AFGHANISTAN

Integrated Nutrition, Mortality, IYCF, FSL and WASH SMART Survey

Final Report

Nimroz Province, Afghanistan

30th Jan to 08th Feb 2020

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Action Against Hunger | Action Contre La Faim
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Abbreviation

ACF/AAH	Action Contre la Faim / Action Against Hunger
ARDHO	Afghanistan Research Development and Health Organization
AIM-TWG	Assessment and Information Management Technical Working Group
AOGs	Armed Opposition Groups
BHC	Basic Health Center
BPHS	Basic Package of Health Services
BSU	Basic Sampling Unit
CBA	Child Bearing Age
CDR	Crude Death Rate
CHC	Comprehensive Health Center
CI	Confidence Interval
DEFF	Design Effect
ECHO	European Commission for Humanitarian Aid
EBF	Exclusive Breast Feeding
ENA	Emergency Nutrition Assessment
EPHS	Essential Public Health Services
EPI	Expanded Program on Immunization
FCS	Food Consumption Score
GAM	Global Acute Malnutrition
HHs	Households
HAZ	Height/Age Z score
IDPs	Internally Displaced PopulationsPeople
IPC	Integrated Food Insecurity Phase Classification
IPD-SAM	Inpatient Department for Severe Acute Malnutrition
IYCF	Infant and Young Child Feeding
M&EHIS	Monitoring and Evaluation - Health Information System
mm	Millimeter
MoPH	Ministry of Public Health
MRCA	Medical Refresher Courses for Afghanistan
MUAC	Mid-Upper Arm Circumference
MW	Mean Weight
NGO	Non-Governmental Organization
NNS	National Nutrition Survey
NSIA	National Statistics and Information Authorities
NSSSSC	Nutrition Small Scale Surveys Steering Committee

OPD-MAM	Outpatient Department for Moderate Acute Malnutrition
OPD-SAM	Outpatient Department for Severe Acute Malnutrition
OW	Observed Weight
PLW	Pregnant and Lactating Women
PND	Public Nutrition Directorate
PNO	Public Nutrition Officer
PPHD	Provincial Public Health Directorate
PPS	Probability Proportional to Size
PSU	Primary Sampling Unit
RC	Reserve Cluster
rCSI	Reduced Coping Strategy Index
RH	Regional hospital
RUTF	Ready to Use Therapeutic Food
RUSF	Ready to Use Supplementary Food
SAM	Severe Acute Malnutrition
SD	Standard Deviation
SHC	Sub Health Center
SMART	Standardized Monitoring and Assessment of Relief and Transitions
TSFP	Targeted Supplementary Feeding Program
U5DR	Under-five Death Rate
UN- OCHA	United Nations Office for the Coordination of Humanitarian Assistance
UNICEF	United Nations Children's Fund
W/H	Weight for Height
WASH	Water Sanitation and Hygiene
WAZ	Weight for Age Z-Score
WFP	World Food Program
WHO	World Health Organization
WHZ	Weight for Height Z score

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1. EXECUTIVE SUMMARY

Nimroz is one of the 34 provinces of Afghanistan, located in the south-western part of the country. The province consists of six districts. The name Nimroz means "mid-day" or "half-day" in Persian. Nimroz covers 41,000 km^2. It is the most sparsely populated province in the country. The survey design was a cross-sectional population-representative survey following the Standardized Monitoring and Assessment of Relief and Transitions (SMART) methodology. The survey applied two-stage cluster sampling using the SMART methodology based on probability proportional to size (PPS). Stage one sampling involved the sampling of the Villages/clusters to be included in the survey while the second stage sampling involved the random selection of the households within the sampled clusters. The smallest geographical unit in Nimroz defined as a cluster is basically a village. A total of 649 children aged 0-59 months were assessed, among them, 597 were 6-59 months old. The data collection took place from 30th January to 08th February 2020, at the end of the winter season in Afghanistan. Out of 430 households planned, 418 were successfully assessed.

The survey results indicated a Global Acute Malnutrition (GAM) rate for children 6-59 months old based on WHZ is 8.4% (6.1–11.7 95% C.I.). The results also indicated a very high level of chronic malnutrition of 34.6 % (29.8 - 39.6 95% C.I.) exceeding the 30% threshold[1]. The result for malnourished pregnant & lactating women based on MUAC (<230 mm) was at 24.8%.

The final report presents the analysis and interpretation of the nutritional status of children under five, the nutritional status of women 15-49 years old, pregnant and lactating women (PLW). Infant and young child feeding (IYCF) practices, measles's immunization coverage, water, sanitation, and hygiene (WASH) situation and retrospective mortality rates. The summary of the key findings is presented in table 1 below.

Table 1: Summary of Findings

Malnutrition prevalence – Children U5	
Indicator	Prevalence
GAM prevalence among children 6-59 months per WHZ <-2SD	8.4 % (6.1 – 11.7 95% C.I.)
SAM prevalence among children 6-59 months per WHZ <-3SD	1.9 % (1.1 – 3.1 95% C.I.)
GAM prevalence among children 0-59 months per WHZ <-2SD	8.9 % (6.7 - 11.8 95% CI)
SAM prevalence among children 0-59 months per WHZ <-3SD	2.0 %

[1] Prevalence thresholds for wasting, overweight and stunting in children under 5 years, August 2018.

	(1.3 – 3.3 95% CI)
GAM prevalence among children 6-59 months per MUAC <125 mm	8.7 % (6.6 – 11.4 95% C.I.)
SAM prevalence among children 6-59 months per MUAC <115 mm	2.3 % (1.4 - 4.0 95% C.I.)
Combined GAM prevalence among children 6-59 months per WHZ <-2SD and/or MUAC <125mm and/or Oedema	14.7% (12.0 - 18.0 95% CI)
Combined SAM prevalence among children 6-59 months per WHZ <-3SD and/or MUAC <115 mm and/or Oedema	3.9 % (2.6 - 5.7 95% CI)
Stunting among children 6-59 months per HAZ <-2SD	34.6 % (29.8 - 39.6 95% C.I.)
Severe Stunting among children 6-59 months per HAZ <-3SD	6.2 % (4.1 - 9.3 95% C.I.)
Underweight among children 6-59 months per WAZ <-2SD	18.1 % (13.9 - 23.1 95% C.I.)
Severe Underweight among children 6-59 months per WAZ <-3SD	3.0 % (1.9 - 4.8 95% C.I.)
Overweight among children 6-59 months per WHZ >2SD	0.0% (0.0 – 0.0 95% CI)

*GAM and SAM prevalence by any indicator include cases of nutritional oedema

Nutritional status of Women 15-49 years old Women and PLW	
Indicator	Result
Malnutrition among all (CBA) women 15-49 years including PLW and Not PLW per MUAC <230mm	19.6 %
Malnutrition among pregnant and lactating women (PLW) per MUAC <230 mm	24.8 %

Crude and Under Five Death Rate (Death/10,000/Day)	
Indicator	Result
Crude Death Rate (CDR)	0.78 (0.43-1.41; 95% CI)
Under five Death Rate (U5DR)	0.90 (0.32-2.49; 95% CI)

Infant and Young Children Feeding (IYCF) Practices	
Indicator	Result
Initiation of breastfeeding within 1 hour of birth among children 0-23 months	66.1 %
Exclusive breastfeeding among infants 0-5 months	57.7 %
Continued breastfeeding at 1 year among children 12-15 months	86.0 %
Continued breastfeeding at 2 years among children 20-23 months	45.9 %
Introduction of solid, semi-solid, or soft foods (6-8 months)	47.2 %

Child Immunization		
Indicator	First Dose (9-59)	Second Dose (18-59)
Measles vaccination among children months confirmed by vaccination card	50.3%	46.0 %
Measles vaccination among children months confirmed by caregiver recall	37.8%	36.5 %
Overall Measles vaccination among children confirmed by either vaccination card or caregiver recall	**88.1%**	**82.5 %**

2. INTRODUCTION

Nimroz is one of the 34 provinces of Afghanistan, located in the southwestern part of the country. It lays in the east of the Sistan and Balochistan provinces of Iran and north of Balochistan, Pakistan. The population of the province is around 180,200[2] with six districts namely; Chaharburjak, Chakhansur, Kang, Khashrood, Del- Aram and Zaranj City which the capital of the province.

The demography of Nimroz is dominated by Baloch 61% and Pashtun 27%; the remaining proportion is Tajik and Hazara ethnicities. In addition, Nimroz has nomad ethnicity as well and most of the population of Nimroz province speaks and understands Pashto.

The population is constituted of local people most of whom live in rural areas.

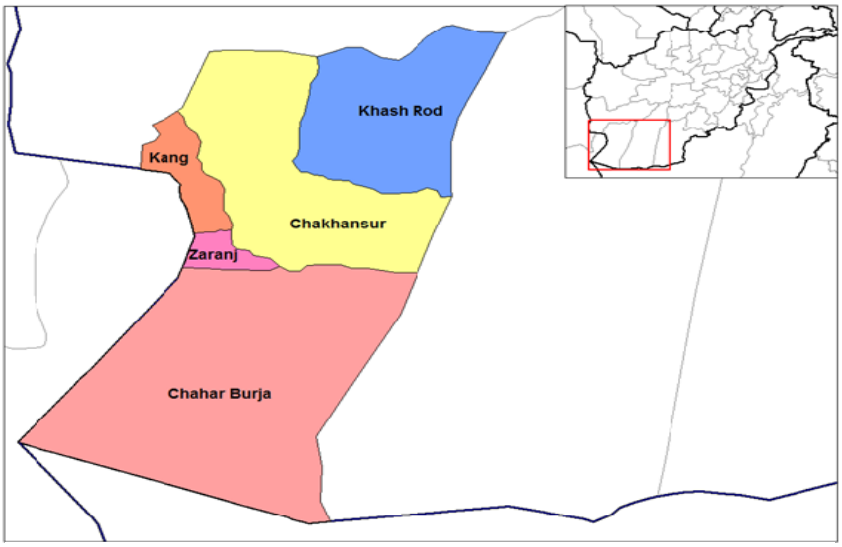


Figure 1: Nimroz Map (Wikipedia)

According to the latest UN-OCHA report, currently 2,183 [3] people are internally displaced in the Nimroz province.

A full SMART Data collection was conducted in Nimroz province from 30th January to 08th February 2020 [The Month of Dalwa 1398 in Solar Calendar] at the end of the winter season by ARDHO with technical support of Action Against Hunger. The survey covered the entire province, including partially secure and completely secure villages throughout the province. The survey was conducted in close coordination of MoPH (M&EHIS Directorate) and the local public health authorities.

Based on the 2017 SMART survey in Nimroz, the GAM and SAM rates based on MUAC were 6.2% (4.5 – 8.6; 95% CI) and 2.2 % (1.4 – 3.4; 95% CI) respectively. Chronic malnutrition in the

[2] Estimated Population of Afghanistan 2019-20

3 Conflict Induced IDP Report – UNOCHA

province was very high at 41.6 % (37.4 – 45.9 95% CI.)[4], as well as 19.8% (16.2-23.5 95% CI.) women of childbearing age were also malnourished by MUAC (<230mm).

In 2017, estimated 61.1% of children under five were sick based on two weeks recall method, with diarrhoea (33.8%), fever (45.5%) and acute respiratory infection (23.0%) being the leading illness reported.

Measles vaccination coverage both by recall and by card confirmation was 82.3% which was far below the 95% threshold; the proportion of children aged 24-59 months dewormed in the last 6 months prior to the survey was 67.4%; proportion of all children aged 6-59 months who had received vitamin A in the last 6 months prior to the survey was 89.9% which was above the 80% WHO recommended threshold.

However, the Crude Death Rate (0.05 death/10,000/Day) and under-five death rate (0.18 death/10,000/Day) were well below the WHO emergency threshold for CDR (1/10,000/Day) and U5DR (2/10,000/Day), perhaps an indication of effectiveness and efficiency of humanitarian interventions cushioning the most vulnerable from effects of emergencies.

WASH situation was relatively better with 69.8% of the households having access to improved water sources as well as majority meeting the over 15 Liters per day per person water usage. The majority of the household (74%) were food secure based on the confluence of the Food Security Score (FSC) and reduced coping strategy index (rCSI) indicators.

2.1. Agriculture and Industry

Years of drought have severely reduced agriculture production in Nimroz province; the lack of water has strongly affected the agricultural system of the province. Only 10% of the land is being cultivated after the drought. Agriculture is mainly based on crops such as maize, melons, wheat & watermelons and little orchard in the area of Knag, Khashrod, and Del- Aram districts. The Helmand and Khashrod Rivers flow through the province with the Helmand River flowing toward Iran through Nimroz province. The Kamal Khan Dam still under phase 3 construction is the biggest dam in the province, which has the capacity to irrigate 80,000 hectares of land and generate nine-megawatt electricity.

The construction of the dam provides employment opportunities to the people of the province and the businessman adding to the Balochi carpet industry which is struggling in Nimroz but in some areas of Chahar Burjak, Kang and Chakhansur, the rugs industry flourishing.

[4] SMART survey April-2017

2.2. Description of the survey area

This SMART survey was conducted in all 6 districts of Nimroz province, the sampling frame was all the villages in the six districts of Zaranj city (capital), Chaharburjak, Chakhansur, Kang, Khashrood and Del- Aram. All six districts of the Nimroz province are considered as rural areas and were accessible for the survey teams, except 67 out of the total 485 villages (13.8 % of the total target area). These 67 inaccessible clusters/villages were mainly in Chahar Burjak and Khashrood districts due to recent peak of the insecurity and presence of Armed Opposition Groups (AOGs) with continued fighting in the areas.

From the cultural, ethnic and linguistic perspective, the inhabitants of the excluded villages are homogenous with the residence of the surveyed parts of the Nimroz province.

2.3. Demography and Economy

Nimroz Province has many Kuchi nomads who inhabit the province seasonally. It is the only province of Afghanistan where the Baloch ethnic group forms a majority. The Baloch's are followed by Pashtun, Brahui, Tajik, Uzbek and Hazara. The Pashtun tribes are mostly Barakzai and Noorzai.

Nimroz Province is a very poor province in terms of Natural Resources such as Mines and Forests, the soil is mostly sandy in most parts of the province. There are salt mines as well and yet to be prospects of oil in Charborjak district. The Afghan traders export fuel from Iran via Nimroz province prior to further distribution to the different parts of the country. The mineral water, plastic, cement, and packaging factories is a drives the industrial sector of the province, which has had a positive impact on the overall economy of the province.

2.4. Health, Nutrition and Food Security

Nimroz is one of the provinces most affected by the drought, as well as violence and armed conflicts; high food prices and natural disasters threaten the food security and livelihoods of the rural population whose main source of income is crop productions.

Since nutritional status frequently deteriorates due to several factors including poor food access and availability, poor water and sanitation as well as high morbidity among the affected populations. According to the National Nutrition Survey (NNS 2013) malnutrition prevalence was classified as medium in Nimroz province; GAM was 9.4% (6.87 - 12.86 95% CI) while SAM prevalence was 3.7 % (2.34 - 5.91 95% CI).

Currently, 4 national and international humanitarian organizations are providing health and nutrition services in the province. A local NGO Medical Refresher Courses for Afghanistan "MRCA" is implementing the EPHS and BPHS SEHATMANDI project. The BPHS covers a total of 21 health facilities providing health services (1 RH, 1 CHC+, 3 CHC, 8 BHC, 7 SHC, 1 Prison

Health Center), and a total of 4 mobile health teams. A total of 13 of the health facilities provides OPD SAM and only 1 provides IPD SAM; there is no OPD MAM program in the province.

As stated in the latest (November 2019) IPC report, currently 37% of the population are in phase 3 of the food insecurity phase classification and require urgent humanitarian action. The overall 8.6 million people are estimated to be in phase 4 as per IPC classification, Nimroz is also among those provinces and have the highest amount of conflict-related insecurity as well.

2.5. Survey Justification

Nimroz is one of the provinces affected by the current drought, as well as violent armed conflicts; high food prices and natural disasters threaten the food security and livelihoods of the rural population whose main source of income is crop productions through agriculture.

Since nutritional status frequently deteriorates due to several factors including poor food access and availability, poor water and sanitation as well as high morbidity among the affected populations, therefore this SMART survey was carried out in order to have a better understanding of the current nutrition status of the community and monitor the nutrition and mortality situation in Nimroz province.

In addition, the last SMART assessment was done three years ago in April 2017 in Nimroz province. Hence there is a need to get updated information including updated data on the levels of malnutrition in the area which will help to plan for appropriate humanitarian responses; updated results are also needed in order to monitor and hence mitigate the possible on-going worsening situation. The survey will inform and guide specific responses on some of the humanitarian needs and areas to focus on improving the current programming and planned interventions.

Given that Action Against Hunger has considerable years of expertise in conducting nutrition surveys in Afghanistan and is an active member of the AIM-TWG, Small Scale Nutrition survey steering committee as well as a supporter of the National Nutrition Cluster, Action Against Hunger has taken the lead to carry out the assessment in Nimroz province with ECHO financial support.

3. SURVEY OBJECTIVES

3.1 Primary objective

- The overall objective of the survey is to assess the nutrition situation of under-five children and women in childbearing age, crude and under-five retrospective death rates in Nimroz province.

3.2. Specific objectives

- To estimate the prevalence of undernutrition (Stunting, Wasting, and Underweight) among children under 5 years of age.
- To estimate the Crude Death Rate (CDR) and under-five Death Rate (U5DR).
- To determine core Infant and Young Child Feeding (IYCF) practices among children aged <24 months.
- To estimate both doses of measles vaccination coverage among children 9-59 months.
- To determine the nutritional status of pregnant and lactating women (PLW) as well as women of reproductive age (15-49 years) based on MUAC assessment.
- To assess Water, Sanitation, and Hygiene (WASH) proxy indicators: households level main drinking water sources and caregiver handwashing practices.
- To assess the food security situation through the Food Consumption Score (FCS) and the Reduced Coping Strategy Index (rCSI).

4. METHODOLOGY

4.1. Geographic target area and population group

A full SMART assessment targeted the whole of Nimroz province. The surveyed population were children from the age of 0 to 59 months and Pregnant and Lactating Women (PLW) and Women from 15-49 years in addition to the households for WASH and Food security indicators.

4.2. Survey period

A seven days long training was organized from 22nd January to 29th January 2020 and the data collection took place from 30th January to 8th February 2020 in all 6 districts of the Nimroz province.

4.3. Survey design

The survey design was cross-sectional using the SMART methodology, following two stages cluster sampling method.

4.4. 4.6. Sample Size

The household sample size for this survey was determined by using ENA for SMART software version 2020 (updated 11th Jan 2020). The sample size used was 423 households. Tables 2 and Table 3 highlights the parameters used for sample size calculation for anthropometric and mortality surveys;

Table 2: Parameters for sample size calculation for anthropometry

Parameters for Anthropometry	Value	Assumptions Based on Context
The estimated prevalence of GAM (%)	8.6%	There is no recent GAM by WHZ data available for Nimroz province. A SMART survey during April 2017 revealed a GAM prevalence of 6.2% (4.5-8.6 95% CI)[5] based on MUAC. An upper CI of 8.6% is considered here for the planning purpose considering the deteriorated situation in the Nimroz province lately due to drought, displacements and ongoing conflict.
Desired precision	±3.0	Based on SMART recommendation and consistent with survey objectives in order to estimate the prevalence.
Design Effect	1.5	Based on SMART recommendation when no previous DEFF available as a rule of thumb and considering the population living in the province is relatively homogenous.

