AGHANISTAN

ANTHROPOMETRIC AND MORTALITY SMART SURVEY FINAL REPORT

Herat Province, Afghanistan

26th April to 16th May 2016

Funded by: OCHA

Report compiled by: Dr. Baidar Bakht Habib and Shafiullah Samim

Bakhtar Development Network (BDN) with technical support of Action Contra la Faim (ACF)

ACF is a non-governmental, non-political and non-religious organization

CONTENTS

CONTENTS 2
ACRONYMS 6
ACKNOWLEDGEMENT 7
EXECUTIVE SUMMARY 8
INTRODUCTION 9
Objective of the survey 10
Broad objective 10
Specific objective 10
Justification of the survey 10
Methodology 11
Sample size 11
Sample size for additional indicators: 12
Sampling methodology 13
Survey team composition 14
SURVEY finding 15
Anthropometric results 15
Under nutrition rates 15
Data quality 16
Prevalence of acute malnutrition (Weight-for-height Z-scores (WHO 2006) and/or oedema) 16
MUAC cut-off classification and/or oedema: 18
Prevalence of Underweight (WHO 2006) 18
Prevalence of Stunting based on Height-for-Age Z scores (HAZ) (WHO 2006) 19
Prevalence of overweight based on (WHO 2006): 21
Child health indicators 22
Two weeks recall morbidity (children 0-59 months) 22
Immunization (BCG, Measles and Polio) 22
Supplementation and Deworming 23
IYCF Indicators 23
Maternal Nutrition status and hand washing 24
Households information 25
Crude and Under 5 Mortality Rates 25
Demography 26
Water treatment and consumption at household level 26
DISCUSSION 29

Nutritional Status 29
Global Acute Malnutrition 29
Chronic malnutrition 30
Mortality 30
Maternal nutritional status 30
Hand washing practice 30
Risk Factors 31
Morbidity, immunization, supplementation and deworming 31
RECOMMENDATIONS AND PRIORITIES 31
Nutrition status 31
Child holds illnesses, immunization and vitamin A supplementation 32
13. Annexes 33
3. **QUESTIONNAIRES** 9
3.1. Household questionnaire 9
.2. Child Questionnaire 11
Identification: 11
.3. Infant and Young Child Feeding 12
.4. Child Health and Immunization 13
.5. Caregiver questionnaire 14
1.6 **Antenatal Care and Health seeking behavior** 14
1.6 Water Sanitation and Hygiene (WASH) 15
Hand washing practices: Caregivers was being asked on hand washing practices to ascertain instances in their daily activities when they wash their hands. The caregiver should not be probed for answers/response rather they should be allowed to provide their response independently. 15
1.7 **Maternal Nutrition** 15
.1. INDICATORS: DEFINITION, CALCULATION and INTERPRETATION 15
4.1. Anthropometric Indicators: Definition of nutritional status of children 0-59 months 15
4.1.1. Acute Malnutrition 15
1.1.2. Chronic Malnutrition 17
1.2. Mortality Indicator Calculation 17
5. Health 18
WASH 18
6. Infant and Young Child Feeding Practices Indicators (IYCF) 19
7. Nutritional status of pregnant and lactating women 20
8. TRAINING, Team composition and supervision 20
9. Data entry and analysis 21
Plausibility check automatically generated is used to evaluate quality and representativeness of the data, and therefore - the reliability of the results. 21

17. References 21

Table of contents

Table 1: parameters for sample size calculation for anthropometric indicators, Herat SMART, May 2016 11
Table 2: sample size of Mortality, Herat SMART, MAY 2016. 12
Table 3: IYCF sample size calculation, Herat SMART, May 2016 13
Table 4: Distribution of age and sex of sample, SMART Herat, May-2016 15
Table 5: Mean z-scores, Design Effects and excluded subject, SMART-Herat, May, 2016 16
Table 6: Prevalence of acute malnutrition based on weight-for-height z-scores (and/or oedema) and by sex, SMART- Herat, My-2016 16
Table 7: Prevalence of acute malnutrition by age, based on weight-for-height z-scores and/or oedema, SMART- Herat, May-2016 16
Table 8: Distribution of acute malnutrition and oedema based on weight-for-height z-scores, SMART-Herat, May-2016 17
Table 9: Prevalence of acute malnutrition based on MUAC cut off's (and/or oedema) and by sex, SMART-Herat, May-2016 18
Table 10: Prevalence of acute malnutrition by age, based on MUAC cut off's and/or oedema, SMART-Herat, May-2016 18
Table 11: Prevalence of underweight based on weight-for-age z-scores by sex, SMART- Herat, May-2016 18
Table 12: Prevalence of underweight by age, based on weight-for-age z-scores, SMART- Herat, May -2016 19
Table 13: Prevalence of stunting based on height-for-age z-scores and by sex, SMART- Herat, May -2016. 19
Table 14: Prevalence of stunting by age based on height-for-age z-scores, SMART- Herat, May-2016. 20
Table 15: Prevalence of overweight based on weight for height cut offs and by sex (no oedema), SMART-Herat, May -2016. 21
Table 16: Prevalence of overweight by age, based on weight for height (no oedema), Herat, May-2016 21
Table 17: Morbidity two weeks recall period among children from 0-59 month, (n=782), SMART – Herat, May-2016 22
Table 18: Immunization age based on vaccination, SMART – Herat, May -2016. 22
Table 19: Vitamin A and Deworming coverage, SMART – Herat, May -2016. 23
Table 20: Infant and Young Child Feeding Practice, SMART Herat, May -2016. 23
Table 21: Physiological status of women of reproductive age (15 – 49 years), (n=627), SMART Herat, May-2016. 24
Table 22: Nutritional status of women of reproductive age based on mid-upper arm SMART, Herat, May 2016 24
Table 23: Iron folate for pregnant women based on available answers, (n= 95), SMART Herat, May -2016. 24
Table 24ANC visits in the last pregnancy, (N=627), SMART – Herat, May -2016 24
Table 25: Hand washing, SMART - Herat, May -2016. 25
Table 26: Hand washing at 5 critical moments, (n=627), SMART -Herat, May-2016 25
Table 27: Mortality rates survey findings SMART- Herat, May-2016 25
Table 28: Short summary of demographics, SMART- Herat, May -2016 26
Table 29 : Cut offs points of MUAC, children 6-59 months, WHO Recommendations 16
Table 30: Definition of acute malnutrition according to weight-for-height index (W/H), expressed as a Z-score according to WHO standards 17
Table 31: Cut offs points of the Height for Age index (HAZ) expressed in Z-score, WHO standards 17

Figure of contents

Figure 1: Population age and sex pyramid, SMART Herat, May-2016 15
Figure 2: distribution curves weight – for – height, SMART - Ghazni, Feb-2016. 17
Figure 3: Gaussian distribution curve, HAZ, SMART – Herat, May-2016. 20
Figure 4: Trends of stunting over the age distribution, SMART- Herat, May-2016. 21
Figure 5: Percentage of household's level daily quantity of water used in litter/day (N=530), SMART – Herat, May- 2016 26
Figure 6: Percentage of households with access to Water Used/person/Litter, (N=530), SMART, Herat, May-2016 27
Figure 7: Percentage of households with access to water treatment (n=530), SMART – Herat, May- 2016 27
Figure 8: Household level daily Improved Water Sources, (N=326) SMART, Herat, 2016 28
Figure 9: Household level daily Unimproved Water Sources, N=204), SMART –Herat, May 2016 28
Figure 10: Overlapping WHZ<-2 and MUAC<125, Heart -SMART, 2016. 29

ACRONYMS

ACF	Action Contre la Faim
ARI	Acute Respiratory Infection
BCG	Bacillus Calmette-Guérin
BPHS	Basic Package of Health Services
BDN	Bakhtar Development Network
CDR	Crude Date Rate
CHF	Common Humanitarian Fund
CHW	Community Health Worker
CSO	Central Statistical Office
CI	confidence interval
ENA	Emergency Nutrition Assessment
EPI	Expended Program for Immunization
GAM	Global Acute Malnutrition
HH	Household
IMAM	Integrated Management of Acute Malnutrition
IYCF	Infant and Young Child Feeding
MAM	Moderate Acute Malnutrition
MoPH	Ministry of Public Health
MUAC	Mid Upper Arm Circumference
PPND	Provincial Public Nutrition Department
PPS	proportion population to Size
OCHA	Office for the Coordination of Humanitarian Affairs
SAM	Saver Acute Malnutrition
SMART	Standardized Monitoring of Relief and Transition
UNOCHA	United Nations Office for the Coordination of Humanitarian Affairs
WAZ	Weight for Age Z-Score
WHO	World Health Organization

ACKNOWLEDGEMENT

Action Contre la Faim (ACF) would like to appreciate the efforts of the following people and institutions for making the assessment successful:

- ✓ All Herat community members for welcoming and supporting the field teams during the data collection.
- ✓ Bakhtar Development Network (BDN) team in Herat and Kabul, especially Dr. Wahid Rahman Ayaan, Dr. Fareadon Sultani, Dr. Aziz Rahman Saboor and Dr. Safiullah Pardis.
- ✓ United Nations Office for Coordination and Humanitarian affairs Common Humanitarian Fund (UNOCHA-CHF) for their financial support.
- ✓ Public Nutrition Department, Herat PPHD and Provincial Public Nutrition Officer (PNO) for their authorization of the survey.
- ✓ Nutrition cluster and Afghanistan Information Working Group (AIWG) for their support in methodological reviews and guidance.
- ✓ ACF teams in Kabul and Paris for the technical and logistic support
- ✓ The entire data collection survey teams composed of supervisors, team leaders, enumerators for making the whole process smooth.

EXECUTIVE SUMMARY

The nutrition and mortality SMART[1] survey was conducted on 26th April to 16th May 2016. This survey covered all the districts of Herat Province. A total of 530 households were assessed using a two-stage cluster sampling methodology. The nutrition and mortality SMART survey final report provides summary findings, methodology used, analysis and interpretation of survey findings and recommendations proposed.

Summary findings

- ✓ A total of **4048** individual living in **530** households were assessed. **782** children aged from 0 to 59 months and **627** women of childbearing age in the selected households. The anthropometric results are from **700** children from 6 to 59 months of age.
- ✓ Global Acute Malnutrition (GAM) and Severe Acute Malnutrition (SAM) prevalence based on Weight –for- Height Z-scores (WHZ) was at **6.6 %(4.6 - 9.5 95% C.I.)** And **1.0 %(0.5 - 2.3 95% C.I.)** Respectively.
- ✓ GAM prevalence by WHZ <-2 z-scores and/or MUAC<125 mm and/or the presence of bilateral oedema was **5.6 % (3.8- 8.2 95 % CI)** and SAM of **1.3 %(0.6 - 2.7 95% C.I)** respectively.
- ✓ The combines GAM and SAM caseloads at **10.9 % (8.6- 13.2 95% CI)** and **3.6 % (2.2 - 4.9 95 % CI)** respectively.
- ✓ Prevalence of stunting was **34.2 % (30.4 - 38.1 95% C.I.)** and severe stunting was **11.7 % (9.2 - 14.9 95% C.I)** respectively.
- ✓ Prevalence of underweight was **17.4 % (14.0 - 21.4 95% C.I.)** and severe underweight was **5.4 %(3.5 - 8.3 95% C.I)** respectively.
- ✓ Crude Death Rate (CDR) and Under-five Death Rate (U5DR) was **0.09 (0.04-0.21 95 % CI)** and **0.59(0.27-1.28 95 % CI)** respectively.
- ✓ The maternal nutrition status of the childbearing age women (CBA) was **12.8%.**
- ✓ Coverage of Measles aged 9-59 months confirmed by recall and cards and BCG aged 0-59 month's children confirmed by scare was **87.4%** and **96.1%.**

[1] Standardized Monitoring of Assessment for Relief and Transition

INTRODUCTION

Herat is one of the thirty-fourth provinces of Afghanistan, located in the western part of the country. Together with Badghis, Farah, and Ghor provinces, it makes up the south-western region of Afghanistan. Herat province is divided into 16 districts: Adraskan, Chishti Sharif, Farsi, Ghoryan, Gulran, Guzara, Injil, Karukh, Kohsan, Kushk, Kuskhi kuhna, Obi, Pushti Zarghun, Shindand, Zinda Jan and Herat. Herat city is the capital of the province.

The estimated population of Herat Province is 1,890,202[2], making it the second most populated province in Afghanistan after Kabul. The province has multi-ethnic groups largely inhabited by Persian-speaking population.

Herat province shares border in the west with Iran and in the north with Turkmenistan, and it is one of the important trading province in the country. Around three quarters (77%) of the population in Herat province reside in rural districts while just less than a quarter (23%) lives in urban areas. Dari and Pashtu are spoken by 98% of the population. Languages spoken by the remaining population are Turkmeni and Uzbeki. The larger ethnic tribe of the province is Pashtun, Tajik, Hazara and Aimak. 84 % in Herat province are Sunni Islam while the remaining is Shia. The province also has a population of Kuchis or nomads whose numbers vary in different seasons.

The survey was conducted in summer season (26th April to 16th May 2016) covering the entire Province of Herat. ACF technically support Bakhtar Development Network (BDN) to implement this survey to investigate all Herat province of the entire districts of the province were included in this assessment.

[2] CSO: Estimated Settled Population by Civil Division , Urban, Rural and Sex-2015-2016

OBJECTIVE OF THE SURVEY

BROAD OBJECTIVE

- ✓ To determine the nutritional status of vulnerable population mainly under five, pregnant and lactating women living in Herat province.

SPECIFIC OBJECTIVE

- ✓ To estimate Crude Death Rate(CDR) and Under five Death Rate(U5DR)
- ✓ To determine prevalence of under nutrition among children aged 0-59 months
- ✓ To determine core Infant and Young Child Feeding(IYCF) practices among children aged 0-23 months
- ✓ To determine the nutritional status of pregnant and lactating women based on MUAC assessment
- ✓ To assess Water, Sanitation and Hygiene (WASH) proxy indicators: household water storage, water use and caregiver hand washing practices.
- ✓ To estimate vitamin A supplementation and deworming coverage in the last 6 months among under-fives.
- ✓ To estimate Iron-folate supplementation coverage among pregnant women.
- ✓ To estimate coverage of measles and BCG vaccination
- ✓ To assess morbidity among children 0-59 months based on a two weeks recall period.

JUSTIFICATION OF THE SURVEY

The justification of the proposed nutrition and mortality SMART assessment is to investigate and find current prevalence of under-nutrition, mortality and IYCF practices using investigative quantitative and qualitative methodology designs. Survey finding was be used to inform future programing and provide a good opportunity to build capacity of Bakhtar Development Network (BDN) and Provincial Public Nutrition Department (PPND). The information generated from the assessment was provide an update on nutritional status of under-five, status of under-five and crude mortality rates, child health status, immunization and supplementation coverage of most vulnerable population in Herat province.

METHODOLOGY

SAMPLE SIZE

The sample size of households to be surveyed was calculated using ENA for SMART software version 2011 (up dated 9th July 2015). A two stage cluster methodology was being applied.

In the first stage, it entailed random selection of clusters/villages (46 clusters) from total list of villages using probability proportion of size (PPS). This was done before starting the data collection at the office or training hall.

In the second stage, it entailed random selection of household (12 households) from an updated list of households in each randomly selected cluster.

The table 1 and 2 highlights sample size calculation for anthropometric and mortality surveys.

Table 1: parameters for sample size calculation for anthropometric indicators, Herat SMART, May 2016

Parameters for Anthropometry	Value	Assumptions based on context
Estimated Prevalence of GAM (%)	5.6%	MoPH National Nutrition Survey-2013[3], the GAM prevalence was 5.6 % (95 % CI: 3.99-7.77)
± Desired precision	2.5%	±2.5 as recommended by SMART.
Design Effect	2	The design effect of 2 is used to cater for the differences in population. It is expected that the heterogeneity in the province is important.
Children to be included	**707**	Minimum sample Size
Average HH Size	8	According to Badghis SMART[4] survey (neighbor of Herat province)
% Children under-5	18.9 %	Badghis SMART survey.
% Non-response Households	6%	The percentage of non-respondent households was estimated at 6%.
Households to be included	553	Minimum sample size to be surveyed

[3] National Nutrition Survey of Afghanistan, UNICEF, 2013

[4] Nutrition and Mortality SMART Badghis, February 2016

Table 2: sample size of Mortality, Herat SMART, MAY 2016.

Parameters for Mortality	Value	Assumptions based on context
Estimated Death Rate /10,000/day	0.5/10000/day	Recommended in cases where there is no specific mortality data.
± Desired precision /10,000/day	0.3	In order to meet set mortality objectives and inline to estimated death rate
Design Effect	2	Refer to table 1 above
Recall Period in days	135	Starting point of recall period is1st Jadi1394 (start of Chela Kala) corresponding to 22nd of December 2015 from the Georgian calendar).
Population to be included	3442	Population
Average HH Size	8	Refer to table 1 above
% Non-response Households	6%	Refer to table 1 above
Households to be included	**458**	Minimum Sample Size

Based on the parameter indicated above, anthropometric sample was used as the overall sample size since it is the highest and therefore qualifies to represent the other indicators. Therefore with the selection of the highest sample size (553 HHs) the other indicators was represented within the larger samples selected.

SAMPLE SIZE FOR ADDITIONAL INDICATORS:

The sample size for IYCF indicators was be calculated by using the Care international IYCF calculator, based on WHO, 2010[5] core IYCF indicators as highlighted in table 3. The core indicators include: Exclusive Breastfeeding Rate (EBF); timely initiation of breastfeeding; minimum dietary diversity and minimum meal frequency. During survey data collection, a stratified proportionate sampling methodology was applied.

