MEDAIR
EMERGENCY RELIEF AND RECOVERY

ANTHROPOMETRIC AND MORTALITY SURVEY PROTOCOL

FORMER RENK COUNTY, UPPER NILE STATE, SOUTH SUDAN

MAY, 2018

Funded by OFDA

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1.0 INTRODUCTION

1.1 Background

Renk County, located in northern South Sudan bordering Sudan's White Nile, Blue Nile, and Sennar States, has been the main port of entry for the large number of returnees travelling from Sudan to South Sudan following Independence. As a result, the county experienced a massive influx of returnees which, due to the lack of onward transportation, often stayed in the county for months to years. The transient camps now also host IDPs from South Sudan, largely as a result of the internal conflict. From April 2014 to April 2015 the conflict between SPLA and SPLA (IO) continued with regular clashes causing extensive destruction and massive displacement of people. As such, the population numbers in Renk County remain volatile and Medair estimates this to be approximately 47, 316[1].

Medair started the provision of health, nutrition, and WASH services for the returnees in 2011 after identifying critical baseline gaps in the provision of these basic services for transiting populations. In 2012, the Renk response was scaled up from a temporary response to a transitioning population to a more stable response with static teams based in Renk town when much of the camp population remained and were unable to be served by the existing County health and nutrition services. The overall objective of the program is to improve access to emergency health and nutrition services, safe water, sanitation, and improved health and hygiene practices to displaced populations and acutely vulnerable host communities through the provision of basic WASH, health and nutrition services.

Medair WASH, health and nutrition project locations now stretch from Wonthou in the North to southern Jelhak. At present Medair is managing three static emergency health and nutrition clinics; two clinics are run in IDP/returnee sites in Abayok and Wonthou. Emergency WASH services are also provided. The third health and nutrition clinic is a Ministry of Health Clinic located in Jelhak which is in a mainly host community populated area. Medair is also running 8 mobile nutrition clinics in the host and IDP community. Medair is the only nutrition actor in the county. The Outpatient Therapeutic Program (OTP) and Targeted Supplementary Feeding Program (TSFP) are integrated in all the Nutrition Clinics. Medair also runs 1 Stabilization centre in Abayok camp, alongside the OTP and TSFP. The clinics in the IDP sites provide services to both IDPs/returnees and some of the host population. From early 2015, Medair has been implementing a Care Group model program that promotes community health, hygiene and nutrition behavior change in peer to peer mothers' groups.

The Standardized Monitoring and Assessment of Relief and Transition (SMART) survey conducted in May 2017 by Medair determined a GAM prevalence rate of **27.1%** (21.7-33.2; 95% CI), and a SAM rate of **7.2**% (4.2-12.2; 95% C.I) in the IDP/returnee population. The host population recorded a GAM prevalence rate of **32.3%** (26.6-38.7; 95% CI), and a SAM rate of **7.6**% (4.9-11.7; 95% C.I). This indicated that both

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[1] Source: Medair estimated population data from mass MUAC screening in children under 5 years completed in August 2017.

settlements recorded above emergency thresh hold of acute malnutrition according to the World Health Organization classification.

1.2 Justification of the survey

As a follow up of the surveys conducted in May 2017, there is a need to determine the nutrition situation of the population during the lean season in addition to obtaining robust data regarding food security and health related aggravating factors to evaluate and guide continued response in the county. This is in line with the recommendations and methodology developed by the national nutrition cluster in South Sudan. The 2017 SMART surveys revealed alarmingly high GAM and SAM rates in both the camp and the host communities. Both populations recorded GAM rates above the WHO emergency threshold of 15%. The survey will be conducted in **May, 2018**.

1.3 Survey Objectives

The overall objective is to determine the prevalence of acute malnutrition among children aged 6 to 59 months during this lean season, to estimate crude and under-five mortality rates in Renk County, and assess the prevalence by MUAC of acute malnutrition in pregnant and lactating women.

