AFGHANISTAN

Nutrition & Mortality SMART Survey Final Report

Zabul Province, Afghanistan
03rd to 21 February 2018

Survey Manger: Dr. Baidar Bakht Habib

Report compiled by: Dr.M.Khalid Zakir and Dr. Shafiullah Samim

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Abbreviations

ACF	Action Contre la Faim/Action against Hunger
AfDHS	Afghanistan Demographic and health survey
AIM-WG	Afghanistan Information Management Working Group
BCG	Bacillus Calmette Guerin
CDR	Crude Death Rate
CHF	Common Humanitarian Fund
CSO	Central Statistics Organization
DoPH	Directorate of Public Health
DK	Don't know
ENA	Emergency Nutrition Assessment
GAM	Global Acute Malnutrition
HH	Household
HQ	Head Quarter
IYCF	Infant and Young Child Feeding
MUAC	Mid Upper Arm Circumference
MW	Mean Weight
NNS	National Nutrition Survey
OPD	Out Patient Department
ORCD	Organization for Research and Community Development
OW	Observed Weight
PND	Public Nutrition Department
PNO	Provincial Nutrition Officer
PPHD	Provincial Public Health Directorate
PPS	Probability Proportional to Size
RC	Reserve Cluster
RUTF	Ready to use therapeutic feeding

SAM	Severe Acute Malnutrition
SD	Standard Deviation
SMART	Standardized Monitoring and Assessment of Relief and Transition
U5	Under five
U5DR	Under five Death Rates
UNICEF	United Nation Children's Fund
UNOCHA	United Nations office for coordination and humanitarian affairs
W/H	Weight for Height
WASH	Water Sanitation and Hygiene
WFP	World Food Program
WHO	World Health Organization
WHZ	Weight for Height Z score

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1. Executive summary

A nutrition and mortality SMART survey was conducted in the entire province of Zabul province from 3rd to 21st Feb 2018 in winter season. It was based on the Standardized Monitoring and Assessment of Relief and Transition (SMART) methodology and was a cross-sectional survey following two methods : cluster sampling and systematic random sampling methods.

Summary findings

- ✓ 1107 children aged 0-59 months and among them 1019 children aged 6-59 months were surveyed from 559 households
- ✓ The combined GAM and SAM prevalence based on MUAC and WHZ both criteria were 16.0% (13.7-18.3 95% CI) and SAM is 4.9% (3.6-6.2 95% CI) respectively.
- ✓ Prevalence of Global Acute Malnutrition (GAM) and Severe Acute Malnutrition (SAM) in children aged 6-59 months based on Weight for Height Z-score (WHZ) was at 11.2% (9.0-13.8 95% C.I.) and 3.2 % (2.2-4.7 95% CI.) respectively.
- ✓ Prevalence of global acute malnutrition in children aged 6-59 months based on MUAC was at 10.5% (8.5-13.0 95% CI) and SAM is 3.5% (2.4-5.2 95% CI).
- ✓ Prevalence of underweight based on Weight for Age Z-score (WAZ) in children age 6-59 Prevalence of underweight (WAZ) was 22.6% (19.1-26.6 95% CI) and severe underweight was 6.9% (5.1-9.2 95% CI).
- ✓ Prevalence of stunting or chronic malnutrition based on Height for Age Z-score (HAZ) was 45.9% (42.3-49.6 95% CI) while severe stunting was at 17.3% (14.3-20.7 95% CI)
- ✓ Maternal Malnutrition prevalence of Global Acute Malnutrition among pregnant and lactating women (PLW) based on MUAC <230mm was at 22.5 %(19.0-26.0 95% CI).
- ✓ Crude Mortality Rate (CMR) was 0.48% (0.28-0.82 95% CI) with 1.95 design effect and under five mortality Rate was 1.15 (0.62-2.14, 95% CI) with a design effect of 1.25.
- ✓ The coverage of Immunization such as Measles (9-59 months) both by card and recall was at 75.7%, BCG (0-59 months) confirmed by scar was at 65.8% and Polio (0-59 months) both by card and recall was at 83.5% and PENTA 3 (3.5-59 months) was at 71.0%.

2. Introduction

Zabul is one of the thirty-four provinces of Afghanistan, located in the south of the country. It has a mostly rural population of 314,325 inhabitants from the CSO 1396 (2017-2018) . The population is not homogenous as the province's society is a tribal society. The main ethnic is Pashtun (Hutak, Tokhi, Slimankhil, Moqur,wardak). Some uzbek also live in the province. Most of the people speak Pashto; Zabul became an independent province from neighbouring Kandahar in 1963. Historically, it was part of the Zabulistan region. Qalat serves as the capital of the province. Zabul borders Uruzgan in the north, Kandahar in the west and in the south, Ghazni and Paktika in the east. It borders Pakistan in the east where it lays adjacent to Baluchistan's Zohob district . According to a 2006 opinion poll survey involving 6,226 randomly selected Afghan citizens by the Asia Foundation, Dari was the first language (49%), followed by Pashto (40%), then Uzbek (9%) while Turkmen was the fourth language (2%)

The nutrition and Mortality SMART survey was conducted in winter (3rd – 21th February 2018) covering all the province. ACF technically supported ORCD to implement this survey in the entire districts of Zabul province.

3. Context and Justification

The justification of the proposed assessment was to estimate the current prevalence of under nutrition among vulnerable populations in Zabul province. The survey wanted also to investigate the current mortality rates, child health status (morbidity, immunization, and supplementation), nutritional status of women of reproductive age (15-49 years) with a special focus on pregnant and lactating women, IYCF and WASH practices. The last nutritional status assessment of under-fives was done through the National Nutrition Survey in 2013 and revealed a GAM rate based on WHZ of 9.4% (6.2-13.8 95% CI), classified as "poor levels" as per the WHO severity classification. There was need to investigate the current prevalence of under-nutrition in the province. The Survey findings will be used to inform future programming in Zabul province. It also served as a good opportunity for building the capacity of ORCD and other stakeholders.

3.1. Objective of the survey

3.1.1 Broad objective:

- To determine the nutritional status of vulnerable population in Zabul province for future programming.

3.1.2. Specific objective:

- To estimate Crude Death Rate (CDR) and Under five Death Rate (U5DR).
- To determine prevalence of under nutrition among children aged 6-59 months live in the province.
- To estimated measles, Polio, BCG and PENTA immunization coverages of under five children in the province .
- To determine core Infant and Young Child Feeding(IYCF) practices among children aged <24 months

- To estimate the prevalence of undernutrition based on MUAC <230 mm to pregnant and lactating women (PLWs) in the province.
- To assess institutional birth attendance in the province.
- To assess the antenatal care in the province.
- To assess Water, Sanitation and Hygiene (WASH) situation through proxy indicators: household water storage, water use and caregiver hand washing practices.
- To assess morbidity among children under five.
- To assess food access and consumption at households level.
- To assess the food security situation based on FCS and rSCI in the province.

4. Methodology

4.1. Sampling Methodology

As the survey areas were large and the population was dispersed, the **cluster sampling** method was used. It was completed in two stages.

Stage 1: **Random selection of clusters**/villages was chosen by using probability proportional to size (PPS) done by ENA for SMART software version 2011 of (9th July 2015). A list of all updated villages was entered into ENA for SMART software where PPS was applyied, so that the villages with a large population had a higher chance of being selected than villages with a small population and vice versa. Reserve Clusters (RCs) were also selected by ENA software version 2011(updated 9th July 2015), RCs were supposed to be selected only when 10% or more clusters would have been impossible to survey during data collection for any reason. RCs were not used as our non-response rate was at 0.9%, see Annex 3.

47 clusters have been covered and each survey team completed anthropometric measurements in 12 households in a day (566/12=47.1 clusters, rounded down to 47 Clusters). 566 HHs were planned to be surveyed according to ENA in the planning stage. In each selected village, one or more community members were asked to help the survey teams to conduct their work by providing information about the village with regard to the geographical organization and the number of households. In cases where there was large village in a cluster, the village was dividing into smaller segments and a segment was selected randomly to represent the cluster. This division was done based on existing administrative units e.g. neighbourhoods, streets or natural landmarks like a river, road or public places like market, schools, and mosques.

Stage 2: **Random selection of households** from updated and complete list of households within a given village. The actual survey data collection incorporated 566 households randomly selected based on survey parameters calculation for anthropometric. Based on total sample

size each team could cover effectively 12 households in a day. Six teams were engaged during the assessments, while data collection was expected to last for a maximum of 10 days. All households were enumerated and given numbers by the survey team. The 12 households were chosen randomly from these enumerated households, by **systematic random sampling method** to identify the households to be surveyed. The teams were trained in both methods of sampling (sample and systematic random sampling) and they were offered with materials to assist in determining the households during the data collection exercise.

All the children living in the selected house aged 0 to 59 months old were included for anthropometric measurements. Children aged <24 months were included for IYCF measurements. If more than one eligible child was found in a household, both were included, even if there were twins. Eligible orphans living in the selected households were surveyed. All the selected HH included in the mortality survey, even if the targeted children were not present, were also surveyed for additional data related to WASH, FSL, HHs size, mortality, water storage and maternal health and nutrition status.

Any empty households, absent households or HH with missing or absent children were revisited at the end of each day in each cluster; any missing or absent children that were not subsequently found were not included in the survey. A cluster control form was used to record all these cases, however the abandoned HH was excluded from the total HHs list at the beginning in the field. An elder of the villages provided this information to the teams.

The household was our basic sampling unit. The term household was defined as all people eating from the same pot and living together (WFP definition). In Afghanistan, the term household has often defined and/or used synonymously with a compound – which potentially represents more than one household as defined here. In this case, a two-step process is ensured with the village leaders/community elders and then identifying compound together with the use of the list of households within the community, asking if there are multiple cooking areas to determine what members of the household/compound should be included in the study.

Table 1: Details of proposed and actual sample size achieved, Zabul SAMRT, February 2018

Number of households planned	Number of households surveyed	% surveyed /planned	Number of children 6-59 months planned	Number of children 6-59 months surveyed	% surveyed /planned
566	559	99.1%	594	1019	171.5%

4.2. Sample Size

The sample size of households for the survey was determined by ENA for SMART software version 2011 (updated 9th July 2015). Two stages of cluster methodology were applying. In the first stage, it involves random selection of clusters/villages (47 clusters) from the total list of villages using probability proportional to size (PPS) method and 47 clusters were assessed. This was done before starting the data collection at the office or training hall. Each Village was the primary sampling unit for the proposed survey. In the second stage of methodology, the selection of HHs was done by systematic random sampling method. This was conducted at field level. Households were the basic sampling unit for the proposed survey.

The table 2 and 3 highlights sample size calculation for anthropometric and mortality surveys.

Table 2: Parameters for sample size calculation of anthropometric indicators, Zabul SAMRT, February 2018

Parameters for Anthropometry	Value	Assumptions based on context
Estimated prevalence of GAM (%)	9.4%	The survey team refered to the NNS 2013 assessment for the planning stage of this survey GAM was 9.4 % (6.26-13.82 95% CI).The SD was in the Previously assessment is (2.5) There is no any updated data we used 9.4 % for the planning stage.
± Desired precision	3%	It was based on survey objectives in line to estimated prevalence and SMART methodology recommendations.
Design Effect (if applicable)	1.5	The population living in the targeted districts was considered as having similar living conditions and the same access to food and social conditions, however, the population access to health service is not equally in the province.
Children to be included	594	Minimum sample size-children aged 6-59 months. (However to avoid possible bias of selection for younger age group, all children from 0 to 59 months old found in the selected households were surveyed.)
Average HH Size	8	Based on AfDH1 survey the mostly frequent of the HH was 8.
% Children 6 – 59 Months	15.5%	Based on CSO updated population Afghanistan 1396 (2017-2018)
% Non-response Households	6%	The percentage of non-respondent households was estimated at 6%. Using the last experience of the SMART surveys in the deferent provinces.
Households to be included	566	Minimum sample size-Households to be surveyed. Household was the basic sampling unit for the SMART survey

[1] Afghanistan Demographic and Health survey 2015

Table 3: Sample size calculation for mortality surveys, Zabul SAMRT, February 2018

Parameters for Mortality	Value	Assumptions based on context
Estimated Death Rate /10,000/day	0. 5/10000/day	No updated death rate at population level; Recommended in cases where there is no specific mortality data for the area is surveyed
± Desired precision /10,000/day	0.3	Based on survey objectives and in line with the estimated death rate.
Design Effect (if applicable)	1.5	This will caters for heterogeneity between clusters in the population being sampled.
Recall Period in days	120	Starting point of recall period was 2nd October 2017; it is equivalent to 11th sunbula 1396.
Population to be included	2,904	Population
Average HH Size	8	Based on AfDHS survey the mostly frequent of the HH was 8.
% Non-response Households	6%	The percentage of non-respondent households was estimated at 6%. Using the last experience of the SMART surveys in the deferent provinces.
Households to be included	386	Households

4.3. Training, team composition and supervision:

Six teams of four members conducted the field data collection. Each team was composed of one supervisor, one team leader, and two data collectors. Each team had at least one female data collector to ensure acceptance of the team amongst the surveyed households, particularly for PLWs MUAC and IYCF questionnaires. Each female member of the survey team was accompanied with a mahram to facilitate the work of the female data collectors at the community level. ACF, Partner, and PNO of the province supervised the teams.

The entire team received a 7-days training on the survey methodology and all its practical aspects, the training was facilitated by two ACF technical staffs. A standardization test was conducted over the course of 1 day, measuring 8 children, in order to evaluate the accuracy and the precision of the team members in taking the anthropometric measurements. The teams conducted a one-day field test in order to evaluate their work in real field conditions. Feedbacks were provided to the team in regard to the results of the field test; particularly in relation to digit preferences and data collection. Refresher training on the anthropometric

measurement and on the filling of the questionnaires and the household's selection was organized on the last day of the training by ACF to ensure overall comprehension before going to the field.

One-field guidelines document with instructions and household definition and selection document was provided to each team member. All documents, such as local event calendar, questionnaires or consent forms were translated into Pashto, the local language, for better understanding and to avoiding direct translation during the data field collection. The questionnaires were translated back using a different translator and was pre-tested during the field test. Alterations were made as necessary.

Daily data entry and analysis were done using ENA for anthropometric data, plausibility check, and feedbacks provided to the data collection teams. Anthropometric data was directly entered into ENA while IYCF and other data were completed through an excel spreadsheet.

4.4. Indicators: definition, calculation and interpretation

Anthropometric Indicators: Definition of nutritional status of children 0-59 months

Acute Malnutrition

Acute malnutrition in children 0-59 months can be expressed by using 2 indicators; Weight for Height (W/H) or Mid Upper Arm Circumference (MUAC) as described below.