[5] WHO 2010, Indicators for Assessing Infant and Young Child Feeding Practices

Table 3: IYCF sample size calculation, Herat SMART, May 2016

Parameters for Anthropometry	Value	Assumptions based on context
Estimated Prevalence (%)	50 %	No recent data, a standard prevalence of 50 % recommended by WHO was be used
± Desired precision	8%	Based on survey goals.
Design Effect (if applicable)	2	Caters for heterogeneity within the population under study.
Survey subjects to be included	**327**	**Children form 0-23 months**
Average HH Size	7.7	National Nutrition Survey 2013
% Non-response Households	6%	From the past experiences of Afghanistan assessments due to sensitivities about mortality information.
Households to be included	**330**	**House holds**

Based on the parameters indicated above, Anthropometric sample was used as the overall sample size since it is the highest and therefore qualifies to represent the other indicators. Therefore with the selection of the highest sample size (553 HH) the other indicators were representation within the larger sample size selected.

SAMPLING METHODOLOGY

A two-stage cluster sampling methodology was applied**.** In the first stage clusters/villages were randomly selected from a total list of villages (3622) in the 16 districts (with the exception of insecure villages) using probability proportionate to size (PPS) design. ENA for SMART software was applied and automatically selected the list of villages representing the clusters and Reserve Clusters (RC) to be used in case more than 10% of the total villages would not be accessible**. A total of 46 clusters were proposed and successfully covered.** It is important to note that based on previous experience in implementation of integrated nutrition surveys that a single team can cover a maximum of 12 households in a day. The extrapolation of required number of villages was derived from dividing the minimum sample size of 553 households by 12 to get the approximate 46 clusters (553/12=46.08).During survey data collection in villages with large population, the village was divided into smaller segments and a segment was selected randomly to represent the cluster. This division was done based on existing administrative units to include neighborhoods, roads, streets and mosques.

The second stage involved random selection of households from an updated and complete list of households for each of the sampled villages. All households in each of sampled villages were enumerated and given numbers by the survey team. A total of 12 households were chosen randomly by the survey team drawing folded papers with numbers of households from a hat.

A total of 530 households were achieved with 782 children aged 0-59 months were

assessed from respective randomly sampled households. Table 4 summarizes the sample size proposed and the actual achieved. During data collection, survey teams had to revisit households at the end of the day to ensure children that were missing or were absent at the initial visit were covered. A cluster control form was used to record all the missed and absent households.

Table 4: Details of proposed and actual sample size achieved, Herat SMART, May 2016

Number of HH planned	Number of HH surveyed	% surveyed /planned	Number of children 6-59 months planned	Number of children 6-59 months surveyed	% surveyed /planned
553	530	95.8 %	707	700	90.0%

The household was the basic sampling unit. Here, a household was defined as all people eating from the same pot and living together (WFP definition). In Afghanistan, the term household is often defined and/or used synonymous with a compound – which potentially represents more than one household as defined here. In this case, a two-step process was 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.

SURVEY TEAM COMPOSITION

The survey data collection team comprised of six teams with each team having four members. The survey data collection team composition includes one supervisor, one team leader and two data collectors. It was important to note that in each of the team at least one female data collector was required. During data collection every female member of the survey team was accompanied with a mahram[6] to facilitate the work of the female data collectors. The teams were supervised by ACF Program manager, Herat Provincial Nutrition officer and BDN nutrition program supervisor. It is important to note the survey teams were trained on SMART methodology; they undertook standardization tests and participated in pilot test exercise. The standardization test was also used to group various teams especially the data collectors

[6] Women are not allowed to go outside without being accompanied by one male relative called locally a 'mahram'.

SURVEY FINDING

ANTHROPOMETRIC RESULTS

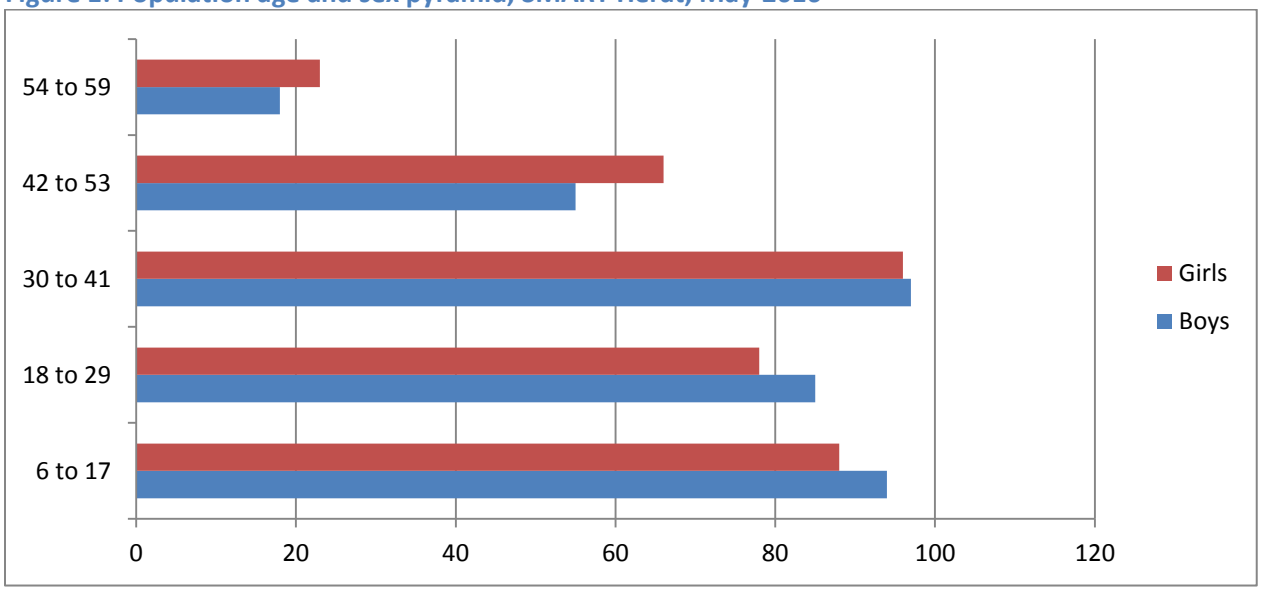
Under nutrition rates

Anthropometric data was collected from 782 children between 0-59 months. All the 46 clusters planned were reached although there were households within these clusters that could not be reached thus giving a Non-response Rate of 3.9 %. The results are presented with exclusion of SMART flags: Z-score values ranging outside -3 to +3 for all the indexes, WHZ, HAZ and WAZ. The age ratio was 0.97 while the value should around 0.85. This indicates a good representation of age among the sampled children (see details in Plausibility report Annex 1).
The age distribution showed under representation of children between 42-59 months (table 7). This could be explained by the lack of proper documentation for age determination in the province. The sex and age pyramid (figure 1) on the other hand follows a normal shape.

Table 4: Distribution of age and sex of sample, SMART Herat, May-2016

	Boys		Girls		Total		Ratio
AGE (mo)	**no.**	**%**	**no.**	**%**	**no.**	**%**	**Boy:girl**
6-17	94	51.6	88	48.4	182	26.0	1.1
18-29	85	52.1	78	47.9	163	23.3	1.1
30-41	97	50.3	96	49.7	193	27.6	1.0
42-53	55	45.5	66	54.5	121	17.3	0.8
54-59	18	43.9	23	56.1	41	5.9	0.8
Total	**349**	**49.9**	**351**	**50.1**	**700**	**100.0**	**1.0**

Figure 1: Population age and sex pyramid, SMART Herat, May-2016



DATA QUALITY

The anthropometric data were analyzed using ENA for SMART Software (version 2011, July, 2015 updated). The plausibility check report is available in Annex 1.

The summery of mean z score with Standard deveaitions, the design effects and number of the out of range data per index is indicating in table 8. In summary the table below describes the quality of the data provided using statistical analysis.

Table 5: Mean z-scores, Design Effects and excluded subject, SMART-Herat, May, 2016

Indicator	n	Mean z-scores ± SD	Design Effect (z-score < -2)	z-scores not available*	z-scores out of range
Weight-for-Height	680	-0.36±1.04	1.60	2	18
Weight-for-Age	683	-1.08±1.12	1.59	0	17
Height-for-Age	647	-1.47±1.27	1.06	0	53

* contains for WHZ and WAZ the children with oedema.

PREVALENCE OF ACUTE MALNUTRITION (WEIGHT-FOR-HEIGHT Z-SCORES (WHO 2006) AND/OR OEDEMA)

The sex and age disaggregated results are presented in Table 9 and 10 respectively. The Prevalence of wasting is higher among boys as compared to girls. The younger Children (6-29 months) seem to be more affected than older (30-59 months). There was no edematous case. (Table 11).

Table 6: Prevalence of acute malnutrition based on weight-for-height z-scores (and/or oedema) and by sex, SMART- Herat, My-2016

	All n = 680	Boys n = 338	Girls n = 342
Prevalence of global malnutrition (<-2 z-score and/or oedema)	(45) 6.6 % (4.6 - 9.5 95% C.I.)	(25) 7.4 % (4.5 - 12.0 95% C.I.)	(20) 5.8 % (3.8 - 8.9 95% C.I.)
Prevalence of moderate malnutrition (<-2 z-score and >=-3 z-score, no oedema)	(38) 5.6 % (3.9 - 7.9 95% C.I.)	(21) 6.2 % (3.9 - 9.6 95% C.I.)	(17) 5.0 % (3.1 - 7.8 95% C.I.)
Prevalence of severe malnutrition (<-3 z-score and/or oedema)	(7) 1.0 % (0.5 - 2.3 95% C.I.)	(4) 1.2 % (0.3 - 3.9 95% C.I.)	(3) 0.9 % (0.3 - 2.6 95% C.I.)

The prevalence of oedema is 0.0 %

Table 7: Prevalence of acute malnutrition by age, based on weight-for-height z-scores and/or oedema, SMART- Herat, May-2016

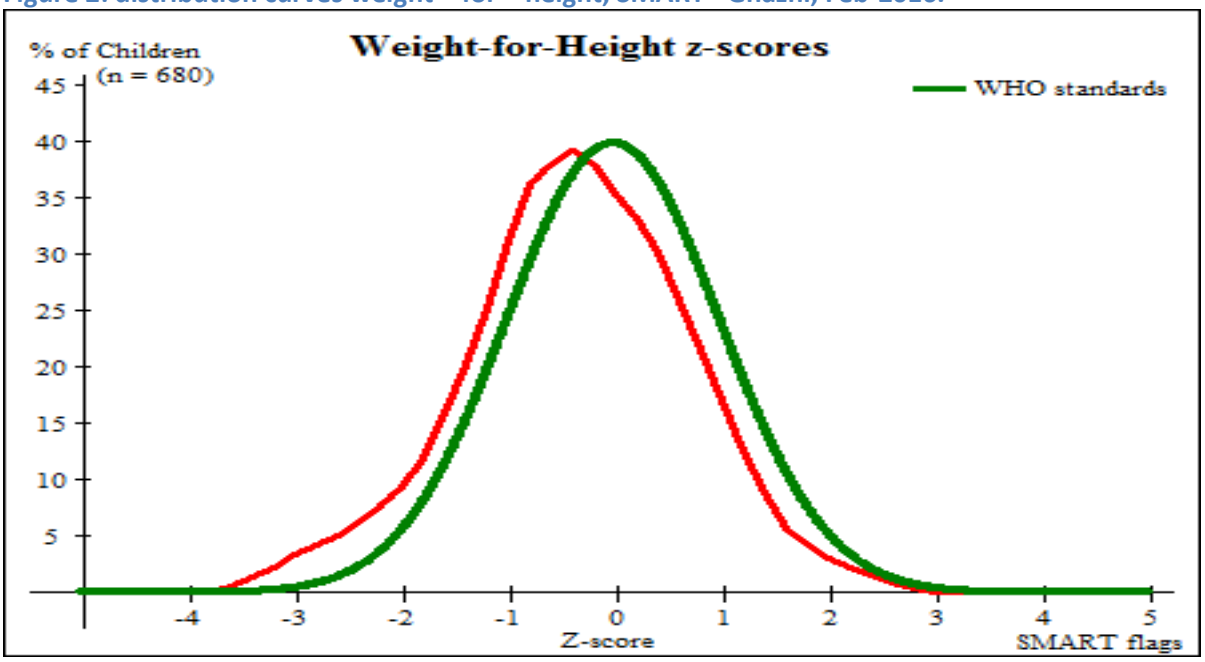
		Severe wasting (<-3 z-score)		Moderate wasting (>= -3 and <-2 z-score)		Normal (> = -2 z score)		Oedema	
Age (mo)	**Total no.**	**No.**	**%**	**No.**	**%**	**No.**	**%**	**No.**	**%**
6-17	174	1	0.6	22	12.6	151	86.8	0	0.0
18-29	161	3	1.9	7	4.3	151	93.8	0	0.0

30-41	186	1	0.5	6	3.2	179	96.2	0	0.0
42-53	121	2	1.7	2	1.7	117	96.7	0	0.0
54-59	38	0	0.0	1	2.6	37	97.4	0	0.0
Total	680	7	1.0	38	5.6	635	93.4	0	0.0

Table 8: Distribution of acute malnutrition and oedema based on weight-for-height z-scores, SMART-Herat, May-2016

	<-3 z-score	>=-3 z-score
Oedema present	Marasmic kwashiorkor No. 0 (0.0 %)	Kwashiorkor No. 0 (0.0 %)
Oedema absent	Marasmic No. 18 (2.6 %)	Not severely malnourished No. 680 (97.4 %)

Figure 2: distribution curves weight – for – height, SMART - Ghazni, Feb-2016.



MUAC CUT-OFF CLASSIFICATION AND/OR OEDEMA:

The prevalence of acute malnutrition based on MUAC cut-off is presented in **Table 12.** The younger children (6-29 months) seem to be more affected than older (30-59 months;

Table 9: Prevalence of acute malnutrition based on MUAC cut off's (and/or oedema) and by sex, SMART-Herat, May-2016

	All n = 696	Boys n = 347	Girls n = 349
Prevalence of global malnutrition (< 125 mm and/or oedema)	(39) 5.6 % (3.8 - 8.2 95% C.I.)	(16) 4.6 % (2.5 - 8.2 95% C.I.)	(23) 6.6 % (4.1 - 10.5 95% C.I.)
Prevalence of moderate malnutrition (< 125 mm and >= 115 mm, no oedema)	(30) 4.3 % (2.9 - 6.3 95% C.I.)	(12) 3.5 % (2.0 - 5.9 95% C.I.)	(18) 5.2 % (3.0 - 8.7 95% C.I.)
Prevalence of severe malnutrition (< 115 mm and/or oedema)	(9) 1.3 % (0.6 - 2.7 95% C.I.)	(4) 1.2 % (0.4 - 3.0 95% C.I.)	(5) 1.4 % (0.6 - 3.4 95% C.I.)

Table 10: Prevalence of acute malnutrition by age, based on MUAC cut off's and/or oedema, SMART-Herat, May-2016

		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	178	6	3.4	19	10.7	153	86.0	0	0.0
18-29	163	2	1.2	8	4.9	153	93.9	0	0.0
30-41	193	1	0.5	2	1.0	190	98.4	0	0.0
42-53	121	0	0.0	0	0.0	121	100.0	0	0.0
54-59	41	0	0.0	1	2.4	40	97.6	0	0.0
Total	696	9	1.3	30	4.3	657	94.4	0	0.0

PREVALENCE OF UNDERWEIGHT (WHO 2006)

The underweight is defined by weight-for-age z-scores (WAZ). The sex and age disaggregated results are represented in table**14.**

Table 11: Prevalence of underweight based on weight-for-age z-scores by sex, SMART- Herat, May-2016

	All n = 683	Boys n = 338	Girls n = 345
Prevalence of underweight (<-2 z-score)	(119) 17.4 % (14.0 - 21.4 95% C.I.)	(60) 17.8 % (13.6 - 22.8 95% C.I.)	(59) 17.1 % (13.1 - 22.1 95% C.I.)
Prevalence of moderate underweight	(82) 12.0 % (9.5 - 15.0	(41) 12.1 % (8.8 - 16.5	(41) 11.9 % (8.9 - 15.7

(<-2 z-score and >=-3 z-score)	95% C.I.)	95% C.I.)	95% C.I.)
Prevalence of severe underweight (<-3 z-score)	(37) 5.4 % (3.5 - 8.3 95% C.I.)	(19) 5.6 % (3.6 - 8.8 95% C.I.)	(18) 5.2 % (2.9 - 9.3 95% C.I.)

Table 12: Prevalence of underweight by age, based on weight-for-age z-scores, SMART- Herat, May -2016

		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	177	12	6.8	27	15.3	138	78.0	0	0.0
18-29	158	10	6.3	19	12.0	129	81.6	0	0.0
30-41	187	10	5.3	19	10.2	158	84.5	0	0.0
42-53	121	4	3.3	13	10.7	104	86.0	0	0.0
54-59	40	1	2.5	4	10.0	35	87.5	0	0.0
Total	683	37	5.4	82	12.0	564	82.6	0	0.0

PREVALENCE OF STUNTING BASED ON HEIGHT-FOR-AGE Z SCORES (HAZ) (WHO 2006)

The chronic malnutrition or stunting is defined by Height-for-age Z-scores (HAZ) <-2. The sex and age disaggregated results are represented in **Table 16**.

Table 13: Prevalence of stunting based on height-for-age z-scores and by sex, SMART-Herat, May -2016.

	All n = 647	Boys n = 329	Girls n = 318
Prevalence of stunting (<-2 z-score)	(221) 34.2 % (30.4 - 38.1 95% C.I.)	(116) 35.3 % (30.0 - 40.9 95% C.I.)	(105) 33.0 % (27.5 - 39.0 95% C.I.)
Prevalence of moderate stunting (<-2 z-score and >=-3 z-score)	(145) 22.4 % (19.3 - 25.8 95% C.I.)	(74) 22.5 % (17.8 - 28.1 95% C.I.)	(71) 22.3 % (18.3 - 27.0 95% C.I.)
Prevalence of severe stunting (<-3 z-score)	(76) 11.7 % (9.2 - 14.9 95% C.I.)	(42) 12.8 % (9.4 - 17.1 95% C.I.)	(34) 10.7 % (7.4 - 15.2 95% C.I.)

