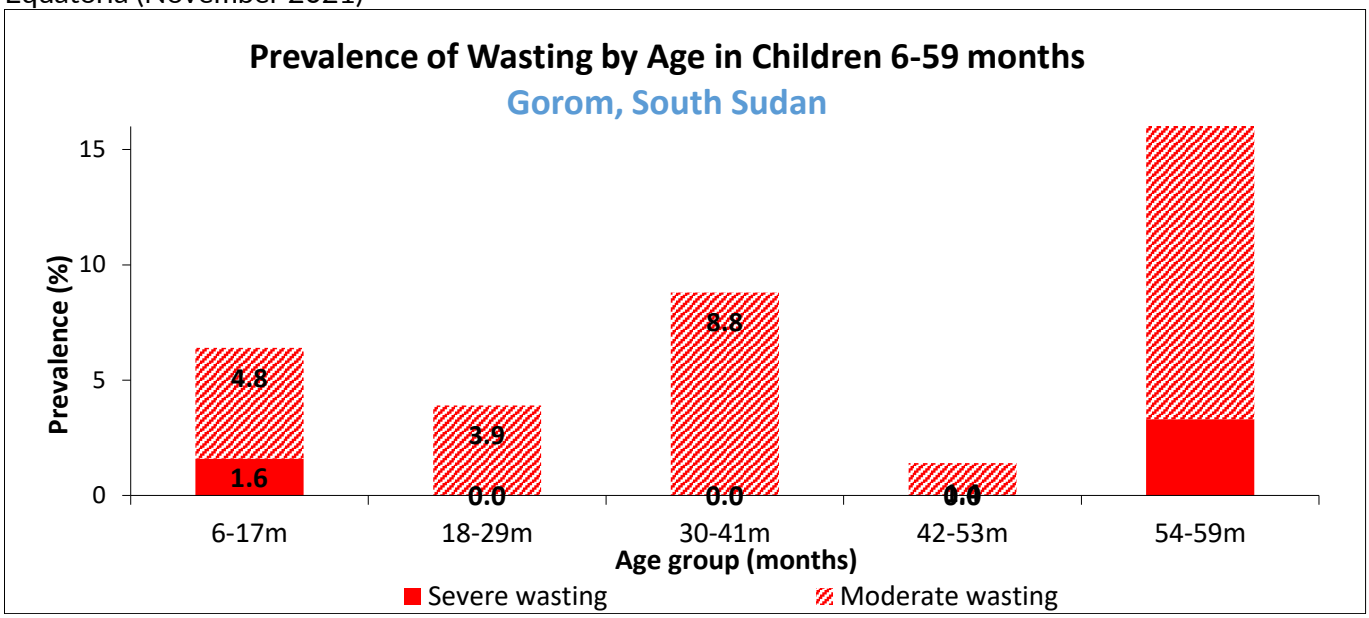


The prevalence of GAM decreased from 6.6% to 4.0% since 2017 to 2019, while increased back to 6.3% in 2021. The SAM prevlance decreased from 1.6% to 0.7% from 2019 to 2021.

Table 21. Prevalence of acute malnutrition by age, based on weight-for-height z-scores and/or oedema- Gorom camp, Central Equatoria (November 2021)

		Severe wasting (<-3 z-score)		Moderate wasting (>= -3 and <-2 z-score)		Normal (> = -2 z score)		Oedema	
Age (mo)	**Total no.**	**No.**	**%**	**No.**	**%**	**No.**	**%**	**No.**	**%**
6-17	62	1	1.6	3	4.8	58	93.5	0	0.0
18-29	51	0	0.0	2	3.9	49	96.1	0	0.0
30-41	57	0	0.0	5	8.8	52	91.2	0	0.0
42-53	69	0	0.0	1	1.4	68	98.6	0	0.0
54-59	30	1	3.3	4	13.3	25	83.3	0	0.0
Total	269	2	0.7	15	5.6	252	93.7	0	0.0

Figure 4. Trend in the prevalence of wasting by age in children 6-59 months- Gorom camp, Central Equatoria (November 2021)

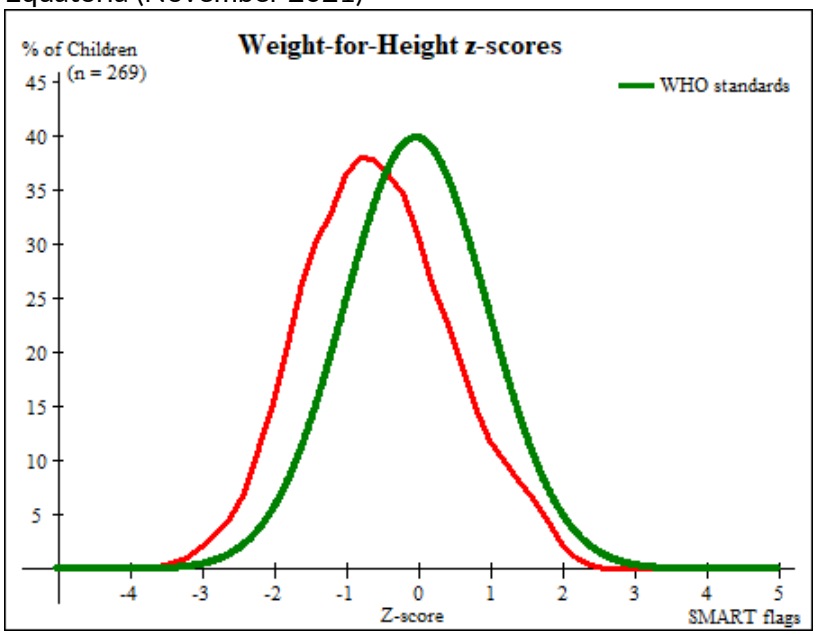


There was higher MAM and SAM prevalence among children 54-59 months and 6-17 months, while MAM prevalence was higher among children 30-41 months.

Table 22. Distribution of severe acute malnutrition and oedema based on weight-for-height z-scores- Gorom camp, Central Equatoria (November 2021)

	<-3 z-score	>=-3 z-score
Oedema present	Marasmic kwashiorkor. 0 (0.0 %)	Kwashiorkor. 0 (0.0 %)
Oedema absent	Marasmic. 3 (1.1 %)	Not severely malnourished. 268 (98.9 %)

Figure 5: Distribution of weight-for-height z-scores (based on WHO Growth Standards; the reference population is shown in green) of survey population compared to reference population-Gorom camp, Central Equatoria (November 2021)



This figure shows that the weight-for-height z-score distribution is shifted to the left, illustrating a poorer status than the in ternational WHO Standard population of children aged 6-59 months.

Table 23. Prevalence of acute malnutrition based on MUAC cut off's (and/or oedema) and by sex -Gorom camp, Central Equatoria (November 2021)

	All n = 272 (95% C.I.)	**Boys** n = 139 (95% C.I.)	**Girls** n = 133 (95% C.I.)
Prevalence of global malnutrition (< 125 mm and/or oedema)	(5) 1.8 % (0.8 - 4.2)	(1) 0.7 % (0.1 - 4.0)	(4) 3.0 % (1.2 - 7.5)
Prevalence of moderate malnutrition (< 125 mm and >= 115 mm, no oedema)	(4) 1.5 % (0.6 - 3.7)	(0) 0.0 % (0.0 - 2.7)	(4) 3.0 % (1.2 - 7.5)
Prevalence of severe malnutrition (< 115 mm and/or oedema)	(1) 0.4 % (0.1 - 2.1)	(1) 0.7 % (0.1 - 4.0)	(0) 0.0 % (0.0 - 2.8)

The global malnutrition defined by MUAC was higher in girls than boys, which is opposite to the GAM based on WHZ.

Table 24. Prevalence of acute malnutrition by age, based on MUAC cut off's and/or oedema sex -Gorom camp, Central Equatoria (November 2021)

		Severe wasting (< 115 mm)		**Moderate wasting (>= 115 mm and < 125 mm)**		**Normal (> = 125 mm)**		**Oedema**	
Age (mo)	**Total no.**	**No.**	**%**	**No.**	**%**	**No.**	**%**	**No.**	**%**
6-17	63	0	0.0	3	4.8	60	95.2	0	0.0
18-29	52	1	1.9	0	0.0	51	98.1	0	0.0
30-41	57	0	0.0	0	0.0	57	100.0	0	0.0
42-53	69	0	0.0	0	0.0	69	100.0	0	0.0
54-59	31	0	0.0	1	3.2	30	96.8	0	0.0
Total	272	1	0.4	4	1.5	267	98.2	0	0.0

Table 25. Prevalence of combined GAM and SAM based on WHZ and MUAC cut off's (and/or oedema) and by sex* -Gorom camp, Central Equatoria (November 2021)

	All n = 272 (95% C.I.)	**Boys** n = 139 (95% C.I.)	**Girls** n = 133 (95% C.I.)
Prevalence of combined GAM (WHZ <-2 and/or MUAC < 125 mm and/or oedema)	(21) 7.7 % (5.1 - 11.5)	(14) 10.1 % (6.1 - 16.2)	(7) 5.3 % (2.6 - 10.5)
Prevalence of combined SAM (WHZ < -3 and/or MUAC < 115 mm and/or oedema	(3) 1.1 % (0.4 - 3.2)	(2) 1.4 % (0.4 - 5.1)	(1) 0.8 % (0.1 - 4.1)

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

Although not statistically significant (p>0.05) more boys were acute malnourished compared to the girls when applying combined WHZ and MUAC criteria.

Table 26. Prevalence of underweight based on weight-for-age z-scores by sex - Gorom camp, Central Equatoria (November 2021)

	All n = 269 (95% C.I.)	**Boys** n = 137 (95% C.I.)	**Girls** n = 132 (95% C.I.)
Prevalence of underweight (<-2 z-score)	(22) 8.2 % (5.5 - 12.1)	(12) 8.8 % (5.1 - 14.7)	(10) 7.6 % (4.2 - 13.4)
Prevalence of moderate underweight (<-2 z-score and >=-3 z-score)	(22) 8.2 % (5.5 - 12.1)	(12) 8.8 % (5.1 - 14.7)	(10) 7.6 % (4.2 - 13.4)
Prevalence of severe underweight (<-3 z-score)	(0) 0.0 % (0.0 - 1.4)	(0) 0.0 % (0.0 - 2.7)	(0) 0.0 % (0.0 - 2.8)

The underweight prevalence were more or less the same among boys and girls.

Table 27. Prevalence of stunting by age based on weight-for-age z-scores - Gorom camp, Central Equatoria (November 2021)

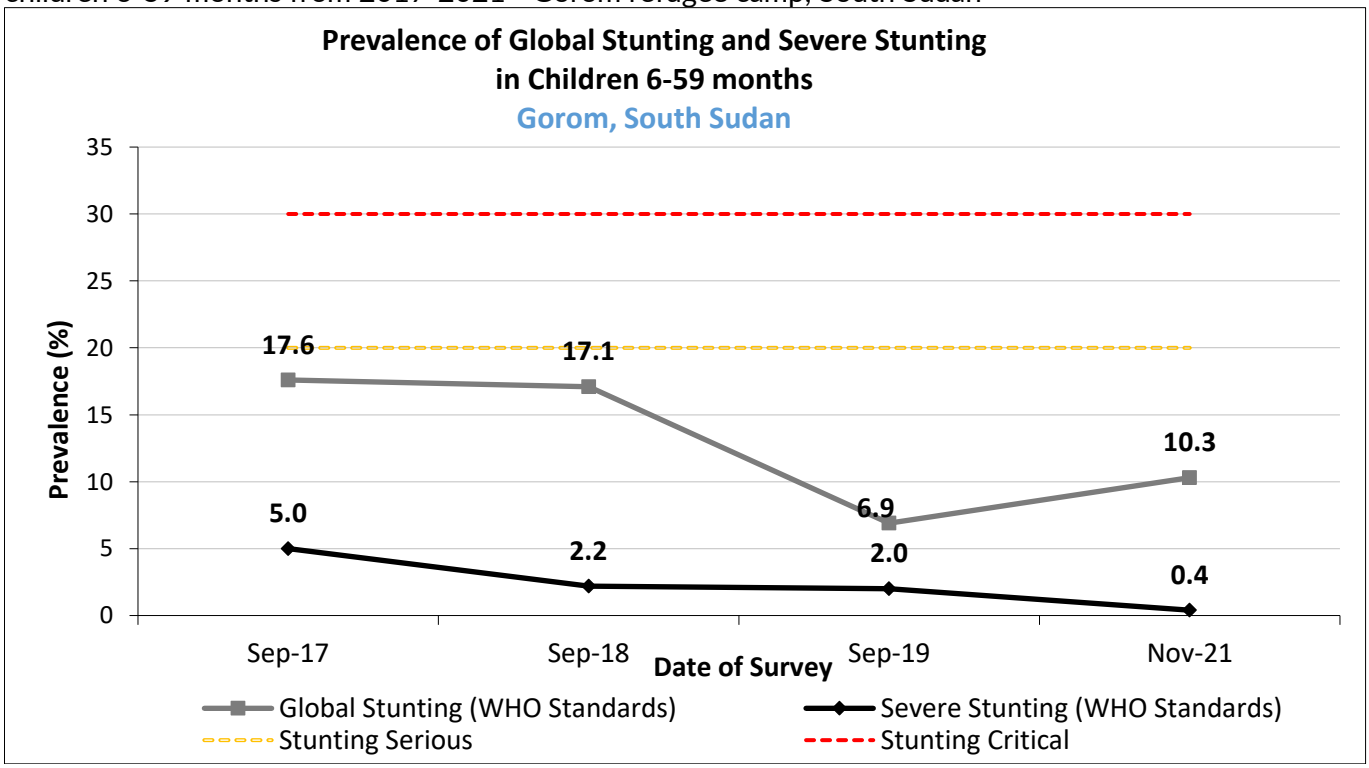
		Severe underweight (<-3 z-score)		Moderate underweight (>= -3 and <-2 z-score)		Normal (> = -2 z score)		Oedema	
Age (mo)	Total no.	No.	%	No.	%	No.	%	No.	%
6-17	63	0	0.0	5	7.9	58	92.1	0	0.0
18-29	50	0	0.0	5	10.0	45	90.0	0	0.0
30-41	57	0	0.0	4	7.0	53	93.0	0	0.0
42-53	69	0	0.0	5	7.2	64	92.8	0	0.0
54-59	30	0	0.0	3	10.0	27	90.0	0	0.0
Total	269	0	0.0	22	8.2	247	91.8	0	0.0

Table 28. Prevalence of stunting based on height-for-age z-scores and by sex- Gorom camp, Central Equatoria (November 2021)

	All n = 263 (95% C.I.)	Boys n = 134 (95% C.I.)	Girls n = 129 (95% C.I.)
Prevalence of stunting (<-2 z-score)	(27) 10.3 % (7.2 - 14.5)	(15) 11.2 % (6.9 - 17.6)	(12) 9.3 % (5.4 - 15.6)
Prevalence of moderate stunting (<-2 z-score and >=-3 z-score)	(26) 9.9 % (6.8 - 14.1)	(14) 10.4 % (6.3 - 16.8)	(12) 9.3 % (5.4 - 15.6)
Prevalence of severe stunting (<-3 z-score)	(1) 0.4 % (0.1 - 2.1)	(1) 0.7 % (0.1 - 4.1)	(0) 0.0 % (0.0 - 2.9)

There was no significant on the stunting prevalence between boys and girls.