[5] Nimruz SMART survey April 2017

Children to be included	**548**	**Minimum sample size-children aged 6-59 months.**
Average HH Size	7.5	Based on the Nimroz SMART Survey April 2017
% Children under five	20.4%	Based on the Nimroz SMART survey April 2017
%Non-response Households	6 %	Based on the experience of assessments in the winter seasons.
Households to be included	**423**	**Minimum sample size (Households) to be surveyed.**

Table 3: Sample size calculation for mortality surveys

Parameters for Mortality	Value	Assumptions based on context
Estimated Death Rate /10,000/day	0.17	Based on the Nimroz SMART survey April 2017 mortality rate upper confidence interval [0.05 (0.02-0.17 95% CI)]. Considering the situation has worsened due to drought, high morbidity, displacements, and conflicts.
Desired precision /10,000/day	±0.25	Based on survey objectives and in line with the estimated death rate according to the SMART guideline. A bit higher precision of ±0.25 is considered here because of the low assumed death rate (0.17/10,000/day).
Design Effect	1.5	Based on SMART recommendation when no previous DEFF available as a rule of thumb and considering the population living in the province is relatively homogenous.
Recall Period in days	87	The starting point of the recall period is 10th Nov 2019 (19th Aqrab 1398; Meladu Nabi) to the mid-point of data collection estimated to be the 4th Feb 2020).
Population to be included	**1961**	**Population**
Average HH Size	7.5	Based on the Nimroz SMART survey April 2017
% Non-response Households	6	Based on the experience of assessments in the winter seasons.
Households to be included	**278**	**Households to be included**

Based on the SMART methodology, between the calculated anthropometry and mortality sample

sizes, the largest sample size was used for the survey. In this case, the larger sample size was 423 households.

The number of households to be completed per day was determined according to the time the team could spend in the field excluding transportation, other procedures and break times. The details in table 4 below are taken into consideration when performing this calculation based on the given context:

Table 4: Household selection per day time table

Total working time	8:00 AM to 4:00 PM (8.0 Hours (480 minutes))
Time for transportation (round trip)	120 minutes
Coordination with village elder and preparation of HH list	30 minutes
Time for a break and pray	60 minutes
The average duration of the HH interview	20 minutes
Distance from one HH to another HH	7 minutes

The above gives an average of 270 min of working time in each cluster. If on average teams spend 20 min in each HH and 7.0 min traveling from one HH to another, each team can comfortably reach 10 HH per day, (270/27=10 HHs).

The total number of households in the sample divided by the number of households to be completed in one day to determine the number of clusters to be included in the survey. (423 HHs)/ (10HHs per cluster) =42.3 Clusters (rounded up to 43 clusters). Therefore the survey team attempt to survey 430 HHs

4.5. Sampling Methodology

A two-stage cluster sampling methodology was adopted based on probability proportional to size (PPS); the villages with a large population had a higher chance of being selected than villages with a small population and vice versa. The village was the Primary Sampling Unit (PSU) while the household was the Basic Sampling Unit (BSU). The first stage involved the selection of clusters/villages from a total list of villages. A list of all updated villages was uploaded into the ENA for SMART software where PPS was applied. The list of villages/cluster was gathered from the Basic Package of Health Services (BPHS) providers in consultation with PPHD to finalize the sampling frame. Based on the latest EPI micro-plan, all insecure or inaccessible villages were identified and systematically excluded from the final sampling frame; the final list consisted of

418 out of 485 villages (67 inaccessible villages were excluded). The clusters generated using the ENA software version included 5 Reserve Clusters (RCs). Reserve clusters were planned to be surveyed only if 10% or more clusters were not possible to be surveyed.

Based on the estimated time to travel to the survey area, select and survey the households, it was estimated that each team could effectively survey 10 HHs per day. (423/10=42.3 clusters, rounded up to 43 Clusters). In each selected village, one or more community member(s) was asked to help the survey teams to conduct the survey by providing information about the village with regard to the geographical organization or the number of households. In cases of large villages or semi-urban zones/small cities in a cluster, the village/zones were divided into smaller segments and a segment selected randomly (if similar in size) or using PPS to represent the cluster. This division was done based on existing administrative units e.g. neighborhoods, streets, or natural landmarks like a river, road, mountains or public places like schools, and masjid.

The second stage involved in the random selection of households from a complete and updated list of households. This was conducted at the field level. The **Household definition** adopted was; a group of people living under the same roof and sharing food from the same pot. In households with multiple wives, those living and eating in different houses were considered as separate HHs.

4.5.1. Field Procedures

Stage 2 selection of households:

The survey covered/achieved a total of 418 households from 42 total clusters) surveyed unfortunately, one cluster was inaccessible (out of total 43 planned) due to security issue in Nimroz province and the village/cluster name was Danakinarvay in Kang district. Each team was responsible for cover effectively 10 households per day. Households were chosen within each cluster using systematic random sampling as described below. A total of 6 teams were engaged during the assessments, while data collection was conducted in 8 days.

On arrival at the Chief/Malik:

The survey team introduced themselves and the objective of the survey to the Chief/Malik leader.

- In collaboration with the Chief/Malik leader, the team prepared a list of all households in the cluster. Abandoned absent households were not listed/excluded.
- The required number of households were selected using systematic random sampling.
- The sampling interval was determined by:

$$\text{Sampling interval} = \frac{\text{Total number of sampling units in the population}}{\text{Number of sampling units in the sample (10)}}$$

Equation 1 Sampling Interval

Every household was asked for voluntary consent to take part in the survey process before any data was collected. All children 0 to 59 months living in the selected house was included for anthropometric measurements, including twins and orphans or unrelated children living with the sampled household. Children were aged <24 months were included for the IYCF assessment. If a child of a surveyed household was absent due to enrolment in an IPD treatment center at the time the household was surveyed, teams were not visited any treatment centre to measure the child. Households without children were still assessed for household-level questions (PLW nutritional status, WASH, food security, mortality).

Any absent households with missing or absent women or children were revisited at the end of the day before leaving the cluster. The missing or absent child that was not found after multiple visits were not included in the survey. A cluster control form was used to record all household visits and note any missed and absent households.

4.6. Indicators: Definition, Calculation, and Interpretation

4.6.1. Overview of Indicators

The anthropometric indicators assessed by this survey and the corresponding target population are presented in Table 5 below.

Table 5: Standardized Integrated SMART Indicators

Indicator	Target Population
Anthropometry	
Acute Malnutrition by WHZ and/or Oedema	Children 0-59 and 6-59 months
Acute Malnutrition by MUAC and/or Oedema	Children 6-59 months
Acute Malnutrition by Combined Criteria (WHZ and/or MUAC and/or Oedema)	
Chronic Malnutrition by HAZ	
Underweight by WAZ	
Overweight by WHZ	
Mortality	
Crude Mortality Rate (CDR)	Entire population
Under Five Death Rate (U5DR)	Children under five

IYCF	
Early Initiation of Breastfeeding	Children <24 months
Exclusive Breastfeeding (EBF)	Infants 0-5 months
Continued Breastfeeding at 1 Year	Children 12-15 months
Continued Breastfeeding at 2 Years	Children 20-23 months
Health	
Measles Vaccination (First and Second Doses)	Children 9-59 months
Women of Reproductive Age & PLW	
Nutritional Status of PLW by MUAC	Women (15-49 years) and PLW

4.6.2. Anthropometric, Immunization and IYCF Indicators

Age

Age was recorded among children 0-59 months as of the date of birth (Year/Month/Day) according to the Solar Calendar in the field, and later on, was converted to the Gregorian Calendar for analysis. The exact date of birth was recorded only if the information was confirmed by supportive documents, such as vaccination card or birth certificate. Where the above-mentioned documents were unavailable or questionable, age was estimated using a local calendar of events and recorded in months. In this assessment, the survey teams equally relied on the utilization of the event calendar and deriving the birth date from vaccination cards.

Weight

Weight was recorded among children 0-59 months in Kg to the nearest 0.1 kg using an electronic SECA scale with the 2-in-1 (mother/child) weighing function. Children who could easily stand up were weighed on their own. When children could not stand independently, the 2-in-1 weighing method was applied with the help of a caregiver. Two team members worked in unison to take the measurements of each child.

Height

Height was recorded among children 0-59 months in cm to the nearest 0.1 cm. A height board was used to measure bareheaded and barefoot children. Children less than two years old were

measured lying down and those more than two years old were measured standing up. Two team members worked in unison to take the measurements of each child.

MUAC

MUAC was recorded among children 6-59 months[6] and women 15-49 years to the nearest mm. All subjects were measured on the left arm using standard MUAC tapes.

Oedema

The presence of oedema among children 0-59 months was recorded as "yes" or "no". All children were checked for the presence of oedema by applying pressure with thumbs for three continuous seconds on the tops of both feet. Any suspected cases required confirmation by multiple team members, a supervisor if present, and photo-documented when possible.

4.6.3. Acute malnutrition

Acute malnutrition in children 6-59 months is expressed by using three indicators.

Weight for Height (W/H) and MUAC are described below. Nutritional oedema is the third indicator of severe acute malnutrition. Additionally, the prevalence of GAM amongst 0-59 was reported.

WHZ

A child's nutritional status is estimated by comparing it to the weight-for-height distribution curves of 2006 WHO growth standards reference population. The expression of the weight-for-height index as a Z-score (WHZ) compares the observed weight (OW) of the surveyed child to the mean weight (MW) of the reference population, for a child of the same height. The Z-score represents the number of standard deviations (SD) separating the observed weight from the mean weight of the reference population: WHZ = (OW - MW) / SD.

During data collection, the weight-for-height index in Z-score was calculated in the field for each child to refer malnourished cases to the appropriate center if needed. Moreover, the results were presented in Z-score using WHO reference in the final report. The classification of acute malnutrition based on WHZ is well illustrated in Table 6.

Table 6: Definition of Acute Malnutrition, Chronic Malnutrition, Underweight and Overweight according to WHO Reference 2006

Severity	ACUTE MALNUTRITION	CHRONIC MALNUTRITION	UNDERWEIGHT (WAZ)	Overweight (WHZ)

[6] MUAC is not standardised for infants <6 months

	(WHZ)	(HAZ)		
GLOBAL	<-2 z-score and/or oedema	<-2 z-score	<-2 z-score	>2 z-score
MODERATE	<-2 z-score and ≥ -3 z-score	<-2 z-score and ≥ -3 z-score	<-2 z-score and ≥ -3 z-score	>2 z-score and <3 z-score
SEVERE	<-3 z-score and/or oedema	<-3 z-score	<-3 z-score	>3 z-score

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. The MUAC is an indicator of malnutrition only for children greater or equal to 6 months. Table 7 provides the cut-off criteria for categorizing acute malnutrition cases.

Table 7: WHO Definition of Acute Malnutrition According to Cut-off Values for MUAC

Severity	MUAC (mm)
GLOBAL	<125 (and/or oedema)
MODERATE	≥ 115 and < 125
SEVERE	<115 (and/or oedema)

4.6.4. Oedema

Nutritional bilateral pitting Oedema is a sign of Kwashiorkor, one of the major clinical forms of severe acute malnutrition. When associated with Marasmus (severe wasting), it is called Marasmic-Kwashiorkor. Children with bilateral Oedema are automatically categorized as being severely malnourished, regardless of their weight-for-height index.

4.6.5. Combined GAM

In Afghanistan, but also at a worldwide level, it has been demonstrated that there is a large discrepancy between the prevalence of GAM by WHZ and GAM by MUAC. Therefore, Action Against Hunger routinely reports the prevalence of GAM by WHZ *or* MUAC as "Combined GAM" among children 6-59 months. Combined GAM considers the cut-offs of both WHZ<-2 SD score and/or MUAC<125 mm and/or Presence of bilateral pitting Oedema.

4.6.6. Chronic malnutrition

Chronic malnutrition is the physical manifestation of longer-term malnutrition which retards growth. Also known as stunting, it reflects the failure to achieve one's optimal height. In children

6-59 months, chronic malnutrition is estimated using the Height-for-Age z-score (HAZ).

HAZ is calculated using ENA Software for SMART by comparing the observed height of a selected child to the mean height of children from the reference population for a given age. When using HAZ, the distribution of the sample is compared against the 2006 WHO reference population. Global chronic malnutrition is the sum of moderate and severe chronic malnutrition.

4.6.7. 5.4. Underweight

Underweight is the physical manifestation of both acute malnutrition and chronic malnutrition. In children 6-59 months, underweight is estimated using Weight-for-Age (WAZ) z-score. WAZ is calculated using ENA Software for SMART by comparing the observed weight of a selected child to the mean weight of children from the reference population for a given age. When using WAZ, the distribution of the sample is compared against the 2006 WHO reference population. Global underweight is the sum of moderate and severe underweight. WAZ cut-offs are presented in Table 8 below.

The prevalence of malnutrition as identified by WHZ, HAZ and WAZ have also been classified by the WHO in terms of severity of public health significance. The thresholds are presented in table 8 below.

Table 8: Classification for Severity of Malnutrition by Prevalence among Children Under-Five

LABELS	PREVALENCE THRESHOLDS (%)			
	WASTING	OVERWEIGHT	STUNTING	UNDERWEIGHT[7]
Very low	<2.5	<2.5	<2.5	
Low	2.5-<5	2.5-<5	2.5-<10	<10
Medium	5-<10	5-<10	10-<20	10-19.9
High	10-<15	10-<15	20-<30	20-29.9
Very high	≥15	≥15	≥30	≥30

4.6.8. The proportion of acutely malnourished children enrolled in or referred to a Program

All children 6-59 months identified as severely acutely malnourished by MUAC and WHZ during the data collection were assessed for current enrolment status. All malnourished children not enrolled in a treatment program were referred to the nearest nutrition program if possible.

[7] WHO threshold

4.7. Malnutrition prevalence among women 15-49 years based on MUAC criterion

All women 15-49 years, including PLW, were assessed for nutritional status based on MUAC measurement. Low MUAC was defined as MUAC <230mm.

4.8. Retrospective mortality

Demography and mortality were assessed for all households, regardless of the presence of children. All members of the household were counted according to the household definition. CDR refers to the number of persons in the total population that died over the mortality recall period (86 days). It is calculated by ENA Software for SMART using the following formula:

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

Equation 2: Crude Mortality Rate

U5DR refers to the number of children under five years that die over the same mortality recall period.

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

Equation 3: Under-five Death Rate

4.9. IYCF indicators

4.9.1. Timely initiation of breastfeeding

Calculated as the proportion of children born in the last 24 months who were put to the breast within one hour of birth. Based on caregiver recall.

4.9.2. Exclusive Breastfeeding

Calculated as the proportion of infants 0-5 months who were fed exclusively with breast milk in the last day or night. This indicator aims to identify if breastmilk is being displaced by other liquids or foods before the infant reaches six months of age. Based on caregiver recall.

4.9.3. Continued Breastfeeding at 1 Year

Calculated as the proportion of children 12–15 months who were fed with breast milk in the past day or night. Based on caregiver recall.

4.9.4. Continued Breastfeeding at 2 Years

Calculated as the proportion of children 20–23 months who were fed with breast milk in the past day or night. Based on caregiver recall.

4.10. Measles Both Doses Coverage

Calculated as the proportion of children 9-59 months who received two doses of the measles vaccine. Assessed based on vaccination card or caregiver recall. As part of the Expanded Program on Immunization (EPI), the first dose of measles immunization is given to infants aged between 9 to 18 months, with the second given at 18 months. Second dose the last vaccination dose given to a child under five as per the recommended immunization schedule, the second dose measles coverage indicator can also be used as a proxy for overall immunization status and access to healthcare.

5. ORGANIZATION OF THE SURVEY

5.1. SURVEY COORDINATION AND COLLABORATION

Survey methodology was shared with the AIM-TWG, Research and Evaluation Directorate for validation and presenting in the small-scale steering committee for their comments before deploying the SMART technical team to the province. Meetings were held with the respective administrative authorities on arrival by the survey team to brief them on the survey objective, methodology and procedures as well as get relevant updated information on security, access and village level population.

5.2. SURVEY TEAMS

Six teams each comprising of four members were collecting data in all the selected clusters in the province. Each team was composed of one team leader, two measures, and one interviewer. Each team will have one female surveyor to ensure acceptance of the team amongst the surveyed households, particularly for IYCF questionnaires. Each female member of the survey team was accompanied by a mahram to facilitate the work of the female data collectors at the community level. In each selected village, one or more community member (s) was asked to lead and guide the survey team within the village in locating the selected households.

5.3. TRAINING OF THE SURVEY TEAMS AND SUPERVISION

One out of four members of each survey team was a female surveyor to ensure acceptance of the team amongst the surveyed households, particularly for IYCF questionnaires and measuring the nutrition status of CBA women. Each female member of the survey team was accompanied by a mahram to facilitate the work of the female data collectors at the community level. The majority of the population speaks Pashto, Dari, Balochi, and Hazaragi languages. But all the

people were well familiar with Pashto as share value for the local community. Therefore, the survey manager used Dari to conduct training. The Pashto version of the questionnaires was also used. Action Against Hunger technical team conducted monitoring and supportive supervision of the survey teams in some targeted villages in Nimroz city, and most of all districts. Action Against Hunger technical staff remotely controlled and monitored survey teams in the field and shared productive feedbacks with teams via phone conversation.

The training took place in Nimroz city (Center of the Nimroz province), all the survey team including supervisors and enumerators received a 7-days training on the survey methodology and all its practical aspects; Two Action Against Hunger technical staffs facilitated the training session. A standardization test was also conducted over 1 day, 10 children were measured by each enumerator to evaluate the accuracy and the precision of the team members in taking the anthropometric measurements.

Additionally, the teams had conducted a one-day field test to evaluate their work in real field conditions, the field test was piloted in Haji Kamal Khan village of Nimroz city. Feedback was provided to the team regarding the results of the field test; particularly concerning digit preferences and data collection. Refresher training on anthropometric measurements and the filling of the questionnaires and the household's selection was organized on the last day of the training by Action Against Hunger to ensure overall comprehension before going to the field.

A field guidelines document with instructions including household definition and selection was provided to each team member. All documents, such as local event calendar, questionnaires, and informed consent letters were translated into Pashto languages, for better understanding and to avoid direct translation during the data collection.

6. DATA ANALYSIS

The anthropometric and mortality data were analyzed using update ENA for SMART software 2020 version (11th Jan 2020). Survey results were interpreted referencing to the WHO standards 2006; Analysis of other indicators to include IYCF and demographics was done using Microsoft Excel version 2016. Contextual information in the field and from routine monitoring was used in complementing survey findings and strengthening the analysis. Interpretation of each result was done based on the existing thresholds for different indicators as well as comparing with other available data sources at the national and provincial levels.

7. SURVEY FINDINGS

7.1. SURVEY SAMPLE & DEMOGRAPHICS

Overall, the survey assessed 42 clusters out of 43 planned clusters, one cluster was inaccessible due to security. A total of 418 households, 2,861 individuals, 607 women 15-49 years old, 649 children under five (0-59m), and 597 children 6-59 months were assessed in the 42 clusters. Among the 418 households the survey teams surveyed, 2 Households were absent and/or refused to participate in the survey, resulting in a non-response rate of 2.8%. This rate is lower than the estimate done at the planning stage (6.0%) Overall, 97.2% of the planned households and 8.9% more children 6-59 months were assessed which are presented in Table 9 below.

Table 9: Proportion of household and child sample achieved

No. of Cluster planned	No. of Cluster surveyed	% of cluster surveyed	No. of households planned	No. of households surveyed	No. of children 6-59 months planned	No. of children 6-59 months surveyed	% of children surveyed
43	42	97.7%	430	418	548	597	108.9%

The mortality questionnaire was designed to gather demographic data and capture in- and out-migration. Household demographics and movement are presented in Table 10 below. The survey findings indicate that the average household size was 6.7 persons per household (compared to 7.5 used at the planning stage); 48.4% of the population were female, 51.6% were male; the proportion of children under five was 23.6%. The observed rate of in-migration (0.75) and the out-migration (2.16) during the recall period may have been influenced by the 86 recall period days.

Table 10: Demographic data summary

Indicator	Values
Total number of clusters	42
Total number of HHs	418
Total number of HHs with children under five	380
Average household size	6.7
Female % of the population	48.4
Male % of the population	51.6
Children under five % of the population	23.6
Birth Rate	1.44
In-migration Rate (Joined)	0.74
Out-migration Rate (Left)	2.14

Households were also assessed for residential status. Among the 418 surveyed households, 92.1% were residents of the area; 4.1% were internally displaced, 3.1% were returnee population and 0.7% were nomadic (Kuchi) residents found in the province.

Table 11: Household residential status by the proportion

Residential Status of Households N= 418	Resident	385	92.1%
	IDP	17	4.1%
	Refugee	0	0.0%
	Returnee	13	3.1%
	Nomad	3	0.7%

As the age and sex of all household members were assessed, it was possible to disaggregate the population by sex and five year age interval, as presented in Figure 3 below. The pyramid is wide at the base and narrows towards the apex, indicating a generally youthful population.