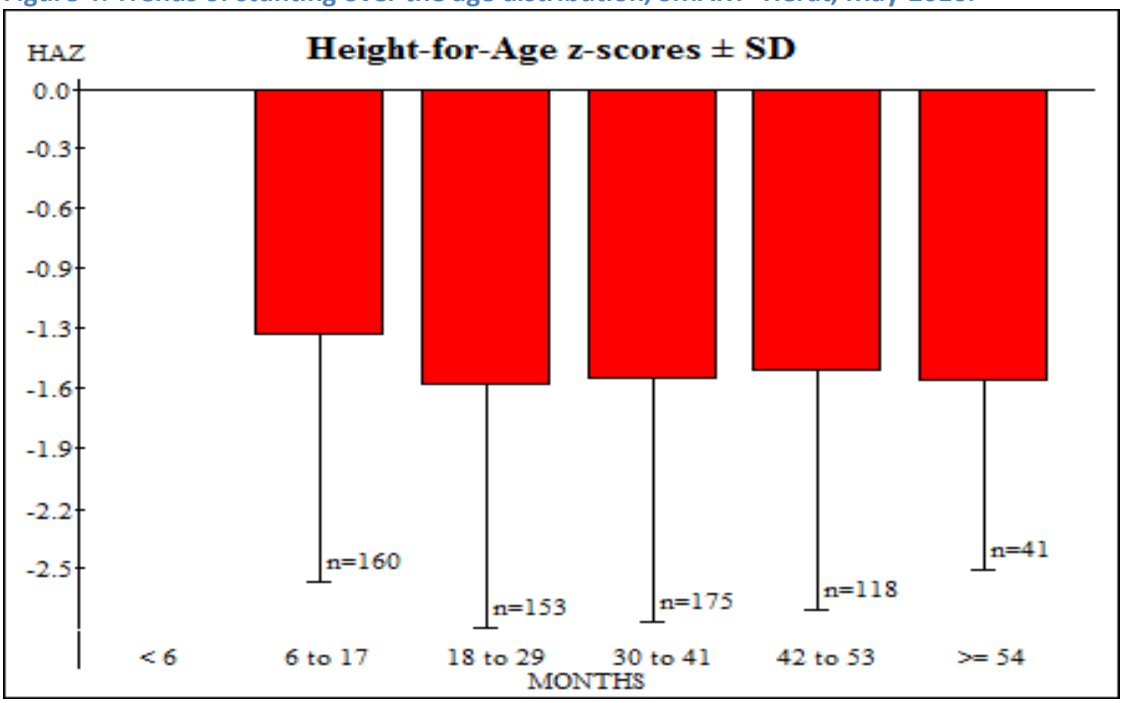
Table 14: Prevalence of stunting by age based on height-for-age z-scores, SMART- Herat, May-2016.

		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	160	18	11.3	30	18.8	112	70.0
18-29	153	21	13.7	38	24.8	94	61.4
30-41	175	22	12.6	42	24.0	111	63.4
42-53	118	12	10.2	23	19.5	83	70.3
54-59	41	3	7.3	12	29.3	26	63.4
Total	**647**	**76**	**11.7**	**145**	**22.4**	**426**	**65.8**

Figure 3 shows the distribution of HAZ of the observed population (SMART flags excluded) compared to WHO Reference curve. In Herat, it was strongly shifted to the left, suggesting restricted linear growth of the observed population. Further analysis (**Figure 4**) suggests that linear growth retardation is at its highest in the lower age group of children (6-17 months)

Figure 3: Gaussian distribution curve, HAZ, SMART – Herat, May-2016.

Figure 4: Trends of stunting over the age distribution, SMART- Herat, May-2016.



PREVALENCE OF OVERWEIGHT BASED ON (WHO 2006):

The prevalence of overweight is based on weight-for-height in z-score >2 and found to remain low.

Table 15: Prevalence of overweight based on weight for height cut offs and by sex (no oedema), SMART- Herat, May -2016.

	All n = 680	Boys n = 338	Girls n = 342
Prevalence of overweight (WHZ > 2)	(9) 1.3 % (0.7 - 2.4 95% C.I.)	(7) 2.1 % (1.0 - 4.2 95% C.I.)	(2) 0.6 % (0.1 - 2.4 95% C.I.)
Prevalence of severe overweight (WHZ > 3)	(0) 0.0 % (0.0 - 0.0 95% C.I.)	(0) 0.0 % (0.0 - 0.0 95% C.I.)	(0) 0.0 % (0.0 - 0.0 95% C.I.)

* contains for WHZ and WAZ the children with edema

Table 16: Prevalence of overweight by age, based on weight for height (no oedema), Herat, May-2016

	All n = 916	Boys n = 456	Girls n = 460
Prevalence of overweight (WHZ > 2)	(3) 0.3 % (0.1 - 1.0 95% C.I.)	(1) 0.2 % (0.0 - 1.6 95% C.I.)	(2) 0.4 % (0.1 - 1.8 95% C.I.)
Prevalence of severe overweight (WHZ > 3)	(0) 0.0 % (0.0 - 0.0 95% C.I.)	(0) 0.0 % (0.0 - 0.0 95% C.I.)	(0) 0.0 % (0.0 - 0.0 95% C.I.)

CHILD HEALTH INDICATORS

TWO WEEKS RECALL MORBIDITY (CHILDREN 0-59 MONTHS)

Out of 782 respondents answered about whether they experienced health issue in the last 2 weeks prior to the day survey team, **58.7%** responded with "yes" the children had illnesses see table below for episode of illness.

Table 17: Morbidity two weeks recall period among children from 0-59 month, (n=782), SMART – Herat, May-2016

Parameter	Frequency	Results
Overall Morbidity in the past 2 weeks prior to the survey	459	58.7 %
Acute respiratory Infection (ARI)	214	27.4 %
Fever	358	45.8 %
Diarrhea	215	27.5 %
Others such as vomiting, epilepsy and peptic disease	0	0.0 %

IMMUNIZATION (BCG, MEASLES AND POLIO)

Immunization, supplementation and deworming are proxy indicators informing community health outreach and health seeking behaviours concisely information (**table 21** for all vaccination).

Table 18: Immunization age based on vaccination, SMART – Herat, May -2016.

Parameter	Class	Frequency	%
Measles Vaccination, children 9-59 (N=651)	Yes, card	**453**	**69.6 %**
	Both recalls and by cards	**569**	**87.4 %**
Polio (N=782)	Yes, card	**735**	**93.9 %**
	both recall and by card	**584**	**74.7 %**
BCG (N=782)	Scar	**752**	**96.1 %**

SUPPLEMENTATION AND DEWORMING

Supplementation and deworming are proxy indicators informing community Health outreach and health seeking behaviors. A summary of the results are presented in the below. See below.

Table 19: Vitamin A and Deworming coverage, SMART – Herat, May -2016.

	Class	Frequency	%
Vitamin A supplementation (6-50 months) (6 months recall) (N=700)	Yes	437	62.4%
	No	234	33.7 %
	DK	22	3.2%
Deworming (6 months recall,(12-59) (n=590)	Yes	233	39.5 %
	No	334	56.6 %
	DK	17	2.9 %

IYCF INDICATORS

Indicators for infant and young child feeding (IYCF) practices included all children 0 – 23 months. A total of 329 children included in the sample. The results are presented as percentage of the total answers available, and as such were not presented with confidence interval (**See Table 24**).

Table 20: Infant and Young Child Feeding Practice, SMART Herat, May -2016.

CORE INDICATORS	DEFINITION	n	%
Child ever breastfed (N=329)	Proportion of children who have ever received breast milk	326	99.1%
Timely initiation of breastfeeding (N=329)	Proportion of children born in the last 23 months who were put to the breast within one hour of birth	286	87.0%
Provision of colostrum within first 3 days (N=329)	Proportion of children who received colostrum (yellowish liquid) within the first 3 days after birth	312	94.8%
Still breast feeding at 1 year (N=52)	Proportion of children 12-15 months of age who are fed breast milk.	50	96.2%
Exclusive breast feeding (N=83)	Proportion of infants 0-5 months of age who are fed exclusively with breast milk.	81	97.6%
Introduction of solid, semi-solid or soft foods (N=49)	Proportion of infants 6-8 months of age who receive solid, semi-solid or soft foods.	19	38.8%

MATERNAL NUTRITION STATUS AND HAND WASHING

All women aged between 15 and 49 years, found in the selected households, were included in the analysis of the following 3 key indicators:

- ✓ Physiological status
- ✓ Nutritional status based on MUAC cut-off
- ✓ Iron/folate for pregnant women (at least once up to the visit of the survey team)

The results are presented in the below tables.

Table 21: Physiological status of women of reproductive age (15 – 49 years), (n=627), SMART Herat, May-2016.

Status	Frequency	%
Pregnant	95	15.2%
Lactating	292	45.6%
Non-pregnant & non-lactating	240	38.3%

Table 22: Nutritional status of women of reproductive age based on mid-upper arm SMART, Herat, May 2016

MUAC cut offs	Frequency	%
Global acute malnutrition MUAC ,230 mm	80	12.8 %
Moderate acute malnutrition MUAC>210mm and <230mm	85	13.5%
Severe acute malnutrition MUAC<210mm	10	1.6%
Normal MUAC ≥ 230 mm	547	87.2 %

Table 23: Iron folate for pregnant women based on available answers, (n= 95), SMART Herat, May -2016.

Iron-folate for PLW	Frequency	%
Yes	53	57.9%
No	39	41.1%
Don't know	3	3.2%

Table 24ANC visits in the last pregnancy, (N=627), SMART – Herat, May -2016

ANC visited by WHOM	Frequency	%
Health professional	425	67.8%
Traditional birth attendant	34	5.4%
community health worker	0	0.0%
Relative/Friends	8	1.3%
No visited during pregnancy	159	25.3%

Hand washing practices before and after events indicated in table 29.

Table 25: Hand washing, SMART - Herat, May -2016.

Hand Washing care takers (n=700)	Frequency	%
Only water	304	48.9%
Soap	390	62.2 %
Wash both hands	607	96.8 %
Rubs hands together at least three times	512	81.7%
Dries hands hygienically by air-drying or using a clean cloth	539	86.0%

Table 26: Hand washing at 5 critical moments, (n=627), SMART -Herat, May-2016

Response	Frequency	%
Wash hands at all 5 critical moments	402	64.1 %
After Toilet/latrines	626	99.84%
Before cooking	574	91.55%
Before eating	615	98.09%
After taking children to the toilet	583	93.13%
Before feed child	422	67.30%

*: This was a multiple response question; percentages don't add up to 100.

NB: 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 5 critical points or if they were largely recalling times to which they were previously informed

HOUSEHOLDS INFORMATION

CRUDE AND UNDER 5 MORTALITY RATES

Mortality was included in the survey, with basic data collected at the household level, using the retrospective mortality methodology, with a 132 days recall period. Heads of household were the main responders, from all households included in the survey, a total of 530 households, regardless if the households had children or not. Crude Mortality Rates and Under Five Mortality rates are presented in Table 30).

The crude and under five mortality rates were below the WHO emergency levels[7].

Table 27: Mortality rates survey findings SMART- Herat, May-2016

Definition	Results
CMR (total deaths/10,000/day)	0.09%(0.04-0.21) (95% CI)
U5MR (deaths in children-5/10,000/day)	0.59% (0.27-1.28) (95% CI)

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

DEMOGRAPHY

The mortality questionnaire in SMART is designed in a way that some additional useful Demographic data can be withdrawn. Summary is available in **Table 31**. A total of 4048 Individuals were surveyed and 782 were reported to have children under age of 5 years.

Table 28: Short summary of demographics, SMART- Herat, May -2016

Indicator	Value
Average HH size	7.6
Children under 5	19.3%
Most frequent HH size	7
Min HH Size	2
Max HH size	30

WATER TREATMENT AND CONSUMPTION AT HOUSEHOLD LEVEL

A total of 553 responders, representing 530 households and 4048 individuals, were included, either male or female. Data collection asked for the total amount of water in total litters you used in your household excluded of animals, and subsequently organized into range of litters used. The results were then divided into the quantity of water in litters available to each household member per day as compared to SPHERE standard of 15L/person/day. (**See figure 5 and figure 6)**

Figure 5: Percentage of household's level daily quantity of water used in litter/day (N=530), SMART – Herat, May- 2016

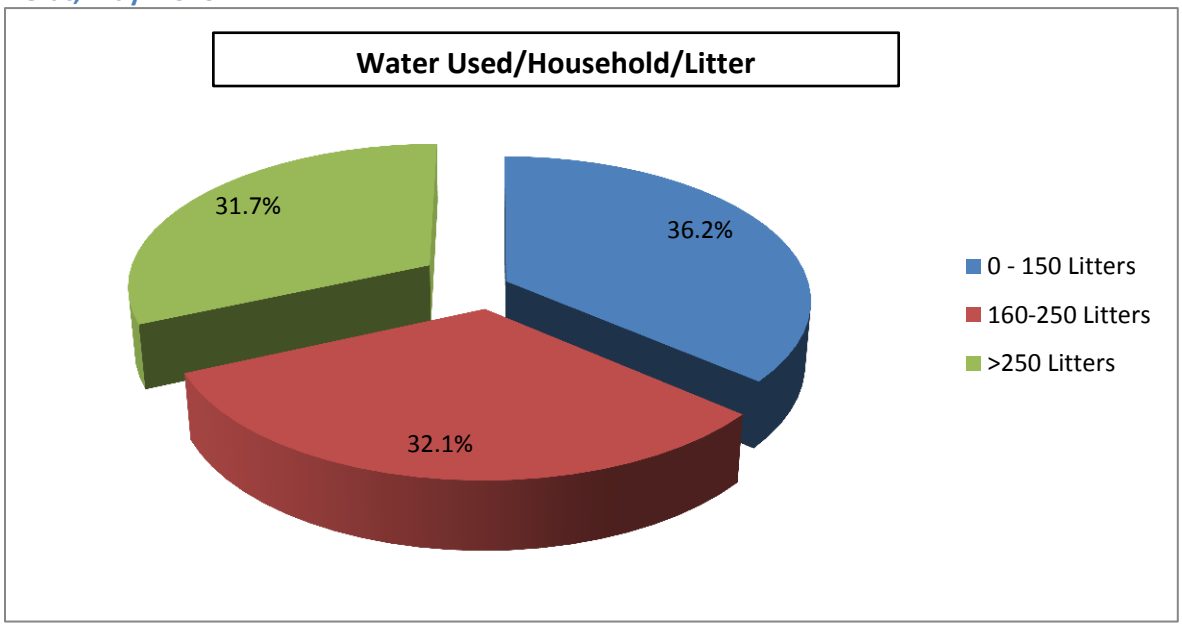


Figure 6: Percentage of households with access to Water Used/person/Litter, (N=530), SMART, Herat, May-2016

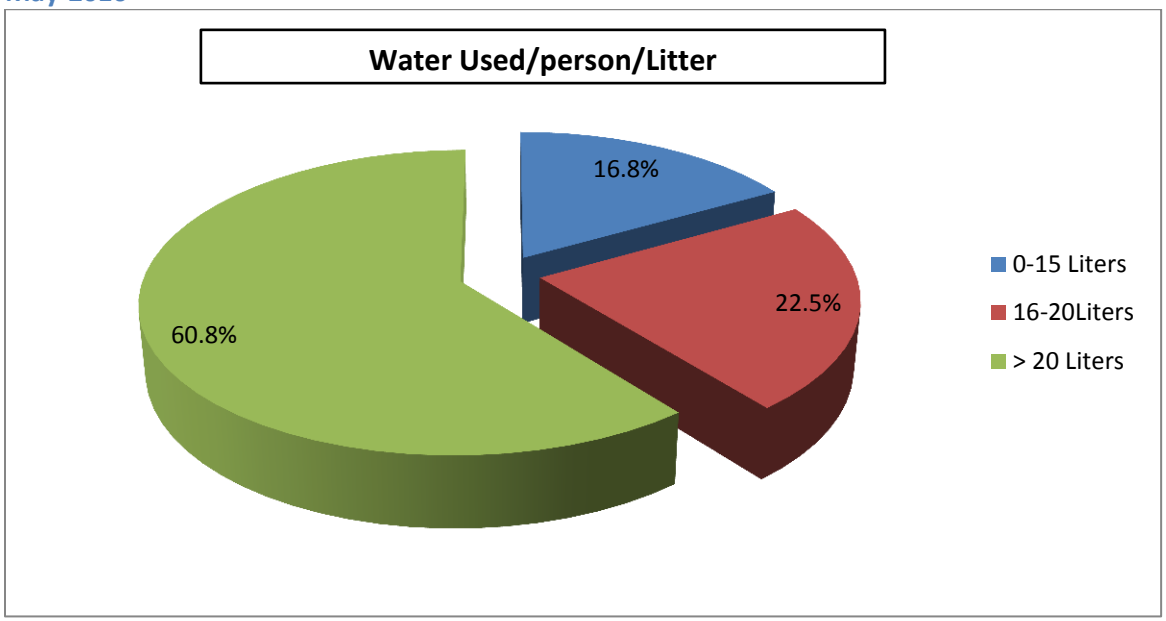


Figure 7: Percentage of households with access to water treatment (n=530), SMART – Herat, May-2016