1.3.1 Specific objectives:

1) To determine prevalence of Global and Severe Acute Malnutrition (GAM and SAM) among children aged 6 to 59 months in former Renk County.
2) To estimate the Under-five crude death rate and Crude death rate of former Renk County population over a determined recall period.
3) To estimate the coverage of measles vaccination (9-59 months), Vitamin A supplementation (6-59 months) and deworming (12-59 months).
4) To assess the 2-weeks recall morbidity among children 6-59 months to determine the health seeking behaviour of the caregivers.
5) Assess the food security situation.
6) Recommend appropriate health, nutrition and FSL interventions based on the survey findings in the former Renk County.
7) To estimate the prevalence of acute malnutrition by MUAC in PLWs.
8) To determine the proxy coverage of selective feeding programs.

2.0 SURVEY METHODOLOGY

2.1 Study Design

The cross-sectional study design will be applied using the Standardized Monitoring and Assessment of Relief and Transition (SMART) methodology. The survey will involve a two-stage cluster sampling methodology based on the probability proportional to population size (PPS) for cluster selection. Stage one sampling will involve the sampling of the clusters to be included in the survey while the second stage sampling will involve the selection of the households from the sampled clusters.

2.2 Survey target population

As guided by the objectives of this survey, the targeted populations include;

a) Nutritional Status of U5s and PLW

The determination of acute and chronic malnutrition will be done by assessing the anthropometric measurements of children aged 6-59 months. The survey will also target pregnant and lactating mothers to assess their nutritional status by MUAC

b) Morbidity

Two-week retrospective morbidity will be assessed among children aged 6-59 months as included in the South Sudan nutrition cluster SMART questionnaire.

c) Mortality and Food security

The assessment of demography and mortality and food security and livelihoods targets the entire population (households) Renk host population and Renk Camps.

2.3 Data and Data collection methods

Anthropometric and mortality data
- **Age**: Children 6-59 months from the selected households will be considered eligible for the survey. The birth certificate, baptism certificate and health cards will be used to determine precise age of the child. The Local Calendar of events will be used in absence of age documentation.
- **Sex:** This will be recorded as either 'f' for female or 'm' for male
- *Weight:* standardized SECA scale will be used for weight measurement for children between 6 to 59 months.
- *Height:* standard, height boards will be used for taking length and height of children. Children less than 24 months (<87.0 cm) will be measured lying down, and children greater than or equal to 24 months (>=87.0 cm) will be measured in standing position.
- *MUAC:* Mid-upper arm circumference measurements will be taken using standardized and MOH approved MUAC tape. All children in the selected households aged 6-59 months will be measured to the nearest 0.1 cm or 1.0 mm.

- *Bilateral Oedema:* All children will be checked for oedema; minimal thumb pressure will be applied to the top of the feet for about three seconds.
- **Maternal Nutrition:** The nutritional status of pregnant and lactating women will be assessed using MUAC measurements.
- *Retrospective mortality:* The number of deaths by age group (below five and above five years) during the recall period of 100 days.

Morbidity, immunization coverage and vitamin A supplementation
- *Retrospective morbidity:* Mothers asked about common illnesses that affected their children (6-59 months) in the last two weeks prior to the interview date.
- **Measles vaccination status**: information collected from the records on the immunization card, however, recall to be used in absence of health records (caregivers/mothers of children aged 9-59 months will be probed).
- **Vitamin A supplementation**: Will be verified using the health card where possible or caregiver's recall using Vitamin A samples will be requested for the timeframe of the past 6 months.
- **Deworming:** Mothers/caretakers will be asked whether the child had received deworming medication in the last 6 months. Deworming tablets will be shown to caregivers to aid in recall.

Food Security
Food security and livelihood: Data will be collected in all sampled households regarding households' dietary diversity, main food sources and coping strategies utilizing the new South Sudan nutrition cluster questionnaire.
- **Number of meals consumed:** the survey will determine the number of meals eaten in the household by adults and children under five years a day preceding the survey.
- **Household food consumption:** This involves the assessment of the types of food eaten in the household 7 days prior to the survey and the number of times eaten
- **Sources of Household food last 7 days preceding the survey date:** the main source of food consumed in the household in the past 7 days preceding the survey.
- **Household Hunger Scale:** households' frequency of lack of food or resources to buy food in the past 30 days prior to the survey
- **Coping strategies/strategies applied:** actions undertaken by households when faced with food shortage 7 days prior to the survey.