Weight-for-height index (W/H)

A child's nutritional status is estimated by comparing it to the weight-for-height measures of a reference population (WHO standards data[2]). The expression of the weight-for-height index as a Z-score (WHZ) compares the observed weight (OW) of the surveyed child to the median weight (MW) of all children of the same height from the reference population. 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 the field data collection, the weight-for-height index in Z-score was calculated on the field for each child in order to refer malnourished cases to 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 5.

Mid Upper Arm Circumference (MUAC)

The mid upper arm circumference does not need to be related to any other anthropometric measurement. It is a reliable indicator of the muscular status of the child and is mainly used to identify children with a risk of mortality. The MUAC is an indicator of malnutrition only for children greater or equal to 6 months. Table 4 provides the cut-off criteria for categorizing acute malnutrition cases.

Table 4: MUAC cut-offs points for children aged 6-59 months

Target group	MUAC (mm)	Nutritional status
Children 6-59 months	> or = 125	**No malnutrition**
	< 125 and >= 115	**Moderate Acute Malnutrition(MAM)**
	< 115	**Severe Acute Malnutrition(SAM)**

Nutritional bilateral "pitting" 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. The table below defines the acute malnutrition according to W/H index, MUAC criterion and Oedema.

Table 5: Definition of acute malnutrition according to weight-for-height index (W/H), expressed as a Z-score based on WHO standards

Severe Acute Malnutrition (SAM)
W/H <-3 z-score and /or bilateral Oedema
Moderate Acute Malnutrition
W/H <-2 z-score and >= -3 z-score and absence of bilateral Oedema
Global Acute Malnutrition (GAM)
W/H <-2 z-score and /or bilateral Oedema

Chronic Malnutrition

The height-for-age index (H/A)

The height-for-age measure indicates if a child of a given age is stunted and so if he is chronically malnourished. This index reflects the nutritional history of a child rather than his/her current nutritional status. This is mainly used to identify chronic malnutrition. The same principle is used as for weight-for-height; except that a child's chronic nutritional status is estimated by comparing its height with WHO standards height-for-age curves, as opposed to

weight-for-height curves. The height-for-age index of a child from the studied population is expressed in Z-score (HAZ). The HAZ cut-off points are presented in table 6.

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

Not stunted	≥ -2 z-score
Moderate stunting	-3 z-score ≤ H/A < -2 z-score
Severe stunting	< -3 z-score

Mortality Indicator Calculation

Mortality indicators were surveyed in each household regardless of the presence of children. All members of the household was counted, using the household definition.

- ### Crude death rate (CDR)

It refers to the number of persons in the total population that dies over specified period of time:

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

- ### Under-5 death rate (U5DR)

It refers to the number of children aged (0-5) years that die over specified period of time Table 2 above for Sample size calculation for mortality surveys:

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

Table 2 above shows the Sample size calculation for mortality surveys

Health

Beside anthropometric data, additional information were collected as follows:

Immunization status, deworming and vitamin A supplementation

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

Morbidity

Mothers/caretakers of children were asked if children had experienced an illness in the past 2 weeks. Acute respiratory infection, fever and diarrhoea were recorded when symptoms according to the case definition are described by the caretaker.

Mothers nutritional status and Iron/Folate supplementation for pregnant

Women in childbearing age were assessed for their nutritional status based on MUAC using the cut-off of 230 mm.

Women in childbearing were asked about Antenatal care (ANC) visits for their child which is under five years old to the survey prior.

WASH

Water storage and Usage

House hold heads were asked what type of container they use for storing drinking water and also how much water they used in the HH in the last 24 hours to assess the water use per person per day.

Hand washing practices

The mothers were asked on what occasions they wash their hands and also what they use to wash their hands to determine the hand washing practices in the surveyed area.

Infant and Young Child Feeding Practices Indicators (IYCF)

The IYCF indicators used in the measurement of infant and young child feeding practices asked to the mothers/caretakers of children aged <24 months are described as follows.

Child ever breastfed

Proportion of children who have ever received breast milk. The indicator refers to proportion of children who have ever received breast milk. It's calculated by dividing the number of children born in the last 24 months who were ever breastfed by all Children born in the last 24 months. The indicator is based on historical recall, and a caregiver(s) is supposed to provide information of all children living or dead who were born in the last 24 months. This indicator was looking at the number of mothers who ever breast fed their children. This indicator was based on historic recall.

Timely initiation of breastfeeding

Proportion of children born in the last 23 months who were put to the breast within one hour of birth. The indicator is calculated by dividing the number of children born in the last 24 months who were put to the breast within one hour of birth by children born in the last 24 months. The denominator and numerator include living children and deceased children who were born within the past 24 months. This indicator was also based on historical recall

Provision of colostrum in the first 3 days of life

Proportion of children who received colostrum (yellowish liquid) within the first 3 days after birth. This indicator looked at the number of mothers with children <24months who fed their children with Colostrum within the first 3 days after birth.

Exclusive breastfeeding under 6 months

Proportion of infants 0-5 months of age who were fed exclusively with breast milk. It's calculated by dividing the number of all Infants aged 0–5 months who received only breast milk during the previous day by total infants aged 0-5 months.

Continued breastfeeding at 1 year

Proportion of children 12 – 15 months of age who were fed with breast milk. It's calculated by dividing the total number of children aged 12–15 months who received breast milk during the previous day by total children aged 12–15 months

Introduction of solid, semi-solid or soft foods:

Proportion of infants 6-8 months of age who receive solid, semi-solid or soft foods. It's calculated by from the number of all Infants aged 6-8 months who received solid, semi-solid or soft foods during the previous day by total number of infants 6–8 months of age

Continued breastfeeding at 2 years

Proportion of children 20–23 months of age who were breastfed . It's calculated by dividing the number of children aged 20–23 months who received breast milk during the previous day by total children aged 20–23 months.

Maternal Health and Nutrition

- Women in childbearing age were assessed for their nutritional status based on MUAC measurements. The nutritional status of pregnant and lactating mothers were derived using the MUAC cut-off of 230 mm.
- The indicator for iron-folate supplementation was derived from dividing the total number of pregnant mothers supplemented with Iron-folate in the last 120 days by total number of pregnant mothers.

4.5. Data Entry and analysis

Anthropometric and mortality data were analysed using ENA for SMART software 2011 version (updated 9th July 2015). The software automatically generated assessment result report for mortality and under nutrition for children <5 years - acute malnutrition (WHZ and MUAC), stunting (HAZ) and underweight (WAZ).

Analysis of maternal nutrition was done through excel sheet 2010. Additional indicators (WASH, FSL, IYCF, Mortality, Morbidity and immunization) were studied using excel 2010.

5. Results

5.1. Description of sample

Among the 47 clusters that were planned to be surveyed, Data were collected from 47 clusters, 559 households, 1019 children aged 6-59 months, 427 children aged 0-23 months and 547 women of reproductive age (15-49 years). 559 households, 4,698 individuals including male and female were surveyed.

Table 7: Distribution of aged and sex of sample, Zabul SAMRT, February 2018

	Boys		Girls		Total		Ratio
AGE (mo)	no.	%	no.	%	no.	%	Boy : girl
6-17	124	52.1	114	47.9	238	23.4	1.1
18-29	144	54.1	122	45.9	266	26.1	1.2
30-41	115	46.9	130	53.1	245	24.0	0.9
42-53	112	57.1	84	42.9	196	19.2	1.3
54-59	34	45.9	40	54.1	74	7.3	0.9
Total	529	51.9	490	48.1	1019	100.0	1.1

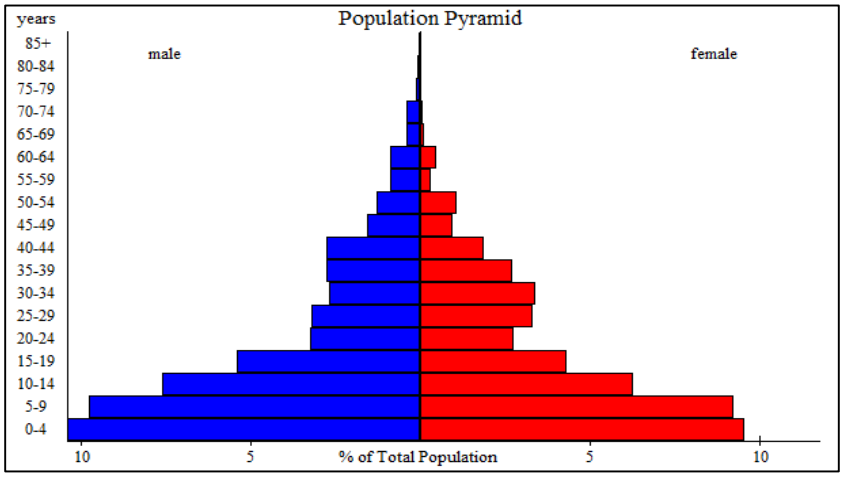


Figure 1: Sex and age pyramid, Zabul SAMRT, February 2018

501 households have under five children, Summary is highlighted in table below.

Table 8: short summery of demography, Zabul SAMRT, February 2018

Indicators	Value
Total number of HHS with children under five	501
Averages households size	8.4
Children under five	22.2%
Birth rate	1.76
In-migration rate (Joined)	0.02
Out-migration (Left)	0.04

5.2. Anthropometric data (based on WHO standards 2006):

5.2.1. Data quality

Anthropometric data were analyzed using ENA for SMART software (version 2011, 9 July 2015 updated). The plausibility check report is available in Annex 1. The overall score of the survey is acceptable with 15%

The percentages of values flagged with SMART flags was WHZ: 1.9 %, HAZ: 1.7 % and WAZ: 0.3 %.

Survey finding showed the distribution of boys and girls in the sample was equally represented with p- value 0.222.

However, age ratio of 6-29 months to 30-59 months: was significantly different with P-Value=0.024. 100 % of the children in the sample was no exact birth data and age was calculated by months. (For more details refer to ANNEX 1 plausibility report).

The summary of mean z score with Standard deviations, the design effects and number of the out of range data per index is indicating in table below.

Table 9: Mean z-scores, Design Effects and excluded subjects in children among, Zabul SAMRT, February 2018

Indicator	N6-59 months	Mean z-scores ± SD	Design Effect (z-score < -2)	z-scores not available*	z-scores out of range
Weight-for-Height	1000	-0.47±1.16	1.42	0	19
Weight-for-Age	1016	-1.44±0.94	1.99	0	3
Height-for-Age	1002	-1.95±1.11	1.34	0	17

* contains for WHZ and WAZ the children with oedema.

The design effect was 1.99 of HAZ is reflecting the heterogeneity in the surveyed population. The index of dispersion show there may be pocket data of under nutrition within the sample area for WAZ <2Z-score ID=1.80 (P=0.001) and HAZ <3Z-score ID=1,61 (P=0.006)

5.1.2. Prevalence of global Acute Malnutrition (GAM)

The sex and age disaggregated results from 6-59 months are presented in tables below respectively

Table 10: Prevalence of acute malnutrition based on weight-for-height z-scores (and/or edema) and by sex among children 6-59 months, Zabul SAMRT, February 2018.

	All n = 1000	Boys n = 516	Girls n = 484
Prevalence of global acute malnutrition (<-2 z-score and/or oedema)	(112) 11.2 % (9.0 - 13.8 95% C.I.)	(61) 11.8 % (9.1 - 15.2 95% C.I.)	(51) 10.5 % (8.0 - 13.8 95% C.I.)
Prevalence of moderate acute malnutrition (<-2 z-score and >=-3 z-score, no oedema)	(80) 8.0 % (6.3 - 10.1 95% C.I.)	(43) 8.3 % (6.1 - 11.2 95% C.I.)	(37) 7.6 % (5.6 - 10.4 95% C.I.)
Prevalence of severe acute malnutrition (<-3 z-score and/or oedema)	(32) 3.2 % (2.2 - 4.7 95% C.I.)	(18) 3.5 % (2.2 - 5.5 95% C.I.)	(14) 2.9 % (1.6 - 5.1 95% C.I.)

The prevalence of oedema is 0.0 %

Table 11: Prevalence of acute malnutrition by age, based on weight-for-height z-scores and/or oedema, Zabul SAMRT, February 2018

		Severe wasting (<-3 z-score)		Moderate wasting (>= -3 and <-2 z-score)		Normal (> = -2 z score)		Oedema	
Age (mo)	Total no.	No.	%	No.	%	No.	%	No.	%
6-17	225	26	11.6	50	22.2	149	66.2	0	0.0
18-29	260	5	1.9	16	6.2	239	91.9	0	0.0
30-41	245	1	0.4	7	2.9	237	96.7	0	0.0
42-53	196	0	0.0	4	2.0	192	98.0	0	0.0
54-59	74	0	0.0	3	4.1	71	95.9	0	0.0
Total	1000	32	3.2	80	8.0	888	88.8	0	0.0

Table 12: Distribution of acute malnutrition and oedema based on weight-for-height z-scores (WHZ) among children 6-59 months, Zabul SAMRT, February 2018.

	<-3 z-score	>=-3 z-score
Oedema present	Marasmic kwashiorkor No. 0 (0.0%)	Kwashiorkor No. 0 (0.0 %)
Oedema absent	Marasmic No. 48 (4.7 %)	Not severely malnourished No. 971 (95.3 %)

Table 13: Prevalence of acute malnutrition based on MUAC cut off's (and/or oedema) and by sex age, among children 6-59 months, Zabul SAMRT, February 2018.

	All n = 1018	Boys n = 528	Girls n = 490
Prevalence of global malnutrition (< 125 mm and/or oedema)	(107) 10.5 % (8.5 - 13.0 95% C.I.)	(43) 8.1 % (5.8 - 11.3 95% C.I.)	(64) 13.1 % (10.3 - 16.4 95% C.I.)
Prevalence of moderate malnutrition (< 125 mm and >= 115 mm, no oedema)	(71) 7.0 % (5.5 - 8.9 95% C.I.)	(27) 5.1 % (3.6 - 7.3 95% C.I.)	(44) 9.0 % (6.6 - 12.2 95% C.I.)
Prevalence of severe malnutrition (< 115 mm and/or oedema)	(36) 3.5 % (2.4 - 5.2 95% C.I.)	(16) 3.0 % (1.8 - 5.1 95% C.I.)	(20) 4.1 % (2.5 - 6.6 95% C.I.)

Table 14: Prevalence of acute malnutrition by age, based on MUAC cut off's and/or Oedema, Zabul SAMRT, February 2018

		Severe wasting (< 115 mm)		Moderate wasting (>= 115 mm and < 125 mm)		Normal (> = 125 mm)		Oedema	
Age (mo)	**Total no.**	**No.**	**%**	**No.**	**%**	**No.**	**%**	**No.**	**%**
6-17	237	26	11.0	39	16.5	172	72.6	0	0.0
18-29	266	7	2.6	28	10.5	231	86.8	0	0.0
30-41	245	3	1.2	4	1.6	238	97.1	0	0.0
42-53	196	0	0.0	0	0.0	196	100.0	0	0.0
54-59	74	0	0.0	0	0.0	74	100.0	0	0.0
Total	1018	36	3.5	71	7.0	911	89.5	0	0.0

5.1.3. Prevalence of underweight (WHO 2006)

The underweight is define by weight for age Z score (WAZ), the sex and age disaggregated results are present in the tables below for age 6-59.