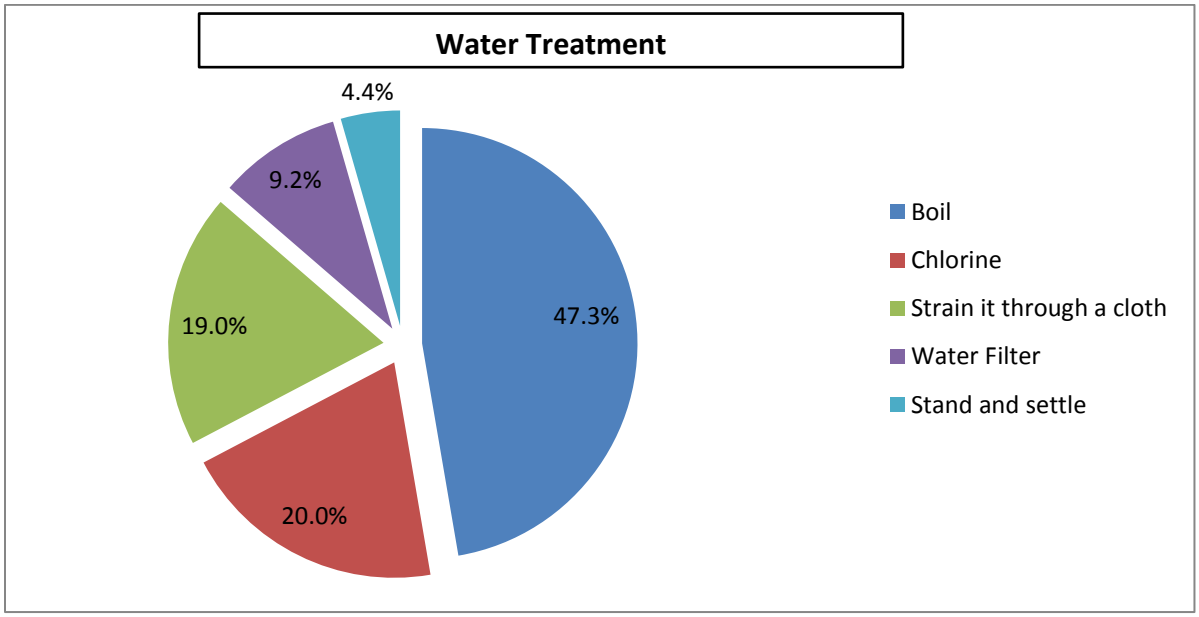


Figure 8: Household level daily Improved Water Sources, (N=326) SMART, Herat, 2016

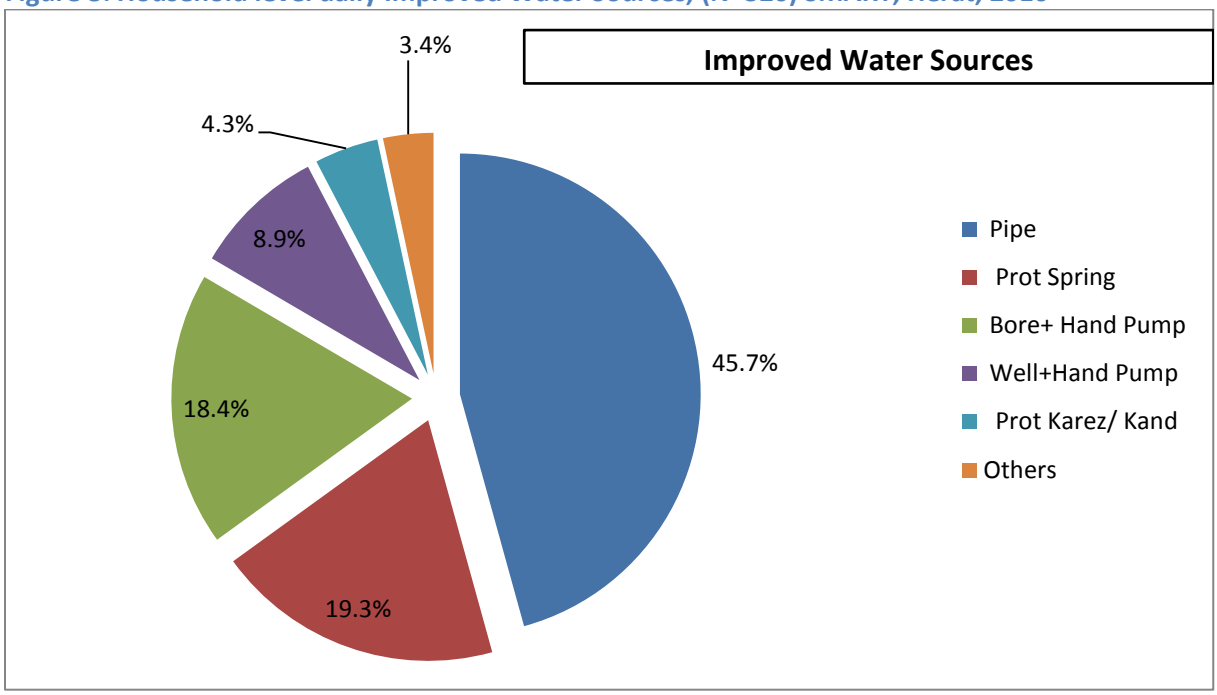
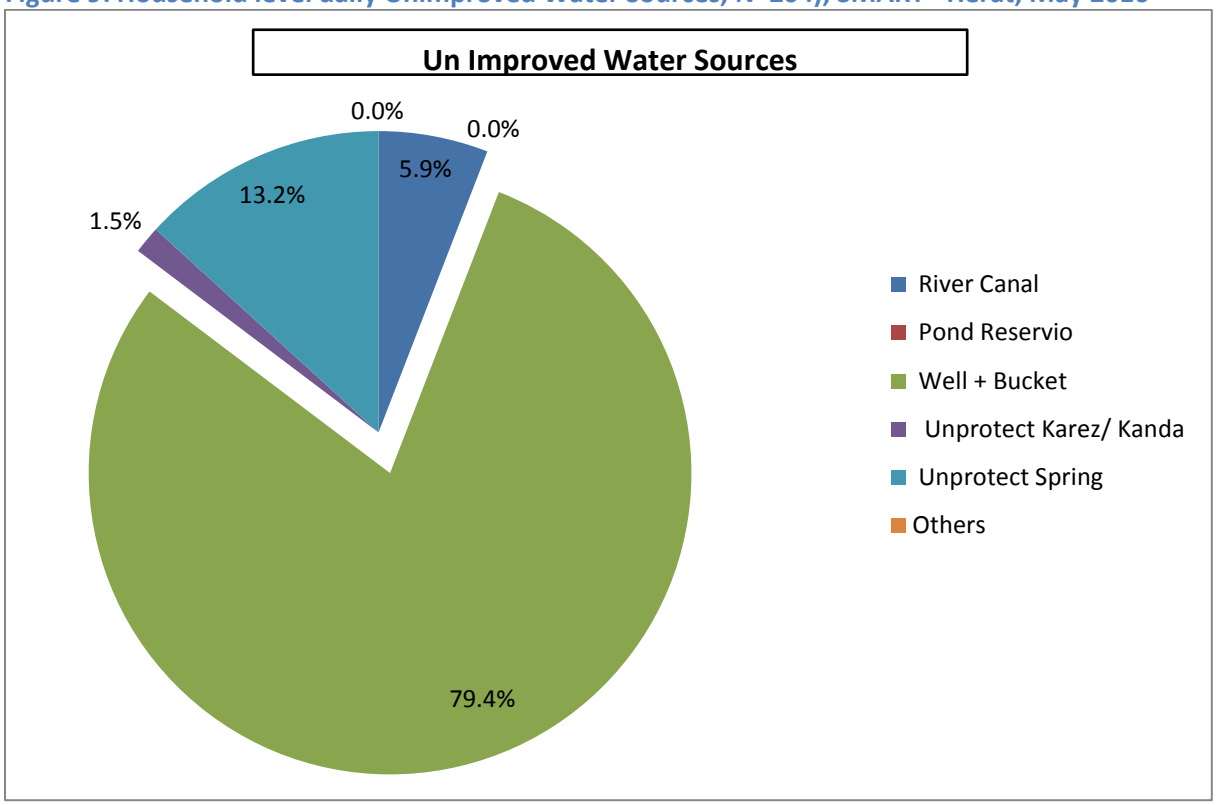


Figure 9: Household level daily Unimproved Water Sources, N=204), SMART –Herat, May 2016



DISCUSSION

NUTRITIONAL STATUS

Global Acute Malnutrition

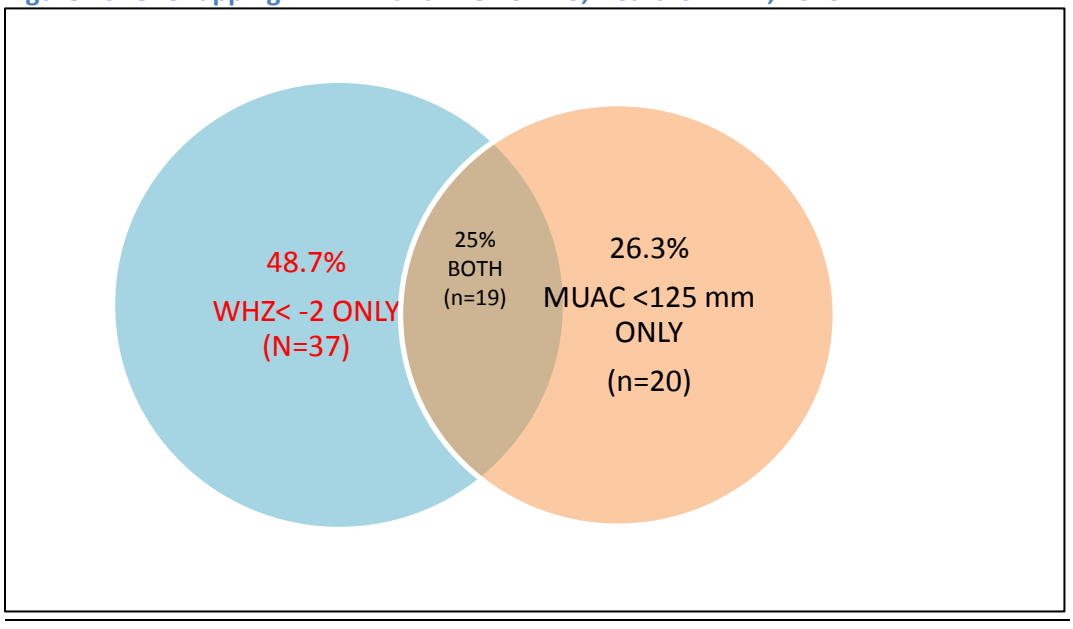
The nutrition and mortality SMART Survey that was done in 16 districts of Herat province in May 2016 The GAM prevalence based on WHZ unveiled by the survey **was 6.6% (4.6 - 9.5 95% C.I.)** Based on the WHO emergency threshold of 15%, but might be classified as Poor. The WHZ SAM rate of **1.0 %(0.5 - 2.3 95% C.I.)** Is also lower than the 4% level which has been used in the context of Afghanistan to trigger emergency.

The GAM prevalence based on MUAC **5.6 % (3.8- 8.2 95 % CI)** and SAM based on MUAC was of **1.3 %(0.6 - 2.7 95% C.I)** was slightly higher than WHZ based GAM, but insignificantly. It can be classified as acceptable if WHO standard are considered.

The poison test indicated that some WHZ cases of acute malnutrition were concentrated in some cluster, suggesting existence of packet wasting in the deferent districts of the Herat province such as Shendand, Adraskan, Ghoryan and Obi and also in these districts in the direct observation personal and envier mental Huygens were not good and it contribute to increase the malnourished cases.

If both criteria are combined, overall prevalence of children likely to be eligible for SAM and MAM management in Herat province was 10.9 %(8.6-13.2 95 CI) combine WHZ (-3 z score) and MUAC (<115mm) indicated that SAM caseloads are projected at 3.6 %(2.2-4.9 95 CI). Combine rates are recommended to be used for caseloads estimation of SMA and MAM management in Herat province. The acutely malnourished children are WHZ, and MUAC based community screenings are not enough to detect all acutely malnourished children eligible for treatment according criteria stipulated in Afghanistan IMAM Guidelines. This has to be however further investigated. See figure 10 in the actual acute malnutrition camper WHZ <-2 z score with MUAC <125 mm is significant deferent.

Figure 10: Overlapping WHZ<-2 and MUAC<125, Heart -SMART, 2016



Chronic malnutrition

Stunting prevalence was 34.2 % (30.4-38.1 95 CI), indicating very high level based in WHO classification of the severity of malnutrition, while 1 child has stunting in the every 3 children in Herat province. High stunting levels are usually seen in context of with very low access to health services, low sanitation levels, low maternal nutrition status and high prevalence of disease. (In this survey 58.7% reported ill 2 weeks prior to survey),

Lack of vitamins and/or minerals in the diet (in this survey vitamin A supplementation was slightly low – 62.4%). The rate of stunting was slightly higher than the national stunting figures reported (31.0%) in the National nutrition survey of 2013.

High stunting calls for long term nutrition interventions combined with infant and young children nutrition (IYCN) and scaling up deworming practice as well encouraging timely health seeking behavior during illness to be put in place to reverse this trend. Maternal nutrition and reproductive health have to be improved significantly in order to have any impact on high stunting.

Mortality

Crude Death Rate and Under-five Death rate were **0.09 (0.04-0.21) (95% CI)** and **0.59 (0.27-1.28) (95% CI)**. The rates are both below SPHERE emergency thresholds.

Maternal nutritional status

There are no commonly accepted standards for maternal nutrition status. In surveys, and especially in Muslim countries, the MUAC cutoff of 230 mm is used to approximately identify their status. In this survey 12.8 % of the mothers were to have MUAC<230, which suggest considerable number.

The main concern was iron supplementation among pregnant women which the survey found to be low (57.9 %). The Iron supplementation prevent 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 BDN have to make significant progress by reinforcing ANC and CHW home visits to PLW.

Hand washing practice

An essential component of proper hand washing is the use of soap, without which it is difficult to reduce incidents of diarrhea. Soap eliminates diarrhea-inducing pathogens from the skin. In Herat province 62.2% of caretaker used soap in hand washing practice reported, however households members washed hands in 5 critical points was 64.1% reported and it low level, although not emergency mater. Caretaker has to significantly increase hand washing practice in five critical points by reinforcing the usual channels. The BPHS implementing partner BDN 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 understand better the WASH situation in these 16 districts it is important to conduct a more in depth WASH assessment.

RISK FACTORS

Morbidity, immunization, 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 16 districts of Herat province, more than half of the sampled children had suffered from one form of illness or another (58.7%) 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 such

Vitamin A supplementation 6 months prior to the survey is low with a total of 62.4% children that received vitamin A supplementation. One of the core functions of vitamin A is to boost an individual's immunity thence the importance of supplementation. Awareness on Vitamin A is of importance as the current rates is above the recommended as WHO SPHERE compared to the recommended WHO target of 80% and could shift either way minimizing efforts gained so far. The same applies to de-worming amongst children aged 12 –59 months were poor (39.5%) which is considered extremely low in Herat province.

It is however commendable to note that immunization has indicated commendable trends measles (87.4%), BCG (93.1%) and Polio (93.9%) The low coverage (73.3%) of measles vaccination illustrates the hindrance in accessing the basic health services in the area, with coverage below the WHO thresholds of >80%[8]. BPHS implementing partners need to increase the immunization coverages by deferent channels.

RECOMMENDATIONS AND PRIORITIES

NUTRITION STATUS

- Prioritize multi-sectorial nutrition sensitive's activities to address chronic malnutrition at community level (nutrition sensitive agriculture, cooking demonstrations targeting quality complementary feeding, promotion of appropriate IYCF, improved health seeking behavior and promotion of maternal, newborn and child preventive health and nutrition).
- Community mobilization program should be extended to remote areas as much as possible according to security clearance.
- provision of iron and folate for PLW at HF and HP level
- Provision of Target supplementary food program.
- To strength referral system between health and community by CHWs.

[8] WHO from 2010 recommends increase routine coverage with the first dose of measles-containing vaccine (MCV1) by ≥90% nationally and ≥80% in every district or equivalent administrative unit for children aged 1 year (http://www.who.int/mediacentre/factsheets/fs286/en/).

