AFGHANISTAN

Nutrition & Mortality SMART Survey
Final Report

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16th August to 4th September 2016

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Action Contre la Faim

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

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ABBREVIATIONS

ACF	Action Contre la Faim/Action Against Hunger
ACTD	Afghanistan Center for Training and Development
AIM-WG	Afghanistan Information Management Working Group
BCG	Bacillus Chalmette Guerin
BPHS	Basic Package of Health Services
CDR	Crude Death Rate
CHW	Community Health Worker
CSO	Central Statistics Organization
ENA	Emergency Nutrition Assessment
FSL	food Security and Lively hood
GAM	Global Acute Malnutrition
HH	Household
IYCF	Infant and Young Child Feeding
IP	Implementer
MOPH	Minister of Public Health
MUAC	Mid Upper Arm Circumference
MW	Mean Weight
NNS	National Nutrition Survey
OW	observed Weight
PND	Public Nutrition Department
PPS	Proportional Population Size
PND	Public Health Nutrition Department
RC	Reserve Cluster
SAM	Severe Acute Malnutrition
SD	Standard Deviation
SMART	Standardized Monitoring and Assessment of Relief and Transition
U5DR	Under five Death Rates
U5	Under five
UNICEF	United Nation Children's Fund
WFP	World Food Program
WASH	Water Sanitation and Hygiene
WHZ	Weight for Height Z score
W/H	Weight for height
WHO	World Health Organization

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EXECUTIVE SUMMARY

The Integrated SMART[1] survey was conducted from 16th August to 4th September 2016, in all districts of Ghor province. A total of 608 randomly selected households were assessed. This report provides a summary of the methodology used, analysis and interpretation of survey finding and recommendation proposed.

Summary findings

- A total of 771 children aged (0-59) months and 690 children aged (6-59) months children were assessed
- Global Acute Malnutrition (GAM) and Severe Acute Malnutrition (SAM) prevalence based on Weight –for- Height Z-scores (WHZ) for children 6-59 months was at 11.0% (8.6-14.0 95% CI)and 2.5% (1.6- 4.0 95% CI) respectively. Prevalence of oedema was at 0.0%
- GAM and SAM prevalence based on Mid Upper Arm Circumference (MUAC) was at 14.3% (11.2-18.0 95% CI) and 5.4% (3.6- 8.0 95% CI) respectively.
- The combined MUAC and WHZ based on both criteria revealed GAM and SAM rates 20.7% (17.7-23.7 95% C.I.) and 8.4 %(6.3-10.5 95% C.I.) Respectively.
- Prevalence of stunting was at 51.3% (46.6-56.0 95% CI) while severe stunting was at 18.2% (15.4-21.4 95% CI).
- Prevalence of underweight was 32.2% (28.5-36.3 95% CI) and severe underweight was 8.8% (6.7-11.5 95% CI).
- Crude Death Rate (CDR) and U5 Death Rate was 0.15 (0.08-0.27) and 0.09 (0.01-0.67) respectively.
- The maternal nutrition status of childbearing age women (CBA) was 25.6%.
- Coverage of measles aged 9-59 months confirmed by recall and cards were 70.9 % and BCG aged 0-59 months children confirmed by scar was 65.9%.
- Coverage of Vitamin A aged 6-59 months confirmed by recall was 48.9% retrospectively.
- Overall Morbidity in the past 2 weeks prior to the survey was 89.3% retrospectively.

[1] Standardized Monitoring of Assessment for Relief and Transition

INTRODUCTION

CLIMATE AND GEOGRAPHY.

Ghor is one of the 34 provinces of Afghanistan situated in the western part of the country. The province is composed of 10 districts (**see Annex 1 Ghor physical map**).
Ghor province is located in central of Afghanistan, the borders of the provinces are Saripul and Faryab to the north, Herat and Badghis to the west, Helmand and Farah to the south and Bamyan and Daikundi to the east.

The area occupies the end of the Hindu Kush Mountains, therefore characterized by desert in the south and increasing mountainous ranges moving north. Ghor is 2,500 m above sea level and heavy snowfalls often block many of its rugged passes from November to April making the area difficult to access. In many districts, including Shahrak, Dulaina and Lal Wa Sargangal, some of the villages may remain cut off for up to four months during the winter. However, many villages have no road access and the local population uses animal transport to access surroundings. The Hari-Rod River crosses the province from east to west. Though the river depth is high, the water is rarely used for irrigation due to lack of resources and means. Ghor is also a drought-prone area in the summer, with a drought affecting the region in 2013.

DESCRIPTION OF THE POPULATION

The predominant ethnic in the surveyed area is Sunni Muslim Aimak[2] and Shia Muslim Hazara[3] (Bacha Ghulam and Dai Zangi) populations in the East. The area is mainly rural (99%), with the majority involved in agriculture, crops and farming, and animal husbandry, except for the town of Chaghcharan. Almost each family has at least one male member going for intermittence work to Iran, Pakistan or neighboring provinces in Afghanistan.

The province has one of the lowest male (35.2%) and female (5.1%) literacy rates in Afghanistan[4]. Down from rates indicated in the NRVA report of 2007/2008 with literacy rates of 45% and 7% consequently[5]. Employment opportunities are scarce in Ghor province.
The survey was conducted in summer (16th August to 4th September 2016) covering 8 districts of the province and ACF Ghor was the implementer.

[2] The Aimak are a Persian-speaking nomadic or semi-nomadic tribe of mixed Iranian and Mongolian descent who inhabit the north and north-west highlands of Afghanistan and the Khorasan Province of Iran.

[3] The Hazara are a Persian-speaking tribe of central Afghanistan of Eurasian descent.

[4] National Risk and Vulnerability Assessment (NRVA), 2013

[5] NRVA 2007/08

SURVEY OBJECTIVES

BROAD OBJECTIVE

- To determine the nutritional status of vulnerable population mainly under five, pregnant and lactating women living in Ghor 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.
- To assess coping strategy and food consumption at HH level.

JUSTIFICATION

The justification of the proposed assessment is to estimate the current prevalence of under-nutrition among vulnerable populations in Ghor province. The survey was also conducted to investigate the current mortality rates, child health status (morbidity, immunization and supplementation), and nutritional status of women of reproductive age (15-49 years) with special focus on pregnant and lactating women, IYCF and WASH practices. The last assessment that provided information on nutritional status of under-fives was conducted through the Nutrition and mortality SMART survey in 2014 and GAM rates was at poor levels of WHO classification. There was need to investigate on the current prevalence of under-nutrition in the province. The Survey findings were used to inform future programing in the Ghor province.

METHODOLOGY

SAMPLE SIZE

The sample size of households to be surveyed was determined using ENA for SMART software version 2011 (up dated 9th July 2015). A two stage cluster methodology was applied. In first stage, it involves random selection of clusters/villages (49 clusters) from total list of villages using probability proportion to size (PPS). This was done before starting the data collection at the office or training hall. Villages were the primary sampling unit for the proposed survey. In the second stage of methodology, it involved random selection of household (13 households) from an updated list of households. This was conducted at the field level. Households were the basic sampling unit for the proposed survey. The **table 1 highlights** sample size calculation for anthropometric surveys.

Table 1: Parameters for sample size calculation of anthropometric indicators

Parameters for Anthropometry	Value	Assumptions based on context
Estimated prevalence of GAM (%)	12.2 %	Global acute malnutrition (GAM)[6] prevalence (WHZ) for Ghor was 9.2% (6.8-12.2, 95% CI) with a Standard deviation (SD) of 1.05. in this case we estimated the highest range of the confidential interval due to the highest priority for the WASH situation based on ACF survey 2015.
± Desired precision	3%	For an estimate point prevalence of 12.2% a precision of ±3 is recommended by SMART methodology
Design Effect *(if applicable)*	1.5	The standard design effect of 1.5 was used.
Children to be included	**747**	Minimum sample size-children aged 6-59 months. (However to avoid possible bias of selection for younger age group, all children from 0 to 59 months old found in the selected households was surveyed.)
Average HH Size	8	Based on Ghor nutrition and mortality SMART survey 2014, the average household size was **8** – It's the most recent result data available.
% Children under-5	17.7%	The estimated U5 population according to the Ghor Nutrition and mortality SMART survey was at 17.7% providing a more conservative and accurate percentage.
% Non-response Households	7.6%	The percentage of non-respondent households was estimated at 7.6%. Based on last Ghor SMART survey experience.
Households to be included	**634**	Minimum sample size-Households to be surveyed. Households were the basic sampling unit for the SMART survey

[6] Ghor nutrition and mortality SMART survey Sep 2014

Table 2: Sample size calculation for mortality surveys, Ghor SMART, August 2016

Parameters for Mortality	Value	Assumptions based on context
Estimated Death Rate /10,000/day	**0.5/10000/day**	No updated death rate at population level; Recommended in cases where there is no specific mortality data for the area to be surveyed.
± Desired precision /10,000/day	**0.3**	Based on survey objectives and inline to estimated death rate
Design Effect *(if applicable)*	**1.5**	This caters for heterogeneity in the population being sampled
Recall Period in days	150	Starting point of recall period (during the start of the 1st Hamal 1395 (this was done from the start of Now Roz). 1st Hamal is the date of recall is equivalent to 20th of March 2016 as per Gregorian calendar.
Population to be included	**2904**	Population
Average HH Size	**8**	Refer to table 1.
% Non-response Households	**7.6%**	Refer to table 1.
Households to be included	**393**	Households

Sample Size for Additional Indicators:

The sample size for IYCF indicators was calculated by using the Care international IYCF calculator, based on WHO, 2010 core IYCF indicators as highlighted in table 4. 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.

Table 3: Sample size calculation for IYCF indicators, Ghor SMART, August 2016

Parameters for Anthropometry	Value	Assumptions based on context
Estimated Prevalence of indicator (%)	50%	No recent data, a standard prevalence of 50 % recommended by WHO was 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**

Sampling Methodology

A two-stage cluster sampling methodology was employed.

In the stage 1, random selection of clusters/villages was done using probability proportionate to size (PPS) using ENA for SMART software version 2011 of (9th July, 2015). A list of all updated villages (1591) was amounted into the ENA for SMART software where PPS was applied. The villages with large population have a higher chance of being selected than villages with small population and vice versa. Reserve Clusters (RCs) was selected by ENA software version 2011(updated 9th July 2015). Reserve clusters was used if 10% or more clusters was impossible to reach during the survey **A total of 49 clusters was covered if each survey team completes anthropometric measurements in 13 households in a day (634/13=48.9 clusters) and it was round up 49 clusters**. In each selected village, one or more community member(s) was asked to help the survey teams to conduct their work by providing information about the village with regard to the geographical organization or the number of households. In cases where there are large villages in a cluster, 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 e.g. neighborhoods, or streets or natural landmarks like river, road, or public places like market, schools, and mosques.