Figure 5. Trends in the prevalence of global and severe stunting based on WHO growth standards in children 6-59 months from 2017-2021 - Gorom refugee camp, South Sudan

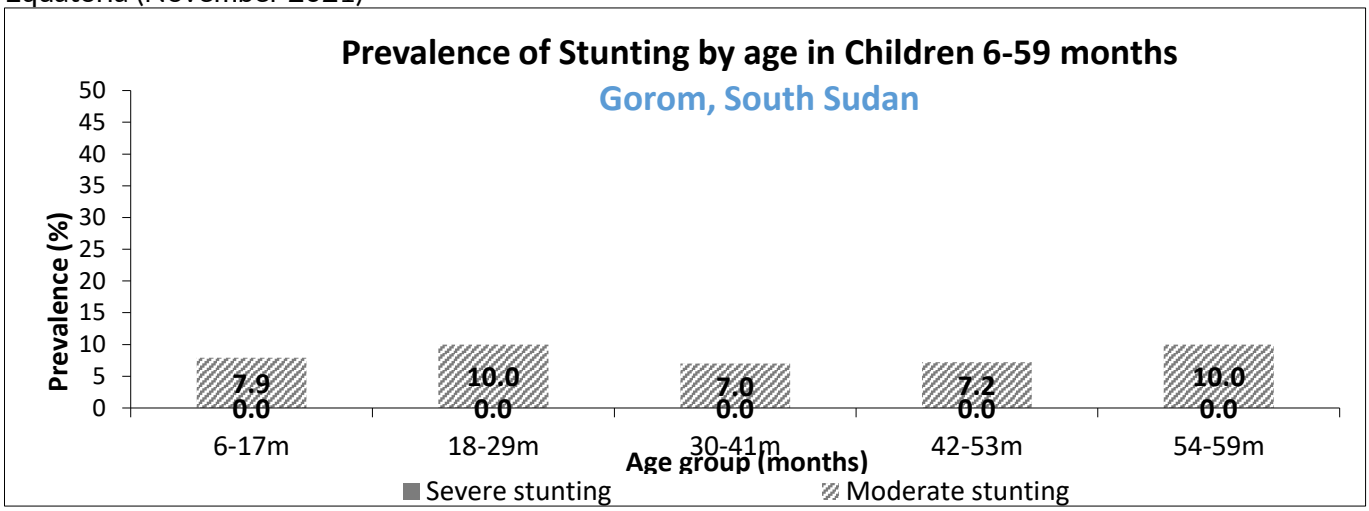


Stunting prevalence dropped dramatically in 2019 to 6.9% but increased slighted to 10.3%.

Table 29. Prevalence of stunting by age based on height-for-age z-scores - Gorom camp, Central Equatoria (November 2021)

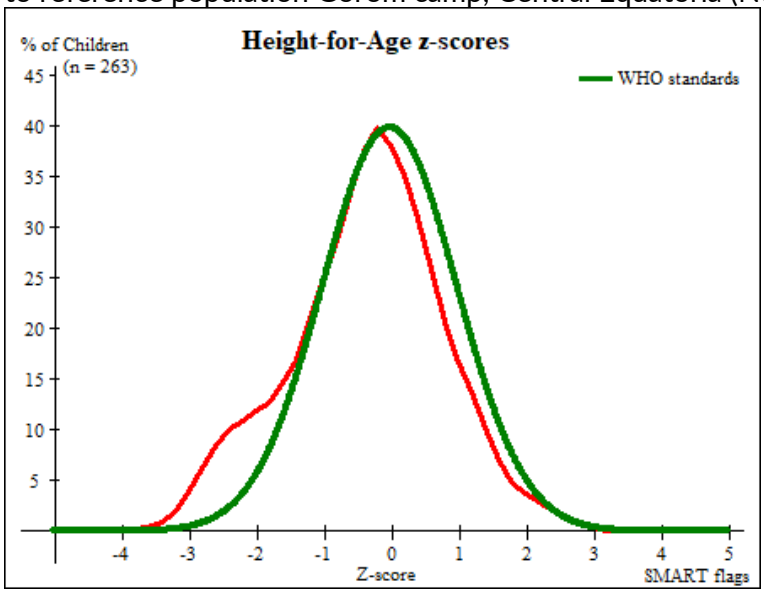
		Severe stunting (<-3 z-score)		Moderate stunting (>= -3 and <-2 z-score)		Normal (> = -2 z score)	
Age (mo)	Total no.	No.	%	No.	%	No.	%
6-17	60	1	1.7	4	6.7	55	91.7
18-29	50	0	0.0	8	16.0	42	84.0
30-41	57	0	0.0	5	8.8	52	91.2
42-53	67	0	0.0	7	10.4	60	89.6
54-59	29	0	0.0	2	6.9	27	93.1
Total	263	1	0.4	26	9.9	236	89.7

Figure 6. Trends in the prevalence of stunting by age in children 6-59 months - Gorom camp, Central Equatoria (November 2021)



Children aged 18-29 months and 54-59 months tend to be more stunted.

Figure 7. Distribution of height-for-age z-scores (based on WHO growth standards; the reference population is shown in green and the surveyed population is shown in red) of survey population compared to reference population Gorom camp, Central Equatoria (November 2021)



This figure shows that the height-for-age z-score distribution is slightly shifted to the left, illustrating a poorer status than the in ternational WHO Standard population of children aged 6-59 months.

Table 30. Prevalence of overweight based on weight for height cut off's and by sex (no oedema) - Gorom camp, Central Equatoria (November 2021)

	All n = 269 (95% C.I.)	**Boys** n = 138 (95% C.I.)	**Girls** n = 131 (95% C.I.)
Prevalence of overweight (WHZ > 2)	(1) 0.4 % (0.1 - 2.1)	(1) 0.7 % (0.1 - 4.0)	(0) 0.0 % (0.0 - 2.8)
Prevalence of severe overweight (WHZ > 3)	(0) 0.0 % (0.0 - 1.4)	(0) 0.0 % (0.0 - 2.7)	(0) 0.0 % (0.0 - 2.8)

Table 31. Mean z-scores and excluded subjects - Gorom camp, Central Equatoria (November 2021)

Indicator	**n**	**Mean z-scores ± SD**	**Design Effect (z-score < -2)**	**z-scores not available***	**z-scores out of range**
Weight-for-Height	269	-0.56±1.00	1.00	1	2
Weight-for-Age	269	-0.57±0.96	1.00	0	3
Height-for-Age	263	-0.35±1.11	1.00	1	8

3.3. FEEDING PROGRAMME ENROLMENT COVERAGE

Selective feeding programme

Table 32. Nutrition treatment programme coverage based on all admission criteria (weight-for-height, MUAC, oedema) – Gorom camp, Central Equatoria (November 2021)

	Number/total	**% (95% CI)**
Proportion of children aged 6-59 months with severe acute malnutrition currently enrolled in therapeutic feeding programme	0/3	0.0% (0.0-0.0)
Proportion of children aged 6-59 months with moderate acute malnutrition currently enrolled in supplementary feeding programme	3/19	15.8% (3.4-39.6)

Table 33. Nutrition treatment programme coverage based on MUAC and oedema only- Gorom camp, Central Equatoria (November 2021)

	Number/total	**% (95% CI)**
Proportion of children aged 6-59 months with severe acute malnutrition currently enrolled in therapeutic feeding programme	0/3	0.0% (0.0-0.0)
Proportion of children aged 6-59 months with moderate acute malnutrition currently enrolled in therapeutic feeding programme	2/4	50.0% (6.7-93.2)

The OTP and TSFP enrolment rate based on both all admission criteria and using MUAC and Oedema were very low and did not meet the recommended standard of ≥90%. The enrolment rate by only MUAC and Oedema were higher than all admission criteria indicated more children enrolled in the program were identified by MUAC only.

Table 34. BSFP enrollment coverage for children 6-23 months – Gorom camp, Central Equatoria (November 2021)

	Number/total	**% (95% CI)**
Blanket feeding programme enrolment	45/83	54.2% (42.9-65.2)
Product name	Lipid based Nutrient Supplements-MQ	
Target age group	6-23 months	

The BSFP enrolment coverage for children aged 6-23 months in Gorom refugee camp was 54.2% which is low.

3.4. MEASLES VACCINATION VITAMIN A, DIARRHOEA, AND DEWORMING COVERAGE

Measles vaccination coverage results

Table 35. Measles vaccination coverage for children aged 9-59 months - Gorom camp, Central Equatoria (November 2021)

	Number/total	% (95% CI)
Measles vaccination with card	175/257	68.1% (62.0-73.7)
Measles vaccination with card or confirmation from mother	255/423	99.2% (97.2-99.9)

Measles vaccination coverage met the recommended standard of ≥95%.

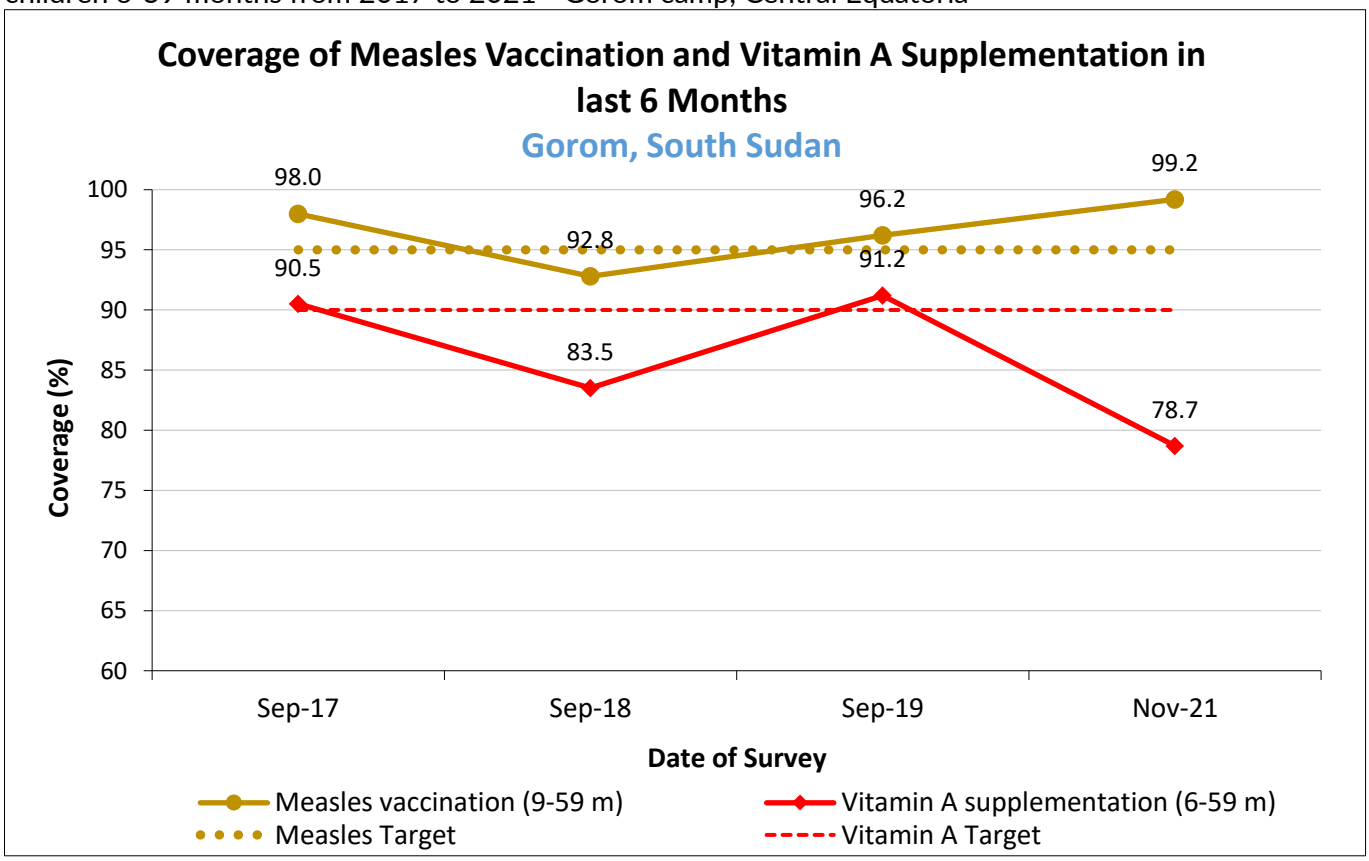
Vitamin A supplementation coverage results

Table 36. Vitamin A supplementation for children aged 6-59 months within past 6 months - Gorom camp, Central Equatoria (November 2021)

	Number/total	% (95% CI)
Vitamin A supplementation in the last 6 months with card	117/272	43.0% (37.0-49.1)
Vitamin A supplementation in the last 6 months with card or confirmation from mother	214/272	78.7% (73.3-83.4)

Vitamin A coverage supplementation didn't meet the recommended standard of ≥90%

Figure 8. Trends in the coverage of measles vaccination and vitamin A supplementation in last 6 months in children 6-59 months from 2017 to 2021 - Gorom camp, Central Equatoria



The measles vaccination rate has been increased steadily from 2018 to 2021, while the Vitamin A supplementation decreased from 91.2% to 78.7% from 2019 to 2021.

Diarrhoea Results

Table 37. Period prevalence of diarrhea - Gorom camp, Central Equatoria (November 2021)

	Number/total	% (95% CI)
Diarrhoea in the last two weeks	18/269	6.7% (4.0-10.4)

6.7% of surveyed children had diarrhoea episode in the last two weeks.

Table 38. Use of ORS and Zinc during diarrhoea episode - Gorom camp, Central Equatoria (November 2021)

	Number/total	% (95% CI)
ORS use during diarrhoea episode	5/18	27.7% (9.7-53.5)
Zinc tablet or syrup use during diarrhoea episode	3/18	16.6% (3.6-41.4)

Less than 75% of the surveyed children who had diarrhoea episode in the last two weeks received treatment either using ORS, Zinc, or both.

Deworming

Table 39. Deworming coverage - Gorom camp, Central Equatoria (November 2021)

	Number/total	% (95% CI)
Children who received deworming tablet within the past 6 months	158/232	68.1% (61.7-74.1)

68.1% of children 12-59 months received a deworming tablet in last 6 months prior to the survey and this didn't meet the target of ≥75%.

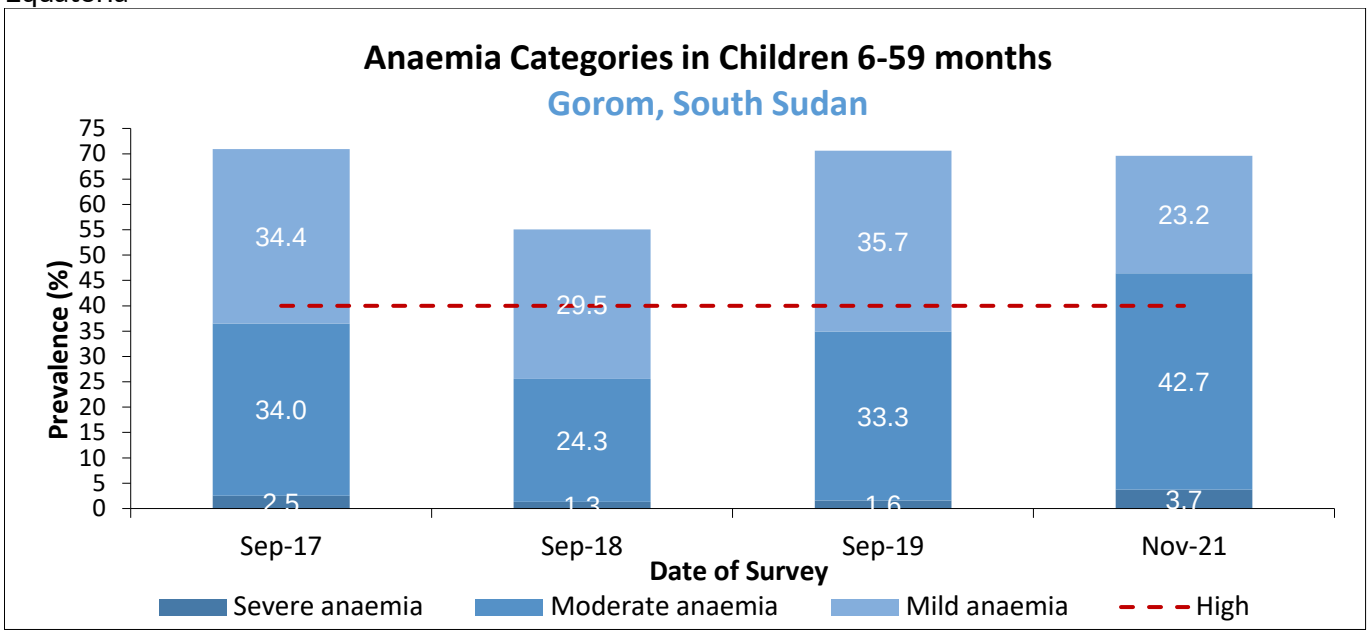
3.5. ANAEMIA RESULTS CHILDREN 6 – 59 MONTHS

The total anaemia prevalence among children 6 to 59 months was 69.5% which is of high public health significance. Children 6 to 23 months were the most affected (88.1%) compared to the 24-59 months age group (61.2%).

