SNS CONSORTIUM

«Strenghtening Nutrition Security in South Central Somalia»

SMART SURVEY REPORT

Wanlaweyn District, Lower Shabelle Region of Somalia

October- November 2016

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LIST OF ACRONYMS

ARI	Acute Respiratory Infection
BCG	Bacillus Chalmette–Guerin
BSFP	Blanket Supplementary Feeding Program
CI	Confidence Interval
CMR	Crude Mortality Rate
CMU	Consortium Management Unit
CSV	Comma Separated Values
DFID	Department for International Development
ENA	Emergency Nutrition Assessment
EPI	Expanded Program on Immunization
FAO	Food and Agriculture Organization
FEWSNET	Famine Early Warning System Network
FSL	Food Security and Livelihoods
FSNAU	Food Security and Nutrition Assessment Unit
GAM	Global Acute Malnutrition
GPS	Global Positioning System
HAZ	Height for Age Z-score
HH	Household
IDP	Internally Displaced Person
KII	Key Informant Interviews
LNGO	Local Non-Governmental Organization
MCH	Maternal Child Health
MUAC	Mid Upper Arm circumference
ODK	Open Data Kit
SAM	Severe Acute Malnutrition
SCI	Save the Children International
SFP	Supplementary Feeding Program
SMART	Standardised Monitoring Assessment for Relief and Transition
SNS	Strengthening Nutrition Security
SPSS	Statistical Package for the Social Sciences
TFG	The Federal Government
TSFP	Therapeutic Supplementary Feeding Program
TWG	Technical Working group
U5MR	Under Five-Mortality Rate
UNDP	United Nations Development Programme
UNFPA	United Nations Fund for Population Activities
WASH	Water, Sanitation and Hygiene
WAZ	Weight for Age Z-score
WHZ	Weight for Height Z-score
WHO	World Health Organization

EXECUTIVE SUMMARY

Wanlaweyn District (Degmada Wanlaweyn) is a district in the south-eastern Lower Shabelle (Shabeellaha Hoose) region of Somalia. Its capital lies at Wanlaweyn city. Wanlaweyn district is among the seven districts in Lower shambele, the others being Afgoi, Baraawe, Krtunwarey, Qoriyoley, Merca and Sablaale districts. UNDP (2015) estimates the population of the district to be 155,643 inhabitants. Lower Shabelle is one of the most fertile areas in Somalia, and agriculture is the predominant means of livelihood.

Civil insecurity is a common feature in the region, especially clan-based and political conflicts over resources. These conflicts have been seen to affect food market dynamics; a case in point is June 2016 where cereal prices increased abnormally compared to an average of five years. Fighting in Lower Shabelle region continues exerts a heavy toll on civilians (OCHA)[1]. With huge displacement seen in October 2016, the conflict also affects humanitarian access to the vulnerable.

SNS (Strengthening Nutrition Security) Consortium has implemented a four-year nutrition program in Wanlaweyn that has been running from 2013 and will come to completion in 2017. Under the current SMART survey, accessible locations in Wanlaweyn district were visited in October and November 2016. The overall purpose of the survey was to monitor outcomes under the SNS Consortium.

Objectives

- Estimate the prevalence of acute malnutrition among children 6-59 months in Wanlaweyn.
- Estimate retrospective CMR (crude mortality rate) and U5MR (under-five mortality rate)
- Estimate coverage of vitamin supplementation and deworming.
- Make practical recommendations on the utilization of the key findings.

Methodology

SMART (Standardized Monitoring and Assessment of Relief and Transition) methodology was used to conduct the survey. Two-stage sampling was employed in the

[1] OCHA Somalia flash update November- http://reliefweb.int/sites/reliefweb.int/files/resources/20161106_lower_shabelle_flash_update-final.pdf

selection of clusters and households that participated in the survey.

Results

Based on WHO classification, Wanlaweyn district represents 'critical' level for GAM at 18.5% and 'alert' level for SAM at 1.5% prevalence. The results summary is presented below:

Indicator	Wanlaweyn
GAM (Global Acute malnutrition)	(115) 18.5 % (13.7 - 24.6 95% C.I.)
MAM (Moderate Acute Malnutrition)	(106) 17.0 % (12.3 - 23.1 95% C.I.)
SAM (Severe Acute Malnutrition)	(9) 1.5 % (0.7 - 2.8 95% C.I.)
U5MR	0.34 (0.11-1.02) (95% CI)
CMR	0.22 (0.11-0.45) (95% CI)
Measles	43.10%
Vitamin A(Last 6 months)	26%
Deworming	26.10%
Morbidity	16.4%
BCG Scar	22%
Polio	51.5%

Conclusions

SMART survey results in Wanlaweyn district represent 'critical' level for GAM and 'alert' level for SAM. However, further deterioration in underlying causal factors (including the projected worsening of the food security situation and high morbidity) is expected over the near future. This will potentially exacerbate the concerning levels of GAM and SAM among the population in the district. The survey has recorded an increase in the prevalence of GAM and SAM in comparison to the similar survey done in 2015.

The morbidity rate in the district is high at 16.4%. Diarrhoea and ARI (acute respiratory infection) are the leading causes of illness. The high morbidity rate is compounded by the fact that a very small percentage of the population is able to access proper health care services during illness (22%).

Access proxy indicated a high proportion of the population (95%) is covered specifically for SAM treatment. In comparison, only 75% of those who qualify for treatment were enrolled for receiving MAM services. This represents a critical gap in the area, as graduates from SNS OTP centres are unable to receive supporting MAM services, thus

leading to longer length of stay or higher relapse rates. Importantly, in case of increasing environmental pressures, this represents a critical gap that could lead to an unprecedented increase in the SAM caseload in the district.

Recommendations

Finding	**Action (Immediate)**
High GAM rates (critical level)	Continue the treatment of malnutrition. SAM coverage is satisfactory at 95%, which should be sustained. Bridge the gap of MAM coverage by mapping the gaps and establishing a stable linkages. Support households to improve food security through introduction of BSFP (Blanket Supplementary Feeding Program). Strengthen coordination with other sectors for integration of services.
High morbidity/low access to treatment	Continue community-level engagement to ensure that there is awareness and accessibility of available services. A high percentage of community members buy drugs in shops and pharmacies. Awareness raising at the pharmacy and community levels should be undertaken to support referral of patients to hospitals.
Low immunization levels	Undertake campaigns for Vitamin A supplementation. Since SAM treatment has achieved 95% coverage, the same platform/approach can be adopted for immunization.
Poor food security at household level	Support household purchasing power through implementing programs like Cash For Work, Unconditional Cash Transfer, and Food for Work.
Poor WASH practices	Support heath awareness as a crosscutting theme in all the projects currently being implemented, including education, protection, heath nutrition and WASH.
Finding	**Action (Medium-term)**
Inadequate food at household level	Increase food security support to the community. Support the community to develop alternative means of livelihood. Design programs to diversify livelihoods.
Anticipated deterioration in nutrition and FSL situation	Pre-position therapeutic food. Undertake fundraising to for the forecasted surge in numbers of households with critical food shortage.

1. INTRODUCTION

Geographic description of survey area

Lower Shebelle is a region of the Southwest State of the Federal Republic of Somalia. It is the second most populated region of Somalia and is situated along the Indian Ocean. It has an area of around 29,761 sq. km. It borders Middle Juba, Bay, Bakool, Hiraan, Banadir and Middle Shabelle regions. The main towns of the region are Marka, Afgoye, Wanlaweyn, Sablaale, Kurtunwarey, Qoryoley, Barawe and Awdhegle. Lower Shabelle has a total population of 1,202,219.