The surveyed sample of children 6-59 months was 597. The distribution as disaggregated by age and sex are presented in Table 12 below. The overall sex ratio (male/female) 1.1, indicating a sample with almost equal representation of boys and girls. The exact birth date was not possible to determine (through proper documents) for 45% of the children; only 55.0% of the surveyed children had documentation of evidence of their exact date of birth. This may have compromised the quality of the age determination to some extent, and therefore may have impacted the estimation of the stunting and underweight prevalence as well.

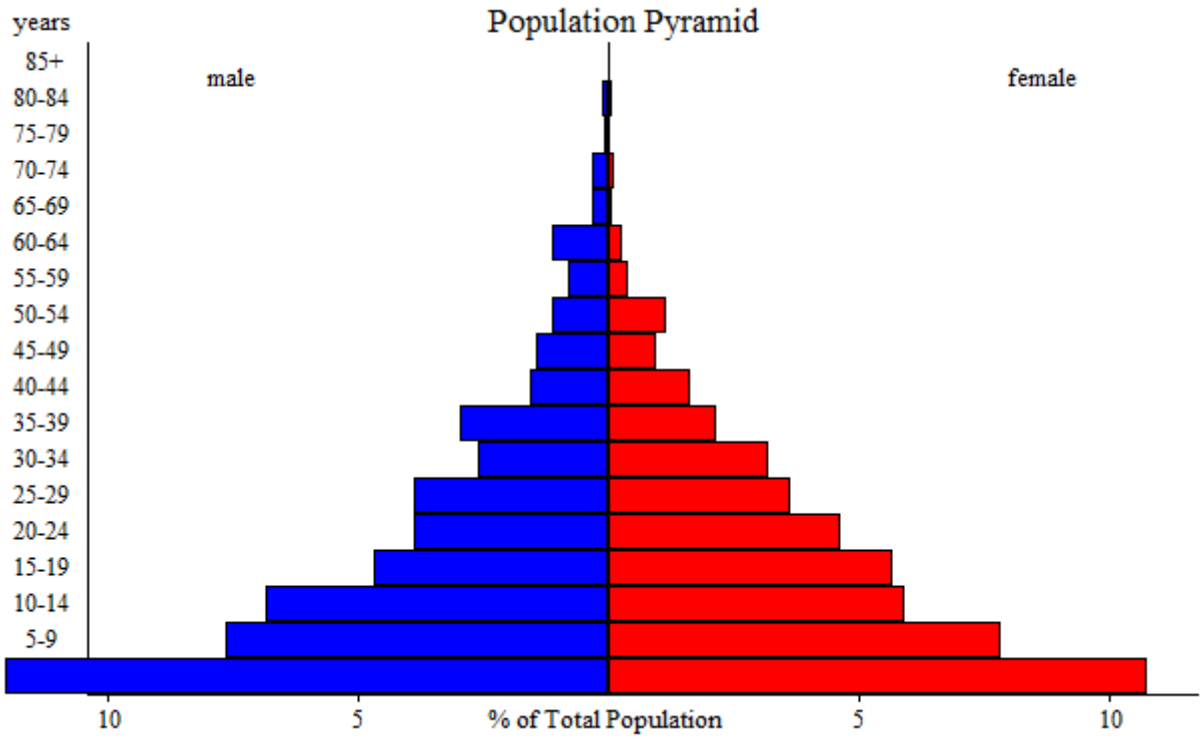


Figure 2: Nimroz Province Population Pyramid.

Table 12: Distribution of Age and Sex among Children 6-59 months

	Boys		Girls		Total		Ratio
AGE (mo)	no.	%	no.	%	no.	%	Boy: girl
6-17	82	52.6	74	47.4	156	26.1	1.1
18-29	64	49.2	66	50.8	130	21.8	1.0
30-41	77	54.2	65	45.8	142	23.8	1.2
42-53	64	55.2	52	44.8	116	19.4	1.2
54-59	28	52.8	25	47.2	53	8.9	1.1
Total	315	52.8	282	47.2	597	100.0	1.1

7.2. DATA QUALITY

Five children were excluded as outliers from WHZ analysis per SMART flags[8], resulting in an overall percentage of flagged data of 0.8% and categorized as excellent by the ENA Plausibility Check.

The standard deviation, design effect, missing values, and flagged values are listed for WHZ, HAZ, and WAZ in Table 13 below. The SD of WHZ was 1.00, the SD of HAZ was 0.91, and the SD of WAZ was 0.82. All WHZ, HAZ, and WAZ met the normal range (0.8 and 1.2) indicating an adequate distribution of data around the mean and data of excellent quality.

The overall ENA Plausibility Check score was 8%, which is considered a survey of excellent quality. However, there was an excess of younger children (6-29m) compared to the older children aged 30-59 months with a ratio of 0.92 (p-value = 0.336). In most nutrition surveys, the younger children are over-represented compared to the older age group; this could be among other things the older children being in school or running errands outside homes. Some digit preference also observed for children age data, especially whose exact date of births were not available. A summary of the Nimroz ENA Plausibility Check report is presented in Annex 4. The full plausibility report can be generated from the ENA dataset.

Table 13: Mean Z-scores, Design Effects, Missing and Out-of-Range Data of Anthropometric Indicators among Children 6-59 Months

Indicator	N	Mean z-scores ± SD	Design effect (z-score < -2)	Z-scores not available*	Z-scores out of range
Weight-for-Height*	592	-0.59±1.00	1.43	0	5
Weight-for-Age*	597	-1.32±0.82	2.08	0	0
Height-for-Age	596	-1.65±0.91	1.56	0	1

*no oedema case found in the survey

7.3. Prevalence of Acute Malnutrition

7.3.1. Acute Malnutrition by WHZ

The prevalence of GAM per WHZ among children 6-59 months in Nimroz was 8.4% (6.1 - 11.7 95% C.I.) as presented in Table 14 below and was categorized as medium. This prevalence seems slightly higher in boys than girls, but it is not statistically significant (P-value 0.0436).

The prevalence of SAM per WHZ among children 6-59 months was 1.9 % (1.1 – 3.1 95% C.I.). According to the national prioritization cut-off points, the prevalence was less than the threshold of 3%.

Table 14: Prevalence of Acute Malnutrition by WHZ (and/or oedema) by Severity and Sex among Children 6-59 months, WHO 2006 Reference

Indicators	All n = 592	Boys n = 310	Girls n = 282
Prevalence of global acute malnutrition (<-2 z-score and/or oedema)	(50) 8.4 % (6.1 - 11.7 95% C.I.)	(33) 10.6 % (7.2 - 15.5 95% C.I.)	(17) 6.0 % (3.9 - 9.3 95% C.I.)
Prevalence of moderate acute malnutrition (<-2 to ≥-3 z-score)	(39) 6.6 % (4.6 - 9.4 95% C.I.)	(25) 8.1 % (5.4 - 11.8 95% C.I.)	(14) 5.0 % (2.8 - 8.5 95% C.I.)
Prevalence of severe acute malnutrition (<-3 z-score and/or oedema)	(11) 1.9 % (1.1 - 3.1 95% C.I.)	(8) 2.6 % (1.4 - 4.8 95% C.I.)	(3) 1.1 % (0.4 - 3.1 95% C.I.)

*There were 0.0% oedema cases in the sample

The prevalence of acute malnutrition by WHZ was also assessed among children 0-59 months. The GAM per WHZ was 8.9% (6.7-11.8 95% CI), as presented in Table 15 below. The prevalence of SAM per WHZ among children 0-59 months was 2.0% (1.3- 3.3 95% CI).

When disaggregated by age group, the group with the highest MAM and SAM was 6-17 months, as presented in Table 15 below. The age group with the lowest MAM was 54-59 months and there was no SAM case in the age group of 30-41, 42-53 and 54-59 months. Results of this disaggregation suggest that the younger age groups (6-29) were more vulnerable to acute malnutrition than older groups (30-59) according to the WHZ criterion (p-value <0.05).

Table 15: Prevalence of Acute Malnutrition per WHZ Severity and Age Group of 6-59 months

Age (months)	N	Severe wasting* (WHZ <-3)		Moderate wasting (WHZ ≥-3 to <-2)		Normal (WHZ ≥-2)		Oedema	
		n	%	N	%	N	%	n	%
6-17	151	10	6.6	17	11.3	124	82.1	0	0.0
18-29	130	1	0.8	11	8.5	118	90.8	0	0.0
30-41	142	0	0.0	3	2.1	139	97.9	0	0.0
42-53	116	0	0.0	5	4.3	111	95.7	0	0.0
54-59	53	0	0.0	3	5.7	50	94.3	0	0.0
Total	592	11	1.9	39	6.6	542	91.6	0	0.0

*There were 0 oedema cases in the sample

The WHZ distribution curve (in red) as compared to the WHO 2006 reference WHZ distribution curve (in green) and as presented in Figure 5 below demonstrates a shift to the left, suggesting a malnourished population. Figure 4 illustrates the mean WHZ for age categories and more affected children were 6-17 months.

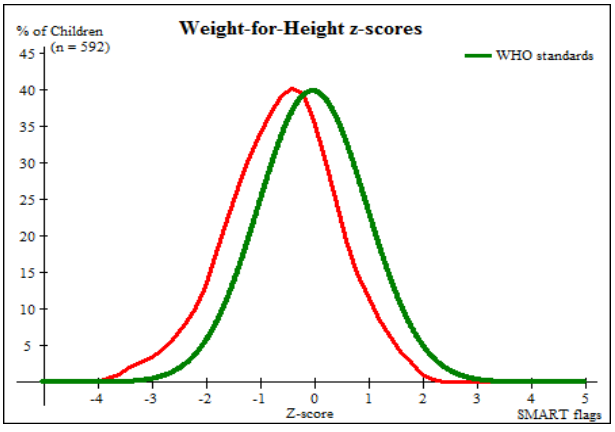


Figure 4: Distribution of WHZ Sample Compared to the WHO 2006 WHZ Reference Curve

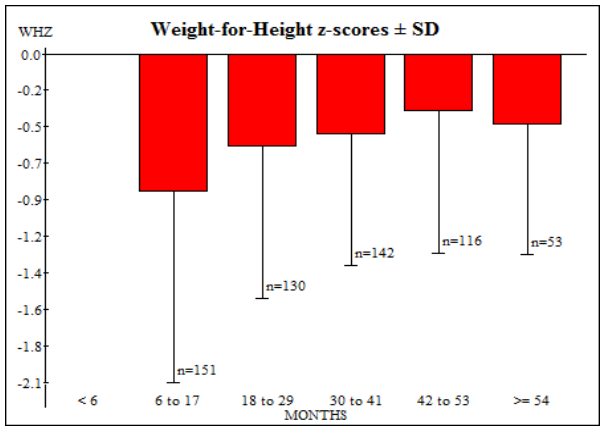
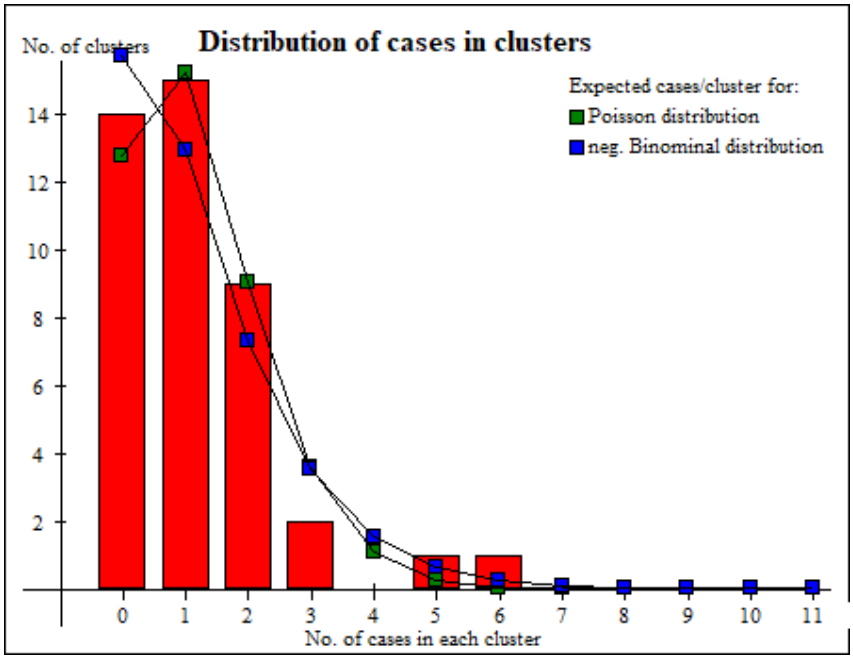


Figure 3: Means WHZ by age groups

However according to Poisson distribution, some possible pocket of malnutrition observed based on the Index of Dispersion for WHZ <-2 (ID=1.44; p=0.033). Two clusters (#3 and 39) had relatively higher number of wasted cases (6 and 5 GAM cases respectively). Cluster #3 is Kadagi 2 Village of Chahar Burjak District in catchment area of Chahar Burjak CHC with 380 population,

and Cluster #39 is Durahi Village of Dilaram District in the catchment area of Dilaram CHC with 1099 population, The access of these villages are poor to the health facilities due to far distance.



7.3.2. Acute malnutrition by MUAC

The prevalence of GAM per MUAC among children 6-59 months in Nimroz was 8.7% (6.6 – 11.4 95% C.I.). The prevalence of SAM per MUAC among children 6-59 months was 2.3% (1.4 – 4.0 95% C.I.); as presented in Table 16 below.

Table 16: Prevalence of Acute Malnutrition by MUAC (and/or edema) by Severity and Sex among children 6-59 months **Indicators**	**All** **n = 597**	**Boys** **n = 315**	**Girls** **n = 282**
Prevalence of global malnutrition (<125 mm and/or Oedema)[9]	(52) 8.7 % (6.6 - 11.4 95% C.I.)	(23) 7.3 % (4.8 - 11.0 95% C.I.)	(29) 10.3 % (7.6 - 13.8 95% C.I.)
Prevalence of moderate malnutrition (< 125 mm to ≥115 mm, no Oedema)	(38) 6.4 % (4.6 - 8.7 95% C.I.)	(16) 5.1 % (3.1 - 8.3 95% C.I.)	(22) 7.8 % (5.3 - 11.3 95% C.I.)
Prevalence of severe malnutrition (< 115 mm and/or Oedema)	(14) 2.3 % (1.4 - 4.0 95% C.I.)	(7) 2.2 % (1.1 - 4.3 95% C.I.)	(7) 2.5 % (1.2 - 5.1 95% C.I.)

When disaggregated by age group, 6-17 months had the highest MAM and SAM, Table 17 shows the older age groups 42-53 and 54-59 months had no SAM cases. The younger age groups (6-29) were statistically more vulnerable to acute malnutrition compared to older groups (30-59) as per the MUAC criteria (p-value < 0.05).

Table 17: Prevalence of Acute Malnutrition per MUAC and/or Oedema by Severity and Age Group.

Age (months)	N	Severe wasting* (MUAC<115 mm)		Moderate wasting (MUAC ≥115 mm and <125 mm)		Normal (MUAC ≥125 mm)		Oedema	
		N	%	N	%	N	%	n	%
6-17	156	6	3.8	21	13.5	129	82.7	0	0.0
18-29	130	7	5.4	12	9.2	111	85.4	0	0.0
30-41	142	1	0.7	4	2.8	137	96.5	0	0.0
42-53	116	0	0.0	1	0.9	115	99.1	0	0.0
54-59	53	0	0.0	0	0.0	53	100.0	0	0.0
Total	597	14	2.3	38	6.4	545	91.3	0	0.0

*There were not oedema cases in the sample

7.3.3. Acute Malnutrition by Oedema

No Oedema case was observed in the sample. Table 18 below illustrates data for the presence and absence of oedema cases.

Table 18: Distribution of Severe Acute Malnutrition per Oedema among Children 6-59 Months

	WHZ <-3	WHZ>=-3
Presence of Oedema*	Marasmic kwashiorkor No. 0 (0.0 %)	Kwashiorkor No. 0 (0.0 %)

Absence of Oedema	Marasmic No. 15 (2.5 %)	Not severely malnourished No. 582 (97.5 %)

*There was no oedema case in the sample

7.3.4. Combined Acute Malnutrition by WHZ and/or MUAC and/or Oedema

The prevalence of Combined GAM & SAM among children 6-59 months in Nimroz was 14.7% and 3.9% respectively. Although there is not globally established threshold for Combined GAM, the GAM and SAM prevalence was slightly higher than for WHZ or MUAC separately, confirming that MUAC and WHZ are independent indicators for malnutrition. Table 19, below illustrates the results for combine GAM.

Table 19: Prevalence of combine Acute Malnutrition by WHZ + MUAC by Severity and Sex among Children 6-59 months

Indicators	All n = 597	Boys n = 315	Girls n = 282
Prevalence of Global Acute Malnutrition (MUAC<125 mm and/or WHZ<-2SD and/or Oedema)	(88) 14.7 % (12.0 - 18.0 95% C.I.)	(49) 15.6 % (11.4 - 20.8 95% C.I.)	(39) 13.8 % (10.8 - 17.5 95% C.I.)
Prevalence of Severe Acute Malnutrition (MUAC<115 mm+ and/or WHZ<-3SD and/or Oedema)	(23) 3.9 % (2.6 - 5.7 95% C.I.)	(14) 4.4 % (2.8 - 7.0 95% C.I.)	(9) 3.2 % (1.8 - 5.7 95% C.I.)

*There were not oedema cases in the sample

The combined rate informs the estimated SAM and MAM caseload in the province for better programming. All the children in the sample detected as acutely malnourished (either by MUAC or WHZ or Oedema) are reflected in this calculation according to combined criteria. To detect all acutely malnourished children eligible for treatment, the MUAC only detection is not enough according to Afghanistan IMAM Guidelines. This should be further investigated. See figure 5 in the actual acute malnutrition comparing WHZ <-2 Z-score with

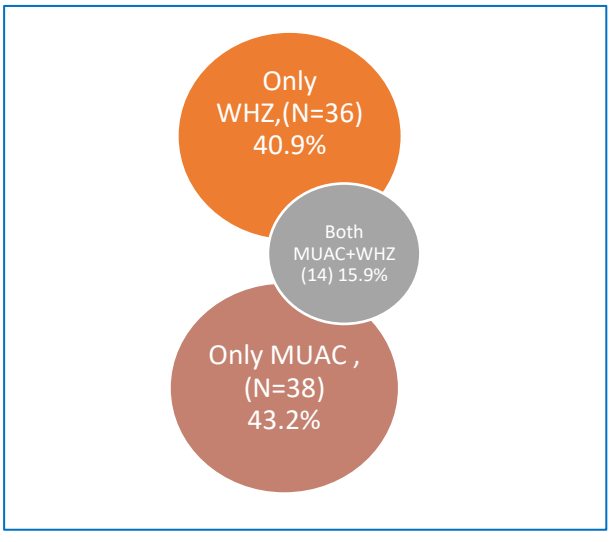


Figure 5: Overlapping WHZ and MUAC data

7.3.5. Enrolment in nutrition program: OPD/IPD for SAM/MAM cases

The proportion of children identified as acutely malnourished by MUAC only and their corresponding treatment enrolment status are presented in Table 20 below.

Overall, out of 52 children 6-59 months old identified as acutely malnourished by MUAC and WHZ by the teams in the field, 38 were MAM cases and 14 were SAM cases. The proxy program coverage for all malnourished cases was 23.1%. Majority 40 (76.9%) Out of 71 children identified as malnourished were not in any program and were referred to as an appropriate program in their neighbourhood.

Table 20: Proportion of Acutely Malnourished Children 6-59 Months enrolled in a Treatment Program

Sample	Enrolled in an OPD SAM	Enrolled in an OPD MAM	Enrolled in an IPD SAM	Not Enrolled/ Referred
Acutely malnourished children 6-59 months by MUAC and WHZ, or oedema (N=52)	2	10	0	40

7.4. Prevalence of Chronic Malnutrition

The prevalence of stunting per HAZ among children 6-59 months in Nimroz province was 34.6%, as presented in Table 21 below. According to UNICEF-WHO thresholds 2018[10], this prevalence was categorized as very serious. There was no significant difference based on gender.