Table 40. Prevalence of total anaemia, anaemia categories, and mean haemoglobin concentration in children 6-59 months of age and by age group - Gorom camp, Central Equatoria (November 2021)

	6-59 months n = 272 (95% CI)	**6-23 months** n=84 (95% CI)	**24-59 months** n=188 (95% CI)
Total Anaemia (Hb<11.0 g/dL)	(189) 69.5% (63.6-74.9)	(74) 88.1% (79.2-94.1)	(115) 61.2% (53.8-68.2)
Mild Anaemia (Hb 10.0-10.9 g/dL)	(63) 23.2% (18.3-28.6)	(21) 25.0% (16.2-35.6)	(42) 22.3% (16.6-28.9)
Moderate Anaemia (7.0-9.9 g/dL)	(116) 42.7% (36.7-48.8)	49/84 58.3% (47.1-69.0)	(67) 35.36% (28.8-42.9)
Severe Anaemia (<7.0 g/dL)	(10) 3.7% (1.8-6.7)	(4) 4.8% (1.3-11.8)	(6) 3.2% (1.2-6.8)
Mean Hb (g/dL) (SD / 95% CI) [range]	10.0 (1.5) [6.1-13.5]	9.6 (1.3) [6.4-13.5]	10.2 (1.5) [6.1-13.3]

Figure 9. Trends in Anaemia Categories in Children 6-59 Months from 2017 to 2021 - Gorom camp, Central Equatoria

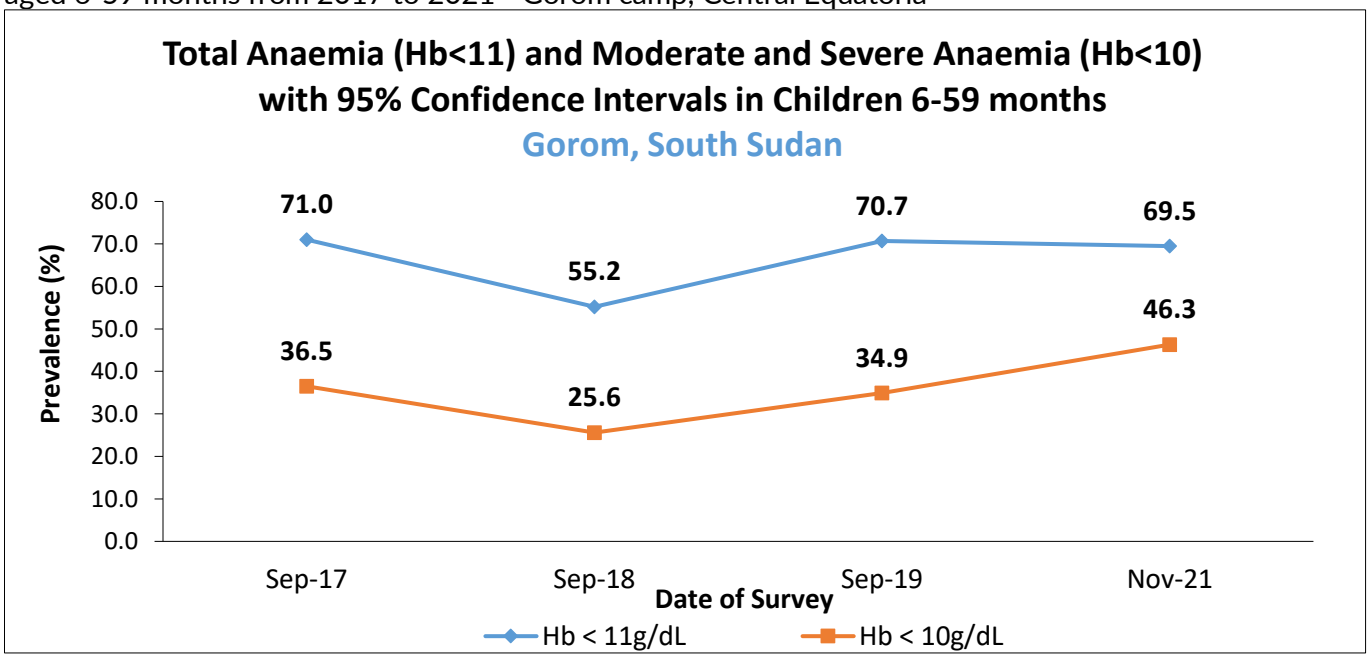


The total anaemia level was persistent high in 2021 comparing to 2018.

Table 41. Prevalence of moderate and severe anaemia in children 6-59 months of age and by age group - Gorom camp, Central Equatoria (November 2021)

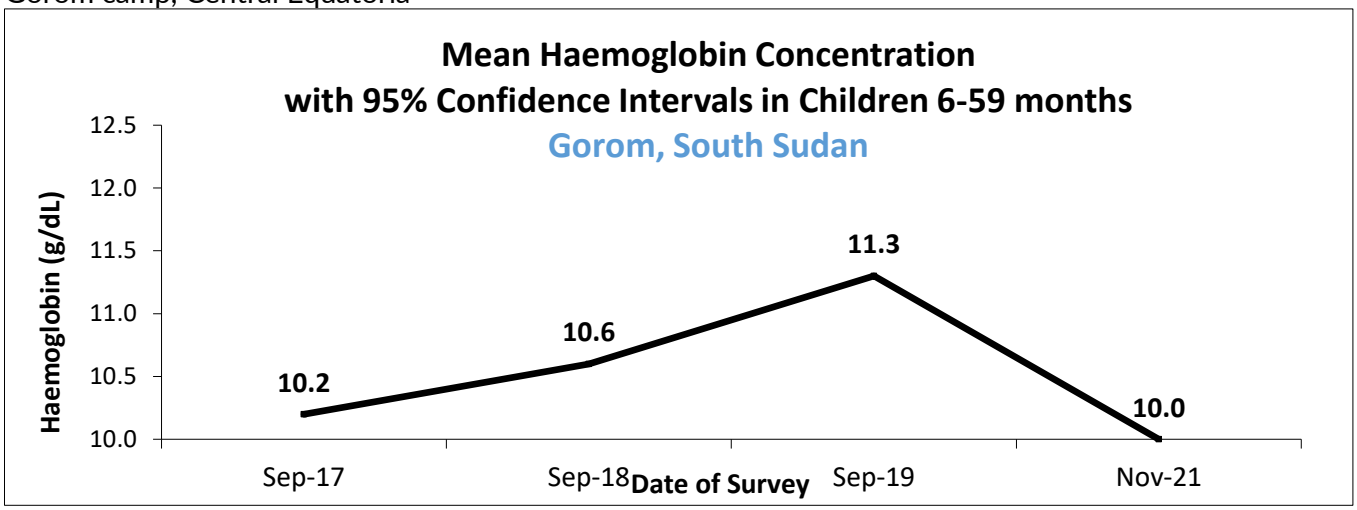
	6-59 months n = 272 (95% CI)	**6-23 months** n=84 (95% CI)	**24-59 months** n=188 (95% CI)
Moderate and Severe Anaemia (Hb<10.0 g/dL)	(126) 46.3% (40.3-52.5)	(53) 63.1% (51.9-73.4)	(73) 38.8% (31.8-46.2)

Figure 10. Trend of total anaemia (<11 g/dl), and moderate and severe anaemia (<10 g/dl) among children aged 6-59 months from 2017 to 2021 - Gorom camp, Central Equatoria



The proportion of moderate and severe anaemia indicated an increasing trend in 2021 compared to the 2019.

Figure 11. Trend in mean haemoglobin concentration in children 6-59 months from 2017 to 2021 - Gorom camp, Central Equatoria



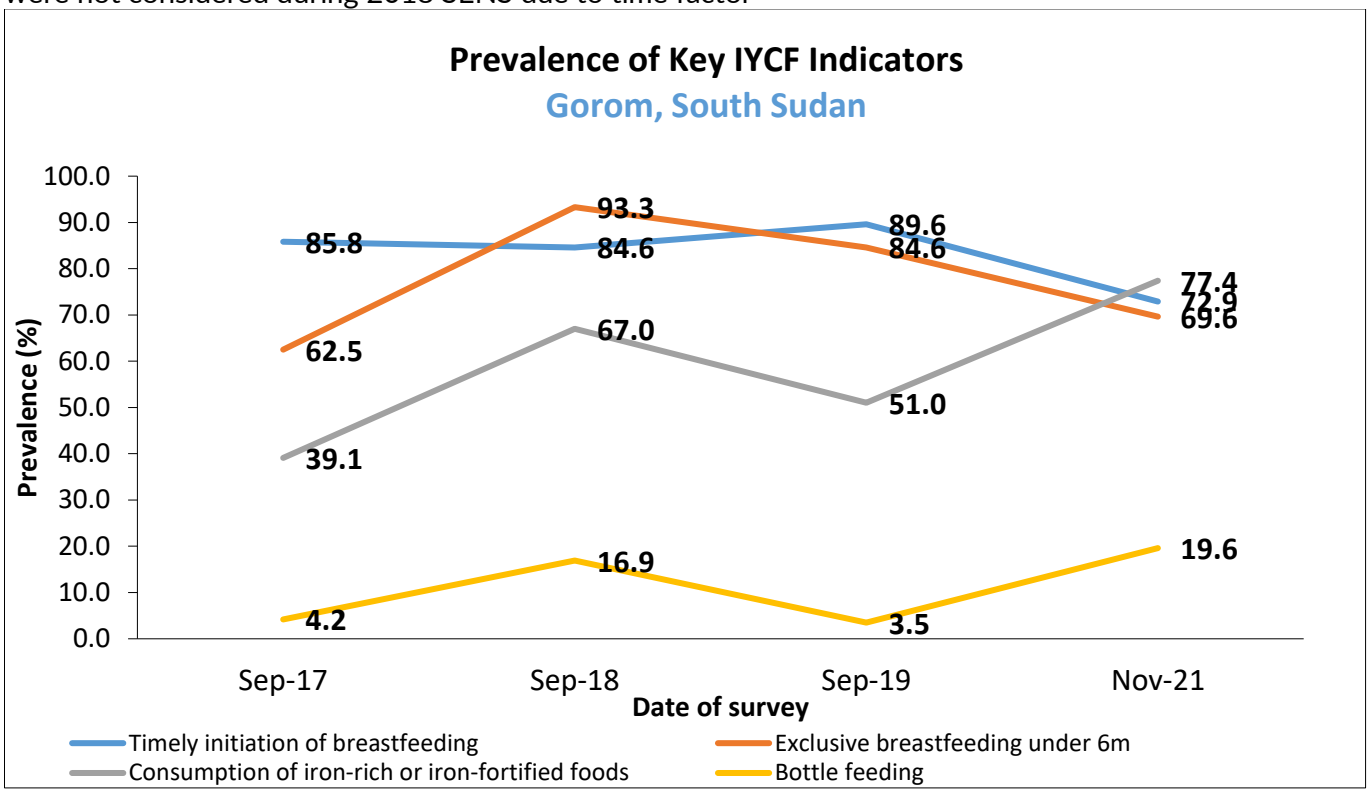
The mean haemoglobin level increased from 2017 to 2019, while decreased to 10.0 in 2021.

3.6. IYCF: CHILDREN 0-23 MONTHS

Table 42. Prevalence of Infant and Young Child Feeding Practices Indicators - Gorom camp, Central Equatoria (November 2021)

Indicator	Age range	Number/ total	Prevalence (%)	95% CI
Timely initiation of breastfeeding	**0-23 months**	78/107	72.9%	(63.5-81.0)
Exclusive breastfeeding under 6 months	**0-5 months**	16/23	69.6%	(47.1-86.8)
Continued breastfeeding at 1 year	**12-15 months**	24/24	100.0%	(100.0-100.0)
Continued breastfeeding at 2 years	**20-23 months**	7/15	46.6%	(21.3-73.4)
Introduction of solid, semi-solid or soft foods	**6-8 months**	9/15	60.0%	(32.3-83.7)
Consumption of iron-rich or iron-fortified foods	**6-23 months**	65/84	77.4%	(66.9-85.8)
Bottle feeding	**0-23 months**	21/107	19.6%	(12.6-28.4)

Figure 12. Key IYCF indicators from 2017 to 2021 - Gorom camp, Central Equatoria. Note: IYCF indicators were not considered during 2018 SENS due to time factor



The exclusive breastfeeding has decreased from 2018, 2019, to 2021 (93.3%, 84.6%, 69.6%), while the consumption of iron rich foods and bottle feeding increased significantly in 2021 compared to 2019.

Prevalence of Intake

Infant Formula

Table 43. Prevalence of intake of certain foods in children aged 0-23 months - Gorom camp, Central Equatoria (November 2021)

	Number/total	% (95% CI)
Proportion of children aged 0-23 months who receive infant formula (fortified or non-fortified)	16/107	15.0% (8.8-23.1)
Proportion of children aged 6-23 months who receive CSB+	10/64	15.6% (7.8-26.9)
Proportion of children aged 6-23 months who receive CSB++	13/83	15.6% (8.6-25.3)
Proportion of children aged 6-23 months who receive LNS	46/83	55.4% (44.1-66.3)

3.7. WOMEN 15-49 YEAR INDICATORS

Anaemia Women 15-49 years

Table 44. Women Physiological Status and Age - Gorom camp, Central Equatoria (November 2021)

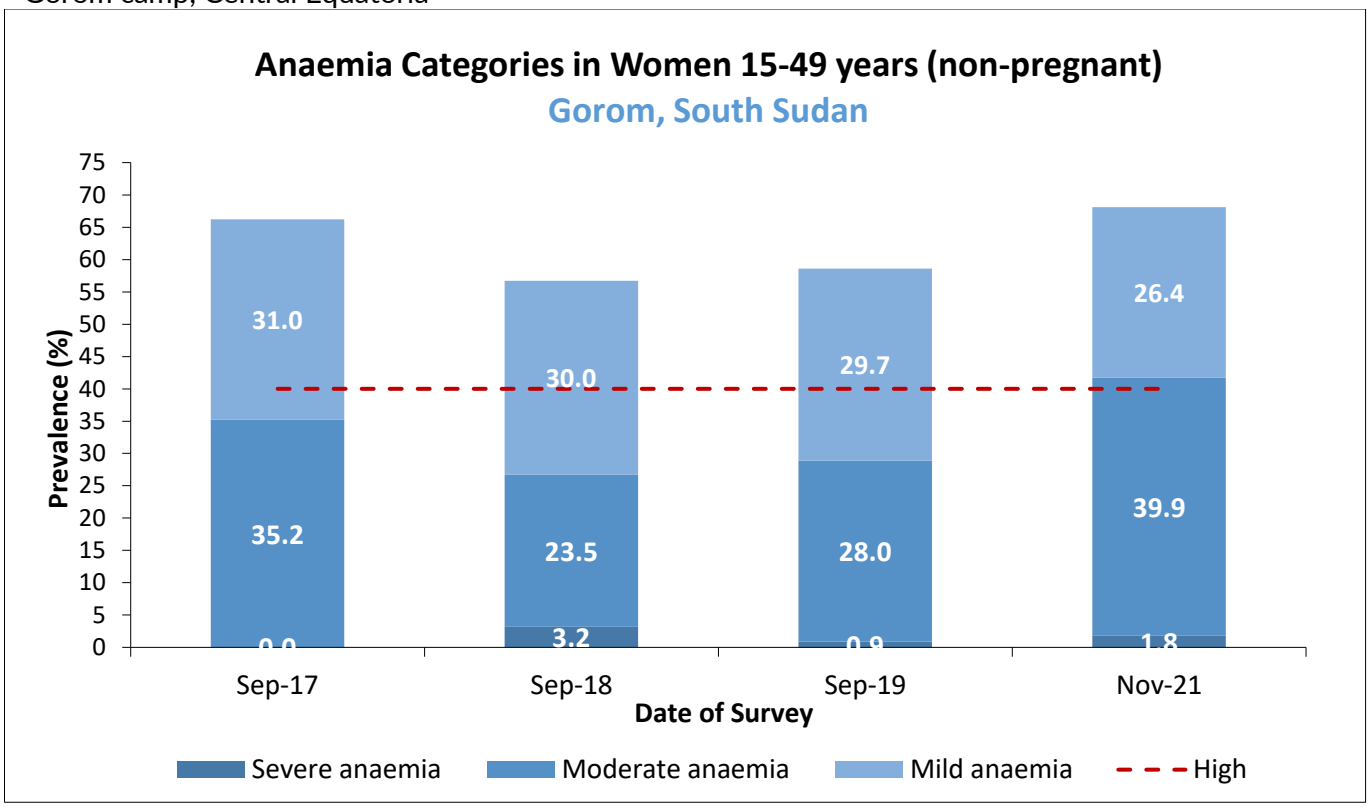
Physiological status	Number/total	% of sample (95% CI)
Non-pregnant and non-lactating	97/179	54.2% (46.6-61.6)
Pregnant	16/179	8.9% (5.2-14.1)
Lactating women with an infant less than 6 months	15/66	22.7% (13.3-34.7)
Lactating women with an infant older than 6 months	51/66	77.3% (65.3-86.7)
Mean age (range)	28.0 years (8.6) [15.0-48.0]	

Table 45. Prevalence of anaemia and haemoglobin concentration in non-pregnant women of reproductive age (15-49 years) - Gorom camp, Central Equatoria (November 2021)

	Non-pregnant women (15-49 years)

	n = 163 (95% CI)
Total Anaemia (<12.0 g/dL)	(111) 68.1% (60.4-75.2)
Mild Anaemia (11.0-11.9 g/dL)	(43) 26.4% (19.8-33.8)
Moderate Anaemia (8.0-10.9 g/dL)	(65) 39.9% (32.3-47.8)
Severe Anaemia (<8.0 g/dL)	(3) 1.8% (0.4-5.3)
Mean Hb (g/dL) (SD) [range]	11.2 (1.4) [5.6-14.4]

Figure 13. Trends in anaemia categories in women of reproductive age (non-pregnant) from 2017 to 2021 - Gorom camp, Central Equatoria



The anaemia prevalence was high, and has increased from 2018, 2019, to 2021, especially the proportion of moderate anaemia.