In the Stage 2, random selection of households from updated and complete list of households within a given village. In this case the actual survey data collection, was incorporate 637 households randomly selected based on survey parameters calculation for anthropometric. Based on total sample size each team can cover effectively 13 households in a day. In this assessment, 6 teams were engaged during the assessments, while data collection is expected to last 8-9 days. All households was enumerated and given numbers by the survey team. The 13 households was chosen randomly from these enumerated households, by randomly drawing household numbers required from a hat or using a random number table generated from ENA for SMART software. In cases where it is difficult to obtain an updated list of households systematic random sampling was used to identify the households to be surveyed. The teams were trained on both methods of sampling (simple and systematic random sampling) and they were offered with materials to assist in determining the households during the data collection exercise.

All the children living in the selected house aged (0 to 59) months old was included for anthropometric

measurements. Children aged (0-23) months were included for IYCF measurements. If more than one eligible child is found in a household, both were included, even if there are twins. Eligible orphans living in the selected Households were surveyed. All of the selected HH was included in the mortality survey as well as was respond to questions concerning the HH as a whole (ex. water storage).

Any empty households, or households with missing or absent children was revisited at the end of the sampling day in each cluster; any missing or absent children that was not be subsequently found was not be included in the survey. A cluster control form was used to record all these missed and absent households.

Table 4: the achievement of the planned activities in the sampled, Ghor SMART, August 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
634	608	95.9 %	747	690	92.4%

2 clusters were missed due to fighting in the selected area. Based on SMART methodology, there was no need to cover the RCs as it represented less than 10 % of the targeted population. The household was the basic sampling unit. The term household was defined as all people eating from the same pot and living together (WFP definition). In Afghanistan, the term household 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.

TRAINING, TEAM COMPOSITION AND SUPERVISION

Six teams of four members were conducting the field data collection. Each team was composed of one supervisor, one team leader and two data collectors. Each team had at least one female data collector to ensure acceptance of the team amongst the surveyed households; particularly for IYCF questionnaires. Each female member of the survey team was accompanied with a mahram[7] to facilitate the work of the female data collectors at the community level. The teams were supervised by ACF Nutrition SMART Program manager and Public Nutrition Department Surveillance manager.

The entire teams received 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 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 conducted by the teams in order to evaluate their work in real field conditions. Feedback was provided to the team in regard to the results of the field test; particularly in relation to digit preferences and data collection. Refresher training on the anthropometric measurement and on the filling of the questionnaires and the household's selection was organized on the last day of the training by ACF to ensure overall comprehension before going to the field.

One field guidelines document with instructions and household definition and selection document was provided to each team member. All documents, such as local event calendar, questionnaires or consent forms were translated in local language, for better understanding and to avoiding direct translation

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

during the data field collection. The questionnaires were back translated using a different translator and was pre-tested during the field test.

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

DATA ENTRY AND ANALYSIS

The anthropometric and mortality data was analyzed using ENA for SMART software 2011 version (9th July 2015). Survey results were interpreted in reference to WHO standards, analysis of other indicators to include IYCF, WASH, demographic and food security was done using Microsoft excel version 2010. Information generated from these indicators was used to explain the outcome indicators to include; nutritional status of under-fives and mortality (CDR and U5DR). Contextual information generated from routine monitoring was used in complementing survey findings.

SURVEY FINDINGS

ANTHROPOMETRIC RESULTS

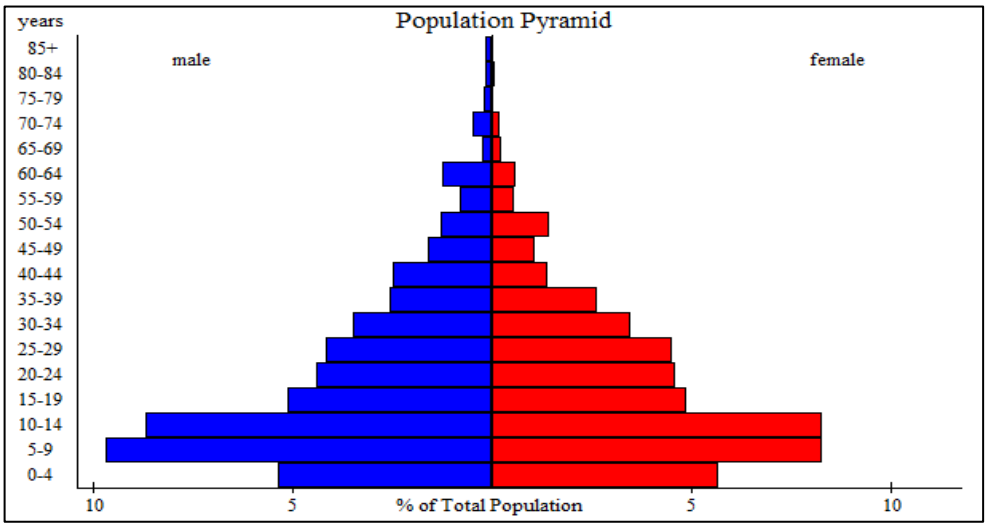
UNDER NUTRITION RATES

The results are presented with exclusion of SMART flags: Z score values ranging outside -3 to + 3 for all three indexes, WHZ, HAZ and WAZ. The survey findings revealed that the boys and girls in the sample were equally represented, the percentages of values flagged with SMART flags were WHZ: 2.5 %, HAZ: 5.4 %, WAZ: 2.5 %, Age ratio of 6-29 months to 30-59 months: 1.05 (The value should be around 0.85).p-value = 0.005 (significant difference) for more details refer to the Plausibility report in (Annex 2).

Table 5: Distribution of age and sex of sample, Ghor SMART, August 2016

	Boys		Girls		Total		Ratio
AGE (mo)	**no.**	**%**	**no.**	**%**	**no.**	**%**	**Boy: girl**
6-17	86	45.5	103	54.5	189	27.4	0.8
18-29	87	52.7	78	47.3	165	23.9	1.1
30-41	95	54.9	78	45.1	173	25.1	1.2
42-53	68	59.6	46	40.4	114	16.5	1.5
54-59	26	53.1	23	46.9	49	7.1	1.1
Total	362	52.5	328	47.5	690	100.0	1.1

Figure 1: Population age and sex pyramid, Ghor SMART, August 2016



QUALITY OF THE ANTHROPOMETRIC DATA

The digit preference score of the survey teams was classified as "excellent" for all. The sex ratio was within accepted limits, while the age ratio was above the limit of 0.85. This suggests slightly biased sample, including more children from the younger age groups. Standards Deviations[8] are within accepted limits.

The summary of the Mean Z-scores with their Standard Deviations, the design effects and number of the out of range data per index is the table below.

Table 6: Mean z-scores, Design Effects and excluded subjects, Ghor SMART, August 2016

Indicator	n	Mean z-scores ± SD	Design Effect (z-score < -2)	z-scores not available*	z-scores out of range
Weight-for-Height	673	-0.64±1.09	1.25	0	17
Weight-for-Age	673	-1.51±1.08	1.16	0	17
Height-for-Age	653	-1.94±1.16	1.41	0	37

[8] http://www.who.int/nutgrowthdb/about/introduction/en/index5.html

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

The sex and age disaggregated results are presented in Table 7 and 8 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 7: Prevalence of acute malnutrition based on weight-for-height z-scores (and/or oedema) and by sex, Ghor SMART, August 2016.

	All n = 673	Boys n = 353	Girls n = 320
Prevalence of global malnutrition (<-2 z-score and/or oedema)	(74) 11.0 % (8.6 - 14.0 95% C.I.)	(46) 13.0 % (9.6 - 17.4 95% C.I.)	(28) 8.8 % (5.9 - 12.8 95% C.I.)
Prevalence of moderate malnutrition (<-2 z-score and >=-3 z-score, no oedema)	(57) 8.5 % (6.4 - 11.1 95% C.I.)	(36) 10.2 % (7.1 - 14.4 95% C.I.)	(21) 6.6 % (4.1 - 10.2 95% C.I.)
Prevalence of severe malnutrition (<-3 z-score and/or oedema)	(17) 2.5 % (1.6 - 4.0 95% C.I.)	(10) 2.8 % (1.5 - 5.2 95% C.I.)	(7) 2.2 % (1.1 - 4.3 95% C.I.)

The prevalence of oedema is 0.0 %

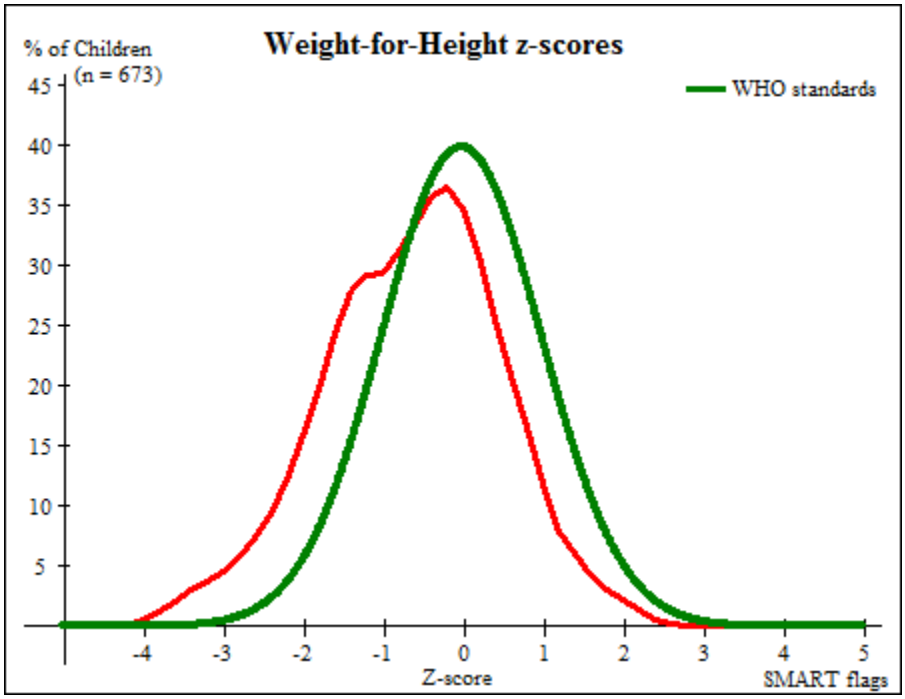
Table 8: Prevalence of acute malnutrition by age, based on weight-for-height z-scores and/or oedema

