NUTRITION AND RETROSPECTIVE MORTALITY SURVEY
HIGHLANDS AND LOWLANDS LIVELIHOOD ZONES OF LAHJ GOVERNORATE

FINAL REPORT

YEMEN

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LIST OF ACRONYMS

ACF	Action Contre la Faim
ARI	Acute Respiratory Infection
CI	Confidence Interval
CFSS	Cluster Food Security Survey
CMR	Crude Mortality Rate
DHO	District Health Office
DHS	Demographic Health Survey
ENA	Emergency Nutrition Assessment
FMF	Field Medical Foundation
FHS	Family Health Survey
GAM	Global Acute Malnutrition
GHO	Government Health Office
HAZ	Height-for-age Z-score
HDDS	Household diet Diversity Scoring
HH	Household
IPC	Integrated food Security Phase Classification
IYCF	Infant and Young Children Feeding
MAM	Moderate Acute Malnutrition
MDD	Minimum Dietary Diversity
MPHP	Ministry of Public Health and Population
MUAC	Mid-Upper Arm Circumference
OCHA	Office for Coordination of Humanitarian Affairs
OTP	Out-patient Therapeutic Program
SAM	Sever Acute Malnutrition
SD	Standard Deviation
SMART	Standardized Monitoring and Assessment of Relief and Transitions
U5	Under-five
U5MR	Under Five Mortality Rate
UNICEF	United Nations Children's Fund
WAZ	Weight-for-age Z-scores
WHZ	Weight-for-height Z-scores
WFP	World Food Program

EXECUTIVE SUMMARY

In July 2017, Action Contre la faim (ACF) in collaborations with Ministry of Public Health and Population (MPHP) of Lahj governorate, conducted two nutrition assessments in Lowlands and Highlands ecological zone of 15 districts. This was in response to the need to determine the malnutrition levels and trends for the different ecological zones and to inform the intervention response for the governorate.

The main objective of the survey was to assess the current nutrition situation in Highlands and Lowlands of Lahj governorate together with key determinants of nutrition, health and food security situation and provide key recommendations.

The survey employed a two-stage cluster sampling methodology, using a probability proportional to population size (PPS) sampling methodology with the selection of 30 clusters for Highlands and 30 clusters for Lowlands ecological zones for both anthropometry and mortality assessments. The second stage involved random sampling of 19 and 15 households per cluster for Highlands and Lowlands respectively. A total of 1,122 children aged 0-59 months (519 form Lowlands and 603 children form Highlands's zones) were assessed.

Data collection took place from 10th to 23rd of July, 2017, in two phases; Lowlands zone in the first phase and highlands zone in the second phase.

The mean household size was 6.9 in both Lowlands and Highlands, while the respective proportion of children under-five was 18.4% for Lowlands and 17.3% for Highlands. Caregiver educations level is 58% and 54% illiterate for Lowlands and Highlands livelihood zone respectively; only 22% of the caregiver surveyed that did not access education can read and write for Highlands and 13% for Lowlands. Others indicators results are summarized in the **table 1**.

Recommendations have been generated based on the survey findings as shown in **table 2**.

Table 1: Summary of Key survey indicators for Lahj Lowlands and Highlands

Indicator	Lahj Lowlands	Lahj Highlands
Nutrition		
Global Acute Malnutrition (<-2 z-score **and/or** oedema **and/or** < 125 mm)	27.4% (23.4-31.6 95% CI)	11.5% (8.9-14.5 95% CI)
Severe Acute Malnutrition (<-3 z-score **and/or** oedema **and/or** < 115 mm)	5.2% (3.4-7.6 95% CI)	2.1% (1.1-3.7 95% CI)
Global Acute Malnutrition (WHZ<-2 and/or oedema)	25.3% (20.8-30.4 95% C.I.)	10.1% (7.5-13.4 95% C.I.)
Severe Acute Malnutrition (WHZ<-3 and/or oedema)	4.8% (3.1-7.3 95% C.I.).	1.7% (0.8-44.1 95% C.I.)
Moderate Acute Malnutrition (WHZ ≥-3 and <-2)	20.5 % (16.8 - 24.9 95% C.I)	8.4 % (6.1 - 11.4 95% C.I.)
Chronic Malnutrition (Stunting) (HAZ<-2)	37.1 % (30.6-44.1 95% C.I)	37.7 % (31.8-44.1 95%)
Underweight (WAZ<-2)	43.9 % (37.4 - 50.6 95% C.I.)	27.0 % (22.1 - 32.6 95% C.I.)
Mortality		
Crude Death Rate (CDR)	0.07 (0.02-0.30)	0.06 (0.01-0.23)
Under Five Death Rate (U5MR)	0.22 (0.03-1.65)	0.00 (0.00-0.00)
Infant and Young Child Feeding (IYCF)		
Exclusive breastfeeding (0-5 months)	16.7% (5.6 -34.7 95% CI) (n=5)	5.5% (1.1 -15.1 95% CI) (n=3)
Children ever breastfed	77.7% (71.4 -83.2 95% CI) (n=160)	70.7% (64.6 – 76.3 95% CI) (n=174)
Introduction of solid, semi-solid or soft foods 6-23 months	61.1%(35.7 – 82.7 95% CI)	76.5% (50.1 – 93.2 95% CI)
Minimum acceptable diet	7.7% (4.2-12.9 CI)	8.4% (4.9-13.2 CI)
Water Hygiene and Sanitation		
House connected piped water	35% (n=156)	13%(71)
Defecation in open (in fields, etc.)	9%(n=40)	1% (7)
Hand washing practice		
After going to toilet	65%(293)	62%(348)
Before eating	94%(422)	95%(537)
Food Security		
Household dietary diversity	8.3	8.6
Food consumption score()Households consuming from <21 food groups)	5.4%	4.8%
Coping strategy index (CSI)	46.9	43

Table 2: Survey Recommendations

No	Indicator Result	Recommendation	Responsible Organization/ Person	Timeline (By When)
1	**Poor acute malnutrition** Lowland: 25.3% (20.8-30.4 95% C.I.)-Critical Highlands 10.1% (7.5-13.4 95% C.I.)-Serious	Scaling up the nutrition interventions in Lowlands. It is clear that GAM rate is > 15%. This requires close monitoring and ensuring that service delivery meets the needs, with particular attention to areas with very high GAM rates. Engage the Nutrition cluster on possibility of blanket supplementary feeding for young children	Implementing partners and MoPHP	Immediate
2.	**High chronic malnutrition** Lowlands : 37.1 % (30.6-44.1 95% C.I) Highlands: 37.7 % (31.8-44.1 95%)	Promote dietary diversification through establishment of vegetables production in households	Implementing partners and MoPHP	Immediate
3	**High prevalence of Diarrhea:** Lowlands:29% Highlands : 34%	Promote health education and awareness, and enhance training on diarrhea prevention by using committed community health volunteers	Implementing partners and MoPHP	Continuous
4.	**Low Vitamin A Coverage:** Lowlands:69% Highlands: 67%	Institutionalize vitamin A supplementation and de-worming at all health facilities and scale up during annual child health campaigns / EPI campaigns	MoPH	Continuous
5	**Poor Infant and Young Child Feeding Practices** **Exclusive breastfeeding:** Lowlands: 16.7% Highlands: 7.4% **Minimum Acceptable Diet:** Lowlands: 7.7% Highlands: 8.4% **Minimum Dietary Diversity** Lowlands: 26.7% Highlands: 31.8%	Conduct community dialogue sessions and sensitization meetings with community leaders/key influencers on appropriate childcare practices Initiate programs on IYCF both at health facility and community level are needed to protect, promote and support optimal child care practices.	Implementing partners and MoPHP	February 2018

1. INTRODUCTION

1.1. Conflict and Internal Displaced

Even before the current conflict escalated in mid-March 2015, Yemen faced enormous levels of humanitarian needs stemming from years of poverty, under-development, environmental decline, intermittent conflict, and weak rule of law. The nearly two years of war have exacerbated these chronic vulnerabilities, with 20 percent more people, estimated at 18.8 million people in need of humanitarian or protection assistance. Other 11,229 households were displaced due to internal conflicts.[1]

1.2. Description of the survey area

Lahj governorate is one of the 22 governorates in Yemen; covering a total area of 15,210 km^2 (5,870 sq. mi). Lahj Governorate is located 320 km south of the capital city of Sana'a and 30 km to the North of the city of Aden. Al-Houta is the capital city of Lahj. Lahj governorate borders Abyan governorate in the East, Taiz governorate to the North-West, Al- Baidha governorate to the North, Adh–Dhale in North-West and Aden governorate to the South. The governorate consist of 15 districts (**figure 1**).

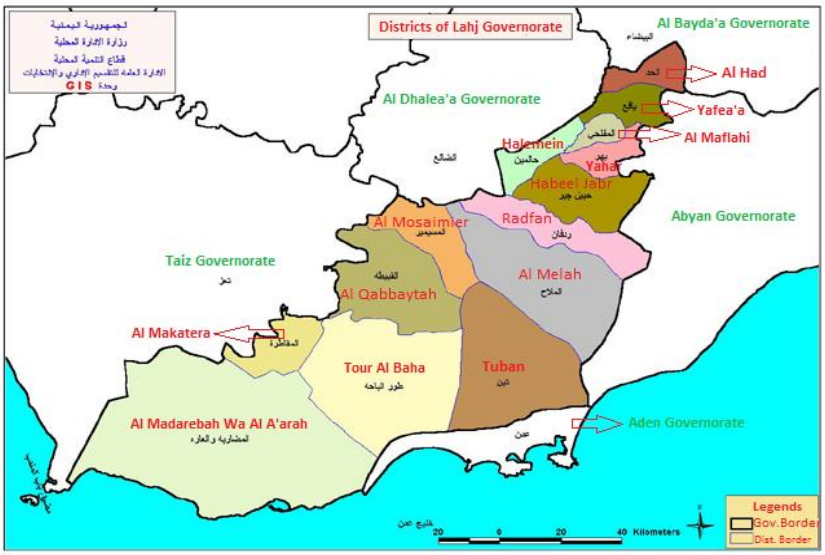

Figure 1: Map of Lahj Governorate

The total population of Lahj governorate is estimated to be 1,019,323 with a sex ratio of 1:1[2]. The average household size is estimated to be 7.0 and 6.9 for Highlands and Lowlands'[3] respectively.

The topography of Lahj varies from high mountains reaching 2,500m above sea level (As-Sarat mountainous range) to fertile valleys (Wadi Tuban), which is one of the most fertile Wadis in Yemen. The climate varies according to the topography of the terrain. In the coastal plains the temperature can rise in the summer to 40°C, where the mean temperature in the winter comes down to 20°C. The coastal plains also witness rainfall in the winter and autumn. However, in the mountainous Highlands, rainfall is witnessed in the spring and summer seasons.

1.3. Health and Nutrition

Emergency Food Security and Nutrition Assessment (EFSNA) shows that the food security and nutrition situation in Lahj Governorate reaches serious threshold, which indicates that the prevalence of acute malnutrition exceeds 10%[4]. According to the health sector of Lahj, there are 218 health facilities who run nutrition activities, including 192 providing services on nutrition and treatment of communicable diseases. The existent response does not reach the needs due to unavailable of proper

[1] Taskforce on Population Movement (TFPM)
[2] 2016 population figures projections from the Yemen Central Statistical Organization 2004 Census
[3] SMART Report November, 2015
[4] Emergency Food Security and Nutrition Assessment (EFSNA) 2016

health service and lack of drug supply in the existing health facilities. This makes the population more vulnerable to communicable disease and water borne diseases (e.g. Acute Water Diarrhea (AWD) and cholera).

Lahj governorate health sector consists of one specialized hospital, one central governmental hospital, five district level hospitals, seven rural hospitals, 26 health centers, 183 health unit and 302 private health facilities. There is lack of information on which health facilities are currently operational or suspended due to the staff turnover and improper payments for wage labors.

2. SURVEY RATIONALE

ACF with funding from OCHA carried out a SMART survey in Lahj governorate, which data collection took place from 10th to 23rd July, 2017. The purpose of conducting the survey was to provide up to date information on the nutrition and mortality situation in the governorate. This information will inform the humanitarian response plan. The survey was conducted in coordination with Governorate Health Office (GHO) of Lahj governorate.

2.1. Survey Objectives

Overall Objective
The overall objective of the survey was to assess acute and chronic malnutrition among children 6-59 months in Highlands and Lowlands of Lahj together with key determinants of the Nutrition, Health and Food Security Situation and provide key recommendations.

Specific Objectives
The specific objectives of the survey were:

- To assess the prevalence of acute malnutrition among children aged 6 to 59 months.
- To assess the prevalence of chronic malnutrition among children aged from 6 to 59 months.
- To assess the prevalence of underweight children age from 6 to 59 months.
- To estimate the proportion of children age 9-59 months vaccinated against Measles.
- To determine the prevalence of Diarrhea, Fever and Acute Respiratory Infection (ARI) and suspected measles in the 14 days prior to the survey among children aged 6-59 months
- To assess the coverage of vitamin A supplementation during last 6 months prior to the survey among children aged 6-59 months.
- To determine the populations access to storage and use of drinking water and hand washing practices
- To estimate the coverage of pentavalent vaccination.
- To gain a better understanding of Infant and Young Children Feeding Practice (IYCF) including the minimum meal frequency for children 0-23 months.
- To understand the coping strategies of households at times of acute food shortage.

3. SURVEY METHODOLOGY

3.1. Survey Area

The survey was conducted in Lahj Governorate. The survey area covered all 15 districts of Lahj governorate.This survey was carried out in the two ecological zones, representing also two different livelihood zones, namely Highland (mountainous) and Lowland zones of 15 districts of Lahj governorate. Each livelihood zone was an independent survey stratum.

3.2. Survey design

A two-stage cluster sampling methodology was used following SMART methodology. The first stage was involving random selection of the clusters using ENA for SMART software, the villages were considered as the smallest geographical unit. In the second stage, random selection of households within clusters was done using the random number tables. Modified EPI method was used to select the households; apart from two villages in Lowlands where an exhaustive list of households was made with help of residents.

3.3. Survey population

The survey was conducted among children aged 0-59 months, 6-59 months children were considered for the anthropometric measurement and 0 to 23 months for IYCF. The entire population were targeted for Crude Mortality Rate (CMR) and under five mortality rate.

3.4. Sample size

The sample size was determined using ENA for SMART software, July 9th 2015 version, for both anthropometry and mortality survey. Before implementing the survey, relevant secondary information were collected to determine the expected malnutrition prevalence of under-five year old (U5) children and the CMR of the population. Parameter used to calculate sample size are as in **table 3**.

Table 3: Sample size calculation for anthropometric and retrospective mortality survey for Lowlands and highlands.