Wanlaweyn District (Degmada Wanlaweyn) is a district in the south-eastern Lower Shabelle (Shabeellaha Hoose) region of Somalia. Its capital lies at Wanlaweyn. Wanlaweyn district is among the 7 districts in Lower shambele named Afgoi, Baraawe, Krtunwarey, Qoriyoley, Merca and Sablaale districts. UNDP 2015 estimated population of the district to be 155,643 inhabitants.

Lower Shabelle is one of the most fertile areas in Somalia, and agriculture is the predominant means of livelihood. Civil insecurity is also a common feature in the region especially clan and political conflicts over resources. These conflicts have been seen to affect market dynamics. a case in point is June 2016 where cereal prices increased abnormally compared to an average of 5 years.

Fighting in Lower Shabelle region continues to cause suffering for Civilians (OCHA)[2]. With huge displacement seen in October, the conflict also affects the humanitarian access to the vulnerable.

SNS has implemented a 4-year nutrition program in Wanlaweyn that has been running from Feb 2016 and will come to completion in September 2017.
Population movement within Wanlaweyn district has been from the rural areas to the town for reasons of security and access to services. Other observed movements have been from Wanlaweyn to Mogadishu and other parts of Lower Shabelle.

Wanlaweyn in accessible from Mogadishu by road. Illegal roadblocks reduced as vehicles are usually escorted by AMISOM or SNA. The KII (Key Informant interview) reported huge taxation for vehicles carrying foodstuffs from Mogadishu to Wanlaweyn.

[2] OCHA Somalia flash update November- http://reliefweb.int/sites/reliefweb.int/files/resources/20161106_lower_shabelle_flash_update-final.pdf

Services and humanitarian assistance

With the exiting insecurity, access for the humanitarian organizations is also restricted. In Wanlaweyn town, the access is good and the entire town is accessible. Outside the town, some villages are not accessible for security reasons. The villages have insurgents as the administrators.

Dues to access issues, health services are available in the town. The available services are not adequate to meet the needs of the whole town population; this therefore point to the fact that the population lining away from town therefore have zero access.

Some organizations earlier providing services in wanlaweyn have recently closed down. These organizations offered health and nutrition services meaning their closing down increases vulnerability of the population to malnutrition and diseases.

Key organization currently in Wanlaweyn are Muslim Aid implementing health program focussing on TB, Gredo implementing Nutrition treatment and prevention since February 2016.

1.1 Survey Objectives

Overall Survey Objective

To estimate the levels of acute malnutrition in children <5 years in Wanlaweyn District.

Specific Objectives

- Estimate the prevalence of acute malnutrition among children 6-59 months in Wanlaweyn.
- Estimate retrospective CMR and U5MR
- Estimate coverage of EPI, vitamin A and deworming.
- Estimate levels of select WASH indicators
- Make practical recommendations on the utilization of the key findings.

2. METHODOLOGY

SMART (Standardized Monitoring and Assessment of Relief and Transitions) methodology was used to conduct the survey. Two-stage sampling was employed in the selection of clusters and households that participated in the survey. SMART recommended training package was used for training, data collection, data quality checks and report writing templates based on ENA (Emergency Nutrition Assessment) software.

2.1 Sample size

The survey covered the entire Wanlaweyn district, including all the sub-districts (villages) as the sampling frame. Given its large geographical area, cluster sampling was used and the district was subdivided into clusters (villages).
The sample size for anthropometry was calculated using ENA software planning page. Parameters for calculation of the sample were taken from the previous survey conducted by SNS in 2015. The survey followed the same process and methodology that the current survey employed, the focus was on district level and thus it represented the closest picture of the malnutrition levels as per the interest and focus of this survey.

Table 2.1: The parameters used for calculation of the Sample size were as follows:

	Wanlaweyn	**Justification /Source**
Estimated Prevalence%	15.2	Information sourced from SNS SMART survey conducted in Wanlaweyn in 2015 same time.
+- Desire precision percent%	4	
Design effect	1.5	
Average HH size	6	
Percentage of <5 children	20	
% of non-respondent HH	5	
Total Children	505	
Total HH	493	

ENA automatically estimated the number of HH that would have yielded adequate children to be included in the analysis.

Mortality Sample size:

Mortality sample size was calculated using ENA software. Using CMR and <5MR estimation from the 2015 SNS SMART survey The parameters below were fed into ENA planning page and the sample was calculated. Sample size was adjusted for non-response by a factor of 5%, the adjustments were as a result of experience in previous surveys in

Wanlaweyn where some Households were not accessible. The population on Wanlaweyn is also mobile and the survey leadership team from Wanlaweyn together estimated a possible 5% Non-Response.

Table 2.2: The parameters used for calculation of the Mortality Sample size were as follows:

	Wanlaweyn	**Source/Justification**
Estimated Prevalence%	1.09	Information sourced from SNSN SMART survey conducted in Wanlaweyn in 2015 same time.
+- Desire precision percent%	0.5	
Design effect	1.5	
Recall period	109	
Average HH size	6	
% of non-respondent HH	5	
Total HH to be included	440	
Total Population	2509	

The survey measure both anthropometry ad mortality and this means that the sample at some point had to be reconciled. Looking at the HH estimations above, the number of HH for anthropometry estimation was able to accommodate the HH that were required for the mortality. The HH required for mortality was able to fit well within the anthropometric sample. This meant that using the anthropometric sample as the survey sample was adequate to cover for both Anthropometric and Mortality sample requirements.

Total number of clusters for the survey was determined after calculation of sample size. In a day the survey teams estimated they would have a total of 6hours and 15 minutes of work after deducting times for travelling to the cluster, introduction to leaders, short prayer breaks and travel back to office. One questionnaire was estimated to take 25 minutes in each HH plus the introduction time. This meant that in one day a total of 375/25 (15HH). Having total of 505HH meant that the survey needed to reach 33 (505/15) clusters for the whole district. Each cluster was to get 15HH for the survey. Both anthropometric and mortality data was collected in all eligible HH.

2.2 Sampling procedure: Selecting clusters

Selection of clusters was based on the population of each village. Somalia has had challenges with population data and the most recent UNFPA population estimates (2014) do not provide population information disaggregated at the village level. Consequently,

the list of district population developed in 2015 was used. The list was validated by the staff in the field in collaboration with the management. Out of 50 villages, 16 were not accessible due to security related factors. The 16 clusters were not included in the sampling frame.

Each potential cluster was listed with its population. The data was then entered into ENA Planning tab. Under the same software, 33 clusters were randomly selected using probability proportion to population. ENA additional selected 3 reserve clusters. In Wanlaweyn, the three reserve clusters were not visited as all the 33 selected clusters were accessible.
The list of selected clusters is as shown in Appendix 2.

2.3 Sampling procedure: selecting households and children

On arrival in all clusters on Wanlaweyn, the teams met with the elders who were very resourceful in developing of list of all HH within the villages. Each HH in the list had a number. If a list had 100 numbers 100 small pieces were written on small pieces of paper and 15 were randomly picked from the small pieces. The 15 were opened and the HH corresponding with the number in the developed list were visited and data collected within these HH.
Based on the knowledge of the guide the teams managed to reach to all the HH.

All HH were visited and those with no eligible under five children for anthropometric data collection were included in the HH survey which included collection of data on mortality. This process was followed for all the 33 clusters.
Using cluster control form, experiences in each HH were noted. The cluster control formed assisted the teams to identified HH with absent children and aided in planning or re-visits. In Wanlaweyn few HH that had absent children were revisited and data collected. All cluster control forms were reviewed before the teams left the field, this ensured that HH that needed additional visits were re-visited.