		Severe wasting (<-3 z-score)		Moderate wasting (>= -3 and <-2 z-score)		Normal (> = -2 z score)		Oedema	
Age (months)	Total no.	No.	%	No.	%	No.	%	No.	%
6-17	180	10	5.6	32	17.8	138	76.7	0	0.0
18-29	160	3	1.9	12	7.5	145	90.6	0	0.0
30-41	172	3	1.7	9	5.2	160	93.0	0	0.0
42-53	112	1	0.9	4	3.6	107	95.5	0	0.0
54-59	49	0	0.0	0	0.0	49	100.0	0	0.0
Total	673	17	2.5	57	8.5	599	89.0	0	0.0

Table 9: Distribution of acute malnutrition and oedema based on weight-for-height z-scores, Ghor SMART, August 2016

	<-3 z-score	>=-3 z-score
Oedema present	Marasmic kwashiorkor No. 0 (0.0 %)	Kwashiorkor No. 0 (0.0 %)
Oedema absent	Marasmic No. 26 (3.8 %)	Not severely malnourished No. 664 (96.2 %)

Figure 2: Distribution curves weight –for-height, Ghor SMART, August 2016



MUAC CUT-OFF CLASSIFICATION AND/OR OEDEMA:

The prevalence of acute malnutrition based on MUAC cut-off is presented in **Table 10**. The younger children (6-29 months) seem to be more affected than older (30-59 months;

Table 10: Prevalence of acute malnutrition based on MUAC cut offs (and/or oedema) and by sex, Ghor SMART, August 2016

	All n = 687	Boys n = 362	Girls n = 325
Prevalence of global malnutrition (< 125 mm and/or oedema)	(98) 14.3 % (11.2 - 18.0 95% C.I.)	(44) 12.2 % (8.6 - 16.9 95% C.I.)	(54) 16.6 % (12.7 - 21.4 95% C.I.)
Prevalence of moderate malnutrition (< 125 mm and >= 115 mm, no oedema)	(61) 8.9 % (7.0 - 11.2 95% C.I.)	(31) 8.6 % (6.0 - 12.1 95% C.I.)	(30) 9.2 % (6.7 - 12.6 95% C.I.)
Prevalence of severe malnutrition (< 115 mm and/or oedema)	(37) 5.4 % (3.6 - 8.0 95% C.I.)	(13) 3.6 % (2.1 - 6.2 95% C.I.)	(24) 7.4 % (4.6 - 11.6 95% C.I.)

Table 11: Prevalence of acute malnutrition by age, based on MUAC cut offs and/or oedema, Ghor SMART, August 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	186	31	16.7	34	18.3	121	65.1	0	0.0
18-29	165	3	1.8	18	10.9	144	87.3	0	0.0
30-41	173	2	1.2	7	4.0	164	94.8	0	0.0
42-53	114	1	0.9	2	1.8	111	97.4	0	0.0
54-59	49	0	0.0	0	0.0	49	100.0	0	0.0
Total	687	37	5.4	61	8.9	589	85.7	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**12.**

Table 12: Prevalence of underweight based on weight-for-age z-scores by sex, Ghor SMART, August 2016

	All n = 673	Boys n = 355	Girls n = 318
Prevalence of underweight (<-2 z-score)	(217) 32.2 % (28.5 - 36.3 95% C.I.)	(136) 38.3 % (33.2 - 43.6 95% C.I.)	(81) 25.5 % (20.7 - 30.9 95% C.I.)
Prevalence of moderate underweight (<-2 z-score and >=-3 z-score)	(158) 23.5 % (20.5 - 26.8 95% C.I.)	(101) 28.5 % (24.3 - 33.0 95% C.I.)	(57) 17.9 % (14.2 - 22.4 95% C.I.)
Prevalence of severe underweight (<-3 z-score)	(59) 8.8 % (6.7 - 11.5 95% C.I.)	(35) 9.9 % (7.2 - 13.3 95% C.I.)	(24) 7.5 % (5.0 - 11.2 95% C.I.)

Table 13: Prevalence of underweight by age, based on weight-for-age z-scores, Ghor SMART, August 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	176	27	15.3	43	24.4	106	60.2	0	0.0
18-29	162	20	12.3	40	24.7	102	63.0	0	0.0
30-41	172	10	5.8	39	22.7	123	71.5	0	0.0
42-53	114	1	0.9	29	25.4	84	73.7	0	0.0
54-59	49	1	2.0	7	14.3	41	83.7	0	0.0
Total	673	59	8.8	158	23.5	456	67.8	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 14.**

Table 14: Prevalence of stunting based on height-for-age z-scores and by sex, Ghor SMART, August 2016

	All n = 653	Boys n = 343	Girls n = 310
Prevalence of stunting (<-2 z-score)	(335) 51.3 % (46.6 - 56.0 95% C.I.)	(187) 54.5 % (49.1 - 59.9 95% C.I.)	(148) 47.7 % (41.4 - 54.1 95% C.I.)
Prevalence of moderate stunting (<-2 z-score and >=-3 z-score)	(216) 33.1 % (29.2 - 37.2 95% C.I.)	(119) 34.7 % (29.9 - 39.8 95% C.I.)	(97) 31.3 % (26.1 - 37.0 95% C.I.)
Prevalence of severe stunting (<-3 z-score)	(119) 18.2 % (15.4 - 21.4 95% C.I.)	(68) 19.8 % (15.9 - 24.4 95% C.I.)	(51) 16.5 % (12.3 - 21.7 95% C.I.)

Table 15 : Prevalence of stunting by age based on height-for-age z-scores, Ghor SMART, August 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	172	29	16.9	53	30.8	90	52.3
18-29	155	38	24.5	58	37.4	59	38.1
30-41	167	31	18.6	62	37.1	74	44.3
42-53	112	16	14.3	29	25.9	67	59.8
54-59	47	5	10.6	14	29.8	28	59.6
Total	653	119	18.2	216	33.1	318	48.7

Figure 3 shows the distribution of HAZ of the observed population (SMART flags excluded) compared to WHO Reference curve. In Ghor, 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 distributed curve, HAZ, Ghor SMART, August 2016

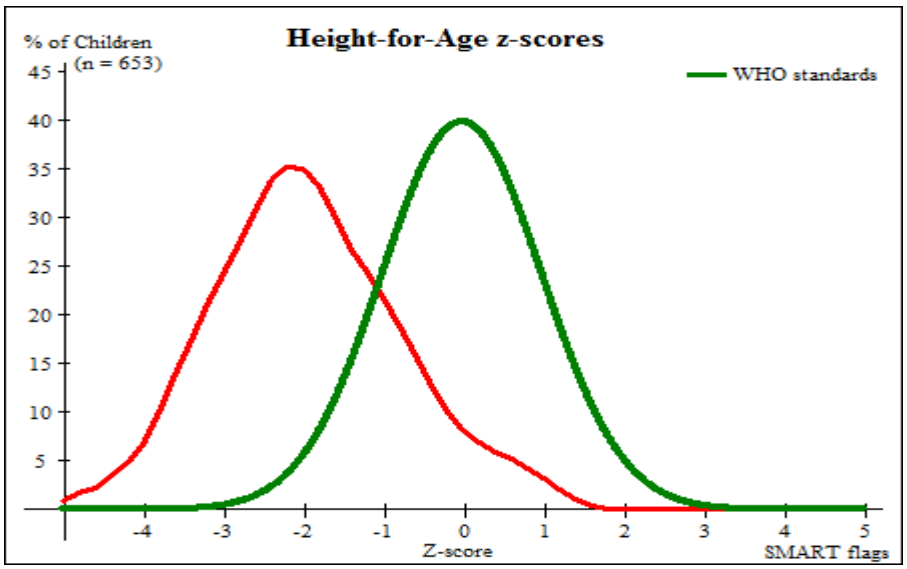
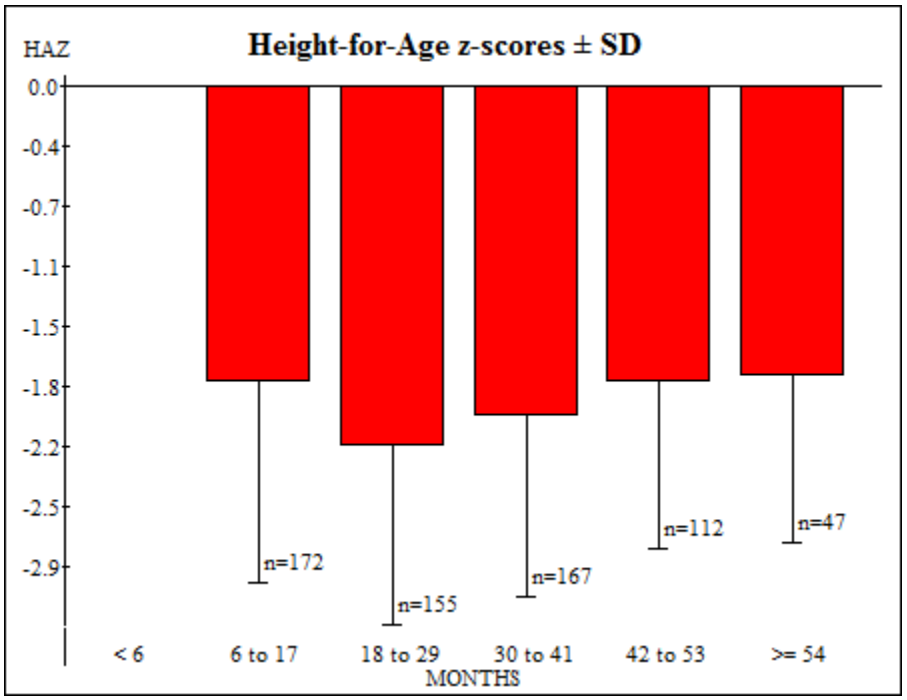


Figure 4: trend of stunting over the age distribution, Ghor SMART, August 2016



CHILD HEALTH INDICATORS

TWO WEEKS RECALL MORBIDITY (CHILDREN 0-59 MONTHS)

Out of 771 respondents answered about whether they experienced health issue in the last 2 weeks prior to the day survey team, **54.3%** responded with "yes" the children had illnesses (see table below for episode of illness).