Parameters/values	Lowlands		Highland	
	Anthropometric (6-59 months)	Mortality (HH members)	Anthropometric (6-59 months)	Mortality (HH members)
Estimated prevalence (%)	24.9[5]	0.5[6]	13.4[7]	0.5
±desired precision[8]	5.3	0.3	3.0	0.3
± design effect[11]	1.2	1.2	1.1	1.1
Recall period in days		90		90
U5 children (%)[9]	17.0		17.0	
Average household size[10]	7	7	7	7
Non-responsive household (%)	3.0[18]	3.0	3.0[18]	3.0
Sample size	334 (322HH)	3098 (456 HH)	593 (571HH)	2840 (418HH)

[5] Upper limit of CI, SMART survey result, Nov, 2015 (GAM 20.5 (95% CI: 16.7-24.9))
[6] SMART Report July, 2012 done in Lahj
[7] Upper limit of CI, SMART survey Nov, 2015 (GAM= 9.9 (CI= 7.2-13.4))
[8] SMART Guideline for Nutritional Survey
[9] Projected Lahj population (censes 2004)
[10] SMART Report July 2012 done in Lahj

The highest sample between anthropometric and mortality was selected in both Lowlands and Highlands as in table 2, thus the sample size for Lowlands and Highlands was 456 and 571households for highland respectively.

In Lowlands, 15 households has been planned to be interviewed per day, the number of clusters were calculated as: 456/15HHs = 30.4, rounded to 30. In Highlands, the number of interview per day planned increase to 19 households per day, thus coming up with 30 clusters: 571/19 households. Clusters were sampled using probability proportional to population *size PPS* (Annex 1 and 2) with all clusters selected assessed.

The team collected secondary information at the governorate sectors; governorate health, agriculture offices about the general food security and health situation of the governorate which was used to determine the sample size.

3.5. Selection of households and children

Upon reaching the cluster/villages, the survey teams, with the help of an elder or a zone guide requested their permission to assess the areas. The purpose of the survey was explained and the process of random selection of a representative sample from the cluster was also elaborated. Modified Epi-Method was used to select households to be interviewed.

The Modified EPI methodology involved identifying the center of the cluster or the segment, where they had to spin a pen to randomly select the direction to take to the edge/periphery of the cluster. The team walked to the edge of the cluster. From the edge of the cluster, the team had to spin the pen again aiming to randomly get a direction to follow to the other extreme edge of the cluster. In case the pen pointed towards outside of the cluster boarders, the teams were to spin the pen multiple times till the pen pointed to any of the directions towards the cluster. Once a new direction was obtained, the team counted all the households along the randomly selected direction, gave each household a number, and then randomly selected the first household to be interviewed from the numbered households (for example, household number 7 in the households numbered 1 to 10, in the **figure 2**.

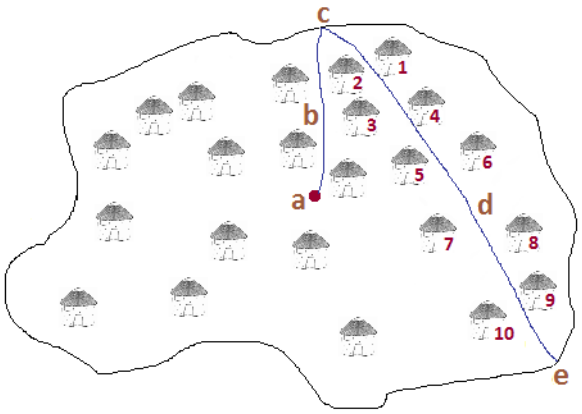

Figure 2: The modified EPI method used for selection of households

Same direction was followed to select the subsequent household for interview, going for next nearest household on the right side and following the selected direction, until the required minimum number of households and children had been assessed (**Figure 2**) indicating the household selection process.

In case the team assessed all households to the edge of the cluster and did not reach the required number of households, the team would repeat the process again i.e. start from the cluster center to randomly select another direction, then walk to the edge, then spin the pen again and count the households to the edge of the cluster. Then randomly pick the first household for interview, and then go the next nearest household, to the right hand side, till the required number of households were interviewed. In case of absence of members or children of the randomly selected house during the interview time, an appointment was made by the survey team to return back before leaving the cluster.

3.6. Data quality assurance and data collection

Primary data

Children 0 to 59 months of age were included in the survey. Pre-tested survey questionnaires were used to collect data on anthropometry, IYCF, retrospective mortality, morbidity, and family size of the households. Information on household food security and WASH were also being collected. Local seasonal calendars were used to aid mothers recall the ages of their children **(Annex 7)**

Participation of governorate authorities in the survey

The survey teams were meeting the concerned governorate officials to brief them about the objective of the survey. The concerned experts from the governorate are expected to be delegated and participate during the survey period including the training sessions along with ACF survey team.

Data quality Assurance

To ensure quality of the data collected, the survey team participate to a training session which included standardization test and a pilot among other topics (Annex 3).

Other measures taken included:

- Each team had one ACF team leader responsible for leading the team
- Provide training on the use of measuring instruments and taking appropriate readings before the start of the actual survey.
- Data clerk, data analysis and report writing officer and Deputy Programme Manager, survey supervisor gave daily feedback for the team.
- Regular checking and calibration of weighing scale. The weighing scales were calibrated before a child is weighed with each team having 2 or 5 Kg standard weight for calibration purpose.
- Verification of accuracy of reported ages using different techniques including preparation of local seasonal calendar of relevant events that assist illiterate parents recall the actual months and year of birth of their children.

3.7. Anthropometric measurements

- **Age:** Children 6-59 months from the selected households were eligible for the anthropometric measurement. The team asked the caregiver to bring the birth certificate, immunization card and other documents to get accurate age of the child. Local event calendar was used to determine age of the children without birth documents. In extreme case where the age of the child could not be

estimated, children who were above six months old but less than 65cm were also considered as eligible for the survey.

- **Sex**: Male children recorded as 'M' and Female 'F'.
- **Weight:** Children were weighed standing on the electronic scale to the nearest 0.1kg. For the children who could not stands, the double weighing method was applied.
- **Height/Length:** Height and length of children were measured using height boards and recorded to the nearest 0.1cm. Children equal or less than 87.0 cm were measured lying down, and children greater than or equal to 87.0 cm were measured in standing position.
- **MUAC**: Mid-upper arm circumference measurements were made using a flexible and non-stretch tape. The MUAC is interpreted as both for graduated and color labeled. Red color [MUAC <115 mm] were classified as severe and yellow color [MUAC≥115 mm and <125 mm] were considered as moderately malnourished. While the green color [MUAC ≥ 125 mm] were categorized as normal as per WHO classification. MUAC measurements were taken on the mid-point of the left upper arm. All children in the selected households aged 6-59 months were measured to the nearest 0.1 cm.
- **Bilateral oedema:** To diagnose bilateral oedema, normal thumb pressure is applied to the tops of the feet for about three seconds. In presence of oedema, an impression remains for at least a few seconds, where the oedema fluid has been pressed out of the tissue.

3.8. Case Definitions and inclusion Criteria

- **Anthropometry**

Acute malnutrition (Weight-for-height Z score (WHZ))

Acute malnutrition in children 6-59 months can be expressed by using two indicators: Weight-for Height (WHZ) or Mid-Upper Arm Circumference (MUAC) as described below. A child's nutritional status is estimated by comparing it to the WHZ curves of a reference population (WHO standards data[11]). These curves have a normal shape and are characterized by the median weight (value separating the population into two groups of the same size) and its standard deviation (SD) (**table 4**). During the field data collection, the WFZ was calculated for each child in order to refer malnourished cases to appropriate center for management.

Table 4: Weight-for-height (WHZ), children 6-59 months (WHO 2006)

	Weight-for-height index (W/H)	Nutritional status
Children 6-59 months	≥ -2 z-score	Adequate nutrition status
	-3 z-score ≤ H/A < -2 z-score	Moderate acute malnutrition
	< -3 z-score ≥ -2 z-score and/or oedema -3 z-score ≤ H/A < -2 z-score and/or oedema	Severe acute malnutrition

[11] WHO: World Health Organization, WHO growth curves for children, 2006

Mid-Upper Arm Circumference (MUAC)

The mid-upper arm circumference does not need to be related to any other anthropometric measurement. It is a reliable indicator of the muscular status of the child and is mainly used to identify children with a risk of mortality. In the field the criterion below was used to determine the status of children and appropriate referrals will be done based on the respective cut-offs (**table 5**)

Table 5: Cut offs points of MUAC, children 6-59 months, (WHO 2006)

Target group	MUAC (mm)	Nutritional status
Children 6-59 months	> or = 125	Adequate nutrition status
	< 125 and > or = 115	Moderate acute malnutrition
	< 115	Severe acute malnutrition

Nutritional bilateral pitting oedema

Nutritional bilateral pitting oedema is one of the most severe clinical forms of severe acute malnutrition. In the field children with bilateral oedema was automatically categorized as being severely malnourished, regardless of their WHZ.

Chronic malnutrition (Height-for-age Z score (HAZ))

The HAZ measure indicates if a child of a given age is chronically malnourished (stunted). This index reflects the nutritional history of a child rather than his/her current nutritional status. The same principle is used as for WHZ; except that a child's chronic nutritional status is estimated by comparing its height with WHO standards height-for-age curves, as opposed to weight-for-height curves. The height-for-age index of a child from the studied population is expressed in Z-score (HAZ). The HAZ cut-off points are presented in table 4.

Underweight (weight-for-age Z score (WAZ))

Underweight indicates the weight of the child compared to his age. It is expressed by the Weight-for-Age index and in Z-scores of WHO Standards (2006). The **table 6** below show underweight classes with their cut-off points.

Table 6: Cut offs points of the Height for Age index (HAZ) and Weight for Age (WAZ) expressed in Z-score, WHO standards

	Stunting (Height for Age -HAZ)	Underweight (Weight for Age-WAZ)
Normal	≥ -2 z-score	≥ -2 z-score
Moderate	-3 z-score ≤ H/A < -2 z-score	-3 z-score ≤ W/A < -2 z-score
Severe	< -3 z-score	< -3 z-score

- **Mortality**

The mortality indicators included all households, regardless of the presence of children. All members of the household were counted, using the household definition.

Crude death rate (CDR)

Number of persons in the total population that dies over a defined period of time.

$$CDR = \frac{\text{Nb of deaths x 10000 persons}}{\text{population at mid} - \text{interval x time interval in days}}$$

Under-5 death rate (U5DR)

The probability for those children aged 0-5 years to die during a specific time interval. Calculated as:

$$U5DR = \frac{\text{Nb of deaths of U5s x 10000 U5s}}{\text{population of U5s at mid} - \text{interval x time interval in days}}$$

- **Health**

Immunization status, deworming and vitamin A supplementation

Mothers/caregivers of all children were asked if children received all the necessary vaccinations, which was subsequently be verified by reviewing the vaccination card, if available. If the vaccination card was not be available, then recall of the caregiver option was considered. The deworming and the Vitamin A supplementation of children will also be recorded. Samples were shown to caregivers.

Morbidity

Mothers/caregivers of children were asked if children had experienced an illness in the past 14 days prior the day of the survey. ARI, fever (elevated body temperature) and diarrhoea (any episode of more than 3 stools in 24 hours (bloody or not)) was recorded when symptoms according to the case definition are described by the caregiver.

- **Water Sanitation and Hygiene (WASH)**

Drinking water access

The respondents were asked about the source of drinking water and distance taken to reach the source. The distance to water, or time to collect water, is often the main constraint of access to water, and associated with the quantity of water used

Water storage

The respondents were asked what type of container they use for storing drinking water and inspect the cleanness of the container.

Hand washing practices and availability of toilet Facilities

The mothers were asked on what occasions they wash their hands and also what they use to wash their hands to determine the hand washing practices and check the availability and types of toilet facilities used in the surveyed area.

- **IYCF**

The IYCF indicators used in the measurement of IYCF practices asked to the mothers/caregivers of children aged 0-23 months are as follows:

- **Child ever breastfed:** Proportion of children who have ever received breast milk.
- **Exclusive breastfeeding under 6 months:** Proportion of infants (0-5) months of age who are fed exclusively with breast milk.
- **Continued breastfeeding at 1 year:** Proportion of children (11-12) months of age who are fed with breast milk.
- **Minimum Dietary Diversity Score:** Proportion of 6-23 months children consumed minimum 4 food groups in the last 24 hours.
- **Continued breastfeeding at 2 years:** Proportion of children (20–23) months of age who are fed breast milk.

- **Food Security**

Household dietary diversity: defined as the number of unique foods consumed by household members over a given period, has been validated to be a useful approach for measuring household food access.

There was noted difference in the tool capturing the food groups eaten by the household with the standard quid line. There is need to harmonize the tool further to avoid confusion.

Food consumption score (FCS): The FCS is a composite score based on dietary diversity, food frequency, and relative nutritional importance

Coping strategy index (CSI): CSI is a tool is commonly used as a proxy indicator for access to food. It is a weighted score that allows one to measure the frequency and severity of coping strategies.
The tool used to collect data on coping strategy missed one form of coping mechanism thus 11 coping mechanisms were collected unlike the standard 12 coping mechanism. There is need to harmonize the tool to capture the require indicators.

Data Analysis

Before analysis data was checked for: completeness, consistency and range before by the SMART Survey focal person. Data verification and cleaning process were conducted, whereby data capture and errors have be corrected or not included for analysis. Anthropometric analysis was performed using ENA for SMART, Cross tabulations were done and the results were presented in a tabular format in terms of gender and age groups.
The survey process followed the planned activities as annex 4.

4. SURVEY RESULTS

4.1. Survey population characteristics

At the close of the survey a total of 1,122 children aged 0-59 months (519 from Lowlands and 603 children from Highlands's zones) were assessed from 1,020 households visited (450 in Lowlands and 570 in Highlands). Anthropometric data were taken from 1,035 children 6-59 months: 546 in Highlands and 489 in Lowlands).

The mortality data were collected from 1,012 households from Lahj Lowlands and Highlands's livelihood zone. Among the families of the surveyed population, children under five years old were 18.4% in Lowlands and 17.3% in Highland from the total survey population.

The result shown below in the population pyramid for each livelihoods zone (**figure 3**).

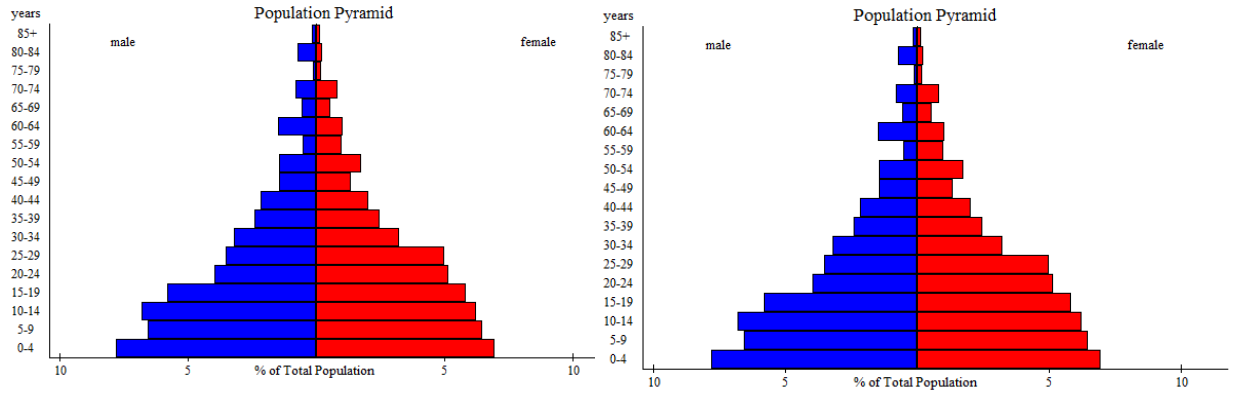

Figure 3: Population pyramid of survey population in Lowland (left) and Highland (right), Lahj governorate

Education level among the surveyed community of caregiver found high illiteracy percentage among population in both livelihood zones with 58% and 54% in Lowlands and Highlands zones respectively. Among the population that did not access education, only 13% and 22% in Lowlands and Highland livelihood zones can read and write (**figure 4**).