CHILD HOLDS ILLNESSES, IMMUNIZATION AND VITAMIN A SUPPLEMENTATION

- The recommendation is to improve and strengthen fix and outreach EPI activities to reach the certain coverage of mentioned vaccines such as : BCG, Polio and also vitamin A supplementation as well
- Consider tracking nutritional and immunization status through profiling of cases found.
- Strength health education based on seasonal condition.
- Raising awareness of mothers on micronutrient supplementation and deworming campaigns;

ANNEXES

Annex 1: Plausibility check for: HRT_SMART_Nutrition & Mortality _MAY_2016.bak

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	**5** (2.6 %)
Overall Sex ratio	Incl	p	>0.1	>0.05	>0.001	<=0.001	
(Significant chi square)			0	2	4	10	**0** (p=0.940)
Age ratio(6-29 vs 30-59)	Incl	p	>0.1	>0.05	>0.001	<=0.001	
(Significant chi square)			0	2	4	10	**2** (p=0.076)
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	**2** (10)
Dig pref score - MUAC	Incl	#	0-7	8-12	13-20	> 20	
			0	2	4	10	**0** (4)
Standard Dev WHZ	Excl	SD	<1.1	<1.15	<1.20	>=1.20	
.				and	and	and	or
.	Excl	SD	>0.9	>0.85	>0.80	<=0.80	
			0	5	10	20	**0** (1.04)
Skewness WHZ	Excl	#	<±0.2	<±0.4	<±0.6	>=±0.6	
			0	1	3	5	**0** (-0.17)
Kurtosis WHZ	Excl	#	<±0.2	<±0.4	<±0.6	>=±0.6	
			0	1	3	5	**0** (0.13)
Poisson dist WHZ-2	Excl	p	>0.05	>0.01	>0.001	<=0.001	
			0	1	3	5	**3** (p=0.008)
OVERALL SCORE WHZ =			0-9	10-14	15-24	>25	**12** %

The overall score of this survey is 12 %, this is good.
There were no duplicate entries detected.
Percentage of children with no exact birthday: 16 %
Age/Height out of range for WHZ:
HEIGHT:
Line=744/ID=1: 27.40 cm
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=10/ID=2: HAZ (4.971), Age may be incorrect
Line=11/ID=1: HAZ (4.089), Age may be incorrect
Line=13/ID=1: HAZ (3.817), Age may be incorrect
Line=14/ID=2: HAZ (3.444), Age may be incorrect
Line=21/ID=1: HAZ (-4.537), WAZ (-4.759), Age may be incorrect
Line=35/ID=1: HAZ (-6.211), Age may be incorrect
Line=36/ID=3: HAZ (1.615), Age may be incorrect
Line=40/ID=2: HAZ (-4.912), Height may be incorrect
Line=41/ID=1: HAZ (3.559), Age may be incorrect
Line=65/ID=1: HAZ (2.276), Age may be incorrect
Line=75/ID=2: HAZ (2.167), Age may be incorrect
Line=84/ID=1: HAZ (-4.679), Height may be incorrect
Line=93/ID=1: HAZ (5.522), WAZ (3.919), Age may be incorrect
Line=103/ID=2: **WHZ (4.965)**, WAZ (2.944), Weight may be incorrect
Line=113/ID=2: HAZ (3.239), Age may be incorrect
Line=123/ID=2: HAZ (1.985), Age may be incorrect
Line=142/ID=3: WAZ (1.943), Weight may be incorrect
Line=182/ID=1: **WHZ (-4.149)**, Height may be incorrect
Line=188/ID=1: HAZ (-6.152), WAZ (-4.939), Age may be incorrect
Line=195/ID=1: HAZ (1.860), Age may be incorrect
Line=196/ID=1: HAZ (-5.899), WAZ (-4.192), Age may be incorrect

Line=197/ID=2: HAZ (-5.081), Height may be incorrect
Line=207/ID=1: HAZ (-5.043), Age may be incorrect
Line=227/ID=1: **WHZ (3.142)**, Height may be incorrect
Line=232/ID=2: **WHZ (-3.938)**, Weight may be incorrect
Line=254/ID=2: HAZ (2.126), Age may be incorrect
Line=286/ID=1: HAZ (-5.689), Height may be incorrect
Line=302/ID=1: **WHZ (-3.721)**, Weight may be incorrect
Line=335/ID=1: HAZ (6.716), Age may be incorrect
Line=338/ID=2: HAZ (-5.794), WAZ (-4.657), Age may be incorrect
Line=363/ID=1: HAZ (-4.630), Age may be incorrect
Line=372/ID=2: HAZ (2.084), Age may be incorrect
Line=426/ID=1: **WHZ (2.795)**, HAZ (2.127), WAZ (3.020)
Line=442/ID=1: **WHZ (2.781)**, Height may be incorrect
Line=466/ID=1: **WHZ (-5.097)**, WAZ (-5.200), Weight may be incorrect
Line=481/ID=1: **WHZ (3.961)**, WAZ (1.972), Weight may be incorrect
Line=489/ID=2: HAZ (-4.723), Age may be incorrect
Line=525/ID=1: **WHZ (-3.406)**, Weight may be incorrect
Line=535/ID=1: **WHZ (-6.491)**, WAZ (-5.000), Weight may be incorrect
Line=536/ID=3: **WHZ (-3.437)**, Height may be incorrect
Line=537/ID=2: HAZ (3.405), Age may be incorrect
Line=538/ID=1: HAZ (2.507), Age may be incorrect
Line=540/ID=1: HAZ (2.113), Age may be incorrect
Line=542/ID=1: HAZ (4.676), Age may be incorrect
Line=544/ID=2: HAZ (-7.682), WAZ (-5.075), Age may be incorrect
Line=559/ID=1: HAZ (-5.398), Age may be incorrect
Line=567/ID=2: **WHZ (-4.602)**, Weight may be incorrect
Line=575/ID=1: HAZ (-6.685), Age may be incorrect
Line=578/ID=1: **WHZ (-3.919)**, HAZ (2.709), Height may be incorrect
Line=580/ID=1: **WHZ (-6.076)**, WAZ (-4.938), Weight may be incorrect
Line=608/ID=1: **WHZ (3.007)**, WAZ (2.399), Weight may be incorrect
Line=620/ID=2: HAZ (2.309), Age may be incorrect
Line=630/ID=1: HAZ (-5.537), WAZ (-4.160), Age may be incorrect
Line=632/ID=1: HAZ (-5.787), Age may be incorrect
Line=634/ID=1: HAZ (-6.735), Age may be incorrect
Line=638/ID=2: HAZ (-5.239), Age may be incorrect
Line=640/ID=1: HAZ (-8.347), WAZ (-7.489), Age may be incorrect
Line=645/ID=3: HAZ (-5.488), Age may be incorrect
Line=646/ID=4: HAZ (2.027), Height may be incorrect
Line=672/ID=1: HAZ (-6.068), Age may be incorrect
Line=697/ID=2: **WHZ (4.540)**, HAZ (-5.590), Height may be incorrect
Line=716/ID=1: HAZ (2.279), Age may be incorrect
Line=718/ID=1: HAZ (4.896), Height may be incorrect
Line=725/ID=1: **WHZ (-4.419)**, Weight may be incorrect
Line=743/ID=1: HAZ (2.971), Age may be incorrect
Line=744/ID=1: HAZ (-17.680), Height may be incorrect
Line=751/ID=1: HAZ (-4.528), Age may be incorrect
Line=770/ID=1: HAZ (-6.125), WAZ (-5.208), Age may be incorrect
Line=781/ID=1: HAZ (-6.117), Age may be incorrect

Percentage of values flagged with SMART flags:WHZ: 2.6 %, HAZ: 7.6 %, WAZ: 2.4 %

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: 0.97 (The value should be around 0.85).: p-value = 0.076 (as expected)

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

Age cat.	mo.	boys	girls	total	ratio boys/girls
6 to 17	12	94/81.0 (1.2)	88/81.4 (1.1)	182/162.4 (1.1)	1.07
18 to 29	12	85/79.0 (1.1)	78/79.4 (1.0)	163/158.4 (1.0)	1.09
30 to 41	12	97/76.5 (1.3)	96/77.0 (1.2)	193/153.5 (1.3)	1.01
42 to 53	12	55/75.3 (0.7)	66/75.7 (0.9)	121/151.0 (0.8)	0.83
54 to 59	6	18/37.2 (0.5)	23/37.5 (0.6)	41/74.7 (0.5)	0.78
6 to 59	54	349/350.0 (1.0)	351/350.0 (1.0)		0.99

The data are expressed as observed number/expected number (ratio of obs/expect)
Overall sex ratio: p-value = 0.940 (boys and girls equally represented)
Overall age distribution: p-value = 0.000 (significant difference)
Overall age distribution for boys: p-value = 0.000 (significant difference)
Overall age distribution for girls: p-value = 0.017 (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: 0.003 (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: **10** (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: **4** (0-7 excellent, 8-12 good, 13-20 acceptable and > 20 problematic)
p-value for chi2: 0.503

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

.	no exclusion	exclusion from	exclusion from .
reference mean	**observed mean .**	**(WHO flags)**	**(SMART flagsWHZ**
Standard Deviation SD:	1.23	1.17	1.04
(The SD should be between 0.8 and 1.2)			
Prevalence (< -2)			
observed:	8.0%	7.6%	6.6%
calculated with current SD:	9.4%	8.2%	5.8%
calculated with a SD of 1:	5.3%	5.1%	5.1%
HAZ			
Standard Deviation SD:	1.85	1.62	1.27
(The SD should be between 0.8 and 1.2)			
Prevalence (< -2)			
observed:	35.4%	34.5%	34.2%
calculated with current SD:	39.0%	35.6%	33.9%
calculated with a SD of 1:	30.3%	27.6%	29.9%
WAZ			
Standard Deviation SD:	1.27	1.24	1.12
(The SD should be between 0.8 and 1.2)			
Prevalence (< -2)			
observed:	18.6%	18.5%	17.4%
calculated with current SD:	24.1%	23.4%	20.5%
calculated with a SD of 1:	18.6%	18.4%	17.8%

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

WHZ	p= 0.000	p= 0.000	p= 0.031
HAZ	p= 0.000	p= 0.000	p= 0.010
WAZ	p= 0.000	p= 0.000	p= 0.023

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

Skewness

WHZ	-0.36	-0.02	-0.17
HAZ	-0.75	0.46	-0.02

WAZ	-0.29	-0.14	-0.08

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	2.78	1.68	0.13
HAZ	9.75	1.59	-0.44
WAZ	1.72	1.08	0.10

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=1.59 (p=0.008)
WHZ < -3: ID=1.16 (p=0.222)
GAM: ID=1.59 (p=0.008)
SAM: ID=1.16 (p=0.222)
HAZ < -2: ID=0.87 (p=0.717)
HAZ < -3: ID=0.88 (p=0.691)
WAZ < -2: ID=1.14 (p=0.246)
WAZ < -3: ID=1.56 (p=0.010)

