World Vision, South Sudan (WVSS)

NUTRITIONAL ANTHROPOMETRY & RETROSPECTIVE MORTALITY PRE-HARVEST SURVEY REPORT

TONJ NORTH COUNTY, WARRAP STATE, SOUTH SUDAN

June 2015

Introduction

The July 2014 prevalence of global acute malnutrition (GAM) rate of 8.9% (95%CI: 7.0-11.2) and severe acute malnutrition (SAM) rate (WHZ<-3 or oedema) of 1.0% (95%CI: 0.4-2.2) indicate an alert phase (GAM rate of 5.0-9.9%) of malnutrition in the Tonj North County population according to WHO classification. When compared to the immediate past assessment of November 2013, the results indicate a slight improvement from the serious phase with GAM and SAM rates of 12.4% (95%CI: 9.5-15.9) and 3.3% (95%CI: 1.7-6.4) though the reduction in GAM rates is not statistically significant. However, the rates indicate a substantial improvement compared to the past pre-harvest assessment of April 2013 from the critical emergency situation when GAM and SAM rates of 20.5% (95%CI: 17.3-24.1) and 4.0% (95%CI: 2.8-5.7) were reported respectively. The rates are however, similar to the findings of post-harvest SMART surveys conducted in the same population in July 2010 and November 2011

The nutrition status of the community is associated with many factors that range from poor socio-economic and civil security, food insecurity, poor child care practices and poor access to healthcare, water, sanitation and hygienic infrastructure which lead to a cycle of malnutrition that only reduces slightly in the post-harvest period.

The county's health, social and economic infrastructure is poor, with few roads, healthcare centres and schools. The disease-specific challenges exist as a result of poor health system infrastructure, lack of access to services at the community and facility level, limited trained health care workers, and poor home health practices. Currently the county also receives cases from other underserved counties of Lakes and WBEG states, increasing the number of severe complicated malnutrition cases in the only referral hospital in Marial-lou and the few primary health care centres (PHCCs) and primary healthcare units (PHCUs).

In addressing malnutrition in the County, World Vision South Sudan (WVSS) operates a community management of acute malnutrition (CMAM) nutrition project with four components: 1) outpatient therapeutic care, 2) targeted supplementary feeding, 3) stabilization care, and 4) community mobilization). Therefore, there is a need to determine the current pre-harvest nutrition situation of the population and to collate the latest information on the food security and health related aggravating factors to evaluate and guide continued response in the county.

A pre-harvest SMART will indicate the extent of vulnerability anticipated and recommend appropriate actions to mitigate the effects of malnutrition. The data and other information collected will be used to monitor the malnutrition trends and to inform programming both at county, state and national levels.

The survey objectives were:

1. Assess the prevalence of acute and chronic malnutrition (wasting, underweight and stunting) among children aged 6-59 months and among pregnant and lactating mothers;
2. Determine the retrospective crude and under five mortality rate as well as common causes of morbidity;
3. Assess the morbidity status among children aged 6-59 months;
4. Determine the hygiene practices in the household (presence of latrines and sources of drinking water);
5. Assess the food security situation.
6. Assess the Infant and Young Child Feeding practices in the community
7. Make recommendations on appropriate interventions to address malnutrition in the three counties.

AREA COVERED

The survey will cover Tonj North County, Warrap State. The area has an estimated total population of 165222[1] inhabitants. The estimated Under-5 target population of the survey was estimated to be 18% of the population

The survey was conducetd from 5th – 10th June- preceded by a 4-day training period.

Methodology

[1] 2008 census

The Standardized Monitoring and Assessment of Relief and Transition (SMART) methodology will be used for this survey. This methodology provide a basic integrated method for assessing nutritional status and mortality rate hence providing the basis for understanding the magnitude and severity of humanitarian crisis in Tonj North county.

Sampling Design

A two-stage cluster random sampling method using SMART methodology was employed.
The whole population of Tonj North County formed the survey sampling frame. Sample sizes were calculated based on prevalence of acute malnutrition and crude mortality rates of the July 2014 survey by World Vision with support from CHF and the South Sudan Nutrition cluster.

Sampling technique

The sampling frame was drawn from the population of all the villages in Tonj North County. A two stage sampling technique was employed. The first stage was the assignment of the smallest sampling unit called clusters which in this case were administrative villages. Cluster sampling was used because of the sparse and unstructured distribution of households in the survey area. Random selection of clusters from the total number of villages in the county was done using the planning screen of ENA for SMART software, April 21st 2015 version based on probability proportion to population size (PPS). Clusters were defined as villages within the Payams in the County. A total of **36** clusters were selected from the sampling frame generated from the list of all villages in the County. At the second stage, the selection of sample households was done by systematic random sampling (using household listing approach to generate list of households) in the selected clusters. All the households were listed to form sampling frame (this was done by the survey team and local leaders) and a sample of households to be included in the survey selected using systematic random sampling (SRS). The sampling interval used for SRS differed based on the size of the village.