Table 21: Prevalence of Chronic Malnutrition by HAZ by Severity and Sex among Children 6-59 months, WHO 2006 Reference

[10] UNICEF-WHO thresholds 2018

Indicators	All n = 596	Boys n = 315	Girls n = 281
Prevalence of chronic malnutrition (HAZ <-2 SD)	(206) 34.6 % (29.8 - 39.6 95% C.I.)	(130) 41.3 % (34.6 - 48.3 95% C.I.)	(76) 27.0 % (22.9 - 31.6 95% C.I.)
Prevalence of moderate chronic malnutrition (HAZ <-2 to ≥-3 SD)	(169) 28.4 % (24.5 - 32.5 95% C.I.)	(102) 32.4 % (27.0 - 38.3 95% C.I.)	(67) 23.8 % (19.7 - 28.6 95% C.I.)
Prevalence of severe chronic malnutrition (HAZ <-3 SD)	(37) 6.2 % (4.1 - 9.3 95% C.I.)	(28) 8.9 % (5.6 - 13.8 95% C.I.)	(9) 3.2 % (1.5 - 6.9 95% C.I.)

When disaggregated by age group, the age group 18-29 months had the highest severe chronic malnutrition, Table 22, while the age group 54-59months had the lowest chronic malnutrition.

Table 22: Prevalence of Chronic Malnutrition per HAZ by Severity and Age Group

Age (months)	N	Severe stunting (HAZ <-3)		Moderate stunting (HAZ >= -3 to <-2)		Normal (HAZ>= -2)	
		n	%	N	%	n	%
6-17	155	8	5.2	37	23.9	110	71.0
18-29	130	19	14.6	45	34.6	66	50.8
30-41	142	6	4.2	54	38.0	82	57.7
42-53	116	4	3.4	22	19.0	90	77.6
54-59	53	0	0.0	11	20.8	42	79.2
Total	596	37	6.2	169	28.4	390	65.4

The HAZ distribution curve (in red) as compared to the WHO 2006 reference HAZ distribution curve (in green) as presented in Figure 7 below demonstrates a shift to the left, suggesting a very stunted population in comparison to the normal population. Further analysis suggests that linear severe growth retardation is at its highest in the group of children aged 18-29 months as shown in figure 6.

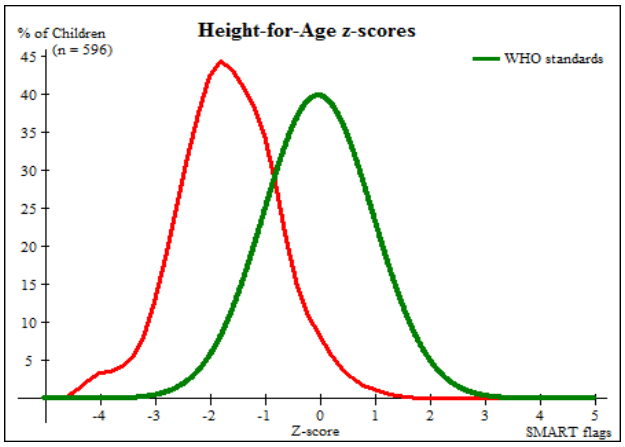


Figure 6: Distribution of HAZ Sample Compared to the WHO 2006 WHZ Reference Curve

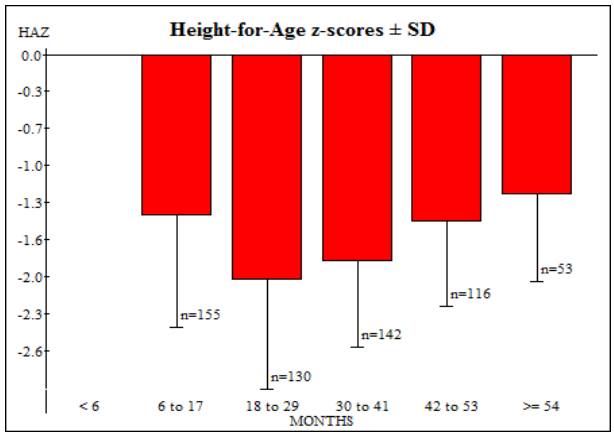


Figure 7: Mean HAZ by Age Group

7.5. Prevalence of Underweight

The prevalence of underweight per WAZ among children 6-59 months in Nimroz was 18.1%, as presented in Table 23 below. The prevalence of severe underweight per WAZ among children 6-59 months was 3.0%. According to WHO severity thresholds, prevalence falls under medium categorization.

Table 23: Prevalence of Underweight by WAZ by Severity and Sex among Children 6-59 months, WHO 2006 Reference

Indicators	All n = 597	Boys n = 315	Girls n = 282
Prevalence of underweight (WAZ <-2 SD)	(108) 18.1 % (13.9 - 23.1 95% C.I.)	(73) 23.2 % (16.5 - 31.5 95% C.I.)	(35) 12.4 % (9.8 - 15.7 95% C.I.)
Prevalence of moderate underweight (WAZ <-2 and >=-3 SD)	(90) 15.1 % (11.3 - 19.8 95% C.I.)	(60) 19.0 % (13.3 - 26.5 95% C.I.)	(30) 10.6 % (7.7 - 14.5 95% C.I.)
Prevalence of severe underweight (WAZ <-3SD)	(18) 3.0 % (1.9 - 4.8 95% C.I.)	(13) 4.1 % (2.5 - 6.7 95% C.I.)	(5) 1.8 % (0.7 - 4.7 95% C.I.)

When disaggregated by age group, the age group with the highest severe underweight was 6-17 months, as presented in Table 24 below. The age groups with the lowest severe underweight were in 30-41, 42-53 and 54-59 months.

Table 24: Prevalence of Underweight per WAZ by Severity and Age Group

Age (months)	N	Severe underweight (WAZ <-3)		Moderate underweight (WAZ ≥-3 to <-2)		Normal (WHZ ≥-2)	
		n	%	n	%	N	%
6-17	156	13	8.3	27	17.3	116	74.4
18-29	130	5	3.8	22	16.9	103	79.2
30-41	142	0	0.0	30	21.1	112	78.9
42-53	116	0	0.0	10	8.6	106	91.4
54-59	53	0	0.0	1	1.9	52	98.1
Total	597	18	3.0	90	15.1	489	81.9

The WAZ distribution curve (in red) as compared to the WHO 2006 reference WAZ distribution curve (in green) as presented in figure 9 below demonstrates a large shift to the left, suggesting a very underweighted population in comparison to the normal population. Further analysis suggests that linear underweight is at its highest in the group of children aged 6-17 months as shown in figure 8.

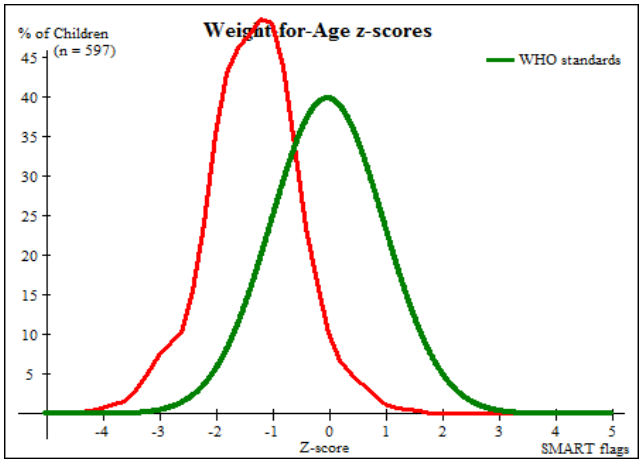


Figure 8: Distribution of WAZ Sample Compared to the WHO 2006 with Refrence Curve.

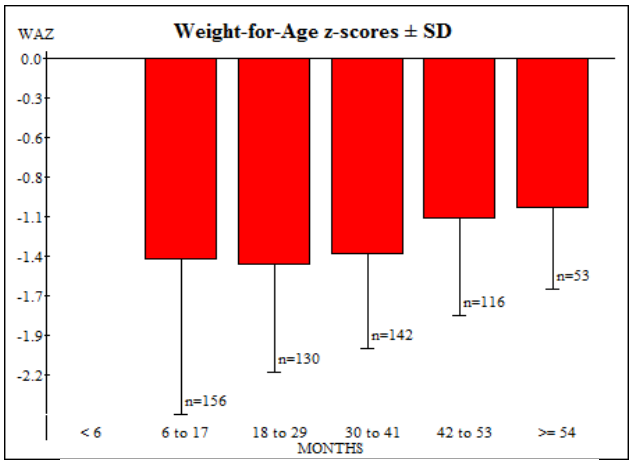


Figure 9: Mean WAZ by Age Group

7.6. Malnutrition prevalence among Women 15-49 years old based on MUAC criterion

All women of child-bearing age (15-49 years) were included in the survey. A total of 607 women were assessed for nutrition status by MUAC. The analysis further disaggregating the sample by physiological status (pregnant, lactating, both); the prevalence of wasting was 19.6%; more details are presented in Table 25 below.

Table 25: Prevalence of Acute Malnutrition among Women per MUAC

Indicators	N	MUAC <230 mm	
		n	%
All women 15-49 years <230 mm[11]	607	119	19.6%
Pregnant women <230 mm	82	19	23.2%
Lactating women <230 mm	196	48	24.5%
Both pregnant and lactating women (at the same time) <230 mm	40	12	30.0%
Non-pregnant and non-lactating women <230 mm	289	40	13.8%
All PLWs <230 mm	**318**	**79**	**24.8%**

7.7. Retrospective Mortality

The overall death rate for the surveyed population was 0.78 (0.43-1.41 95% CI) which is below the WHO emergency thresholds of 1.0/10,000/day. The death rate was slightly higher for males compared to females in the population. The age group with the highest death rate was 65-120 years, followed by the age group 0-4 years. In total, 19 deaths were recorded during the 86 day recall period in Nimroz.

[11] **Women that were simultaneously pregnant and lactating*

Table 26: Death Rate by Age and Sex with Reported Design Effect

Population	Death Rate (/10,000/Day)	Design Effect
Overall	0.78 (0.43-1.41)	1.71
Male	0.88 (0.48-1.60)	1.02
Female	0.68 (0.31-1.45)	1.16
'0-4	0.90 (0.32-2.49)	1.30
'5-11	0.00 (0.00-0.00)	1.00
'12-17	0.00 (0.00-0.00)	1.00
'18-49	0.78 (0.34-1.79)	1.19
'50-64	3.39 (1.20-9.25)	1.05
'65-120	10.29 (2.79-32.21)	1.20

Information collected about apparent causes of death showed most of the deaths attributed to illness (68.4%). Figure 10 below summaries the causes of deaths.

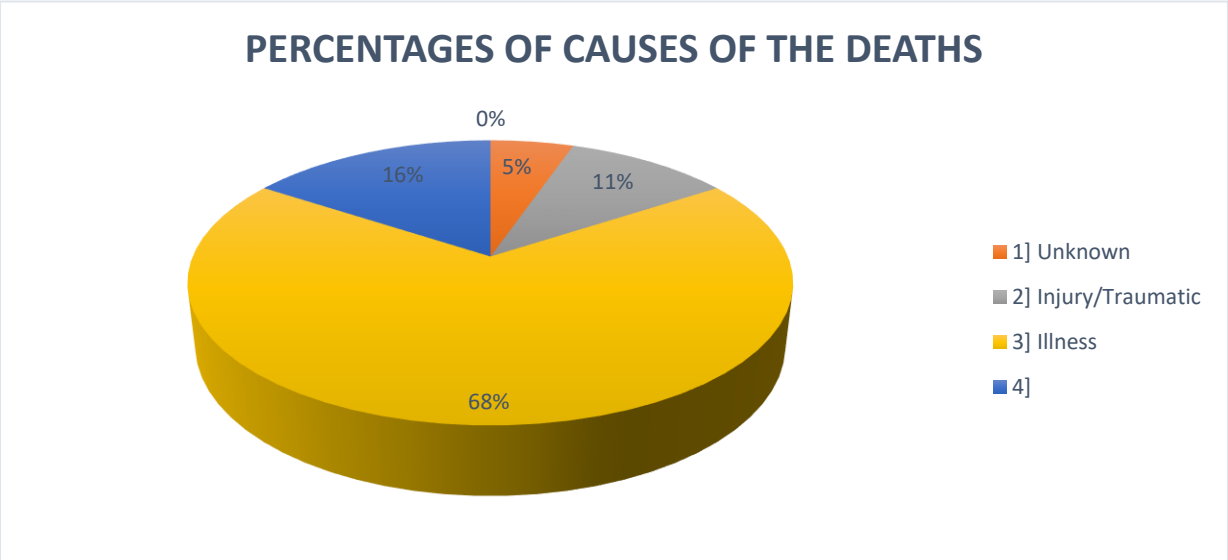


Figure 10: Percentages of causes of the deaths

7.8. Infant and Young Child Feeding (IYCF) Practices

Indicators for IYCF practices were collected from all caregivers with children less than 24 months. A total of 271 children under two years were included in the sample, with the core IYCF indicators assessed presented in Table 27 below.

The proportion of infant's breastfed within one hour of birth was 66.1% suggesting that they likely received colostrum. The proportion of infants 0-5 months exclusively breastfed was 57.7%, suggesting slightly more than two-thirds of the infants are fed replacements of breastmilk or other liquids or foods this critical stage when an infant should be receiving the protective benefits of exclusive breastfeeding. The proportion of children with continued breastfeeding at one year was 86.0% and at two years 45.9%.

IYCF Indicator	Sample	N	n	Results
Timely initiation of breastfeeding	Children 0-23 months	271	179	66.1%
Exclusive breastfeeding	Infants 0-5 months	52	30	57.7%
Continued breastfeeding at one year	Children 12–15 months	50	43	86.0%
Continued breastfeeding at two years	Children 20-23 months	37	17	45.9%

Figure 11 Infant and Young Child Feeding Practices

While asking questions about breastfeeding practices, caregivers of infants 0-5 months were also asked the kind of liquids or soft, semi-soft, or solid foods consumed by the infant in the past day. Figure 11 below presents the liquids most frequently displacing breastmilk. Water and foodstuffs were among the highly consumed food among the infants; this will guide the design of key messaging to guide adoption, promotion, and support of the recommended IYCF practices

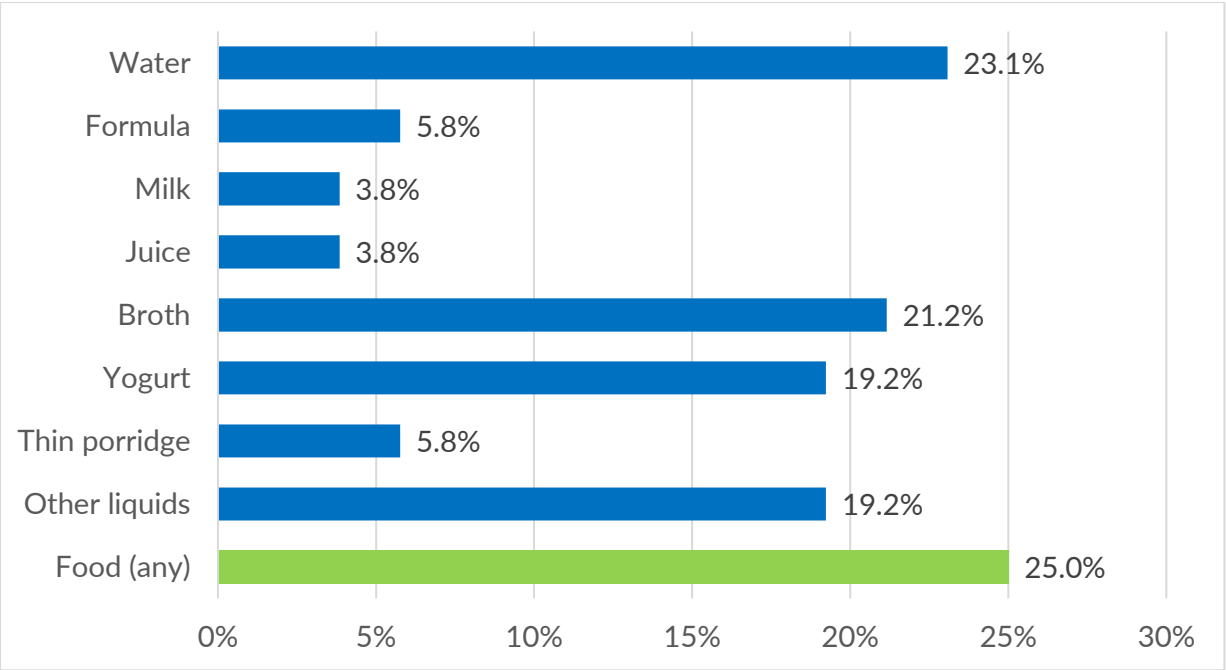


Figure 12: Liquids or Food Consumed by Infants 0-5 Months

7.9. Child Immunization Status

In Nimroz, the survey results indicated that 88.1% of children age 9-59 months and 82.5% of children 18-59 months had received the first and second doses of measles immunization, as confirmed either by vaccination card or caregiver recall. Table 28 below illustrates the data on second dose measles immunization coverage.

Table 27: Measles Immunization Coverages among Children 9-59 Months

Indicator	Response	First Dose 9-59m (N=561)		Second Dose 18-59m (N=441)	
		n	%	n	%
Both Doses Measles Immunization	Yes by card	282	50.3%	203	46.0%
	Yes by recall	212	37.8%	161	36.5 %
	Yes by card or recall	**494**	**88.1%**	**364**	**82.5%**
	No	65	11.6%	75	17.0%
	Don't know	2	0.4%	2	0.5%
	Total	561	100%	441	100%

7.9.1. Water, Sanitation, and Hygiene

Households were asked to identify their main source of drinking water, which was then categorized as improved or unimproved during analysis. Among all (418) households surveyed, 231 (55.3%) mainly relied on an improved water source, mostly a piped water source, and Borehole/well with a hand pump; the remaining proportion of the households 187 (44.7%) relied mainly on an unimproved water source, most commonly well with a bucket. For more details refer to table 29.

Table 28: Household Main Drinking Water Source

Main Drinking Water Source N= 418	Frequency	%
Improved Water Source	231	55.3%
Unimproved Water Source	187	44.7%

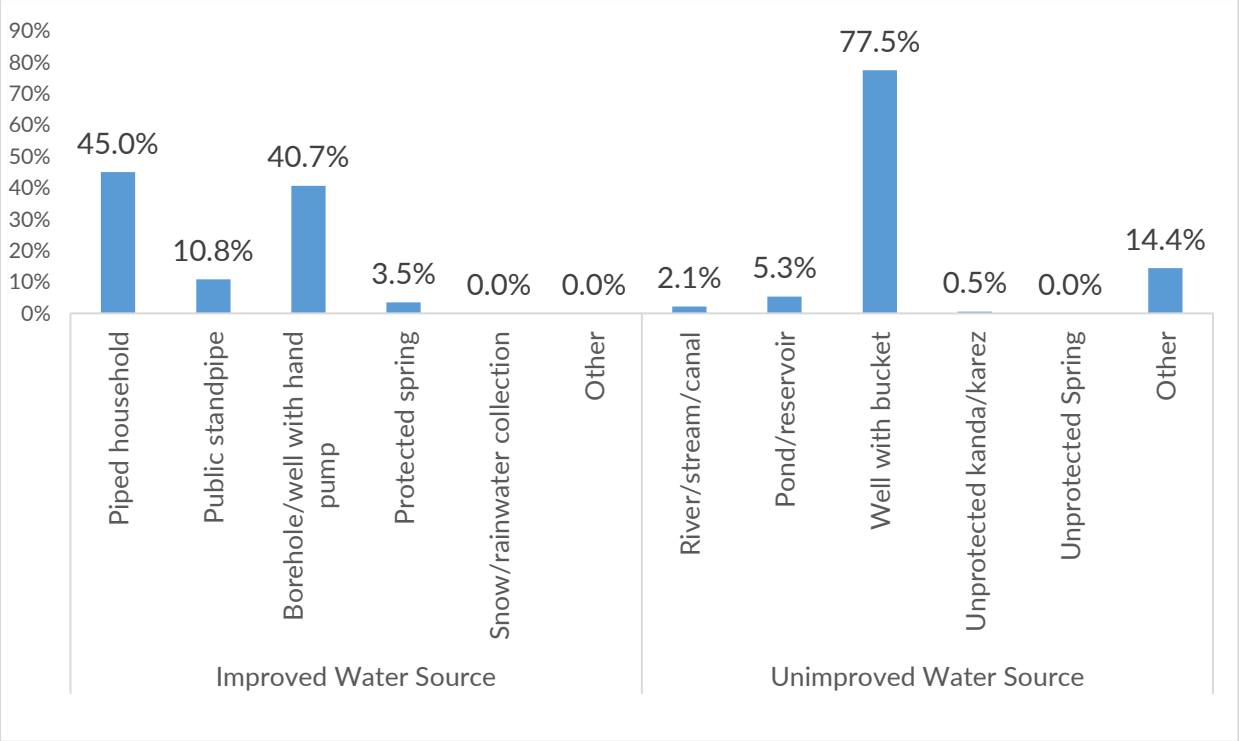


Figure 13: Household Use of Improved and Unimproved Drinking Water Sources

7.9.2. Hand Washing Practices (Use of Soap or Ash) among Caregivers

Caregivers demonstrated how they washed their hands for the interviewer. Overall, 47.0% of caregivers demonstrated washing their hands with soap/ash and water. For more details refer to table 30.