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: 1.10 (n=45, f=0)
############
02: 1.08 (n=41, f=0)  ############
03: 0.98 (n=39, f=0)  #######
04: 1.04 (n=41, f=0)  ##########
05: 1.37 (n=43, f=1)  ########################
06: 1.43 (n=36, f=2)  ##########################
07: 1.35 (n=41, f=3)  #######################
08: 1.40 (n=42, f=2)  #########################
09: 1.27 (n=39, f=1)  ####################
10: 1.54 (n=41, f=3)  ###############################
11: 1.09 (n=40, f=1)  ############
12: 1.20 (n=31, f=1)  #################
13: 1.03 (n=34, f=0)  ##########
14: 1.23 (n=33, f=1)  ##################
15: 0.98 (n=27, f=0)  ########
16: 1.16 (n=25, f=0)  ###############
17: 1.47 (n=20, f=1)  ############################
18: 0.88 (n=18, f=0)  OOO
19: 1.27 (n=16, f=1)  OOOOOOOOOOOOOOOOOOOO
20: 1.14 (n=13, f=0)  OOOOOOOOOOOOOO
21: 2.34 (n=06, f=1)  ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
22: 0.45 (n=04, f=0)
23: 1.65 (n=04, f=0)  ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
```

24: 0.14 (n=02, f=0)
25: 0.87 (n=04, f=0) ~~~
26: 1.52 (n=04, f=0) ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
27: 0.22 (n=04, f=0)
28: 0.12 (n=02, f=0)
29: 2.75 (n=02, f=0) ~~~~~~

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

Analysis by Team

Team	**1**	**2**	**3**	**4**	**5**	**6**
n =	138	119	122	99	109	113
Percentage of values flagged with SMART flags:						
WHZ:	2.2	1.7	5.8	3.0	1.8	2.7
HAZ:	7.2	9.2	9.0	5.1	4.6	9.7
WAZ:	1.4	2.5	3.3	2.0	1.8	3.5
Age ratio of 6-29 months to 30-59 months:						
	0.73	1.48	0.88	1.20	1.06	0.77
Sex ratio (male/female):						
	0.86	0.92	1.35	0.98	1.14	0.82
Digit preference Weight (%):						
.0 :	4	6	7	6	6	11
.1 :	14	12	7	18	19	12
.2 :	13	9	17	13	7	12
.3 :	14	11	12	6	6	9
.4 :	9	13	11	15	11	10
.5 :	11	12	8	6	12	11
.6 :	9	12	9	10	10	5
.7 :	5	8	8	7	8	10
.8 :	12	6	10	8	8	13
.9 :	11	11	11	10	11	8
DPS:	11	8	10	13	12	7

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

Digit preference Height (%):						
.0 :	8	12	39	18	21	3
.1 :	15	8	6	9	12	12
.2 :	11	4	9	14	12	12
.3 :	15	12	10	10	11	11
.4 :	12	7	7	11	4	12
.5 :	9	19	16	8	16	12
.6 :	8	8	2	10	6	12
.7 :	5	17	3	10	7	11
.8 :	8	8	7	2	6	8
.9 :	9	5	2	7	6	8
DPS:	11	16	35	13	17	10

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

Digit preference MUAC (%):						
.0 :	4	16	17	8	11	9
.1 :	9	10	9	10	17	11
.2 :	12	8	6	11	5	11
.3 :	9	9	14	13	4	11
.4 :	9	16	7	12	8	15
.5 :	8	16	19	5	16	10
.6 :	12	7	7	6	14	12
.7 :	17	13	7	9	5	4
.8 :	9	2	9	16	8	6
.9 :	12	5	5	8	14	12
DPS:	11	15	16	11	15	10

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

Standard deviation of WHZ:						
SD	1.21	1.09	1.41	1.19	1.11	1.25
Prevalence (< -2) observed:						
%	5.8	7.6	13.2	6.1	8.3	7.1

Prevalence (< -2) calculated with current SD:

% 5.7 9.8 13.7 7.4 10.6 9.3
Prevalence (< -2) calculated with a SD of 1:
% 2.8 7.9 6.1 4.3 8.3 5.0
Standard deviation of HAZ:
SD 1.57 2.26 1.89 1.43 1.70 1.92
observed:
% 29.0 43.7 37.7 33.3 38.5 31.0
calculated with current SD:
% 30.7 48.7 47.2 34.4 39.0 29.2
calculated with a SD of 1:
% 21.4 47.1 44.7 28.3 31.7 14.7
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 11/14.8 (0.7) 20/17.2 (1.2) 31/32.0 (1.0) 0.55
18 to 29 12 16/14.5 (1.1) 11/16.7 (0.7) 27/31.2 (0.9) 1.45
30 to 41 12 16/14.0 (1.1) 25/16.2 (1.5) 41/30.3 (1.4) 0.64
42 to 53 12 16/13.8 (1.2) 10/16.0 (0.6) 26/29.8 (0.9) 1.60
54 to 59 6 5/6.8 (0.7) 8/7.9 (1.0) 13/14.7 (0.9) 0.63
---
6 to 59 54 64/69.0 (0.9) 74/69.0 (1.1) 0.86
The data are expressed as observed number/expected number (ratio of obs/expect)
Overall sex ratio: p-value = 0.395 (boys and girls equally represented)
Overall age distribution: p-value = 0.277 (as expected)
Overall age distribution for boys: p-value = 0.686 (as expected)
Overall age distribution for girls: p-value = 0.052 (as expected)
Overall sex/age distribution: p-value = 0.012 (significant difference)
Team 2:
Age cat. mo. boys girls total ratio boys/girls
---
6 to 17 12 19/13.2 (1.4) 17/14.4 (1.2) 36/27.6 (1.3) 1.12
18 to 29 12 15/12.9 (1.2) 20/14.0 (1.4) 35/26.9 (1.3) 0.75
30 to 41 12 15/12.5 (1.2) 14/13.6 (1.0) 29/26.1 (1.1) 1.07
42 to 53 12 5/12.3 (0.4) 9/13.4 (0.7) 14/25.7 (0.5) 0.56
54 to 59 6 3/6.1 (0.5) 2/6.6 (0.3) 5/12.7 (0.4) 1.50
---
6 to 59 54 57/59.5 (1.0) 62/59.5 (1.0) 0.92
The data are expressed as observed number/expected number (ratio of obs/expect)
Overall sex ratio: p-value = 0.647 (boys and girls equally represented)
Overall age distribution: p-value = 0.004 (significant difference)
Overall age distribution for boys: p-value = 0.055 (as expected)
Overall age distribution for girls: p-value = 0.104 (as expected)
Overall sex/age distribution: p-value = 0.002 (significant difference)
Team 3:
Age cat. mo. boys girls total ratio boys/girls
---
6 to 17 12 21/16.2 (1.3) 8/12.1 (0.7) 29/28.3 (1.0) 2.63
18 to 29 12 16/15.8 (1.0) 12/11.8 (1.0) 28/27.6 (1.0) 1.33
30 to 41 12 19/15.3 (1.2) 17/11.4 (1.5) 36/26.7 (1.3) 1.12
42 to 53 12 11/15.1 (0.7) 14/11.2 (1.2) 25/26.3 (0.9) 0.79
54 to 59 6 3/7.5 (0.4) 1/5.5 (0.2) 4/13.0 (0.3) 3.00
---
6 to 59 54 70/61.0 (1.1) 52/61.0 (0.9) 1.35
The data are expressed as observed number/expected number (ratio of obs/expect)
Overall sex ratio: p-value = 0.103 (boys and girls equally represented)
Overall age distribution: p-value = 0.049 (significant difference)
Overall age distribution for boys: p-value = 0.195 (as expected)
Overall age distribution for girls: p-value = 0.074 (as expected)
Overall sex/age distribution: p-value = 0.002 (significant difference)
Team 4:
Age cat. mo. boys girls total ratio boys/girls
---
6 to 17 12 17/11.4 (1.5) 14/11.6 (1.2) 31/23.0 (1.3) 1.21
18 to 29 12 10/11.1 (0.9) 13/11.3 (1.1) 23/22.4 (1.0) 0.77

30 to 41 12 15/10.7 (1.4) 14/11.0 (1.3) 29/21.7 (1.3) 1.07
42 to 53 12 6/10.6 (0.6) 7/10.8 (0.6) 13/21.4 (0.6) 0.86
54 to 59 6 1/5.2 (0.2) 2/5.3 (0.4) 3/10.6 (0.3) 0.50
---------- 6 to 59 54 49/49.5 (1.0) 50/49.5 (1.0) 0.98
The data are expressed as observed number/expected number (ratio of obs/expect)
Overall sex ratio: p-value = 0.920 (boys and girls equally represented)
Overall age distribution: p-value = 0.007 (significant difference)
Overall age distribution for boys: p-value = 0.041 (significant difference)
Overall age distribution for girls: p-value = 0.287 (as expected)
Overall sex/age distribution: p-value = 0.005 (significant difference)

Team 5:

Age cat. mo. boys girls total ratio boys/girls
---------- 6 to 17 12 19/13.5 (1.4) 14/11.8 (1.2) 33/25.3 (1.3) 1.36
18 to 29 12 15/13.1 (1.1) 8/11.5 (0.7) 23/24.7 (0.9) 1.88
30 to 41 12 14/12.7 (1.1) 9/11.2 (0.8) 23/23.9 (1.0) 1.56
42 to 53 12 9/12.5 (0.7) 16/11.0 (1.5) 25/23.5 (1.1) 0.56
54 to 59 6 1/6.2 (0.2) 4/5.4 (0.7) 5/11.6 (0.4) 0.25
---------- 6 to 59 54 58/54.5 (1.1) 51/54.5 (0.9) 1.14
The data are expressed as observed number/expected number (ratio of obs/expect)
Overall sex ratio: p-value = 0.503 (boys and girls equally represented)
Overall age distribution: p-value = 0.173 (as expected)
Overall age distribution for boys: p-value = 0.091 (as expected)
Overall age distribution for girls: p-value = 0.336 (as expected)
Overall sex/age distribution: p-value = 0.010 (significant difference)

Team 6:

Age cat. mo. boys girls total ratio boys/girls
---------- 6 to 17 12 7/11.8 (0.6) 15/14.4 (1.0) 22/26.2 (0.8) 0.47
18 to 29 12 13/11.5 (1.1) 14/14.0 (1.0) 27/25.6 (1.1) 0.93
30 to 41 12 18/11.2 (1.6) 17/13.6 (1.3) 35/24.8 (1.4) 1.06
42 to 53 12 8/11.0 (0.7) 10/13.4 (0.7) 18/24.4 (0.7) 0.80
54 to 59 6 5/5.4 (0.9) 6/6.6 (0.9) 11/12.1 (0.9) 0.83
---
6 to 59 54 51/56.5 (0.9) 62/56.5 (1.1) 0.82
The data are expressed as observed number/expected number (ratio of obs/expect)
Overall sex ratio: p-value = 0.301 (boys and girls equally represented)
Overall age distribution: p-value = 0.150 (as expected)
Overall age distribution for boys: p-value = 0.127 (as expected)
Overall age distribution for girls: p-value = 0.774 (as expected)
Overall sex/age distribution: p-value = 0.050 (significant difference)

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

Team: 1

Time SD for WHZ
point 0.8 0.9 1.0 1.1 1.2 1.3 1.4 1.5 1.6 1.7 1.8 1.9 2.0 2.1 2.2 2.3 01: 1.21 (n=06, f=1) ##################
02: 0.92 (n=06, f=0) #####
03: 1.11 (n=05, f=0) #############
04: 1.05 (n=04, f=0) ##########
05: 0.95 (n=06, f=0) ######
06: 2.17 (n=05, f=2) ##
07: 0.78 (n=06, f=0)
08: 0.82 (n=06, f=0) #
09: 0.96 (n=06, f=0) #######
10: 1.36 (n=06, f=0) ########################
11: 0.69 (n=06, f=0)
12: 0.55 (n=06, f=0)
13: 0.61 (n=06, f=0)
14: 1.42 (n=05, f=0) ##########################
15: 1.08 (n=06, f=0) ############
16: 1.10 (n=06, f=0) #############

17: 2.13 (n=06, f=1) ##
18: 0.25 (n=06, f=0)
19: 0.68 (n=06, f=0)
20: 0.44 (n=06, f=0)
21: 3.54 (n=03, f=1)
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
22: 0.30 (n=02, f=0)
23: 1.14 (n=02, f=0) OOOOOOOOOOOOOO
24: 0.14 (n=02, f=0)
25: 0.14 (n=03, f=0)
26: 0.67 (n=03, f=0)
27: 0.27 (n=03, f=0)
28: 0.12 (n=02, f=0)
29: 2.75 (n=02, f=0)
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO

(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: 1.48 (n=08, f=0)
##############################
02: 1.29 (n=08, f=0) ####################
03: 1.11 (n=07, f=0) #############
04: 1.04 (n=08, f=0) ##########
05: 1.17 (n=08, f=0) ###############
06: 0.82 (n=06, f=0) #
07: 0.69 (n=07, f=0)
08: 0.80 (n=07, f=0)
09: 1.26 (n=07, f=0) ##################
10: 1.34 (n=08, f=1) ######################
11: 1.13 (n=08, f=0) ##############
12: 0.39 (n=05, f=0)
13: 1.08 (n=07, f=0) ############
14: 0.75 (n=07, f=0)
15: 1.30 (n=06, f=0) ####################
16: 1.33 (n=05, f=0) ####################
17: 1.05 (n=03, f=0) OOOOOOOOOO

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

Team: 3

Time SD for WHZ

point 0.8 0.9 1.0 1.1 1.2 1.3 1.4 1.5 1.6 1.7 1.8 1.9 2.0 2.1 2.2 2.3
01: 0.67 (n=08, f=0)
02: 1.33 (n=08, f=0) ######################
03: 0.85 (n=07, f=0) ##
04: 1.41 (n=08, f=0) ########################
05: 1.42 (n=07, f=0) ########################
06: 0.88 (n=05, f=0) ###
07: 1.70 (n=08, f=1) ######################################
08: 1.44 (n=07, f=1) ############################
09: 1.13 (n=06, f=0) ##############
10: 1.92 (n=08, f=1) ##
11: 1.59 (n=08, f=1) ################################
12: 2.14 (n=05, f=1) ##
13: 1.50 (n=07, f=0) ############################
14: 2.65 (n=04, f=1) ##
15: 0.63 (n=05, f=0)
16: 1.37 (n=03, f=0) OOOOOOOOOOOOOOOOOOOOOOO
17: 1.71 (n=03, f=0) OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
18: 0.29 (n=03, f=0)
19: 0.30 (n=02, f=0)
20: 1.45 (n=02, f=0) OOOOOOOOOOOOOOOOOOOOOOOOOO

23: 2.20 (n=02, f=0)
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO

(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: 0.62 (n=07, f=0)
02: 0.72 (n=06, f=0)
03: 0.65 (n=05, f=0)
04: 1.01 (n=06, f=0) ########
05: 1.38 (n=06, f=1) ########################
06: 1.38 (n=06, f=0) ########################
07: 1.88 (n=07, f=1) ##
08: 0.98 (n=07, f=0) #######
09: 2.10 (n=06, f=1) ##
10: 1.63 (n=06, f=0) ###################################
11: 0.72 (n=05, f=0)
12: 1.00 (n=05, f=0) ########
13: 1.24 (n=04, f=0) ##################
14: 0.53 (n=05, f=0)
15: 0.23 (n=02, f=0)
16: 0.77 (n=03, f=0)
17: 0.37 (n=03, f=0)
18: 1.29 (n=04, f=0) ####################
19: 1.44 (n=02, f=0) OOOOOOOOOOOOOOOOOOOOOOOOOO
20: 1.87 (n=02, f=0) OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO

(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: 0.94 (n=08, f=0) ######
02: 0.95 (n=07, f=0) ######
03: 1.21 (n=07, f=0) ##################
04: 0.99 (n=07, f=0) ########
05: 1.50 (n=08, f=0) ############################
06: 1.32 (n=07, f=0) ######################
07: 1.41 (n=06, f=0) ############################
08: 0.81 (n=08, f=0) #
09: 0.61 (n=08, f=0)
10: 1.58 (n=07, f=1) ##################################
11: 1.06 (n=07, f=0) ###########
12: 1.25 (n=04, f=0) OOOOOOOOOOOOOOOOOO
13: 0.85 (n=06, f=0) ##
14: 0.94 (n=07, f=0) ######
15: 0.93 (n=03, f=0) OOOOO
16: 1.22 (n=03, f=0) OOOOOOOOOOOOOOOOO
17: 0.70 (n=02, f=0)
18: 1.54 (n=02, f=0) ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
19: 0.37 (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: 0.87 (n=08, f=0) ###
02: 0.99 (n=06, f=0) ########
03: 0.98 (n=08, f=0) ########
04: 0.81 (n=08, f=0) #

05: 1.38 (n=08, f=0) ########################
06: 1.25 (n=07, f=1) ###################
07: 0.82 (n=07, f=0) #
08: 2.72 (n=07, f=1) ##
09: 0.96 (n=06, f=0) #######
10: 0.79 (n=06, f=0)
11: 1.11 (n=06, f=0) #############
12: 1.49 (n=06, f=0) ############################
13: 1.08 (n=04, f=0) OOOOOOOOOOO
14: 1.04 (n=05, f=0) ##########
15: 0.50 (n=05, f=0)
16: 0.97 (n=05, f=0) #######
17: 0.47 (n=03, f=0)
18: 1.04 (n=02, f=0) ~~~~~~~~~~
19: 1.55 (n=03, f=1) OOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
20: 1.45 (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: Local Event Calendar for Herat province

1395	ماه	1394	ماه	1393	ماه	1392	ماه	1391	ماه	1390	ماه	اسم ماه
شروع مکاتب. چهار شنبه اول سال . 13 بدر. گل های لاله . وقت کاهوها . زاده ولد گسفندها . سماروق . روز نوروز وقت سیلابها	2	شروع مکاتب. چهار شنبه اول سال . 13 بدر. گل های لاله . وقت کاهوها . زاده ولد گسفندها . سماروق . روز نوروز وقت سیلابها	14	شروع مکاتب. چهار شنبه اول سال . 13 بدر. گل های لاله . وقت کاهوها . زاده ولد گسفندها . سماروق . روز نوروز وقت سیلابها	26	شروع مکاتب. چهار شنبه اول سال . 13 بدر. گل های لاله . وقت کاهوها . زاده ولد گسفندها . سماروق . روز نوروز وقت سیلابها	38	شروع مکاتب. چهار شنبه اول سال . 13 بدر. گل های لاله . وقت کاهوها . زاده ولد گسفندها . سماروق . روز نوروز وقت سیلابها	50	شروع مکاتب. چهار شنبه اول سال . 13 بدر. گل های لاله . وقت کاهوها . زاده ولد گسفندها . سماروق . روز نوروز وقت سیلابها		حمل
خوشه گندم بالا میرود . 8 ثور . ساو کردن کربیه و عدس . وقت توت . کشت پالیزها . شیر و ماست گوسفند . رفتن مالدارها شروع درو گندم ابی . کندن کرابیه . پیله ابریشم . پخته شدن زردالو . خشک شدن جویها . وقت	1	خوشه گندم بالا میرود . 8 ثور . ساو کردن کربیه و عدس . وقت توت . کشت پالیزها . شیر و ماست گوسفند . رفتن مالدارها شروع درو گندم ابی . کندن کرابیه . پیله ابریشم . پخته شدن زردالو . خشک شدن جویها . وقت	13 12	خوشه گندم بالا میرود . 8 ثور . ساو کردن کربیه و عدس . وقت توت . کشت پالیزها . شیر و ماست گوسفند . رفتن مالدارها شروع درو گندم ابی . کندن کرابیه . پیله ابریشم . پخته شدن زردالو . خشک شدن جویها . وقت	25 24	خوشه گندم بالا میرود . 8 ثور . ساو کردن کربیه و عدس . وقت توت . کشت پالیزها . شیر و ماست گوسفند . رفتن مالدارها شروع درو گندم ابی . کندن کرابیه . پیله ابریشم . پخته شدن زردالو . خشک شدن جویها . وقت	37 36	خوشه گندم بالا میرود . 8 ثور . ساو کردن کربیه و عدس . وقت توت . کشت پالیزها . شیر و ماست گوسفند . رفتن مالدارها شروع درو گندم ابی . کندن کرابیه . پیله ابریشم . پخته شدن زردالو . خشک شدن جویها . وقت	49 48	خوشه گندم بالا میرود . 8 ثور . ساو کردن کربیه و عدس . وقت توت . کشت پالیزها . شیر و ماست گوسفند . رفتن مالدارها شروع درو گندم ابی . کندن کرابیه . پیله ابریشم . پخته شدن زردالو . خشک شدن جویها . وقت		ثور جوزا

پشها . وقت جوجها . پخته شدن زردالو دروئ کندم لملمی . ماه رمضان . شروع امتحانات 4 نمه . شروع تابستان . حاصل پالیزها . خشک شدن شیر گوسفند ها . حاصل عدس و نخود		پشها . وقت جوجها . پخته شدن زردالو دروئ کندم لملمی . ماه رمضان . شروع امتحانات 4 نمه . شروع تابستان . حاصل پالیزها . خشک شدن شیر گوسفند ها . حاصل عدس و نخود	11	پشها . وقت جوجها . پخته شدن زردالو دروئ کندم لملمی . ماه رمضان . شروع امتحانات 4 نمه . شروع تابستان . حاصل پالیزها . خشک شدن شیر گوسفند ها . حاصل عدس و نخود	23	پشها . وقت جوجها . پخته شدن زردالو دروئ کندم لملمی . ماه رمضان . شروع امتحانات 4 نمه . شروع تابستان . حاصل پالیزها . خشک شدن شیر گوسفند ها . حاصل عدس و نخود	35	پشها . وقت جوجها . پخته شدن زردالو دروئ کندم لملمی . ماه رمضان . شروع امتحانات 4 نمه . شروع تابستان . حاصل پالیزها . خشک شدن شیر گوسفند ها . حاصل عدس و نخود	47	پشها . وقت جوجها . پخته شدن زردالو دروئ کندم لملمی . ماه رمضان . شروع امتحانات 4 نمه . شروع تابستان . حاصل پالیزها . خشک شدن شیر گوسفند ها . حاصل عدس و نخود	59	سرطان
وسط بادها 120 روزه . عید رمضان . 28 اسد . وقتی شالیها . وقت میوه . وقت خرمنها		وسط بادها 120 روزه . عید رمضان . 28 اسد . وقتی شالیها . وقت میوه . وقت خرمنها	10	وسط بادها 120 روزه . عید رمضان . 28 اسد . وقتی شالیها . وقت میوه . وقت خرمنها	22	وسط بادها 120 روزه . عید رمضان . 28 اسد . وقتی شالیها . وقت میوه . وقت خرمنها	34	وسط بادها 120 روزه . عید رمضان . 28 اسد . وقتی شالیها . وقت میوه . وقت خرمنها	46	وسط بادها 120 روزه . عید رمضان . 28 اسد . وقتی شالیها . وقت میوه . وقت خرمنها	58	اسد
وقت انگور . ختم پالیزها . وقت پنبه . اخر تابستان . نزدیک خزان وقت پسته		وقت انگور . ختم پالیزها . وقت پنبه . اخر تابستان . نزدیک خزان وقت پسته	9	وقت انگور . ختم پالیزها . وقت پنبه . اخر تابستان . نزدیک خزان وقت پسته	21	وقت انگور . ختم پالیزها . وقت پنبه . اخر تابستان . نزدیک خزان وقت پسته	33	وقت انگور . ختم پالیزها . وقت پنبه . اخر تابستان . نزدیک خزان وقت پسته	45	وقت انگور . ختم پالیزها . وقت پنبه . اخر تابستان . نزدیک خزان وقت پسته	57	سنبله