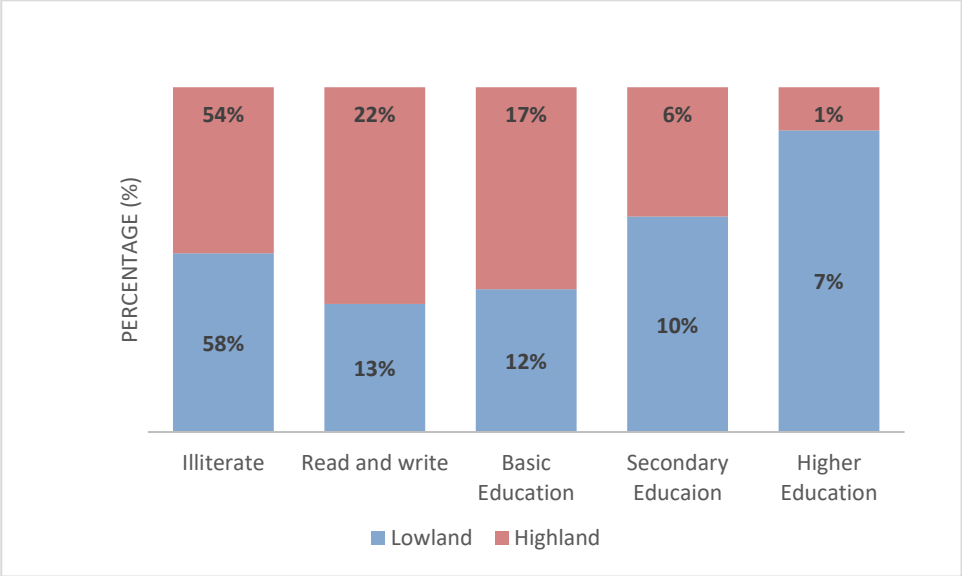

Figure 3: Caregiver Level of Education in Lowlands and Highlands

Other Household characteristics collected during the survey included: gender of head of household, marital status and education level .The survey findings showed that over 90 % (94% Lowlands and 96% Highlands) of households were male headed in both strata, while caregivers were also more than 90% (95% Lowlands and 97% Highlands) women in both strata. The proportion of caregivers who were married was also more than 90% (90% Lowlands and 92% Highlands) as depicted in **table 7.**

Table 7: Household's characteristics of Surveyed Population

	Lowlands Livelihood Zone		Highlands Livelihood Zone	
Head of Households	N	%	N	%
Husband	421	94%	541	96%
Mother	28	6%	22	4%
Gender of Caregiver				
Male	21	5%	18	3%
Female	428	95%	546	97%
Marital Status of Caregiver				
Married	405	90%	520	92%
Widowed	33	7%	36	6%
Divorced	4	1%	3	1%
Single	7	2%	5	1%
Education level of Caregiver				
Illiterate	261	58%	303	54%
Read and Write	60	13%	123	22%
Basic education	54	12%	97	17%
Secondary Education	44	10%	36	6%
Higher Education	30	7%	5	1%

4.2. Anthropometric results

All selected clusters for both Highlands and Lowlands were surveyed. The enumerators were relocated to Yafya, in order to reach some clusters in Highlands and spend enough time in the villages. The sample achieved in Highlands was of 546 children aged 6-59 months and of 489 in Lowlands.

Sex ratio was within the accepted limits (0.8 to 1.2). The age ratio (1.04) in Highlands was slightly above the limit of 0.85 probably due to the very high percentage of children with no exact birthdate (64%). In Lowlands the age ratio was of 0.85. (**tables 8 and 9**)

Table 8: Lowland's zone: age and sex distribution

	Boys		**Girls**		**Total**		**Ratio**
AGE (mo)	**no.**	**%**	**no.**	**%**	**no.**	**%**	**Boy: girl**
6-17	60	49.2	62	50.8	122	24.9	1.0
18-29	58	56.3	45	43.7	103	21.1	1.3
30-41	67	65.7	35	34.3	102	20.9	1.9
42-53	64	52.0	59	48.0	123	25.2	1.1
54-59	17	43.6	22	56.4	39	8.0	0.8
Total	266	54.4	223	45.6	489	100.0	1.2

Table 9: Highlands' zone age and sex distribution

	Boys		Girls		Total		Ratio
AGE (mo)	**no.**	**%**	**no.**	**%**	**no.**	**%**	**boy: girl**
6-17	71	50.0	71	50.0	142	26.0	1.0
18-29	74	54.0	63	46.0	137	25.1	1.2
30-41	71	55.0	58	45.0	129	23.6	1.2
42-53	53	50.5	52	49.5	105	19.2	1.0
54-59	18	54.5	15	45.5	33	6.0	1.2
Total	287	52.6	259	47.4	546	100.0	1.1

4.2.1. Acute malnutrition based on Weight for height Z-scores (WHZ) and/or MUAC cut-offs and/or oedema (WHO 2006)

The combined GAM rate based on Weight for height Z-scores (WHZ) and/or MUAC cut-offs and/or oedema were: 27.4% (23.4-31.6 95% CI) in Lowland and 11.5% (8.9-14.5 95% CI in Highlands.

The combined SAM rate based on Weight for height Z-scores (WHZ) and/or MUAC cut-offs and/or oedema were: 5.2% (3.4-7.6 95% CI) in Lowlands and 2.1% (1.1-3.7 95% CI) in Highlands.

4.2.2. Acute malnutrition expressed in Weight for height Z-scores (WHZ) (WHO 2006)

The results presented with exclusion of z-scores from observed mean (SMART flags): WHZ -3 to 3; HAZ -3 to 3; WAZ -3 to 3. For the purposes of this report, the prevalence of malnutrition is presented according to WHO 2006 Growth Standards. There were no cases of bilateral oedema in both Lowlands and Highland thus, the rates of acute malnutrition were of only made of wasted children. The analysis of acute malnutrition includes data from 482 children from 6-59 months in Lowlands and from 523 in Highlands.

There was no significant difference between boys and girls in Lowlands while in Highlands boys were slightly more malnourished then girls. Comparing both zones, in Lowlands GAM rates are significantly higher than in Highlands ($p<0.05$).

Table 10: Prevalence of acute malnutrition based on weight-for-height z-scores (and/or oedema) and by sex in Lowlands, Lahj governorate July 2017

	All n = 482	**Boys** n = 261	**Girls** n = 221
Prevalence of global malnutrition (<-2 z-score and/or oedema)	(122) 25.3 % (20.8 - 30.4 95% C.I.)	(66) 25.3 % (19.5 - 32.1 95% C.I.)	(56) 25.3 % (19.4 - 32.4 95% C.I.)
Prevalence of moderate malnutrition (<-2 z-score and >=-3 z-score, no oedema)	(99) 20.5 % (16.8 - 24.9 95% C.I.)	(50) 19.2 % (14.0 - 25.7 95% C.I.)	(49) 22.2 % (16.6 - 29.0 95% C.I.)
Prevalence of severe malnutrition (<-3 z-score and/or oedema)	(23) 4.8 % (3.1 - 7.3 95% C.I.)	(16) 6.1 % (3.5 - 10.5 95% C.I.)	(7) 3.2 % (1.6 - 6.1 95% C.I.)

The prevalence of oedema is 0.0 %

Table 11: Prevalence of acute malnutrition based on weight-for-height z-scores (and/or oedema) and by sex Highlands, Lahj governorate July 2017

	All n = 523	**Boys** n = 275	**Girls** n = 248
Prevalence of global malnutrition (<-2 z-score and/or oedema)	(53) 10.1 % (7.5 - 13.5 95% C.I.)	(35) 12.7 % (9.2 - 17.3 95% C.I.)	(18) 7.3 % (4.6 - 11.3 95% C.I.)
Prevalence of moderate malnutrition (<-2 z-score and >=-3 z-score, no oedema)	(44) 8.4 % (6.1 - 11.4 95% C.I.)	(28) 10.2 % (7.3 - 14.0 95% C.I.)	(16) 6.5 % (3.8 - 10.6 95% C.I.)
Prevalence of severe malnutrition (<-3 z-score and/or oedema)	(9) 1.7 % (0.8 - 3.9 95% C.I.)	(7) 2.5 % (0.9 - 6.8 95% C.I.)	(2) 0.8 % (0.2 - 3.3 95% C.I.)

The prevalence of oedema is 0.0 %

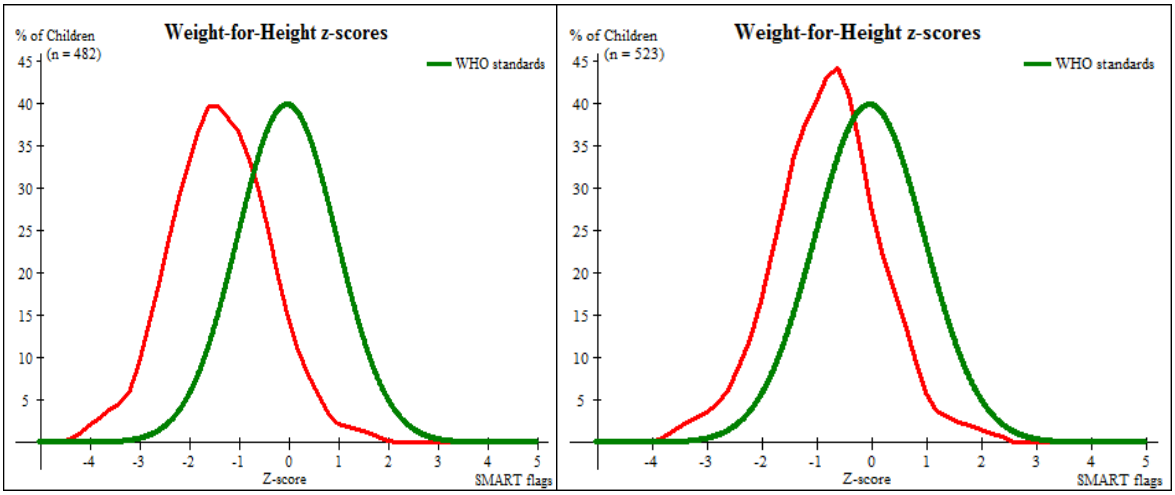

Figure 4: Observed distribution (WHZ) for Lowlands (Left) and Highlands (Right)

4.2.3. Acute malnutrition based on MUAC cut-offs and/or oedema (WHO 2006)

Acute malnutrition based on MUAC cut-offs and/or oedema in both strata was lower than rates based on WHZ (**tables 12 and 13**). As for acute malnutrition based on WHO 2006 Growth Standards, GAM by MUAC for the lowland is significantly higher than Highland (P value<0.05).

Table 12: Prevalence of acute malnutrition based on Mid Upper Arm Circumference (MUAC) and/or oedema by sex in Highlands

	All n = 528	**Boys** n = 277	**Girls** n = 251
Prevalence of global malnutrition (< 125 mm and/or oedema)	(17) 3,2 % (1, 8 - 5,7 95% C.I.)	(3) 1,1 % (0,3 - 3,4 95% C.I.)	(14) 5,6 % (3,3 - 9,2 95% C.I.)
Prevalence of moderate malnutrition (< 125 mm and >= 115 mm, no oedema)	(13) 2,5 % (1, 3 - 4, 5 95% C.I.)	(1) 0,4 % (0, 0 - 2, 8 95% C.I.)	(12) 4,8 % (2, 8 - 8, 0 95% C.I.)
Prevalence of severe malnutrition (< 115 mm and/or oedema)	(4) 0,8 % (0, 2 - 2, 6 95% C.I.)	(2) 0,7 % (0,2 - 3,0 95% C.I.)	(2) 0,8 % (0,2 - 3,3 95% C.I.)

Table 13: Prevalence of acute malnutrition based on MUAC and/or oedema and by sex in Lowlands

	All n = 485	**Boys** n = 263	**Girls** n = 222
Prevalence of global malnutrition (< 125 mm and/or oedema)	(41) 8,5 % (6, 3-11, 3 95% C.I.)	(17) 6,5 % (3,8 - 10,7 95% C.I.)	(24) 10,8 % (7,1 - 16,1 95% C.I.)
Prevalence of moderate malnutrition (< 125 mm and >= 115 mm, no oedema)	(36) 7,4 % (5, 2-10, 4 95% C.I.)	(15) 5,7 % (3, 1 - 10, 3 95% C.I.)	(21) 9,5 % (5, 9 - 14, 8 95% C.I.)
Prevalence of severe malnutrition (< 115 mm and/or oedema)	(5) 1,0 % (0, 4 - 2, 4 95% C.I.)	(2) 0,8 % (0,2 - 3,0 95% C.I.)	(3) 1,4 % (0,4 - 4,2 95% C.I.)

4.2.4. Chronic malnutrition expressed in Height for age Z-scores (WHO 2006)

Observed mean of HAZ and the SD was within the accepted limits in both zones: -1.62±1.05 in Lowlands and -1.64±1.05 in Highlands. Chronic malnutrition rates were equally high in both Lowlands 37.1 % (30.6 – 44.1 95% C.I.) and Highlands, 37.7 % (31.8 – 44.1 95% C.I.), **table 14 and 15**. There was no significant difference between boys and girls.

Table 14: Prevalence of stunting based on height-for-age z-scores and by sex Lowlands

	All n = 474	**Boys** n = 255	**Girls** n = 219
Prevalence of stunting (<-2 z-score)	(176) 37.1 % (30.6 - 44.1 95% C.I.)	(92) 36.1 % (29.3 - 43.5 95% C.I.)	(84) 38.4 % (29.6 - 47.9 95% C.I.)
Prevalence of moderate stunting (<-2 z-score and >=-3 z-score)	(132) 27.8 % (23.2 - 33.0 95% C.I.)	(67) 26.3 % (20.7 - 32.8 95% C.I.)	(65) 29.7 % (23.5 - 36.7 95% C.I.)
Prevalence of severe stunting (<-3 z-score)	(44) 9.3 % (6.6 - 12.9 95% C.I.)	(25) 9.8 % (6.6 - 14.4 95% C.I.)	(19) 8.7 % (5.2 - 14.1 95% C.I.)

Table 15: Prevalence of stunting based on height-for-age z-scores and by sex Highland

	All n = 525	**Boys** n = 275	**Girls** n = 250
Prevalence of stunting (<-2 z-score)	(198) 37.7 % (31.8 - 44.1 95% C.I.)	(104) 37.8 % (30.1 - 46.2 95% C.I.)	(94) 37.6 % (30.6 - 45.2 95% C.I.)
Prevalence of moderate stunting (<-2 z-score and >=-3 z-score)	(147) 28.0 % (23.8 - 32.6 95% C.I.)	(77) 28.0 % (22.5 - 34.2 95% C.I.)	(70) 28.0 % (21.5 - 35.6 95% C.I.)
Prevalence of severe stunting (<-3 z-score)	(51) 9.7 % (6.7 - 13.9 95% C.I.)	(27) 9.8 % (5.9 - 15.9 95% C.I.)	(24) 9.6 % (6.5 - 14.0 95% C.I.)