Table 29: Hand Washing Practices (Use of Soap or Ash) among Caregivers

Hand washing practices by caregivers N= 607	Frequency	%
Uses soap or ash with water	285	47.0%
Uses only water	322	53.0%
Nothing	0	0.0%
Other	0	0.0%

7.9.3. Hand Washing During Critical Moments among Caregivers

Caregiver responses about when they routinely wash their hands were assessed at five critical moments and further grouped into two categories: Hand washing after coming into contact with feces, and hand washing before coming into contact with food. Overall, only 15.8% of caregivers reported washing their hands during the five critical moments that fell into these two categories, suggesting a low understanding of the importance of handwashing at these moments.

Table 30: Hand Washing Practices by Caregivers at Critical Moments

Hand washing during Five Critical Moments	N	n	Results	Critical Moments in Two Categories[12]	N	n	Results
After defecation	607	556	91.6%	Washes hands after contact with faeces	607	295	48.6%
After cleaning baby's bottom	607	328	54.0%				
Before food preparation	607	345	56.8%	Washes hands before contact with food	607	177	29.2%
Before eating	607	504	83.0%				
Before feeding or breastfeeding children	607	175	28.8%				
Reported washing hands during all five critical moments	607	96	15.8%	Reported washing hands during critical moments in both categories.	607	154	47.0%

7.9.4. Food Security

7.9.5. Food Consumption Score

In Nimroz province, 10.8% of households reported consuming the frequency and quality of food groups suggesting a poor consumption score, 37.3% a borderline consumption score, and 51.9% an acceptable poor consumption score, as presented in Figure 14 below.

[12] The Sphere Handbook 2018

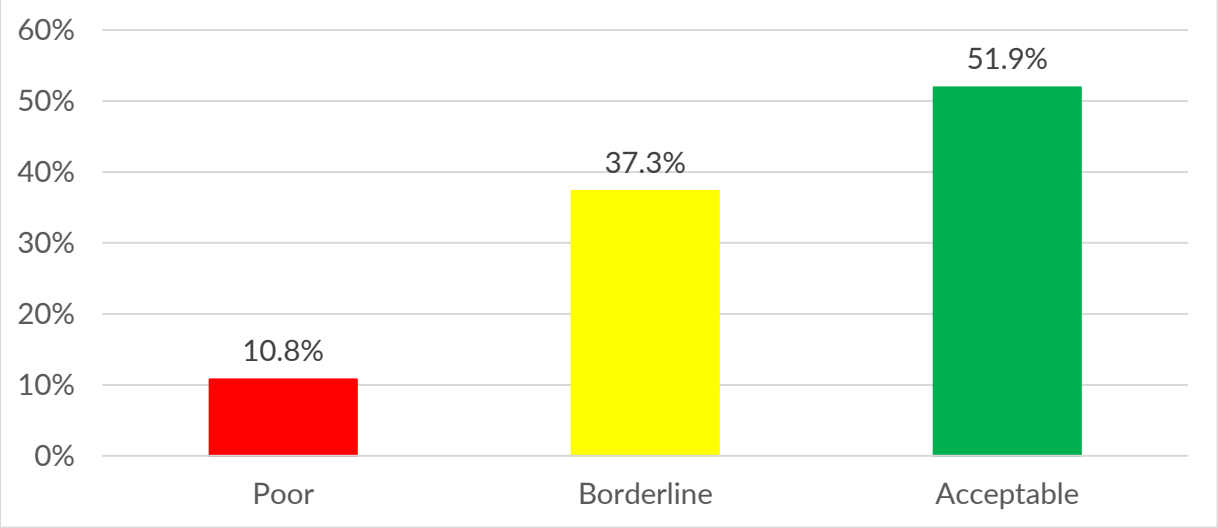


Figure 14: Household Food Consumption Score

Among surveyed households, the most frequently consumed food group was cereals (100.0%), Oil (100.0%), followed by meat, fish or egg (82.5%) The least frequently consumed food groups were fruits and dairy (64.1% and 64.8% respectively), as presented in Figure 15 below.

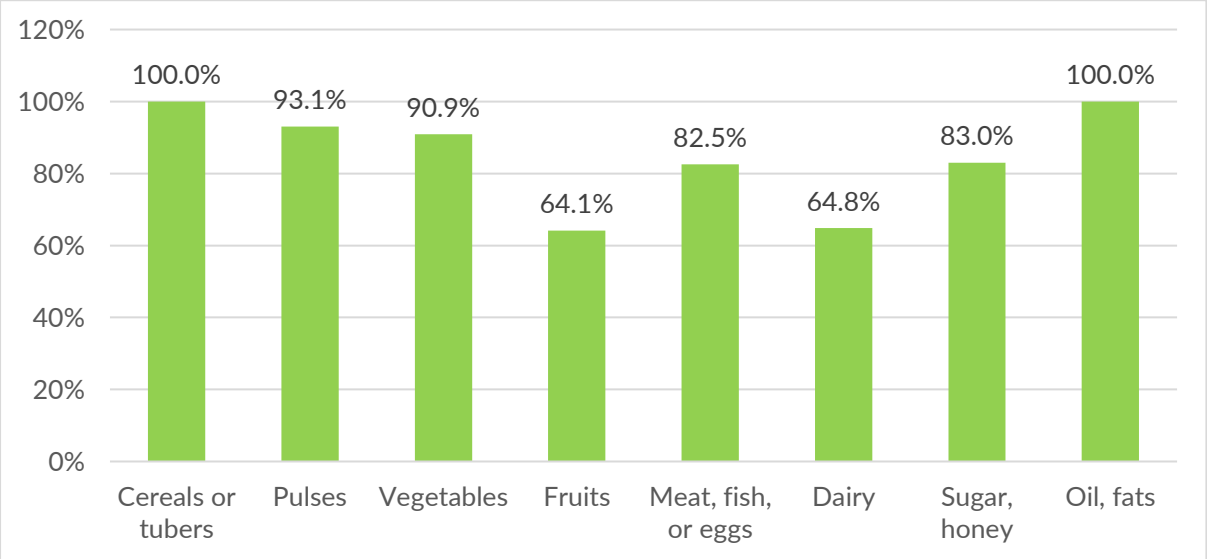


Figure 15: Frequency of Food Groups Consumed by Households

7.9.6. Reduced Coping Strategies Index

Among surveyed households, 29.4% reported not having sufficient food or money to buy food in the week prior to the survey. The most commonly reported food-related coping strategy was resorting to less preferred food 28.0%, followed by borrowing food 23.0% or rely on restricted food for adults 7.9 %, and a reduced number of meals is 12.4% as presented in Table 32 below.

Table 31: Reduce Coping Strategy Index Categories

Household Coping Strategies N=418	Frequency	%
Reported insufficient food or money to buy food per 7-day recall	123	29.4%
Relying on less preferred and less expensive foods	117	28.0%
Borrowing food, or rely on help from a friend or relative	96	23.0%
Limiting portion size at mealtimes	36	8.6%
Restricting consumption by adults for small children to eat	33	7.9%
Reducing the number of meals eaten in a day	52	12.4%

Calculated and weighted as per the rCSI, it was estimated that 73.68% of households relied on none or low coping strategies, 10.77% relied on medium coping strategies, and 15.55% relied on high coping strategies, as presented in Figure 16 below.

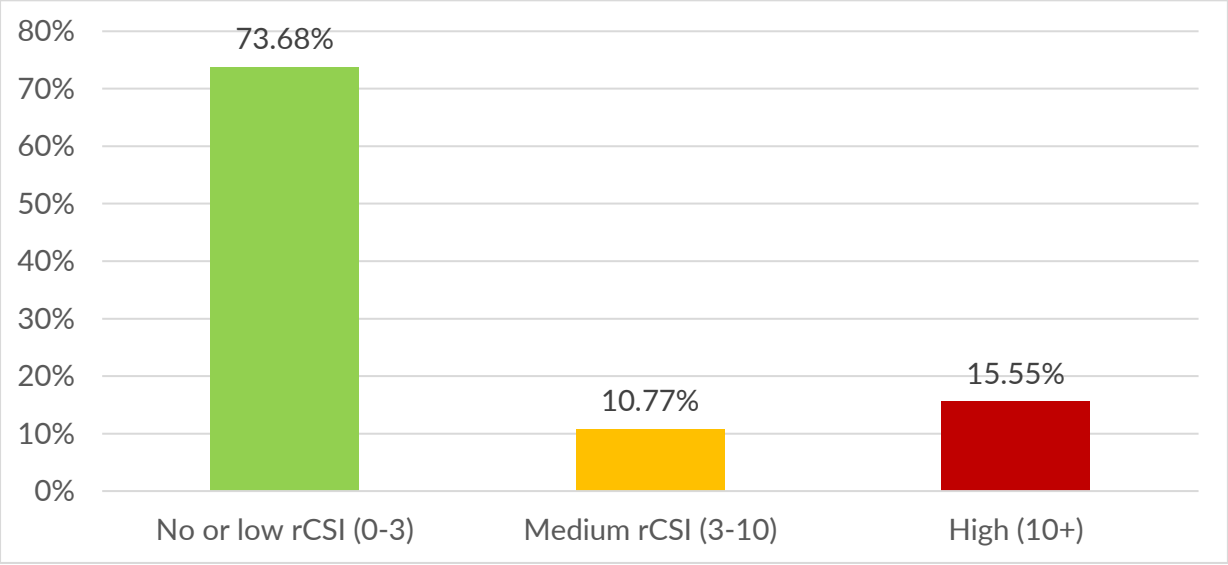


Figure 16: Household Reduced Coping Strategies Index

7.9.7. Food Security Classification

The triangulation of FCS and rCSI attempts to capture the interaction between household food consumption and coping strategies required to more appropriately reflect the food security situation in Nimroz province. Based on this triangulation, 16.7% of households were classified as severely food insecure, 8.4% of households were moderately food insecure, and 74.9% of households were considered food secure, as presented in Figure 17.

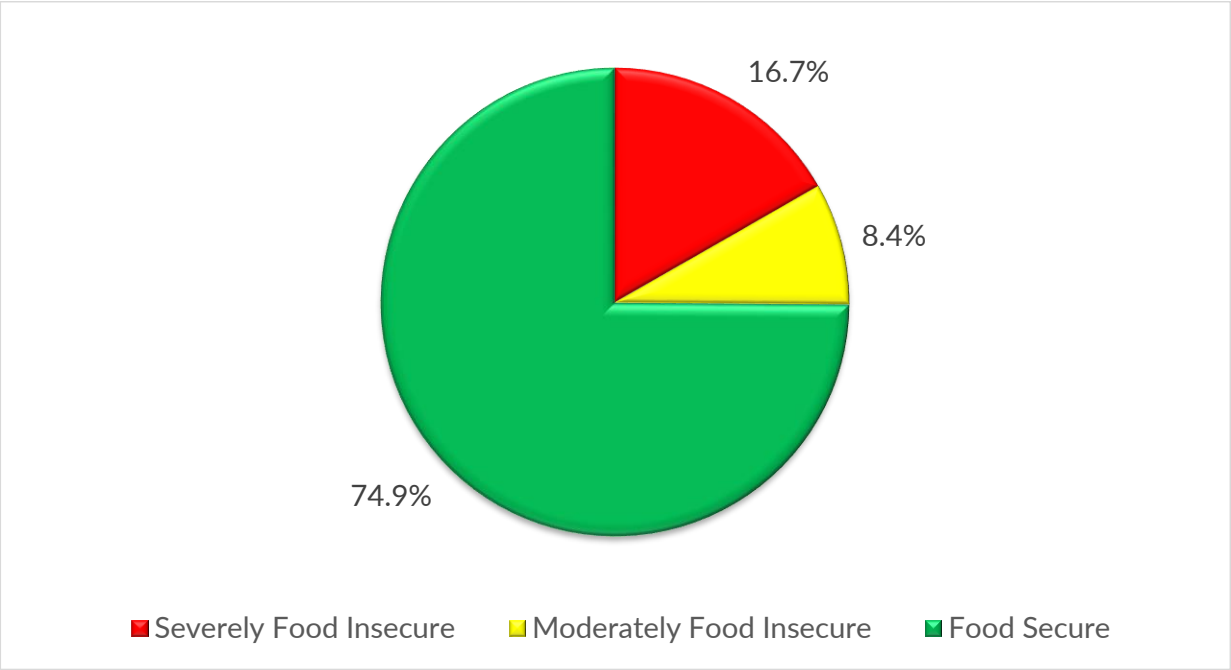


Figure 17: Food Security Classification Assessed by FCS & rSCI

8. DISCUSSION

8.1. Nutritional Status of children

The results of this survey are not a reflection of the national nutrition situation but they are the only representative of the population living in all six districts of the Nimroz province. The results of this survey showed a GAM and SAM prevalence of 8.4% (6.1 - 11.7 95% C.I.) and a 1.9 % (1.1-3.1 95% C.I.) respectively; based on MUAC, the prevalence is at 8.7% (6.6-11.4 95% CI) and 2.3% (1.4-4.0 95% CI) GAM and SAM respectively. The prevalence falls under the medium category of emergency-threshold classification as per the latest the WHO/UNICEF 2018 threshold. The SAM rate by WHZ is however below the 3.0% threshold established by the MoPH, Nutrition Cluster and the AIM-WG for the response prioritization in the Afghanistan context as opposed

to the international emergency threshold of SAM above 2.0%. There was not a significant difference with rates observed in April 2017. The MUAC GAM rate was 6.2% (4.5 – 8.6 95% CI) in 2017. The expectation was a deterioration in the malnutrition situation over the past three years due to peaks of insecurity, conflict-induced demographic movements, drought and the adverse impacts of seasonal floods. In addition, there has been no TSFP program since April 2017; nutrition and health mobile teams were only able to provide services in areas not previously covered. Currently, there are 13 OPD-SAM, 1 IPD-SAM, 4 MHT, and no IMAM suite in the province. The humanitarian intervention though limited in scope and coverage has nevertheless cushioned the most vulnerable during the emergency period.

Estimation of prevalence of malnutrition based on Combined GAM continue to add impetus to the importance of the independence diagnosis criteria of GAM by WHZ and MUAC in identification of malnutrition hence ensuring greater coverage of children in need of treatment as demonstrated by the 14.7% (12.0-18.0 95% CI) combined GAM rate as opposed to 8.4% (6.1 – 11.7) based on WFH alone. This translates to a significant difference of caseload of acutely malnourished children.

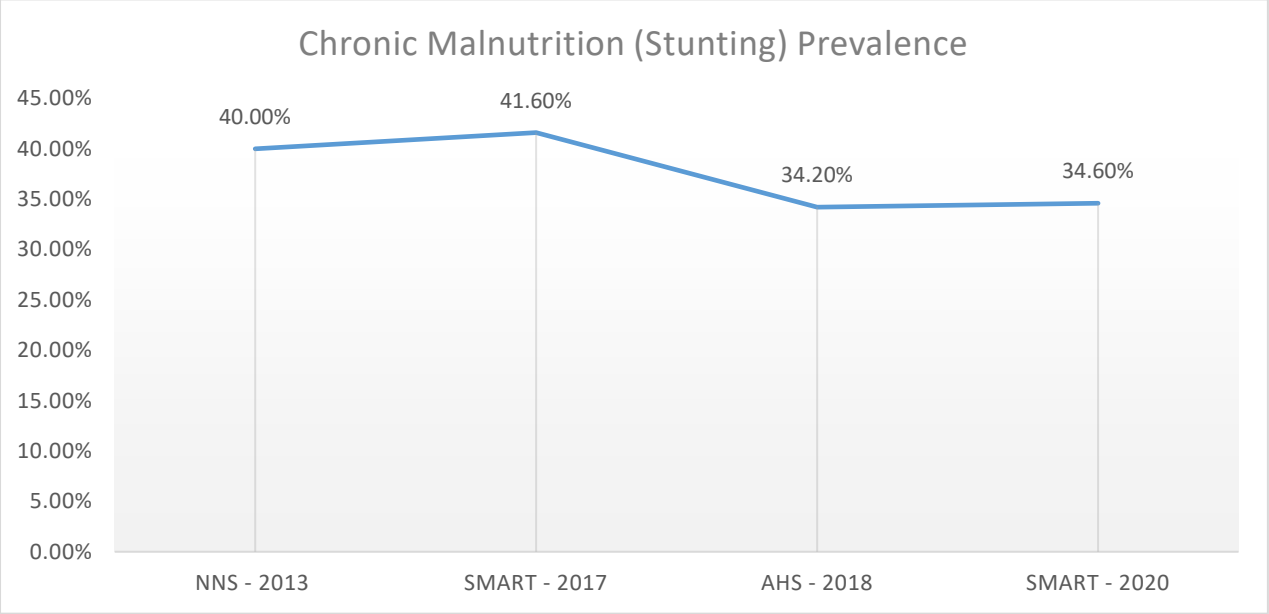


Figure 18: Stunting over time

Chronic malnutrition in Nimroz province remains of public health concern. The prevalence of chronic malnutrition among children 6-59 months was 34.6% (29.8-39.6 95% CI), which is classified as very high according to the UNICEF-WHO 2018 thresholds. In other words, about 1 in 3 children in Nimroz province are not reaching optimal growth and development. Statistically, significant deterioration was observed in the chronic malnutrition; the prevalence of total stunting increased to 41.6% (37.4-45.9 95% CI) in January 2020 compared to 34.6% (29.8-39.6 95% CI) in April 2017.

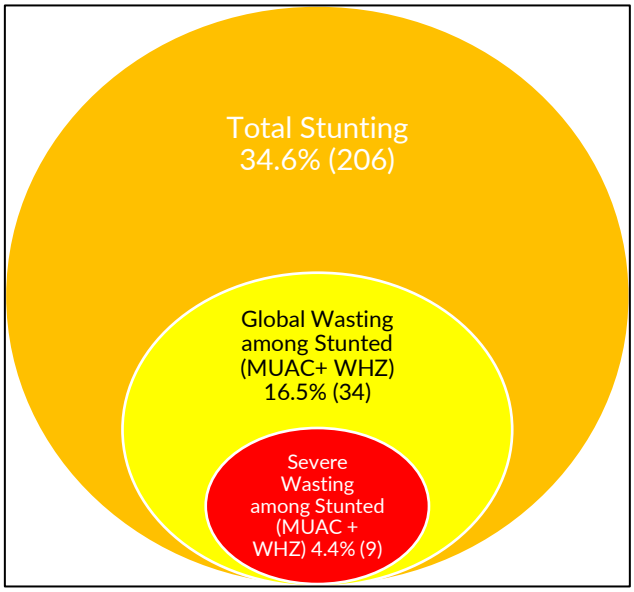


Figure 19: Among Stunted Children 6-59 Months, those Simultaneous Wasted (WHZ)

The high prevalence is compounded further by the simultaneous presence of acute malnutrition resulting in a double burden of malnutrition. Recent research has concluded that children who are both stunted and wasted are at a heightened risk of mortality[13], further suggesting that this should be a priority group for treatment interventions. In Nimroz province, it was found that among the 206 stunted children, 34 of them (16.5%) were also wasted by both criteria (WHZ<-2SD + MUAC<125 mm) and 9 of them (4.4%) were severely wasted.