Table 15: Prevalence of underweight based on weight-for-age z-scores (WAZ) by sex, among children 6-59 months, Zabul SAMRT, February 2018

	All n = 1016	Boys n = 528	Girls n = 488
Prevalence of underweight (<-2 z-score)	(230) 22.6 % (19.1 - 26.6 95% C.I.)	(136) 25.8 % (21.3 - 30.8 95% C.I.)	(94) 19.3 % (15.0 - 24.3 95% C.I.)

Prevalence of moderate underweight (<-2 z-score and >=-3 z-score)	(160) 15.7 % (13.2 - 18.7 95% C.I.)	(94) 17.8 % (14.4 - 21.8 95% C.I.)	(66) 13.5 % (10.2 - 17.7 95% C.I.)
Prevalence of severe underweight (<-3 z-score)	(70) 6.9 % (5.1 - 9.2 95% C.I.)	(42) 8.0 % (5.7 - 10.9 95% C.I.)	(28) 5.7 % (3.8 - 8.6 95% C.I.)

Table 16: Prevalence of underweight by age, based on weight-for-age z-scores

		Severe underweight (<-3 z-score)		Moderate underweight (>= -3 and <-2 z-score)		Normal (> = -2 z score)		Oedema	
Age (mo)	**Total no.**	**No.**	**%**	**No.**	**%**	**No.**	**%**	**No.**	**%**
6-17	236	41	17.4	62	26.3	133	56.4	0	0.0
18-29	266	22	8.3	55	20.7	189	71.1	0	0.0
30-41	244	6	2.5	23	9.4	215	88.1	0	0.0
42-53	196	1	0.5	16	8.2	179	91.3	0	0.0
54-59	74	0	0.0	4	5.4	70	94.6	0	0.0
Total	1016	70	6.9	160	15.7	786	77.4	0	0.0

5.1.4. Prevalence of stunting based on height for age Z score (HAZ)

Stunting indicates a failure to achieve one's genetic potential for height. It usually reflects the persistent, cumulative effects of long poor micro and macronutrients and other deficits that often across several generations, which is caused by failure to receive adequate nutrition over a long period and is affected by recurrent and chronic illness. It is not sensitive to recent/short-term changes in dietary intake and multi sectorial approach is needed to contribute to the prevention of stunting. The table below shows stunting rate based on height for age and by sex among children 6-59 months old.

Table 17: Prevalence of stunting based on height-for-age z-scores (WAZ) and by sex, among children, 6-59 months, Zabul SAMRT, February 2018.

	All n = 1002	Boys n = 523	Girls n = 479
Prevalence of stunting (<-2 z-score)	(460) 45.9 % (42.3 - 49.6 95% C.I.)	(259) 49.5 % (44.3 - 54.7 95% C.I.)	(201) 42.0 % (37.7 - 46.4 95% C.I.)
Prevalence of moderate stunting (<-2 z-score and >=-3 z-score)	(287) 28.6 % (26.2 - 31.2 95% C.I.)	(145) 27.7 % (23.8 - 32.1 95% C.I.)	(142) 29.6 % (25.8 - 33.8 95% C.I.)
Prevalence of severe stunting (<-3 z-score)	(173) 17.3 % (14.3 - 20.7 95% C.I.)	(114) 21.8 % (17.7 - 26.6 95% C.I.)	(59) 12.3 % (9.2 - 16.4 95% C.I.)

Table 18: Prevalence of stunting by age based on height-for-age z-scores Zabul SAMRT, February 2018

		Severe stunting (<-3 z-score)		Moderate stunting (>= -3 and <-2 z-score)		Normal (> = -2 z score)	
Age (mo)	**Total no.**	**No.**	**%**	**No.**	**%**	**No.**	**%**
6-17	231	30	13.0	54	23.4	147	63.6
18-29	260	90	34.6	91	35.0	79	30.4
30-41	242	32	13.2	92	38.0	118	48.8
42-53	195	20	10.3	43	22.1	132	67.7
54-59	74	1	1.4	7	9.5	66	89.2
Total	1002	173	17.3	287	28.6	542	54.1

Figure 3 shows the distribution of HAZ of the observed population (SMART flags excluded) compared to WHO Reference, curve was shifted to the left site, with a height-for-Age SD (1.11) classified as good as less than 1.20. Further analysis (Figure 2) suggests that linear growth retardation is at its highest in the age group of children, N=260 (18-29 months). However we may be cautious with the estimate of the prevalence of the stunting (45.9%) as age was not calculated from exact birth date and the overall age distribution p-value was 0,000 .

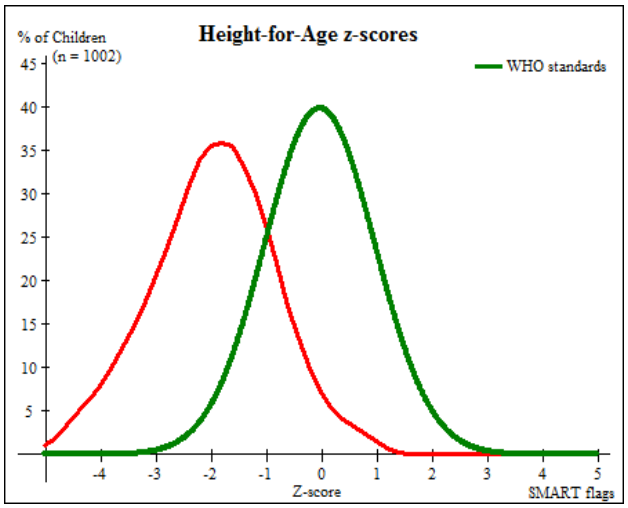


Figure 3: Gaussian distribution curve (HAZ),

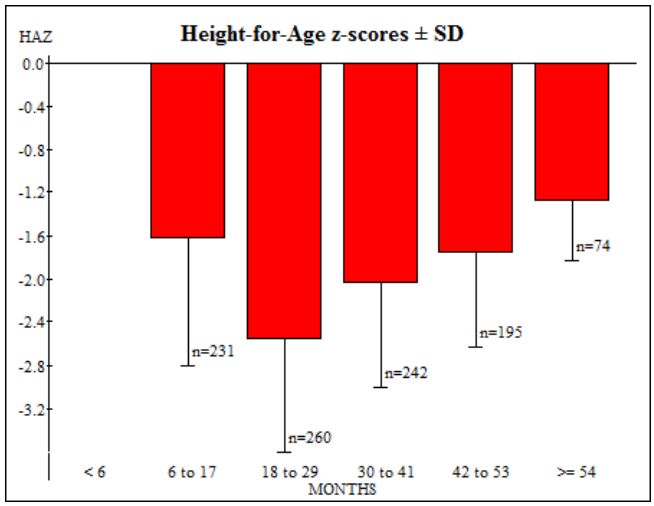


Figure 2: Trend of stunting over the age distribution

5.2. Maternal nutrition status among pregnant and lactating women (PLWs)

705 mothers and caretakers in total were living in the selected households surveyed. A total of 547 pregnant and lactating women (PLWs) were included in the sample size to assess the nutritional status using MUAC cut off 230 mm and 210 mm, the cut off of 230mm being the OPD-MAM enrolment criteria in nutrition services in Afghanistan.

Table 19: Maternal nutrition prevalence of PLWs Zabul SAMRT, February 2018

PLWs MUAC cut off (N=547)	Frequency	Results 95% CI
Global acute malnutrition MUAC< 230 mm	123	22.5% (19.0-26.0 95% CI)
Moderate acute malnutrition MUAC ≥210mm to< 230 mm	113	20.7% (17.3-24.1 95% CI)
Sever acute malnutrition MUAC < 210mm	10	1.8% (0.7-3.0 95% CI)

Table 20: Iron folate for pregnant women based on available answers (yes, No, DK) Zabul SAMRT, February 2018

Iron- folate for Pregnant (N=151)	Frequency	Results
Yes	31	20.5%
No	114	75.5%
DK	6	4.0%

Table 21: ANC visits in the last pregnancy, Zabul SAMRT, February 2018

ANC Visit (n=705	Frequency	Percentage
Yes	298	42.3%
No	407	57.7%
ANC visited by whom (n=705)	Frequency	Results
Health professional	258	36.6%
Traditional birth attendant	19	2.7%
Community health worker	9	1.3%
Relative/Friends	12	1.7%
Others	0	0.0%

Table 22: Skill Births Attendance (SBA) status for the last baby

Status (n=705)		Frequency	Results
Delivery at health facilities		376	53.3%
Delivery at home	Professional staff (midwife, community midwife, Doctor and Nurse)	28	4.0%
	None professional staff (CHWs, TBA and relative)	301	42.7%

5.3. Child health and immunization

Retrospective morbidity data was collected among children 0-59 months with two weeks recall period to the survey assessed prevalence of main disease. The survey finding shows that 37.7% of children had at least one episode of illness in the 2 weeks recall prior to the survey. The major illnesses reported such as fever, diarrhea and ARI are in the table below.

Table 23: Morbidity status among under-fives, Zabul SAMRT, February 2018

Parameter(N=1107)	Frequency	Results (%)
Acute respiratory Infection (ARI)	279	25.2%
Fever	354	32.0%
Diarrhea	165	15 0%

Table 24: Immunization coverages for BCG, measles and Polio, Zabul SAMRT, February 2018

Indicators	Class	Frequency	Results
Measles (children form 9-59 months) (N= 945)	Yes by cards	45	4.8 %
	Yes by recall	670	70.9 %
	Both by cards and recall	715	75.7 %
	No	230	24.3 %
	Don't know	0	0.0 %
Polio (children from 0-59 months) (N= 1107)	Yes by cards	77	7.0 %
	Yes by recall	847	76.5 %
	Both by cards and recall	924	83.5 %
	No	161	14.5%
	DK	22	2.0 %
PENTA 3 (children from 3.5-59 months) (N=1058)	Yes by cards	65	6.1%
	Yes by recall	686	65.0%
	Both by cards and recall	751	71.0%
	No	276	26.1%
	Don't know	29	2.7%
BCG scar (children 0-59 months (N=1107)	By scar confirmation (Yes)	728	65.8 %
	No	379	34.2 %
	Don't Know	0	0.0%

Table 25: Vitamin A supplementation and Deworming for under five children Zabul SAMRT, February 2018

Indicators	Class	Frequency	Results
Vitamin A supplementation 6-59 months (N= 1018)	**Yes**	586	57.6%
	No	398	39.1%
	Don't know	34	3.3%
Deworming 24-59 months (N=680)	**Yes**	420	61.8%
	No	237	34.9%
	Don't know	23	3.4%

Vitamin A supplementation was quite good while deworming was comparatively low.

5.4. IYCF indicators

Indicators for infant and young child feeding practice (IYCF) included all children less than < 24 months. The total (427) children were included in the sample. The results are presented in percentage of the total answers available.

Core indicators	Definition	Frequency	Results
Child ever breastfed (n=427)	Proportion of children who have ever received breast milk	408	95.5%
Timely initiation of breastfeeding (n=427)	Proportion of children born in the last 23 months who were put to the breast within one hour of birth.	202	47.3%
Provision of colostrum within first 3 days of delivered (n=427)	Proportion of children who received colostrum (yellowish liquid) within the first 3 days after birth.	387	90.6%
Still breast feeding at one year (n=74)	Proportion of children 12-15 months of age who fed breast milk.	69	94.5%
Exclusive breast feeding (n=89)	Proportion of infants 0-5 months of age who fed exclusively with breast milk.	55	61.8%
Introduction of solid, semi-solid or soft foods (n=73)	Proportion of infants 6-8 months of age who receive solid, semi-solid or soft foods.	25	34.2%

5.5. Crude and U5 mortality rate

The mortality data was also included in the survey to know the rate of CMR and U5R. The survey plan was to survey 2,904 individuals in 386 households. As it was less households than in the sample size for the anthropometric part, the teams referred on anthropometric sample size for all additional variables including mortality data. A total of 559households with 4,698 were assessed. The CMR and U5MR are lower than WHO emergency threshold[3] as shown in table below.

[3] WHO's emergency threshold of CMR 2/10,000/day and U5MR 4/10,000/day respectively.

Table 26: Mortality rate by age category with design effect, Zabul SAMRT, February 2018

	Crude Death Rate (95% CI)	Design Effect
'Overall	0.48 % (0.28-0.82)	1.95
'Sex		
'Male	0.37 (0.17-0.77)	1.53
'Female	0.61 (0.33-1.14)	1.55
'Years		
'0-4	1.15 (0.62-2.14)	1.25
'5-11	0.07 (0.01-0.55)	1.02
'12-17	0.51 (0.15-1.66)	1.41
'18-49	0.25 (0.07-0.95)	2.17
'50-64	0.72 (0.18-2.88)	1
'65-120	1.39 (0.17-10.13)	1.02

5.6. WASH indicators

559 representing households and 4,698 individuals, included in the survey, either male or female. The information collected from households regarding total amount of water consumption in liters per households and person and subsequently organized into range of liters used. Analysis excluded the water used by animals. The results were then divided in quantity of water in liters available to each household's member per day (refer to the figures below).