The observed distribution (HAZ) for both district is shown in **figure 6**

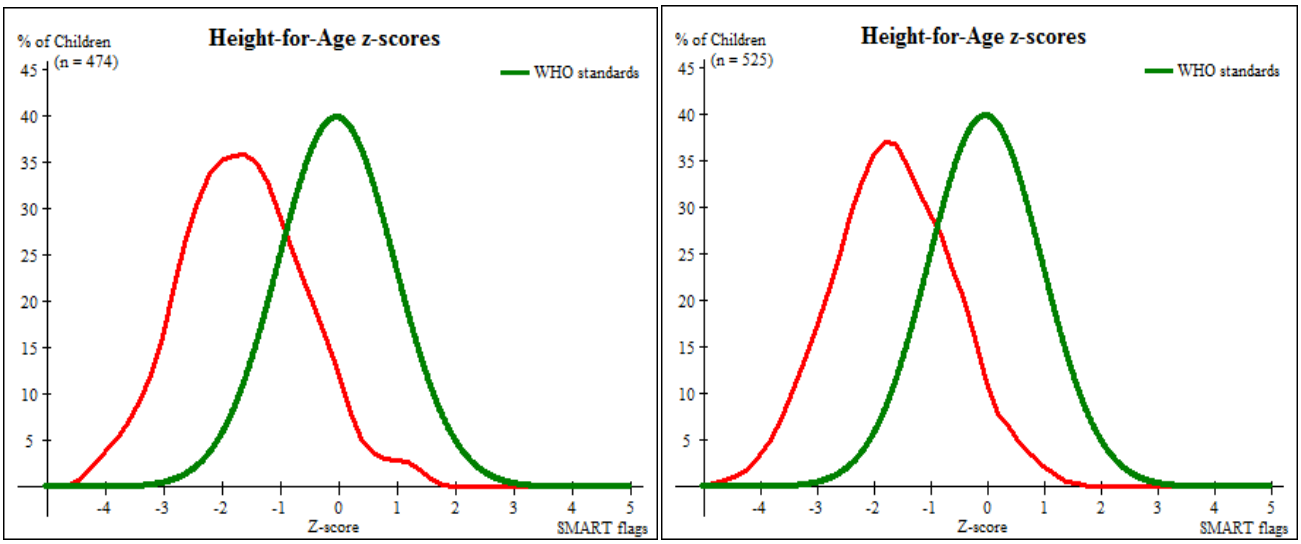

Figure 5: Observed distribution (HAZ) for Lowlands (Left) and Highlands (Right)

4.2.5. Underweight expressed in weight for age Z-scores (WAZ) (WHO 2006)

Observed mean of WAZ and the SD was within the accepted limits in both zones: -1.46±0.95 in Highlands and -1.83±1.00 in Lowlands. Underweight rates were equally high in both Lowlands 43.9% (37.4-50.6 95% CI) and Highlands, 27.0% (22.1-32.6 95% CI). There was no significant difference detected between genders (**tables 16 and 17**).

The observed distribution (WAZ) for both district is shown in **figure 7**.

Table 16: Prevalence of underweight based on weight-for-age z-scores by sex in Lowlands

	All n = 481	**Boys** n = 261	**Girls** n = 220
Prevalence of underweight (<-2 z-score)	(211) 43.9 % (37.4 - 50.6 95% C.I.)	(111) 42.5 % (35.6 - 49.8 95% C.I.)	(100) 45.5 % (37.2 - 54.0 95% C.I.)
Prevalence of moderate underweight (<-2 z-score and >=-3 z-score)	(147) 30.6 % (25.8 - 35.8 95% C.I.)	(76) 29.1 % (23.6 - 35.3 95% C.I.)	(71) 32.3 % (26.3 - 38.8 95% C.I.)
Prevalence of severe underweight (<-3 z-score)	(64) 13.3 % (9.5 - 18.3 95% C.I.)	(35) 13.4 % (8.8 - 20.0 95% C.I.)	(29) 13.2 % (8.9 - 19.1 95% C.I.)

Table 17: Prevalence of underweight based on weight-for-age z-scores by sex in Highland

	All n = 522	**Boys** n = 274	**Girls** n = 248
Prevalence of underweight (<-2 z-score)	(141) 27.0 % (22.1 - 32.6 95% C.I.)	(79) 28.8 % (23.0 - 35.4 95% C.I.)	(62) 25.0 % (19.3 - 31.7 95% C.I.)
Prevalence of moderate underweight(<-2 z-score and >=-3 z-score)	(111) 21.3 % (16.8 - 26.5 95% C.I.)	(64) 23.4 % (18.3 - 29.4 95% C.I.)	(47) 19.0 % (14.2 - 24.8 95% C.I.)
Prevalence of severe underweight (<-3 z-score)	(30) 5.7 % (3.8 - 8.6 95% C.I.)	(15) 5.5 % (3.3 - 9.0 95% C.I.)	(15) 6.0 % (3.3 - 10.8 95% C.I.)

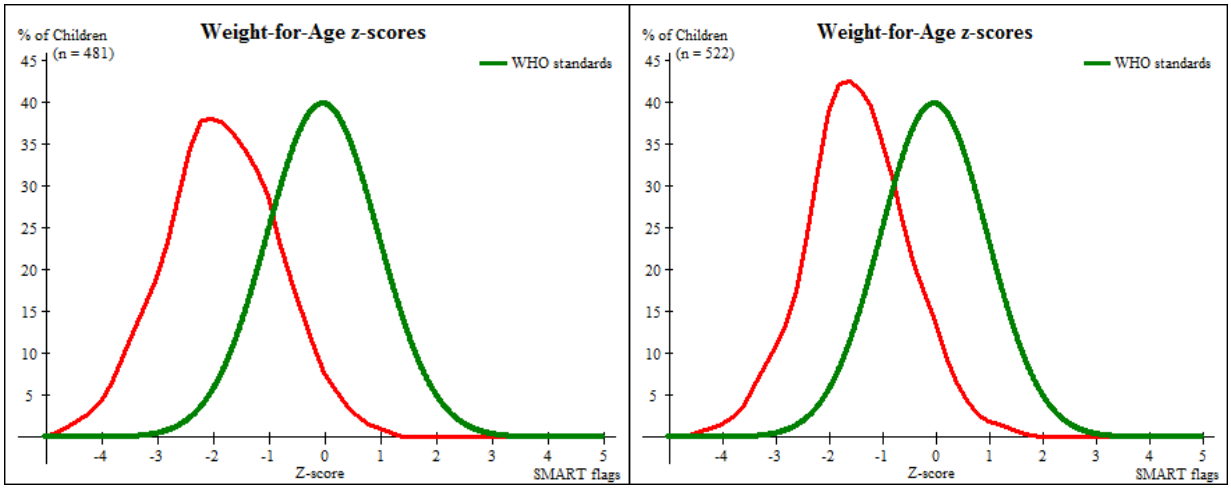

Figure 6: Observed distribution (WAZ) for Lowlands (Left) and Highlands (Right)

4.3. Retrospective Mortality Results

The survey results indicate Crude Mortality Rate (CMR) and Under-five Mortality Rate (U5MR) are estimated at 0.07% (95%CI: 0.02-0.30) and 0.22% (95%CI: 0.03-1.65) and 0.06% (95%CI: 0.01-0.23) and 0.00 (95%CI: 0.00-0.00) for both Lowlands and Highland respectively. Both CMR and U5MR are below the emergency threshold. (**table 18**)

There were four (4) death reported in the surveyed area in the 90 days before the survey. Out of this four (4), two (2) were reported in Lowlands: one (1) was a child under five, and one (1) above five years. In Highlands, there were two (2) deaths reported of children above five years old.

Table 18: Retrospective Mortality Results

	Lowlands	Highlands
Total Number of Households	449	563
Total Number of HHs with children U5	327	384
Average household size	6.9	6.9
Mid interval Population Size	3105	3910
Percentage of children under five	18.4	17.3
Birth Rate	0.5	0.97
In-migration Rate (Joined)	17.78	19.27
Out-Migration Rate (Left)	16.35	21.65
Crude Death Rate (95% CI)	0.07 (0.02-0.30)	0.06 (0.01-0.23)
Under Five Death Rate (95% CI)	0.22 (0.03-1.65)	0.00 (0.00-0.00)

4.4. Child Morbidity

Morbidity data were collected from children 0-59 months of age for a recall period of 14 days prior the survey. The illness was recorded using strict case definitions. More than 30% of the children experienced one or more symptoms of illness during the 14 days prior the survey. The results indicated a higher prevalence of ARI in both Lowlands and Highlands with Lowlands having 51% and Highlands 36%. The ARI and fever were significantly higher in Lowlands compared to Highlands (P-

Value<0.05) There was a noted higher point prevalence of diarrhea in Lowlands than Highlands as in though not significant. The graphical presentation of morbidity prevalence is shown in **figure 8**.

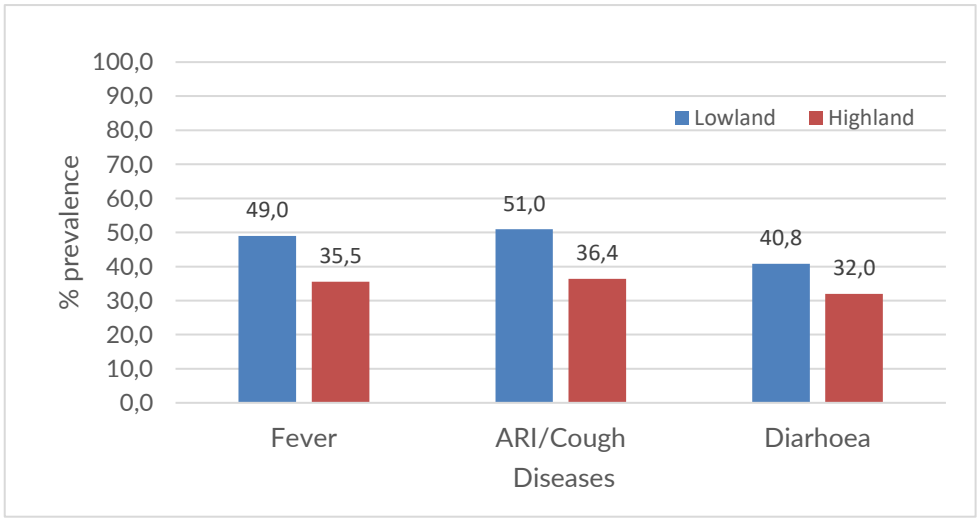

Figure 7: Morbidity prevalence among children 0-59 months in Lowlands and Highlands (recall period: 14 days)

4.5. Supplementation and vaccination coverage

The vitamin A supplementation coverage was 69% in Lowland and 67% in Highland. The findings for vaccination coverage were higher with coverage for pentavalent than measles with 85% and 77% in Lowlands respectively; and 82% and 72% in Highlands. (**figure 9**)

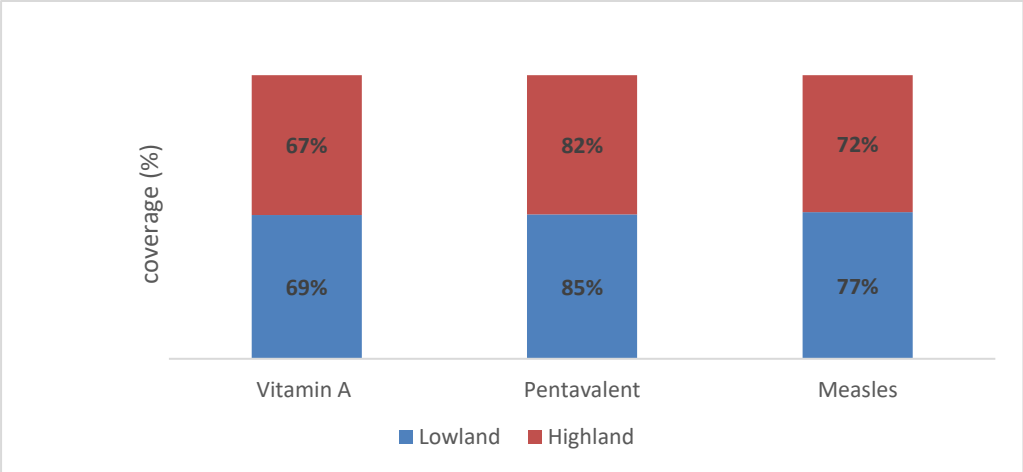

Figure 9: Vitamin A supplementation and vaccination coverage children among children 0-59 months in Lowlands and Highlands

A further analysis of Measles coverage for those who responded yes showed that confirmation of vaccination by card is low at 54.8% in Lowlands and 35.% in Highlands.

4.6. Infant and Young Child Feeding

4.6.1. Breastfeeding Practices

The survey collected information from caregivers of children aged 0 -23 months with an objective to have a better understanding of IYCF practices. A total of 254 and 210 children 0-23 months were assessed for the Highland and Lowlands respectively.

The result indicated a low exclusive breastfeeding rates for both Lowlands and Highlands at 16.7% (5.6 -34.7 95% CI) and 5.5% (1.1 -15.1 95% CI) respectively. In Lowlands and Highlands, the children ever breastfeed were76.2% (69.8 -81.8 95% CI) and 68.5% (62.4 – 74.2 95% CI) respectively.

Continued breastfeeding was also assessed. The prevalence of continued breastfeeding at one year reaches 73.1 % (52.2 – 88.4 95% CI) and 72.0 % (57.5 -83.8 95% CI) for Lowland sand Highland respectively; while the continued breastfeeding at two years decrease to 56.7 % (37.4 - 74.5 95% CI) and 31.6% (17.5 – 48.7 95% CI) (**table 19**).

Table 19: Prevalence for breastfeeding practices

Indicator	Lowlands (%)	Highlands (%)
Exclusive breastfeeding (0-5 months)	16.7% (5.6 -34.7 95% CI) (n=5)	5.5% (1.1 -15.1 95% CI) (n=3)
Continued breastfeeding at one year (12-15 months)	73.1 % (52.2 – 88.4 95% CI) (n=19)	72.0 % (57.5 -83.8 95% CI) (n=28)
Continued breastfeeding at 2 years (20-23 months)	56.7 % (37.4 - 74.5 95% CI) (n=17)	31.6% (17.5 – 48.7 95% CI) (n= 12)
Children ever breastfed	77.7% (71.4 -83.2 95% CI) (n=160)	70.7% (64.6 – 76.3 95% CI) (n=174)

4.6.2. Complementary Feeding

More than 50% of the children have received complementary food on time, the i**ntroduction of solid, semi-solid or soft foods** reached 61.1%(35.7 – 82.7 95% CI) and 76.5% (50.1 – 93.2 95% CI) for Lowlands and Highlands respectively. The CI is large given the narrow age group for this indicator: 6 to 8 months.

The survey assessed the **minimum dietary diversity** for children aged 6-23 months. The finding indicated that 31.8% (25.0 – 39.2 95% CI) and 26.7% (20.6 – 33.6 95% CI) children 6–23 months of age received foods from 4 or more food groups during the previous day for Lowlands and Highlands respectively.

A further analysis of age specific minimum dietary diversity is detailed in **table 20**.