Table 16: Morbidity two weeks recall period among children from 0-59 month, (n=771), Ghor SMART, August 2016

Parameter	Frequency	Results
Overall Morbidity in the past 2 weeks prior to the survey	419	54.3%
Acute respiratory Infection (ARI)	174	22.6%
Fever	289	37.5%
Diarrhea	296	38.4%
Others such as vomiting, jaundice, renal disease and skin disease	14	1.8%

IMMUNIZATION (BCG, MEASLES AND POLIO)

Immunization, supplementation and deworming are proxy indicators informing community health outreach and health seeking behaviors (**table below** for all vaccination).

Table 17: Immunization age based on vaccination, Ghor SMART, August 2016.

Parameter	Class	Frequency	%
Measles Vaccination, children 9-59 (N=553)	Yes, card	173	31.3%
	Both recalls and by cards	392	70.9%
Polio (N=771)	Yes, card	269	34.9%
	both recall and by card	633	86.0 %
BCG (N=771)	Scar	508	65.9%

SUPPLEMENTATION AND DEWORMING

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

Table 18: Vitamin A and Deworming coverage, Ghor SMART, August 2016.

	Class	Frequency	%
Vitamin A supplementation (6-50 months) (6 months recall) (N=660)	Yes	323	48.9%
	No	234	35.5%
	DK	103	15.6%
Deworming (6 months recall,(12-59) (n=564)	Yes	149	26.4%
	No	357	63.3%
	DK	58	10.3%

IYCF INDICATORS

Indicators for infant and young child feeding (IYCF) practices included all children 0 – 23 months. A total of 329 children were 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 below**).

Table 19: Infant and Young Child Feeding Practice, Ghor SMART, August 2016.

CORE INDICATORS	DEFINITION	n	%
Child ever breastfed (N=322)	Proportion of children who have ever received breast milk	321	99.6%
Timely initiation of breastfeeding (N=322)	Proportion of children born in the last 23 months who were put to the breast within one hour of birth	259	80.3%
Provision of colostrum within first 3 days (N=322)	Proportion of children who received colostrum (yellowish liquid) within the first 3 days after	289	89.7%

	birth		
Still breast feeding at 1 year (N=51)	Proportion of children 12–15 months of age who are fed breast milk.	44	86.2%
Exclusive breast feeding (N=80)	Proportion of infants 0–5 months of age who are fed exclusively with breast milk.	52	65%
Introduction of solid, semi-solid or soft foods (N=51)	Proportion of infants 6–8 months of age who receive solid, semi-solid or soft foods.	24	47.0%

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 20: Physiological status of women of reproductive age (15 - 49 years), (n=727), Ghor SMART survey, August 2016

Status	Frequency	%
Pregnant	111	15.3%
Lactating	318	43.7%
Non-pregnant & non-lactating	298	41.0%

Table 21: Nutritional status of Pregnant and Lactating Women based on mid-upper arm, Ghor SMART, August 2016 (N=429)

MUAC cut offs	Frequency	%
Global acute malnutrition MUAC ,230 mm	110	25.6%
Moderate acute malnutrition MUAC>210mm and <230mm	84	19.0%
Severe acute malnutrition MUAC<210mm	26	6.0%

Table 22: Iron folate for pregnant women based on available answers, (n=111), Ghor SMART, August 2016

Iron-folate for PLW	Frequency	%
Yes	13	11.7%
No	65	58.6%
Don't know	33	29.7%

Table 23: ANC visits in the last pregnancy, (N=727), Ghor SMART. August 2016

ANC visited by WHOM	Frequency	%
Health professional	319	43.9%
Traditional birth attendant	25	3.4%
Community health worker	9	1.2%
Relative/Friends	0	0.0%
No visited during pregnancy	357	49.1%

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

Table 24: Hand washing practice, Ghor SMART, August 2016.

Hand Washing care takers (n=727)	Frequency	%
Only water	285	39.2%
Soap	347	47.7%
Wash both hands	521	71.6%
Rubs hands together at least three times	359	49.4%
Dries hands hygienically by sun-drying or using a clean cloth	232	32.0%

Table 25: Hand washing practice at 5 critical moments, (n=727), Ghor SMART, August 2016.

Response	Frequency	%
Wash hands at all 5 critical moments	300	41.2%
After Toilet/latrines	421	57.9%
Before cooking	565	77.7%
Before eating	628	86.4%
After taking children to the toilet	487	66.9%
Before feed child	349	48.0%

*: 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 150 days recall period. Heads of household were the main responders, from all households included in the survey, a total of 600 households, regardless if the households had children or not. Crude Mortality Rates and age group evaluation of year's mortality rates are presented in Table below).

The crude and under five mortality rates were below the WHO emergency levels[9].

Table 26: Mortality rates survey findings, Ghor SMART, August 2016

	Crude Date Rate (95 % CI)	Design effect
Overall	0.15 (0.08-0.27)	1.00
Sex		
Male	0.19 (0.09-0.41)	1.00
Female	0.10 (0.03-0.31)	1.00
Years		
0-5	0.09 (0.01-0.67)	1.00
6-11	0.00 (0.00-0.00)	1.00
12-17	0.11 (0.01-0.83)	1.01
18-49	0.13 (0.04-0.39)	1.00
50-64	0.29 (0.04-2.15)	1.03
65-120	2.92 (0.90-8.87)	1.00

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 below**. A total of 4247 Individuals were surveyed.

Table 27: Short summary of demographics, Ghor SMART, August 2016.

Indicator	Value
Average HH size	7.1
Children under 5	16.2 %

WATER TREATMENT AND CONSUMPTION AT HOUSEHOLD LEVEL

A total of 599 responders, representing 596 households and 4247 individuals, were included, either male or female. Data collection asked for the total amount of water in total liters you used in your household

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

excluded of animals, and subsequently organized into range of litters used. The results were then divided into the quantity of water in liters available to each household member per day. The average consumption per person per day in the surveyed area was found to be 18.5[10] liters/person/day. This calculation is based on the average HH water divided by the average HH size and therefore cannot be disaggregated further.

Figure 5: Percentage of household's level daily quantity of water used in litter/day (N=596).

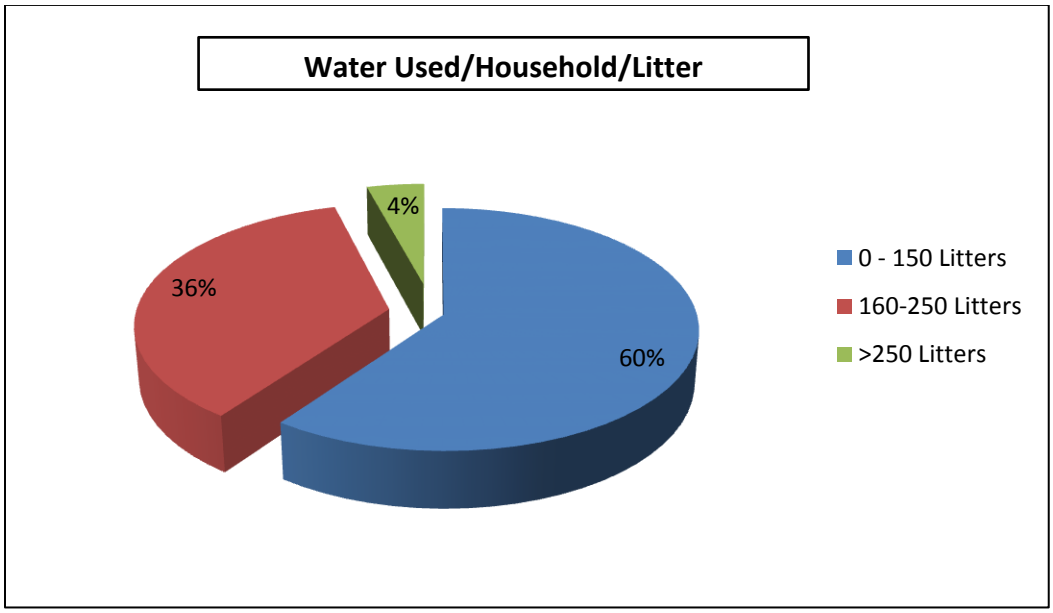


Table 28: Percentage of households with access to water treatment (n=599)

WTR treatment:	Frequency	%
Boil	120	21.4%
Chlorine	35	6.3%
Strain it through a cloth	39	7.0%
Water Filter	19	3.4%
Stand and settle	347	62.0%

[10] This indicator is based on reported information from the HH and includes both water from improved and un-improved sources.

Figure 6: Household level daily Improved Water Sources, (N= 270)

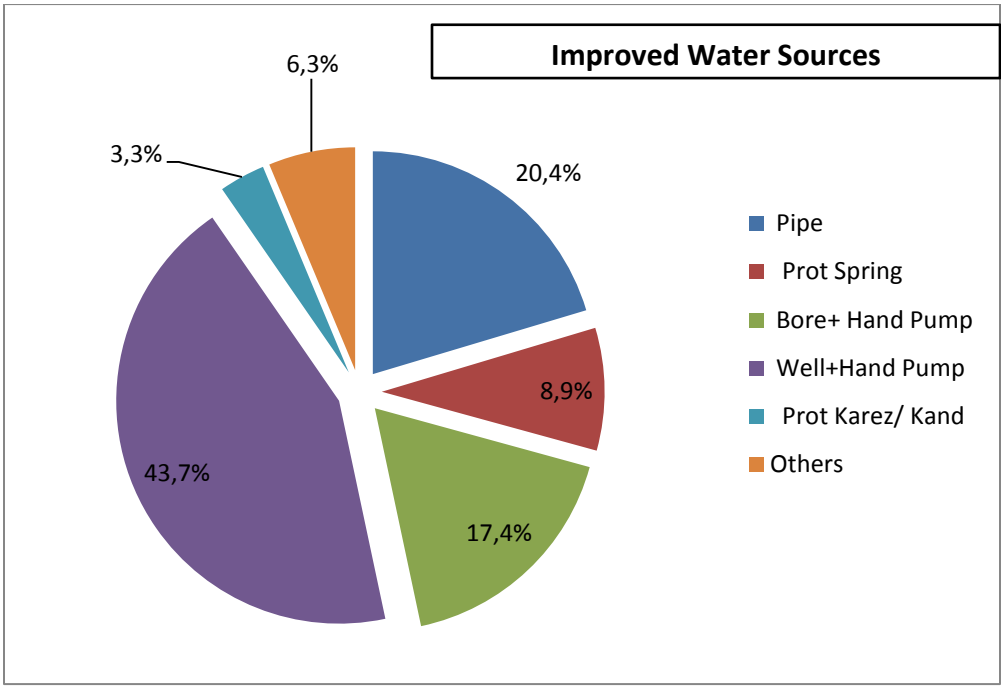
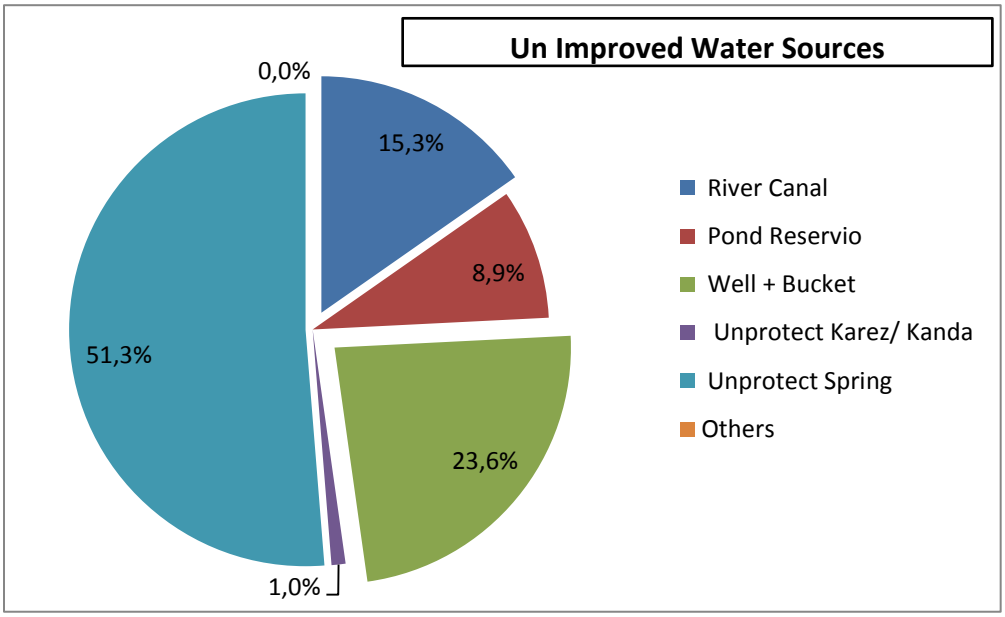