Table 46. ANC Enrolment and Iron-Folic Acid Pills Coverage among Pregnant Women (15-49 Years) and BSFP Enrolment among Pregnant and Lactating Women with children less than 6 months (15-49 Years) - Gorom camp, Central Equatoria (November 2021)

	Number /total	% (95% CI)
Currently enrolled in ANC programme	12/15	80.0% (51.9-95.7)
Currently receiving iron-folic acid pills	10/14	71.4% (41.9-91.6)
Currently enrolled in BSFP programme	22/31	71.0% (52.0-85.8)

3.8. DEMOGRAPHY

Household size and composition

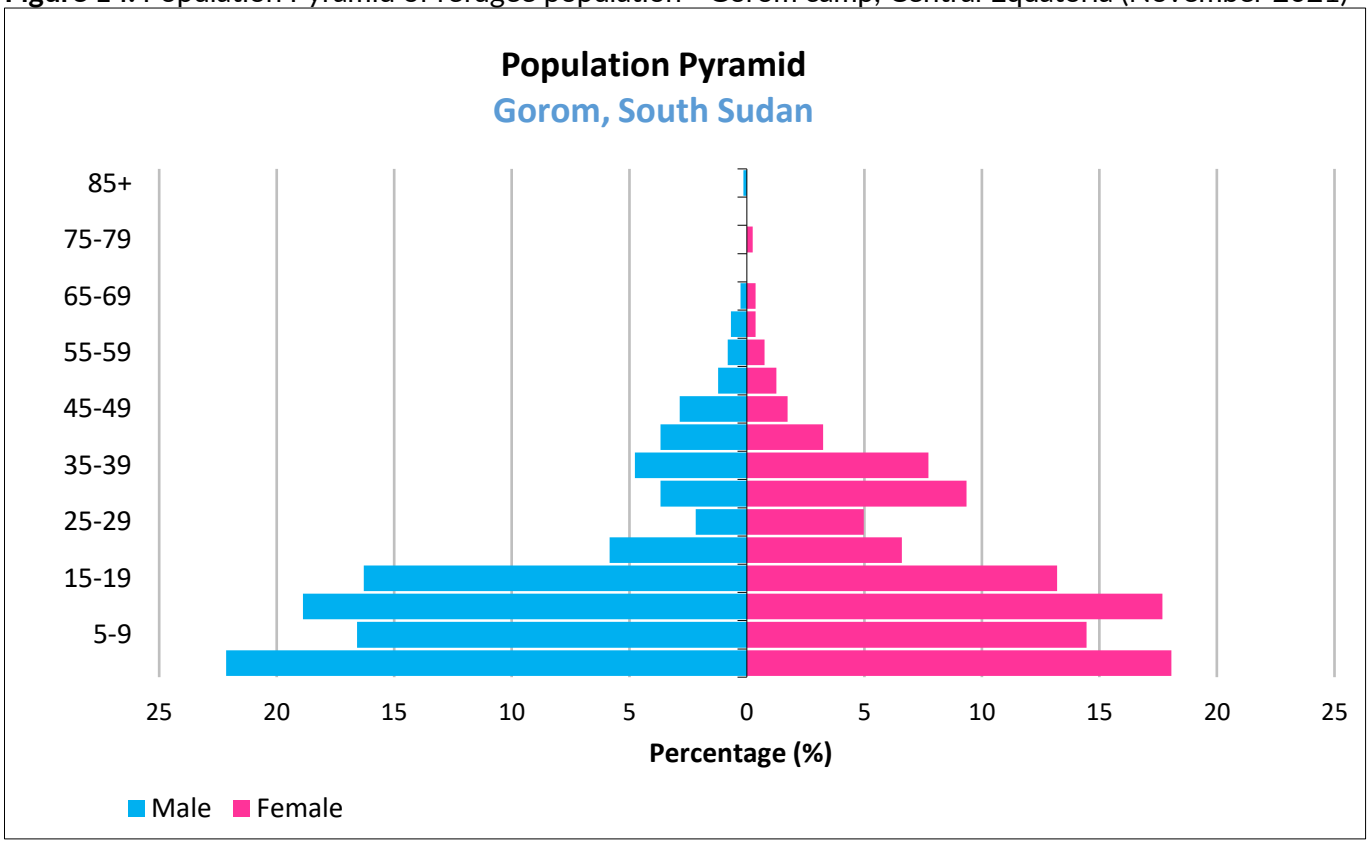
Table 47. Demographic characteristics, household size and composition of the surveyed population - Gorom camp, Central Equatoria (November 2021)

Household size and composition	Results
Population size – Total persons (ProGres 31st August 2021)	2,115
Total population surveyed – Total persons (all ages)	1,539
Total U2 surveyed	118

Total U5 surveyed		308
Average household size		6.3
Household size categories	1-4 person(s)	25.0%
	5-6 persons	29.1%
	7-9 persons	36.1%
	≥ 10 persons	9.8%
Household composition	Children under two	0.5
	Children under five	1.2
	Children aged 5-14 years	2.1
	Members aged 15-64 years	2.9
	Members aged 65 years and above	0.0
Percent of children U2	%	7.7%
Percent of children U5	%	20.0%
Percent pregnant women (15-49 years)	%	1.6%
Percent of elders (65 years and above)	%	0.5%
Sex ratio	Male/Female	0.92

There are more women than men investigated, and the average household size is 6.3 which is higher than the HH size reported in ProGres (3.2).

Figure 14. Population Pyramid of refugee population - Gorom camp, Central Equatoria (November 2021)



The population pyramid is strongly lean to children under 19 years old. Among children and teenages up to 19 years old, males are more than females. However, among refugees from 20 to 59 years old, there were more females than males.

Household head profile

Table 48. Household head profile - Gorom camp, Central Equatoria (November 2021)

	Number/total	% (95% CI)
Female headed households (working age 15-64 years)	139/244	57.0% (50.5-63.3)
Male headed households (working age 15-64 years)	101/244	41.4% (35.2-47.9)
Children headed households (under 15 years)	0/244	0.0% (0.0-0.0)
Elderly headed households (65 years and above)	4/244	1.6% (0.5-4.1)
Mean age of household head in years (SD) [range]	39.0 (9.5) [17.0-87.0]	

More than half of the household are headed by female and small portions headed by elderlys.

Age dependency ratio

Table 49. Age dependency ration categories by household - Gorom camp, Central Equatoria (November 2021)

Age dependency categories		Age dependency ratio	Number / Total	% (95% CI)
Category I	**1 dependent or less per non-dependent member**	≤ 1	118/243	48.6% (42.1-55.0)
Category II	**Up to 3 dependents per 2 non-dependent members**	1.1-1.5	38/243	15.6% (11.3-20.8)
Category III	**Up to 2 dependents per non-dependent members (1.5<DR<=2)**	1.6-2.0	46/243	18.9% (14.2-24.4)
Category IV	**More than 2 dependents per non- dependent members (DR>2)**	≥2.1	41/243	16.9% (12.4-22.2)
Mean age dependency ration		Mean (SD) [range]	243	1.4 (1.0) [0.0-6.0]

There are 35.8% households had more than 2 dependents per non-dependent members, which is a high proportion.

3.9. FOOD SECURITY

Access to food assistance

Table 50. Food assistance coverage and reason of not receiving - Gorom camp, Central Equatoria (November 2021)

	Number/total	% (95% CI)
Proportion of households receiving food assistance	122/130	93.9% (88.2-97.3)
The reason of not receiving the food assistance		
Food voucher not given	1/8	12.5% (0.3-52.7)
Not registered	2/8	25.0% (3.2-65.1)
Registered but determined not eligible	2/8	25.0% (3.2-65.1)
Other	3/8	37.5% (8.5-75.5)
Proportion of households receiving food voucher in last cycle	120/122	100% (98.5-100)

93.9% households reported receiving food assistance. Among those who are not receiving food assistance, the reason reported are not eligible, not registered, and not given the food voucher.

Table 51. Reported duration of food assistance - Gorom camp, Central Equatoria (November 2021)

	Number/total	% (95% CI)

Average number of days general food ration lasts out days (SD) [range]	122	14.7 (5.7) [2.0-30.0]

The food received from food assistance was reported to last 14.7 days out of the distribution cycle of 30 days.

Table 52. Proportion of households received food voucher in last cycle and selling the voucher - Gorom camp, Central Equatoria (November 2021)

	Number/total	% (95% CI)
Proportion of households receiving food voucher in last cycle	120/122	100% (98.5-100)
Proportion of households sold the voucher	4/120	3.3% (0.9-8.3)

3.3% households reported sold the food voucher they received.

Coverage of basic needs

Table 53. Description of basic needs not met by the households - Gorom camp, Central Equatoria (November 2021)

Basic needs not met by the households:	Number/total	% (95% CI)
Food	73/130	56.2% (47.2-64.8)
Water	1/130	0.8% (0.0-4.2)
Hygiene items, clothes, shoes	69/130	53.1% (44.1-61.9)
Health costs (including medicines)	14/130	10.8% (6.0-17.4)
Rent, shelter repair, household items (e.g. mattress, blankets, jerrycan), utilities and bills (e.g. electricity, water bills, phone calling credit)	20/130	15.4% (9.7-22.8)
Firewood / fuel for cooking or heating	46/130	35.4% (27.2-44.3)
Assets for a livelihood activity (e.g. seeds, tools, farming, fishing, petty trade, etc.)	30/130	23.1% (16.1-31.3)
Debts repayment	26/130	20.0% (13.5-27.9)
Saved some money, support other family members, relatives, friends	36/130	27.7% (20.2-36.2)
Education (e.g. school fees, uniform, books)	11/130	8.5% (4.3-14.6)
Other	45/130	34.6% (26.5-43.5)

The category of basic needs cannot be met reported the most are: food, hygiene items, fuel for cooking, others, and saved some money or support others.

Table 54. Households by categories of coverage of basic needs - Gorom camp, Central Equatoria (November 2021)

Proportion of households in each category of coverage of basic needs	Number/total	% (95% CI)
All basic needs are met (100%)	2/130	1.5% (0.2-5.5)
More half basic needs are met (>50%)	121/130	93.1% (87.3-96.8)
Few basic needs are met (<50%)	7/130	5.4% (2.2-10.8)
Basic needs are not met (0%)	0/130	0.0% (0.0-1.5)

Only 1.5% families reported can meet all basic needs, most householods reported more than half of their basic needs are met.

Negative household coping strategies

From April 2021, food assistance ration was reduced to 50% in Gorom refugee camp. To fill the food gaps, some refugees in the camp had to use the below coping strategies.

Table 55. Coping strategies used by the surveyed population over the past month - Gorom camp, Central Equatoria (November 2021)

	Number/total	% (95% CI)
Proportion of households reporting using the following coping strategies over the past month*:		
Rely on less preferred and/or less expensive foods	124/130	95.4% (90.2-98.3)
Borrow food, or rely on help from a friend or relative	68/130	52.3% (43.4-61.1)
Reduce the number of meals eaten in a day	123/130	94.6% (89.2-97.8)
Limit portion sizes at mealtime	122/130	93.9% (88.2-97.3)
Reduce consumption by adults so children could eat	102/130	78.5% (70.4-85.2)
Average rCSI (mean, SD / range)	130	19.3 (9.6) [0.0-56.0]
Proportion of households reporting using none of the negative coping strategies over the past month	1/130	0.8% (0.0-4.2)

* The total was over 100% as households used several negative coping strategies.

Only 0.8% of households were not under significant stress to meet their food needs as indicated by the proportion of household using none of the negative coping strategies in the past week.

Food Consumption Score (FCS)

During the survey, Sept 2021 food assistance cycle was considered the last general food distribution prior to the survey. The survey was carried when Oct 2021 distribution just finished 10 deays ago. The survey was conducted during the annual harvest season, during which the overall food availability is better than other times. It is hence likely that the food consumption score is higher than it would be e.g., lean season.

Table 56. Food consumption score by category and average FCS - Gorom camp, Central Equatoria (November 2021)

FCS profiles	Number/total	% (95% CI)
Acceptable (FCS > 35)	44/130	33.9% (25.8-42.7)
Borderline (21.5≤FCS≤35)	48/130	36.9% (28.6-45.8)
Poor (FCS≤21)	38/130	29.2% (21.6-37.9)
Average FCS (SD) [range]	130	29.1 (15.9) [2.0-81.0]

*Maximum FCS is 112.

The average FCS among refugees in Gorom camp was 29.1 out of total score of 112, which falls into the borderline category. This is echoed by the majority of households had a FCS score classified as borderline.

Table 57. Consumption frequency categories of each nutrient rich food groups (FCS-N) - Gorom camp, Central Equatoria (November 2021)

Nutrient rich food groups	Consumption frequency categories	Number/total	% (95% CI)
Vitamin A rich foods	Never	16/130	12.3% (7.2-19.2)
	Sometimes	96/130	73.9% (65.4-81.2)
	At least daily	18/130	13.9% (8.4-21.0)
	Never	7/130	5.4% (2.2-10.8)

Protein rich foods	Sometimes	99/130	76.2% (67.9-83.2)
	At least daily	24/130	18.5% (12.2-26.2)
Haem iron rich foods	Never	115/130	88.5% (81.7-93.4)
	Sometimes	15/130	11.5% (6.6-18.3)
	At least daily	0/130	0.0% (0.0-1.5)

In terms of the nutrient rich food, 87.8% households reported consumed Vitamin A rich foods (sometimes or daily), 94.7% reported consumed protein rich foods, while only 11.5% reported consumed Haem iron rich foods.

Table 58. Food acquisition sources - Gorom camp, Central Equatoria (November 2021)

Food acquisition sources	Number/total	% (95% CI)
Purchase (using cash grants and/or with their own cash)	34/130	26.2% (18.86-34.6)
Own production (crops, livestock, fishing/ hunting, gathering)	6/130	4.6% (1.7-9.8)
Traded goods/services, barter	0/130	0.0% (0.0-1.5)
Borrowed (loan/credit from traders)	0/130	0.0% (0.0-1.5)
Received as gift (from family relatives or friends/neighbour)	6/130	4.6% (1.7-9.8)
In-kind or voucher based food assistance	84/130	64.6% (55.8-72.8)
Other	0/130	0.0% (0.0-1.5)

The main source for food reported was through food assistance (64.6%), followed by purchasing and receiving as gift.