Within each HH anthropometric measurement was taken for all eligible children 6-59 months. Weight, height/Length, MUAC and Oedema were measured for children between 6-59 months.
The survey did not encounter any empty HH. 5 HH were found to be uncooperative, however this did not affect the sample as the cooperative HH within each cluster managed

to yield adequate numbers as the sample required.In each HH the caretaker of the child was the respondent. This in most HH was found to be the mother of the children. In HH where the mother was away, the father was identified as the respondent. Unique situation included HH where the respondent was the eldest child who had been left in charge of the HH. The challenge with such situation was that the respondent was not able to answer all the questions with precision. However, this was a very small percentage of the entire HH visited.

2.4 Case definitions and inclusion criteria

In all selected households, all children from 6-59 months old were included in the anthropometric survey. The age of the children was first determined through available health record documents and secondly by a calendar of events developed and agreed on by the teams during their training.

Where there were no children from 6-59 months old in the household, the household was still interviewed for mortality, by recall. No substitution of houses will be done and if the team completes the cluster without getting enough children, the next village not included in the cluster selection will be visited.

The following case definitions were used in this assessment, in common with previous SNS SMART assessments:

- **Household:** People who live together and eat from the same pot at the time of assessment. If a polygamous family, each mother and her children will be treated as a separate HH.
- **Head of household:** One who controls and makes key decisions on household resources (livestock, assets, income, and food), health and social matters for and on behalf of the household members
- **Respondent:** caregiver of the child, in case not available, the person responsible for the HH at the time of survey will be the respondent.
- **Diarrhoea:** having three or more loose or watery stools per day
- **Malaria:** Presence of periodic chills/shivering, fever, sweating and convulsions
- **Measles:** having more than three of these signs– fever and, skin rash, runny nose or red eyes, and/or mouth infection, or chest infection
- **Measles immunization:** a shot (confirmed by card) in the upper arm given to children

after 6 months of age at health clinics or by mobile health teams

For the purposes of analysis, the different types of malnutrition were defined based on WHO (2006) growth standards and WHO was used to report main results from the survey.

- **Oedema:** Swollen limbs leaving depression 3 seconds after pressing on both feet (bilateral)
- **Global Acute Malnutrition (GAM):** weight-for-height Z scores less than -2 and/or presence of oedema (WHZ<-2 and/oedema)
- **Severe Acute Malnutrition (SAM):** weight-for-height Z scores less than -3 and/or presence of oedema (WHZ<-3 and/oedema)
- **Global Acute Malnutrition based on MUAC (GAM MUAC**): Mid Upper Arm Circumference less than 125 and/or presence of oedema (MUAC<125 mm and/oedema); and severe acute malnutrition as MUAC<115 mm and/oedema
- **Wasting:** weight-for-height Z scores less than -2 (WHZ<-2); and severe wasting as WHZ<-3.
- **Underweight:** weight-for-age Z scores less than -2 (WAZ<-2); and severe underweight as WAZ<-3.

Both urban and IDP surveys took place at the same time and the recall period for the Mortality survey was 107 days. The IDD celebration date (i.e. 7th of June 2016) was used as the start of recall period, since it is an important event celebrated across Somalia, which every Somali HH would be able to recall.

Retrospective morbidity was measured for the preceding two weeks before the survey. Morbidity was specifically inquired about in children from birth to 59 months old.

EPI (Measles, BCG and Polio) coverage was estimated using immunization cards. Although the option of recall was available, these were analysed differently to indicate the different source of information.

Mortality data was collected in all households. This included HHs that had no eligible children for the anthropometric survey.

2.5 Questionnaire development, training and supervision

Questionnaire

Questionnaire for the survey was developed in English from the standard questionnaire provided by SMART. Since the survey had additional information to be collected, additional sections were added into the questionnaire including WASH, Immunization, micronutrient supplementation and demographic data for HH. The additional question was based on each of the objectives above.

After developing of the questionnaire, it was then translated to Somali. Experience had shown that the enumerators were comfortable with administering the question in the local language and having both English and Somalia questionnaire brought clarity to what exactly the question inquired.

Translations were completed and the survey questionnaire was uploaded into ONA platform and was shared to all partners that were participating in the training prior to the training period. Using their Smart phones and ODK collect applications, all the teams were allowed to download and practice using the phones. Some feedback was given before the training and incorporated into the questionnaire.

Interviews in the field were conducted in Somalia as this was the language that most respondents were conversant with. Using ODK, the information was relayed in English at the downloading point, this allowed the researcher to get the equivalent of the data collected in Somalia.

2.6 Survey teams and supervision

A total of 6 survey teams were involved in the survey. Each team composed of a team leader, two measurers and community guide. The team leader was also the note taker and took the role of administering the questionnaire. To ensure quality, team leaders were taken from staffs and prior experience on SMART survey was considered to be a requirement. However, the survey registered quality issues with pilling observed in the plausibility output report.

Each team leader had to manage two other enumerators who were employed from the community

Ability to fill the questionnaire was a prerequisite for attending the training; ability to read and prior experience in conducting SMART were among the qualities that were considered during selection of enumerators and team leaders.
Each team had a team leader (Supervisor) and the survey had an overall manager who was supervised by the SNS researcher. Managers for the survey were nutrition key staff responsible for implementation of nutrition activities within their districts. Logistics and movement planning was entirely on the supervisors who ensured that all resources were available for the teams.

Training

Training for the survey was conducted in two stages. The first training was conducted by SNS researcher. The first stage involved team leaders training where they were taken through the survey process centrally in Mogadishu. This comprised teams that would later conduct 3 surveys in Mogadishu urban, Mogadishu IDP and Wanlaweyn surveys. Wanlaweyn was represented by 7 staff in the first training. These were the 6 team leaders plus the manager who later trained enumerators and conduct the data collection in Wanlaweyn. The content of the first training was a blend of managers training and enumerator training packages of the SMART survey. This included, objectives of the survey, confirmation of populations, sample calculation, cluster selection, taking anthropometrics, field procedures, quality data assurance, sampling techniques, standardization tests and data entry, mortality and interview skills.

The training employed participatory approach and participants were involved in the selection of clusters, calculation of both mortality and anthropometric sample, development of calendar of events, logistics and movement planning. All these were done by the team of 7 with the supervision of the researcher.

The second stage training was conducted by two identified strong participants from the first training. These trainings were conducted in Wanlaweyn district. The second training targeted enumerators and focused on proper collection of anthropometric data and standardization. This included training on taking MUAC, weight, height and checking oedema, field procedures and role allocation for each team member. The enumerators went through the questionnaire and gave additional feedback which was utilized to get the final version.

During the training a demonstration of conducting standardization test was done practically. The first standardization test for Wanlaweyn yielded poor results and the team had to be re-trained and standardization repeated. Huge improvements in accuracy and precision were observed in the second analysis and the teams were given a go ahead to collect data. 10 children were weighed during the standardization test.

A pilot survey was conducted to test the instruments in two villages which were randomly picked from the accessible villages not included in the actual survey sample. The Pilot data was analysed and final feedback on the questionnaire was given to team leaders in the field.

2.7 Data analysis

Mobile technology was used in the collection of data. Open Data Kit (ODK) an android application was downloaded to all the smart phones and the phones were used by the teams for data collection. A number of quality control measures were used to ensure that the data was of high quality. The programming of the questions in ODK ensured accompanying notes for questions to aid enumerators. Error feedback was also built into the system where, variables like age for children were capped at 59 months for anthropometry and an error would popup whenever a figure outside the limits would be entered. Some entries were compulsory and the data collection could not proceed without the specific sections being filled.
The smart phones also ensured that the location (GPS) of the HH was taken before data collection begun and this assisted to map the daily data to see the location where data was being collected as compared to the planning. On daily basis data was downloaded, plausibility was run using ENA and feedback given to the teams. This allowed the teams to rectify any challenges they were facing in the field, the SNSN researcher was also available on the phone for support until all the teams had completed work for the day.