برگ ریزی یا خزان . کشت تیرماه . جمعه واری علوفه . وفت انار .		برگ ریزی یا خزان . کشت تیرماه . جمعه واری علوفه . وفت انار .	8	برگ ریزی یا خزان . کشت تیرماه . جمعه واری علوفه . وفت انار .	20	برگ ریزی یا خزان . کشت تیرماه . جمعه واری علوفه . وفت انار .	32	برگ ریزی یا خزان . کشت تیرماه . جمعه واری علوفه . وفت انار .	44	برگ ریزی یا خزان . کشت تیرماه . جمعه واری علوفه . وفت انار .	56	میزان
امدن کوچیها . وقت کاغذ پران بازی . پاین امدن سطحه اب چاه ها . جمع واری تخمه جات .		امدن کوچیها . وقت کاغذ پران بازی . پاین امدن سطحه اب چاه ها . جمع واری تخمه جات .	7	امدن کوچیها . وقت کاغذ پران بازی . پاین امدن سطحه اب چاه ها . جمع واری تخمه جات .	19	امدن کوچیها . وقت کاغذ پران بازی . پاین امدن سطحه اب چاه ها . جمع واری تخمه جات .	31	امدن کوچیها . وقت کاغذ پران بازی . پاین امدن سطحه اب چاه ها . جمع واری تخمه جات .	43	امدن کوچیها . وقت کاغذ پران بازی . پاین امدن سطحه اب چاه ها . جمع واری تخمه جات .	55	عقرب
شروع امتحانات سالانه . جمع واری ایزوم . وقت امده کردن لاندیها . وقت اماده گی کرسیها . شب نشینی ها . برگزذاری مراسم زمستانی		شروع امتحانات سالانه . جمع واری ایزوم . وقت امده کردن لاندیها . وقت اماده گی کرسیها . شب نشینی ها . برگزذاری مراسم زمستانی	6	شروع امتحانات سالانه . جمع واری ایزوم . وقت امده کردن لاندیها . وقت اماده گی کرسیها . شب نشینی ها . برگزذاری مراسم زمستانی	18	شروع امتحانات سالانه . جمع واری ایزوم . وقت امده کردن لاندیها . وقت اماده گی کرسیها . شب نشینی ها . برگزذاری مراسم زمستانی	30	شروع امتحانات سالانه . جمع واری ایزوم . وقت امده کردن لاندیها . وقت اماده گی کرسیها . شب نشینی ها . برگزذاری مراسم زمستانی	42	شروع امتحانات سالانه . جمع واری ایزوم . وقت امده کردن لاندیها . وقت اماده گی کرسیها . شب نشینی ها . برگزذاری مراسم زمستانی	54	قوس
6 جدی . چله کلان . سر زمستان . شب لدا		6 جدی . چله کلان . سر زمستان . شب لدا	5	6 جدی . چله کلان . سر زمستان . شب لدا	17	6 جدی . چله کلان . سر زمستان . شب لدا	29	6 جدی . چله کلان . سر زمستان . شب لدا	41	6 جدی . چله کلان . سر زمستان . شب یلادا	53	جدی
26 دلوه . وقت برف کوچها . وقت کرسیها . وقت یخ بندیها .		26 دلوه . وقت برف کوچها . وقت کرسیها . وقت یخ بندیها .	4	26 دلوه . وقت برف کوچها . وقت کرسیها . وقت یخ بندیها .	16	26 دلوه . وقت برف کوچها . وقت کرسیها . وقت یخ بندیها .	28	26 دلوه . وقت برف کوچها . وقت کرسیها . وقت یخ بندیها .	40	26 دلوه . وقت برف کوچها . وقت کرسیها . وقت یخ بندیها .	52	دلوه

وهت گوشت لانديها		وهت گوشت لانديها		وهت گوشت لانديها		وهت گوشت لانديها		وهت گوشت لانديها		وهت گوشت لانديها		وهت گوشت لانديها			
24 حوت . چهار شنبه سوری . روز زن . اهمن بهمن		24 حوت . چهار شنبه سوری . روز زن . اهمن بهمن	3	24 حوت . چهار شنبه سوری . روز زن . اهمن بهمن	15	24 حوت . چهار شنبه سوری . روز زن . اهمن بهمن	27	24 حوت . چهار شنبه سوری . روز زن . اهمن بهمن	39	24 حوت . چهار شنبه سوری . روز زن . اهمن بهمن	51	٤٦			

Annex 3: Questionaries

SMART- سوالنامه خانه وار

قسمت : معلومات

Code
Date: **تاریخ سروی** .....
Village: **نام قریه** .....
Team No: نمبر تیم .....
Cluster No **: کلستر نمبر**
HH No: **نمبر خانه وار** .....
Time: وقت مصاحبه ساعت : دقیقه: .....

ایا اجازه یی مصاحبه دارد ؟
بلی =1
نه =2
اگر جواب نه باشد دلیل ان بنویسید

.....

۲ قسمت : تمام سوالات در باره یی خانه وار است (اب حیوانات شامل نسیت)

Code	سوالنامه	پاسخ
WTR source	**شما از کدام اب برای نوشیدن استفاده می کنید ؟**	**منابع اصلاح شده** 1. پایپ 2. چشمه یی محفوظ 3. اب برمه که پمپ دستی داشته باشد 4. چایکه پیپ دستی داشته باشد 5. کاریز محفوظ 96. دیگر مشخص سازید: _____ **منابع غیر اصلاح شده** 1. سیند یا کانال 2. دریاچه که اب در ان ذخیره می شود 3. چاه یی بوکه دار 4. غیر محفوظه کاریز 5. چشمه یی غیر محفوظ 96. دیگر مشخص سازید_____
WTR treatment	**ان اب که همیشه استفاده می کنید برای نوشیدن برای تصفیه ان چی می کنید ؟** **تاکید کنید که چیزی بگوید**	1. **جوش داده** 2. **استفاده کلورین** 3. **صافی کردن اب با تیکه یی ململ** 4. **استعمال قلتر** 5. **صبر می کنیم که صاف شود** 96. **دیگر مشخص** ----------
WTR use	**مصرف اب تان در شب و روز گذشته چقدر بود بیدون از حیوانات ؟** **مثال 20 لیرته بوشکه را بدهید**	A. **حجم یا اندازه یی بوشکه** [_____] B. **تعداد بوشکه** [_____] **اب مجموعی**= A*B = [_____]

۳ قسمت: واقعات مرگ MORTALITY RATE

به شکل دقیق خانه پوری نماید .
از (اول چله کلان) تا به حالی (135 روز گذشته).

CODE	سوالنامه	تعداد به عدد
Total HH Members	چند نفر در این خانه زنده گی می کند	
Total under 5	اطفال زیر ۵ سال چند نفر است	
Total Joined	بعد از (او ل چله کلان تا به حالی) چند نقر با فامیل شما یک جا شده	
Total U5 joined	بعد از (او ل چله کلان تا به حالی) چند نفراطفال زیر ۵ سال است (یک جا شده)	
Total left	بعد از (او ل چله کلان تا به حالی) چند نفر خانه را ترک کرده	
Total U5 left	بعد از (او ل چله کلان تا به حالی) چند اطفال زیر ۵ سال خانه را ترک کرده	
No. of Births	بعد از (او ل چله کلان تا به حالی) کدام ولادت صورت گرفته	
Total deaths	بعد از (او ل چله کلان تا به حالی) چند نفر فوت کرده	
U5 deaths	بعد از (او ل چله کلان تا به حالی) جند تا طفل فوت کرده	

SMART- برای اطفال

قسمت ۱: معلومات

Code	سوالات	پاسخ
Date	تاریخ سروی	
Name	نام طفل	
Village	نام قریه	
Cluster	نمبرکلستر	
Team	نمبر تیم	
HH No.	نمبر خانواده	
Caregiver No.	نمبر پایواز از فورم پایواز	
Child No.	نمبرطفل	

BIRTH DATE	تاریخ تولد طفل	تاریخ تولد ___/ __/ ___
Age in months	عمر به ماه	
Sex	جنس طفل	1. بچه 2. دختر

۲ قسمت : تنها برای اطفالیکه سن شان 0-23 ماهه باشد

(Infant and Young Child feeding)

Code	حالی میخواهیم که در باره طفل تان سوال کنم			
Ever BF	ایا این طفل شما شیر خورده	1. بلی	2. نه	98. نمی فهمم
time to BF	بعد از ولادت (اسم طفل) چی ُوقت طفل تان شیر داده اید یا شیرسینی خود را داده اید ؟	1. در ساعت اول 2. در 24 ساعت اول 3. بعد از 24 ساعت ولادت		
COLOSTRUM	ایا این طفل فله را خورده	1. بلی	2. نه خیر	98. نمی فهم
BF YSTD	ایا این طفل (نام را بگرید) در شب و روز گذشته شیر مادر خورده	1. بلی	2. نه خیر	98. نمی فهمم

Code	ایا این طفل (نام طفل را بگرید) در شب و روز گذتشه کدام مایعات را گرفته ؟			
WTR	اب ساده	1. بلی	2. نه	98. نمی فهمم
FMLR	غذای ا طفال (محلی)	1. بلی	2. نه	98. نمی فهمم
Milk	شیر (پودری یا حیوانی)	1. بلی	2. نه	98. نمی فهمم
Juice	جوس	1. بلی	2. نه	98.نمی فهمم
Broth	اب گوشت و اب سبزیجات	1. بلی	2. نه	98. نمی فهمم
YOG	ماست	1. بلی	2. نه	98. نمی فهمم
PDG	فیرنی و مایعات مخلوط	1. بلی	2. نه	98. نمی فهمم
Other LIQ	مایعات دیگر (.....)	1. بلی	2. نه	98. نمی فهمم

Min DD	واضح نماید که این طفل در شب و روز گذشته داخل خانه و یا خارج خانه چی خورده			
	فکر کنید که بعد از خواب بیدار شد چی خورد تاکید نماید که همه جیزها را یادواری نماید بعدا تاکید نماید همه چیز را یاداوری نماید که در روز و شب گذشته خورده است ؟ وقتیکه جوابات ختم شد بعدا حلقه نماید و باقی مانده را تکرار نماید			
CODE		بلی	نه	نمی فهمم
A	فیرنی ، نان برنج مکرونی یا تمام غذاهای که حبوبات باشد	1	2	98
B	کدو ، زردک الو و کدو	1	2	98
C	الو سفید یا غذاهای ریشی	1	2	98
D	سبزیهای که برگ سبز دارد	1	2	98
E	میوه های که غنی از وینامین A باشد مثلا ام	1	2	98
F	سبزیجات و میوهای دیگر	1	2	98
G	جگر گرده وغیره	1	2	98
H	گوشت (بز مرغ یا گوسفند)	1	2	98

I	تخم	1	2	98
J	گوشت ماهی خوشک و تازه	1	2	98
K	غذای هایکه از لوبیا و دانهای مغذی باشد	1	2	98
L	**پنیر ماست و محصولات شیر**	1	2	98
M	غذا های شحمی یا مسکه	1	2	98
N	**اشیای شرین مثلا چکلیت و شرینی و بسکت**	1	2	98
O	**دانهای گلا که در چای انداخته می شود و گیاهای یونانی**	1	2	98
P	**حلزون و یا لیسک ، حشره جات**	1	2	98
Q	**خرما یا مربع خرما**	1	2	98
R	***غذاهای که دلست موجود نسیت***			

SLD & Soft Food	**ایا انی طفل (نام طفل) در شب و روز گذشته جامد نیمه جامد و یا غذاهای نیمه نرم را داد اید ؟**	**بلی .1**	**نه .2**	**98. نمی فهمم**
No. time	**چند دفعه در شب و رزو گذشته جامد و نیمه جامد غذا را اخذ گردیده**	**تعدادان نوشته کنید :|_ | 98 = نمی فهمم**		

.۳ قسمت : معافیت و صحت طفل که سن شان 0-59 ماه باشد

Code	**ایا طفل شما در 14 رزو گذشته مریض شده ؟**	**بلی .1**	**نه.2**	**نمی فهمم .98**
FVR	**تب**	**بلی .1**	**نه .2**	**نمی فهمم .98**
ARI	**سرفه یا مشکلات تنفسی**	**بلی .1**	**نه .2**	**نمی فهمم .98**
DIAR	**اسهال**	**بلی .1**	**نه . 2**	**نمی فهمم .98**
Other	**دیگر مشخص نماید**			

تعریفات

اسهال: **در سه یا زیاتر از دفعه رفع حاجت**	**سرفه :** **سرفه دوامدار و یا مشکلات ساه بندی**	**تب بلند رفتن درجه حرارت بدن**

	کرم زدایی معافیت و ویتامین A	**جواب**
Vit A	**ایا این طفل (نام رابگیر) و یتامین A کپسول در 6 ماه گذشته اخذ نموده ؟**	**بلی .1** **نه .2** **نمی فهمم .98**
DWM	**ایا این طفل در 6 ماه گذشته ادویه زد یی کرم را اخذ نموده (12-59 ماهه طفل) ؟**	**بلی .1** **نه .2** **نمی فهمم .98**
BCG	**ایا این طفل ندبه واکسین BCG دارد ؟**	**بلی .1** **نه .2** **نمی فهمم .98**
Polio	**ایا این طفل (نام را بگیر) واکسین فلج را گرفته ؟**	**بلی کارد دارد .1** **بل یکارد ندارد .2** **نه خیر .3**

		98. نمی فهمم
Measles	**ایا این طفل واکسین سرخکان را اخذ نموده (9-59 ماه طفل) ؟**	**1 . بلی کارد دار د** **2. بل یکارد ندارد** **3. نه خیر** **98نمی فهمم**

۴ قسمت : از 0 الی 59 ماه اطفال اندازه گیری

اندازه	اندازه گیری بدن	
	وزن طفل به کیلو گرام و 0.1 هم در نظر گرفته شود	**Weight**
	قد یا طول به سانتی متر 0.1 سانتی متر در نظر گرفته شود	**Height/length**
بلی = 1 **نه = 2**	**پندیده گی** **در موجودیت پندیده گی سوپر وایزر خود را در جریان بماند و عکس طفل به شکل واضح گرفته شود در صورت امکان**	**Edema**
	موک به ملی متر	**MUAC**

سوالنامه مادر یا پایواز

SMART

۱ معرفت

پاسخ	سوالات	Code
	تاریخ مصاحبه	**DATE**
	نام قریه	**VILLAGE**
	نمبر کلستر	**CLUSTER No**
	نمبر تیم	**TEAM No**
	نمبر خانواده	**HH No.**
	نمبر مادر یا پایواز	**CAREGIVER No.**

قسمت 2 : مراقبت قبل از ولادت و صحت

ANC	ایا کدام معاینه رابخاطر طفل تان قبل از ولادت اجرا نموده اید ؟	1. بلی 2. نخیر
WHOM	اگر جوا بلی باشد تاکید نمایید که فکر کند ؟	1. کارکن صحی (داکتر ، قابله ،کومکی قابله ، نرس) / مسلکی شخص 2. دایه محلی 3. رضا کار صحی 4. اقارب 96.) مشخص نماید .....

DISTANCE	چقدر فاصله را طی می کنید تا کلینک بروید؟	(با دقیقه بنویسید) ___

قسمت ۳ : حفظالصحه

Code	حالا میخواهیم که چی قسم و چیطور دستهای خود را میشوید (تاکید نه کنید)	بلی	نه خیر
Aft.DEF	بعد از رفع حاجت یا بعد از تشناب	1	2
Aft. Clean Baby	بعد از پا کردن طفل	1	2
Bef. Food Prep	قبل از تهیه کردن غذا	1	2
Bef. Eat	قبل از غذا خوردن	1	2
Bef. Feed child	قبل از اینکه به طفل خود شیر یا غذا میدهیم	1	2

Code	چی وقت و چی قسم دستهای خود را میشوید	بلی	نه خیر
WTR	تنها به اب	1	2
Soap/Ash	صابون	1	2
Both Hands	هر دو دست	1	2
Rubs 3 times	دستهای خود را سه بارمی مالین	1	2
Dry Hands	دستهای خود را با دستمال یا دستپاک پاک خوشک می کنید	1	2

قسمت ۴: تغذیه مادران

Code	**حالا میخواهیم که اندازه بازو تان را اندازه نمایم**	
MUAC	موک به ملی متر MUAC	**ملی متر** .....
Status	حالت فزیالوژیک چی قسم است	1. **حامله** 2. **شیر ده** 3. **هیچکدام**
iron-folate	ایا تابلیت ها اهن را خورده ید (برای خانمهای حامله)؟	1. **بلی** 2. **نه خیر** 98. **نمی فهمم**

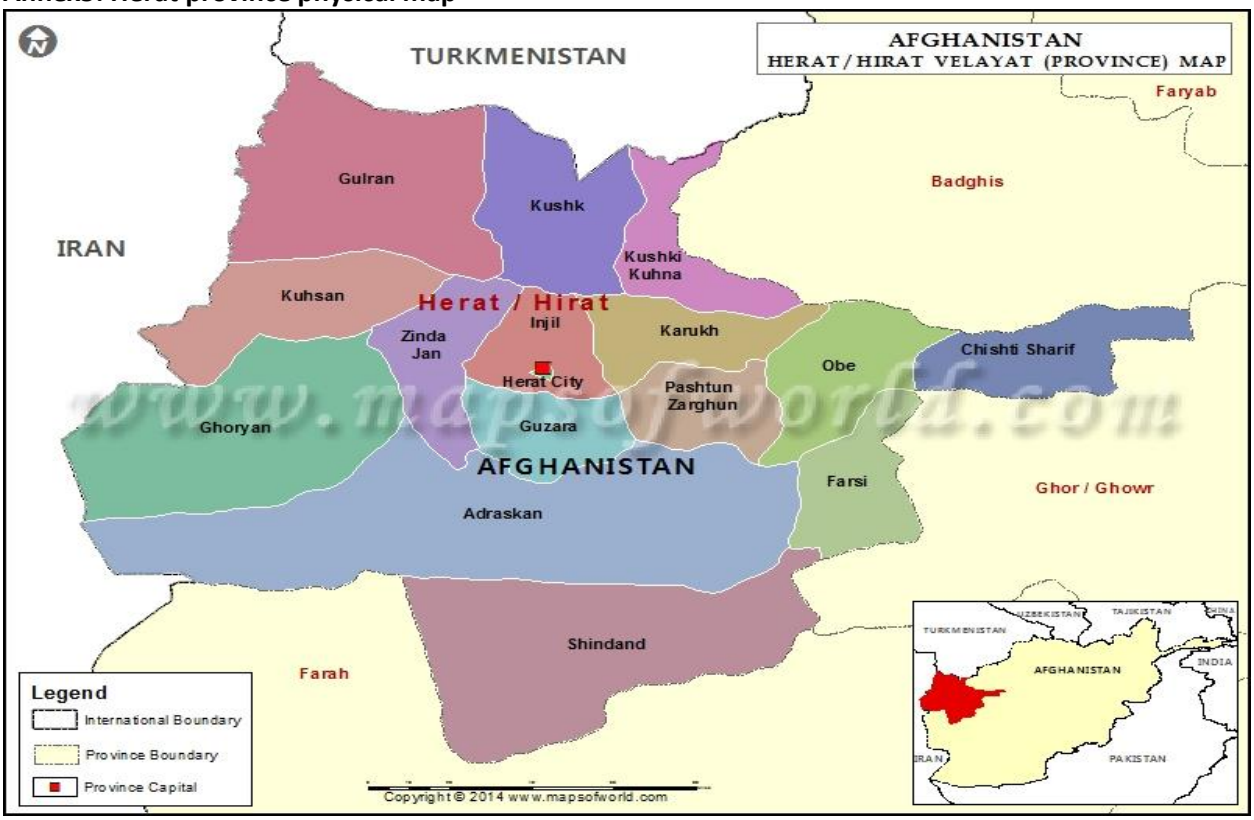
فورم خود را چک نماید که به شکل درست خانه پور گردیده بعدا از پایواز تشکری نماید

ANNEX4: sampling villages list

Type	Name of Health Facility	District Name	Province	Geographical unit	Population size	Cluster
CHC	Now Abad	Herat City	Herat	Jadefarqa	850	2
CHC	Gazargah	Herat City	Herat	Qabrestani	21100	3
CHC	Gazargah	Herat City	Herat	Baghmorad	3400	4
CHC	Gazargah	Herat City	Herat	Mahlai khimaduzan alia	1700	5
CHC	Manareha	Herat City	Herat	Baqcha arbabzada	4500	31
CHC	Manareha	Herat City	Herat	Emamfakhr razi	7500	32
CHC	Baba-e-bargh	Herat City	Herat	Baba-e-Bargh	8400	35
CHC	Baba-e-bargh	Herat City	Herat	Shalbafan	16800	36
BHC	Howza karbas	Enjil	Herat	Mhalisfa	5000	1
BHC	Jabriel	Enjil	Herat	Dahmetri emamraza	500	RC
BHC	Jabriel	Enjil	Herat	Mahajiren kamp maslakh	21000	30
CHC	Enjil	Enjil	Herat	Shahrak	1500	34
CHC	Kahdestan	Enjil	Herat	Shahrak razi	4000	6
DH	Ghoryan	Ghoryan	Herat	Mhali tahmasha	1275	7
BHC	Sabol	Ghoryan	Herat	Roj	3262	29
DH	Ghoryan	Ghoryan	Herat	Aghdadiha Gaza	1400	8
BHC	Barnabad	Ghoryan	Herat	Mahal Janmohammad	2240	37
SC	Sarah chah	Koshk-e-Kohna	Herat	Dozdanak	105	9
CHC	Zerkoh	Shindand	Herat	Sultanzaheha	1200	10
CHC	Zerkoh	Shindand	Herat	Majbor Abad	3500	11
BHC	Zawol	Shindand	Herat	Mir Haidar	4200	12
BHC	Zawol	Shindand	Herat	Kariz Hendo	245	RC
BHC	Zawol	Shindand	Herat	Jertai	200	13
DH	Shindand	Shindand	Herat	Bala shar gari	3000	17
DH	Shindand	Shindand	Herat	Karez bi bi	3500	18
DH	Shindand	Shindand	Herat	Rabat darzai	1580	19
CHC	Farsi	Farsi	Herat	Darolang	330	RC
BHC	Dara Takht	Chasht-e-Sharif	Herat	Robatak sofla	700	14
CHC	Adraskan	Adraskan	Herat	Zolm Abad	1043	15
BHC	Shirzad	Adraskan	Herat	Khosh noh	245	16
BHC	Nayestan	Karukh	Herat	Zoori ha	143	RC

BHC	Shakiban	Zandajan	Herat	Dehpadeh	1281	20
CHC	Robat sangi	Koshk-e- Robat sangi	Herat	Ghanat Wakil Sharghi	775	21
CHC+	Torqhondi	Koshk-e- Robat sangi	Herat	Kocha talib jan	2300	22
CHC+	Torqhondi	Koshk-e- Robat sangi	Herat	Ganj mahal haji amanullah	2000	23
CHC	Kohsan	Kohsan	Herat	Qader aabad	740	RC
CHC	Islam Qhala	Kohsan	Herat	Qalae timoryan mir hakim	1900	24
BHC	Bonyad	Kohsan	Herat	Mahal-e- Masjid Mostafabig1	2400	25
CHC	Karokh	Karukh	Herat	Asiab kamarak	392	26
BHC	Totichi	Gulran	Herat	Chah turkman	665	27
BHC	Khogiyani	Gulran	Herat	Zakini	1800	28
CHC+	Oba	Oba	Herat	Nang Abad	280	38
BHC	Sarwan	Oba	Herat	Haft Bacha	224	39
CHC+	pashton zarqon	pashton zarqon	Herat	Safidan	1320	40
BHC	Marabad	pashton zarqon	Herat	Alizay yakatot	490	41
BHC	Malan	Guzarah	Herat	Ziarat jah	7361	42
BHC	Toghchi	Guzarah	Herat	Shakma	554	43
BHC	Dehnaw	Guzarah	Herat	Dehi menar	547	44
DH	Guzara	Guzarah	Herat	Sharak andisha	5950	45
DH	Guzarah	Guzarah	Herat	Gawashan	2500	46
SC	Nashin	Guzarah	Herat	Robat jabarkhan	920	33

Annex5: Herat province physical map



QUESTIONNAIRES

HOUSEHOLD QUESTIONNAIRE

3. Make the list of the data with explanation. For example:

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

- ✓ **Date of the survey:** This is the date of data collection, it should be written in the standard format for all the questionnaires administered during the survey. (day/month/year
- ✓ **Name of the village:** Indicate the name of the sampled village that is visited on the particular day of data collection.
- ✓ **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 be done together with the team at the **training hall.** Important to note that once Cluster number has been assigned it cannot be changed.
- ✓ **Team ID number:** Teams was be formed during the training session. Each team was be assigned a unique number ranging from 1-5. Each team must indicate the team number on the questionnaires they administer.
- ✓ **Household number:** Each HH in the selected cluster was be 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 12th HH in the village)

- ✓ **Starting time of the interview:** This is indicated the time of start of the interview in the selected HH.
- ✓ **Consent:** Each team was be provided with a consent form that they was be 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.

A. **WASH:** Description of the following key WASH indicators

- ✓ **Source of drinking water:** This question was be 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[9]/ total number of respondents.
  - Number of HH accessing water from unimproved sources[10]/ total number of respondents.
- ✓ **Water treatment methods:** This question was sought to find out what methods HH are using to make their drinking water safe. This indicator was show the proportion of HH practicing safe methods of water treatment in the survey area. The calculation of this was be:
  - Total number of HH practicing safe water treatment methods[11]/ total number of respondents
  - Total number of HH not practicing safe water treatment methods/ total number of respondents.
- ✓ **Water Use/Consumption at HH level:** This question was being 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.

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

CHILD QUESTIONNAIRE

IDENTIFICATION:

This section is mandatory to be filled to all teams in all the HH visited during the survey.

The information contained in this section is:

- ✓ **Date of the survey:** This is the date of data collection, it should be written in the standard format for all the questionnaires administered during the survey. (day/month/year
- ✓ **Name of the village:** Indicate the name of the sampled village that is visited on the particular day of data collection.
- ✓ **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 be done together with the team at the **training hall.** Important to note that once Cluster number has been assigned it cannot be changed.
- ✓ **Team ID number:** Teams was being formed during the training session. Each team was be assigned a unique number ranging from 1-6. Each team must indicate the team number on the questionnaires they administer.
- ✓ **Household number:** Each HH in the selected cluster was being 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 12^{th} HH in the village)
- ✓ **Caregiver Number:** Each caregiver living in the selected HH was being assigned a specific unique number. This is the same number that was appearing in the Caregiver questionnaire. In case of more than one caregiver in a HH each was be assigned a unique number to identify and distinguish them from each other. Each caregiver was being linked to her/his children selected in the HH to be able to link each caregiver with the children.