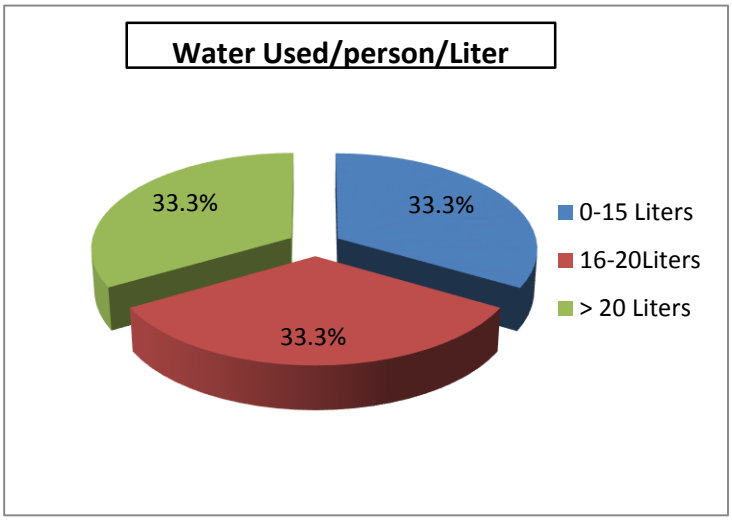


Figure 3: percentage of access to water used in liter/person/day

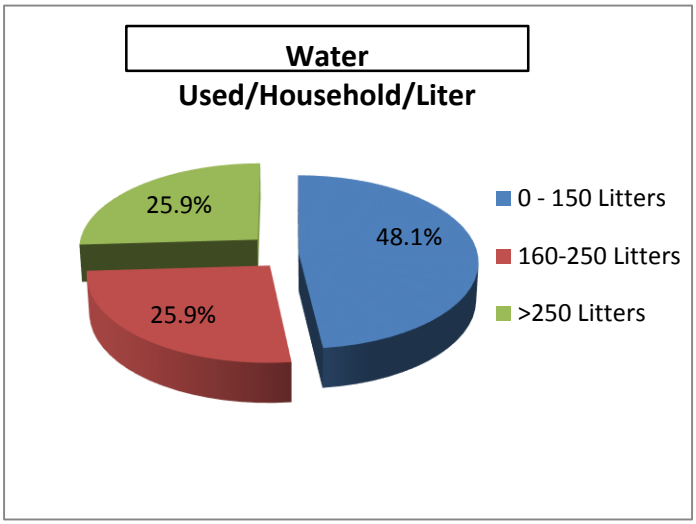


Figure 2: percentage of HHs level daily quantity used per HH/day

Table 27: percentage of households with access to water treatment, (n= 559) Zabul SAMRT, February 2018

Water treatment	Frequency	Results
Boil	19	3.4 %
Chlorine	2	0.4 %
Strain into the cloths	69	12.3 %
Water filter	4	0.7 %
Stand and settled	465	83.2 %

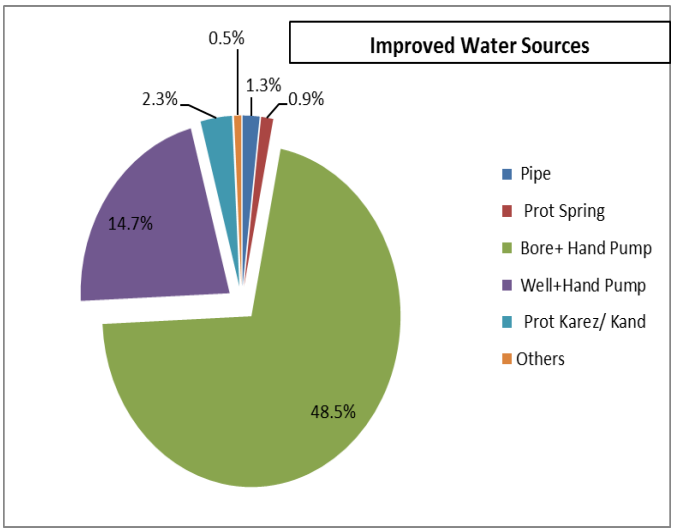


Figure 7: households level daily-unimproved water source

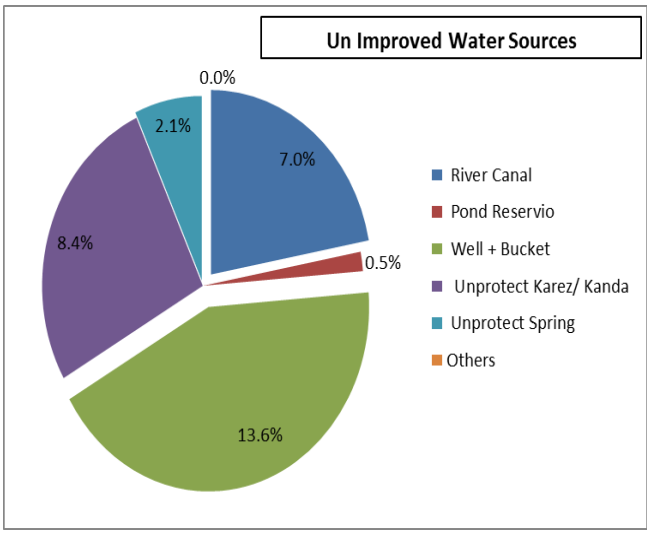


Figure 6: Household's level daily-Improved water sources

Table 28: hand-washing practices by the mothers/caretakers, Zabul SAMRT, February 2018

Hand washing practices by mothers/caretakers (N=705)	Frequency	Results
Only clean with water	614	87.1 %
Soap/Ash with clean water s	91	12.9 %
Wash both hands	658	93.3 %
Rubs hands together at least 3 times	459	65.1%
Dries hand hygienically by air- drying or using a clean cloths	369	52.3 %

Table 29: hand wash practice by mothers/caretakers at critical time, Zabul SAMRT, February 2018

Response (n=705)	Frequency	Results
Wash hands at 5 critical moments:	368	52.2 %
1. After defecation	691	98.0 %
2. After cleaning baby	590	83.7 %
3. Before food preparation	632	89.6 %
4. Before eating	655	92.9 %
5. Before feeding a child	413	58.6 %

This was multiple response questions; percentages do not add up to 100.

Note: as this information was largely knowledge/recall based, there is no practical verification process to know if mothers/caretakers actually practiced hand washing at all critical points or if they were largely recalling times, to which they were previously informed.

6. Food Security and livelihood

6.1. Food Consumption Scores and Food Based Coping Strategies

Food security exists when all people, at all times have physical, social and economic access to sufficient, safe and nutritious food for a healthy and active life. In this survey, the *food* consumption Score (FCS)[4] was used to describe the current short-term household food security situation. The score was triangulated with the food-based or *reduced Coping Strategy Index* (rCSI)[5] to provide an indication of the food security status of the household. The triangulation of these two food security proxy indicators, allows for capturing the interaction between household food consumption and coping strategies adopted, and hence, more properly reflects the food security situation in Zabul province.

Classification for food security: households having poor food consumption with high or medium coping strategies and those with borderline food consumption but with high coping are considered as ***severely food insecure (in red in the table below)***. Households having poor food consumption with low coping strategies, households having borderline food consumption with medium coping strategies and those having acceptable consumption but with high coping

[4] The Food Consumption Score (FCS) is an acceptable proxy indicator to measure caloric intake and diet quality at household level, giving an indication of food security status of the household if combined with other household access indicators. It is a composite score based on dietary diversity, food frequency, and relative nutritional importance of different food groups. The FCS is calculated based on the past 7-day food consumption recall for the household and classified into three categories: poor consumption (FCS = 1.0 to 28); borderline (FCS = 28.1 to 42); and acceptable consumption (FCS = >42.0). The FCS is a weighted sum of food groups. The score for each food group is calculated by multiplying the number of days the commodity was consumed and its relative weight.
[5] The reduced Coping Strategy Index (rCSI) is often used as a proxy indicator of household food insecurity. Households were asked about how often they used a set of five short-term food based coping strategies in situations in which they did not have enough food, or money to buy food, during the one-week period prior to interview. The information is combined into the rCSI which is a score assigned to a household that represents the frequency and severity of coping strategies employed. First, each of the five strategies is assigned a standard weight based on its severity. These weights are: Relying on less preferred and less expensive foods (=1.0); Limiting portion size at meal times (=1.0); Reducing the number of meals eaten in a day (=1.0); Borrow food or rely on help from relatives or friends (=2.0); Restricting consumption by adults for small children to eat (=3.0). Household CSI scores are then determined by multiplying the number of days in the past week each strategy was employed by its corresponding severity weight, and then summing together the totals. The total rCSI score is the basis to determine and classify the level of coping: into three categories: No or low coping (rCSI= 0-9), medium coping (rCSI = 10-17), high coping (r ≥18).

strategies are considered as ***moderately food insecure (in yellow in the table below).*** Households having borderline or acceptable food consumption with low or medium coping are considered as Food Security ***(in green in the Table below)***[6].

Food consumption groups (based on FCS)	Coping group (based on CSI)		
	High coping	Medium coping	No or low coping
Poor	Severely food insecure	Severely food insecure	Moderately food insecure
Border line	Severely food insecure	Moderately food insecure	Food secure
Acceptable	Moderately food insecure	Food secure	Food secure

6.2. Food security situation

Based on triangulation of *Food Consumption Score* (FSC) with the food-based or *reduced Coping Strategy Index* (rCSI), the survey finding shows 15% of households had severely food insecurity and 15 % of households were moderately food insecurity see figure for more details.

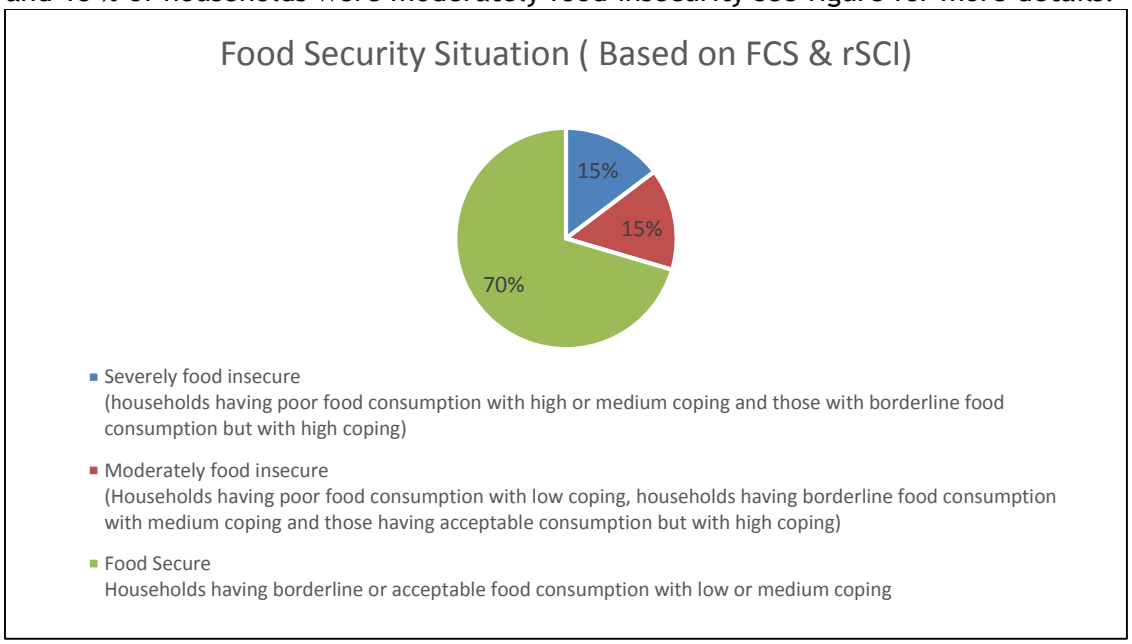
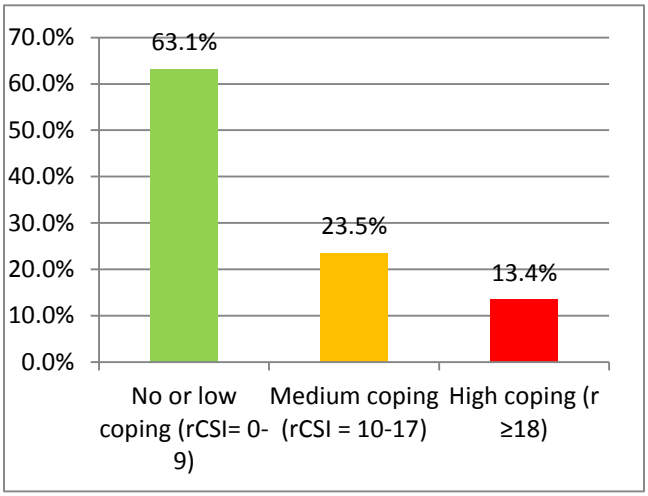


Figure 4: Food security situation (Based on FCS & rSCI)

[6] Adopted from WFP (Kabul Informal Settlement (KIS) Winter Needs Assessment FINAL REPORT ON FOOD SECURITY, December 8th, 2015)

6.3. Reduced Coping Strategy Index[7]

The Food Based Coping Strategy Index is based on measures of the frequency of use of food deprivation, such as the recourse to cheaper food, reductions of the quantity of meals, the act of borrowing food, as well as alterations in food distribution within the household to favor children. Each strategy is weight as per its severity with borrowing food and altering the distribution of food within the household regarded as the most severe strategies. Categories are then defined based upon these scores varying from low coping (0-9) to medium coping (10-17) and high coping (>18).



- 13.4% of HHs with a high level of coping (rCSI ≥18 score).
- 23.5% of HHs with a medium level of coping (rCSI= 10-17 score).
- 63.1% of HHs with No or Low-level coping (rCSI=0-9 score).

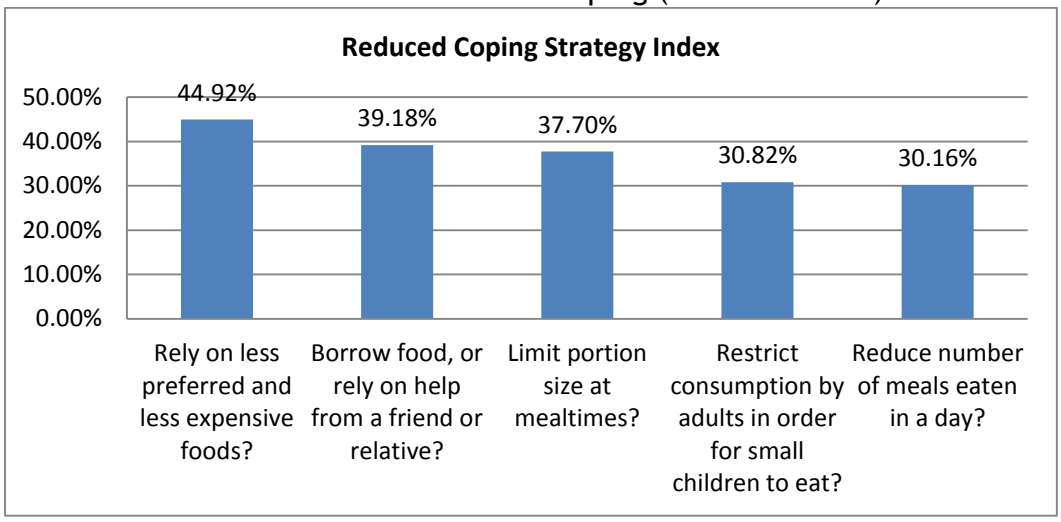


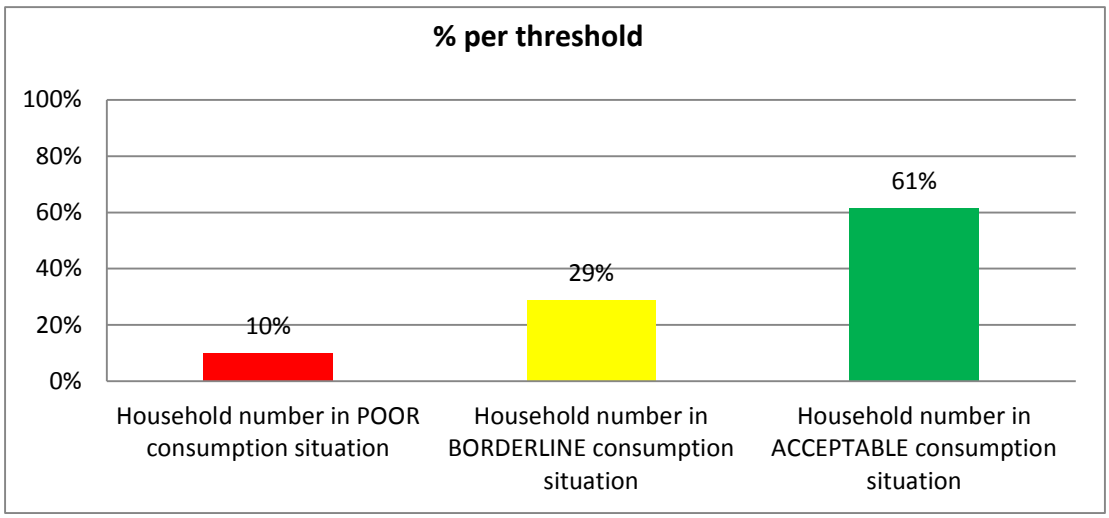
Figure 5: Reduced coping strategy index, Zabul SAMRT, February 2018

[7] Adopted from WFP *(Kabul Informal Settlement (KIS) Winter Needs Assessment FINAL REPORT ON FOOD SECURITY, December 8th, 2015)*

6.4. Food Consumption Score:

Food Consumption Scores are the sum of the frequency of consumption (in the 7 days prior to the interview) of each type of food item (cereal, pulses, vegetables, meat fish and eggs, dairies, oil and sugar) weighted by their nutritional value (proteins are weighted 4, cereals 2, pulses 3, and vegetables and fruits 1, while sugar is weighted 0.5). Households are then grouped into "Poor" food consumption (1.0-28), "Borderline" (28.01 – 42) and acceptable (above 42). Food consumption groups are a proxy of food consumption and reflect both the frequency and quality of food consumption.