Table 20: Age specific minimum dietary diversity among children 6-23 months

Age (months)	Lowlands (%)	Highlands (%)
6-11	20.3% (11.8 – 31.2 95% CI) (n=15)	28.4% (18 – 40.7 95% CI) (n=19)
12-17	36.2 % (22.7 – 51.5 95% CI) (n=17)	26.1% (16.3 – 38.1 95% CI) (n=18)
18-23	44.4 % (30.9 – 58.6 95% CI) (n=24)	25.9 % (15.0 – 39.7 95% CI) (n=14)

The survey also assessed the **minimum meal frequency** for children who consumed solid, semi-solid or soft food. This is an age-specific indicator and its recommended that breastfed children aged 6-8 should be fed with solid, semi-solid or soft food twice a day while those aged 9-23 months should be fed three times. The guideline further recommends non-breastfed children be given solid, semi-solid or soft food four times a day.

The finding indicated that 27.4 % (21.0 – 34.7 95% CI) and 26.0% (20.0-32.9 CI) children 6–23 months of age consumed solid, semi-solid or soft food the recommended times the previous day according to their age and breastfeeding practice, in Lowlands and Highlands respectively.

A further analysis of age specific minimum meal frequency is detailed in **table 21**.

Table 21: Minimum meal frequency of children aged 6-23 months

Minimum Meal Frequency	Lowlands (%) (N=175, n=48)	Highlands (%) (N=192, n=50)
Breastfed Children		
6-8 months Minimum 2 times	51.7% (32.5-70.6 CI) N=29, n=15	56.0% (34.9-75.6 CI) N=25, n=14
9-11 months Minimum 3 times	20.6% (8.7-37.9 CI) N=34, n=7	27.3% (13.3-45.5 CI) N=33, n=9
12-17 months Minimum 3 times	36.4% (20.4-54.9 CI) N= 33, n=12	31.9% (19.1-47.1 CI) N=47, n=15
18-23 months Minimum 3 times	23.5% (10.7-41.2 CI) N=34, n=8	31.6% (12.6-56.6 CI) N=19, n=6
Non-Breastfed Children		
6-8 months Minimum 4 times	0.0% N=1, n=0	0.0% N=3, n=0
9-11 months Minimum 4 times	0.0% N=11, n=0	0.0% N=8, n=0
12-17 months Minimum 4 times	7.7% (0.2-36.0 CI) N=13, n=1	4.5% (0.1-22.8 CI) N=22, n= 1
18-23 months Minimum 4 times	25.0% (8.7-49.1 CI) N=20, n=5	14.3% (4.8-30.3 CI) N=35, n=5

The result of the 24-hour dietary recall for children 6-23 months shows that the main food group eaten by this age group is staple, the details for other groups are shown in **figure 10**.

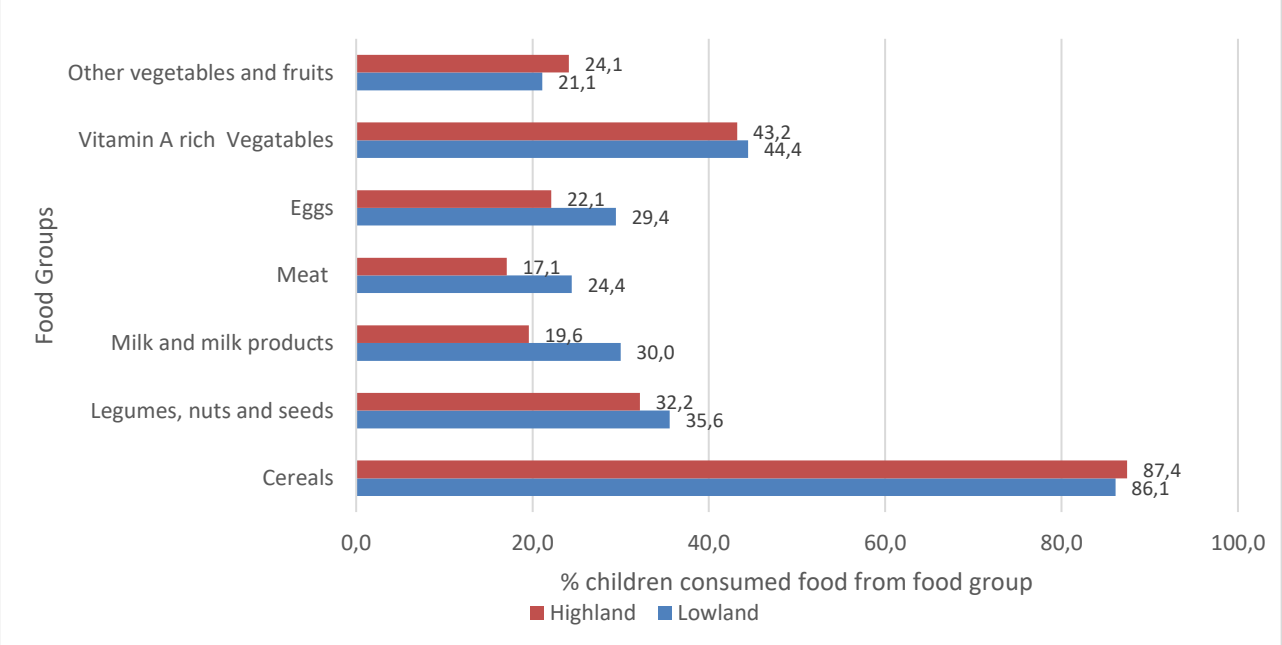

Figure 9: Food Groups eaten within 24hrs prior to survey among children 6-23 months (Lowlands N = 180, Highlands N=199)

The **minimum acceptable diet** among children 6-23 months was determined. This is an age specific indicator and combines both minimum dietary diversity and meal frequency.

The finding indicated that 7.7% (4.2-12.9 CI) and 8.4% (4.9-13.2 CI) children 6–23 months of age consumed solid, semi-solid or soft food the recommended times the previous day according to their age and breastfeeding practice, in Lowlands and Highlands respectively.

A further analysis of age specific minimum acceptable diet is detailed in **table 22**.

Table 22: Minimum acceptable diet of children aged 6-23 months

Indicator	Lowlands (%) (N=168, n=13)	Highland (%)(N=191, n=16)
Breastfed		
6-8 Months	3.4 % (0.1– 17.8 95% CI) N=29, n=1	20.0% (6.8%-40.7 CI) N=25, n=5
9-11 Months	6.1% (0.7-20.2 CI) N=33,n=2	9.1% (1.9-24.3 CI) N=33, n=3
12-17 Months	18.2 % (7.0 – 35.5 95% CI) N=33, n=6	10.6 % (3.5 – 23.1 95% CI) N=47 , n=5
18-23 Months	5.9 % (0.7 – 19.7 95% CI) N=34, n=2	5.3% (0.1-26.0 CI) N=19, n=1
Non-Breastfed		
6-8 Months	0.0% N=1,n=0	0.0% N=3, n=0
9-11 Months	0.0% N=10, n=0	0.0% N=8, n=0
12-17 Months	0.0% N=13,n=0	0.0% N=21, n=0
18-23 Months	13.3% (1.7-40.5 CI) N=15, n=2	5.7% (0.7 – 19.2 95% CI) N=35 , n=2

The summary of IYCF indicators is presented in **table 23**

Table 23: Prevalence for complementary feeding practices

Indicator	Lowlands	Highlands
Introduction of solid, semi-solid or soft foods (6-8 months)	61.1% (35.7 – 82.7 95% CI) (n=11)	76.5% (50.1 – 93.2 95% CI) (n=13)
Minimum dietary diversity (6-23 months)	31.8% (25.0 – 39.2 95% CI)) (n=56)	26.7% (20.6 – 33.6 95% CI) (n=51)
Minimum meal frequency (6-23 months)	27.4 % (21.0 – 34.7 95% CI) (n=48) N= 175	26.0% (20.0-32.9 CI) (n=50, N=192)
Minimum acceptable diet (6-23 months)	7.7% (4.2-12.9 CI) (n=13, N=168)	8.4% (4.9-13.2 CI) (n=16, N=191)

4.7. Water Sanitation and Hygiene

The first main source of drinking water in both zones was from protected rainwater harvest - 30% and from "house connected piped water" 35% respectively. The second main source of drinking water in Lowlands and in Highlands was water tanker: 31% and 23% respectively. (**figure 10**)

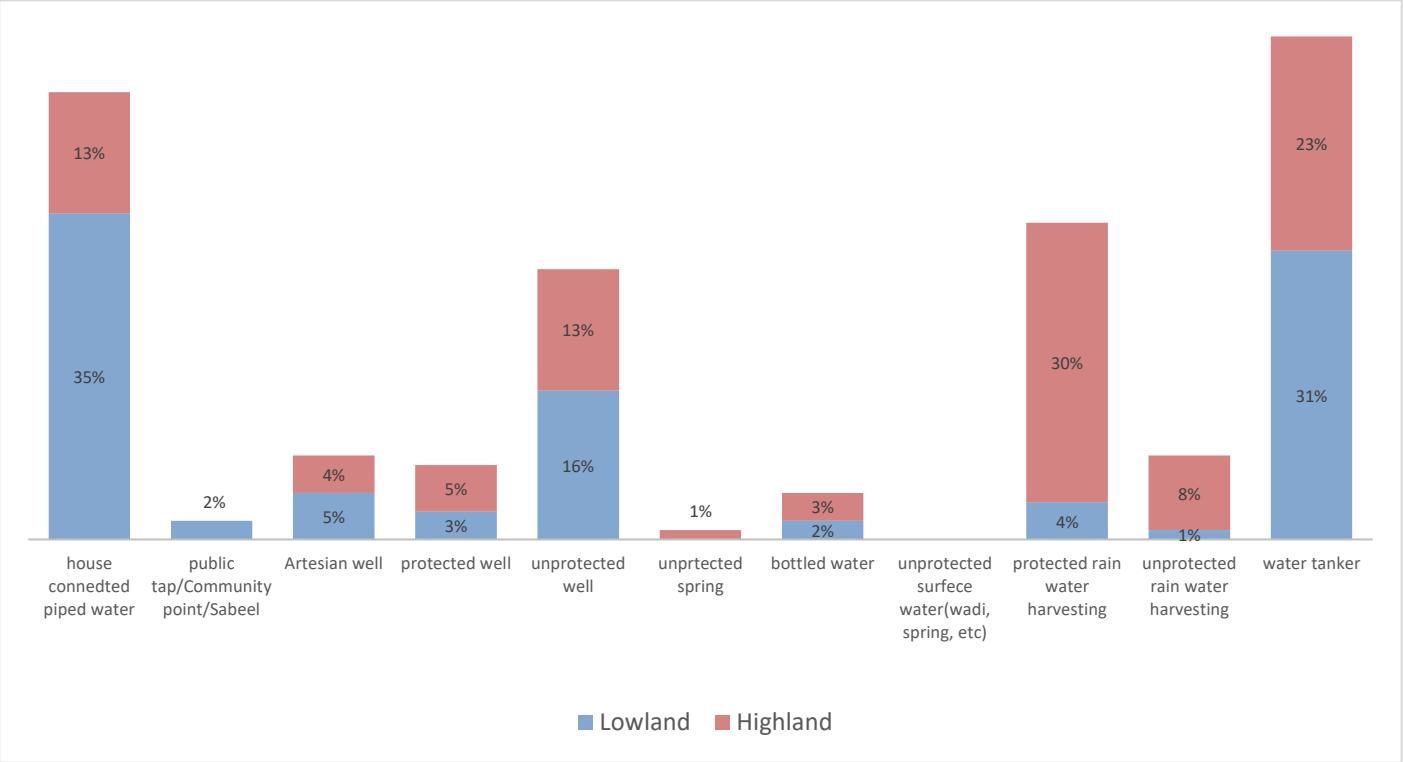

Figure 8: Household's main source of water in Lowlands and Highlands

The prevalence of type of latrine used and main handwashing practices are shown in **figure 24**.

Table 24: WASH main indicators

Household Latrine Type				
Flush to piped sewer system	34	8%	2	0%
Flush to septic tank	219	49%	271	48%
Flush to pit latrine	11	2%	13	2%
Flush to open drain	124	28%	262	47%
Ventilated improved pit latrine	4	1%	0	0%
Pit latrine with slab	4	1%	0	0%
Pit latrine without slab/open pit	7	2%	5	1%
Composting toilet	3	1%	0	0%
Defecation in open (in fields, etc)	40	9%	7	1%
Other	2	0%	0	0%
Hand washing practice				
After going to toilet	293	65%	348	62%
Before eating	422	94%	537	95%

4.8. Food Security

4.8.1. Household Dietary Diversity

Household dietary diversity for lowland and highland were: 8.3 and 8.6 with 87 %, with 87.8 and 90.6 percent of households consuming from higher dietary diversity (≥6 food groups) respectively. This was based on a seven day recall which can be prone to recall bias.

A further analysis of dietary patterns of food groups consumed by at least 50% of households in each group for both highland and lowland is shown in **tables 27 and 28**.

Table 25: Food consumed by more than 50% of households in Lahj Lowlands

Lowest Dietary Diversity ≤ 3Food Groups 2.4% of Households	Medium Dietary Diversity (4 and 5 food groups) 9.8 % of Households	High Dietary Diversity ≥6 Food groups 87.8 % of Households
Cereal	Cereals	Cereals
Spice, condiments and beverages	White tubers and roots	White tubers and roots
	Oil	Vegetables
	Spice, condiments and beverages	Meat
		Fish and other seafood
		Legumes, nuts and seeds
		Milk and milk products
		Oils and fat
		Sweets
		Spices, condiments and beverages

Table 26 : Food consumed by more than 50% of households in Lahj Higlands

Lowest Dietary Diversity ≤ 3Food Groups 0.7 % of Households	Medium Dietary Diversity (4 and 5 food groups) 8.7 % of Households	High Dietary Diversity ≥6 Food groups 90.6 % of Households
Cereal	Cereals	Cereals
Spices, condiments and beverages	Oil and fats	White tubers and roots
	Spices, condiments and beverages	vegetables
		fruits
		Meat
		Eggs
		Fish and other seafood
		Legumes, nuts and seeds
		Milk and milk products
		Oil andfats
		sugar; honey; dired fruits
		spice; tea; coffee

4.8.2. Food consumption score

A further analysis of household food consumption was done and the results is shown in **table 29**.

Table 29: Food consumption score for both lowland and Highland

	Poor Food consumption (FCS<21)	Borderline food consumption (FCS 21.5-35)	Acceptable food consumption (FCS>35)
Lowlands (% of households) N=448	5.4	14.2	80.4
Highlands (% of households) N=563	4.8	17.8	77.4

4.8.3. Consumption Coping Strategy

Surveyed households were asked if in the last seven days they did not have food or money to buy food and what they strategy they put in place to cope. The tool collected from eleven coping mechanisms where one left out. There need to harmonize the tool to ensure uniformity in analysis and comparison.

The results showed that 24.6 % of households (n=110), did not have enough food or money to buy food in the Lowlands with majority of these households employing; buying food with debt or foreclosure and sending their members to eat elsewhere while some household resorted to the most severe coping mechanism of spending the whole day without food as shown in **table 29**.