The trend analysis is not available for rCSI and FCS, because this is the first year these indicators are used in the nutrition survey in South Sudan.

4. LIMITATIONS

Birth notification cards and documentation; the age documentation coverage ranged between 74.3%. Confirmation using the event calendar was done to ascertain the age given by the mother or caregiver is accurate. This may impact on the reliability or interpretation of the stunting and underweight results. Therefore, caution is needed as z-scores for height-for-age and weight-for-age requires accurate ages.

Food security indicators: Many indicators within food security module are newly used as per the SENS version 3 guidelines (2019). These indicators including duration of food assistance, all cash indicators, basic needs, rCSI, and FCS. Therefore, there are no trend analysis, and data from this year should be used as the baseline for future survey.

5. DISCUSSION

Nutritional status of young children and mortality

The prevalence of global acute malnutrition (GAM) in Gorom camp (6.3%) indicated a poor or medium level nutrition status based on the WHO/UNICEF 2018 classification. The prevalence of severe acute malnutrition was 0.7%. The GAM and SAM prevalence in 2019 was 6.5% (WHZ) indicates a persistent level of GAM. The prevalence of severe acute malnutrition decreased from 1.6% in 2019 to 0.7% in 2021, but still higher than 0.0% in 2018. A comprehensive CMAM program was set up in 2018 and continued in 2021. Appropriate ready to use therapeutic and supplementary foods for the management of acute malnutrition were in place. A pipeline break for CSB++ which is used for malnourished pregnant and lactating women was experienced at the end of 2021 (Started from the month of October persisted until the survey time). In addition to the CMAM program preventive blanket supplementary feeding continued for children 6-23 months and pregnant and lactating women. BSFP supplies reported no pipeline breaks. Availability and timely prepositioning of supplies in the camp need to be continued in 2022 to allow the rehabilitation of the malnourished children and to support the nutrition needs of the 6-23 months age group a key window of opportunity for growth.

Stunting refers to a deficit in height relative to age due to a long-term process of linear growth retardation. 'Stunting is a well-established risk marker of poor child development. Stunting before the age of 2 years predicts poorer cognitive and educational outcomes in later childhood and adolescence. Factors that contribute to stunted growth and development include poor maternal health and nutrition, inadequate infant and young child feeding practices, and recurrent infections.'[12] The prevalence of global stunting among children 6-59 months was 10.3% which is higher than 6.3% reported in 2019, but lower than 17.1% reported in 2018. Of note though is that 25% of surveyed children had no age documentation thus stunting results need to be interpreted with caution. This increased level could be explained by the 50% ration cut on the food assistance started from April 2021. Action across multiple areas will be required to maintain efforts gained. This to include promotion of infant and young child feeding practices, ensuring adequate water and sanitation, infection control and maternal health and nutrition support.[13]

Morbidity

The interaction between nutrition and infection is cyclic with each exacerbating the other. 6.7% of children 6-59 months were reported to have had diarrhoea in the last two weeks prior to the survey which was decreased from 17.9 % in 2019, which might be contributed by strengthened hygiene promotion after COVID-19 pandemic. Interventions to prevent diarrhoea, including safe drinking-water, use of improved sanitation and hand washing with soap, and community hygiene promotion and awareness need to be maintained. To reduce the morbidity caseload there is need to strengthen the current health service provision. Top morbidities (malaria, respiratory tract infections, skin and eye disease and intestinal worms) should also be given special attention. Furthermore, there are currently 119 people living with HIV in Gorom camp, the second highest in SSD refugee operation next to Makpandu settlement.

Programme coverage children 6 – 59 months

Selective feeding programme

The enrolment coverage for OTP and TSFP was far below standard using both the MUAC and WHZ scores criterion indicating the need for better identification of malnourished cases at the community level. Of concern is that most of the cases identified with acute malnutrition based on the WHZ scores did not meet the MUAC cut off <125mm. This indicates the need to also ensure case finding at the various points on contact at the facility level in addition to the community efforts. Since the COVID-19 pandemic, the two-stage quarterly MUAC screening, which classifying MUAC <135mm as the risk group and go to a WHZ screening, was suspended since April 2020 until December 2021. Only two rounds of mass MUAC screening was taken place in 2021, while two-stage screening was not applied to minimize contact to avoid COVID-19 transmission.

Measles vaccination and vitamin A supplementation

[12] WHA Global Nutrition Targets 2025: Stunting policy brief

[13] Allen LH. Nutritional influences on linear growth: a general review, Eur J Clin Nutr 1994; 48: S75-S89.

The coverage for measles vaccination met the target of ≥ 95%, while vitamin A supplementation didn't meet the target of ≥90% respectively. This indicates that routine and campaign supplementation strategies are not well on track, the reason need to be identified and it should be strengthened in 2022. The coverage of the use of EPI cards remained low. Improvement on this should also be ensured.

Anaemia in Young Children and Women

The survey results showed that total anaemia prevalence among children 6 to 59 months was 69.5% which is very high as it is above 40%.[14] The anaemia problem was more severe among children 6 to 23 months (88.1%) than in older children (61.2%). Thought the total prevalence was not increased comparing to 2019 (70.7%), but the prevalence of moderate and severe anaemia among children 6 to 59 was 46.3% which has dramatically increased from 35.9% in 2019. Total anaemia prevalence among non-pregnant women 15-49 years was 68.1%. According to the WHO classification the women anaemia prevalence is of high public health significance. This level deteriorated from 58.5% in 2019. Anaemia impairs the development and learning of children and impairs the health and quality of life in adults, especially women in the reproductive age group. It also increases the risk of adverse maternal and neonatal outcomes[15] and worsens clinical outcomes especially when it occurs as a comorbidity[16]

The anaemia prevalence is likely to be attributed to several factors. This include a i) diet with insufficient micronutrients; ii) diet that lacks diversity especially in terms of animal production which is a good source of bioavailable iron; iii) disease burden especially Malria requiring continuous attention; iv) increased demand for iron among infants, women or reproductive age and low iron-folic acid supplementation enrolment (71.4%) reported; v) inappropriate feeding practices among others. A 50% ration was provided on a monthly basis in Gorom. Before September 2021, the in-kind food ration comprised of sorghum, pulses, oil and salt, while starting from September, food voucher which can be used for purchasing food from dedicated retailors from a food basket comprising of 10 types of food (maize flour, wheat flour, rice, sugar, cooking oil, beans, red & white sorghum, milk, iodized salt, and lentils). The GFD basket provided only 27% of the daily iron requirements. Sorghum, which contributed the bulk of this iron is high in phytates, anti-nutrients that inhibit iron absorption in the body. In addition to this the GFD only provided 3% of the recommended daily intake of vitamin C, a nutrient that plays a pivotal role in iron absorption. The FCS-N indicated that 88.5% of the households has never consumed food sources rich in iron in past 7 days. 22.6% of children 6-23 months reported to have not consumed iron rich foods the day before the survey. Malaria and intestinal worms' infection were among the top five morbidities among the refugee population. A multisectoral approach to anaemia prevention and control will continue to be required in 2022 following the Integrated Strategy to address Anaemia and Micronutrient Deficiency in South Sudan Refugee Camps[17]. This to address nutritional, health and other underlying causes. The health and nutrition facility-based capacity for anaemia prevention and treatment, community screening and referral, scaling up of livelihood options especially kitchen gardening that complement the existing food assistance options and information, education and communication of diet diversity and appropriate utilisation to be prioritised in 2022 and beyond.

IYCF Indicators

Infant and young child feeding practices directly affect the nutritional status of children under two years of age and, ultimately, impact child survival. Protecting, and improving on, appropriate infant and young child feeding practices in children aged 0-23 months is therefore critical to improved nutrition, health and development of children[18].

From the survey results the proportion of children 0-23 months that had timely initiation of breast milk within the first hour of delivery was 72.9%. Early initiation (within one hour of birth) of exclusive breastfeeding significantly reduces the risk of neonatal mortality. Infants for whom initiation of breastfeeding is delayed to more than 24 hours after birth are 2.4 times more likely to die during their first

[14] WHO classification of public health significance
[15] WHO anaemia global targets brief
[16] Iron deficiency revisted, M.D Capellini, K.M.Musallam and A.T.Taher 2019; https://doi.org/10.1111/joim.13004
[17] Integrated Strategy to address Anaemia and MND in SS refugee camps 2021-2025
[18] WHO, Indicators for Assessing Infant and Young Child Feeding Practices, WHO 2010

month of life. Efforts to ensure all delivered children receive timely initiation of breast milk should thus be continued.

The rate of exclusive breast feeding for the first six months of life was 69.6%. The risk of neonatal death is increased approximately fourfold if milk-based fluids or solids are provided to breastfed neonates. Breastmilk alone (exclusive) satisfies the nutritional and fluid requirements of an infant for the first complete six months of life in all settings and climates.[19] Continued breastfeeding at 1 year was 100.0% and up to two years was 46.6%. These indicators were deteriorated compaing to 2019 level. 19.6% of the surveyed children aged 0-23 months were bottle fed. 15.0% received infant formula. Though IYCF multisectoral framework for action is in place, lacking a dedicated IYCF specialist to strengthen the implementation could be the factor contributed to this deterioration in 2021. The proportion of children 6 to 8 months that were introduced to solid and semi-solid foods in a timely fashion was 60% which was increased from 25% in 2019. After six months, adequate and appropriate infant complementary foods become necessary to complement breastmilk in order to meet the energy and other nutrient requirements of the infant (timely complementary feeding). There is need to ensure that IYCF messaging, and consultation are strengthened. The message dissemination to be coupled by livelihood options that support diet diversity.

Infant formula is a nonhuman milk product formulated from animal milk or vegetable protein (soy) and adapted to the physiological characteristics of infants. The risks of infection or malnutrition from using breastmilk substitutes are likely to be greater than the risk of HIV transmission through breastfeeding. In addition to this bottle feeding is associated with increased diarrhoeal disease due to the contamination likelihood of the bottle and nipple. It is therefore necessary to support all women to achieve early initiation and exclusive breastfeeding for the first six completed months and the continuation of breastfeeding into the second year of life to provide the best chance of survival for infants and young children[20]

Some of the IYCF results should be interpreted with caution as the sample is small to draw meaningful conclusions. These findings, however, give an idea of the status of infant and young feeding practices among the surveyed population.

Demography features

There were 1539 population who were covered in the demography module, out of 2115 total population reported in ProGres as of August 2021. The average household size reported was 6.3, which is larger than the household size in ProGres (3.2). In the household questionnaire, the definition used for a household is all family members who slept in the same house and ate from the same pot yesterday, which is different from the definition of household in ProGres which is used for sampling (referring as registration group).

The household composition reported in Gorom camp is averagly contain 1 child less than 5 years old, 2 children 5-14 years, and almost 3 adults from 15-64 years. The population pyramid is strongly lean to children under 19 years old. Among children and teenages up to 19 years old, males are more than females. However, among refugees from 20 to 59 years old, there were more females than males. This result showed additional protection attention needs to be provided to children and women.

There were more households headed by female (57.0%) than male (41.4%), with no households headed by children, and only 1.6% headed by elderlys (<65 years). There are high proportion of households who had more than 2 dependents per non-dependent members (35.8%), which indicated many households have a heavy burden.

Food security indicators

Food insecurity is one of the causes of undernutrition as it directly affects the nutritional status of an individual. It is a direct cause of malnutrition in terms of dietary intake and an underlying cause in terms of access to and utilisation of food. Improving overall food security remains critical to improved nutrition, health and long-term development of children and other household members. Majority of the refugees in Gorom refugee camp had access to food assistance (93.9%). Main reason explained for not receiving

[19] UNHCR SENS guidelines for refugee populations, Version 2 (2013)
[20] Operation Guidance on IFE, section 5.2.8, v2.1, Feb 2007

assistance are not registered or registered but not eligible. The food assistance was provided at a 70% ration scale which provides 1475 kcal/p/d from January to April 2021, and at a 50% ration (1050 kcal/p/d) after April 2021. Only 33.9% household fell into the acceptable catogroy for FCS, and the average FCS was 29.1 out of 112 total score which falls into borderline category.

The general food assistance does not meet all the food need required. Complementary livelihood options remain limited. To fill the gap in food assistance over half of the refugee households reported using negative coping strategies. More than 90% households reported using the strategy of relying on less preferred or less expensive foods, reducing the number of meals eaten in a day, and limiting portion sizes at mealtime. Only 0.8% reported to have used none of the survey listed coping strategies and the average rCSI is 19.3 indicating the proportion likely to have benefited from livelihood programs' support. Advocacy to fill the food assistance gap to be continued.
Only 1.5% households reported all basic needs are met, while 93.1% households reported more than half basic needs are met. The basic needs which were not met including food, hygiene items, cloths, shoes, firewood or fuel for cooking, and others.

6. RECOMMENDATIONS AND PRIORITIES

Nutrition related

1. Ensure early preposition of BSFP supplies for both children U2 and PLW to ensure consistent regular distribution all year round (UNHCR, WFP, and ACROSS).
2. Resume two-stage screening of MUAC and subsequent Weight for Height (for children with MUAC at risk) through monthly screening at the BSFP distribution sites to identify and admit malnourished children in condition of Infection Prevention Control measures (ACROSS).
3. Intensify the family-MUAC approach to identify the malnutrition cases to improve the enrollment rate (ACROSS).
4. Use multi-sectoral approach to strengthen IYCF program following IYCF-Emergency framework (ACROSS, UNHCR, UNICEF, and partners on other sectors).
5. Increase staffing and capacity building for IYCF program (ACROSS and UNHCR).
6. Conduct an in-depth assessment of causes of anaemia, which has been ongoing for more than five years now (UNHCR and ACROSS).
7. Ensure buffer stock of Vitamin A supplementation to maintain routine Expanded Program of Immunization (EPI) and campaigns in case of pipeline break or delay (UNHCR, UNICEF, and ACROSS).
8. Continue the implementation of the comprehensive CMAM program providing both therapeutic and supplementary feeding programs to facilitate the rehabilitation of identified acute malnourished children, pregnant and lactating women, people living with HIV/AIDS and TB patients on treatment. This to include active case finding and community mobilization. (UNHCR, UNICEF, WFP and ACROSS).
9. Ensure all community screened and referred 6-59 months children identified with a MUAC less than 125mm get enrolled into the management of acute malnutrition programs through community outreach follow up at household level (ACROSS)
10. Ensure monthly blanket supplementary feeding programme for children 6-23 months, pregnant and lactating women using a fortified blended food or lipid-based supplement to prevent malnutrition and to cover the nutrient gap these vulnerable groups have in light of a predominant grain based general food diet (UNHCR, WFP and ACROSS)
11. Conduct the two step MUAC and WHZ scores (for children with MUAC at risk) screening at all the contact points in the health facility including the EPI, triage and the BSFP sites established to ensure both high MUAC and WHZ score coverage (ACROSS)
12. Continue strengthening the capacity of established nutrition facility in terms of staff training to facilitate quality provision of both curative and preventative components of nutrition (UNHCR, WFP, UNICEF and ACROSS)
13. Expand and strengthen preventative nutrition components including Infant and Young Child Feeding (IYCF)-using the IYCF-emergency multisectoral framework for action approach and

promote optimal maternal nutrition to stop malnutrition from occurring in the first place. (UNHCR, WFP, UNICEF and ACROSS)

14. Continue implementing the micronutrient reduction strategy to curb the high anaemia prevalence
15. Conduct follow up quarterly mass MUAC screening targeting children 6-59 months and pregnant and lactating women to monitor the evolution of the nutrition situation at the community level. (ACROSS)
16. Ensure regular monitoring, quarterly joint monitoring and yearly program performance evaluations in all camps to assess performance progress and formulate recommendations for any identified gaps. (UNHCR, WFP, UNICEF and ACROSS).
17. Undertake a follow up annual joint nutrition survey to analyse trends and facilitate program impact evaluation in 2020. (UNHCR, ACROSS, WFP and UNICEF).