Data was exported into CSV files and cleaned in the same format; Anthropometric data was read into EPI ENA, plausibility run and anthropometry run in the same software. Analysis was done using ENA for the anthropometric data and mortality data. Data on EPI, HH demographics and morbidity were analysed using SPSS v20. SPSS.

After cleaning, coding and having feel of the data collected, descriptive analysis was done where frequencies of each question was calculated within the different response options. Inferential statistics was done for both anthropometric data with confidence intervals developed for key indicators of interest including GAM, SAM and mortality. Comparison of the results to earlier similar surveys was done and the survey results was explained within the context of factors that have direct effect on nutrition based on nutritional causal framework.

Outliers for anthropometry data were analysed with boundaries of exclusion set at +/- 3SD of WHZ, HAZ and WAZ from the observed mean.

3. RESULTS

The survey results are presented in three key areas; Anthropometric, EPI and WASH. The anthropometric results are based on WHO 2006 standards.

The anthropometric survey used the following definition for acute malnutrition:

GAM	<-2 z scores weight-for-height and/or oedema
SAM	<-3z scores weight-for-height and/or oedema

Exclusion of z-scores from Observed mean SMART flags: WHZ -3 to 3; HAZ -3 to 3; WAZ -3 to 3

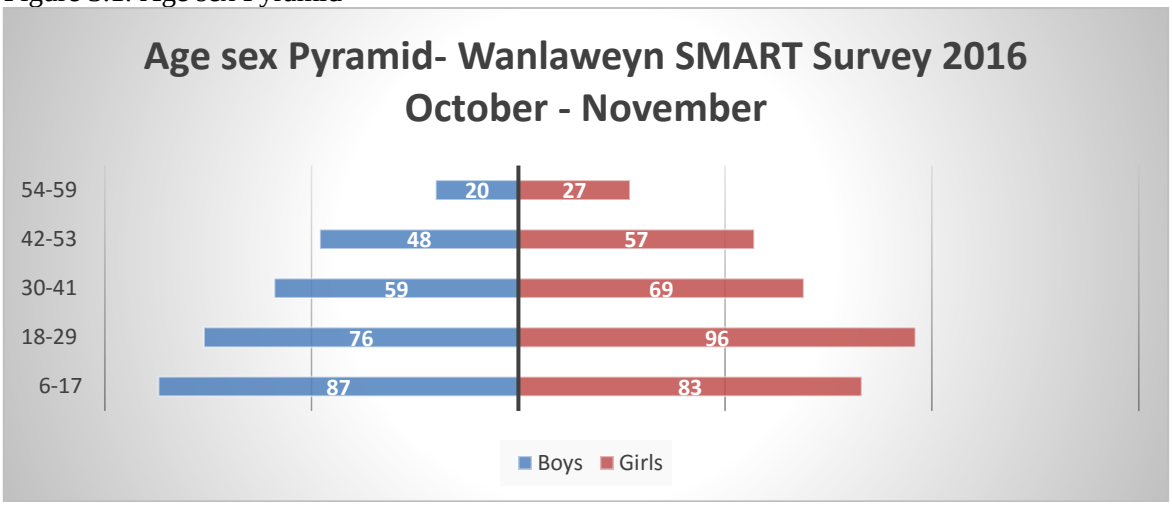
3.1 Distribution of age and sex of sample

The overall sex ratio was 0.9, which falls within acceptable level of 0.8-1. The distribution of malnutrition is seen to decrease as the age increases. More children are malnourished between 6- 41 months as compared to children above 42 months. The table below shows details of the distribution.

Table 3.1: Distribution of age and sex of sample

	Boys		Girls		Total		Ratio
AGE (mo)	**no.**	**%**	**no.**	**%**	**no.**	**%**	**Boy: girl**
6-17	87	51.2	83	48.8	170	27.3	1.0
18-29	76	44.2	96	55.8	172	27.7	0.8
30-41	59	46.1	69	53.9	128	20.6	0.9
42-53	48	45.7	57	54.3	105	16.9	0.8
54-59	20	42.6	27	57.4	47	7.6	0.7
Total	290	46.6	332	53.4	622	100.0	0.9

Figure 3.1: Age sex Pyramid



The age sex pyramid graphical representation shows a higher number in children in the lower age categories as explained earlier.

3.2 Prevalence of acute malnutrition based on weight-for-height z-scores (and/or oedema) and by sex

GAM rates in the survey showed critical levels. Compared to last year same season survey, the situation has deteriorated from a GAM of 15.2% to 18.5. Using CDC calculator a p-value of 0.2166 is seen, this shows no statistical significance difference between the two surveys. Based on programmatic perspective, the increase is significant as treatment programs are currently facing an increase in admissions. This coupled with the contextual factor of drought needs careful interpretation as projections indicate further deterioration.

Table 3.2: Prevalence of acute malnutrition based on weight-for-height z-scores (and/or oedema) and by sex

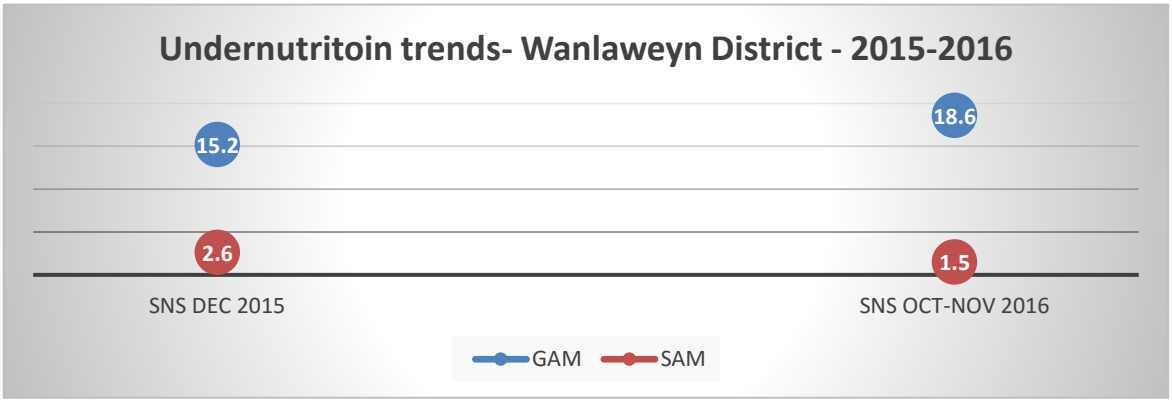
	All n = 622	**Boys** n = 290	**Girls** n = 332
Prevalence of global malnutrition (<-2 z-score and/or oedema)	(115) 18.5 % (13.7 - 24.6 95% C.I.)	(70) 24.1 % (17.7 - 32.0 95% C.I.)	(45) 13.6 % (9.1 - 19.6 95% C.I.)
Prevalence of moderate malnutrition (<-2 z-score and >=-3 z-score, no oedema)	(106) 17.0 % (12.3 - 23.1 95% C.I.)	(64) 22.1 % (16.1 - 29.5 95% C.I.)	(42) 12.7 % (8.4 - 18.7 95% C.I.)
Prevalence of severe malnutrition (<-3 z-score and/or oedema)	(9) 1.5 % (0.7 - 2.8 95% C.I.)	(6) 2.1 % (1.0 - 4.2 95% C.I.)	(3) 0.9 % (0.2 - 3.9 95% C.I.)

The prevalence of oedema is 0.0 %

Trends:

2015 SMART survey conducted by SNS in Wanlaweyn estimated GAM at 15.2 and SAM was 2.6%. The GAM has gone up while SAM has reduced. 94% of all the undernourished cases within the district were able to access treatment for OTP, 25% of MAM were not able to access services. This could explain the trend changes such that while GAM increases, the SAM decreases. In Feb 2016, SNS increased the coverage of SAM treatment by four OTP treatment sites that saw increase in admissions.