In Lahj Highlands, 8.0 % of households did not have food or money to buy food in the last seven days with majority of these households employed; reducing adult meals in the family in order to provide food for the children, buying food with debt or foreclosure and sending their members to eat elsewhere while a few employed the most severe coping mechanism of collecting wild foods or harvesting non-harvest crops and spending a whole day without food as in **table 29**.

In the past 7 days, if there have been times when you did not have enough food or money to buy food, how often has your household had to:	Lowlands			Highlands		
	Mean Number of days	Severity score	Weighted score	Mean Number of days	Severity score	Weighted score
Relying on poor or less expensive food	3	1	3,0	2,75	1	2,8
Borrowing food or relying on the help of friends and family	2,6	2	5,2	2,69	2	5,4
Reducing the amount of food served in the main meals	2,59	1	2,6	2,45	1	2,5
Reducing adult meals in the family in order to provide food for the children	2,48	2	5,0	3,07	2	6,1
Reducing the number of daily meals	2,45	2	4,9	2,76	2	5,5
Buying food with debt or foreclosure	4,12	2	8,2	3,74	2	7,5
Collecting wild foods or harvesting non-harvest crops	0	4	0,0	0,50	4	2,0
Consuming the seeds of planting the previous season	0	3	0,0	0,00	3	0,0
Sending their members to eat elsewhere	3,69	2	7,4	3,66	2	7,3
Begging	0	2	0,0	0,00	2	0,0
Spending a whole day without food	2,67	4	10,7	1,00	4	4,0
COPING STRATEGY INDEX	**46.9**			**43.0**		

Color code Key	Description
	Most utilized coping mechanism
	utilized s most evere coping mechanism

Other coping mechanism employed by the households in the last 30 days preceding the survey included selling assets, purchasing food on loan, expenditure on savings and borrowing money (**figure 11**).

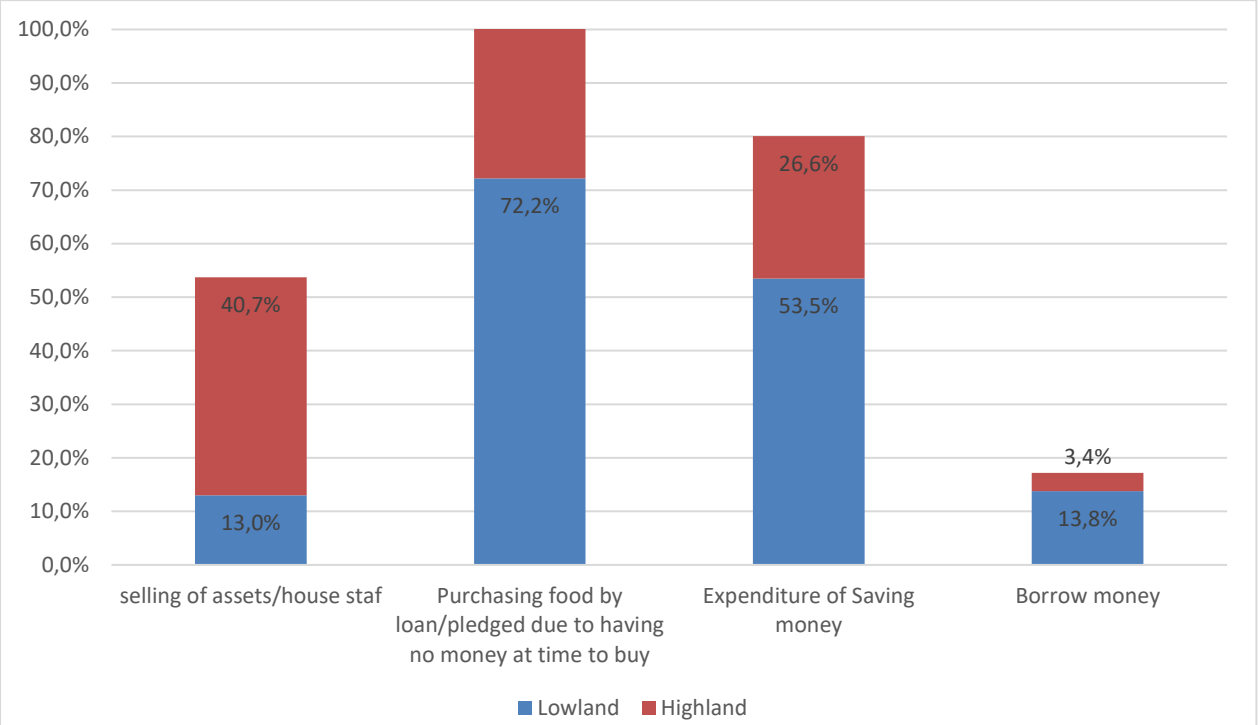

Figure 911 food security status per 30 days prior to the survey

5. DISCUSSIONS

- **Anthropometry**

Acute malnutrition

The nutrition situation of Lahj Governorate based on the results from the survey can be classified as Critical and Serious for Lowland and Highland respectively according to WHO classification for severity of nutritional situation. The rates of GAM based on WHZ is 25.3 % (20.8 - 30.4 95% C.I) for Lowland and 10.1 % (7.5 - 13.5 95% C.I.) for Highlands. SAM rates in Lowlands are higher than in Highlands, 4.8 % (3.1 - 7.3 95% C.I.) and 1.7 % (0.8 - 3.9 95% C.I.) respectively (figure 6).

The high malnutrition rates in Lowlands could be attributed to high prevalence of morbidity. The proportion of children who had ARI/Cough, Fever and Diarrhea in the Lowlands were; 51.0%, 49.0% and 40.8% respectively compared to 36.4%, 35.5% and 32.0% for Highlands.

Food security indicators shows poor food security at household level in the Lowlands compared with the Highlands with households consuming medium dietary and poor dietary diversity in the Lowlands at 12.2% while at the Highlands was 9.4%.

The coping strategy index which indicates the behaviour of households during food shortages showed a higher proportion of coping mechanism in households in the Lowlands with a coping strategy index of 46.9 compared with 43.0 in the Highlands.

A comparison of the current nutrition situation, with the prevalence found in previous surveys, indicates deteriorating nutrition situation in the Lowland with a (P-Value < 0.05). (**figure 12 and 13**)

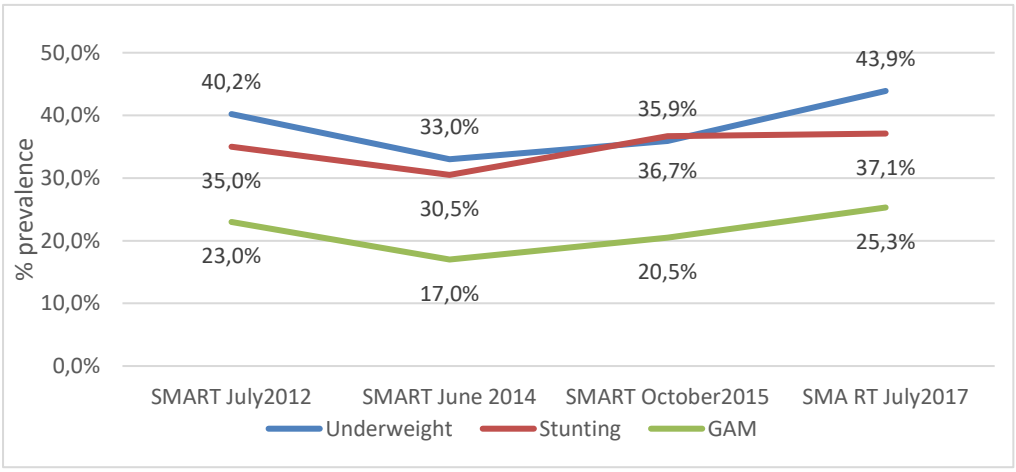

Figure 12: Malnutrition Trend in Lahj Lowlands from 2012 to 2017

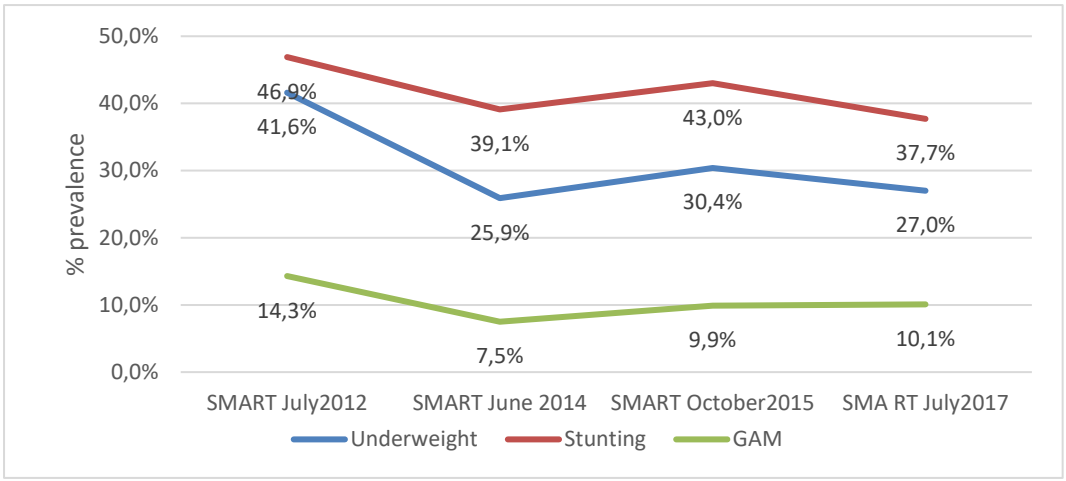

Figure 10: Malnutrition Trend in Lahj Highland from 2012 to 2017

Chronic Malnutrition

Chronic malnutrition is a form of growth failure that causes both physical and cognitive delays in growth and development. Stunting, also known as linear growth failure, is defined as the inability to attain potential height for a particular age, and it is the most common measurement used to identify chronic malnutrition. A chronically malnourished child will be challenged to attain the same height, will likely not develop the same cognitive ability, and will have higher risk of poor health outcomes throughout life[12].

The SMART survey results indicated a high chronic malnutrition among children 6-59 month for both Lowlands and Highland at 37.1 % (30.6 - 44.1 95% C.I.) and 37.7 % (31.8 - 44.1 95% C.I.).

[12] Kristina Reinhardt and Jessica Fanzo,(2014), Addressing Chronic Malnutrition through Multi-Sectoral, Sustainable Approaches: A Review of the Causes and Consequences

This can be attributed to the poor IYCF practices in the governorate. Notably is the extremely low rates of Exclusive breastfeeding at 16.7% (5.6 -34.7 95% CI) and 5.5% (1.1 -15.1 95% CI) for Lowlands and Highlands respectively. The survey results also indicate very low levels of complementary feeding for children 6-23 with minimum acceptable diet at 7.4 % (4.0 – 12.3 95% CI) and 6.2 % (3.3 – 10.6 95% CI), for Lowlands and Highlands respectively.

- **Mortality**

The survey results indicate Crude Mortality Rate (CMR) and Under-five Mortality Rate (U5MR) are estimated at 0.07% (95%CI: 0.02-0.30) and 0.22% (95%CI: 0.03-1.65) and 0.06% (95%CI: 0.01-0.23) and 0.00 (95%CI: 0.00-0.00) for both Lowlands and Highland respectively. Both CMR and U5MR are below the emergency threshold.

There is need to investigate further the reasons why mortality in the region remains low throughout despite the causal factors indicating otherwise.There is need to know whether the tool used is not sensitive enough to capture mortality or there are other social cultural factors inhibiting information sharing on mortality by the respondents. The above results might not be helpful for programming purposes as discussed with the sector.

- **Morbidity**

The results of the survey indicated a high prevalence of morbidly amongst children under-five with the leading cause being ARI, fever and diarrhea. The high rates could be attributed to poor health seeking behavior due to the high number of non-functional health facilities attributed to the current political environment. The high diarrhea cases could be attributed to poor hygiene and sanitation including open defection, poor handwashing practice and drinking water from unsafe water sources.

- **Food Security**

The results from the survey indicated households have adequate food with majority of household both in Lowlands and Highlands having Household Dietary Diversity of above 8 and more than 80% of household consuming from a higher dietary diversity group (≥6 food groups).

There is need to cushion the 12.2 and 8% of households consuming from less than six food groups.

A further analysis using the food consumption score indicates 80.4% and 77.4% are consuming from acceptable food consumption score of above 35 in the Lowland and Highland respectively. There is need to also cushion the 20.3% and 22.6% of household consuming from borderline and poor consumption score.

No	Indicator Result	Recommendation	Responsible Organization/ Person	Timeline (By When)
1	**Poor acute malnutrition** Lowland: 25.3% (20.8-30.4 95% C.I.)-Critical Highlands 10.1% (7.5-13.4 95% C.I.)-Serious	Scaling up the nutrition interventions in Lowlands. It is clear that GAM rate is > 15%. This requires close monitoring and ensuring that service delivery meets the needs, with particular attention to areas with very high GAM rates. Engage the Nutrition cluster on possibility of blanket supplementary feeding for young children	Implementing partners and MoPHP	Immediate
2.	**High chronic malnutrition** Lowlands : 37.1 % (30.6-44.1 95% C.I) Highlands: 37.7 % (31.8-44.1 95%)	Promote dietary diversification through establishment of vegetables production in households	Implementing partners and MoPHP	Immediate
3	**High prevalence of Diarrhea:** Lowlands:29% Highlands : 34%	Promote health education and awareness, and enhance training on diarrhea prevention by using committed community health volunteers	Implementing partners and MoPHP	Continuous
4.	**Low Vitamin A Coverage:** Lowlands:69% Highlands: 67%	Institutionalize vitamin A supplementation and de-worming at all health facilities and scale up during annual child health campaigns / EPI campaigns	MoPH	Continuous
5	**Poor Infant and Young Child Feeding Practices** **Exclusive breastfeeding:** Lowlands: 16.7% Highlands: 7.4% **Minimum Acceptable Diet:** Lowlands: 7.7% Highlands: 8.4% **Minimum Dietary Diversity** Lowlands: 26.7% Highlands: 31.8%	Conduct community dialogue sessions and sensitization meetings with community leaders/key influencers on appropriate childcare practices Initiate programs on IYCF both at health facility and community level are needed to protect, promote and support optimal child care practices.	Implementing partners and MoPHP	February 2018

ANNEXES

Annex 1: Number of Clusters in Districts of Lahj Lowlands

Districts	Estimated Population	Number of core Clusters	Number of reserve Clusters
Tor Albaha	65127	6	1
Alhota	35586	2	0
Toban	114824	10	1
Habil Jabr	56634	1	0
Radfan	60929	2	1
Almilah	39020	3	0
Almuseimir	36327	2	0
Alnadreba wa Alara	64714	3	0
Alqabita	128735	1	0
Total		30	3

Annex 2: Number of Clusters in Districts of Lahj Highlands

Districts	Estimated Population	Number of core Clusters	Number of reserve Clusters
Alhad	73138	5	0
Yafea	102986	4	2
Almaflahy	52862	2	1
Yahr	50593	4	0
Halmin	38183	2	0
Almaqatera	74183	3	1
Habil jabr	56634	1	0
Alhabileen	60929	2	0
Almuserimir	36327	1	0
Alqabita	128735	6	0
Total		30	4

Annex 3: Enumerator training topics

Survey Training topics

Objectives of the nutrition survey

Anthropometric measurements: height/length, weight and MUAC measurement techniques and precautions on taking measurements.