Food security related

1. Advocate for an increase in the refugee food basket to reach the minimum daily recommended allowance (2100 kcal/person per day) of both macro and micronutrients through including fortified food (UNHCR and WFP).
2. Monitor the market prices, performance, and complaints of retailors in camp who are providing food basket (WFP, ACROSS, and UNHCR).
3. Scale up livelihood projects through extension of various agro-nutrition sites, backyard gardening, school gardening for improvement of the household food security to bring positive impact at household level (ACROSS, UNHCR, and WFP).
4. Provision of food assistance providing the minimum dietary requirements (2100kcal/person/day). (UNHCR, ACROSS and WFP).
5. Continue the routine joint monthly food basket monitoring on site and ensure the inclusion of the refugee camp in the post distribution monitoring at the household level to ensure that refugees receive their entitlement (UNHCR, ACROSS and WFP).
6. Expand the coverage of sustainable food security and livelihood solutions to allow diet diversity and to complement the general food distribution (UNHCR, WFP and ACROSS).

Health related

1. Strengthen malaria prevention interventions including blanket long lasting insecticide impregnated bed nets distribution and bi-annual indoor residue spraying (UNHCR and ACROSS).
2. Strengthen the good reproductive practices through education on healthy timing and spacing of pregnancies, continued breastfeeding until 24 months, iron-folic acid supplementation to pregnant women (UNHCR and ACROSS).
3. Distribute jerrycans to ensure provision of adequate water storage containers per household (UNHCR and ACROSS).
4. Improve the WASH facilities (hand wash, latrines, etc.) in health and school facilities (UNHCR and ACROSS).
5. Support latrine construction to improve latrine coverage (UNHCR and ACROSS).
6. Maintain and strengthen the provision of comprehensive primary health programme for refugee and host populations in Central Equatoria. (UNHCR and ACROSS)
7. UNICEF, ACROSS and UNHCR to ensure the EPI program and Vitamin A supplementation campaigns and routine program is maintained to ensure coverage is kept at acceptable standards.
8. Adequate clean water provision to be maintained in 2020. In addition to this ensure hygiene promotion continues, and latrine coverage to reduce infections and morbidities like diarrhoea. (UNHCR and ACROSS)

7. APPENDICES

Appendix 1: Names of contributors

	Name	Role	Organisation
1	Ajullu Okiir Buya	Enumerator	ACROSS
2	Omot Ojullu Opiew	Enumerator	ACROSS
3	Ojullu Ochan Ochan	Enumerator	ACROSS
4	Akune Odieng Ochalla	Enumerator	ACROSS
5	Taban Morris Eliloma	Enumerator	ACROSS
6	Ojullu Ochan Akway	Enumerator	ACROSS
7	Ajullu James Marko	Enumerator	ACROSS
8	Ojullu Okweir Gwoy	Enumerator	ACROSS
9	Abang Agada Akway	Enumerator	ACROSS
10	Dor Comboni	Enumerator	ACROSS
11	Omot Obur Ophodi	Enumerator	ACROSS
12	Charles Likambo Cosmas	Enumerator	Juba
13	Ojullu Oballa Omot	Enumerator- Hb measurement	ACROSS
14	Onesimus Boya Dario	Enumerator- Hb measurement	Juba
15	Charles Wani Philliph	Enumerator- Hb measurement	Juba
16	Kiden Rose	Enumerator- Hb measurement	Juba
17	Anthony Ngor Maluil	Enumerator- Hb measurement	Juba
18	Jackline Sunday Morgan	Enumerator- Hb measurement	Juba
19	Wori Kenedy James	Team Leader	Juba
20	Phillips Sallah Michael	Team leader	Juba
21	Adong Stella Bily	Team leader	Juba
22	Nyuma Robert Ben	Team leader	Juba
23	Lual Agog Wien	Team leader	Juba
24	Isaac Pitia Alfred	Team leader	Juba
25	Luate Samuel Taban	Supervisor	ACROSS
26	Diana Chicago Wesley	Supervisor	ACROSS
27	Dr Joice Dominic	Operational support	ACROSS
28	Heqian Kuang	Coordinator	UNHCR
29	Amulo Ociti	Supervisor	WFP

Data analysis and report compilation
Heqian Kuang (Associate Nutrition and Food Security officer, UNHCR Juba, South Sudan)

Report review
Gebrewold Petros Yohannes (Senior Public Health Officer, UNHCR Juba, South Sudan),
Naser Mohmand (Senior Regional Nutrition and Food security officer, UNHCR Regional Bureau, Nairobi)

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UNHCR and ACROSS supported the survey. UNICEF and WFP fund the nutrition and food security program

Appendix 2: Summary of overall quality of anthropometric data (weight-for-height data)

Overall data quality

Criteria	Flags*	Unit	Excel.	Good	Accept	Problematic	**Score**
Flagged data (% of out of range subjects)	Incl	%	0-2.5 0	>2.5-5.0 5	>5.0-7.5 10	>7.5 20	**0** (0.7 %)
Overall Sex ratio (Significant chi square)	Incl	p	>0.1 0	>0.05 2	>0.001 4	<=0.001 10	**0** (p=0.716)
Age ratio(6-29 vs 30-59) (Significant chi square)	Incl	p	>0.1 0	>0.05 2	>0.001 4	<=0.001 10	**0** (p=0.225)
Dig pref score - weight	Incl	#	0-7 0	8-12 2	13-20 4	> 20 10	**0** (3)
Dig pref score - height	Incl	#	0-7 0	8-12 2	13-20 4	> 20 10	**2** (12)
Dig pref score - MUAC	Incl	#	0-7 0	8-12 2	13-20 4	> 20 10	**0** (7)
Standard Dev WHZ .	Excl	SD	<1.1 and	<1.15 and	<1.20 and	>=1.20 or	
.	Excl	SD	>0.9 0	>0.85 5	>0.80 10	<=0.80 20	**0** (1.00)
Skewness WHZ	Excl	#	<±0.2 0	<±0.4 1	<±0.6 3	>=±0.6 5	**0** (0.17)
Kurtosis WHZ	Excl	#	<±0.2 0	<±0.4 1	<±0.6 3	>=±0.6 5	**1** (-0.26)
Poisson dist WHZ-2	Excl	p	>0.05 0	>0.01 1	>0.001 3	<=0.001 5	**0** (p=)
OVERALL SCORE WHZ =			0-9	10-14	15-24	>25	**3** %

The overall score of this survey is 3 %, this is excellent.

Appendix 3: Nutrition Surveys Questionnaires 2021

Greeting and Reading of Rights

THIS STATEMENT IS TO BE READ TO THE HEAD OF THE HOUSEHOLD OR, IF THEY ARE ABSENT, ANOTHER ADULT MEMBER OF THE HOUSE BEFORE THE INTERVIEW. DEFINE A HOUSEHOLD AS A GROUP OF PEOPLE WHO LIVE TOGETHER AND ROUTINELY EAT OUT OF SAME POT. DEFINE HEAD OF HOUSEHOLD AS MEMBER OF THE FAMILY WHO MANAGES THE FAMILY RESOURCES AND IS THE FINAL DECISION MAKER IN THE HOUSE.

Hello, my name is _____ and I work with [organization/institution]. We would like to invite your household to participate in a survey that is looking at the nutrition and health status of people living in this camp.

UNHCR and ACROSS are working in the nutrition and health sectors are sponsoring this nutrition survey

Taking part in this survey is totally your choice. You can decide to not participate or stop taking part at any time and for any reason. If you stop being in this survey it will not have any negative effects on how you or your household is treated or what aid you receive.

If you agree to participate, I will ask you some questions about your family. We will then measure the arm circumference, weight and height of children who are older than 6 months up to 5 years. In addition to these assessments we will also test a small amount of blood from the finger of the children and women to see if they have anaemia.

Before we start to ask you, any questions or take any measurements, we will ask you to give your verbal consent. Be assured that any information that you will provide will be kept strictly confidential.

You can ask me any questions that you have about this survey before you decide whether to participate. Thank you

Demography questionnaire		
No	**QUESTION**	**ANSWER**
SECTION DM1: Household Head Information THESE QUESTIONS NEED TO BE ASKED TO THE HEAD OF THE HOUSEHOLD OR, IF THEY ARE ABSENT, ANOTHER ADULT MEMBER OF THE HOUSEHOLD.		
DM1A	Was consent given for conducting the interview? ENSURE THAT YOU HAVE INTRODUCED THE TEAM AND INFORMED THEM ABOUT THE INTERVIEW.	Yes No Absent
DM1B	Was consent given for conducting the interview using Mobile Data Collection (use of smartphone or tablet)? ENSURE THAT YOU HAVE INTRODUCED THE TEAM AND INFORMED THEM ABOUT THE INTERVIEW.	Yes No Absent
DM2	What is the sex of the household head? ***Ngata ni wic paac dhaagø wala dïcwøø?*** THE HOUSEHOLD HEAD IS THE PERSON RESPONSIBLE FOR MAKING THE DECISIONS FOR THE HOUSEHOLD AS A WHOLE. USE THE TERM AGREED UPON DURING THE TRAINING.	Male Female
DM3	What is the age of the household head (years)? ***Cwiiri mo ngata ni wÏc paac adïï?*** YOU DO NOT NEED TO SEE PROOF OF AGE.	|_____|_____| years
DM4	What is the total number of household members? ***Kwään jø paac bëët adïï?***	|_____|_____| people
SECTION DM2: Household Member Information ASK INTERVIEWEE IF THOSE ARE ALL THE MEMBERS IN THE HOUSEHOLD AND THAT NO ONE IS MISSING. Bäng dhaanhø mo tøør ki ri jø paac? THESE QUESTIONS NEED TO BE COMPLETED FOR EACH HH MEMBER WHO LIVES IN THE HOUSEHOLD.		
DM5	Name of household member ONLY WRITE FIRST NAME.	
DM6	What is the sex of the household member?	Male Female
DM7	What is the age of the household member (years)? YOU DO NOT NEED TO SEE PROOF OF AGE.	
DM8	Is the household member currently pregnant?	Yes No Don't know

Child and infant questionnaire		
No	**QUESTION**	**ANSWER**
SECTION CHILD1: Details of the Child 0-59 months or 6-59 months THIS SECTION IS TO BE ADMINISTERED TO ALL CHILDREN IN THE SELECTED HOUSEHOLDS BETWEEN 0-59 MONTHS OR 6-59 MONTHS: DEPENDING ON WHICH SENS MODULE IS INCLUDED. THESE QUESTIONS NEED TO BE ASKED TO THE MOTHER OR THE MAIN CAREGIVER.		
CH1	Was consent given for conducting the interview and the measurements?	Yes No

CH2	Name of the child ***Nyeng nyilaal*** ONLY WRITE FIRST NAME.	
CH3	Sex of [NAME OF CHILD]? ***Dhaagø wala dïcwøø?***	Male Female
CH4	Do you have an official age documentation for [NAME OF CHILD]? ***GÏn mo nyootha cwiiri moi dagø teeng ID?***	Yes No
CH5	[NAME OF CHILD]'s date of birth THE EXACT BIRTH DATE SHOULD ONLY BE TAKEN FROM AN AGE DOCUMENTATION SHOWING DAY, MONTH AND YEAR OF BIRTH.	Day/Month/Year
CH6	When did [NAME OF CHILD] born? ***Nyilaal o lwaarøgø I wänne?*** ONLY ASK WHEN THERE IS NO AGE DOCUMENTATION, ESTIMATE AGE USING A LOCAL EVENTS CALENDAR.	|_____|_____| months
SECTION CHILD3: Nutrition, Health and Anaemia Status of the Child 6-59 months THIS SECTION IS TO BE ADMINISTERED TO ALL CHILDREN BETWEEN 6 AND 59 MONTHS OF AGE. EXCLUDE HB MEASUREMENTS IF SENS MODULE 2 (ANAEMIA MODULE) IS NOT INCLUDED. IN MDC SURVEYS, THIS SECTION IS AUTOMATICALLY SKIPPED FOR THE CHILDREN NOT ELIGIBLE BASED ON AGE (<6 MONTHS).		
CH7	Is [NAME OF CHILD] currently present in the household? Nyilaal nut paac ennØ?	Yes No
CH8	[NAME OF CHILD]'s weight in kilograms (±0.1kg)	|_____|_____| kg
CH9	[NAME OF CHILD]'s length/height in cm (±0.1cm)	|_____|_____| cm
CH10	Was [NAME OF CHILD] measured lying down or standing up?	Child lying down Child standing up
CH11	Clinical examination: Does [NAME OF CHILD] present bilateral pitting oedema?	Yes No
CH12	[NAME OF CHILD]'s middle upper arm circumference (MUAC) in mm (±1mm) or cm (±0.1cm)	
CH13	Is [NAME OF CHILD] currently being treated in SC/OTP/TSFP for malnutrition? ***Nyilaal mari ena tier kØny bang jØ nutrition ?*** SHOW COMMODITY PROVIDED IN TSFP AND OTP/SC.	Yes TSFP Yes OTP/SC No Don't know
CH14	Is [NAME OF CHILD] currently enrolled in the BSFP? ***Nyilaal mari ena ro obwöre mo määØ ka a puuli ki I dwääy?*** SHOW COMMODITY/PACKAGING PROVIDED IN BSFP.	Yes No Don't know
CH15	Has [NAME OF CHILD] been vaccinated against measles? ***Nyilaal mari ocwøbø ki kïthi baath mar ajwääa?*** CHECK VACCINATION CARD (ONLY FOR CHILDREN OLDER THAN 9 MONTHS).	Yes, card Yes, recall No Don't know
CH16	Has [NAME OF CHILD] received a vitamin A capsule in the past six months? ***Nyilaal da vitamin A mo cïbø jïre ki køør dwäde abÏciel?*** CHECK VACCINATION/HEALTH CARD AND SHOW CAPSULE.	Yes, card Yes, recall No Don't know
CH17	Was [NAME OF CHILD] given any drug for intestinal worms in the last six months? ***Nyilaal da klÏna mar twöngi mo ec mo cÏbø jïre ki køør dwäde abÏciel***	Yes No

	? SHOW TABLET.	Don't know
CH18	Has [NAME OF CHILD] had diarrhoea in the past 2 weeks? CASE DEFINITION: THREE OR MORE LOOSE OR LIQUID STOOLS DURING 24 HOURS. ***Nyilaal yie o timö leth køør juu ariew ?***	Yes No Don't know
CH19	Did you give ORS to [NAME OF CHILD] when s/he had diarrhoea? ***Nyilaal amooyi ki cørbamele kanya tÏm yie ni leth?*** SHOW ORS SACHET.	Yes No Don't know
CH20	Did you give zinc tablets or syrup to [NAME OF CHILD] when s/he had diarrhoea? ***Nyilaal amooyi ki Zinc kanya tÏm yie ni leth?*** SHOW ZINC TABLET OR SYRUP.	Yes No Don't know
REFER	**Referral for child with signs of acute malnutrition who is not already enrolled in a nutrition programme:** • Child needs to be referred for moderate acute malnutrition • Child needs to be referred for severe acute malnutrition ***Nyilaal manya jäängø Øt jaath kanyo poode ni dëëre poot theem/o ööl dØc.***	
CH22	[NAME OF CHILD]'s haemoglobin (Hb) in g/dL (±0.1 g/dL) or in g/L (±1g/L)	|____|___|.|___| g/dL or g/L
REFER	Referral for child who has severe anaemia: • Child needs to be referred for severe anaemia (if Hb<7 0g/dL) ***Nyilaal manya jäängø øt jaath kanyo näk mo remmø mare o døø piny.***	
SECTION IYCF1: breastfeeding for the Child 0-23 months THIS SECTION IS TO BE ADMINISTERED TO THE MOTHER OR THE MAIN CAREGIVER WHO IS RESPONSIBLE FOR FEEDING THE CHILD AND THE CHILD SHOULD BE BETWEEN 0 AND 23 MONTHS OF AGE. THESE QUESTIONS NEED TO BE ASKED TO THE MOTHER OR THE MAIN CAREGIVER WHO IS RESPONSIBLE FOR FEEDING THE CHILD.		
IF1	Has [NAME OF CHILD] ever been breastfed? ***Nyilaal O dhwødhø?***	Yes No Don't know
IF2	How long after birth did you first put [NAME OF CHILD] to the breast? ***Akany mo yie nyïëdi ni dwØth nyilaal kanya lwaarøgø?***	Less than one hour Between 1 and 23 hours More than 24 hours Don't know
IF3	Was [NAME OF CHILD] breastfed yesterday during the day or at night?	Yes No Don't know
IF4	Now I would like to ask you about liquids that [NAME OF CHILD] may have had yesterday during the day and at night. I am interested in whether your child had the item even if it was combined with other foods. Yesterday, during the day or at night, did [NAME] receive any of the following? ***Amanynya gø nii pëënynya ki jammi ka teeng pïï wala nyilaal omäththø yawääre ki wang cäng wala ki wäär bung pere këël dee nee jääbø ki caami møøk?*** ASK ABOUT EVERY LIQUID. EVERY QUESTION MUST HAVE AN ANSWER.	
	4A. Plain water ***Pïï mwøa tøng.***	Yes
	4B. Infant formula, for example [INSERT LOCALLY AVAILABLE BRAND NAMES OF INFANT FORMULA, *ALL TYPES*] ***Caak (NAN 1, NAN2)***	No