Figure 3.2: Undernutrition Trends in Wanlaweyn



3.3 Prevalence of acute malnutrition by age, based on weight-for-height z-scores and/or oedema

Results indicate a lot of children in the ages 54-59 having moderate malnutrition. SAM levels are more prevalent in the age bracket 6-41 months.

Table 3.3: Prevalence of acute malnutrition by age, based on weight-for-height z-scores and/or oedema

		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	170	4	2.4	30	17.6	136	80.0	0	0.0
18-29	172	2	1.2	20	11.6	150	87.2	0	0.0
30-41	128	2	1.6	22	17.2	104	81.3	0	0.0
42-53	105	1	1.0	19	18.1	85	81.0	0	0.0
54-59	47	0	0.0	15	31.9	32	68.1	0	0.0
Total	622	9	1.5	106	17.0	507	81.5	0	0.0

3.4 Distribution of acute malnutrition and oedema based on weight-for-height z-scores

No oedema child was found during the survey as in the table below.

Table 3.4: Distribution of acute malnutrition and oedema based on weight-for-height z-scores

	<-3 z-score	>=-3 z-score
Oedema present	Marasmic kwashiorkor No. 0 (0.0 %)	Kwashiorkor No. 0 (0.0 %)
Oedema absent	Marasmic No. 9 (1.5 %)	Not severely malnourished No. 613 (98.6 %)

3.5 Prevalence of acute malnutrition based on MUAC cut offs (and/or oedema) and by sex

MUAC is a good indicator for measuring muscle mass and can be used as a proxy for wasting. It is also a good predictor of the risk of death, Somalia nutrition actors also use MUAC as one of admission criteria to programs and mostly CHW from the communities use MUAC for active case finding and also of referral of malnourished children to the programs. The MUAC estimations put GAM at 29.3% and SAM at 5.5%.

Table 3.5: Prevalence of acute malnutrition based on MUAC cut off's (and/or oedema) and by sex

	All n = 622	**Boys** n = 290	**Girls** n = 332
Prevalence of global malnutrition (< 125 mm and/or oedema)	(182) 29.3 % (21.9 - 37.9 95% C.I.)	(85) 29.3 % (21.1 - 39.2 95% C.I.)	(97) 29.2 % (21.7 - 38.1 95% C.I.)
Prevalence of moderate malnutrition (< 125 mm and >= 115 mm, no oedema)	(148) 23.8 % (17.7 - 31.1 95% C.I.)	(65) 22.4 % (15.9 - 30.6 95% C.I.)	(83) 25.0 % (18.6 - 32.7 95% C.I.)
Prevalence of severe malnutrition (< 115 mm and/or oedema)	(34) 5.5 % (3.4 - 8.8 95% C.I.)	(20) 6.9 % (4.3 - 10.8 95% C.I.)	(14) 4.2 % (2.2 - 8.1 95% C.I.)

3.6 Prevalence of acute malnutrition by age, based on MUAC cut off's and/or oedema

Table 3.6: Prevalence of acute malnutrition by age, based on MUAC cut off's and/or oedema

		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	170	29	17.1	69	40.6	72	42.4	0	0.0
18-29	172	4	2.3	52	30.2	116	67.4	0	0.0
30-41	128	0	0.0	15	11.7	113	88.3	0	0.0
42-53	105	1	1.0	9	8.6	95	90.5	0	0.0
54-59	47	0	0.0	3	6.4	44	93.6	0	0.0
Total	622	34	5.5	148	23.8	440	70.7	0	0.0

3.7 Prevalence of underweight based on weight-for-age z-scores by sex

WFA z score put the prevalence of undewrweight at 37.1%. In Somalia accurate age determination has been a challenge and indices that use age in its computaiton need to be interpreted with caution.

Table 3.7: Prevalence of underweight based on weight-for-age z-scores by sex

	All n = 622	**Boys** n = 290	**Girls** n = 332
Prevalence of underweight (<-2 z-score)	(231) 37.1 % (29.4 - 45.6 95% C.I.)	(118) 40.7 % (31.9 - 50.1 95% C.I.)	(113) 34.0 % (26.3 - 42.7 95% C.I.)
Prevalence of moderate underweight (<-2 z-score and >=-3 z-score)	(152) 24.4 % (20.3 - 29.2 95% C.I.)	(69) 23.8 % (19.2 - 29.1 95% C.I.)	(83) 25.0 % (19.6 - 31.2 95% C.I.)
Prevalence of severe underweight (<-3 z-score)	(79) 12.7 % (8.3 - 19.0 95% C.I.)	(49) 16.9 % (10.5 - 26.0 95% C.I.)	(30) 9.0 % (5.5 - 14.5 95% C.I.)

3.8 Prevalence of underweight by age, based on weight-for-age z-scores

Distribution of underweight by age category a high percentage of children between 6-29 being underweight compared to the age bracket 30-59.

Table 3.8: Prevalence of underweight by age, based on weight-for-age z-scores

		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	170	22	12.9	37	21.8	111	65.3	0	0.0
18-29	172	33	19.2	40	23.3	99	57.6	0	0.0
30-41	128	9	7.0	39	30.5	80	62.5	0	0.0
42-53	105	10	9.5	22	21.0	73	69.5	0	0.0
54-59	47	5	10.6	14	29.8	28	59.6	0	0.0
Total	622	79	12.7	152	24.4	391	62.9	0	0.0

Table 3.11: Mean z-scores, Design Effects and excluded subjects

Indicator	n	Mean z-scores ± SD	Design Effect (z-score < -2)	z-scores not available*	z-scores out of range
Weight-for-Height	622	-0.80±1.21	2.92	0	0
Weight-for-Age	622	-1.60±1.14	4.21	0	0
Height-for-Age	622	-1.89±1.41	3.34	0	0

* contains for WHZ and WAZ the children with edema.

3.9 Mortality results (retrospective over 109/days prior to interview)

Mortality estimation was within the acceptable rate of less than one 1death /10,000/day populations <1/10,000/day U5DR and <0.5/10,000/day U5DR (WHO).

Compared to the survey conducted in 2015 December[3], the rates have reduced. In 2015, the death rates observed were CMR of 1.09 and U5MR of 2.03%, which were above the WHO acceptable threshold.