Figure 7: Household level daily Unimproved Water Sources, (N=314)



FOOD SECURITY AND LIVELIHOOD

Food Consumption Scores and Food Based Coping Strategies Food security exists when all people, at all times have physical, social and economic access to sufficient, safe and nutritious food for a healthy and active life. In this survey, food consumption based on the Food Consumption Score (FCS)[11] as a description for the current short-term household food security situation is triangulated with the food-based or reduced Coping Strategy Index (rCSI)[12] to provide an indication of the food security status of the household. The triangulation of these two food security proxy indicators, instead of only food consumption, allows for capturing the interaction between household food consumption and coping strategies adopted, and hence, more properly reflects the food security situation in Ghor province.
As a result, households having poor food consumption with high or medium coping and those with borderline food consumption but with high coping are considered as ***severely food insecure***. Households having poor food consumption with low coping, households having borderline food consumption with medium coping and those having acceptable consumption but with high coping are considered as ***moderately food insecure***. Households having borderline or acceptable food consumption with low or medium coping are considered as ***food secures (Table)[13]***.

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

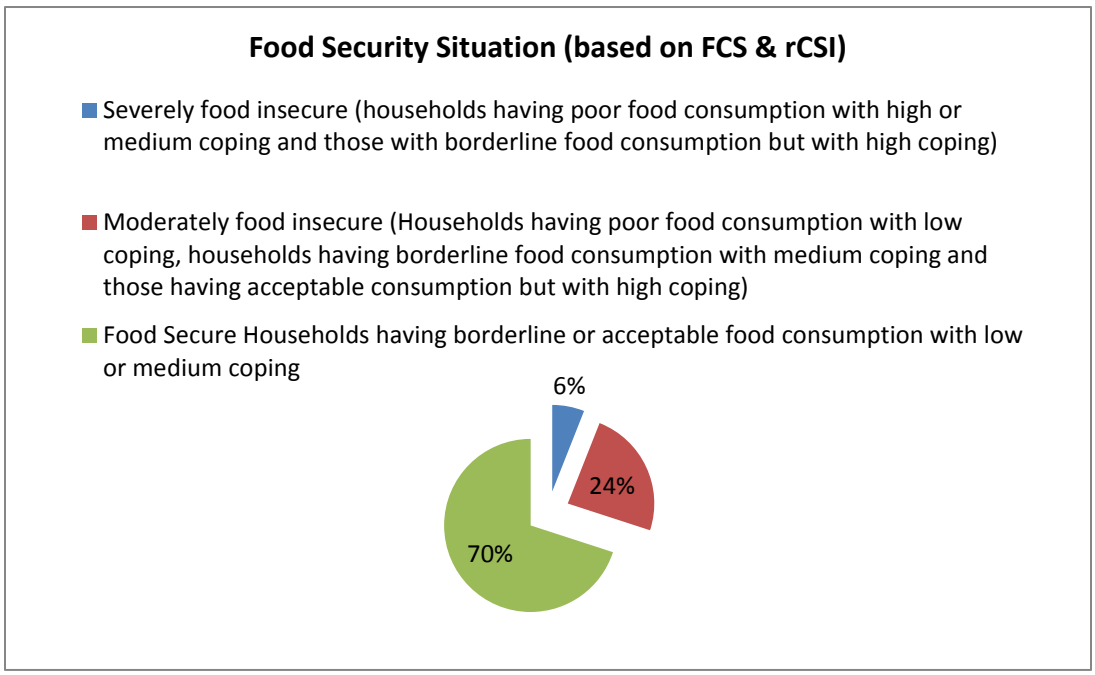
[11] The Food Consumption Score (FCS) is an acceptable proxy indicator to measure caloric intake and diet quality at household level, giving an indication of food security status of the household if combined with other household access indicators. It is a composite score based on dietary diversity, food frequency, and relative nutritional importance of different food groups. The FCS is calculated based on the past 7-day food consumption recall for the household and classified into three categories: poor consumption (FCS = 1.0 to 28); borderline (FCS = 28.1 to 42); and acceptable consumption (FCS = >42.0). The FCS is a weighted sum of food groups. The score for each food group is calculated by multiplying the number of days the commodity was consumed and its relative weight.

[12] The reduced Coping Strategy Index (rCSI) is often used as a proxy indicator of household food insecurity. Households were asked about how often they used a set of five short-term food based coping strategies in situations in which they did not have enough food, or money to buy food, during the one-week period prior to interview. The information is combined into the rCSI which is a score assigned to a household that represents the frequency and severity of coping strategies employed. First, each of the five strategies is assigned a standard weight based on its severity. These weights are: Relying on less preferred and less expensive foods (=1.0); Limiting portion size at meal times (=1.0); Reducing the number of meals eaten in a day (=1.0); Borrow food or rely on help from relatives or friends (=2.0); Restricting consumption by adults for small children to eat (=3.0). Household CSI scores are then determined by multiplying the number of days in the past week each strategy was employed by its corresponding severity weight, and then summing together the totals. The total rCSI score is the basis to determine and classify the level of coping: into three categories: No or low coping (rCSI= 0-9), medium coping (rCSI = 10-17), high coping (r ≥18).

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

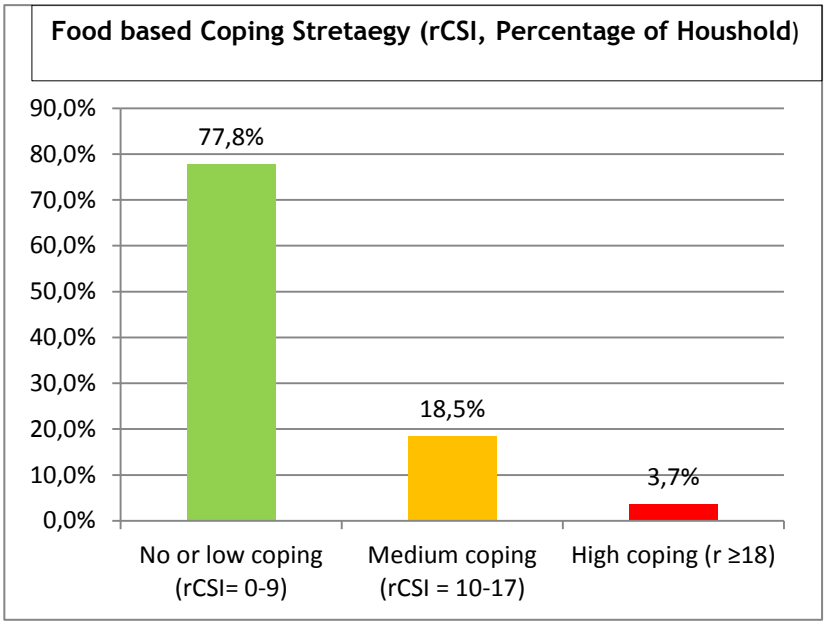
FOOD SECURITY SITUATION

Based on triangulation of Food Consumption Score (FSC) with the food-based or reduced Coping Strategy Index (rCSI), the survey finding shows 6% of households have severely food insecurity and 24 % of households were moderately food insecurity see below table for more details.



REDUCED COPING STRATEGY INDEX[14]:

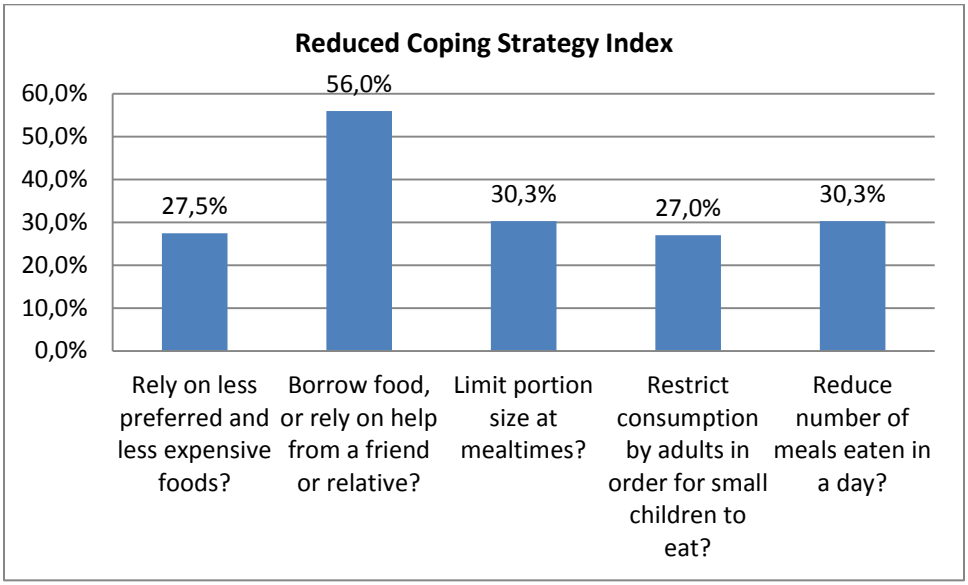
The Food Based Coping Strategy Index is based on measures of the frequency of use of food deprivation, such as the recourse to cheaper food, reductions of the quantity of meals, the act of borrowing food, as well as alterations in food distribution within the household to favor children. Each strategy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



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

- ✓ 3.7% of HHs with a high level of coping (rCSI ≥18 score).
- ✓ 18.5% of HHs with a medium level of coping (rCSI= 10-17 score).
- ✓ 77.8% of HHs with No or Low level coping (rCSI=0-9 score).