Figure 6: Food Consumption score per HH, Zabul SAMRT, February 2018



- 10 % households surveyed have Poor consumption scores (FCS = 1.0 to 28).
- 29 % households surveyed have Borderline consumption scores (FCS = 28.1 to 42).
- 61% households surveyed have acceptable food consumption scores (FCS = >42.0).

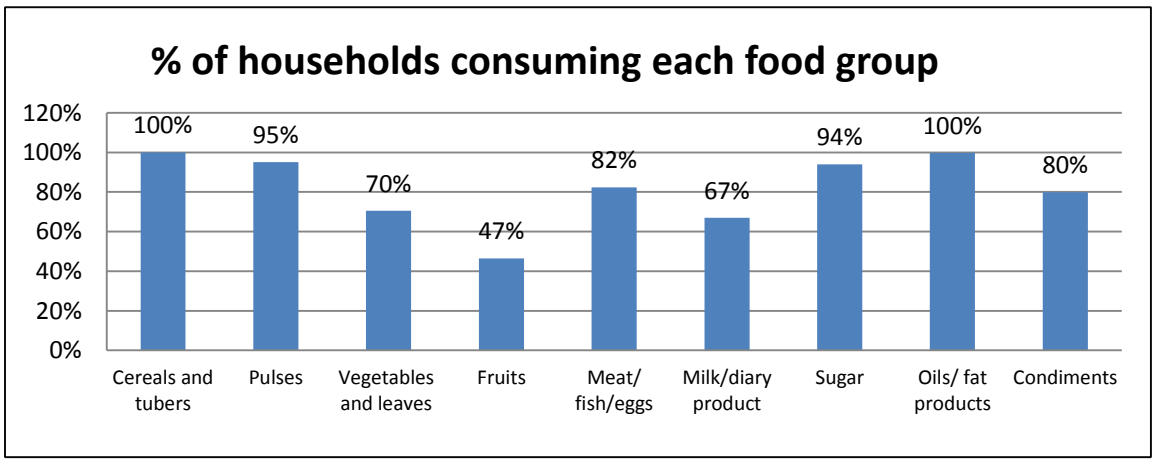


Figure 7: Households consuming each food group, Zabul SAMRT, February 2018

6.5. Food stock

559 households responded for the food stock, for more detail see table below;

Table 30: Food stock in HHs level (n=559), Zabul SAMRT, February 2018

	N	%
No food stock in the households	126	22.5 %
Less than a week stock in the HH	95	17.0 %
Food stock in HHs from 1 to 3 weeks	174	31.1 %
Food stock in HHS up to 3 months	72	12.9 %
Food stock in HHs more than 3 months	92	16.5 %

6.6. Food Main Sources

The survey finding shows that most of the food that households used in the last 7 days prior to the survey was cash based, see table below for more details.

Table 31: Food main sources, Zabul SAMRT, February 2018

	Own production	Cash	Credit	Battering	Gift/ charity	Wild food	Food Aid	Total
Cereals and tubers	200	220	105	12	20	0	2	**559**
Pulses/ Nuts	35	388	96	0	10	0	3	**532**
Vegetables and leaves	41	307	37	1	3	6	0	**395**
Fruits	45	192	15	1	3	0	0	**256**
Meat/ fish/eggs	212	203	25	0	18	0	0	**458**
Milk/diary product	174	143	21	2	31	0	1	**372**
Sugar / Honey	10	417	83	0	5	0	7	**522**
Oils/ fat products	12	404	122	1	11	0	8	**558**
Condiments	22	374	40	0	6	0	7	**449**

7.1. Returnees

The table below showed information collected at households level regarding returnees and IDPs.

Table 32: Short summary of Residential status of households, Zabul SMART, February 2018

Residential status of households (n=559)	Permanent residential	484	86.6%
	Internal displacement	75	13.4%
	Returnees	0	0%

8. Limitations of the survey

- Security problems in all Zabul province and districts. Daily supervision and monitoring was impossible from all teams in Zabul province due to insecurity
- Daily feedback was not delivered in time for the teams because they were coming back late from the field.
- Hard to reach geographical area and local transportation difficulties for the teams.

9. Discussions

9.1. Global Acute Malnutrition

The nutrition and mortality SMART Survey was done in the whole province of Zabul in February 2018 during the winter season. The GAM prevalence based on WHZ unveiled in the survey is **11.2%** (9.0-13.8 95% CI), which based on the WHO emergency threshold classified as Serious situation in the province and the WHZ SAM rate is of **3.2%** (2.2-4.7 95% CI) respectively.
The GAM prevalence based on MUAC is **10.5%** (8.5-13.0 95% CI) and SAM based on MUAC is at **3.5%** (2.4-5.2) respectively.

If both criteria are combined, the combined GAM and SAM prevalence based on MUAC and WHZ both criteria are (n=160) **16.0%** (13.7-18.3 95% CI) and SAM is (n=49) **4.9%** (3.6-6.2 95% CI) respectively in the province was 16.0% (13.7-18.3 95% CI). Combined rates are recommended to be used for caseloads estimation of SAM and MAM management in the province. Screenings based only on MUAC at community level according to criteria stipulated in Afghanistan IMAM Guidelines are not enough to detect all acute malnourished children eligible for treatment. See figure 12 in the actual acute malnutrition comparing WHZ <-2 Z-score with MUAC <125 mm and there is significant difference.

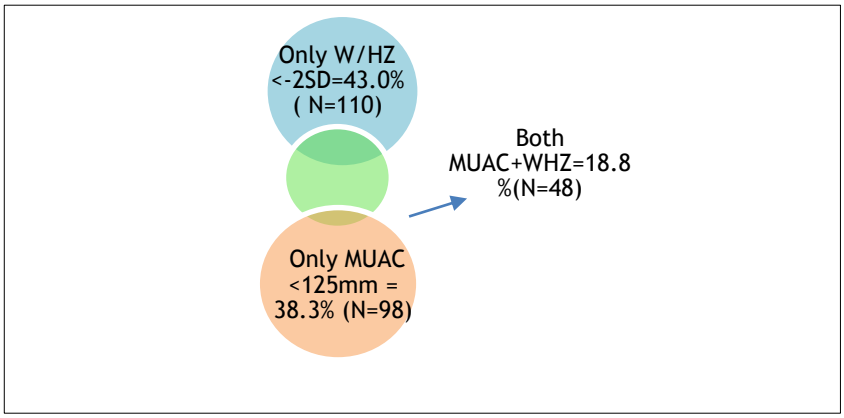


Figure 8: Overlapping WH <-2 and MUAC <125 mm, Zabul SMART, February 2018

9.2. Chronic malnutrition

Stunting prevalence is high with a rate of **45.9**% (42.3-49.6 95% CI) classified as emergency level as per WHO classification of the severity of malnutrition, meaning one child is stunted out of two children in the province. High stunting levels are usually seen in a context of very low access to health services, low sanitation levels, low maternal nutrition status. High stunting level calls for long-term nutrition interventions, combined with infant and young children nutrition (IYCN), scaling up deworming practice as well as encouraging timely health seeking behavior during illness. Maternal nutrition and reproductive health need to improve significantly in order to have any impact on high stunting.

9.3. Mortality

Crude Death Rate and Under-five Death rate were 0.48% (0.28-0.82 **95% CI)** with 1.95 design effect and 1.15 (0.62-2.14) with a design effect of 1.25 respectively. The rates are both below SPHERE emergency thresholds.

9.4. Maternal nutritional status

There are no commonly accepted standards for maternal nutrition status. In the survey, the MUAC cutoff of 230 mm was used to approximately identify their status. In this survey 22.5% of the mothers had a MUAC <230 mm.

The main concern was iron supplementation among pregnant women, which was low (20.5%). The Iron supplementation prevents anemia during pregnancy and eventual life-threatening complications during delivery. Therefore, it decreases maternal mortality, prenatal and perinatal infant loss and prematurity (that can be directly related to child stunting in the first 2 years of life).

Although not of emergency matter, the Iron/Folate supplementation for pregnant have to significantly increase by reinforcing the usual channels for that in BPHS/CBHC. The BPHS Implementing partner ORCD have to make significant progress by reinforcing ANC, health education and CHWs home visits to PLW.

9.5. Infant Young Children Feeding Practice (IYCF)

Optimal infant and young child nutrition, especially exclusive breastfeeding is estimated to prevent potentially 1.4 million deaths every year among children under five years old. Infant and young child feeding nutrition in this area still needs to be improved.

Findings so far have indicated that, colostrum feeding and continuous breastfeeding up to the first year of life were considerable. However, exclusive breastfeeding rate (61.8%) for children aged (0-5 months), early initiation of breastfeeding within one hour (47.3%) and introduction to complementary foods for children aged 6-8 months (34.2%) were insufficient. The rates are of major concern as children who do not receive optimal benefits of breast milk and timely introduction to complementary foods have high risk of child under-nutrition within the first two years of life.

9.6. Hand washing practice

An essential component of proper hand washing is the use of soap, without it is difficult to reduce incidents of diarrhea. Soap eliminates diarrhea-inducing pathogens from the skin. In survey 12.9% of caretaker used soap in hand washing practice, however the

proportion of mothers/caretakers who washed their hands in five critical points was 52.2% which is very low. Caretaker has to significantly increase hand-washing practice in five critical points by reinforcing the usual channels. The BPHS implementing partner ORCD have to make significant progress by reinforcing Health education health facilities and community levels.

Survey did not include observation of the practice of hand washing and the responses are suspected to be more of knowledge-based than practice-based which may mean that, these results need to be interpreted with caution. In order to better understand the WASH situation in the province, it is important to conduct a more in depth WASH assessment.

9.7. Risk factors

Morbidity, immunization, Vit A supplementation and deworming

The UNICEF conceptual framework of malnutrition can be used to explain the probable causes of under nutrition in this area. Diseases weaken an individual immune system causing them to have other side effects such as reduced Food intake and diarrhea. In the province, more than half of the sampled children had suffered from one form of illness or another (37.7%) such as diarrhea, fever and ARI/cough. Through informal discussions with health workers, diarrheal cases amongst these age groups were mainly reported to be managed through oral rehydration salts with the use of micronutrient supplementation.

10. Conclusion

The survey findings revealed that the Prevalence of Global Acute Malnutrition (GAM) and severe acute malnutrition (SAM) in children aged 6-59 months based on Weight for Height (WHZ) were at 11.2% (9.0-13.8 95% C.I.) while SAM prevalence is 3.2% (2.2.-4.7 95% CI.). This situation is "Serious" according to WHO classification of acute malnutrition. The prevalence of GAM based on MUAC cut-offs was 10.5% (8.5-13.0 95% C.I.) and SAM was at 3.5% (2.4-5.2 95% C.I.) respectively. The combine GAM and SAM prevalence based on MUAC and WHZ criteria was (n=160) 16.0% (13.7-18.3 95% CI) and (n=49) 4.9% (3.6-6.2 95% CI) respectively.

The prevalence of stunting for children aged under 6-59 months was at 45.9% (42.3-49.6 95% CI), which is considered as *very high* public health problem according to WHO classification. It is important to consider the stunting situation in the province. Poor micronutrient supplementation and deworming, low maternal nutritional status as observed in Zabul province if not addressed can contribute to increasing the levels of chronic malnutrition. The fact that chronic malnutrition does not received appropriate attention in the health facilities could be a factor exacerbating the situation. Currently there is no clear guidance in Afghanistan on how to address chronic malnutrition.

The prevalence of under nutrition of PLWs was 22.5% (19.0-26.0 95% CI) and low iron supplementation in the province.

Crude Death Rate and Under-five Death rate were 0.48% (0.28-0.82 **95% CI)** with 1.95 design effect and under five mortality Rate was 1.15 (0.62-2.14) with a design effect of 1.25. The rates are both below SPHERE emergency thresholds.

37.7% of children reported to have been sick with fever, diarrhea and ARI, prior to the survey period.

11. Recommendations

Summary of some key recommendations are noted below:

11.1. Under nutrition

- To strengthen the current IMAM program with a focus on the SAM and MAM treatment through capacity building, adequate referral system through CHWs in the community level and provision of nutrition commodities.
- To Enhance community mobilization component of the CMAM/IMAM programming
- Prioritize activities that address chronic malnutrition at the community level, through food security/agricultural, WASH, nutrition cooking demonstrations, IYCF practices within the family, appropriate supplementation, growth monitoring, and improving maternal health and nutrition and access to health services.
- Increase Health education on nutrition related issues at community and Health Facility level
- To ensure access to safe drinking water

11.2. Child health and immunization

- Investigate more on barriers to improve health care seeking behaviors of families for management of children's infections
- Strengthen child health prevention (vaccination, deworming and supplementation) and referral.
- Encourage IYCF practices that fail to be achieved: exclusive breastfeeding and timely introduction of quality complementary food.
- Launch infection prevention interventions and malnutrition sensitive interventions such as a provision of safe drinking water, Hygiene promotion practices, sanitation.
- Reinforce health education including home management of diarrhea and ARI, hygiene at both facility and community levels.