Commented [KTA1]: Make sure you have the right FSL tools. The key indicators are
1. Food consumption score
2. Household dietary diversity
3. Household hunger scale
4. Reduced coping strategy

2.4 Survey Timing

The surveys will be conducted in May 2018. This is in consideration of comparability with previous assessments and also marks the peak of the lean season in the former Renk County.

2.5 Survey Area

The surveys will be conducted in the former Renk County area (composed of Renk Municipality, Shamidi County, Geiger County, Jelhak County), Former Upper Nile State.

Two separate assessments will be conducted for the Renk host community and Renk IDP camps.

2.6 Sample Size Determination

2.6.1 Anthropometry Survey and Retrospective Mortality

The sample size for both anthropometric and retrospective mortality surveys have been calculated using ENA for SMART 2011 (July 9, 2015 version)[2] as outlined in tables below:

Table 1: Sample size calculation for Anthropometry

Population Parameters	Camp Population	Host Population	Assumptions based on context
Estimated prevalence of GAM	27.1%	32.3	2017 survey recorded a GAM rate of 27.1% (21.7-33.2; 95%CI) in the camp and 32.3% (26.6-38.7; 95%CI) in the host population. The situation expected to be similar to last year
Desired precision	5%	5%	SMART Methodology recommendation for GAM prevalence > 20%
Design Effect	1.2	1.3	Adjusted from 2017 Report (1 & 1.24 respectively). Camp population is relatively less heterogeneous
Average household size	6.2	7.4	Renk 2017 Reports
% of children under five years of age	17	17.7	Renk 2017 Reports
% non-response households	3	5	Anticipated non-response rate. Low NRR expected in the camp population
Children to be included	**397**	**476**	
Sample size of households to be included	**431**	**425**	

Commented [KTA2]: In 2017 in camp survey, it was 17.4%

Commented [KTA3]: In 2017 survey in host community, it was 18.4

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[2] http://smartmethodology.org/

Table 2: Sample size calculation for Mortality

Population Parameters	Camp Population	Host Population	Assumptions based on context
Estimate prevalence (CDR)	0.4	0.56	SMART survey of May 2017 conducted by Medair; 0.72 (0.40-1.31) in the camp and 0.82 (0.56-1.20) in the host population; the situation is anticipated to have improved since last year
Desired precision	0.3%	0.3%	Recommended precision level for a CMR less than 1
Design effect	1.5	1.5	Adjusted from 2017 Report (1.54 & 1 respectively)
Recall period	100 days	100 days	To be adjusted upon determination of a Recall Event
Average household size	6.2	7.4	Renk 2017 Reports
% of non-response households	2	3	Anticipated non-response rate
Population to be included	2788	3383	
Households to be included	459	471	

Commented [KTA4]: The statement on the anticipation, reduction by 44.4% in camp and 31.7% in host community is not convincing.
• In 2016 the CDR in host community and camp was 0.74 and 1.39 respectively.
• In 2015 the CDR in host and camp was 0.93 and 1.86.
• In 2014, the CDR in host and camp was 0.71 and 0.98 respectively.
So, looking at the figures 2014 to 2017, the anticipation to have improved is unlikely. Why you assumption is not working for anthropometry?

2.6.2 Number of Households per Cluster

The number of households to be completed by one team per day is determined by the time the team is to spend on the field excluding time spent on transportation, introduction, household selection procedures and break.

The calculation is based on the details below:

- Departure from base at 8.00 am and back at 6.00 pm
- Average travel time to reach each cluster (one-way): 1 hour
- Duration for initial introduction and selection of households: 30 min
- Time spent to move from one household to the next: 5min
- Average time in the household: 25 min
- Breaks: 1 lunch break of 30 min

The total amount of time for a team to work per cluster per day is 10hrs (7:30 am – 5:30 pm). The deduction of travel time (both ways), the initial introduction and lunch

Commented [KTA5]: What is stated above is 8:00-am-6:00pm). Be consistent

break leaves a team with 7 hours (420 minutes) to conduct the survey. If each team spends 30 min per households to do the survey, 14 households will be accomplished in a day (420/30=14).

The Mortality Households sample size being the highest in both cases will be used to determine the number of clusters. Therefore, the Camp survey will include 33 clusters (459/14=32.9) while the host population will involve 34 clusters (471/14=33.6).