Figure 8: Reduced coping strategy index



FOOD CONSUMPTION SCORES:

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

- ✓ 27% households surveyed have Poor consumption scores (FCS = 1.0 to 28).
- ✓ 20% households surveyed have Border line consumption scores (FCS = 28.1 to 42).
- ✓ 54% households surveyed have acceptable food consumption scores (FCS = >42.0).

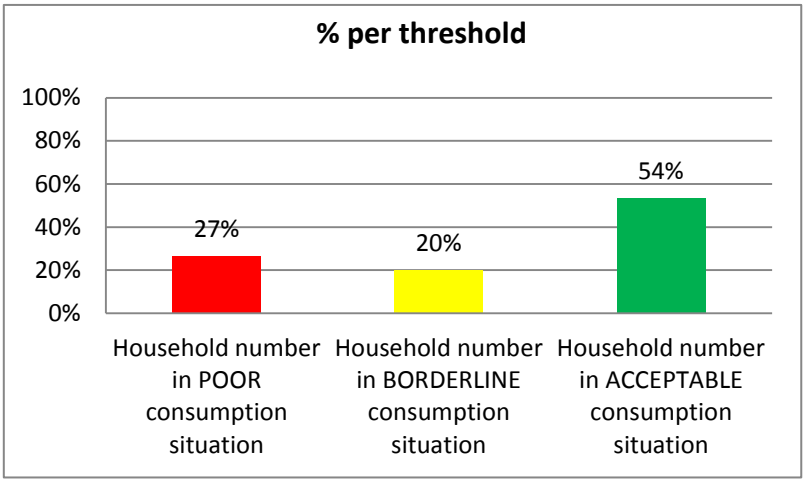
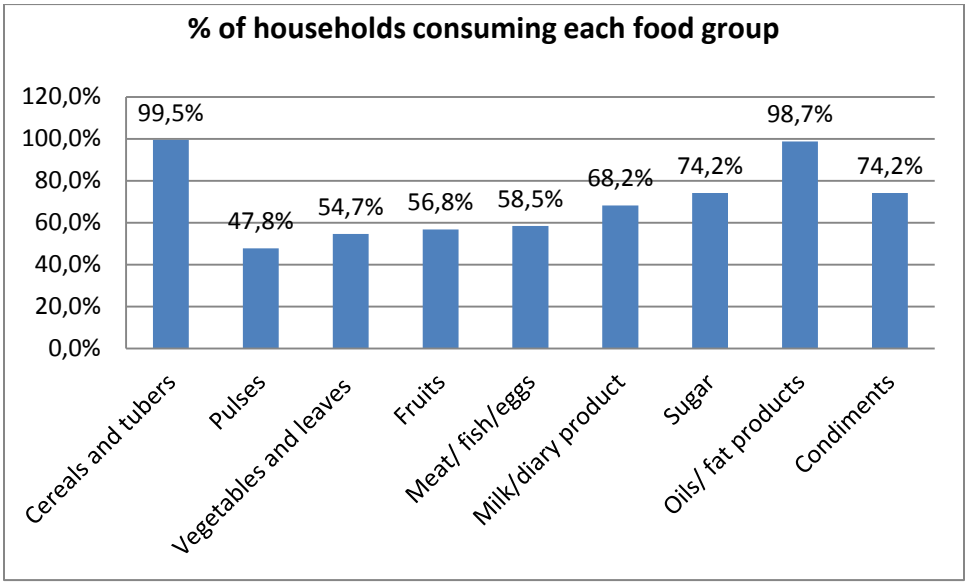


Figure 9: Households consuming each food group



DISCUSSION

NUTRITION SITUATION

The survey findings show that the prevalence of Global Acute Malnutrition (GAM) based on WHZ was at 11.0 %(8.6 - 14.0 95% C.I.). And based on MUAC, GAM was at 14.3 %(11.2 - 18.0 95% C.I.). Both criteria are indicating a "serious" nutrition situation according WHO severity classification of acute malnutrition[15]. SAM prevalence by WHZ and MUAC was at 2.5 % (1.6 - 4.0 95% C.I.) and 5.4 %(3.6 - 8.0 95% C.I) respectively. A comparative analysis using the CDC two surveys Calculator does not show any significant change in the GAM rates for the September 2014 and August 2016 SMART surveys conducted in the province (P value =0.33).

If both criteria are combined, overall rate of children likely to be eligible for SAM and MAM management rises to 20.7% (95% CI 17.7-23.7). SAM combined rates is estimated to be 8.4% (6.3-10.5 95% CI).It's recommended to use the combined rates for estimation of GAM and SAM in the province for program design and caseload calculation. From the survey it is clear that using only WHZ or MUAC are not enough to detect all acutely malnourished children eligible for treatment. Figure 10 below indicates the comparison of WHZ <-2 Z score with MUAC <125 mm. The survey found that more children are identified as malnourished by MUAC (45.5%) than WHZ-score (37.3%). Out of the total malnourished children found by the survey the overlap between WHZ and MUAC was found to be very low (14.2%).

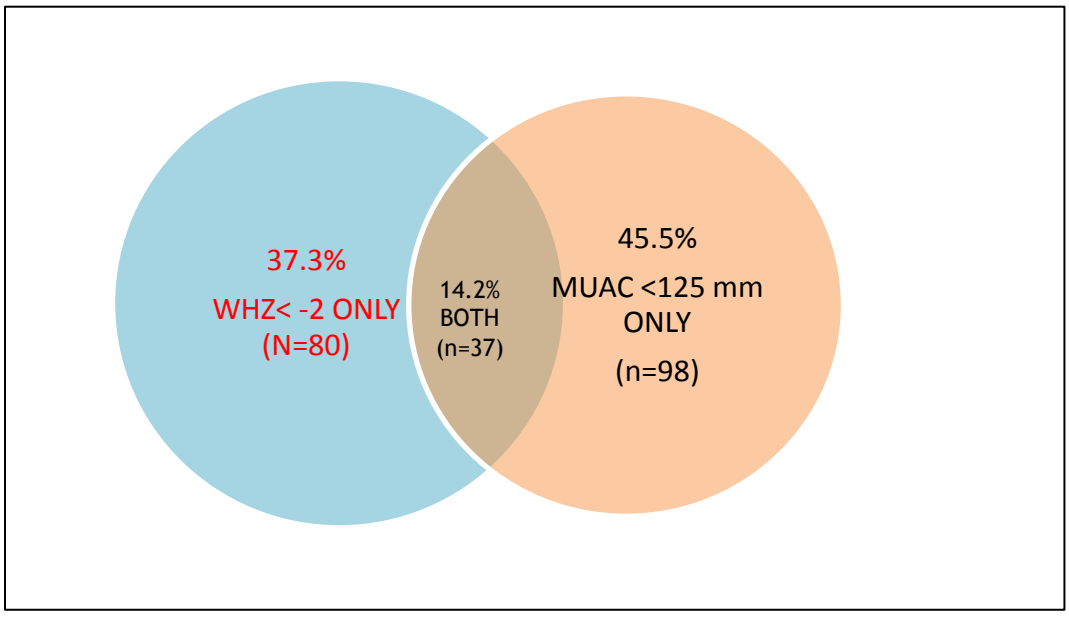


Figure 10: Overlapping WHZ<-2 and MUAC<125, Ghor SMART, August 2016

The younger children (6-29 months) seem to be more affected by wasting than older age group (30-59 months).However it was observed that the older age groups (30-59mnths) are more affected by underweight than the younger age group (6-29mnths). The younger age group includes the critical breastfeeding age (6-23.9 months) during which the child experiences multiple challenges in terms of the quality and quantity of food consumed as well as frequent infections resulting from poor feeding

[15] WHO acute malnutrition classification : <5% acceptable, 5-9 % poor, 10-14 % serious, >15 % critical

practices and conditions. Overall the age ratio was slightly skewed towards the younger age group. It could be explained by the lack of accurate documentation for determining exact birth date for children age during the survey therefore making age estimation a difficult task for the surveyors.

DEATH RATES

The respective crude and under five death rates of 0.15 (0.08-0.27) and 0.19 (0.09-0.41) are below the WHO alert thresholds of 1/10,000/day and 2/10,000/day for CMR and U5MR. Due to sensitivity of collecting mortality data in Afghanistan the causes of death were not collected in this survey to avoid any misperceptions of the objective of the survey by the different groups in the community.

IYCF PRACTICES

Although a high proportion (80.3%) of children (6-23.9 months) received timely initiation of breastfeeding at the time of the assessment and 86.2% still breastfeeding at 12-15 months, the rate of exclusive breastfeeding is lower at 65%. Proportion of infants 6–8 months of age who receive solid, semi-solid or soft foods was 47.0 %. Early introduction to complementary foods or failing to exclusively breastfeed a child exposes the child to unhygienic feeding conditions and increases their vulnerability to infection and other illnesses. This is especially a real risk in such an environment where water is not treated (only 27.7%16 treating their water) and hand-washing with soap is not a common practice(less than 50% use of soap) leading to high diarrhea incidences (38.4%).

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. Disease weakens an individual immune system causing them to have other side effects such as reduced food intake and diarrhea. In this province, more than half of sampled children suffered from one or two form of illnesses or another (54.3%) such us diarrhea, fever and Ari / cough. Through discussion with health workers, diarrhea cases amongst these ages' groups were mainly reported to be managed through home treatment. The use of micronutrients supplementation such us vitamin A supplementation in 6 months prior to the survey was low with only 48.9% of children reported to have received vitamin A supplementation. One of the core functions of supplementation is to boost an individual immunity hence the importance of the supplementation. Awareness on vitamin A is important at health facilities and community level to increase the supplementation to reach the WHO recommended SPHERE target of 80%. In this survey finding shows measles 70.9%, BCG scare was 65.9% and polio was 86.0%, illustrating the hindrance in accessing the basic health services in the area, with coverage below the WHO thresholds of > 80% and need to increase the immunization coverages by deferent channels.