[13] Myatt, M. et al (2018) Children who are both wasted and stunted are also underweight and have a high risk of death: a descriptive epidemiology of multiple anthropometric deficits using data from 51 countries

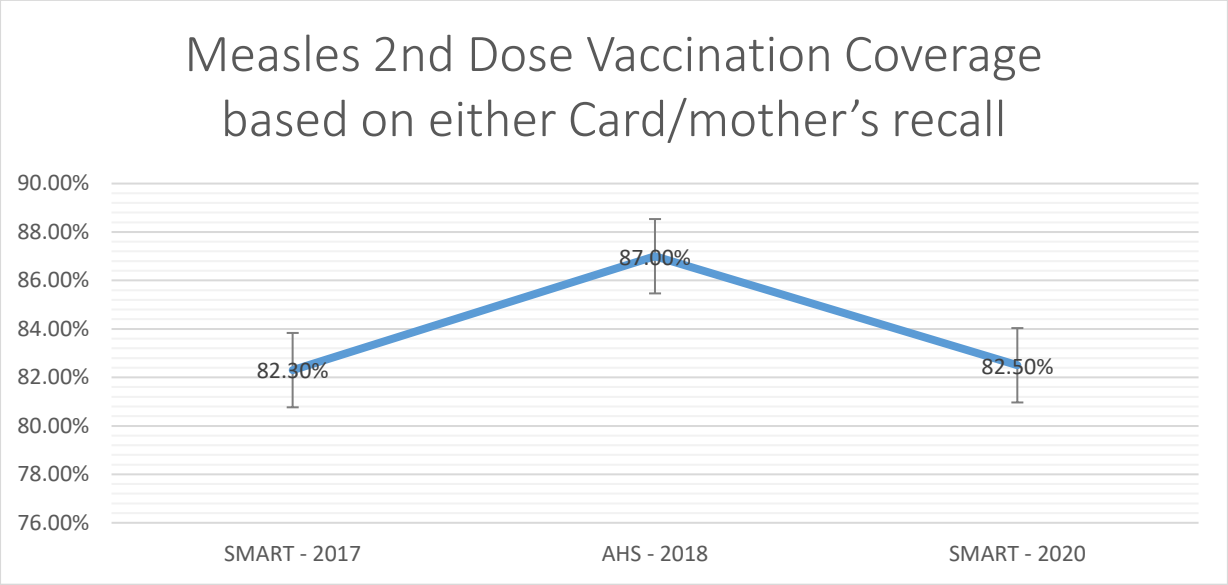
8.2. Maternal nutrition status

Acute malnutrition among women in Nimroz province is always of concern, although there is no globally defined cut-off for acute malnutrition among women by MUAC. The results indicated 24.8% of pregnant and lactating women (PLW) were suffering from acute malnutrition. However, this shows increment compared to the 2017 SMART survey malnutrition rate of PLWs of 19.8%; however, the increment is not statistically significant at P-Value is 0.096.

8.3. Child health

IYCF practices in Nimroz province have deteriorating based on the findings of the current SMART survey that's put a major concern over ongoing intervention efforts. This survey estimates that only 57.7% of the children were exclusively breastfed before six months of age; a slight reduction of a rate compare to 2017 SMART (60.5%). The proportion of children breastfed within 1 hour after birth remains low at 86.0%.

Immunization is an important public health intervention that protects children from illness and disability. Based on this survey, 88.1% of children age 9-59 months and 82.5% of the surveyed children between 18 to 59 months were immunized against measles. This shows a relatively satisfactory coverage, but still lower than the national target of 90.0%, thanks to a well-functioning Expanded Program on Immunization "EPI" at the national and provincial level. Figure 19 illustrates the changes in measles second dose vaccination over the past three years.



20: Measles 2nd dose vaccination coverage since 2018 – Nimroz province.

8.4. Mortality rate

The CDR and U5DR were below the WHO emergency threshold, with CDR of 0.78 death/10,000/Day and U5DR 0.90 death/10,000/Day.

9. RECOMMENDATIONS

Indicators	Recommendation	Actor	Timeline (Start date)
Nutrition	• Breastfeeding up to 6 months, timely introduction of complementary feeding and continuation of age-appropriate complementary feeding. • Expand Nutrition services along with IMCI and MCH services by using mobile health teams in the uncovered areas for SAM and MAM children and PLWs. • Screening of all U5 children attend HF sought care for their health to identify malnourished cases for the treatment • Increase of community awareness regarding nutrition. • Increase of the community screening and referral pathway from the community to HFs, active case-finding campaign through capacity building of community health workers (on job/formal training, and provision of MUAC tape and referral slips). through training of community health workers, FHAG (Family Health Action Groups) and Mother (Mother MUAC) on MUAC screening, identification of malnutrition and referrals. • Regular monitoring and supervision from the HFs. During the supervision, to give on the job training for all HFs staff.	MRCA with support from relevant stakeholders PPHD/MoPH and WFP	Quarter 1-2, 2020
Health	• Improve the content and quality of counselling provided by health workers in the health system and community, in particular regarding early initiation of breastfeeding, exclusive. • Expand mobile health and nutrition services to the remote and hard-to-reach areas in the districts of Nimroz province.	MRCA	Quarter 1-2, 2021

	• Increasing the awareness and health education season through HFs, MHTS, CHWS, and FHAG		
WASH	• Celebration of Global Hand Washing days at community schools • Organize Community's hygiene campaigns • Conduct Refresher Hygiene Training for existing FHAGs and CHWs • Hygiene kit distribution (WASH cluster recognized one) during hygiene promotion sessions • Conduct community-based handwashing demonstrations • Construction of Water Supply Networks – Gravity Fed (Public or House to House connection) • Construction of Water Supply Networks – Solar-Powered (Public or House to House connection) • Distribution of Aqutab tablets for (chlorine table) drinking water purification in every emergency cases.	MRCA with support from relevant stakeholders PPHD/MoPH and WFP	2021
Food Security	• Food security information and awareness required to let the community people mainly pregnant and lactation women on uses of the available productions through nutrition consolers, CHS, CHWs and FHAGs. • **Distribution of full package of agriculture:** Distribution of full package (50 kg wheat seed, 50 kg DAP and 50 kg Urea) since most of the population and farmers in Nimroz province have agriculture occupation; this will strengthen their livelihood situation and build resilience to handle the crisis in future.	Directorate of Agriculture, Irrigation, and livestock) with support from relevant stakeholders (e.g. FAO and WFP	2020

Annex1: Standardization test report

	Weight	Height	MUAC
Supervisor	TEM good	TEM good	TEM good
Enumerator 1	TEM good	TEM good	TEM good
Enumerator 2	TEM acceptable	TEM acceptable	TEM poor
Enumerator 3	TEM good	TEM good	TEM acceptable
Enumerator 4	TEM acceptable	TEM acceptable	TEM poor
Enumerator 5	TEM acceptable	TEM good	TEM acceptable
Enumerator 6	TEM good	TEM good	TEM good
Enumerator 7	TEM acceptable	TEM good	TEM acceptable
Enumerator 8	TEM acceptable	TEM good	TEM good
Enumerator 9	TEM good	TEM good	TEM good
Enumerator 10	TEM acceptable	TEM good	TEM good
Enumerator 11	TEM poor	TEM good	TEM good
Enumerator 12	TEM acceptable	TEM good	TEM good
Enumerator 13	TEM acceptable	TEM good	TEM good
Enumerator 14	TEM poor	TEM good	TEM good
Enumerator 15	TEM acceptable	TEM acceptable	TEM good
Enumerator 16	TEM poor	TEM good	TEM good
Enumerator 17	TEM good	TEM good	TEM good
Enumerator 18	TEM acceptable	TEM good	TEM good
Enumerator 19	TEM acceptable	TEM good	TEM good
Enumerator 20	TEM good	TEM good	TEM good

Annex 2: Standard Integrated SMART Survey Questionnaire (English)

Date (dd/mm/year)			**Cluster Name**		
Cluster Number		**Team Number**		**HH Number**	

Household Questionnaire

Start date/event of recall period: 86 days [Miladon Nabi **1398]**							
1	2	3	4	5	6	7	8
No.	Name	Sex (m/f)	Age (years)	Joined on or after	Left on or after	Born on or after	Died on or after
List all current household members*							
1	Head of household						
2							
3							
4							
5							
6							
7							
8							
9							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							
List all household members which left since the start of the recall period							
1					Y		
2					Y		
3					Y		
4					Y		
5					Y		
List all household members who died since the start of the recall period							
1							Y
2							Y
3							Y

*Household defined as all people eating from the same pot and living together (WFP definition)

Date (dd/mm/year)			**Cluster Name**		
Cluster Number		**Team Number**		**HH Number**	

Household Questionnaire

Q1. What is the household resident status?

1=Resident of this area
2=Internally displaced
3=Refugee
4=Nomadic

Date (dd/mm/year)			**Cluster Name**		
Cluster Number		**Team Number**		**HH Number**	

Child Questionnaire 0-59 months

1	2	3	4	5	6	7	8	9	10
Child ID	**Sex** (f/m)	**Birthday** (dd/mm/yyyy)	**Age** (months)	**Weight** (00.0 kg)	**Height or length** (00.0 cm)	**Measure** (l/h)*	**Bilateral edema**	**MUAC** (000 mm) *Left-arm*	**With clothes** (y/n)
1									
2									
3									
4									
5									
6									
7									
8									

**Note <u>only</u> if the length is measured for a child who is older than 2 years or height is measured for a child who is younger than 2 years, due to unavoidable circumstances in the field*

Child (6-59 months) ID Number					
For any child that is identified as acutely malnourished (WHZ, MUAC, or oedema) **Q5. Is the child currently receiving any malnutrition treatment services?** *Probe, ask for enrollment card and observe the treatment food (RUTF / RUSF) to identify the type of treatment service* 1=OPD SAM 2=OPD MAM 3=IPD SAM 4=No treatment 98=Don't know					

If the child is <u>not</u> enrolled in a treatment program, refer to a nearest appropriate treatment center **Q6. Did you refer the child?** 1=yes 0=no					

Date (dd/mm/year)			**Cluster Name**		
Cluster Number		**Team Number**		**HH Number**	

Child Questionnaire

Child (18-59 months) ID Number					
Q7. Has the child received <u>two doses</u> of measles vaccination? (on the upper right arm) *Ask for vaccination card to verify if available* 1=Received two doses as confirmed by vaccination card 2=Received two doses as confirmed by caregiver recall 3=Has did not receive two doses 98=don't know					

Child (<24 months) ID Number					
Q8. How long after birth was the child first put to the breast? 1=Within one hour 2=In the first day within 24 hours 3=After the first day (>24 hours) 98=don't know					
Q9. Was the child breastfed yesterday during the day or night? *This includes if the child was fed expressed breastmilk by the cup, bottle, or by another woman (these are also considered "yes")* 1=Yes 0=No 98=don't know					
Q10. Did the child have any liquid drink other than breastmilk yesterday during the day or night? *Do not read options, a probe by asking open questions and record all that apply. Vitamin drops, ORS, or medicine as drops are not counted* 1=Yes 0=No					
A. Plain water					
B. Infant formula					
C. Powdered or fresh animal milk					
D. Juice or soft drinks					
E. Clear broth					
F. Yogurt					
G. Thin porridge					
H. Any other liquids (tea, coffee, etc.)					

Q11. Did the child have any solid, semi-solid, or soft foods yesterday during the day or night? 1=Yes 0=No 98=don't know						

Date (dd/mm/year)			**Cluster Name**		
Cluster Number		**Team Number**		**HH Number**	

Woman (15-49 years) HH Member ID Number					
Q14. Status of woman 1=Pregnant 2=Lactating 3=Pregnant and lactating 4=None					
MUAC measurement (mm)					

Annex 3: Geographical Units surveyed in Nimroz province.

Selected Area/Cluster For Nimroz SMART					
Province	HFs Name	Distract Name	Population size	Geographical unit	Cluster
Nimruz	Kamal khan BHC	chahar Burjak	462	چگینی	1
Nimruz	Kamal khan BHC	chahar Burjak	434	تالپده و زور آباد	2
Nimruz	Chahar Burjak CHC	chahar Burjak	380	پدگی دوم	3
Nimruz	Chahar Burjak CHC	chahar Burjak	200	لوندو و سورحسن	4
Nimruz	Chahar Burjak CHC	chahar Burjak	490	قریه بزماشی محمد غوث	5
Nimruz	Kang BHC	Kang	423	درویش و نور محمد خروت	6
Nimruz	Kang BHC	Kang	250	دهک نارویی	7
Nimruz	Kang BHC	Kang	222	عبدالصمد خان	8
Nimruz	Dashti Mustafa HSC	Kang	84	سیف الدین	9
Nimruz	Ghor ghori CHC	Kashrud	850	مسجد ملا نادر	10
Nimruz	Ghor ghori CHC	Kashrud	1470	حاجی حمید	11
Nimruz	Ghor ghori CHC	Kashrud	422	حاجی عبدالوهاب	12
Nimruz	Ghor ghori CHC	Kashrud	480	صوفی رحم الدین	13
Nimruz	Chakhansur BHC	Chakhnasur	570	غفار مرکز	14
Nimruz	Chakhansur BHC	Chakhnasur	400	ماگگی ملا آمیر	15
Nimruz	Chakhansur BHC	Chakhnasur	490	شاغیس	16
Nimruz	Chakhansur BHC	Chakhnasur	126	چامیزی	17
Nimruz	Mobail Health Team	Zaranj	140	چونک	18
Nimruz	Deh Khoja HSC	Zaranj	1176	ده خواجه	RC
Nimruz	Deh Khoja HSC	Zaranj	670	کوچه سید داود	19
Nimruz	Deh Khoja HSC	Zaranj	2625	خواجه کریم	20
Nimruz	Deh Khoja HSC	Zaranj	259	پارالدین	21
Nimruz	Deh Khoja HSC	Zaranj	421	خواجه کریم ساحه سفید	22
Nimruz	Deh Khoja HSC	Zaranj	245	مولاناصاحب	RC
Nimruz	Sar Dasht BHC	Zaranj	1898	سردشت	23
Nimruz	Sar Dasht BHC	Zaranj	850	سیدآباد غربی	24
Nimruz	Sar Dasht BHC	Zaranj	480	پارالدین	25
Nimruz	Sar Dasht BHC	Zaranj	980	کاکران	26
Nimruz	Sar Dasht BHC	Zaranj	910	حاجی کامران	27
Nimruz	Sar Dasht BHC	Zaranj	600	شترک	28
Nimruz	Sar Dasht BHC	Zaranj	520	اختر محمد	29
Nimruz	Seia Chashman HSC	Zaranj	1300	سیاه چشمان دوربر مسجد جامع	30
Nimruz	Seia Chashman HSC	Zaranj	675	قریه نظام الدین	31
Nimruz	Seia Chashman HSC	Zaranj	350	قریه پیر محمد	32
Nimruz	Mahajar Abad HSC	Zaranj	2350	مهاجرآباد شرقی	33
Nimruz	Mahajar Abad HSC	Zaranj	970	خیر آباد	34
Nimruz	Mahajar Abad HSC	Zaranj	785	حاجی ملا اختر	35
Nimruz	Delaram CHC	Delaram	2850	عبدالواحدشمال بازار	36

Nimruz	Delaram CHC	Delaram	1430	مرکزی بازار او شاه خوا کیلی	37
Nimruz	Delaram CHC	Delaram	1870	حاجی نیاز محمد کلینک	38
Nimruz	Delaram CHC	Delaram	1099	دوراهی	39
Nimruz	Delaram CHC	Delaram	2440	شیلگی	40
Nimruz	Delaram CHC	Delaram	1323	کج ستار	RC
Nimruz	Delaram CHC	Delaram	1763	کلاگی	41
Nimruz	Delaram CHC	Delaram	707	مستری محمد عیسی	42
Nimruz	Delaram CHC	Delaram	1015	محصل خان	RC
Nimruz	Shaki BHC	Delaram	569	حاجی رزا کل	43
Nimruz	Shaki BHC	Delaram	1399	ودود آکا	RC

Annex 4: Geographical units excluded for the overall survey sampling frame.

Province Name	HF/Name	District Name	Village Name	Total Pop
Nimruz	Rud Bar HSC	chahar Burjak	باغو	450
Nimruz	Rud Bar HSC	chahar Burjak	بند آمیر	159
Nimruz	Rud Bar HSC	chahar Burjak	خلموک	196
Nimruz	Rud Bar HSC	chahar Burjak	کوره گز	144
Nimruz	Rud Bar HSC	chahar Burjak	مورینکی	861
Nimruz	Rud Bar HSC	chahar Burjak	پوستگاو	182
Nimruz	Rud Bar HSC	chahar Burjak	حاجی خدی داد	252
Nimruz	Rud Bar HSC	chahar Burjak	لوپ عبدالنبی	126
Nimruz	Rud Bar HSC	chahar Burjak	لوپ کریم	190
Nimruz	Rud Bar HSC	chahar Burjak	پاچیزی	84
Nimruz	Rud Bar HSC	chahar Burjak	علم خان	133
Nimruz	Rud Bar HSC	chahar Burjak	قاری داد خدی	189
Nimruz	Rud Bar HSC	chahar Burjak	نواب خان	56
Nimruz	Rud Bar HSC	chahar Burjak	گربی	560
Nimruz	Rud Bar HSC	chahar Burjak	پرپرک	230
Nimruz	Rud Bar HSC	chahar Burjak	حلیم خان	199
Nimruz	Rud Bar HSC	chahar Burjak	گوند کنگ	189
Nimruz	Rud Bar HSC	chahar Burjak	گوند کج	140
Nimruz	Rud Bar HSC	chahar Burjak	سنگر	210
Nimruz	Ghor ghori CHC	Kashrud	حاجی محمد یعقوب	318
Nimruz	Ghor ghori CHC	Kashrud	خواجه احمد	490
Nimruz	Ghor ghori CHC	Kashrud	حاجی شیر جان	890
Nimruz	Ghor ghori CHC	Kashrud	ملا سلطان	350
Nimruz	Ghor ghori CHC	Kashrud	مسجد شاه محمد	450

Nimruz	Ghor ghori CHC	Kashrud	قلعه نو	600
Nimruz	Ghor ghori CHC	Kashrud	مازاد شش آوه	400
Nimruz	Ghor ghori CHC	Kashrud	اطراف خاش	600
Nimruz	Ghor ghori CHC	Kashrud	خاش جدید و کهنه	600
Nimruz	Ghor ghori CHC	Kashrud	اطراف بکواه	900
Nimruz	Lokhi BHC	Kashrud	لوخی	765
Nimruz	Lokhi BHC	Kashrud	توتک	280
Nimruz	Lokhi BHC	Kashrud	کوره گز	220
Nimruz	Lokhi BHC	Kashrud	شیر آباد	200
Nimruz	Lokhi BHC	Kashrud	نور غوری	270
Nimruz	Lokhi BHC	Kashrud	مهاجر آباد	290
Nimruz	Lokhi BHC	Kashrud	محمود استاد	170
Nimruz	Lokhi BHC	Kashrud	برجا	350
Nimruz	Lokhi BHC	Kashrud	قریه زیارت	459
Nimruz	Lokhi BHC	Kashrud	منظری	350
Nimruz	Lokhi BHC	Kashrud	سرداران	315
Nimruz	Lokhi BHC	Kashrud	حاجی عبدالاحد	280
Nimruz	Lokhi BHC	Kashrud	چکاو	210
Nimruz	Lokhi BHC	Kashrud	حاجی ملا روف	234
Nimruz	Lokhi BHC	Kashrud	کوجان/ باغگ	175
Nimruz	Lokhi BHC	Kashrud	حاجی محمد یار	280
Nimruz	Lokhi BHC	Kashrud	محمد عیسی	300
Nimruz	Lokhi BHC	Kashrud	چنرالها	210
Nimruz	Lokhi BHC	Kashrud	حاجی عبدالرزاق	390
Nimruz	Lokhi BHC	Kashrud	چایک سر دشت	270
Nimruz	Lokhi BHC	Kashrud	حاجی علی محد	357
Nimruz	Lokhi BHC	Kashrud	حاجی داکترناصران	290
Nimruz	Lokhi BHC	Kashrud	دوازده امام	210
Nimruz	Lokhi BHC	Kashrud	کنار رود	390
Nimruz	Lokhi BHC	Kashrud	ملا نظر محمد	300
Nimruz	Lokhi BHC	Kashrud	پشته حسن کلان	315
Nimruz	Lokhi BHC	Kashrud	بند خاش	210
Nimruz	Lokhi BHC	Kashrud	بند خاش	210
Nimruz	Lokhi BHC	Kashrud	حاجی سلطان	290
Nimruz	Lokhi BHC	Kashrud	کومیدان	150
Nimruz	Lokhi BHC	Kashrud	حاجی قاسیم	105