	4C.Milk such as tinned, powdered, or fresh animal milk, for example [INSERT LOCALLY AVAILABLE BRAND NAMES OF TINNED AND POWDERED MILK] ***Caak MwØa ajam, caa thunhnhØ***	Don't know
	4D. Juice or juice drinks, for example [INSERT LOCALLY AVAILABLE BRAND NAMES OF JUICE DRINKS] ***Cwaa, a pwØnnØ, Manga Avocado***	
	4E. Clear broth ***Amadida, cwige***	
	4F. Sour milk or yogurt, for example [INSERT LOCAL NAMES] ***Caak mwØa wac***	
	4G. Thin porridge, for example [INSERT LOCAL NAMES] ***Amadida***	
	4H. Tea or coffee with milk ***Caak Mo JääbØ ki buna***	
	4I. Any other water-based liquids, for example [INSERT OTHER WATER-BASED LIQUIDS AVAILABLE IN THE LOCAL SETTING AND USE LOCAL NAMES] (e.g. *sodas, other sweet drinks, herbal infusion, gripe water, clear tea with no milk, black coffee, ritual fluids)* ***Mirinda Pepsi, Novida, fanta , Cay MwØa tØng, Buna,***	
IF5	Yesterday, during the day or at night, did [NAME] eat solid or semi-solid (soft, mushy) food? ***Yawääre ka a MØØlla wala a bØØya nyilaal acämö ki cam mo teek wala mo jööm***	Yes No Don't know
IF6	Did [NAME OF CHILD] drink anything from a bottle with a nipple yesterday during the day or at night? ***Yawääre mana täge ka amöölla këël abØØya amäthØ ThoothØ***	Yes No Don't know
SECTION IYCF2: Iron -fortified or Iron-rich Foods for the Child 6-23 months IN MDC SURVEYS, THIS SECTION IS AUTOMATICALLY SKIPPED FOR THE CHILDREN NOT ELIGIBLE BASED ON AGE (<6 MONTHS AND ≥24 MONTHS).		
IF7	Now I would like to ask you about some particular foods [NAME OF CHILD] may eat. I am interested in whether your child had the item even if it was combined with other foods. Yesterday, during the day or at night, did [NAME] consume any of the following? ***Amanynya gØ ni pëënya ki cam mana cam nyilaal yawääre ki wang cäng wala wäär këël dee ni cam mo ojääbØ ka teeng*** ASK ABOUT EVERY ITEM. EVERY QUESTION MUST HAVE AN ANSWER.	
	7A. [INSERT COMMON MEAT, FISH, POULTRY AND LIVER/ORGAN FLESH FOODS USED THE LOCAL SETTING] *(e.g. beef, goat, lamb, mutton, pork, rabbit, chicken, duck, liver, kidney, heart)* ***RÏng del, dhieng, rëëö, røge,cwÏny***	
	7B. [INSERT CSB++ AVAILABLE IN THE LOCAL SETTING AND USE LOCAL NAMES] *(e.g. CSB++)* ***Angweth angweth***	Yes
	7C.[INSERT RUTF PRODUCTS AVAILABLE IN THE LOCAL SETTING AND USE LOCAL NAMES] (e.g. Plumpy'Nut®) SHOW SACHET. ***Apuuli (Mo obwöre mwØa näk dëëtge o ööl dØc***	No Don't know
	7D. [INSERT RUSF PRODUCTS AVAILABLE IN THE LOCAL SETTING AND USE LOCAL NAMES] (e.g. Plumpy'Sup®) SHOW SACHET. ***Apuuli (Mo obwöre mwØa näk dëëtge theem)***	
	7E. [INSERT LNS PRODUCTS AVAILABLE IN THE LOCAL SETTING AND USE	

	LOCAL NAMES] (e.g. Plumpy'Doz®) SHOW SACHET / POT. ***Apuuli (mo cÏp jÏ Mo obwöre mwØa näk dëëtge kär ööl cwiiri ariew KëëL dwäde abiciel)***	
	7F. [INSERT LOCALLY AVAILABLE BRAND NAMES OF IRON FORTIFIED INFANT FORMULA] (e.g. Nan, S26 infant formula) ***Caak (Nan, S26 infant formula)***	
	7G. [INSERT ANY IRON FORTIFIED SOLID, SEMI-SOLID OR SOFT FOODS DESIGNED SPECIFICALLY FOR INFANTS AND YOUNG CHILDREN AVAILABLE IN THE LOCAL SETTING THAT ARE DIFFERENT THAN DISTRIBUTED COMMODITIES AND USE LOCALLY AVAILABLE BRAND NAMES] (e.g. Cerelac, Weetabix) ***Apuuli, amadida Mar mØØ, Odëëna, OkØllØ***	

SECTION WM2: Anthropometry, Physiological and Anaemia Status of the Woman 15-49 years THIS SECTION IS TO BE ADMINISTERED TO ALL ELIGIBLE WOMEN BETWEEN 15 AND 49 YEARS IN THE SELECTED HOUSEHOLD.		
WM1	Name of the woman ONLY WRITE FIRST NAME.	
WM2	Age of [NAME OF WOMAN] in years ONLY WOMEN BETWEEN 15 AND 49 ARE BEING INTERVIEWED.	|_____|_____|years
WM3	Are you pregnant? ***Ngëëti ena maal?***	Yes No Don't know
WM4	Are you currently enrolled in the ANC programme? ***Nyengi ogöörö kar jey mwøa ngëëti en maal?***	Yes No Don't know
WM5	Are you currently receiving iron-folate pills? ***Da kïïnne mo jook remmø mo cïbø jïri?*** SHOW PILL.	Yes No Don't know
WM6	Are you currently breastfeeding? ***I dhwödhø enø wala jïri da nyillal mo dhøøth?***	Yes No Don't know
WM7	Is the child you are breastfeeding younger than 6 months old? ***Nyilaal man dhwøthi dööngö mare ena piny ki dwäde abïciel?***	Yes No Don't know
WM8	Are you currently enrolled in the BSFP? ***Nyengi o göörö bang jø nutrition?*** SHOW COMMODITY/PACKAGING GIVEN IN BSFP.	Yes No Don't know
WM9	[NAME OF WOMAN]'s MUAC in mm (±1mm) or cm (±0.1cm)	|_____|_____| cm
WM10	[NAME OF WOMAN]'s haemoglobin in g/dL (±0.1 g/dL) or in g/L (±1g/L)	|___|___|. |___| g/dL or g/L
REFER	**Referral for woman Who has severe anaemia:** Woman needs to be referred for severe anaemia (if Hb<8. 0g/dL) ***Dhaagø manya kïth øt-jaath kanyo näk mo remmø mare odøø piny.***	

SECTION FS1: Food assistance THIS QUESTIONNAIRE NEED TO BE ASKED TO THE MAIN CARETAKER WHO IS RESPONSIBLE FOR COOK- ING THE MEALS.		
FS1	Does your household receive a food voucher [INSERT LOCAL NAME OF FOOD VOUCHER] for general food needs? ***Jey mo en paac jïge da kaat mar cam?***	Yes No Don't know **IF YES OR DON'T KNOW, GO TO FS3**
FS2	Why do you not have access to the food assistance (food voucher/card)? ***Akiperngø nee tïme bäng jöö mii jïttø kaat mar cam?***	Food voucher not given even if eligible. Not registered. Registered but determined not eligible. Other. Don't know.
FS3	How many days did the food voucher from September cycle last? ***A nïnne adïï ni beet kaati mar cam mar dwää abïngween?***	
FS4	Did you sell any of the vouchers or products accessed with food vouchers received in September to access other goods and/or services? ***Kaat mar cam dagø ma gathi wala jammi mwøa mak dwää abïngween ni ngëëyi ki gïn mør?***	Yes No Don't know
FS5	Which of your household's basic needs can you not meet? ***Agïna ngø ki ri jammi mo many jø paaci ni løny jïri ki ngïëw?*** DO NOT READ THE ANSWERS. SELECT ALL THAT APPLY.	Food Water Hygiene items, clothes, shoes Health costs (including medicines) Rent, shelter repair, household items (e.g. mattress, blanket, jerrycan), utilities and bills (e.g electricity, water bills, phone calling credit) Firewood/fuel for cooking or heating Assets for a livelihood activity (e.g seeds, tools, farming, fishing, petty trade, etc) Debt repayment Save some money or gave to other family members, relatives, friends Education (e.g school fees, uniform, books) Other Don't know
SECTION FS2: Negative coping strategy EXPLAIN TO THE RESPONDENT THAT THE QUESTIONS APPLY TO ALL HOUSEHOLD MEMBERS AND NOT ONLY TO HIM/HER.		
FS6	In the past 7 days, how many days did your household rely on less preferred and/or less expensive food due to lack of food or money to buy food? ***A nÏnne a dÏÏ ki I jwØk ni jØ paac ngweewa cam mo gätte jööt kiper mana näk mo bung gwel mo ngëëö ki gØ***	RECORD DAYS 0-7.
FS7	In the past 7 days, how many days did your household borrow food or rely on help from a friend or relative due to lack of food or money to buy food? ***A nÏnne a dÏÏ ki køør jwøk aciel ni jø paac mäya bang tungi wala nyÏÏawäädi ki cam kiper mana näk mo bung cam waala gwel mo ngëëö ki gØ***	RECORD DAYS 0-7.

FS8	In the past 7 days, how many days did your household reduce the number of meals eaten in a day due to lack of food or money to buy food? ***A nÏnne a dÏÏ ki kØØr jwØk aciel ni ö jØ paac ni dwØkge kwään caanmi mo I cäng piny kiper mana näk mo bung cam waala gwel mo ngëëö ki gØ***	RECORD DAYS 0-7.
FS9	In the past 7 days, how many days did your household limit portion sizes at mealtime due to lack of food or money to buy food? ***A nÏnne a dÏÏ ki kØØr jwØk aciel ni ö jØ paac ni dwØkge cam mar I cäng piny kiper mana näk mo bung cam waala gwel mo ngëëö ki gØ***	RECORD DAYS 0-7.
FS10	In the past 7 days, how many days did your household reduce consumption by adults so children could eat, due to lack of food or money to buy food? ***Aninne a dÏÏ ni ö jØ paaci mwØa dØØngØ ni dwØkge cam mar ge piny no obwöre cämge kiper mana näk mo bäng cam wala gwel***	RECORD DAYS 0-7.
SECTION FS3: FCS and FCS-N EXPLAIN TO THE RESPONDENT THAT THE QUESTIONS APPLY TO ALL HOUSEHOLD MEMBERS AND NOT ONLY TO HIM/HER.		
FS11	How many days over the last 7 days, did members of your household eat the following food items, prepared and/or consumed at home? ***Aninne a dÏÏ ki kØØr jwØk aciel ni cäm jØ paaci ki teeng wÏth caammi mo teengi paaci?*** READ THE LIST OF FOODS AND DO NOT PROBE. ONLY RECORD THE CONSUMPTION OF SIGNIFICANT QUANTITIES OF FOOD BY THE HOUSEHOLD. WRITE '0' IF NOT CONSUMED IN THE LAST 7 DAYS.	
	1. In the past 7 days, how many days did your household eat any [INSERT CEREALS LOCALLY AVAILABLE] (*e.g. wheat, corn/maize, barley, buckwheat, millet, oats, rice, rye, sorghum, teff*) or any foods made from these such as [INSERT LOCAL FOODS] (*e.g. bread, porridge, noodles, ugali, nshima, pasta*). Or any [INSERT WHITE ROOTS AND TUBERS LOCALLY AVAILABLE] *(e.g. green bananas, lotus root, parsnip, taro, plantains, white potatoes, white yam, white cassava, white sweet potato)* or any foods made from roots such as [INSERT LOCAL FOODS]. Or any [INSERT OTHER STARCHY FOODS LOCALLY AVAILABLE] *(e.g. green bananas, plantains)* ***Cïnde, Abäy, ruuc, beel, dääbØ, Amadida, kwön Baala, ajwaala, opeela, babura,***	Number of days eaten in past 7 days
	2. In the past 7 days, how many days did your household eat any [INSERT LEGUMES, NUTS AND SEEDS LOCALLY AVAILABLE] *(e.g. dried beans, chickpeas, lentils, nuts, seeds)* or any foods made from these such as [INSERT LOCAL FOODS] *(e.g. hummus, peanut butter)* ***OngÖöri,Øgodi,kaali, kÖödhi***	Number of days eaten in past 7 days
	3. In the past 7 days, how many days did your household eat any [INSERT MILK AND MILK PRODUCTS LOCALLY AVAILABLE] *(e.g. fresh milk, sour milk, infant formula, cheese,* ***kefir, yogurt) Caa thunhnØ, caa mwØa wac caak mwØa ajäm***	Number of days eaten in past 7 days
	4. In the past 7 days, how many days did your household eat any meat, fish and eggs *(e.g. goat, beef, chicken, pork, blood, fish including canned tuna, snails, and/or other seafood, eggs)* ***Ringö, Rëëö, tØng gwienØ***	Number of days eaten in past 7 days
	4.1. In the past 7 days, how many days did your household eat any [INSERT FLESH MEAT LOCALLY AVAILABLE] *(e.g. beef, goat, lamb, mutton, pork, rabbit, chicken, duck, cane rat, guinea pig, rat, agouti frogs, snakes, insects)* ***Ring Diel, Dhiang, othur,gwienØ, badhØ, jÏëö,***	Number of days eaten in past 7 days

	ngweenyi	
	4.2. In the past 7 days, how many days did your household eat any [INSERT ORGAN MEAT OR BLOOD-BASED FOODS LOCALLY AVAILABLE] *(e.g. liver, kidney, heart)*	Number of days eaten in past 7 days
	4.3. In the past 7 days, how many days did your household eat any [INSERT FRESH, DRIED OR CANNED FISH OR SHELLFISH LOCALLY AVAILABLE] *(e.g. anchovies, tuna, sardines, shark, whale, roe/fish eggs, clam, crab, lobster, crayfish, mussels, shrimp, octopus, squid, sea snails)* **CwÏny, rØgi,** **Rec mwØa no otal**	Number of days eaten in past 7 days
	4.4. In the past 7 days, how many days did your household eat any eggs from [INSERT EGGS LOCALLY AVAILABLE] (e.*g. eggs from chicken, duck, guinea fowl)* **TØng gwienØ, tØng badhØ**	Number of days eaten in past 7 days
	5. In the past 7 days, how many days did your household eat any [INSERT ANY VEGETABLES AND LEAVES LOCALLY AVAILABLE] *(e.g. spinach, cassava leaves, onion, carrot, lettuce, bamboo shoots, cabbage, pepper, tomato, eggplant, zucchini, etc.)* ***Bøøk babura, bacal, cabbages, a dimete,timatim***	Number of days eaten in past 7 days
	5.1. In the past 7 days, how many days did your household eat any [INSERT VITAMIN A RICH VEGETABLES AND TUBERS LOCALLY AVAILABLE] *(e.g. carrot, pumpkin, squash, or sweet potato that are orange inside, red sweet pepper)* ***økøllø, ajwaala,Orange carrots***	Number of days eaten in past 7 days
	5.2. In the past 7 days, how many days did your household eat any [INSERT DARK GREEN LEAFY VEGETABLES LOCALLY AVAILABLE INLCUDING WILD FORMS AND VITAMIN A RICH LEAVES] (*e.g. amaranth, arugula (rocket), cassava leaves, kale, broccoli, spinach*) ***BØØk babura gwedagwede***	Number of days eaten in past 7 days
	6.In the past 7 days, how many days did your household eat any [INSERT ANY FRUITS LOCALLY AVAILABLE INCLUDING WILD FRUITS], and 100% fruit juice made from these *(e.g. mango, apricot, peach, apple, avocados, banana, coconut flesh, lemon, orange, etc.)* ***Manga, apple, avucado, bääla, nyitwÖö, lemun, orange***	Number of days eaten in past 7 days
	6.1. In the past 7 days, how many days did your household eat any [INSERT VITAMIN A RICH FRUITS LOCALLY AVAILABLE], and 100% fruit juice made from these *(e.g. mango (ripe, fresh and dried), cantaloupe melon (ripe), apricot (fresh or dried), ripe papaya, passion fruit (ripe), dried peach)* ***Juice mar mangga, olillø, batunda***	Number of days eaten in past 7 days
	7. In the past 7 days, how many days did your household eat any [INSERT OILS AND FATS LOCALLY AVAILABLE] added to food or used for cooking *(e.g. vegetable / nut oil made from almond, avocado, canola, coconut, cottonseed, groundnut, maize, olive, rapeseed, safflower, sesame, soybean, sunflower/walnut, ghee, butter, margarine, mayonnaise, palm oil -**not** red palm oil, shortenings, sour cream)*	Number of days eaten in past 7 days