[16] This percentage is a combination of HH treating their water through boiling and use of chlorine.

CONCLUSION

In conclusion, the survey has indicated that there is a problem of malnutrition in Ghor province. From the results presented above it is notable that although the different measures of malnutrition (WHZ and MUAC) are indicating a serious nutrition situation respectively, a combination (Total GAM and SAM) of the measures/results indicate that the burden of malnutrition (number of cases found malnourished) is above emergency levels the survey indicated almost 1 in 3 children were reported to have diarrhea. The nutrition situation trends need to be followed closely and on a regular basis. The population in the province is categorized as chronically food insecure and hence is significantly vulnerable to changes of the socio-economic environment. The alarming rates of chronic malnutrition at **51.3 %(46.6 - 56.0 95% C.I.)** and more especially the rate of severe stunting 18.2% (15.4-21.4 95% CI) reflect the nutrition deficiency affecting the population in the long term. More than 1 in 2 of the surveyed children were found be stunted and 1 in 3 children were underweight. By intervening at an early stage through a multi sectorial approach, chronic malnutrition can be prevented.

Poor breastfeeding and complementary feeding habits has been known to expose children to morbidity, malnutrition and even death. The reduced food consumption at household level was blamed on high food prices in the market and the reduced production of milk and animal products in the area.

Overall the key underlying factors for acute malnutrition are child care and morbidity, ARI in particular; poor sanitation and lack of adequate and safe water. Feeding practices for children are persistently poor, preventable diseases are prevalent and access to maternal and child care is suboptimal in the Province due to protracted insecurity. Integrated approaches should therefore be undertaken to reduce risk factors such as poor child care, unsafe drinking water, and limited sanitation and hygiene services. Measures to increase access to health services and improved coverage of health programs would play a critical role in both preventing and treating diseases.

In addition, daily stress (such as poverty, unemployment, limited services etc.) and a series of traumatic situations (conflict, insecurity, loss of life) have a clear impact on the mental health conditions of people. This fragile psychosocial condition has a clear influence on child nutritional and health status.
On the other hand 27 % of households were found in this survey to have poor food consumption and this can be linked with malnutrition of children and maternal nutrition status.

SUMMARY RECOMMENDATION

Following recommendation can be drawn based on the preliminary findings:

UNDER NUTRITION

- Strong support of OTP sites from BPHS IP
- Strong supply of commodities to HFs that have OTP sites
- Starting OTP site in those BHCs that do not have active OTP
- Active screening in community level by active CHWs
- Strong referral system between community and HF as well between OTP and TFU
- Strong monitoring and supervision by nutrition stack holders in Ghor

CHILD HEALTH AND IMMUNIZATION

- Increasing EPI activities in health facilities and follow up in the community by BPHS implementer and PMT.
- Promoting Health education in health facilities on communicable disease and prevention of disease.

MATERNAL NUTRITION STATUS AND IYCF

- Starting MAM program in HFs with close follow up for pregnant and lactating women
- Supply of commodities (Ration) to HFs and distributed to malnourished PLWs
- Awareness about balance food in pregnancy and lactation in HFs
- Increasing awareness about balance food in community
- Providing iron and Folic acid for PLWs and explain the benefit of it to them
- Providing awareness sessions in community on exclusive BF and CF
- Sensitizing communities to use correct and balance food
- Informing the LW to start complementary feeding after 6 months
- Informing mother to have different kind of food for their children in different time

WASH AND SAFE WATER DRINKING

- Providing HE on personal and environmental hygiene
- Providing awareness program in community about food hygiene to avoid diseases
- Providing safe water facilities in community to reduce water born disease
- Distributing water filters in community for safe water

FOOD SECURITY AND LIVELIHOODS

For the prevention of malnutrition:

- Short term Employment opportunities such as Food for Work or Cash for Work are the most likely to alleviate food insecurity in the short to mid-term. In the longer term, asset endowment, skill endowment, and safety nets preventing the resort to negative coping strategies will be necessary to reverse the trend of increasing poverty rates[17].
- As labor opportunities are reducing, smallholders are more reliant on their land and need to make the most out of it to ensure their basic food needs. Holding on average 3 jeribs of land, their widespread resort to damaging coping strategies (such as decreasing fertilizer expenditure or not saving enough seeds) impedes them to take full advantage of their land. Large gains in food security can be achieved by providing the necessary inputs.
- Providing information about the usage of balance food
- To change the behaviors of community in food consumption

[17] SFSA 2016

QUESTIONNAIRES

HOUSEHOLD QUESTIONNAIRE

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

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

1. **Date of the survey:** This is the date of data collection, it should be written in the standard format for all the questionnaires administered during the survey. (day/month/year
2. **Name of the village:** Indicate the name of the sampled village that is visited on the particular day of data collection.
3. **Cluster number:** Indicate the number of cluster allocated for the village or area visited. This is automatically generated by ENA during the sampling stage. Sampling and cluster allocation was done together with the team at the **training hall.** Important to note that once Cluster number has been assigned it cannot be changed.
4. **Team ID number:** Teams was formed during the training session. Each team was assigned a unique number ranging from 1-5. Each team must indicate the team number on the questionnaires they administer.
5. **Household number:** Each HH in the selected cluster was assigned a number. There are a total of 13 HH in each cluster to be sampled. Each sampled HH should be indicated a number in order of their visit **(e.g. the first randomly selected HH is allocated HH number 1 regardless of whether it is the 10th HH in the village)**
6. **Starting time of the interview:** This is indicated the time of start of the interview in the selected HH.
7. **Consent:** Each team was provided with a consent form that they were required to ask for permission to conduct the survey in each HH. This is meant to seek permission from the HH head or caregiver to be allowed to conduct the assessment. It is important to note the reason for refusal in case the HH does not accept the interview.

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

1. **Source of drinking water:** This question was asked to the respondent of the HH to find out where HH are accessing their drinking water. The sources of water are categorized 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[18]/ total number of respondents.
- Number of HH accessing water from unimproved sources[19]/ total number of respondents.

2. **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 :

- Total number of HH practicing safe water treatment methods[20]/ total number of respondents
- Total number of HH not practicing safe water treatment methods/ total number of respondents.

3. **Water Use/Consumption at HH level:** This question was seeking to find out the amount of water consumed by each individual living in the household per day. The aim of this indicator is to check whether households are consuming the required minimum amount of water per person per day compared to the minimum threshold as defined by the WHO standard for HH water consumption.
4. **Hand washing practices:** Caregivers was asked on hand washing practices to ascertain instances in their daily activities when they wash their hands. The caregiver should not be probed for answers/response rather they should be allowed to provide their response independently.
5. **Use of Soap:** A follow up question was asked to ascertain the hand washing practice by asking the caregiver to demonstrate how they wash their hands and what they use to wash their hands.

FOOD SECURITY

1. **Food consumption scoring:** The Food Consumption Score (FCS) is an acceptable proxy indicator to measure caloric intake and diet quality at household level, giving an indication of food security status of the household if combined with other household access indicators. It is a composite score based on dietary diversity, food frequency, and relative nutritional importance of different food groups. The FCS is calculated based on the past 7-day food consumption recall for the household and classified into three categories: poor consumption (FCS =

[18] Piped scheme, protected springs, boreholes with hand pump, well with hand pump, protected karez

[19] River/ stream/ canal. Pond/ reservoir, well with bucket, unprotected karez, unprotected spring.

[20] Boil, use of water filter

1.0 to 28); borderline (FCS = 28.1 to 42); and acceptable consumption (FCS = >42.0). The FCS is a weighted sum of food groups. The score for each food group is calculated by multiplying the number of days the commodity was consumed and its relative weight.

2. Reduced coping of strategy index: The reduced Coping Strategy Index (rCSI) is often used as a proxy indicator of household food insecurity. Households were asked about how often they used a set of five short-term food based coping strategies in situations in which they did not have enough food, or money to buy food, during the one-week period prior to interview.

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:

1. **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
2. **Name of the village:** Indicate the name of the sampled village that is visited on the particular day of data collection.
3. **Cluster number:** Indicate the number of cluster allocated for the village or area visited. This is automatically generated by ENA during the sampling stage. Sampling and cluster allocation was done together with the team at the **training hall.** Important to note that once Cluster number has been assigned it cannot be changed.
4. **Team ID number:** Teams was formed during the training session. Each team was assigned a unique number ranging from 1-5. Each team must indicate the team number on the questionnaires they administer.
5. **Household number:** Each HH in the selected cluster was assigned a number. There are a total of 16 HH in each cluster to be sampled. Each sampled HH should be indicated a number in order of their visit **(e.g. the first randomly selected HH is allocated HH number 1 regardless of whether it is the 10th HH in the village)**
6. **Caregiver Number:** Each caregiver living in the selected HH was assigned a specific unique number. This is the same number that appeared in the Caregiver questionnaire. In case of more than one caregiver in a HH each was assigned a unique number to identify and distinguish them from each other. Each caregiver was linked to her/his children selected in the HH to be able to link each caregiver with the children.
7. **Child Number:** Each Child Under the age of 5 years living in the selected HH was assigned a specific unique number. In case of more than one child in a HH each was assigned a unique number to identify and distinguish them from each other. Each child was linked to her/his caregiver selected in the HH to be able to link each caregiver with the children.
8. **Age in months:** Only children between 0 and 59 months old of age were included. Height was not be considered as a valid criterion in absence of age due to the high stunting rates in Ghor province. Age was confirmed by showing a vaccination card or a birth certificate, if available. If these documents are not available, the use of a local event calendar built for Ghor province was used to determine the age. The age was recorded into the questionnaire in months.
9. **Sex:** Male or female
10. **Weight (in kg):** Children were weighed to the nearest 0.1kg by using an Electronic Uni-scale. The children who can easily stand was asked to stand on the weighing scale and their weight recorded. In a situation when the children could not stand up, the double weighing method was applied.
11. **Height (in cm):** Measuring board was used to measure bare headed and barefoot children. The precision of the measurement is 1 mm. Children of less than 2 years of age was measured lying down and those equal to or above 2 years of age measured standing up.
12. **Mid-Upper Arm Circumference (in mm):**MUAC was used as an indicator of mortality risk for malnutrition and was measured to the nearest 1mm for all children with an indicated age of greater than 6 months, using the UNICEF MUAC strips. An adult MUAC tape was used to measure women of reproductive age (15-49 years)
13. **Oedema:** Only children with bilateral pitting nutrition oedema was recorded as having nutritional oedema this was checked by applying normal thumb pressure for at least 3 seconds to both feet.