Nimruz	Lokhi BHC	Kashrud	حاجی ضابت عوض	200
Nimruz	Lokhi BHC	Kashrud	خیر آباد	290
Nimruz	Lokhi BHC	Kashrud	ملاظریف	456
Nimruz	Lokhi BHC	Kashrud	خونیا کلان	378
Nimruz	Lokhi BHC	Kashrud	خونیا خورد	269
Nimruz	Lokhi BHC	Kashrud	ملا فضل محمد خاش	379
Nimruz	Lokhi BHC	Kashrud	جهار شاخه خاش	410
Nimruz	Rud Bar HSC	chahar Burjak	باغو	450
Nimruz	Rud Bar HSC	chahar Burjak	بند آمیر	159
Nimruz	Rud Bar HSC	chahar Burjak	خلموک	196
Nimruz	Rud Bar HSC	chahar Burjak	کوره گز	144
Nimruz	Rud Bar HSC	chahar Burjak	مورینکی	861
Nimruz	Rud Bar HSC	chahar Burjak	پوستگاو	182
Nimruz	Rud Bar HSC	chahar Burjak	حاجی خدی داد	252
Nimruz	Rud Bar HSC	chahar Burjak	لوپ عبدالنبی	126
Nimruz	Rud Bar HSC	chahar Burjak	لوپ کریم	190
Nimruz	Rud Bar HSC	chahar Burjak	پاچیزی	84
Nimruz	Rud Bar HSC	chahar Burjak	علم خان	133
Nimruz	Rud Bar HSC	chahar Burjak	قاری داد خدی	189
Nimruz	Rud Bar HSC	chahar Burjak	نواب خان	56
Nimruz	Rud Bar HSC	chahar Burjak	گربی	560
Nimruz	Rud Bar HSC	chahar Burjak	پرپرک	230
Nimruz	Rud Bar HSC	chahar Burjak	حلیم خان	199
Nimruz	Rud Bar HSC	chahar Burjak	گوندِ کنگ	189
Nimruz	Rud Bar HSC	chahar Burjak	گوندِ کج	140
Nimruz	Rud Bar HSC	chahar Burjak	سنگر	210
Nimruz	Ghor ghori CHC	Kashrud	حاجی محمد یعقوب	318

Plausibility check for: AFG_AAH_Nimroz_SMART_02082020.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 (% of out of range subjects)	Incl	%	0-2.5 0	>2.5-5.0 5	>5.0-7.5 10	>7.5 20	**0** (0.8 %)
Overall Sex ratio (Significant chi square)	Incl	p	>0.1 0	>0.05 2	>0.001 4	<=0.001 10	**0** (p=0.177)
Age ratio(6-29 vs 30-59) (Significant chi square)	Incl	p	>0.1 0	>0.05 2	>0.001 4	<=0.001 10	**0** (p=0.336)
Dig pref score - weight	Incl	#	0-7 0	8-12 2	13-20 4	> 20 10	**2** (8)
Dig pref score - height	Incl	#	0-7 0	8-12 2	13-20 4	> 20 10	**2** (11)
Dig pref score - MUAC	Incl	#	0-7 0	8-12 2	13-20 4	> 20 10	**2** (9)
Standard Dev WHZ .	Excl	SD	<1.1 and	<1.15 and	<1.20 and	>=1.20 or	
.	Excl	SD	>0.9 0	>0.85 5	>0.80 10	<=0.80 20	**0** (1.00)
Skewness WHZ	Excl	#	<±0.2 0	<±0.4 1	<±0.6 3	>=±0.6 5	**1** (-0.25)
Kurtosis WHZ	Excl	#	<±0.2 0	<±0.4 1	<±0.6 3	>=±0.6 5	**0** (0.03)
Poisson dist WHZ-2	Excl	p	>0.05 0	>0.01 1	>0.001 3	<=0.001 5	**1** (p=0.033)
OVERALL SCORE WHZ =			0-9	10-14	15-24	>25	**8** %

The overall score of this survey is 8 %, this is excellent.

There were no duplicate entries detected

Percentage of children with no exact birthday: 45 %

Anthropometric Indices likely to be in error (-3 to 3 for WHZ, -3 to 3 for HAZ, -3 to 3 for WAZ, from observed mean - chosen in Options panel - these values will be flagged and should be excluded from analysis for a nutrition survey in emergencies. For other surveys this might not be the best procedure e.g. when the percentage of overweight children has to be calculated):

Line=49/ID=2: **WHZ (-4.665)**, Weight may be incorrect

Line=121/ID=2: **WHZ (-3.920)**, Weight may be incorrect
Line=248/ID=1: **WHZ (2.778)**, Weight may be incorrect
Line=307/ID=2: HAZ (1.946), Age may be incorrect
Line=432/ID=2: **WHZ (-3.987)**, Weight may be incorrect
Line=440/ID=1: **WHZ (-3.658)**, Height may be incorrect

Percentage of values flagged with SMART flags:WHZ: 0.8 %, HAZ: 0.2 %, WAZ: 0.0 %

Age distribution:

Month 6 : ######
Month 7 : ############
Month 8 : ################
Month 9 : ########
Month 10 : ###############
Month 11 : ###################
Month 12 : ######
Month 13 : ################
Month 14 : ############
Month 15 : ############
Month 16 : ############
Month 17 : ##########
Month 18 : ###############
Month 19 : ############
Month 20 : ########
Month 21 : ########
Month 22 : ##########
Month 23 : ##########
Month 24 : #####
Month 25 : ############
Month 26 : ############
Month 27 : ################
Month 28 : #######
Month 29 : ##############
Month 30 : ############
Month 31 : ##########
Month 32 : ##########
Month 33 : ##############
Month 34 : ############
Month 35 : ########
Month 36 : ##########
Month 37 : ############
Month 38 : ######################
Month 39 : ##############
Month 40 : #######
Month 41 : ########
Month 42 : #####
Month 43 : ############
Month 44 : ########
Month 45 : ##########

Month 46 : ########
Month 47 : ##########
Month 48 : ############
Month 49 : ###########
Month 50 : ##############
Month 51 : ##########
Month 52 : ####
Month 53 : #########
Month 54 : ########
Month 55 : ##########
Month 56 : ####
Month 57 : ############
Month 58 : ###########
Month 59 : ##########

Age ratio of 6-29 months to 30-59 months: 0.92 (The value should be around 0.85).: p-value = 0.336 (as expected)

Statistical evaluation of sex and age ratios (using Chi squared statistic):

Age cat.	mo.	boys	girls	total	ratio boys/girls
6 to 17	12	82/73.3 (1.1)	74/65.6 (1.1)	156/138.8 (1.1)	1.11
18 to 29	12	64/70.7 (0.9)	66/63.3 (1.0)	130/134.0 (1.0)	0.97
30 to 41	12	77/69.2 (1.1)	65/62.0 (1.0)	142/131.2 (1.1)	1.18
42 to 53	12	64/68.1 (0.9)	52/61.0 (0.9)	116/129.1 (0.9)	1.23
54 to 59	6	28/33.7 (0.8)	25/30.2 (0.8)	53/63.9 (0.8)	1.12
6 to 59	54	315/298.5 (1.1)	282/298.5 (0.9)		1.12

The data are expressed as observed number/expected number (ratio of obs/expect)

Overall sex ratio: p-value = 0.177 (boys and girls equally represented)
Overall age distribution: p-value = 0.177 (as expected)
Overall age distribution for boys: p-value = 0.439 (as expected)
Overall age distribution for girls: p-value = 0.470 (as expected)
Overall sex/age distribution: p-value = 0.057 (as expected)

Distribution of month of birth

Jan: ##
Feb: ################################
Mar: ###
Apr: ##
May: ##
Jun: ##
Jul: ##
Aug: ##
Sep: ##
Oct: ################################
Nov: ###
Dec: ###

Digit preference Weight:

Digit .0 : ##################
Digit .1 : ########################
Digit .2 : ####################################
Digit .3 : ##################################
Digit .4 : ########################
Digit .5 : ########################
Digit .6 : ############################
Digit .7 : ########################
Digit .8 : ##
Digit .9 : ##################################

Digit preference score: **8** (0-7 excellent, 8-12 good, 13-20 acceptable and > 20 problematic)
p-value for chi2: 0.000 (significant difference)

Digit preference Height:

Digit .0 : ##########
Digit .1 : ####################################
Digit .2 : ##
Digit .3 : ##
Digit .4 : ########################
Digit .5 : ##############################
Digit .6 : ##############################
Digit .7 : ########################
Digit .8 : ########################
Digit .9 : ########################

Digit preference score: **11** (0-7 excellent, 8-12 good, 13-20 acceptable and > 20 problematic)
p-value for chi2: 0.000 (significant difference)

Digit preference MUAC:

Digit .0 : ################
Digit .1 : ####################################
Digit .2 : ##
Digit .3 : ####################################
Digit .4 : ##############################
Digit .5 : ########################
Digit .6 : ##############################
Digit .7 : ##################
Digit .8 : ############################
Digit .9 : ########################

Digit preference score: **9** (0-7 excellent, 8-12 good, 13-20 acceptable and > 20 problematic)
p-value for chi2: 0.000 (significant difference)

Evaluation of Standard deviation, Normal distribution, Skewness and Kurtosis using the 3 exclusion (Flag) procedures

.	no exclusion	exclusion from reference mean (WHO flags)	exclusion from observed mean (SMART flags)
WHZ			
Standard Deviation SD:	1.04	1.04	1.00
(The SD should be between 0.8 and 1.2)			
Prevalence (< -2)			
observed:	9.0%	9.0%	
calculated with current SD:	9.1%	9.1%	
calculated with a SD of 1:	8.2%	8.2%	
HAZ			
Standard Deviation SD:	0.92	0.92	0.91
(The SD should be between 0.8 and 1.2)			
Prevalence (< -2)			
observed:			
calculated with current SD:			
calculated with a SD of 1:			
WAZ			
Standard Deviation SD:	0.82	0.82	0.82
(The SD should be between 0.8 and 1.2)			
Prevalence (< -2)			
observed:			
calculated with current SD:			
calculated with a SD of 1:			

Results for Shapiro-Wilk test for normally (Gaussian) distributed data:

WHZ	p= 0.001	p= 0.001	p= 0.020
HAZ	p= 0.028	p= 0.028	p= 0.110
WAZ	p= 0.007	p= 0.007	p= 0.007

(If p < 0.05 then the data are not normally distributed. If p > 0.05 you can consider the data normally distributed)

Skewness			
WHZ	-0.36	-0.36	-0.25
HAZ	0.10	0.10	0.02
WAZ	-0.09	-0.09	-0.09

If the value is:
-below minus 0.4 there is a relative excess of wasted/stunted/underweight subjects in the sample
-between minus 0.4 and minus 0.2, there may be a relative excess of wasted/stunted/underweight subjects in the sample.
-between minus 0.2 and plus 0.2, the distribution can be considered as symmetrical.
-between 0.2 and 0.4, there may be an excess of obese/tall/overweight subjects in the sample.
-above 0.4, there is an excess of obese/tall/overweight subjects in the sample

Kurtosis			
WHZ	0.55	0.55	0.03
HAZ	0.58	0.58	0.35
WAZ	0.65	0.65	0.65

Kurtosis characterizes the relative size of the body versus the tails of the distribution. Positive kurtosis indicates relatively large tails and small body. Negative kurtosis indicates relatively large body and small tails.
If the absolute value is:
-above 0.4 it indicates a problem. There might have been a problem with data collection or sampling.
-between 0.2 and 0.4, the data may be affected with a problem.
-less than an absolute value of 0.2 the distribution can be considered as normal.

Test if cases are randomly distributed or aggregated over the clusters by calculation of the Index of Dispersion (ID) and comparison with the Poisson distribution for:

WHZ < -2: ID=1.44 (p=0.033)
WHZ < -3: ID=0.76 (p=0.872)
GAM: ID=1.44 (p=0.033)

```
SAM:       ID=0.76 (p=0.872)
HAZ < -2: ID=1.21 (p=0.166)
HAZ < -3: ID=1.67 (p=0.004)
WAZ < -2: ID=1.86 (p=0.001)
WAZ < -3: ID=1.04 (p=0.399)
```

Subjects with SMART flags are excluded from this analysis.

The Index of Dispersion (ID) indicates the degree to which the cases are aggregated into certain clusters (the degree to which there are "pockets"). If the ID is less than 1 and p > 0.95 it indicates that the cases are UNIFORMLY distributed among the clusters. If the p value is between 0.05 and 0.95 the cases appear to be randomly distributed among the clusters, if ID is higher than 1 and p is less than 0.05 the cases are aggregated into certain cluster (there appear to be pockets of cases). If this is the case for Oedema but not for WHZ then aggregation of GAM and SAM cases is likely due to inclusion of oedematous cases in GAM and SAM estimates.

Are the data of the same quality at the beginning and the end of the clusters?
Evaluation of the SD for WHZ depending upon the order the cases are measured within each cluster (if one cluster per day is measured then this will be related to the time of the day the measurement is made).

```
Time                                          SD for WHZ
point                 0.8 0.9 1.0 1.1 1.2 1.3 1.4 1.5 1.6 1.7 1.8 1.9 2.0 2.1 2.2 2.3
01: 1.04 (n=42, f=1)  ##########
02: 0.64 (n=39, f=0)
03: 1.23 (n=34, f=1)  ##################
04: 0.99 (n=41, f=0)  ########
05: 1.14 (n=39, f=0)  ##############
06: 1.00 (n=40, f=0)  ########
07: 1.01 (n=41, f=0)  #########
08: 1.01 (n=39, f=0)  #########
09: 1.08 (n=41, f=0)  ############
10: 1.18 (n=36, f=1)  ################
11: 0.89 (n=35, f=0)  ####
12: 0.92 (n=33, f=0)  #####
13: 1.14 (n=29, f=2)  ##############
14: 0.97 (n=26, f=0)  #######
15: 1.09 (n=25, f=0)  ############
16: 1.07 (n=19, f=0)  OOOOOOOOOOO
17: 1.08 (n=14, f=0)  OOOOOOOOOOOO
18: 1.36 (n=11, f=0)  OOOOOOOOOOOOOOOOOOOOOOO
19: 0.93 (n=05, f=0)  ~~~~~~
20: 1.33 (n=05, f=0)  ~~~~~~~~~~~~~~~~~~~~~~
21: 0.87 (n=02, f=0)  ~~~
```

(when n is much less than the average number of subjects per cluster different symbols are used: 0 for n < 80% and ~ for n < 40%; The numbers marked "f" are the numbers of SMART flags found in the different time points)

Analysis by Team

Team	**1**	**2**	**3**	**4**	**5**	**6**
n =	118	101	91	85	98	104
Percentage of values flagged with SMART flags:						
WHZ:	0.8	0.0	1.1	0.0	0.0	2.9
HAZ:	0.0	0.0	0.0	0.0	1.0	0.0
WAZ:	0.0	0.0	0.0	0.0	0.0	0.0

Age ratio of 6-29 months to 30-59 months:

	1.46	0.91	1.12	0.67	0.85	0.65

Sex ratio (male/female):

	1.57	0.74	1.46	1.43	0.75	1.08

Digit preference Weight (%):

.0 :	1	10	5	4	6	10
.1 :	10	7	5	6	7	13
.2 :	13	14	12	9	11	17
.3 :	18	11	8	13	15	5
.4 :	9	5	12	7	9	11
.5 :	4	7	11	8	8	13
.6 :	14	13	9	11	5	7
.7 :	8	10	13	8	5	5
.8 :	14	13	11	20	17	8
.9 :	8	11	13	14	15	13
DPS:	16	9	9	15	14	13

Digit preference score (0-7 excellent, 8-12 good, 13-20 acceptable and > 20 problematic)

Digit preference Height (%):

.0 :	0	7	2	1	8	1
.1 :	11	9	19	9	13	13
.2 :	19	12	18	8	15	10
.3 :	25	11	19	22	8	12
.4 :	13	9	7	6	9	7
.5 :	3	14	16	5	15	11
.6 :	10	18	0	14	16	8
.7 :	8	8	4	11	4	12
.8 :	7	6	4	9	5	15
.9 :	4	7	11	14	5	13
DPS:	23	12	23	19	15	13

Digit preference score (0-7 excellent, 8-12 good, 13-20 acceptable and > 20 problematic)

Digit preference MUAC (%):

.0 :	1	10	3	11	7	2
.1 :	12	5	11	11	16	16
.2 :	23	13	14	12	10	13
.3 :	21	8	15	13	7	10
.4 :	7	13	19	7	10	9
.5 :	1	13	8	4	17	13
.6 :	6	12	11	13	9	14
.7 :	6	10	2	6	10	4
.8 :	18	11	11	9	6	5
.9 :	6	6	5	15	6	14
DPS:	25	9	17	11	13	16

Digit preference score (0-7 excellent, 8-12 good, 13-20 acceptable and > 20 problematic)

Standard deviation of WHZ:

SD	1.05	0.97	1.11	1.03	1.04	1.04

Prevalence (< -2) observed:

%	12.7	8.8	11.8	7.1	8.7

Prevalence (< -2) calculated with current SD:

%	12.9	10.5	9.7	7.4	9.1

Prevalence (< -2) calculated with a SD of 1:

%	11.8	8.2	9.0	6.6	8.2

Standard deviation of HAZ:

SD	0.96	0.97	0.66	0.81	1.10	0.79

observed:
% 33.7
calculated with current SD:
% 34.3
calculated with a SD of 1:
% 32.8

Statistical evaluation of sex and age ratios (using Chi squared statistic) for:

Team 1:

Age cat.	mo.	boys	girls	total	ratio boys/girls
6 to 17	12	23/16.7 (1.4)	17/10.7 (1.6)	40/27.4 (1.5)	1.35
18 to 29	12	20/16.2 (1.2)	10/10.3 (1.0)	30/26.5 (1.1)	2.00
30 to 41	12	15/15.8 (0.9)	9/10.1 (0.9)	24/25.9 (0.9)	1.67
42 to 53	12	7/15.6 (0.4)	6/9.9 (0.6)	13/25.5 (0.5)	1.17
54 to 59	6	7/7.7 (0.9)	4/4.9 (0.8)	11/12.6 (0.9)	1.75
6 to 59	54	72/59.0 (1.2)	46/59.0 (0.8)		1.57

The data are expressed as observed number/expected number (ratio of obs/expect)

Overall sex ratio: p-value = 0.017 (significant excess of boys)
Overall age distribution: p-value = 0.013 (significant difference)
Overall age distribution for boys: p-value = 0.089 (as expected)
Overall age distribution for girls: p-value = 0.232 (as expected)
Overall sex/age distribution: p-value = 0.001 (significant difference)

Team 2:

Age cat.	mo.	boys	girls	total	ratio boys/girls
6 to 17	12	12/10.0 (1.2)	17/13.5 (1.3)	29/23.5 (1.2)	0.71
18 to 29	12	4/9.6 (0.4)	15/13.0 (1.2)	19/22.7 (0.8)	0.27
30 to 41	12	13/9.4 (1.4)	8/12.7 (0.6)	21/22.2 (0.9)	1.63
42 to 53	12	11/9.3 (1.2)	13/12.5 (1.0)	24/21.8 (1.1)	0.85
54 to 59	6	3/4.6 (0.7)	5/6.2 (0.8)	8/10.8 (0.7)	0.60
6 to 59	54	43/50.5 (0.9)	58/50.5 (1.1)		0.74

The data are expressed as observed number/expected number (ratio of obs/expect)

Overall sex ratio: p-value = 0.136 (boys and girls equally represented)
Overall age distribution: p-value = 0.576 (as expected)
Overall age distribution for boys: p-value = 0.206 (as expected)
Overall age distribution for girls: p-value = 0.519 (as expected)
Overall sex/age distribution: p-value = 0.027 (significant difference)

Team 3:

Age cat.	mo.	boys	girls	total	ratio boys/girls
6 to 17	12	17/12.6 (1.4)	7/8.6 (0.8)	24/21.2 (1.1)	2.43
18 to 29	12	15/12.1 (1.2)	9/8.3 (1.1)	24/20.4 (1.2)	1.67
30 to 41	12	10/11.9 (0.8)	11/8.1 (1.4)	21/20.0 (1.1)	0.91