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Sample size

The sample size was estimated based on ENA for SMART software April, 21st 2015 version for anthropometric and mortality sample sizes. The parameters used were drawn from the July 2014 SMART by World Vision in the County. The GAM from this survey was **8.9%** (95% CI: 7.0-11.2). This survey utilized a prevalence of 11.2% which is basically the higher interval. The rationale was based on the fact that the prevalence lies between 7.0-11.2% and a higher prevalence yields a higher sample size, so to be statistically conservative the higher interval suffices to be used in this case. The design effect from the July 2014 data set was 1.0 and 1.24 in 2013 survey; in this case also the higher design effect was used. The table below summarizes the sample size calculations.

Table 1: Sample size calculation for integrated nutrition and retrospective mortality survey

	Anthropometry sample	Retrospective Mortality sample
Estimated prevalence	11.2%	0.97
Desired Precision	3.5%	0.5 per 10,000/day
Design effect	1.24	1.19
Average household size	6.0	6.0
% under five children	18%	N/A
% non-response	5%	5%
Recall period	N/A	90 days
Children to be included	421	N/A
Households to be included	456	376
Population to be included	N/A	2145

In all selected households, all children under 6-59 months were included in the anthropometric. This survey was based on number of households and so the unit of measurement was household and not children. The computed sample size was expected to yield sufficient sample in terms of children required for the anthropometry. If there were no children in the household, the house remained as part of the sample that contributed zero children to the anthropometric survey but mortality, WASH and FSL data

was collected. The age of the children was determined mainly using a local historical and seasonal calendar of events and in some cases birth record when available. Anthropometry, mortality, Food security and WASH questionnaires were administered to the selected households in the sampling frame. In total, the data of 500 children and 456 households were collected for anthropometry and household level indicators.

Retrospective information on mortality was collected using the current household census method, with a recall period of 90 days, from all households visited including those without children.

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Main results

The prevalence of Global Acute Malnutrition (GAM) rate for the County was **11.6%** (8.6 - 15.6 95% C.I.), and the severe acute malnutrition (SAM) rate was 1.0% (0.4 - 2.3 95% C.I.).). In this assessment no cases of oedema were observed. The findings indicate an *Alarm* (GAM (10-14%) phase of malnutrition according to WHO classification.

Table 2: Table of Anthropometric Results

	All n = 498	Boys n = 259	Girls n = 239
Prevalence of global malnutrition (<-2 z-score and/or oedema)	(58) 11.6 % (8.6 - 15.6 95% C.I.)	(27) 10.4 % (7.3 - 14.7 95% C.I.)	(31) 13.0 % (8.7 - 18.9 95% C.I.)
Prevalence of moderate malnutrition (<-2 z-score and >=-3 z-score, no oedema)	(53) 10.6 % (7.8 - 14.4 95% C.I.)	(25) 9.7 % (6.7 - 13.7 95% C.I.)	(28) 11.7 % (7.8 - 17.3 95% C.I.)
Prevalence of severe malnutrition (<-3 z-score and/or oedema)	(5) 1.0 % (0.4 - 2.3 95% C.I.)	(2) 0.8 % (0.2 - 3.3 95% C.I.)	(3) 1.3 % (0.4 - 3.7 95% C.I.)

The prevalence of oedema is 0.0 %

The GAM rate according to MUAC is as shown in the Table 3 below. The mean MUAC for the measured children was 147.6mm with a standard deviation (SD) of ±12.6 for the sample n=500 children 6-59 months.

Table 3: Table of GAM Results based on MUAC measurements

	All n = 500	Boys n = 260	Girls n = 240
Prevalence of global malnutrition (< 125 mm and/or oedema)	(14) 2.8 % (1.4 - 5.4 95% C.I.)	(9) 3.5 % (1.8 - 6.7 95% C.I.)	(5) 2.1 % (0.7 - 5.8 95% C.I.)
Prevalence of moderate malnutrition (< 125 mm and >= 115 mm, no oedema)	(11) 2.2 % (1.1 - 4.4 95% C.I.)	(7) 2.7 % (1.3 - 5.4 95% C.I.)	(4) 1.7 % (0.5 - 5.6 95% C.I.)
Prevalence of severe malnutrition (< 115 mm and/or oedema)	(3) 0.6 % (0.2 - 1.9 95% C.I.)	(2) 0.8 % (0.2 - 3.1 95% C.I.)	(1) 0.4 % (0.1 - 3.0 95% C.I.)