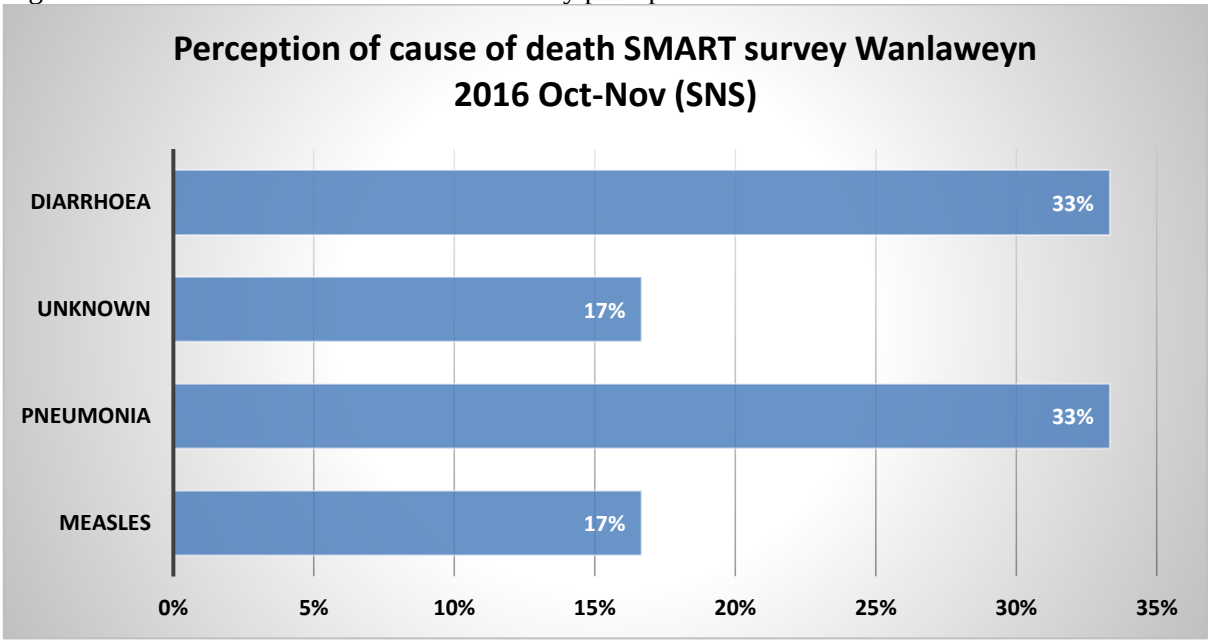
Table 3.12: Mortality rates

CMR (total deaths/10,000 people / day): 0.22 (0.11-0.45) (95% CI)
U5MR (deaths in children under five/10,000 children under five / day): 0.34 (0.11-1.02) (95% CI)

3.10 Community perception of causes of death

Community Expressed Diarrhoea and Pneumonia as the main causes of deaths among the children. The diseases presented causing deaths are preventable.

Figure 3.4: Causes of death based on community perception.

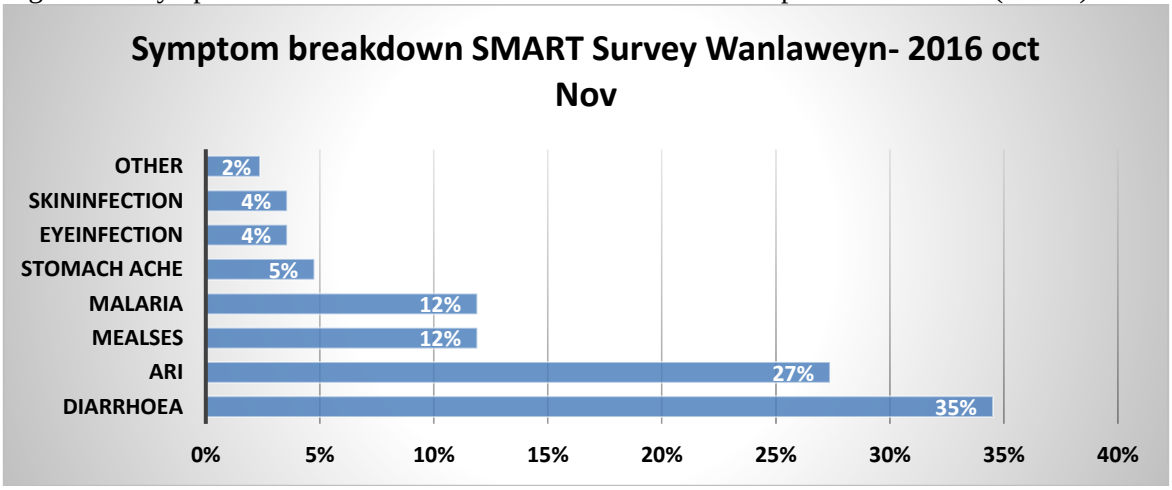


3.11 Children's morbidity

16.4% of all children had fallen ill 2 weeks prior to the survey. This is more than half reduction compared to the results observed in 2015 where 40.2% were ill. The symptoms breakdown for the 16.4% are as shown below.

[3] SNS Post Deyr Beletweyn SMART survey 2015 December

Figure 3.5: Symptom breakdown in the children in the two weeks prior to interview (n=746)

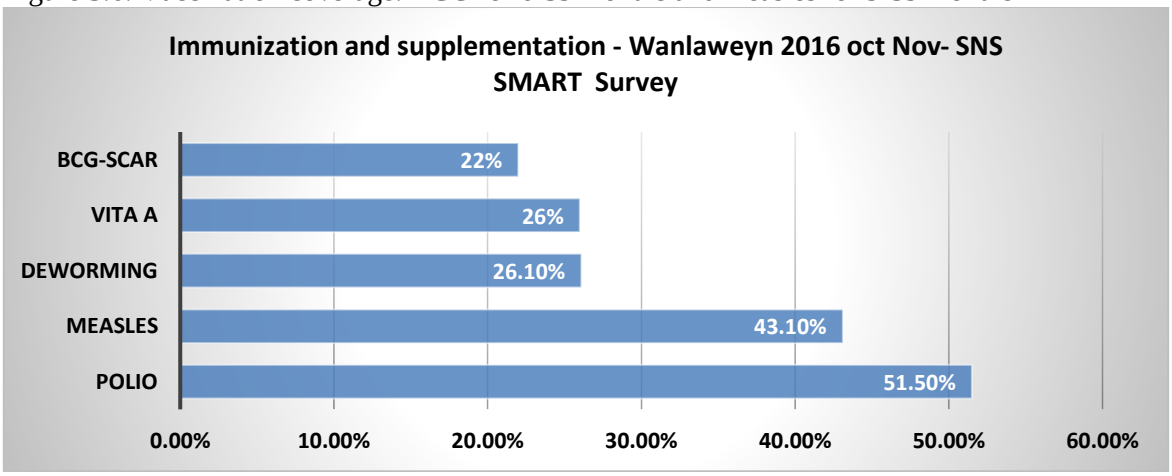


3.12 Vaccination Results

Vitamin A is a central agenda to child survival. Goal for vitamin is global coverage of all children. However, 70% achievement is the minimal coverage achievements at which Observation in reduction in mortality is expected[4].

Supplementation and Immunization coverage estimation was below levels that have significant impact on mortality. Vitamin A coverage at 26% has little public health impact on reduction of morbidity and mortality. Measles coverage is lower that 50% and this could explain the reason why under symptoms and causes of death, measles appears to be a common factor.

Figure 3.6: Vaccination coverage: BCG for 6-59 months and measles for 9-59 months