11.3. Maternal nutrition status

- Continue SFP to address PLW having MUAC <230 mm and potentially prevent child under nutrition
- To strengthen awareness of iron folate supplementation at school and HFs level as per MOPH.
- To strengthen referral system for Antenatal care and health seeking visits during pregnancy trough CHWs in the community level.

12. Annexes

Plausibility check for: Zabul.as

Standard/Reference used for z-score calculation: WHO standards 2006

(If it is not mentioned, flagged data is included in the evaluation. Some parts of this plausibility report are more for advanced users and can be skipped for a standard evaluation)

Overall data quality

Criteria	Flags*	Unit	Excel.	Good	Accept	Problematic	**Score**
Flagged data	Incl	%	0-2.5	>2.5-5.0	>5.0-7.5	>7.5	
(% of out of range subjects)			0	5	10	20	**0** (1.9 %)
Overall Sex ratio	Incl	p	>0.1	>0.05	>0.001	<=0.001	
(Significant chi square)			0	2	4	10	**0** (p=0.222)
Age ratio(6-29 vs 30-59)	Incl	p	>0.1	>0.05	>0.001	<=0.001	
(Significant chi square)			0	2	4	10	**4** (p=0.024)
Dig pref score - weight	Incl	#	0-7	8-12	13-20	> 20	
			0	2	4	10	**0** (6)
Dig pref score - height	Incl	#	0-7	8-12	13-20	> 20	
			0	2	4	10	**0** (7)
Dig pref score - MUAC	Incl	#	0-7	8-12	13-20	> 20	
			0	2	4	10	**0** (7)
Standard Dev WHZ	Excl	SD	<1.1	<1.15	<1.20	>=1.20	
.			and	and	and	or	
.	Excl	SD	>0.9	>0.85	>0.80	<=0.80	
			0	5	10	20	**10** (1.16)
Skewness WHZ	Excl	#	<±0.2	<±0.4	<±0.6	>=±0.6	
			0	1	3	5	**1** (-0.35)
Kurtosis WHZ	Excl	#	<±0.2	<±0.4	<±0.6	>=±0.6	
			0	1	3	5	**0** (-0.18)
Poisson dist WHZ-2	Excl	p	>0.05	>0.01	>0.001	<=0.001	
			0	1	3	5	**0** (p=0.060)
OVERALL SCORE WHZ =			0-9	10-14	15-24	>25	**15** %

The overall score of this survey is 15 %, this is acceptable.

There were no duplicate entries detected.

Percentage of children with no exact birthday: 93 %

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=6/ID=2: HAZ (4.277), Height may be incorrect
Line=7/ID=1: HAZ (-5.789), Age may be incorrect
Line=12/ID=1: HAZ (-5.130), Age may be incorrect
Line=34/ID=2: HAZ (-5.637), Height may be incorrect
Line=57/ID=1: HAZ (1.711), Height may be incorrect
Line=112/ID=1: **WHZ (2.576)**, Weight may be incorrect
Line=115/ID=2: HAZ (1.125), Age may be incorrect

Line=159/ID=3: HAZ (1.157), Age may be incorrect
Line=164/ID=1: HAZ (1.567), Age may be incorrect
Line=168/ID=1: HAZ (1.163), Age may be incorrect
Line=180/ID=1: HAZ (-6.042), WAZ (-4.519), Age may be incorrect
Line=277/ID=2: HAZ (-5.446), Age may be incorrect
Line=285/ID=2: **WHZ (-3.796)**, Height may be incorrect
Line=294/ID=3: **WHZ (-3.551)**, Weight may be incorrect
Line=324/ID=3: **WHZ (-4.057)**, Height may be incorrect
Line=362/ID=1: **WHZ (2.520)**, Weight may be incorrect
Line=400/ID=4: **WHZ (-5.483)**, HAZ (2.426), Height may be incorrect
Line=406/ID=3: **WHZ (-4.136)**, Weight may be incorrect
Line=416/ID=3: **WHZ (-5.661)**, Weight may be incorrect
Line=460/ID=1: HAZ (1.305), Age may be incorrect
Line=471/ID=1: **WHZ (-3.592)**, Weight may be incorrect
Line=527/ID=2: **WHZ (2.489)**, Weight may be incorrect
Line=581/ID=1: **WHZ (-3.905)**, Height may be incorrect
Line=589/ID=1: **WHZ (-3.749)**, Weight may be incorrect
Line=619/ID=3: **WHZ (-3.649)**, Weight may be incorrect
Line=625/ID=3: **WHZ (-4.584)**, Height may be incorrect
Line=707/ID=1: **WHZ (-4.923)**, Weight may be incorrect
Line=847/ID=2: **WHZ (-3.580)**, Weight may be incorrect
Line=909/ID=1: **WHZ (-4.870)**, WAZ (-4.508), Weight may be incorrect
Line=990/ID=2: **WHZ (-4.014)**, Weight may be incorrect
Line=1030/ID=5: HAZ (-6.113), Age may be incorrect
Line=1037/ID=1: HAZ (-5.180), WAZ (-4.459), Age may be incorrect
Line=1041/ID=2: **WHZ (-4.190)**, Weight may be incorrect
Line=1095/ID=2: HAZ (-7.142), Age may be incorrect
Line=1097/ID=2: HAZ (1.591), Age may be incorrect
Percentage of values flagged with SMART flags:WHZ: 1.9 %, HAZ: 1.7 %, WAZ: 0.3 %

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: 0.98 (The value should be around 0.85).:
p-value = 0.024 (significant difference)

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

Age cat.	mo.	boys	girls	total	ratio boys/girls
6 to 17	12	124/122.7 (1.0)	114/113.7 (1.0)	238/236.4 (1.0)	1.09
18 to 29	12	144/119.7 (1.2)	122/110.8 (1.1)	266/230.5 (1.2)	1.18
30 to 41	12	115/116.0 (1.0)	130/107.4 (1.2)	245/223.4 (1.1)	0.88
42 to 53	12	112/114.1 (1.0)	84/105.7 (0.8)	196/219.9 (0.9)	1.33
54 to 59	6	34/56.5 (0.6)	40/52.3 (0.8)	74/108.8 (0.7)	0.85
6 to 59	54	529/509.5 (1.0)	490/509.5 (1.0)		1.08

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

Overall sex ratio: p-value = 0.222 (boys and girls equally represented)

Overall age distribution: p-value = 0.000 (significant difference)
Overall age distribution for boys: p-value = 0.007 (significant difference)
Overall age distribution for girls: p-value = 0.010 (significant difference)
Overall sex/age distribution: p-value = 0.000 (significant difference)

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: **6** (0-7 excellent, 8-12 good, 13-20 acceptable and > 20 problematic)
p-value for chi2: 0.001 (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: **7** (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: **7** (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:	1.25	1.23	1.16
(The SD should be between 0.8 and 1.2)			
Prevalence (< -2)			
observed:	12.6%	12.4%	11.2%
calculated with current SD:	11.9%	11.4%	9.3%
calculated with a SD of 1:	7.0%	6.9%	6.4%

HAZ

Standard Deviation SD:	1.21	1.19	1.11
(The SD should be between 0.8 and 1.2)			
Prevalence (< -2)			
observed:	45.9%	45.8%	45.9%
calculated with current SD:	48.1%	47.6%	48.1%
calculated with a SD of 1:	47.7%	47.2%	47.8%

WAZ

Standard Deviation SD:	0.95	0.95	0.94
(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= 0.000	p= 0.000	p= 0.000
HAZ	p= 0.000	p= 0.000	p= 0.022
WAZ	p= 0.000	p= 0.000	p= 0.000

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

Skewness

WHZ	-0.58	-0.49	-0.35
HAZ	-0.03	0.11	-0.09
WAZ	-0.55	-0.55	-0.50

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	0.57	0.26	-0.18
HAZ	1.19	0.88	-0.15
WAZ	0.44	0.44	0.33

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=1.34 (p=0.060)
WHZ < -3: ID=1.09 (p=0.309)
GAM: ID=1.34 (p=0.060)
SAM: ID=1.09 (p=0.309)
HAZ < -2: ID=1.33 (p=0.067)
HAZ < -3: ID=1.61 (p=0.006)
WAZ < -2: ID=1.80 (p=0.001)
WAZ < -3: ID=1.46 (p=0.023)

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: 1.09 (n=47, f=0)  ############
02: 0.95 (n=43, f=0)  ######
03: 1.17 (n=40, f=1)  ################
04: 1.28 (n=44, f=0)  ####################
05: 1.00 (n=44, f=0)  ########
06: 1.45 (n=43, f=1)  ##########################
07: 1.36 (n=44, f=2)  ######################
08: 1.37 (n=41, f=1)  ########################
09: 1.27 (n=47, f=1)  ####################
10: 1.01 (n=45, f=0)  #########
11: 1.24 (n=44, f=0)  ##################
12: 1.52 (n=45, f=2)  ##############################
13: 1.17 (n=45, f=1)  ################
14: 1.08 (n=43, f=0)  ############
15: 1.26 (n=45, f=1)  ##################
16: 1.04 (n=41, f=0)  ##########
17: 1.06 (n=39, f=0)  ###########
18: 1.26 (n=36, f=0)  ##################
19: 1.04 (n=34, f=0)  ##########
20: 1.50 (n=33, f=2)  ##############################
21: 1.17 (n=22, f=0)  ###############
22: 1.36 (n=23, f=2)  ######################
23: 1.68 (n=22, f=1)  ####################################
24: 1.68 (n=20, f=1)  ####################################
25: 1.36 (n=17, f=0)  ######################
26: 1.44 (n=13, f=1)  OOOOOOOOOOOOOOOOOOOOOOOOO
27: 1.71 (n=10, f=1)  OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
28: 0.97 (n=10, f=0)  OOOOOOO
29: 0.95 (n=06, f=0)  ~~~~~~
30: 2.77 (n=04, f=1)  ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
31: 0.82 (n=04, f=0)  ~
32: 1.34 (n=04, 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 =	163	125	150	230	160	191
Percentage of values flagged with SMART flags:						
WHZ:	3.7	1.6	2.0	1.3	1.9	1.0
HAZ:	2.5	1.6	2.7	1.3	1.9	0.5
WAZ:	0.0	0.0	0.7	0.0	1.3	0.0
Age ratio of 6-29 months to 30-59 months:						
	1.09	1.19	1.03	0.74	0.95	1.08
Sex ratio (male/female):						
	1.01	1.31	1.03	1.07	1.11	1.03
Digit preference Weight (%):						
.0 :	3	13	11	5	6	7
.1 :	9	7	15	15	15	11
.2 :	15	13	13	12	8	7

.3 :	10	10	5	9	9	15
.4 :	6	9	6	8	9	14
.5 :	11	11	7	11	8	10
.6 :	9	13	9	7	11	9
.7 :	6	8	9	12	12	9
.8 :	23	9	13	13	9	10
.9 :	9	8	13	7	13	8
DPS:	18	7	11	10	9	8

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

Digit preference Height (%):

.0 :	2	16	18	5	5	12
.1 :	4	9	11	13	24	15
.2 :	21	16	12	14	12	13
.3 :	10	16	8	13	13	9
.4 :	14	11	12	7	6	9
.5 :	9	12	9	14	8	4
.6 :	12	6	13	12	8	8
.7 :	8	3	7	8	8	10
.8 :	13	6	7	6	7	8
.9 :	6	4	3	9	9	12
DPS:	18	16	13	11	18	9

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

Digit preference MUAC (%):

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

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

Standard deviation of WHZ:

SD	1.36	1.26	1.26	1.22	1.25	1.06

Prevalence (< -2) observed:

%	22.7	12.0	13.3	10.0	11.9	7.3

Prevalence (< -2) calculated with current SD:

%	24.2	11.2	11.5	9.4	11.0	6.1

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

%	17.1	6.2	6.5	5.3	6.3	5.1

Standard deviation of HAZ:

SD	1.31	1.31	1.25	1.15	1.20	1.08

observed:

%	44.2	59.2	48.0	43.5	43.1	42.4

calculated with current SD:

%	49.0	57.7	49.7	43.4	46.6	45.7

calculated with a SD of 1:

%	48.6	60.0	49.6	42.5	45.9	45.3

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	19/19.0 (1.0)	21/18.8 (1.1)	40/37.8 (1.1)	0.90
18 to 29	12	23/18.5 (1.2)	22/18.3 (1.2)	45/36.9 (1.2)	1.05
30 to 41	12	14/18.0 (0.8)	20/17.8 (1.1)	34/35.7 (1.0)	0.70
42 to 53	12	22/17.7 (1.2)	14/17.5 (0.8)	36/35.2 (1.0)	1.57
54 to 59	6	4/8.8 (0.5)	4/8.6 (0.5)	8/17.4 (0.5)	1.00
6 to 59	54	82/81.5 (1.0)	81/81.5 (1.0)		1.01

The data are expressed as observed number/expected number (ratio of obs/expect)
Overall sex ratio: p-value = 0.938 (boys and girls equally represented)
Overall age distribution: p-value = 0.131 (as expected)
Overall age distribution for boys: p-value = 0.233 (as expected)
Overall age distribution for girls: p-value = 0.346 (as expected)
Overall sex/age distribution: p-value = 0.039 (significant difference)

Team 2:

Age cat.	mo.	boys	girls	total	ratio boys/girls
6 to 17	12	15/16.5 (0.9)	11/12.5 (0.9)	26/29.0 (0.9)	1.36
18 to 29	12	22/16.1 (1.4)	20/12.2 (1.6)	42/28.3 (1.5)	1.10
30 to 41	12	13/15.6 (0.8)	13/11.8 (1.1)	26/27.4 (0.9)	1.00
42 to 53	12	18/15.3 (1.2)	7/11.7 (0.6)	25/27.0 (0.9)	2.57
54 to 59	6	3/7.6 (0.4)	3/5.8 (0.5)	6/13.3 (0.4)	1.00
6 to 59	54	71/62.5 (1.1)	54/62.5 (0.9)		1.31

The data are expressed as observed number/expected number (ratio of obs/expect)
Overall sex ratio: p-value = 0.128 (boys and girls equally represented)
Overall age distribution: p-value = 0.024 (significant difference)
Overall age distribution for boys: p-value = 0.200 (as expected)
Overall age distribution for girls: p-value = 0.077 (as expected)
Overall sex/age distribution: p-value = 0.003 (significant difference)

Team 3:

Age cat.	mo.	boys	girls	total	ratio boys/girls
6 to 17	12	15/17.6 (0.9)	16/17.2 (0.9)	31/34.8 (0.9)	0.94
18 to 29	12	25/17.2 (1.5)	20/16.7 (1.2)	45/33.9 (1.3)	1.25
30 to 41	12	16/16.7 (1.0)	21/16.2 (1.3)	37/32.9 (1.1)	0.76
42 to 53	12	13/16.4 (0.8)	15/16.0 (0.9)	28/32.4 (0.9)	0.87
54 to 59	6	7/8.1 (0.9)	2/7.9 (0.3)	9/16.0 (0.6)	3.50
6 to 59	54	76/75.0 (1.0)	74/75.0 (1.0)		1.03