	Maaw mar nyimi, apuuli,wädø	
	8. In the past 7 days, how many days did your household eat any [INSERT SWEETS, SWEETENED SODA OR JUICE DRINKS AND SUGARY FOODS LOCALLY AVAILABLE] *(e.g. sugar, honey, syrup, soda drinks, chocolates, candies, cookies, sweet biscuits and cakes)* ***Cukar, Maar kÏc, mirinda, pepsi, novida, bsicuits, cakes***	Number of days eaten in past 7 days
	9. In the past 7 days, how many days did your household eat any [INSERT SPICES, CONDIMENTS AND BEVERAGES LOCALLY AVAILABLE] *(e.g. black pepper, salt, chilies, soy sauce, hot sauce, fish powder, fish sauce, ginger, herbs, magi cubes, ketchup, mustard, coffee, tea, milk/cream in small quantities)* ***AcäbØ, adimetti, buna, cay/caak***	Number of days eaten in past 7 days
	10. In the past 7 days, how many days did your household eat any [INSERT SPECIALIZED NUTRITIOUS FOODS AVAILABLE] *(e.g. CSB, Super Cereals)* ***Angweeth angweeth,***	Number of days eaten in past 7 days
FS12	How was this food acquired? ***Cammi moi o joodi ni dïï?***	Purchase (using cash grants and/or with their own cash) Own production (crops, livestock, fishing/hunting, gathering) Traded goods/ services, barter Borrowed (loan/credit from traders) Receive as gift (from family relatives or friend/neighbor In-kind or voucher based food assistance Other Don't know

Appendix 4: Event calendar for Gorom refugee camp, 2019

Seasons	Religious Holidays	Other Events	Months / Years	Age (M)	Height Range
Post harvest			novemebr 2021	**0**	
Harvest of sorghum			october 2021	1	
Groundnuts, simsim & bean harvest		Ethiopia new year (sep)	September 2021	2	
		World breastfeeding week	August 2021	3	
Crop weeding continues			July 2021	4	
Weeding of crops		World refugee day (June 2018)	June 2021	5	
			may 2021	6	
Planting season			April 2021	7	
Land preparation start			March 2021	8	
Land preparation start			Febrary 2021	9	65-70 cm
Renovation/Building of houses		CPA /new year celebrations	January 2021	10	
	Christmas (25 Dec)	World aids day & Gambela genocide remembrance	December 2020	11	
Post harvest			novemebr 2020	12	
Harvest of sorghum			october 2020	13	71-76 cm
Groundnuts, beans harvest		Ethiopia new year	September 2020	14	
		World breastfeeding week	August 2020	15	
Crop weeding continues			July 2020	16	
Weeding of crops		World refugee day (June 2018)	June 2020	17	
			may 2020	18	
Planting season			April 2020	19	77-80 cm
Land preparation			March 2020	20	
			Febrary 2020	21	
Renovation /building of houses		CPA /new year celebrations	January 2020	22	
	Christmas (25 Dec)	World aids day & Gambela genocide remembrance	December 2019	23	
Post harvest			novemebr 2018	24	81-86 cm
Harvest of sorghum			october 2018	25	
Ground nuts beans havest		Ethiopia new year	September 2019	26	
		World breastfeeding week	August 2019	27	
Crop weeding continues			July 2019	28	
Weeding of crops		World refugee day (June 2018)	June 2019	29	
			may 2019	30	
Planting season			April 2019	31	
Land preparation			March 2019	32	
			Febrary 2019	33	87-90 cm
Renovation/building of the houses		CPA /new year celebrations	January 2019	34	
	Christmas (25 Dec)	World aids day & Gambela genocide remembrance	December 2018	35	
Post harvest			novemebr 2018	36	
Harvest of sorghum			october 2018	37	
Ground nuts beans havest		Ethiopia new year	September 2018	38	
		World breastfeeding week	August 2018	39	
Crop weeding continues			July 2018	40	
Weeding of crops		World refugee day (June 2018)	June 2018	41	
			may 2018	42	91-99 cm
Planting season			April 2018	43	
Land preparation			March 2018	44	
			Febrary 2018	45	
Renovation/building of the houses		CPA /new year celebrations	January 2018	46	
	Christmas (25 Dec)	World aids day & Gambela genocide remembrance	December 2017	47	
Post harvest			novemebr 2016	48	
Harvest of sorghum			october 2016	49	
Ground nuts beans havest		Ethiopia new year	September 2017	50	
		World breastfeeding week	August 2017	51	
Crop weeding continues			July 2017	52	100-110 cm
Weeding of crops		World refugee day (June 2017)	June 2017	53	
			may 2017	54	
Planting season			April 2017	55	
Land preparation			March 2017	56	
			Febrary 2017	57	
Renovation/building of the houses		CPA /new year celebrations	January 2017	58	
	Christmas (25 Dec)	World aids day & Gambela genocide remembrance	December 2016	59	
Post harvest			novemebr 2016	60	

How to Use a Local Events Calendar

Survey inclusion and exclusion criteria

Survey inclusion criteria: these are the cut-off birth dates for children to be eligible to participate in the 6-59 months sample.

- Included in the survey are all children born between November 2014 and April 2019.

Survey exclusion criteria: all children born as of these dates are excluded from the sample (i.e. they are over 59 months or under 6):

- Excluded from the survey are all children born before November 2014 and April 2019.

When to use the events calendar?

- The events calendar is a tool that helps determine the approximate age of children who have no reliable administrative documents (birth certificate, child's health notebook, etc.)
- It includes all different events that occurred during the 60 months that preceded the survey, and serves as a reference and check-list for surveyors and surveyed populations.

How to use the events calendar

- Use a line of questions phrased as follows: ***"<name> was he/she born before or after <event>?"***
- Choose the events in the most appropriate column of the calendar to reduce the range at each question.
- The child's mother usually knows either the age of the child in years, or the birth date (but without any official corroboration. In both cases, it is necessary to refine the age estimation by using the events calendar.

1. When the mother knows the age in years, convert the age in months using the calendar and ask her questions relating to the events that occurred around the child's birth. Specify with the mother:

- On the calendar, whether a particular even occurred about the time the child was born (e.g. end of Ramadan); ask the mother whether the birth occurred before or after this event;
- Ask her the season in which the child was born: rain, warm or cold season, etc.;
- This information will allow you to estimate the child's age in a more reliable and accurate way.

2. When the mother knows the child's birth date, but has no official document to prove it:

- Locate the birth date on the calendar;
- Ask the mother questions on events that occurred around the child's birth (religious holiday, celebration, season, etc.) in order to estimate the age in actual months.

3. When the mother knows neither the age nor the birth date, the events listed in the calendar will help her remember the circumstances of her child's birth and to estimate the age in months:

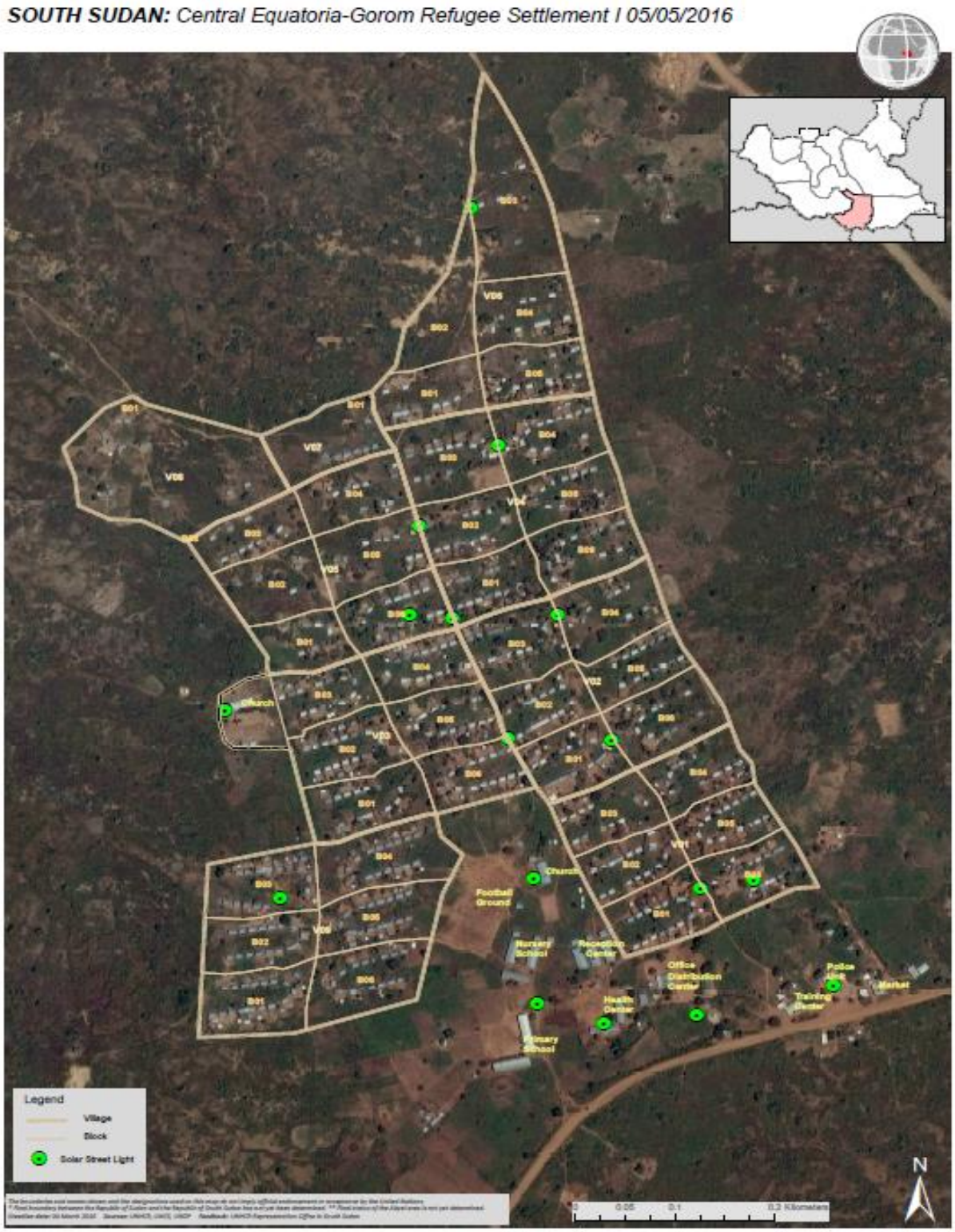
- Ask the mother, or the person who cares for the child, if she remembers the period or an event that surrounded the birth of the child;
- According to her answer, ask further questions to locate the month and year of the birth.

4. When it is absolutely impossible to get any reliable indication from the mother, look for a child of similar stature in the neighbourhood:

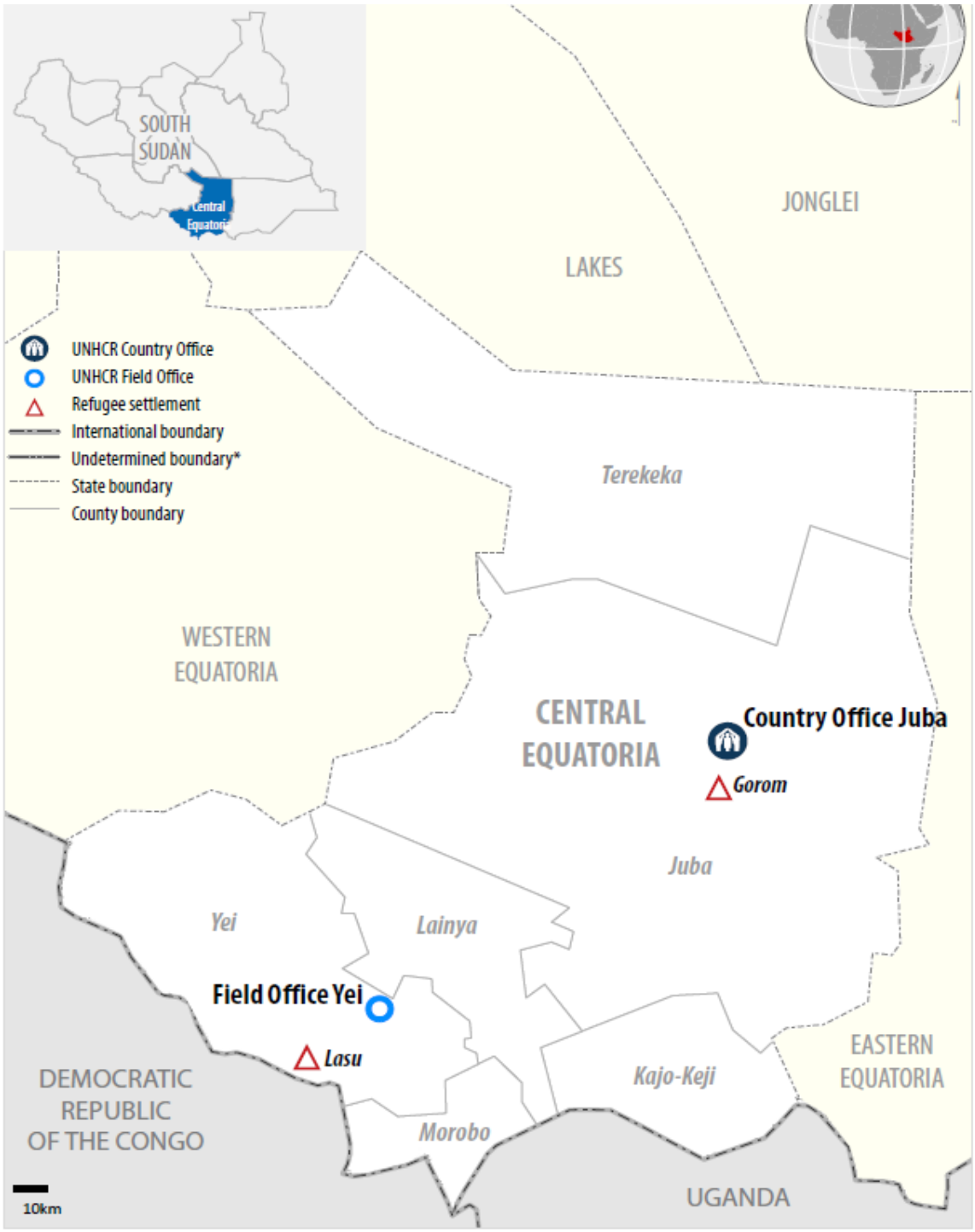
- Determine the age of the other child;
- Estimate the age difference between both children using the calendar;
- Deduce the age of the surveyed child.

To determine the age of a child, the surveyor must enter on the questionnaire either the date of birth or the age in months, ***but not both.***
If the child has a health notebook or an official identity document that indicates his/her birth date; write down the birth date on the questionnaire.

Appendix 5 – Map of Gorom refugee camp



Appendix 6 -Gorom refugee location in South Sudan



The boundaries and names shown and the designations used on this map do not imply official endorsement or acceptance by the United Nations.
** Final boundary between the Republic of Sudan and the Republic of South Sudan has not yet been determined.* Sources: UNCS, UNHCR, UNDP