[4] https://www.unicef.org/publications/files/Vitamin_A_Supplementation.pdf

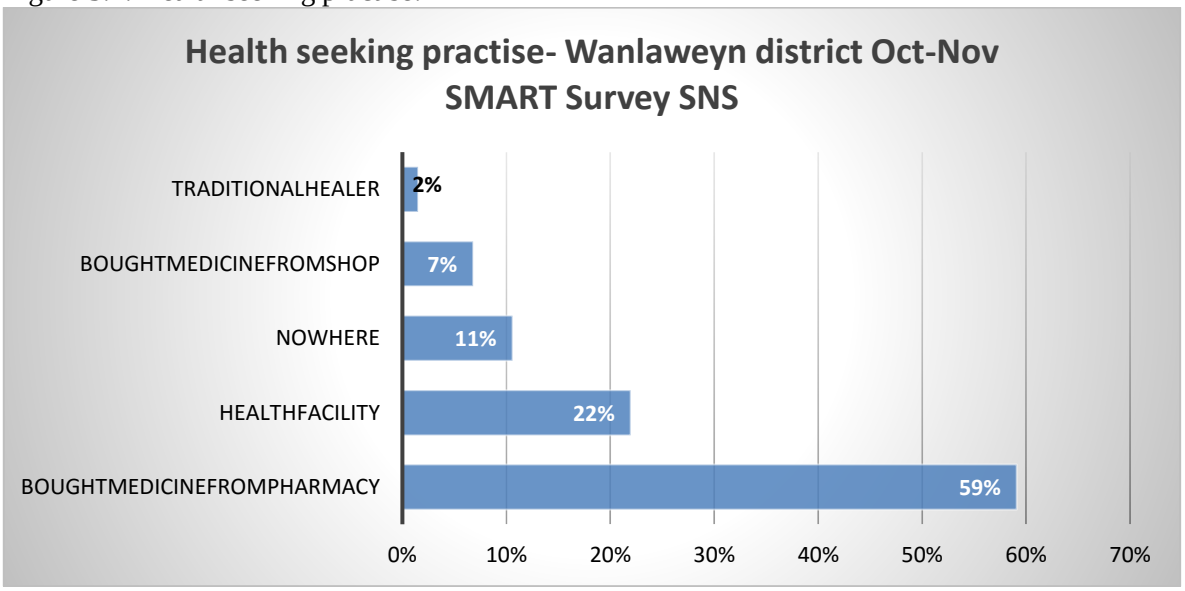
3.13 Programme access

Recommended SQUEAC methodology for estimating coverage was not used in the survey. The survey however took MUAC of all children under the age of 5 years and for those who had a MUAC of <12.5, a question was asked if they had been enrolled in nutrition treatment program using the criteria for admission in OTP or SFP. This data is indicative of how many malnourished children are able to access program.

For all children who qualified to attend OTP program 95% were already in the Program, only 5% were not enrolled into treatment program.

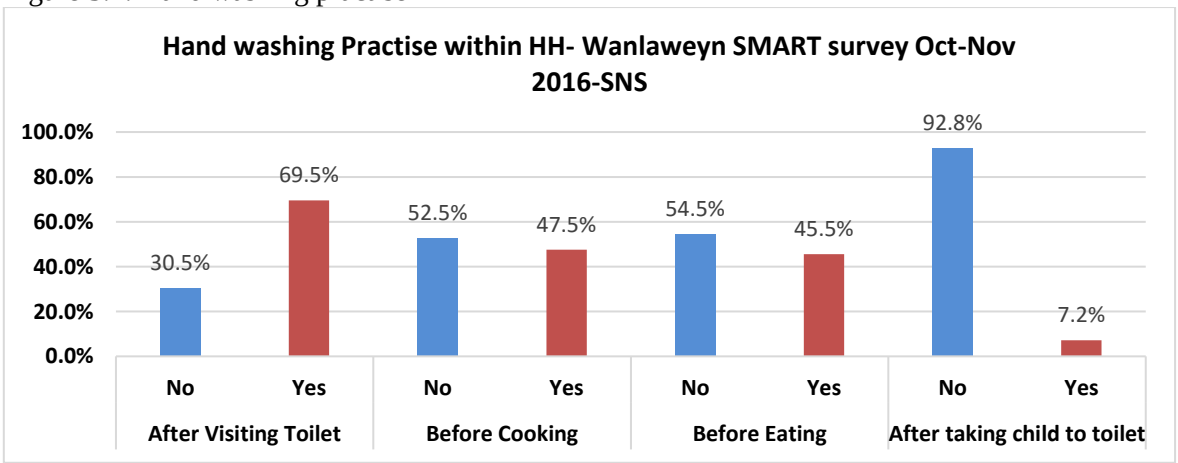
75% of all children who qualify for TSFP were enrolled in nutrition treatment program, 25% were not enrolled. The program therefore is reaching a huge percentage of the target SAM cases> the difference in MAM and SAM coverage however needs to be addressed.

Figure 3.7: Health seeking practise:



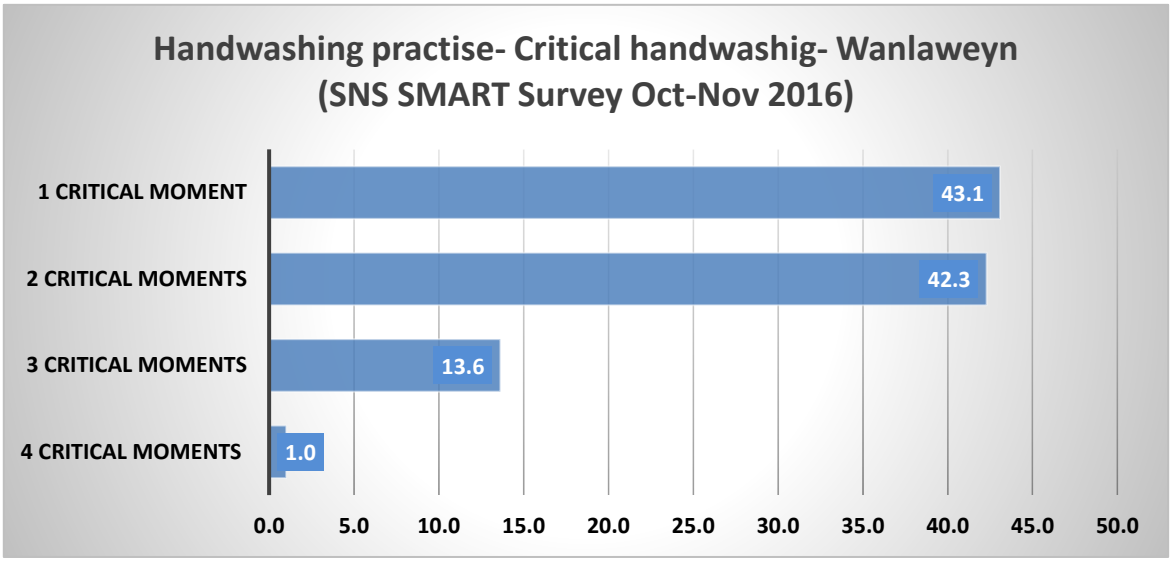
3.14 WASH:

Figure 3.7: Hand washing practise



There are critical times of handwashing that the population is yet to adopt. A very small percentage of population was found to practise at least 4 out of 5 critical handwashing moments. Majority practised handwashing in 1 or 2 critical moments at 43.1% and 42.3% respectively, with this level of practise, key platforms for prevention are compromised and reduction of cases like diarrhoea becomes a huge challenge.

Figure 3.8: Handwashing Practice at critical moments



4. DISCUSSION

The SMART survey was conducted in the month of October to November, a period in Somalia where drought effects had spread across the country.

4.1 Nutritional status

A ratio of 0.9 was attained in the sample. According to Emergency Nutrition Assessment guidelines by Save the children, a ration between 0.9-1.1 indicated no bias in the sex selection.

GAM rates of 18.5% remains critical within Who interpretations. Critical levels of malnutrition call for upscaling of treatment for SAM and introduction of supplementary feeding program. The GAM rates presents and increase in comparison to 2015 where GAM was estimated at 15.2%. SAM estimations reduced from 2.6% to 1.5%. The reduction of SAM was attributed to the high coverage of program which has increased over time with the opening of 4 nutrition treatment sites by Gredo (SCI). Data on MUAC indicated that out of the total SAM cases identified by MUAC, 94% were able to access the program, this is high compared to 75% who were able to access SFP treatment.

According to FSNAU/FAO[5], due to conflicts in Lower Shabelle, the prices of cereals increased abnormally from five year average. There were also reported reduction in labour opportunities due to reduced farming activities.

Testing the two survey yielded a P-value of 0.2036 indicating a significant difference in the two surveys.

4.2 Mortality

Mortality rate were interpreted based on WHO standards, which puts acceptable levels at 1/10000/day for U5MR and 0.5/10,000/day for CMR.

Mortality rates fall within acceptable levels based on WHO classification. Death rates have reduced from emergency levels 1.09 CMR and 2.3 U5MR in 2015 to acceptable levels of 0.22 CMR and 0.34 U5MR in 2016.