Age assessment: preparation of local calendar and how to use local calendar to assist mother to recall the age of their children.

Assessment of health status of the children (illness), immunization and mortality data

Standardization training for enumerators: The team will be able to make accurate and precise measurements and they have to pass the standardization test. The team will be arranged according to their performance of the measurement.

Data collection and interview techniques, procedures.

The training focus on approaching the household's techniques of asking the question and filling the questionnaires.

Ethical issues during the survey.

Organization of the survey.

Survey tools and how to complete them.
Approaching the community and working together on completing the selection of households

Annex 4: SMART Nutritional survey Activities

Action	Period
Preparation: contacting local authority, survey team Identification training material preparation	July 1-2, 2017
Refresher training of survey team	July 3-9, 2017
Data collection together with data entry for both ecological zones	July 10-23, 2017
Data cleaning and Data Analysis (row tables and Slides)	July 24- 1st of Aug, 2017
Preliminary report (report finding)	2nd of Aug 10th , 2017
Receiving comments	August 25, 2017
Finalizing and dissemination of the final report	Sept 5,2017

Annex 5: Plausibility check for Lowlands

Plausibility check for: YEM_201707_ACF_LahjLowland.as

Standard/Reference used for z-score calculation: WHO standards 2006
(If it is not mentioned, flagged data is included in the evaluation. Some parts of this plausibility report are more for advanced users and can be skipped for a standard evaluation)

Overall data quality

Criteria	Flags*	Unit	Excel.	Good	Accept	Problematic	**Score**
Flagged data	Incl	%	0-2.5	>2.5-5.0	>5.0-7.5	>7.5	
(% of out of range subjects)			0	5	10	20	**0** (0.6 %)
Overall Sex ratio	Incl	p	>0.1	>0.05	>0.001	<=0.001	
(Significant chi square)			0	2	4	10	**2** (p=0.052)
Age ratio(6-29 vs 30-59)	Incl	p	>0.1	>0.05	>0.001	<=0.001	
(Significant chi square)			0	2	4	10	**0** (p=0.977)
Dig pref score - weight	Incl	#	0-7	8-12	13-20	> 20	
			0	2	4	10	**0** (5)
Dig pref score - height	Incl	#	0-7	8-12	13-20	> 20	
			0	2	4	10	**0** (6)
Dig pref score - MUAC	Incl	#	0-7	8-12	13-20	> 20	
			0	2	4	10	**0** (5)
Standard Dev WHZ	Excl	SD	<1.1	<1.15	<1.20	>=1.20	
.				and and	and	or	
.	Excl	SD	>0.9	>0.85	>0.80	<=0.80	
			0	5	10	20	**0** (0.98)
Skewness WHZ	Excl	#	<±0.2	<±0.4	<±0.6	>=±0.6	
			0	1	3	5	**0** (0.07)
Kurtosis WHZ	Excl	#	<±0.2	<±0.4	<±0.6	>=±0.6	
			0	1	3	5	**0** (0.15)
Poisson dist WHZ-2	Excl	p	>0.05	>0.01	>0.001	<=0.001	
			0	1	3	5	**3** (p=0.009)

OVERALL SCORE WHZ =	0-9	10-14	15-24	>25	**5** %

The overall score of this survey is 5 %, this is excellent.

There were no duplicate entries detected.
Missing or wrong data:

WEIGHT: Line=90/ID=1, Line=306/ID=1, Line=307/ID=2, Line=516/ID=3
HEIGHT: Line=90/ID=1, Line=306/ID=1, Line=307/ID=2, Line=516/ID=3

Percentage of children with no exact birthday: 44 %

Annex 6: Plausibility Check for Highlands

Plausibility check for: YEM_201707_ACF_Highland.as

Standard/Reference used for z-score calculation: WHO standards 2006
(If it is not mentioned, flagged data is included in the evaluation. Some parts of this plausibility report are more for advanced users and can be skipped for a standard evaluation)

Overall data quality

Criteria	Flags*	Unit	Excel.	Good	Accept	Problematic	**Score**
Flagged data	Incl	%	0-2.5	>2.5-5.0	>5.0-7.5	>7.5	
(% of out of range subjects)			0	5	10	20	**0** (0.9 %)
Overall Sex ratio	Incl	p	>0.1	>0.05	>0.001	<=0.001	
(Significant chi square)			0	2	4	10	**0** (p=0.231)
Age ratio(6-29 vs 30-59)	Incl	p	>0.1	>0.05	>0.001	<=0.001	
(Significant chi square)			0	2	4	10	**4** (p=0.016)
Dig pref score - weight	Incl	#	0-7	8-12	13-20	> 20	
			0	2	4	10	**0** (4)
Dig pref score - height	Incl	#	0-7	8-12	13-20	> 20	
			0	2	4	10	**0** (6)
Dig pref score - MUAC	Incl	#	0-7	8-12	13-20	> 20	
			0	2	4	10	**0** (4)
Standard Dev WHZ	Excl	SD	<1.1	<1.15 and	<1.20 and	>=1.20 and/or	
.	Excl	SD	>0.9	>0.85	>0.80	<=0.80	
			0	5	10	20	**0** (0.96)
Skewness WHZ	Excl	#	<±0.2	<±0.4	<±0.6	>=±0.6	
			0	1	3	5	**0** (0.01)
Kurtosis WHZ	Excl	#	<±0.2	<±0.4	<±0.6	>=±0.6	
			0	1	3	5	**3** (0.44)
Poisson dist WHZ-2	Excl	p	>0.05	>0.01	>0.001	<=0.001	
			0	1	3	5	**0** (p=0.582)
OVERALL SCORE WHZ =			0-9	10-14	15-24	>25	**7** %

The overall score of this survey is 7 %, this is excellent.

There were no duplicate entries detected.

Annex 7: Event calendar used for Lahj SMART survey

	2012		2013		2014		2015		2016		2017	
Jan	New Year's day	70	New Year's day	58	New Year's day	46	New Year's day	34	New Year's day	22	New Year's day	10
Feb		69		57		45	Arrival of Mansoor to Aden	33		21		9
Mar	Beginning of the decisive storm	68	Beginning of the decisive storm	56	Beginning of the decisive storm	44	Beginning of the decisive storm	32	Beginning of the decisive storm	20	Beginning of the decisive storm	8
April		67		55		43		31		19	The night of AL-Isra & AL-Mirage	7
May	Labour day	66	Labour day	54	The night of AL-Isra & AL-Mirage	42	The night of AL-Isra & AL-Mirage	30	The night of AL-Isra & AL-Mirage	18	The month of Ramadan	6
June	The night of AL-Isra & AL-Mirage	65	The night of AL-Isra & AL-Mirage	53	The month of Ramadan	41	The month of Ramadan	29	The month of Ramadan	17	Eid Al-fitr	5
July	The month of Ramadan	64	The month of Ramadan	52	Eid Al-fitr	40	Aden & Abyan Liberation from Hothies & Eid Al-fitr	28	Eid Al-fitr	16		4
Aug	Eid Al-fitr	63	Eid Al-fitr	51		39		27	Abyan Liberation from Al-Qaidah	15		3
Sept	The beginning of returning to school	62	The beginning of returning to school	50	The beginning of returning to school	38	The beginning of returning to school & Eid Al-Adha	26	The beginning of returning to school & Eid Al-Adha	14	The beginning of returning to school & Eid Al-Adha	2
Oct	The festival of 14th October & Eid Al-Adha	61	The festival of 14th October & Eid Al-Adha	49	The festival of 14th October & Eid Al-Adha	37	The festival of 14th October	25	The festival of 14th October	13	The festival of 14th October	1
Nov	Independence day	60	Independence day	48	Independence day	36	Independence day	24	Independence day	12	Independence day	0
Dec	Assumption	59	Assumption	47	Assumption	35	Death of Aden governor	23	Assemption	11		

Annex 8: Lahj SMART Survey Questionnaires

الجمهورية اليمنية
وزارة الصحة العامة والسكان
مكتب الصحة العامة والسكان بمحافظة لحج

تقييم الحالة التغذوية والوفيات في محافظة لحج، شهر يوليو 2017م

استبيان الأسرة (نموذج 1)

أولاً. يتم الشرح للساكنين في المسكن (البالغين منهم) عن التقييم والتعريف بالجهة القائمة عليه والأشخاص العاملين فيه (أعضاء الفريق)، ثم بعد ذلك الحصول على الموافقة الشفهية منهم.

الموافقة				
	1.	نعم		
انتقل إلى الصفحة	2.	لا		

هل الأسرة مقيمة أم نازحة؟

1.	مقيمة.	
2.	نازحة	

في حال الأسرة المقيمة. هل تقيم معكم اسرة أو اسر نازحة؟

1.	نعم		في حال وجود اسرة نازحة تعيش مع اسرة مقيمة فينبغي تعبئة بيانات الاسرتين في استبيانين منفصلين عدا استمارة الوفيات فيجب ان تكون استمارة واحدة للأسرتين، وترفق مع استبيان الأسرة المقيمة.
2.	لا		

المديرية	العزلة	القرية/ الحارة

تاريخ المقابلة	يوم		شهر		سنـــــة				رقم مسلسل الأسرة بحسب حصر العينة		
			7	Ø	7	1	Ø	2			

اسم رب الأسرة:	

فريق التقييم رقم	الفريق	الاسم	التوقيع
	الباحثة 1		
	الباحثة 2 + 3		
	رئيس الفريق		

	المشرف الميداني		

تنقل البيانات التالية من س1 بيانات الأسرة والوفيات إلى استمارة تفريغ حصر العنقود .

عدد أفراد الأسرة	عدد الأطفال أقل من 5 سنوات	عدد الأطفال أقل من 6 أشهر	عدد أفراد استمارة الوفيات

بين فيما إذا كان هناك:		
1.	غياب الأسرة عند الزيارة الأولى ويتطلب الأمر زيارة ثانية	
2.	غياب المرأة عند الزيارة الأولى ويتطلب الأمر زيارة ثانية	
3.	غياب طفل عند الزيارة الأولى ويتطلب الأمر زيارة ثانية*	

* عند غياب الطفل، تستكمل كل بياناته عدا القياسات الإنثروبومترية والأوديما حيث تستكمل عند حضوره.

ملاحظة: البيانات في الغلاف هي للاستخدام الميداني والإداري من قبل أعضاء الفريق.

يملئ من قبل رئيس الفريق (تستخدم لإدخال البيانات)

تاريخ المقابلة	يوم		شهر		سنـــــة			
			7	Ø	7	1	Ø	2

رقم الفريق	

رمز القرية / الحارة			رمز العزلة		
رمز المديرية			رمز المحافظة		
رقم طبقة التقييم			رقم العنقود		

هل المنطقة حضرية (1) أم ريفية (2)	

غياب الأسرة حتى بعد الزيارة الثانية (1 نعم ، 2 لا)	
الموافقة (1 نعم ، 2 لا) إذا (لا) إنتقل إلى الأسرة التالية	

رقم استبيان الأسرة				
الاسرة مقيمة (1) أم نازحة (2)				
في حال الاسرة المقيمة، هل تأوي اسرة نازحة (1 نعم ، 2 لا)				
مسلسل الأسرة النازحة				

العمل المكتبي

	الاسم	اليوم	الشهر	السنة	التوقيع

مدخل البيانات										
مدخل البيانات										
المراجعة										
الملاحظات										

س 001: بيانات عن الأسرة (الأحياء فقط والذين يعيشون حاليا في الأسرة)

H001a	عدد أفراد الأسرة (الأحياء فقط الذين يقيمون حاليا في الأسرة يوم الزيارة)	العدد	
H001b	عدد الأطفال أقل من 5 سنوات (الأحياء فقط الذين يقيمون حاليا في الأسرة يوم الزيارة)	العدد	
H001c	عدد الأطفال أقل من 6 أشهر (الأحياء فقط الذين يقيمون حاليا في الأسرة يوم الزيارة)	العدد	

س 002: بيانات عن جنس رب الأسرة (الشخص الذي يتكفل بالإنفاق على الأسرة)

H002	ما نوع رب الأسرة			
	1.	ذكر		
	2.	أنثى		

س 003 – س 005: بيانات عن راعي الأسرة (الشخص الذي يقوم برعاية الأسرة وخصوصا الأطفال)

	ما نوع راعي الأسرة	

H003	1.	ذكر.		
	2.	أنثى.		

H004	الحالة الاجتماعية لراعي الأسرة			
	1.	متزوج .		
	2.	أرمل.		
	3.	مطلق.		
	4.	حانق.		
	5.	عازب.		

H005	المستوى التعليمي لراعي الأسرة			
	1.	أمي.		
	2.	يقرأ ويكتب.		
	3.	تعليم أساسي.		
	4.	تعليم ثانوي.		
	5.	تعليم عالي (جامعة أو كلية أو معهد).		

006 – س 007: بيانات عن دخل الأسرة وإنفاقها

H006	هل نقص دخل الأسرة خلال الـ12 إثنا عشر شهر الماضية ؟			
	1.	نعم.		
	2.	لا .		
	3.	لا أعرف .		

H007	كم متوسط (الإنفاق) المصروف للأسرة بالريال؟		قيمة الإنفاق (ريال)	
	1.	الإنفاق اليومي		
	2.	الإنفاق الأسبوعي		
	3.	الإنفاق الشهري		
	الإجمالي			

س 008 – س 013: بيانات عن الماء والإصحاح البيئي والنظافة

H008	ما هو المصدر الرئيسي لمياه الشرب في منزلكم؟ (خيار واحد فقط)			إنتقل إلى
	1.	مشروع مياه موصل إلى المنازل (حكومية أو خاصة)		
	2.	حنفية عامة /نقطة مياه مجتمعية / مياه السبيل		
	3.	بئر ارتوازية		
	4.	بئر مغطاة		
	5.	بئر غير محمي		
	6.	عين مغطاة		
	7.	عين ماء غير محمية		
	8.	مياه معالجة (معدني أو كوثر)		H010
	9.	مياه سطحية جدول/ غيل/ قنوات ري		
	10.	تجميع مياه الأمطار محمية		
	11.	تجميع مياه الأمطار غير محمية (صهاريج مياه / بركة/ ماجل)		
	12.	وايتات أو عربات نقل المياه		
	13.	أخرى: تذكر		

H009a	هل تقومون بمعالجة الماء قبل الشرب؟			انتقل إلى
	1.	نعم		
	2.	لا		H010
	3.	لا أعرف		H010

H009b	ماهي طريقة المعالجة الرئيسية المستخدمة لمياه الشرب (خيار واحد فقط)			
	1.	غلي الماء قبل الشرب		
	2.	استخدام الكلور		
	3.	الترشيح عبر قماش نظيف		
	4.	استخدام مرشح سيراميك أو رمل أو ما شابه (فلتر أو قطارة)		
	5.	ترك الماء ساكنا قبل الشرب لترسيب الشوائب.		
	6.	استخدام الشب (شب الفؤاد)		
	7.	أخرى: تذكر		

H010	للملاحظة: تحقق من توفر نقاط تخزين المياه لغرض الشرب: هل الوعاء الحاوي لمياه الشرب نظيف (خالي من الطحالب) ؟			
	1.	نعم. (عدم وجود طحالب)		
	2.	لا. (وجود طحالب)		

H011	اين تتم عملية قضاء الحاجة (التبرز)؟ (اختر فقرة من التالي)- تحقق من توفر المرافق والممارسات			
	1.	مرحاض - يتوفر فيه صب الماء للتنظيف الذاتي (سيفون أو دلو) إلى مجاري عمومية.		
	2.	مرحاض - يتوفر فيه صب الماء للتنظيف الذاتي (سيفون أو دلو) إلى بيارة.		
	3.	مرحاض - يتوفر فيه صب الماء للتنظيف الذاتي (سيفون أو دلو) إلى حفرة مرحاض.		
	4.	مرحاض - يتوفر فيه صب الماء للتنظيف الذاتي (سيفون أو دلو) إلى العراء.		
	5.	مرحاض - يتوفر فيه صب الماء للتنظيف الذاتي (سيفون أو دلو) إلى مكان غير معروف.		
	6.	حفرة مرحاض محسنة مهواه		
	7.	حفرة مرحاض بلوح		
	8.	حفرة مرحاض بدون لوح/ غير مغطاة		
	9.	مرحاض سماد		
	1Ø.	دلو		
	11.	مرحاض معلق		
	12.	قضاء الحاجة في العراء (في الحقول مثلا، الخ.)		
	13.	أخرى: تذكر		

		H012a متى تقومين بغسل اليدين (سجل فقط في حالة ذكر إحدى الحالتين أو كلتيهما)؟	1. ذكرت ← إذا الإجابة 1. ذكرت في السؤال السابق 2. لم تذكر إذا لم تذكر إنتقل إلى السؤال H013	H012b بم تغسلين يديك ؟					
				a. الماء فقط 1. نعم 2. لا		b. الماء مع الصابون (قطعة/ مسحوق/ سائل/ عجينة) 1. نعم 2. لا		c. الماء مع الرماد/ التراب/ القضاض/ أوراق الشجر 1. نعم 2. لا	
H012	a.	بعد قضاء الحاجة.							
	b.	قبل الأكل.							