The data are expressed as observed number/expected number (ratio of obs/expect)
Overall sex ratio: p-value = 0.870 (boys and girls equally represented)
Overall age distribution: p-value = 0.085 (as expected)
Overall age distribution for boys: p-value = 0.306 (as expected)
Overall age distribution for girls: p-value = 0.160 (as expected)
Overall sex/age distribution: p-value = 0.022 (significant difference)

Team 4:

Age cat.	mo.	boys	girls	total	ratio boys/girls
6 to 17	12	26/27.6 (0.9)	20/25.8 (0.8)	46/53.4 (0.9)	1.30
18 to 29	12	28/26.9 (1.0)	24/25.1 (1.0)	52/52.0 (1.0)	1.17
30 to 41	12	26/26.1 (1.0)	31/24.3 (1.3)	57/50.4 (1.1)	0.84
42 to 53	12	30/25.7 (1.2)	21/24.0 (0.9)	51/49.6 (1.0)	1.43
54 to 59	6	9/12.7 (0.7)	15/11.8 (1.3)	24/24.5 (1.0)	0.60

```
-------------------------------------------------------------------------------------
6  to 59     54    119/115.0 (1.0)    111/115.0 (1.0)                       1.07
```

The data are expressed as observed number/expected number (ratio of obs/expect)
Overall sex ratio: p-value = 0.598 (boys and girls equally represented)
Overall age distribution: p-value = 0.750 (as expected)
Overall age distribution for boys: p-value = 0.746 (as expected)
Overall age distribution for girls: p-value = 0.359 (as expected)
Overall sex/age distribution: p-value = 0.165 (as expected)

Team 5:

```
Age cat.     mo.        boys              girls             total     ratio boys/girls
-------------------------------------------------------------------------------------
6  to 17     12      25/19.5 (1.3)      21/17.6 (1.2)      46/37.1 (1.2)    1.19
18 to 29     12      19/19.0 (1.0)      13/17.2 (0.8)      32/36.2 (0.9)    1.46
30 to 41     12      21/18.4 (1.1)      22/16.7 (1.3)      43/35.1 (1.2)    0.95
42 to 53     12      15/18.1 (0.8)      14/16.4 (0.9)      29/34.5 (0.8)    1.07
54 to 59      6        4/9.0 (0.4)        6/8.1 (0.7)      10/17.1 (0.6)    0.67
-------------------------------------------------------------------------------------
6  to 59     54      84/80.0 (1.0)      76/80.0 (0.9)                       1.11
```

The data are expressed as observed number/expected number (ratio of obs/expect)
Overall sex ratio: p-value = 0.527 (boys and girls equally represented)
Overall age distribution: p-value = 0.084 (as expected)
Overall age distribution for boys: p-value = 0.267 (as expected)
Overall age distribution for girls: p-value = 0.370 (as expected)
Overall sex/age distribution: p-value = 0.042 (significant difference)

Team 6:

```
Age cat.     mo.        boys              girls             total     ratio boys/girls
-------------------------------------------------------------------------------------
6  to 17     12      24/22.5 (1.1)      25/21.8 (1.1)      49/44.3 (1.1)    0.96
18 to 29     12      27/21.9 (1.2)      23/21.3 (1.1)      50/43.2 (1.2)    1.17
30 to 41     12      25/21.3 (1.2)      23/20.6 (1.1)      48/41.9 (1.1)    1.09
42 to 53     12      14/20.9 (0.7)      13/20.3 (0.6)      27/41.2 (0.7)    1.08
54 to 59      6       7/10.4 (0.7)      10/10.0 (1.0)      17/20.4 (0.8)    0.70
-------------------------------------------------------------------------------------
6  to 59     54      97/95.5 (1.0)      94/95.5 (1.0)                       1.03
```

The data are expressed as observed number/expected number (ratio of obs/expect)
Overall sex ratio: p-value = 0.828 (boys and girls equally represented)
Overall age distribution: p-value = 0.094 (as expected)
Overall age distribution for boys: p-value = 0.258 (as expected)
Overall age distribution for girls: p-value = 0.478 (as expected)
Overall sex/age distribution: p-value = 0.064 (as expected)

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: 1.26 (n=08, f=0)  ##################
02: 0.93 (n=08, f=0)  ######
03: 1.02 (n=07, f=0)  #########
04: 1.02 (n=08, f=0)  #########
05: 1.09 (n=06, f=0)  ############
06: 1.29 (n=08, f=0)  ####################
07: 1.97 (n=08, f=1)  ##################################################
08: 1.40 (n=07, f=0)  ########################
09: 1.16 (n=08, f=0)  ###############
10: 1.29 (n=07, f=0)  ####################
11: 1.47 (n=08, f=0)  ############################
12: 1.78 (n=08, f=0)  ########################################
13: 1.27 (n=08, f=0)  ###################
```

```
14: 0.76 (n=06, f=0)
15: 1.10 (n=08, f=0)  #############
16: 1.48 (n=07, f=0)  ############################
17: 1.24 (n=07, f=0)  ##################
18: 1.25 (n=06, f=0)  ###################
19: 0.76 (n=04, f=0)
20: 1.47 (n=03, f=0)  OOOOOOOOOOOOOOOOOOOOOOOOOO
21: 1.36 (n=03, f=0)  OOOOOOOOOOOOOOOOOOOOOO
22: 0.94 (n=04, f=0)  OOOOOO
23: 2.45 (n=03, f=1)  OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
24: 0.09 (n=02, f=0)
26: 1.39 (n=02, f=0)  ~~~~~~~~~~~~~~~~~~~~~~~~~
27: 3.25 (n=02, f=1)  ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
28: 0.58 (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: 1.31 (n=08, f=0)  ######################
02: 0.75 (n=06, f=0)
03: 1.88 (n=06, f=1)  ################################################
04: 1.57 (n=07, f=0)  ################################
05: 1.23 (n=08, f=0)  ##################
06: 0.80 (n=07, f=0)
07: 1.73 (n=07, f=0)  ########################################
08: 1.50 (n=06, f=0)  ############################
09: 1.94 (n=08, f=0)  ################################################
10: 0.72 (n=08, f=0)
11: 0.76 (n=06, f=0)
12: 1.63 (n=07, f=0)  ###################################
13: 0.83 (n=07, f=0)  #
14: 1.30 (n=06, f=0)  ######################
15: 1.11 (n=06, f=0)  #############
16: 1.24 (n=05, f=0)  ###################
17: 1.00 (n=05, f=0)  #########
18: 1.35 (n=03, f=0)  OOOOOOOOOOOOOOOOOOOOO
19: 1.17 (n=04, f=0)  OOOOOOOOOOOOOO
20: 0.43 (n=04, 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: 1.07 (n=07, f=0)  ###########
02: 0.54 (n=07, f=0)
03: 1.17 (n=06, f=0)  ################
04: 1.39 (n=06, f=0)  ########################
05: 0.32 (n=06, f=0)
06: 0.83 (n=06, f=0)  #
07: 0.81 (n=07, f=0)
08: 1.38 (n=07, f=0)  ########################
09: 1.51 (n=07, f=0)  ##############################
10: 0.52 (n=07, f=0)
11: 0.82 (n=07, f=0)  #
12: 1.68 (n=07, f=0)  ####################################
13: 1.23 (n=07, f=1)  ##################
14: 0.92 (n=07, f=0)  #####
15: 1.01 (n=07, f=0)  #########
16: 0.75 (n=06, f=0)
17: 0.79 (n=06, f=0)
18: 1.44 (n=06, f=0)  ###########################
19: 1.74 (n=06, f=1)  ########################################
20: 1.62 (n=06, f=1)  ##################################
21: 1.66 (n=04, f=0)  OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
22: 1.63 (n=04, f=1)  OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
23: 1.79 (n=04, f=0)  OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
24: 0.16 (n=03, f=0)
```

```
25: 1.16 (n=03, f=0)  OOOOOOOOOOOOOOO
```

(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: 0.59 (n=08, f=0)
02: 0.60 (n=06, f=0)
03: 1.12 (n=07, f=0)  #############
04: 1.21 (n=07, f=0)  ################
05: 0.96 (n=08, f=0)  #######
06: 1.64 (n=08, f=0)  ###################################
07: 0.67 (n=07, f=0)
08: 1.23 (n=07, f=0)  ##################
09: 1.09 (n=08, f=0)  ############
10: 1.09 (n=07, f=0)  ############
11: 1.44 (n=08, f=0)  ############################
12: 0.67 (n=08, f=0)
13: 1.78 (n=08, f=0)  ########################################
14: 0.94 (n=08, f=0)  ######
15: 1.88 (n=08, f=1)  ##############################################
16: 0.82 (n=08, f=0)  #
17: 0.99 (n=08, f=0)  ########
18: 1.37 (n=08, f=0)  ########################
19: 0.82 (n=07, f=0)  #
20: 1.42 (n=07, f=0)  ##########################
21: 0.56 (n=06, f=0)
22: 0.73 (n=06, f=0)
23: 1.36 (n=06, f=0)  ########################
24: 1.75 (n=07, f=1)  ########################################
25: 1.57 (n=07, f=0)  ################################
26: 1.08 (n=06, f=0)  ############
27: 1.36 (n=05, f=0)  ########################
28: 0.94 (n=05, f=0)  ######
29: 0.65 (n=04, f=0)
30: 3.27 (n=02, f=1)  OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
31: 1.40 (n=02, f=0)  OOOOOOOOOOOOOOOOOOOOOOOO
32: 1.92 (n=02, f=0)  OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
```

(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: 1.09 (n=08, f=0)  ############
02: 1.19 (n=08, f=0)  ################
03: 0.86 (n=07, f=0)  ##
04: 1.44 (n=08, f=0)  ###########################
05: 1.28 (n=08, f=0)  ###################
06: 1.82 (n=08, f=1)  ############################################
07: 1.13 (n=08, f=0)  ##############
08: 1.36 (n=08, f=0)  ########################
09: 1.21 (n=08, f=0)  ################
10: 0.73 (n=08, f=0)
11: 1.39 (n=08, f=0)  ########################
12: 1.48 (n=07, f=1)  ############################
13: 0.59 (n=07, f=0)
14: 0.91 (n=08, f=0)  #####
15: 1.12 (n=08, f=0)  #############
16: 0.62 (n=07, f=0)
17: 1.46 (n=07, f=0)  ############################
18: 1.03 (n=05, f=0)  ##########
19: 0.56 (n=05, f=0)
20: 2.17 (n=06, f=1)  ############################################################
21: 0.53 (n=03, f=0)
22: 1.42 (n=04, f=0)  OOOOOOOOOOOOOOOOOOOOOOOO
23: 0.46 (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)
```

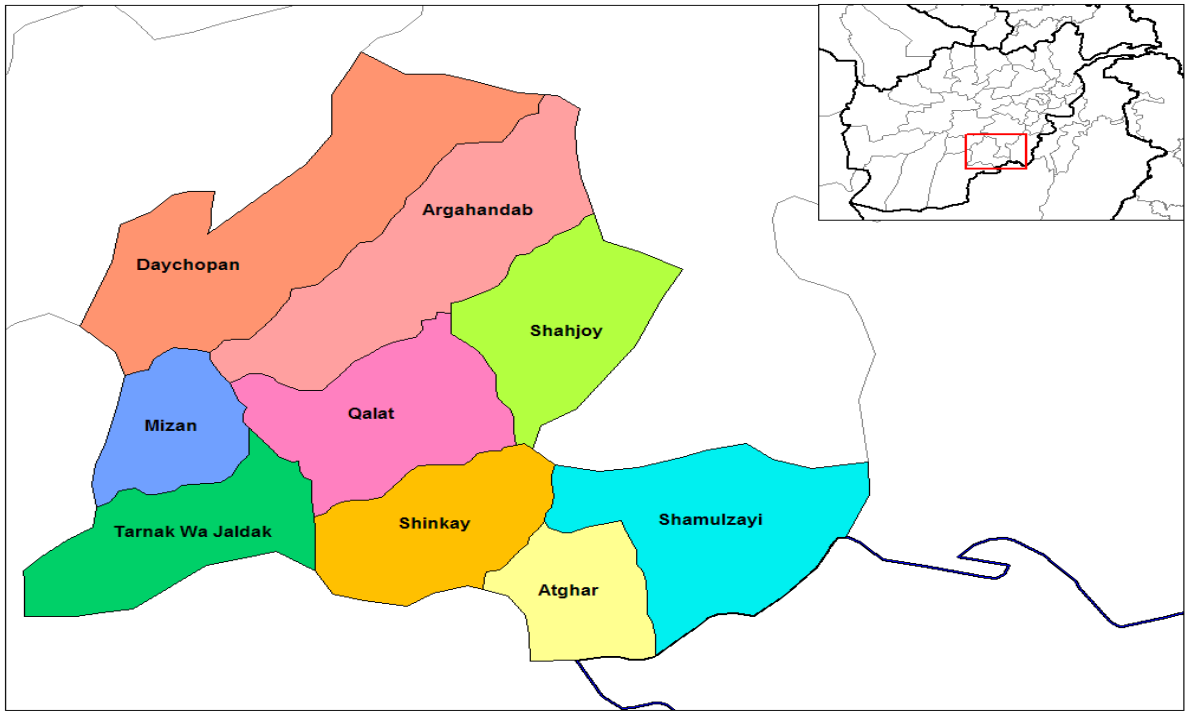
Team: 6