Table 3: Sample Size Summary

	Anthropometry		Mortality		Households per Cluster	No. of Clusters
	Children to be included	Household Sample Size	Population to be included	Household Sample Size		
Camp	397	431	2788	459	14	33
Host population	476	425	3383	471	14	34

2.7 Description of sampling methods – Cluster and Households

2.7.1 First Cluster stage sampling
The first stage of sampling will involve selection of 33 and 34 clusters for Camp and host populations respectively. The selections will be done based on a latest updated sampling frame.

2.7.2 Second stage sampling
The second stage of sampling will involve the selection of 14 households within each sampled cluster/village using simple random sampling method.

2.8 Organization of the Survey

2.8.1 Coordination/Collaboration
As advised by Medair, debrief meetings will be held with the relevant authorities and key stakeholders before and after the survey. Medair will proceed upon review and validation of the methodology by Medair and the Nutrition Information Working Group (NIWG).

2.8.2 Recruitment and Composition of Survey Teams

The recruitment of enumerators will be led by Medair in collaboration with the consultant and the local authorities. Some of the key factors to consider for recruitment will include the ability to ability communicate in English and fluency in the local language.

A total of 6 teams, each composed of 2 enumerators and 1 team leader will be used in this survey. The data entry will be led by 2 clerks with close supervision of the consultant.

2.8.3 Training of the Survey Team

The survey participants will be trained in Renk for 4 days on taking anthropometric measurements, translation and back-translation of the questionnaires, filling of questionnaires and second stage sampling methodology (enumeration and selection of households per cluster). The training will also include standardization test and pilot study.

2.9 Data Quality

The key data quality measures to include;
- Four-day comprehensive training including standardization and pilot test
- Field supervision of the survey teams during data collection
- Distribution of enumerator strengths across the teams
- Calibration and standardization of survey equipment
- Use of Cluster Control forms to track assessment outcome for every sampled household
- Daily plausibility checks and sharing of feedback with the teams every morning before proceeding to the field
- Adequate logistic planning during field work

2.10 Data Collection

Anthropometric, morbidity and immunization data will be collected for all eligible children (6-59m). Household related data (mortality and FSL) will be collected in all sampled households irrespective of the availability of children.

Data collection will be conducted by 6 teams over a period of 6 days for each population. The same team will be used to assess both Host community and the Camp populations.

2.10.1 Data Collection tools

The consultants will apply standardized tools based on SMART and the South Sudan questionnaires from the NIWG;

- Crude and U5 Mortality Rates (SMART Methodology Tool)
- Nutritional status of U5 (SMART Methodology Tool)
- Food security and livelihood tool (South Sudan Tool)

2.11 Data entry and analysis

The anthropometric and mortality data will be entered into ENA for SMART 2011 software (July 9, 2015 version) for analysis. Morbidity, immunization and food security data will be organized in Excel and analyzed using EPI Info 7.

2.12 Reporting and Dissemination

The surveys' preliminary report will be compiled by the consultant and shared with Medair and NIWG a week after completion of data collection. The final report will be shared within 2 weeks on receiving technical reviews from the NIWG and Medair.

3.0 Proposed survey work plan

Activity	Date	Location
Preparation of survey	30th April	Country of residence
Travel from Nairobi to Juba- Registration with SDS authorities, briefing.	2nd May	Juba
Travel from Juba to Renk	3rd May	Renk
Training of supervisors and enumerators	4th-10th May	Renk
Data collection and data entry	11th-24th May	Renk
Data cleaning, analysis, review of preliminary findings, work on PowerPoint presentation for NIWG and send it for review to field and HQ advisors	25th-28th May	Renk/Juba
Travel back to Juba	29th May	
Data validation & review of preliminary findings HQ & NIWG – Presentation of the findings at the NIWG –can be done by Medair Staff		Juba/HQ
Travel back to country of residence	30th May	Country of residence
Report writing	31st May- 5th June	
Submission of first draft report-	6th June	
Review and incorporation of feedback and dissemination	7th -15th June	

Commented [KTA6]: Make sure you are sharing before the IPC update workshop which tentatively in the 4th week of May

of final report		