- ✓ **Child Number:** Each Child Under the age of 5 years living in the selected HH was is assigned a specific unique number. In case of more than one child in a HH each was be assigned a unique number to identify and distinguish them from each other. Each child was be linked to her/his caregiver selected in the HH to be able to link each caregiver with the children.
- ✓ **Age in months:** Only children between 0 and 59 months old of age was be included. Height was not being considered as a valid criterion in absence of age due to the high stunting rates in Herat province. Age was be 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

Herat province was be used to determine the age. The age was being recorded into the questionnaire in months.

- ✓ **Sex:** Male or female
- ✓ **Weight (in kg):** Children were being weighed to the nearest 0.1kg by using an Electronic Uni-scale. The children who can easily stand was being 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 being applied.
- ✓ **Height (in cm):** Measuring board was be used to measure bare headed and barefoot children. The precision of the measurement is 1 mm. Children of less than 2 years of age was be measured lying down and those equal to or above 2 years of age measured standing up.
- ✓ **Mid-Upper Arm Circumference (in mm):**MUAC was be used as an indicator of mortality risk for malnutrition and was be 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 be used to measure women of reproductive age (15-49 years)
- ✓ **Oedema:** Only children with bilateral pitting nutrition oedema was be recorded as having nutritional oedema this was be checked by applying normal thumb pressure for at least 3 seconds to both feet.

INFANT AND YOUNG CHILD FEEDING

In this section only children 0-23 months was be considered as eligible respondents. All children within these age groups were being selected in the surveyed HH and the following indicators administered to them.

- ✓ **Ever Breastfed:** This indicator was being 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 between 0-23 months old.
- ✓ **Time to Breastfeeding/Initiation to Breast milk:** This indicator was look at the amount of time it took for mothers to put their children to the breast after giving birth. The focus was being on the mother's last pregnancy in which the child is between 0-23months.
- ✓ **Colostrum feeding:** This indicator was look at the number of mothers with children 0-23 months who fed their children with Colostrum within the first 3 days after birth.
- ✓ **Breast feeding Yesterday:** This indicator was look at the number of mothers who breast fed their children 0-23 months one day (day and Night) prior to the data collection day.

1. **Other Liquids offered to the child:** This indicator was ask the mothers of children 0-23 months what other liquids were offered to the child one day (day and night) prior to the data collection day.
   - ✓ **Minimum dietary diversity:** This indicator was asking the mothers on the types of food given to the child 0-23 months one day (day and night) prior to the day of data collection. The food groups are categorised based on the WHO-IYCF guidelines.
   - ✓ **Complimentary feeding:** This indicator looks at the number of mothers who gave solid and semi-solid foods to children 0-23 months one day (day and night) prior to the data collection day.
   - ✓ **Minimum Meal frequency:** This indicator was ask mothers on the number of times they provided solid and semi-solid foods to their children 0-23 months one day (day and night) prior to the data collection day.

CHILD HEALTH AND IMMUNIZATION

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

- ✓ **Type of Illness:** This question was asked 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
- ✓ **Vitamin A supplementation:** This question was ask the caregiver of child 0-59 months on whether the child has received vitamin A tablets in the previous 6 months prior to the data collection day. Each team was being provided with a Sample of the Vitamin A tablet to enable the caregivers to easily identify it.
- ✓ **Deworming:** This question was ask the caregiver of child 12-59 months on whether the child has received deworming tablets in the previous 6 months

prior to the data collection day. Each team was being provided with a Sample of the deworming tablet to enable the caregivers to easily identify it.

- ✓ **BCG vaccination:** This question was asking the caregiver on whether the child 0-59 months has received BCG vaccination.

CAREGIVER QUESTIONNAIRE

Identification:

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

Date of the survey: This is the date of data collection, it should be written in the standard format for all the questionnaires administered during the survey. (day/month/year

- ✓ **Name of the village:** Indicate the name of the sampled village that is visited on the particular day of data collection.
- ✓ **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 be done together with the team at the **training hall.** Important to note that once Cluster number has been assigned it cannot be changed.
- ✓ **Team ID number:** Teams was being formed during the training session. Each team was be assigned a unique number ranging from 1-5. Each team must indicate the team number on the questionnaires they administer.
- ✓ **Household number:** Each HH in the selected cluster was being assigned a number. There are a total of 12HH 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 12th HH in the village)**
- ✓ **Caregiver Number:** Each caregiver living in the selected HH was being assigned a specific unique number. This is the same number that was appearing in the Caregiver questionnaire. In case of more than one caregiver in a HH each was be assigned a unique number to identify and distinguish them from each other. Each caregiver was being linked to her/his children selected in the HH to be able to link each caregiver with the children.

ANTENATAL CARE AND HEALTH SEEKING BEHAVIOR

- ✓ **Antenatal care:** Caregivers between the ages of 15-49 years at household level was being asked on whether they sought ante-natal care during their last pregnancy. In this case last pregnancy was being considered of the last child

who is still between 0-59 months for purposes of having a more precise re-call period.

- ✓ **Health seeking behaviour:** Caregivers who respond positive to seeking antenatal care was be 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.
- ✓ **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.

WATER SANITATION AND HYGIENE (WASH)

HAND WASHING PRACTICES: CAREGIVERS WAS BEING ASKED ON HAND WASHING PRACTICES TO ASCERTAIN INSTANCES IN THEIR DAILY ACTIVITIES WHEN THEY WASH THEIR HANDS. THE CAREGIVER SHOULD NOT BE PROBED FOR ANSWERS/RESPONSE RATHER THEY SHOULD BE ALLOWED TO PROVIDE THEIR RESPONSE INDEPENDENTLY.

- ✓ **Use of Soap:** A follow up question was be 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.

MATERNAL NUTRITION

This section seeks to identify the nutrition status of women between the ages 15-49 years (Child bearing age)

- ✓ **MUAC measurement:** The caregivers mid – upper arm circumference was be measured using the standard WFP issued adult MUAC tape.
- ✓ **Physiological status:** Each of the caregivers was asked about their current physiological status to ascertain whether they are currently pregnant, lactating, pregnant and lactating or not pregnant.
- ✓ **Iron – Folate supplementation**: Caregivers who report to be currently pregnant was be 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.

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

curves of a reference population (WHO standards data[12]). These curves have a normal shape and are characterized by the median weight (value separating the population into two groups of the same size) and its standard deviation (SD).
The expression of the weight-for-height index as a Z-score (WHZ) compares the observed weight (OW) of the surveyed child to the mean weight (MW) of the reference population, for a child of the same height. The Z-score represents the number of standard deviations (SD) separating the observed weight from the mean weight of the reference population: WHZ = (OW - MW) / SD.
During the field data collection, the weight-for-height index in Z-score was being calculated on the field for each child in order to refer malnourished cases to appropriate center if needed. Moreover, the results were being presented in Z-score using WHO reference in the final report.

✓ 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 six months.

Table 29 : Cut offs points of MUAC, children 6-59 months, WHO Recommendations

Target group	MUAC (mm)	Nutritional status
Children 6-59 months	> or = 125 and < 135	**No malnutrition**
	< 125 and > or = 115	**Moderate acute malnutrition**
	< 115	**Severe acute malnutrition**

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 5 illustrates the acute malnutrition according to W/H index, MUAC criterion and oedema.

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

Table 30: Definition of acute malnutrition according to weight-for-height index (W/H), expressed as a Z-score according to WHO standards

Severe Acute Malnutrition (SAM)
W/H <-3 z-score and /or bilateral oedema and/or MUAC < 115 mm
Moderate Acute Malnutrition (MAM)
W/H <-2 z-score and >= -3 z-score and absence of bilateral oedema and/or MUAC >= 115mm and <125mm
Global Acute Malnutrition (GAM)
W/H <-2 z-score and /or bilateral oedema and MUAC < 125 mm

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 7.

.

Table 31: 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

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

Crude death rate (CDR)

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

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

Under-5 death rate (U5DR)

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

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

HEALTH

Beside anthropometric data, additional information was being collected as follows:

Immunization status, deworming and vitamin A supplementation

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

✓ Morbidity

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

✓ Mothers nutritional status and Iron/Folate supplementation for pregnant

A woman in childbearing age was being assessed for their nutritional status based on MUAC using the cut-off of 230 mm.

WASH

✓ Water storage and Usage

House hold heads was be 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 was be 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 0-23 months are described as follows.

Child ever breastfed

- ✓ **Child ever breastfed** refers to proportion of children who have ever received breast milk.
- ✓ **Timely initiation of breastfeeding refers to** proportion of children born in the last 23 months who were put to the breast within one hour of birth.

Provision of colostrum in the first 3 days of life refers to proportion of children who received colostrum (yellowish liquid) within the first 3 days after birth

- ✓ **Exclusive breastfeeding under 6 months** refers to Proportion of infants 0-5 months of age who are fed exclusively with breast milk.
- ✓ **Continued breastfeeding at 1 year** refers to proportion of children 12 – 15 months of age who are fed with breast milk.
- ✓ **Introduction of solid, semi-solid or soft foods:** refers to proportion of infants 6-8 months of age who receive solid, semi-solid or soft foods.
- ✓ **Continued breastfeeding at 2 years** refers to Proportion of children 20–23 months of age who are fed breast milk.

Minimum dietary diversity

Refers to proportion of children 6–23 months of age who receive foods from 4 or more food groups it's calculated by dividing all children aged 6–23 months who received foods from ≥ 4 food groups during the previous day by children aged 6–23 months. The 17 foods groups used for tabulation of this indicator are as recommended by the WHO IYCF indicator guideline.

Minimum meal frequency

This indicator refers to proportion of breastfed and non-breastfed children aged 6–23 who received solid, semi-solid, or soft foods (but also including milk feeds for non-breastfed children) the minimum number of times or more. The indicator is calculated from the following two fractions: dividing the number of breastfed children 6–23 months of age who received solid, semi-solid or soft foods the minimum number of times or more during the previous day by breastfed children 6–23 months of age and dividing non-breastfed children 6–23 months of age who received solid, semi-solid or soft foods or milk feeds the minimum number of times or more during the previous day by non-breastfed children 6–23 months of age. This survey team was ask caregivers on the number of times they provided solid and semi-solid foods to their children 0-23 months one day (day and night) prior to the data collection day. This indicator is intended as a proxy for energy intake from foods other than breast milk. Feeding frequency for breastfed children includes only non-liquid feeds. Feeding frequency for non-breastfed children includes both milk feeds and solid/semi-solid feeds.

NUTRITIONAL STATUS OF PREGNANT AND LACTATING WOMEN

Women in childbearing age were assessed for their nutritional status based on MUAC measurements. The nutritional status of pregnant and lactating mothers was 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 90days by total number of pregnant mothers.

TRAINING, TEAM COMPOSITION AND SUPERVISION

Six teams of four members were conducting the field data collection. Each team was being composed of one Bakhtar Development Network (BDN) supervisor, one team leader and two data collector. Each team was having at least one female data collectors to ensure acceptance of the team amongst the surveyed households; particularly for IYCF questionnaires. Each female member of the survey team was being accompanied with a mahram[13] to facilitate the work of the female data collectors at the community level. The teams was be supervised by ACF and BDN nutrition program manager/nutrition focal points.

The entire teams were receiving a 7-days training on the survey methodology and all its practical aspects; conducted by ACF Nutrition SMART Senior Program Manager. A standardization test was be conducted over the course of 1day, measuring 8-10 children, in order to evaluate the accuracy and the precision of the team members in taking the anthropometrics measurements. A one-day field test was be conducted by the teams in order to evaluate their work in real field conditions. Feedback was being 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 being 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 be provided to each team member. All documents, such as local event calendar, questionnaires or consent forms was be translated in Pashtu, local language, for better understanding and to avoiding direct translation during the data field collection. The questionnaires was be back translated using a different translator and was be pre-tested during the field test. Alterations were being made as necessary.

Daily data entry and analysis was being done using ENA for anthropometric data, plausibility check, and feedback was being provided to the data collection teams.

[13] Women are not allowed to go outside without being accompanied by one male relative called locally a 'mahram'.

Anthropometric data was all be directly entered into ENA while IYCF and other data was be completed through an excel spreadsheet.

DATA ENTRY AND ANALYSIS

ENA for SMART software was also used to generate anthropometric and mortality results automatically. For the rest of the indicators, they were entered and analyzed in Excel.

The anthropometric results are presented as percentage z-scores from WHO 2006 Growth references for the weight-for-height (wasting), height-for-age (stunting) and weight-for-age (underweight) indexes. Separate analysis of wasting based on MUAC cut-offs is automatically done by ENA for SMART too.
Plausibility check automatically generated is used to evaluate quality and representativeness of the data, and therefore – the reliability of the results.

REFERENCES

- National Nutrition Survey of Afghanistan, UNICEF, 2013
- based on WHO, 2010[14] core IYCF indicators
- Nutrition and Mortality SMART Badghis, February 2016
- CSO: Estimated Settled Population by Civil Division , Urban, Rural and Sex-2015-2016
- WHO from 2010 recommends increase routine coverage with the first dose of measles-containing vaccine (MCV1) by ≥90% nationally and ≥80% in every district or equivalent administrative unit for children aged 1 year (http://www.who.int/mediacentre/factsheets/fs286/en/).

[14] WHO 2010, Indicators for Assessing Infant and Young Child Feeding Practices