[5] Somalia Post Gu 2016 seasonal food security and Nutrition assessment –September 2016

4.3 Causes of malnutrition

4.3.1 Low food intake

Two key indicators support the fact that the intake of HH members within Wanlaweyn is below the recommended. This is more in children who need specialized diet for maximum development. The survey established that the average meals taken by adult sis 2.3 while that for children is 2.6. Ideally, in Somalia and other African countries, HH have 3 standard meals that are consumed culturally for adults and children receive more than 3 meals. Although most of commodities are still in the market, KII interview indicated reduction in the quantities and increases in prices.

This is an indication of low food availability ah HH level, which could be due to access challenges or market disruption. Food was available in the market, however, data from KII showed reduction in the availability of locally available

4.3.2 Disease

16.4% of children reported to be ill in two weeks preceding the survey. Disease is one of the immediate factors that cause malnutrition. The diseases observed to be affecting children are diarrhoea and ARI. Diarrhoea for instance causes dehydration within a very short period of time if not addressed. High incidences of diarrhoea and respiratory infection is one of the aggravating factors in interpretation of survey results and the two diseases are seen to affect the children more than others. Diarrhoea as a disease contributes to 10% and 14% of all death in under5 children based on WHO[6] estimations.

4.3.3 Access to heath

Out of the children who fall sick, the survey indicates only 22% seek treatment in health facility. This is clearly an issue with access. The majority of population bought medicine from pharmacies. With insecurity, the challenge of access in compounded where the service providers find it a challenge to reach the sick while the sick also have a challenge with accessing treatment.

[6] Essential Nutrition Actions: improving maternal, newborn, infant and young child health and nutrition- WHO 2015

4.3.4 Food security/failed rains

At HH level the children is receiving an average of 2.6 meals per day. Somalia had erratic rains and to be specific, in in Lower Shabelle, SWALIM/FAO reported depressed rains[7]. The poor rains also had early cessation. Rain fed agriculture is practised in most agricultural Somali populations, with the failed rains it was expected that the production would reduce and affect the availability and access to food. According to FSNAU [8], the cereal production in Lower Shabelle was below average, this could have affected the HH food availability.

4.3.5 Insecurity/conflict

According to protection cluster, more than 40,000 people have been displaced from Lower Shabelle from Jan 2015- 2016 with the data showing an increasing trend in the numbers displaced as the year progressed. Sphere standards puts clear the fact that displacements and insecurity could make people vulnerable, people who in normal situation would not be vulnerable. Key Informant interview pointed to the fact that the recent month to the assessment has seen a lot of population moving from the rural area in Mataban tone. The town therefore is facing increasing pressure to accommodate the population. This has brought additional loads to the institutions providing services including the health centres. Elections are underway in Somalia, the situation therefore regarding security is volatile.

4.4 Access to program

Proxy for program coverage indicated a high coverage of the program. Although this might not be the same results when a proper SQUEAC survey is conducted, it represents the effort the program has put in place ensuring access of services to all children.

There is also a pointer in the difference between access to OTP and SFP at 95% and 75% respectively. This is indicative of a possible challenge in lining OT and SFP programs.

[7] Gu 2016 rainfall performance update-SWALIM

[8] FSNAU post gu seasonal food security and Nutrition assessment –Major findings and key messages

5. CONCLUSIONS

SMART survey results in Wanlaweyn depicts a critical situation for GAM and acceptable levels for SAM. However, the aggravating factors including high morbidity and the projected worsening of food security situation points to a possible deteriorating of the situation if not addressed immediately. The high GAM rates increase from the last survey is a pointer of worsening situation, this is coupled with the fact that the coverage of the program (MAM) is not optimal.

There are high morbidity rates in the district, with diarrhoea and ARI leading the causes of illness. Diarrhoea infection is related to sanitation and Hygiene and this points out to an environment that is compromised in terms of WASH. This is compounded by the fact that a very small percentage of the population is able to access proper heath during illness (22%).

The food insecurity observed at HH level is a result of many factors one of which is the low rains and production of cereals. The loss of casual labour due to reduction of farm work has also affected the earning of some households. The fact that the HH is able to afford only 2.6 meals per child indicates non-optimal feeding within HH. If the food security situation does not improve, more children might be undernourished in the coming months.

WASH within HH in Wanlaweyn is a challenge. Very few HH are able to observe the critical moments of handwashing and this contributed to spread of bacteria which eventually causes diseases like diarrhoea. Majority observe 1-2 critical moments of hand washing leaving a huge platform for prevention untapped.

Coverage proxy indicated a good percent of population is covered especially with regard to treatment of SAM. The treatment of MAM is at 75% for those who qualify for enrolment.

6. RECOMMENDATIONS AND PRIORITIES

6.1 Immediate

Finding	Action (Immediate)
High GAM rates (critical level)	Continue the treatment of malnutrition. SAM coverage is satisfactory at 95%, which should be sustained. Bridge the gap of MAM coverage by mapping the gaps and establishing a stable linkages. Support households to improve food security through introduction of BSFP (Blanket Supplementary Feeding Program). Strengthen coordination with other sectors for integration of services.
High morbidity/low access to treatment	Continue community-level engagement to ensure that there is awareness and accessibility of available services. A high percentage of community members buy drugs in shops and pharmacies. Awareness raising at the pharmacy and community levels should be undertaken to support referral of patients to hospitals.
Low immunization levels	Undertake campaigns for Vitamin A supplementation. Since SAM treatment has achieved 95% coverage, the same platform/approach can be adopted for immunization.
Poor food security at household level	Support household purchasing power through implementing programs like Cash For Work, Unconditional Cash Transfer, and Food for Work.
Poor WASH practices	Support heath awareness as a crosscutting theme in all the projects currently being implemented, including education, protection, heath nutrition and WASH.

6.2 Medium term

Inadequate food at household level	Increase food security support to the community. Support the community to develop alternative means of livelihood. Design programs to diversify livelihoods.
Anticipated deterioration in nutrition and FSL situation	Pre-position therapeutic food. Undertake fundraising to for the forecasted surge in numbers of households with critical food shortage.

6.3 Future nutrition monitoring

The survey focused on Nutrition indicators and the next survey might want to go into FSL, care practise and additional health and WASH indicators to be able to triangulate all this information to have a good explanation of the linkages between malnutrition and causal factors.

Due to the predictions that paint a deteriorating situation in the near future, additional survey should be conducted to ensure that any significant change in rates or aggravating factors is addressed.

7. REFERENCES

i. Land info 2014: Somali. Lower Shabelle report

ii. OCHA Somalia flash update November- http://reliefweb.int/sites/reliefweb.int/files/ resources/20161106_lower_shabelle_flash_update-final.pdf

iii. SNS Post Deyr Beletweyn SMART survey 2015 December

iv. Somalia Post Gu 2016 seasonal food security and Nutrition assessment – September 2016

v. Essential Nutrition Actions: improving maternal, newborn, infant and young child health and nutrition-WHO 2015

vi. Gu 2016 rainfall performance update-SWALIM

vii. FSNAU post Gu seasonal food security and Nutrition assessment –Major findings and key messages

8. ACKNOWLEDGEMENTS

1. Mataban community for taking time to support the teams and the cooperation during the data collection process.
2. Ministry of Health – Somalia for supporting the survey
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5. Ismail and Adan for supporting the training, Isaack Hassan for supervising the work.
6. Wanlaweyn Nutrition team
7. CMU for the technical support and great contribution in the reporting process
8. SNS TWG for supporting planning and availing competent teams to support the survey

9. APPENDICES

Appendix 1: Plausibility *Report*

Plausibility.RTF

Appendix 2: Assignment *of Clusters*

WalanWeyne.xlsx

Appendix 3: Evaluation *of Enumerators*

Walanweyne_Report2..docx

Appendix 4: Questionnaires

SMARTSurveyONA_2016_formfinal.xlsx

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