```
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: 1.14 (n=08, f=0)   ##############
02: 0.77 (n=08, f=0)
03: 0.78 (n=07, f=0)
04: 1.25 (n=08, f=0)   ###################
05: 0.78 (n=08, f=0)
06: 0.94 (n=06, f=0)   ######
07: 1.54 (n=07, f=0)   ##############################
08: 1.48 (n=06, f=0)   ############################
09: 0.85 (n=08, f=0)   ##
10: 1.23 (n=08, f=0)   ##################
11: 0.69 (n=07, f=0)
12: 1.35 (n=08, f=0)   #######################
13: 0.53 (n=08, f=0)
14: 0.84 (n=08, f=0)   ## 15: 0.46 (n=08, f=0)
16: 0.81 (n=08, f=0)
17: 0.77 (n=06, f=0)
18: 1.31 (n=08, f=0)   #####################
19: 0.90 (n=08, f=0)   ####
20: 1.51 (n=07, f=0)   ##############################
21: 0.66 (n=05, f=0)
22: 1.71 (n=05, f=0)   #####################################
23: 1.26 (n=07, f=0)   ###################
24: 1.14 (n=07, f=0)   ##############
25: 0.96 (n=05, f=0)   #######
26: 0.79 (n=03, f=0)
27: 0.86 (n=03, f=0)   OOO
28: 0.77 (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)
```

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

Annex 2 : Zabul physical maps.



Annex 3: Selected clusters in Zabul province.

No	province	Distract	Villages Name	Population	Cluster
1	Zabul	Qalat	کلا	672	1
2	Zabul	Qalat	عبدالشکور کلی	831	2
3	Zabul	Qalat	چیغو کلی	154	3
4	Zabul	Qalat	ابراهیم باوړی	598	4
5	Zabul	Qalat	گوردان باوړی	126	5
6	Zabul	Qalat	قبایلو کلی	1750	6
7	Zabul	Qalat	ملخیان	630	7
8	Zabul	Qalat	ملاقیام الدین اخند	214	8
9	Zabul	Qalat	گلاب مسجد	175	9
10	Zabul	Qalat	کوچنی مسجد	1670	10
11	Zabul	Qalat	وردگان کل	1366	11
12	Zabul	Qalat	خان،رحمت الله مسجد	140	12
13	Zabul	Qalat	حاجی نادر مسجد	112	13
14	Zabul	Qalat	چمن کلی	91	14
15	Zabul	Qalat	للیزی مسجد	427	15
16	Zabul	Qalat	غلام حسن کلاچه	399	16
17	Zabul	Qalat	ملا اشرف مسجد	161	17
18	Zabul	Qalat	گل جان	462	18
19	Zabul	Qalat	ابراهیم خیل	1400	19
20	Zabul	Qalat	سپینه غبرګه	1700	20
21	Zabul	Qalat	اتفاق مسجد	2520	21
22	Zabul	Qalat	سیدباری مسجد	588	22
23	Zabul	Qalat	رسالی جامه	1400	23

24	Zabul	Qalat	ولایت جامع	857	24
25	Zabul	Arghandab	توغی زیت الله	105	25
26	Zabul	Arghandab	جنگی خان	143	26
27	Zabul	Arghandab	میراغا	175	27
28	Zabul	Arghandab	حاجی محمدالله ،جلات خان	140	28
29	Zabul	Atghara	نوي قلعه	210	29
30	Zabul	Daichopan	اخوندزاده	84	30
31	Zabul	Daichopan	جلات خان	294	31
32	Zabul	Jaldak	امیرمحمد	329	32
33	Zabul	Jaldak	پوتی	5369	33
34	Zabul	Mizan	ملاشیرجان	126	34
35	Zabul	Mizan	ظابط کلی	91	35
36	Zabul	Mizan	لندی	119	36
37	Zabul	Shajoy	عبدالباقی مسجد	700	37
38	Zabul	Shajoy	کوچلنی	350	38
39	Zabul	Shajoy	سنځر	210	39
40	Zabul	Shajoy	جانان کورونه	84	40
41	Zabul	Shajoy	شرورقلعه	273	41
42	Zabul	Shajoy	امین الله مسجد	273	42
43	Zabul	Khak e Afghan	توره چینه	308	43
44	Zabul	Shamolzi	چرګلی	175	44
45	Zabul	Shamolzi	حاجی طاوس	89	45
46	Zabul	Shinkai	ایسیوزي	115	46
47	Zabul	Siori	عمر زي	1610	47

Annex 4: QUESTIONNAIRES

Household questionnaire

A. **Identification variables:** This section is mandatory to fill to all teams in all the HH visited during the survey. The information contained in this section are:

1. **Date of the survey:** This is the date of data collection, it should written in the standard format for all the questionnaires administered during the survey. (day/month/year
2. **Name of the village:** Indicate the name of the sampled village that is visited on the particular day of data collection.
3. **Cluster number:** Indicate the number of cluster allocated for the village or area visited. This is automatically generated by ENA during the sampling stage. Sampling and cluster allocation will be done together with the team at the **training hall.** Important to note that once Cluster number has been assigned it cannot be changed.
4. **Team ID number:** Teams was formed during the training session. Each team was assigned a unique number ranging from 1-6. Each team must indicate the team number on the questionnaires they administer.
5. **Household number:** Each HH in the selected cluster was assigned a number. There are 12 HH in each cluster to be sampled. Each sampled HH should be indicated a number in order of their visit **(e.g. the first randomly selected HH is allocated HH number 1 regardless of whether it is the 10th HH in the village)**
6. **Starting time of the interview:** This is indicated the time of start of the interview in the selected HH.
7. **Consent:** Each team was provided with a consent form that they were required to ask for permission to conduct the survey in each HH. This is meant to seek permission from the HH head or caregiver to be allowed to conduct the assessment. It is important to note the reason for refusal in case the HH does not accept the interview.

B. **Wash:** Description of the following key WASH indicators

1. **Source of drinking water:** This question was asked to the respondent of the HH to find out where HH are accessing their drinking water. The sources of water are categorised into two main categories

I.e. Improved sources and un-improved sources. These are based on the two main recommended categories of responses.

- Number of HH accessing water from improved sources[8]/ total number of respondents.
- Number of HH accessing water from unimproved sources[9]/ total number of respondents.

2. **Water treatment methods:** This question was seek to find out what methods HH are using to make their drinking water safe. This indicator will show the proportion of HH practicing safe methods of water treatment in the survey area. The calculation of this will be:
   - Total number of HH practicing safe water treatment methods[10]/ total number of respondents
   - Total number of HH not practicing safe water treatment methods/ total number of respondents.
3. **Water Use/Consumption at HH level:** This question was seeking to find out the amount of water consumed by each individual living in the household per day. The aim of this indicator is to check whether households are consuming the required minimum amount of water per person per day compared to the minimum threshold as defined by the WHO standard for HH water consumption.
4. **Hand washing practices:** Caregivers was asked on hand washing practices to ascertain instances in their daily activities and in the 5 critical points when they wash their hands. The caregiver should not probed for answers/response rather they should be allowed to provide their response independently.
5. **Use of Soap:** A follow up question was asked to ascertain the hand washing practice by asking the caregiver to demonstrate how they wash their hands and what they use to wash their hands, they rubs both hands and drying by clean cloths .

Food access and consumption

1. **Food consumption scoring:** this question was seeking to find out the group of food to check whether households are consuming in the past 7 days and check the source of the food.
2. **Reduced coping of strategy index:** this question check enough many and food to buy.
3. **Food security situation:** the question check the food security in households level Based on triangulation of Food Consumption Score (FSC) with the food-based or reduced Coping Strategy Index (rCSI).

Child Questionnaire

Identification:

This section is mandatory was filled to all teams in all the HH visited during the survey. The information contained in this section is:

[8] Piped scheme, protected springs, boreholes with hand pump, well with hand pump, protected karez
[9] River/ stream/ canal. Pond/ reservoir, well with bucket, unprotected karez, unprotected spring.
[10] Boil, use of water filter

1. **Date of the survey:** This is the date of data collection, it should written in the standard format for all the questionnaires administered during the survey. (day/month/year
2. **Name of the village:** Indicate the name of the sampled village that is visited on the particular day of data collection.
3. **Cluster number:** Indicate the number of cluster allocated for the village or area visited. This is automatically generated by ENA during the sampling stage. Sampling and cluster allocation will be done together with the team at the **training hall.** Important to note that once Cluster number has been assigned it cannot be changed.
4. **Team ID number:** Teams was formed during the training session. Each team was assigned a unique number ranging from 1-6. Each team must indicate the team number on the questionnaires they administer.
5. **Household number:** Each HH in the selected cluster was assigned a number. There are a total of 13 HH in each cluster to be sampled. Each sampled HH should be indicated a number in order of their visit **(e.g. the first randomly selected HH is allocated HH number 1 regardless of whether it is the 10th HH in the village)**
6. **Caregiver Number:** Each caregiver living in the selected HH was assigned a specific unique number. This is the same number that will appear in the Caregiver questionnaire. In case of more than one caregiver in a HH each will be assigned a unique number to identify and distinguish them from each other. Each caregiver was linked to her/his children selected in the HH to be able to link each caregiver with the children.
7. **Child Number:** Each Child Under the age of 5 years living in the selected HH was assigned a specific unique number. In case of more than one child in a HH each was assigned a unique number to identify and distinguish them from each other. Each child was linked to her/his caregiver selected in the HH to be able to link each caregiver with the children.
8. **Age in months:** Only children between 0 and 59 months old of age was included. Height will not be considered as a valid criterion in absence of age due to the high stunting rates in The province. Age was confirmed by showing a vaccination card or a birth certificate, if available. If these documents are not available, the use of a local event calendar built for the province was used to determine the age. The age was recorded into the questionnaire in months.
9. **Sex:** Male or female
10. **Weight (in kg):** Children were weighed to the nearest 0.1kg by using an Electronic Uni-scale. The children who can easily stand was asked to stand on the weighing scale and their weight recorded. In a situation when the children could not stand up, the double weighing method was applied.
11. **Height (in cm):** Measuring board was used to measure bare headed and barefoot children. The precision of the measurement is 1 mm. Children of less than 2 years of age will be measured lying down and those equal to or above 2 years of age measured standing up.
12. **Mid-Upper Arm Circumference (in mm):**MUAC was used as an indicator of mortality risk for malnutrition and was measured to the nearest 1mm for all children with an indicated age of greater than 6 months, using the UNICEF MUAC strips. An adult MUAC tape was used to measure women of reproductive age (15-49 years)
13. **Oedema:** Only children with bilateral pitting nutrition oedema was recorded as having nutritional oedema this was checked by applying normal thumb pressure for at least 3 seconds to both feet.

Infant and Young Child Feeding

In this section only children <24 months will be considered as eligible respondents. All children

within these age groups were selected in the surveyed HH and the following indicators administered to them.

1. **Ever Breastfed:** This indicator was looking at the number of mothers who have ever breast fed their children. This was look at the last pregnancy of the mother or the current child who is <24 months old.
2. **Time to Breastfeeding/Initiation to Breast milk:** This indicator will look at the amount of time it took for mothers to put their children to the breast after giving birth. The focus was on the mother's last pregnancy in which the child is <24 months.
3. **Colostrum feeding:** this indicator was look at the number of mothers with children <24 months who fed their children with Colostrum within the first 3 days after birth.
4. **Breast-feeding Yesterday:** this indicator will look at the number of mothers who breast-fed their children <24 months one day (day and Night) prior to the data collection day.
5. **Other Liquids offered to the child:** This indicator will ask the mothers of children <24 months what other liquids were offered to the child one day (day and night) prior to the data collection day.
6. **Complimentary feeding:** This indicator looks at the number of mothers who gave solid and semi-solid foods to children <24 months one day (day and night) prior to the data collection day.
7. **Minimum Meal frequency:** This indicator was asked mothers on the number of times they provided solid and semi-solid foods to their children <24 months one day (day and night) prior to the data collection day.

Child Health status

This section was look at all children in the HH between the ages of 0-59 months.

1. **Type of Illness:** This question will ask about the types of illness that the child (0-59 months) has had in the last 14 days prior to the data collection day. A small definition of the key illness is provided in the questionnaire to enable the data collector identify the illness correctly
2. **Vitamin A supplementation:** This question will ask the caregiver of child 6-59 months on whether the child has received vitamin A tablets in the previous 6 months prior to the data collection day. Each team was provide with a Sample of the Vitamin A tablet to enable the caregivers to easily identify it.
3. **Deworming:** This question was ask the caregiver of child 24-59 months on whether the child has received deworming tablets in the previous 6 months prior to the data collection day. Each team was provide with a Sample of the deworming tablet to enable the caregivers to easily identify it.
4. **BCG vaccination:** This question was ask the caregiver on whether the child 0-59 months has received BCG vaccination.
5. **PENTA vaccination:** the question was ask the caregiver on whether the child 3.5-59 months has received PENTA3 vaccination.
6. **Measles vaccination:** the question was asked the caregiver whether the child 9-59 months has received the measles vaccination.
7. **Polio vaccination:** the question was asked the caregiver whether the child 0-59 months has eceived the polio vaccination.

Caregiver questionnaire

Identification:

This section is mandatory was filled to all teams in all the HH visited during the survey. The information contained in this section is:

1. **Date of the survey:** This is the date of data collection, it should written in the standard format for all the questionnaires administered during the survey. (day/month/year
2. **Name of the village:** Indicate the name of the sampled village that is visited on the particular day of data collection.
3. **Cluster number:** Indicate the number of cluster allocated for the village or area visited. This is automatically generated by ENA during the sampling stage. Sampling and cluster allocation was done together with the team at the **training hall.** Important to note that once Cluster number has been assigned it cannot be changed.
4. **Team ID number:** Teams was form during the training session. Each team was assigned a unique number ranging from 1-6. Each team must indicate the team number on the questionnaires they administer.
5. **Household number:** Each HH in the selected cluster was assigned a number. There are a total of 12 HH in each cluster to be sampled. Each sampled HH should be indicated a number in order of their visit **(e.g. the first randomly selected HH is allocated HH number 1 regardless of whether it is the 10th HH in the village)**
6. **Caregiver Number:** Each caregiver living in the selected HH were assigned a specific unique number. This is the same number that was appear in the Caregiver questionnaire. In case of more than one caregiver in a HH each was assigned a unique number to identify and distinguish them from each other. Each caregiver was linked to her/his children selected in the HH to be able to link each caregiver with the children.

Antenatal Care, delivery assist and Health seeking behavior

1. **Antenatal care:** Caregivers between the ages of 15-49 years at household level will be asked on whether they sought ante-natal care during their last pregnancy. In this case, last pregnancy was considered of the last child who is still between 0-59 months for purposes of having a more precise re-call period.
2. **Delivery assisted by SBA:** caregiver who respond positive to getting assistance from Skilled Birth Attendants during the last delivery.
3. **Health seeking behaviour:** Caregivers who respond positive to seeking antenatal care was asked who they sought assistance from. This question seeks to identify the health seeking pattern of the respondents from the first point of contact to the last point of contact.
4. **Distance to Health centre:** This question seeks to identify how long it takes a caregiver to access the health facility and ascertain if geographical distance is a factor affecting access to the health centre

Maternal Nutrition

This section seeks to identify the nutrition status of pregnant and lactating women.

1. **MUAC measurement:** The caregivers mid – upper arm circumference was measured using the

standard WFP issued adult MUAC tape.

2. **Physiological status:** Each of the caregivers were asked about their current physiological status to ascertain whether they are currently pregnant, lactating, pregnant and lactating or not pregnant.
3. **Iron – Folate supplementation**: Caregivers who report to be currently pregnant was asked whether they are taking iron folate tablets or not. This is to ascertain the number of pregnant mothers who are supplemented and using iron –folate/ferrous.

12. References

- WHO 2000 thresholds (< 5 % acceptable, 5-9 % poor, 10-14 % serious, > 15 % critical**).**
- WHO emergency threshold of 2/10,000/day and 4/10,000/day respectively.
- Care international IYCF calculator, based on WHO, 2010.
- National Nutrition Survey of Afghanistan, UNICEF, 2013.
- CSO: updated population 2017-2018
- ENA software 2011 (updated July 2015
- Afghanistan Demography and Health Survey (AfDHS).
- EPI micro plan 2017.