س 013 – س 015: الاستهلاك الغذائي وأليات التكيف

		هل تناولت الأسرة أي من الأغذية أو المجموعات الغذائية أدناه. في العمود الأول تكون الإجابة بنعم أو لا (1 أو2) في العمود الثاني تكون الإجابة عدد الايام خلال السبعة ايام الماضية.	H013a هل تناولت الاسرة خلال الـ 7 أيام الماضية 1. نعم 2. لا إذا لا إنتقل للخيار التالي	H013b إذا الإجابة نعم في السؤال السابق كم عدد الأيام التي تناولتها الأسرة خلال الـ 7 أيام الماضية؟ (الإجابة هي من 1 إلى 7)
H013	a.	بر، خبز، عصيد، فتة، حبوب أخرى (ذرة، ذرة رفيعة، دخن، شعير)، معجنات، او اي منتجات مصنعة من الحبوب		
	b.	أرز أو مكرونة		
	c.	بطاط		
	d.	خضراوات (الخضراوات الورقية، الطماطم، الفلفل، جزر، دبا..... الخ)		
	e.	فواكه (مانجو، موز , عنب، ..... الخ)		
	f.	لحم (بقري، غنمي)، كبدة، كلاوي ، دواجن		
	g.	الدواجن		
	h.	بيض		
	i.	أسماك (طازجة ومجففة ومعلبة)		
	j.	بقوليات (فاصوليا، عدس، بازيليا، فول، .....)		
	k.	مشتقات الحليب (لبن، جبن، زبادي، حقين، .....)		
	l.	زيوت/ دهون (سمن، زبدة، زيت نباتي، ....)		
	m.	سكر , حلويات ، عسل، فواكه مجففة (تمر، زبيب)		
	n.	بهارات، شاي، بن		

H014a	خلال الـ7 ايام الماضية هل صادف أن الأسرة لم تكن تمتلك غذاءاً كافيا أو مالاً كافياً لشراء الغذاء اللازم لها؟			أتثقل إلى
	1.	نعم.		
	2.	لا.		H015

H014b	كم عدد الأيام خلال الـ7 ايام الماضية التي لجأت فيها الأسرة إلى أيا من الإجراءات أدناه بسبب أنها لم تكن تمتلك غذاءاً كافيا أو مالاً كافياً لشراء الغذاء اللازم لها؟		عدد الأيام (الإجابة هي من Ø إلى 7)	
	a.	الاعتماد على طعام رديء أو أقل كلفة.		
	b.	اقتراض الطعام أو الاعتماد على مساعدات الأهل والأصدقاء.		
	c.	خفض كمية الطعام المقدم في الوجبات الرئيسية.		
	d.	تقليص وجبات البالغين في الأسرة من أجل توفير الطعام للأطفال		
	e.	خفض عدد الوجبات اليومية		
	f.	شراء الطعام بالدين أو الرهن		
	g.	جمع أطعمة من الأحراش أو حصاد مزروعات غير جاهزة للحصاد		
	h.	استهلاك بذور زراعة الموسم القادم		
	i.	إرسال أفراد الأسرة لتناول الطعام في مكان آخر		
	j.	إرسال أفراد الأسرة للتسول		
	k.	قضاء يوم كامل بدون طعام		

H015	هل قام أيا من أفراد الأسرة بالإجراءات التالية لمواجهة شحة الغذاء خلال الـ 30 يوم الماضية ؟. يرجى تعبئة كل الخانات كالتالي:- (0) مطلقا (1) نادراً (مرة أو مرتين خلال الـ 30 يوم الماضية). (2) أحيانا (من 3 – 10 مرات خلال الـ 30 يوم الماضية). (3) دائما (كثر من 10 مرات خلال الـ 30 يوم الماضية).		Ø . مطلقاً 1. نادراً 2. أحياناً 3. دائماً	
	a.	بيع أصول/ مقتنيات الأسرة (الأثاث والمجوهرات والملابس ..الخ).		
	b.	شراء الطعام بالدين أو الرهن نظراً لعدم امتلاك المال وقت الشراء.		
	c.	إنفاق المدخرات.		
	d.	اقتراض المال.		
	e.	بيع الأصول الإنتاجية أو وسائل النقل (ماكينة الخياطة أو السيارة أو الدراجة ... الخ).		
	f.	استهلاك مخزون البذور المحفوظ للموسم القادم)		
	g.	سحب الأطفال من المدارس.		
	h.	بيع المنزل أو الأرض.		
	i.	التسول.		
	j.	بيع آخر إناث الماشية التي لديها		
	k.	التقليل من الإنفاق على التعليم والصحة (بما في ذلك الأدوية)		

رقم إستبيان الأسرة: .....

س 021 – س 023: سن الأطفال (يجب تدوين كل الأطفال من عمر 0 إلى أقل من 5 سنوات في الجدول أدناه ابتداء بالأكبر سنا)

		C021	C022	C023a	C023b	
رقم الطفل	الاسم الأول للطفل	نوع الطفل 1= ذكر 2 = أنثى	رقم المرأة (أم أو راعية الطفل يؤخذ من صفحة المرأة)	تاريخ الميلاد (بالهجري أو الميلادي) للأطفال من سن (0 إلى 59) شهر	عمر الطفل (بالأشهر)	ماذا قالت الأم عن سن الطفل ؟
.1				يوم شهر سنـــة		
.2				يوم شهر سنـــة		
.3				يوم شهر سنـــة		
.4				يوم شهر سنـــة		
.5				يوم شهر سنـــة		
.6				يوم شهر سنـــة		
.7				يوم شهر سنـــة		
.8				يوم شهر سنـــة		
.9				يوم شهر سنـــة		
.10				يوم شهر سنـــة		

رقم إستبيان الأسرة: .....

س 024 – س 026: القياسات الجسمانية للأطفال بين سن 6-59 شهر في الأسرة (يترك فارغاً للأطفال أقل من 6 أشهر)

			C024	C025	C026
رقم الطفل (ينقل من الصفحة السابقة)	**الاسم الأول للطفل (من الصفحة السابقة)**	**عمر الطفل (بالأشهر) (من الصفحة السابقة)**	**الوزن (كجم.جم)** **88.8 = رافض** **99.9 = غائب**	**الطول (سم.مم)** **888.8 = رافض** **999.9 = غائب**	**قياس محيط الذراع (سم.مم) (الميواك)** **88.8 = رافض** **99.9 = غائب**
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			.	.	.

رقم إستبيان الأسرة: .....

س 027 – س 033: التوذم والتحصين والمراضة الأطفال بين سن 0-59 شهر في الأسرة (كل الأطفال تحت سن 5 سنوات)

			C027	C028	C029	C030	C031	C032	C033
			لجميع الأطفال من عمر 0 – 59 شهر				***للأطفال بعمر 6 أشهر فأكثر***		***بعمر 9 أشهر فأكثر***
رقم الطفل (ينقل من الصفحة السابقة)	**الاسم الأول للطفل (من الصفحة السابقة)**	**عمر الطفل (بالأشهر) (من الصفحة السابقة)**	**التوذم (أوديما) في كلا القدمين** **1 = نعم** **2 = لا** **8 = رافض** **9 = غائب**	**الإسهال * خلال الأسبوعين الماضيين** **1 = نعم** **2 = لا**	**سعال أو صعوبة في التنفس خلال الأسبوعين الماضيين** **1 = نعم** **2 = لا**	**الحمى خلال الأسبوعين الماضيين** **1 = نعم** **2 = لا**	**هل تم إعطاء فيتامين (ا) خلال الستة أشهر الماضية؟ (إظهار عينة)** **1 = نعم** **2 = لا** **3 = لا أعرف**	**هل أخذ الطفل جرعة لقاح الخماسي3 (حقنة في الفخذ)؟** **1 = نعم من البطاقة** **2 = نعم بالتذكر** **3 = لا أعرف** **4 = لم يطعم**	**للأطفال بعمر 9 أشهر فأكثر، هل تم تطعيم الطفل ضد الحصبة (حقنة في اليد اليسرى)؟** **1 = نعم من البطاقة** **2 = نعم بالتذكر** **3 = لا أعرف** **4 = لم يطعم**

رقم إستبيان الأسرة: .....

*** الإسهال :- هو زيادة في عدد مرات الإسهال المائي عن الصورة المعتادة.**

رقم إستبيان الأسرة: .....

س 034– س 035: دون ممارسة الرضاعة للأطفال بين سن 0 إلى 24 شهر خلال الـ 24 ساعة الماضية (يترك فارغا للأطفال بعمر أكبر من 24 شهرا)

رقم الطفل (ينقل من الصفحة السابقة)	الاسم الأول للطفل (من الصفحة السابقة)	عمر الطفل (بالأشهر) (من الصفحة السابقة)	C034	C035				
			هل رضع الطفل من ثدي أمه (رضاعة / إعتصار) خلال الـ 24 ساعة الماضية؟ 1 = نعم 2 = لا إذا الإجابة لا إنتقل إلى السؤال C035b	سجل عدد المرات التي تناول فيها الطفل أمس (سجل 0 إذا لم يتناول الطفل)				
				C035a	C035b	C035c	C035d	C035e
				إذا كانت الإجابة نعم في السؤال السابق كم عدد المرات التي رضع فيها الطفل وعدد المرات التي أعطى فيها الطفل لبن الأم خلال الـ 24 ساعة الماضية؟	كم عدد المرات التي تناول فيها الطفل حليب رضع خلال الـ 24 ساعة الماضية؟	كم عدد المرات التي تناول فيها الطفل أي حليب آخر أو بودرة أو معلب أو حليب مواشي طازج خلال الـ 24 ساعة الماضية؟	كم عدد المرات التي تناول فيها الطفل الزبادي أو الحقين أو الثريب (الثرابة) خلال الـ 24 ساعة الماضية؟	كم عدد المرات التي تناول فيها الطفل الأغذية الأخرى بشرط ان تكون صلبة أو نصف صلبة أو لينة (كقوام الموز)

رقم إستبيان الأسرة: .....

س 036: دون ممارسة إطعام الأطفال بين سن 0(إلى 24 شهر) - خلال الـ 24 ساعة الماضية (يترك فارغا للأطفال بعمر أكبر من 24 شهرا)

رقم الطفل (ينقل من الصفحة السابقة)	الاسم الأول للطفل (من الصفحة السابقة)	عمر الطفل (بالأشهر) (من الصفحة السابقة)	C036 هل تناول الطفل أمس أيا من المجموعات الغذائية أدناه. (إبدائي بسؤال اليوم من الوقت الذي استيقظ فيه الطفل صباح أمس وحتى نومه في المساء). إتركي الأم تتذكر أدناه المواد بذكر قومي تنتهي وعندما 1 = نعم 2 = لا 3 = الأم لا تعرف							
			C036a	C036b	C036c	C036d	C036e	C036f	C036g	C036h	C036i
			ماء مع أو بدون سكر	حبوب: عصيدة أو شبيسة أو خبز أو أرز أو مكرونة أو اي غذاء مصنوع من الحبوب. درنات: بطاطا بيضاء أو أية أغذية درنية أخرى.	بقوليات : أي أغذية مصنوعة من الفول أو الفاصوليا أو البازيليا أو العدس أو الفول السوداني أو أي بقوليات أخرى.	الجبن أو الأيسكريم	اللحوم : كبد أو كلى أو قلب أو أحشاء أخرى. أي لحوم بقر أو غنم أو ماعز أو دواجن. اسماك طازجة أو مجففة أو معلبة.	بيض	خضروات وفواكه: دبا أو جزر أو بطاطا حلوة جوفها أصفر أو برتقالي. أي خضراوات ورقية داكنة الخضرة. مانجو أو باباي ناضجة.	أي فواكه أو خضراوات أخرى لم تذكر في الخانة السابقة.	أية مشروبات أو أغذية أخرى (عدا الأطفال، وأي حليب اخر، والحقين والزبادي)

رقم إستبيان الأسرة: .....

تقييم الحالة التغذوية والوفيات في محافظة لحج، شهر يوليو 2017م

استمارة رصد افراد الأسرة خلال 90 يوم من تاريخ يوم الزيارة (نموذج 2)

مديرية التقييم: _____ الحي/ القرية: _____ التاريخ: _____ رقم العنقود: _____
رقم الفريق: _____ رقم استبيان الأسرة: _____ طبقة التقييم:
_____

م	الاسم	الجنس (ذكر أو أنثى)	العمر بالسنوات	التحق بالإسرة خلال فتره 90 يوم من تاريخ الزيارة	غادر الأسرة خلال فتره 90 يوم من تاريخ الزيارة	ولد خلال فتره 90 يوم من تاريخ الزيارة	توفي خلال فتره 90 يوم من تاريخ الزيارة	سبب الوفاة	موقع الوفاة
1									
2									
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									
13									
14									
15									
16									
17									
18									

هام : يتم تسجيل كل الافراد الموجودين حاليا و كل من التحق بالاسرة او غادرها او توفى او ولد خلال فتره 90 يوم من تاريخ التقييم.

رموز أسباب الوفاة	
1 = غير معروف	5 = سوء التغذية
2 = حادث أو إصابة	6 = الحمى
3 = الاسهال	7= أخرى (حدد)

4 = مشاكل في التنفس	

رموز مواقع الوفاة	
1 = في الموقع الحالي	
2= أثناء الهجرة	
3= في آخر مكان سكن فيه	
4 = أخرى (حدد)	