42 to 53	12	8/11.7 (0.7)	6/8.0 (0.7)	14/19.7 (0.7)	1.33
54 to 59	6	4/5.8 (0.7)	4/4.0 (1.0)	8/9.7 (0.8)	1.00
6 to 59	54	54/45.5 (1.2)	37/45.5 (0.8)		1.46

The data are expressed as observed number/expected number (ratio of obs/expect)

Overall sex ratio: p-value = 0.075 (boys and girls equally represented)
Overall age distribution: p-value = 0.557 (as expected)
Overall age distribution for boys: p-value = 0.373 (as expected)
Overall age distribution for girls: p-value = 0.759 (as expected)
Overall sex/age distribution: p-value = 0.045 (significant difference)

Team 4:

Age cat.	mo.	boys	girls	total	ratio boys/girls
6 to 17	12	12/11.6 (1.0)	6/8.1 (0.7)	18/19.8 (0.9)	2.00
18 to 29	12	7/11.2 (0.6)	9/7.9 (1.1)	16/19.1 (0.8)	0.78
30 to 41	12	12/11.0 (1.1)	9/7.7 (1.2)	21/18.7 (1.1)	1.33
42 to 53	12	13/10.8 (1.2)	8/7.6 (1.1)	21/18.4 (1.1)	1.63
54 to 59	6	6/5.3 (1.1)	3/3.7 (0.8)	9/9.1 (1.0)	2.00
6 to 59	54	50/42.5 (1.2)	35/42.5 (0.8)		1.43

The data are expressed as observed number/expected number (ratio of obs/expect)

Overall sex ratio: p-value = 0.104 (boys and girls equally represented)
Overall age distribution: p-value = 0.859 (as expected)
Overall age distribution for boys: p-value = 0.696 (as expected)
Overall age distribution for girls: p-value = 0.890 (as expected)
Overall sex/age distribution: p-value = 0.186 (as expected)

Team 5:

Age cat.	mo.	boys	girls	total	ratio boys/girls
6 to 17	12	10/9.8 (1.0)	18/13.0 (1.4)	28/22.8 (1.2)	0.56
18 to 29	12	7/9.4 (0.7)	10/12.6 (0.8)	17/22.0 (0.8)	0.70
30 to 41	12	16/9.2 (1.7)	12/12.3 (1.0)	28/21.5 (1.3)	1.33
42 to 53	12	7/9.1 (0.8)	13/12.1 (1.1)	20/21.2 (0.9)	0.54
54 to 59	6	2/4.5 (0.4)	3/6.0 (0.5)	5/10.5 (0.5)	0.67
6 to 59	54	42/49.0 (0.9)	56/49.0 (1.1)		0.75

The data are expressed as observed number/expected number (ratio of obs/expect)

Overall sex ratio: p-value = 0.157 (boys and girls equally represented)
Overall age distribution: p-value = 0.126 (as expected)
Overall age distribution for boys: p-value = 0.114 (as expected)
Overall age distribution for girls: p-value = 0.407 (as expected)
Overall sex/age distribution: p-value = 0.012 (significant difference)

Team 6:

Age cat.	mo.	boys	girls	total	ratio boys/girls
6 to 17	12	8/12.6 (0.6)	9/11.6 (0.8)	17/24.2 (0.7)	0.89
18 to 29	12	11/12.1 (0.9)	13/11.2 (1.2)	24/23.3 (1.0)	0.85
30 to 41	12	11/11.9 (0.9)	16/11.0 (1.5)	27/22.9 (1.2)	0.69
42 to 53	12	18/11.7 (1.5)	6/10.8 (0.6)	24/22.5 (1.1)	3.00

```
54 to 59      6        6/5.8 (1.0)        6/5.3 (1.1)      12/11.1 (1.1)    1.00
-------------------------------------------------------------------------------------
6  to 59     54      54/52.0 (1.0)      50/52.0 (1.0)                       1.08
```

The data are expressed as observed number/expected number (ratio of obs/expect)

Overall sex ratio: p-value = 0.695 (boys and girls equally represented)
Overall age distribution: p-value = 0.545 (as expected)
Overall age distribution for boys: p-value = 0.263 (as expected)
Overall age distribution for girls: p-value = 0.250 (as expected)
Overall sex/age distribution: p-value = 0.029 (significant difference)

Evaluation of the SD for WHZ depending upon the order the cases are measured within each cluster (if one cluster per day is measured then this will be related to the time of the day the measurement is made).

Team: 1

```
Time                                                SD for WHZ
point                 0.8 0.9 1.0 1.1 1.2 1.3 1.4 1.5 1.6 1.7 1.8 1.9 2.0 2.1 2.2 2.3
01: 0.96 (n=07, f=0)  #######
02: 0.58 (n=06, f=0)
03: 1.14 (n=07, f=0)  ###############
04: 0.75 (n=07, f=0)
05: 0.70 (n=07, f=0)
06: 0.71 (n=07, f=0)
07: 1.05 (n=06, f=0)  ##########
08: 1.06 (n=07, f=0)  ###########
09: 1.46 (n=07, f=0)  ############################
10: 0.89 (n=06, f=0)  ####
11: 0.74 (n=07, f=0)
12: 1.15 (n=06, f=0)  ################
13: 1.51 (n=07, f=1)  ##############################
14: 0.92 (n=07, f=0)  #####
15: 1.20 (n=07, f=0)  ##################
16: 1.15 (n=06, f=0)  ################
17: 0.48 (n=05, f=0)
18: 1.23 (n=03, f=0)  OOOOOOOOOOOOOOOOO
19: 1.62 (n=02, f=0)  ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
```

(when n is much less than the average number of subjects per cluster different symbols are used: 0 for n < 80% and ~ for n < 40%; The numbers marked "f" are the numbers of SMART flags found in the different time points)

Team: 2

```
Time                                                SD for WHZ
point                 0.8 0.9 1.0 1.1 1.2 1.3 1.4 1.5 1.6 1.7 1.8 1.9 2.0 2.1 2.2 2.3
01: 0.68 (n=07, f=0)
02: 0.68 (n=06, f=0)
03: 1.16 (n=04, f=0)  OOOOOOOOOOOOOO
04: 0.94 (n=06, f=0)  ######
05: 1.07 (n=07, f=0)  ############
06: 1.33 (n=07, f=0)  ######################
07: 0.87 (n=07, f=0)  ###
08: 0.97 (n=07, f=0)  #######
09: 0.36 (n=07, f=0)
10: 1.42 (n=06, f=0)  ########################
11: 0.94 (n=06, f=0)  ######
12: 0.72 (n=06, f=0)
13: 0.91 (n=05, f=0)  #####
14: 0.82 (n=05, f=0)  #
15: 0.92 (n=07, f=0)  #####
16: 0.98 (n=04, f=0)  OOOOOOOO
17: 1.15 (n=02, f=0)  ~~~~~~~~~~~~~~~
```

(when n is much less than the average number of subjects per cluster different symbols are used: 0 for n < 80% and ~ for n < 40%; The numbers marked "f" are the numbers of SMART flags

found in the different time points)

Team: 3

```
Time                                                SD for WHZ
point                 0.8 0.9 1.0 1.1 1.2 1.3 1.4 1.5 1.6 1.7 1.8 1.9 2.0 2.1 2.2 2.3
01: 0.98 (n=07, f=0)  ########
02: 0.70 (n=07, f=0)
03: 0.94 (n=04, f=0)  OOOOOO
04: 1.00 (n=07, f=0)  ########
05: 1.27 (n=07, f=0)  ####################
06: 1.12 (n=06, f=0)  #############
07: 0.68 (n=07, f=0)
08: 1.10 (n=05, f=0)  #############
09: 1.52 (n=06, f=0)  ##############################
10: 2.04 (n=06, f=1)  ##################################################
11: 1.22 (n=06, f=0)  ##################
12: 1.12 (n=06, f=0)  #############
13: 1.01 (n=05, f=0)  #########
14: 1.71 (n=03, f=0)  OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
15: 0.18 (n=03, f=0)
16: 1.16 (n=02, f=0)  ~~~~~~~~~~~~~~~
17: 2.03 (n=02, f=0)  ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
18: 0.33 (n=02, f=0)
```

(when n is much less than the average number of subjects per cluster different symbols are used: 0 for n < 80% and ~ for n < 40%; The numbers marked "f" are the numbers of SMART flags found in the different time points)

Team: 4

```
Time                                                SD for WHZ
point                 0.8 0.9 1.0 1.1 1.2 1.3 1.4 1.5 1.6 1.7 1.8 1.9 2.0 2.1 2.2 2.3
01: 0.71 (n=07, f=0)
02: 0.78 (n=07, f=0)
03: 1.17 (n=07, f=0)  ###############
04: 1.08 (n=07, f=0)  ############
05: 1.49 (n=06, f=0)  ##############################
06: 1.02 (n=07, f=0)  #########
07: 0.52 (n=07, f=0)
08: 1.34 (n=07, f=0)  ########################
09: 1.43 (n=07, f=0)  ##########################
10: 0.73 (n=06, f=0)
11: 0.63 (n=05, f=0)
12: 1.43 (n=04, f=0)  OOOOOOOOOOOOOOOOOOOOOOOOOO
13: 0.32 (n=02, f=0)
14: 0.34 (n=03, f=0)
15: 1.46 (n=02, f=0)  ~~~~~~~~~~~~~~~~~~~~~~~~~~~
```

(when n is much less than the average number of subjects per cluster different symbols are used: 0 for n < 80% and ~ for n < 40%; The numbers marked "f" are the numbers of SMART flags found in the different time points)

Team: 5

```
Time                                                SD for WHZ
point                 0.8 0.9 1.0 1.1 1.2 1.3 1.4 1.5 1.6 1.7 1.8 1.9 2.0 2.1 2.2 2.3
01: 1.29 (n=08, f=0)  ####################
02: 0.58 (n=08, f=0)
03: 0.75 (n=07, f=0)
04: 0.97 (n=08, f=0)  #######
05: 1.41 (n=07, f=0)  ##########################
06: 0.98 (n=07, f=0)  #######
07: 1.27 (n=08, f=0)  ####################
08: 0.72 (n=08, f=0)
09: 0.77 (n=08, f=0)
10: 0.78 (n=06, f=0)
11: 1.07 (n=06, f=0)  ############
12: 0.70 (n=06, f=0)
13: 1.08 (n=04, f=0)  OOOOOOOOOOO
14: 0.99 (n=03, f=0)  OOOOOOOO
```

(when n is much less than the average number of subjects per cluster different symbols are used: 0 for n < 80% and ~ for n < 40%; The numbers marked "f" are the numbers of SMART flags found in the different time points)

Team: 6

```
Time                                              SD for WHZ
point                 0.8 0.9 1.0 1.1 1.2 1.3 1.4 1.5 1.6 1.7 1.8 1.9 2.0 2.1 2.2 2.3
01: 1.33 (n=06, f=1)  ######################
02: 0.38 (n=05, f=0)
03: 1.95 (n=05, f=1)  ################################################
04: 1.14 (n=06, f=0)  ##############
05: 0.74 (n=05, f=0)
06: 0.99 (n=06, f=0)  ########
07: 1.35 (n=06, f=0)  ######################
08: 0.48 (n=05, f=0)
09: 0.73 (n=06, f=0)
10: 1.17 (n=06, f=0)  ###############
11: 0.48 (n=05, f=0)
12: 0.86 (n=05, f=0)  ###
13: 1.42 (n=06, f=1)  ##########################
14: 0.43 (n=05, f=0)
15: 0.61 (n=05, f=0)
16: 0.85 (n=05, f=0)  ##
17: 1.44 (n=04, f=0)  ############################
18: 0.98 (n=04, f=0)  ########
19: 0.59 (n=03, f=0)
20: 1.83 (n=03, f=0)  OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
21: 0.87 (n=02, f=0)  OOO

(when n is much less than the average number of subjects per cluster different symbols are
used: 0 for n < 80% and ~ for n < 40%; The numbers marked "f" are the numbers of SMART flags
found in the different time points)
```

(for better comparison it can be helpful to copy/paste part of this report into Excel)

Annex 6: Local Events Calendar developed and used in Nimroz SMART 2020

ماه	1398	ماه	1397	ماه	1396	ماه	1395	ماه	1394	ماه
	زخصنی نوروز ، جشن د هقان ، ،غرس نمودن نیال ها ،وقت شگوفه درختان، میش چینی گوسفندان نیش تریاک، بارندگی شروع میشود اب رود خانها جاری میشود	11	زخصنی نوروز ، جشن د هقان ، ،غرس نمودن نیال ها ،وقت شگوفه درختان، میش چینی گوسفندان نیش تریاک، بارندگی شروع میشود اب رود خانها جاری میشود	23	زخصنی نوروز ، جشن د هقان ، ،غرس نمودن نیال ها ،وقت شگوفه درختان، میش چینی گوسفندان نیش تریاک، بارندگی شروع میشود اب رود خانها جاری میشود	35	زخصنی نوروز ، جشن د هقان ، ،غرس نمودن نیال ها ،وقت شگوفه درختان، میش چینی گوسفندان نیش تریاک، بارندگی شروع میشود اب رود خانها جاری میشود	47	زخصنی نوروز ، جشن د هقان ، ،غرس نمودن نیال ها ،وقت شگوفه درختان، میش چینی گوسفندان نیش تریاک، بارندگی شروع میشود اب رود خانها جاری میشود	59	حمل
	جشن روخصتی هشت ثور ، برگ درختان، ،ماه مبارک رمضان زیات شده ماهی به سطحه اب	10	جشن روخصتی هشت ثور ، برگ درختان، ،ماه مبارک رمضان زیات شده ماهی به سطحه اب	22	جشن روخصتی هشت ثور ، برگ درختان، ،ماه مبارک رمضان زیات شده ماهی به سطحه اب	34	جشن روخصتی هشت ثور ، برگ درختان، ،ماه مبارک رمضان زیات شده ماهی به سطحه اب	46	جشن روخصتی هشت ثور ، برگ درختان، ،ماه مبارک رمضان زیات شده ماهی به سطحه اب	58	ثور
	شروع امتحانات مکاتب، عید سعید فطر ،بادهای ۱۲۰ روزه کندم درو ، رخصتی مکاتب	9	شروع امتحانات مکاتب، عید سعید فطر ،بادهای ۱۲۰ روزه کندم درو ، رخصتی مکاتب	21	شروع امتحانات مکاتب، عید سعید فطر ،بادهای ۱۲۰ روزه کندم درو ، رخصتی مکاتب	33	شروع امتحانات مکاتب، عید سعید فطر ،بادهای ۱۲۰ روزه کندم درو ، رخصتی مکاتب	45	شروع امتحانات مکاتب، عید سعید فطر ،بادهای ۱۲۰ روزه کندم درو ، رخصتی مکاتب	57	جوزا
	شورع تابستان ، پخته شدن انگور ، تربوز و خربوزه ، وخت خرمن کوبی گرما سوزان	8	شورع تابستان ، پخته شدن انگور ، تربوز و خربوزه ، وخت خرمن کوبی گرما سوزان	20	شورع تابستان ، پخته شدن انگور ، تربوز و خربوزه ، وخت خرمن کوبی گرما سوزان	32	شورع تابستان ، پخته شدن انگور ، تربوز و خربوزه ، وخت خرمن کوبی گرما سوزان	44	شورع تابستان ، پخته شدن انگور ، تربوز و خربوزه ، وخت خرمن کوبی گرما سوزان	56	سرطان
	وخت کشت جواری ، روزی استقلال ، ماه دوهم گرمی ، خله سیاه ، وخت رفتن حاجیان ، زیات شدن ماهی	7	وخت کشت جواری ، روزی استقلال ، ماه دوهم گرمی ، خله سیاه ، وخت رفتن حاجیان ، زیات شدن ماهی	19	وخت کشت جواری ، روزی استقلال ، ماه دوهم گرمی ، خله سیاه ، وخت رفتن حاجیان ، زیات شدن ماهی	31	وخت کشت جواری ، روزی استقلال ، ماه دوهم گرمی ، خله سیاه ، وخت رفتن حاجیان ، زیات شدن ماهی	43	وخت کشت جواری ، روزی استقلال ، ماه دوهم گرمی ، خله سیاه ، وخت رفتن حاجیان ، زیات شدن ماهی	55	اسد
	عید قربان، شروع مکاتب ، وخت سبزیجات ، وخت امدن حاجیان، ۱۰محرم	6	عید قربان، شروع مکاتب ، وخت سبزیجات ، وخت امدن حاجیان، ۱۰محرم	18	عید قربان، شروع مکاتب ، وخت سبزیجات ، وخت امدن حاجیان، ۱۰محرم	30	عید قربان، شروع مکاتب ، وخت سبزیجات ، وخت امدن حاجیان، ۱۰محرم	42	عید قربان، شروع مکاتب ، وخت سبزیجات ، وخت امدن حاجیان، ۱۰محرم	54	سنبله
	برگ ریزی درخاتها، متوقف شدن بادهای ۱۲۰ روزه ،	5	برگ ریزی درخاتها، متوقف شدن بادهای ۱۲۰ روزه ،	17	برگ ریزی درخاتها، متوقف شدن بادهای ۱۲۰ روزه ،	29	برگ ریزی درخاتها، متوقف شدن بادهای ۱۲۰ روزه ،	41	برگ ریزی درخاتها، متوقف شدن بادهای ۱۲۰ روزه ،	53	میزان
	امادگی گرفتن برای زمیستان ، هموار کردان زمین برای کشت ، غلو تروش	4	امادگی گرفتن برای زمیستان ، هموار کردان زمین برای کشت ، غلو تروش	16	امادگی گرفتن برای زمیستان ، هموار کردان زمین برای کشت ، غلو تروش	28	امادگی گرفتن برای زمیستان ، هموار کردان زمین برای کشت ، غلو تروش	40	امادگی گرفتن برای زمیستان ، هموار کردان زمین برای کشت ، غلو تروش	52	عقرب
	شروع زمستان ، تهیه نمودن هزوم ، وخت لاندی ، شب یلادا ، جمعه اوری مسکه ، دوغ، شیر، پخته شدن خرما	3	شروع زمستان ، تهیه نمودن هزوم ، وخت لاندی ، شب یلادا ، جمعه اوری مسکه ، دوغ، شیر، پخته شدن خرما	15	شروع زمستان ، تهیه نمودن هزوم ، وخت لاندی ، شب یلادا ، جمعه اوری مسکه ، دوغ، شیر، پخته شدن خرما	27	شروع زمستان ، تهیه نمودن هزوم ، وخت لاندی ، شب یلادا ، جمعه اوری مسکه ، دوغ، شیر، پخته شدن خرما	39	شروع زمستان ، تهیه نمودن هزوم ، وخت لاندی ، شب یلادا ، جمعه اوری مسکه ، دوغ، شیر، پخته شدن خرما	51	قوس
	تووره سیله ، سیله، خوشک ،پخته شدن مالته، سیب ، شلغم ، زردک ، کشت کندم ، امتحانات چهارنیمه ،	2	تووره سیله ، سیله، خوشک ،پخته شدن مالته، سیب ، شلغم ، زردک ، کشت کندم ، امتحانات چهارنیمه ،	14	تووره سیله ، سیله، خوشک ،پخته شدن مالته، سیب ، شلغم ، زردک ، کشت کندم ، امتحانات چهارنیمه ،	26	تووره سیله ، سیله، خوشک ،پخته شدن مالته، سیب ، شلغم ، زردک ، کشت کندم ، امتحانات چهارنیمه ،	38	تووره سیله ، سیله، خوشک ،پخته شدن مالته، سیب ، شلغم ، زردک ، کشت کندم ، امتحانات چهارنیمه ،	50	جدی
	باران ها زیات میشود، سره سیله ، پوجی کوکنار، ۲۲ بهمن	1	باران ها زیات میشود، سره سیله ، پوجی کوکنار، ۲۲ بهمن	13	باران ها زیات میشود، سره سیله ، پوجی کوکنار، ۲۲ بهمن	25	باران ها زیات میشود، سره سیله ، پوجی کوکنار، ۲۲ بهمن	37	باران ها زیات میشود، سره سیله ، پوجی کوکنار، ۲۲ بهمن	49	دلوه
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