All children aged between 6 and 59 months are supposed to be supplemented with vitamin A after every 6 months. Additionally, all children aged 9 months and above ought to be vaccinated against measles. Vaccination and Vitamin A supplementation were observed to be below the recommended EPI level of >80% shown in the figure below**.**

Table 4: Measles and Vitamin A coverage

	Measles (EPI card) 9-59 months N: 494	**Measles (Recall) 9-59months N: 494**	**Vitamin A Supp 6-59months N:500**

Yes	n = 103 20.9% (17.4-24.8 95%C.I)	n = 81 16.40% (13.3-20.0 95% CI)	n = 165 33.30% (28.9-37.3 95%C.I)

Morbidity levels were high with 42.1% of children reporting sickness in the last 2 weeks prior to the survey date. Recent illness is closely related to malnutrition and at 42.1% this is an alarming trend. The common illnesses mentioned were; fever, skin infections, cough and diarrhea.

Table 5: Health care seeking behavior

Treatment source	Frequency	Percent
None sought	80	38.30%
PHCC/PHCU	94	45.00%
Traditional practitioner	10	4.80%
Village health care worker	9	4.30%
Pharmacy	6	2.90%

As illustrated by Table 5 above the sick sought treatment mainly from PHCU/PHCC then traditional practitioner, village health care worker and Pharmacies.

Among the sampled households, 42.9% of the children 6-59 Months were reported to have slept under long lasting insecticide treated nets (LLITN).

The major household income 30 days before the survey was sale of livestock this was reported by 26.55% of the sample households. This was followed by sale of crops that was reported at 24.1% and sale of natural resources 13.6%. Other important sources of income were brewing and salaried work accounting for 7.9% and 7.0% of the income source. Further the result showed that during the 7 days leading to the survey the main sources of food was own production (54.6%) followed by work for food 916.2%) and purchase from market and shops at 11.4%. As the rising GAM rates indicate a deteriorating food security situation it should be noted that the main shocks faced is expensive food prices which was reported by 62.7% of the sampled households and this was followed by delayed rains (46.3%) then human sickness. Combined with the high morbidity this has the potential to tip the GAM rates towards emergency levels.

The main water sources (Table 6) in the County are boreholes 74.3% and open shallow well at 13.6%. Majority of the population (82.1%) are utilizing safe water sources (Borehole, protected shallow wells). This may partly explain why majority of the household (71.4%) do not treat their drinking water. The few who practice water treatment mostly filter it with a cloth 22.3% which does little to make the water safe. Only 3.5% of the households are treating water either by boiling or chlorination

Table 6: Main water sources

Water sources	Frequency	Percent
Borehole	333	74.30%
Dam/pond	19	4.20%
Open shallow well	61	13.60%
Protected shallow well	35	7.80%

The sphere recommended queueing time at a water source to be no more than 30 minutes. The survey measured time taken to collect water which incorporates queueing and travel time. Only 46% of the population is taking less than 30 minutes to travel, queue and fetch water. The time taken to fetch water is as shown in the table below

Table 7: Water collection time

Time taken to collect water	Frequency	Percent
<30 min	206	46.00%
>30min to <1hr	143	31.90%
>1hr to < 2hr	65	14.50%
>2hr to < 4hr	29	6.50%
>4h	5	1.10%

Most households had their members wash hands before eating (79.7%) and before cooking (60.9%) with only 26.6% washing hands after defecation. Hand washing practice is expected to be in at least 3 or more incidences, this practice was only reported in 64.9% of the population. Majority of the households 72.3% use water only for handwashing with only 16.3% cleaning their hands with soap and water. A large proportion of the surveyed households lack access to sanitary facilities and most use undesignated open area (95.1%) for defecation.

IYCF practices (0-23months)	%	N=236
Initiation of Breast feeding within the first hour after birth	88.6%	**238**
Optimal complementary feeding 6-8 months	64.7%	**17**
Continued breastfeeding 12-15 months	**84.6**	**39**

Conclusion and Recommendations

The *Alarm* nutrition situation in the county indicates a deteriorating food security as evidenced by the rates of Moderate acute malnutrition. Though the morbidity rate were high, the health seeking behaviours in the county were relatively good with preference for the PHCC/PHCU. The period between birth and 1 month when infant should be exclusively breastfed was observed to be the period that parents/caregivers introduce prelacteal foods with 40.8% of children surveyed being introduced to other foods at this age.

- Emphasis on water treatment (provision of free water treatment chemicals) and strengthening of hygiene practices.
- The survey stablished that the WASH indicators were poor. These indicators included hand washing at critical time, water treatment and latrine usage. Based on the above there is need to in cooperate Social and behaviour change communication (SBCC) in WASH programing in the county
- Strengthen and expand the existing management of severe acute malnutrition before the situation further deteriorates using CMAM approach