Infant and Young Child Feeding

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

1. **Ever Breastfed:** This indicator was looking at the number of mothers who have ever breast fed their children. This was look at the last pregnancy of the mother or the current child who is between 0-23 months old.
2. **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 on the mother's last pregnancy in which the child is between 0-23months.

3. **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.
4. **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.
5. **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.
6. **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.
7. **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 status

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

1. **Type of Illness:** This question was asking about the types of illness that the child (0-59 months) has had in the last 14 days prior to the data collection day. A small definition of the key illness is provided in the questionnaire to enable the data collector identify the illness correctly
2. **Vitamin A supplementation:** This question 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 provided with a Sample of the Vitamin A tablet to enable the caregivers to easily identify it.
3. **Deworming:** This question was ask the caregiver of child 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 provided with a Sample of the deworming tablet to enable the caregivers to easily identify it.

BCG vaccination: This question was ask 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:

1. **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)
2. **Name of the village:** Indicate the name of the sampled village that is visited on the particular day of data collection.
3. **Cluster number:** Indicate the number of cluster allocated for the village or area visited. This is automatically generated by ENA during the sampling stage. Sampling and cluster allocation was done together with the team at the **training hall.** Important to note that once Cluster number has been assigned it cannot be changed.
4. **Team ID number:** Teams was formed during the training session. Each team was assigned a unique number ranging from 1-5. Each team must indicate the team number on the questionnaires they administer.
5. **Household number:** Each HH in the selected cluster was assigned a number. There are a total of 13 HH in each cluster to be sampled. Each sampled HH should be indicated a number in order of their visit **(e.g. the first randomly selected HH is allocated HH number 1 regardless of whether it is the 10th HH in the village)**
6. **Caregiver Number:** Each caregiver living in the selected HH was assigned a specific unique number. This is the same number that appeared in the Caregiver questionnaire. In case of more than one caregiver in a HH each was assigned a unique number to identify and distinguish them from each other. Each caregiver was linked to her/his children selected in the HH to be able to link each caregiver with the children.

Antenatal Care and Health seeking behavior

1. **Antenatal care:** Caregivers between the ages of 15-49 years at household level was asked on whether they sought ante-natal care during their last pregnancy. In this case last pregnancy was considered of the last child who is still between 0-59 months for purposes of having a more precise re-call period.
2. **Health seeking behavior:** Caregivers who respond positive to seeking antenatal care was asked who they sought assistance

from. This question seeks to identify the health seeking pattern of the respondents from the first point of contact to the last point of contact.

3. **Distance to Health center:** 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 center.

Maternal Nutrition

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

1. **MUAC measurement:** The caregivers mid – upper arm circumference was measured using the standard WFP issued adult MUAC tape.
2. **Physiological status:** Each of the caregivers was asked about their current physiological status to ascertain whether they are currently pregnant, lactating, pregnant and lactating or not pregnant.
3. **Iron – Folate supplementation**: Caregivers who report to be currently pregnant was asked whether they are taking iron folate tablets or not. This is to ascertain the number of pregnant mothers who are supplemented and using iron – folate/ferrous.

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[21]). 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 calculated on the field for each child in order to refer malnourished cases to appropriate center if needed. Moreover, the results were presented in Z-score using WHO reference in the final report. The classification of acute malnutrition based on WHZ is well illustrated in table 5.

Mid Upper Arm Circumference (MUAC)

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

Table 29: MUAC cut-offs points for children aged 6-59 months

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

Nutritional bilateral "pitting" oedema

Nutritional bilateral pitting oedema is a sign of Kwashiorkor, one of the major clinical forms of severe acute malnutrition. When associated with Marasmus (severe wasting), it is called Marasmic-Kwashiorkor. Children with bilateral oedema are automatically categorized as being severely malnourished, regardless of their weight-for-height index. The table below defines the acute malnutrition according to W/H index, MUAC criterion and oedema.

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

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

Chronic Malnutrition

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

The height-for-age measure indicates if a child of a given age is stunted and so if he is chronically malnourished. This index reflects the nutritional history of a child rather than his/her current nutritional status. This is mainly used to identify chronic malnutrition. The same principle is used as for weight-for-height; except that a child's chronic nutritional status is estimated by comparing its height with WHO standards height-for-age curves, as opposed to weight-for-height curves. The height-for-age index of a child from the studied population is expressed in Z-score (HAZ). The HAZ cut-off points are presented in table 31.

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 counted, using the household definition.

Crude death rate (CDR)

The number of persons in the total population that dies over specified 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 number of children aged (0-5) years that die over specified period of time. 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 collected as follows:

1. Immunization status, deworming and vitamin A supplementation

Mothers/caretakers of all children was 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 considered. The deworming and the Vitamin A supplementation of children was also recorded using samples.

2. Morbidity

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

3. Mothers nutritional status and Iron/Folate supplementation for pregnant

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

WASH

4. Water storage and Usage

House hold heads was 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.

5. Hand washing practices

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

INFANT AND YOUNG CHILD FEEDING PRACTICES INDICATORS (IYCF)

The IYCF indicators used in the measurement of infant and young child feeding practices asked to the mothers/caretakers of children aged 0-23 months are described as follows.

6. Child ever breastfed

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

Timely initiation of breastfeeding

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

7. Provision of colostrum in the first 3 days of life

Proportion of children who received colostrum (yellowish liquid) within the first 3 days after birth. Proportion of children who received colostrum (yellowish liquid) within the first 3 days after birth. 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.

8. Exclusive breastfeeding under 6 months

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

9. Continued breastfeeding at 1 year

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

10. Introduction of solid, semi-solid or soft foods:

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

11. Continued breastfeeding at 2 years

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

Maternal Health and Nutrition

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

ANNEXES

Annex: 1 Ghor Physical Map

Annex 2: Plausibility Report

Plausibility check for: Ghor_ SMART_August__2016_Afghanistan_with date chang.as

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

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

Overall data quality

Criteria	Flags*	Unit	Excel.	Good	Accept	Problematic	Score
Flagged data	Incl	%	0-2.5	>2.5-5.0	>5.0-7.5	>7.5	
(% of out of range subjects)			0	5	10	20	**0** (2.5 %)
Overall Sex ratio	Incl	p	>0.1	>0.05	>0.001	<=0.001	
(Significant chi square)			0	2	4	10	**0** (p=0.196)
Age ratio(6-29 vs 30-59)	Incl	p	>0.1	>0.05	>0.001	<=0.001	
(Significant chi square)			0	2	4	10	**4** (p=0.005)
Dig pref score - weight	Incl	#	0-7	8-12	13-20	> 20	
			0	2	4	10	**0** (4)
Dig pref score - height	Incl	#	0-7	8-12	13-20	> 20	
			0	2	4	10	**2** (10)
Dig pref score - MUAC	Incl	#	0-7	8-12	13-20	> 20	
			0	2	4	10	**0** (6)
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** (1.09)
Skewness WHZ	Excl	#	<±0.2	<±0.4	<±0.6	>=±0.6	
			0	1	3	5	**1** (-0.21)
Kurtosis WHZ	Excl	#	<±0.2	<±0.4	<±0.6	>=±0.6	
			0	1	3	5	**0** (-0.10)
Poisson dist WHZ-2	Excl	p	>0.05	>0.01	>0.001	<=0.001	
			0	1	3	5	**1** (p=0.037)
OVERALL SCORE WHZ =			0-9	10-14	15-24	>25	**8** %

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

There were no duplicate entries detected.

Percentage of children with no exact birthday: 53 %

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 wasflagged 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=69/ID=1: **WHZ (3.381)**, Weight may be incorrect

Line=72/ID=1: HAZ (-5.347), Age may be incorrect

Line=73/ID=1: HAZ (-5.819), Age may be incorrect

Line=74/ID=1: HAZ (-6.146), Age may be incorrect

Line=83/ID=1: **WHZ (-4.239)**, HAZ (6.125), Height may be incorrect

Line=137/ID=1: **WHZ (-3.984)**, Weight may be incorrect

Line=190/ID=2: **WHZ (-4.007)**, Weight may be incorrect

Line=228/ID=1: **WHZ (2.586)**, Weight may be incorrect

Line=231/ID=1: HAZ (-5.238), WAZ (-4.895), Age may be incorrect

Line=279/ID=1: **WHZ (2.603)**, Weight may be incorrect

Line=315/ID=3: HAZ (2.823), WAZ (1.692), Age may be incorrect

Line=319/ID=2: HAZ (4.688), WAZ (2.174), Age may be incorrect

Line=324/ID=1: HAZ (2.598), WAZ (1.942), Age may be incorrect

Line=333/ID=1: HAZ (-4.899), Age may be incorrect

Line=334/ID=3: HAZ (1.924), Height may be incorrect

Line=341/ID=1: **WHZ (-13.910)**, WAZ (-10.690), Weight may be incorrect

Line=342/ID=1: HAZ (7.378), WAZ (3.139), Age may be incorrect

Line=362/ID=1: HAZ (3.505), WAZ (1.810), Age may be incorrect

Line=366/ID=2: HAZ (-6.451), Height may be incorrect

Line=379/ID=1: HAZ (7.047), WAZ (3.092), Age may be incorrect

Line=391/ID=2: **WHZ (-4.199)**, WAZ (-5.041), Weight may be incorrect

Line=401/ID=2: HAZ (-5.247), Age may be incorrect

Line=413/ID=1: HAZ (-4.872), Age may be incorrect

Line=419/ID=2: HAZ (-4.884), Age may be incorrect

Line=425/ID=1: HAZ (5.746), Height may be incorrect

Line=428/ID=1: HAZ (1.901), Height may be incorrect

Line=437/ID=1: HAZ (1.853), Age may be incorrect

Line=445/ID=1: HAZ (1.410), Age may be incorrect

Line=457/ID=1: HAZ (9.876), WAZ (5.472), Age may be incorrect

Line=469/ID=1: **WHZ (2.687)**, Weight may be incorrect

Line=470/ID=1: **WHZ (-3.942)**, Height may be incorrect

Line=474/ID=1: WAZ (1.842), Age may be incorrect

Line=477/ID=1: HAZ (6.186), WAZ (1.963), Age may be incorrect

Line=479/ID=1: WAZ (1.602), Weight may be incorrect

Line=515/ID=1: HAZ (-4.947), WAZ (-4.791), Age may be incorrect

Line=516/ID=1: **WHZ (3.331)**, Height may be incorrect

Line=519/ID=1: HAZ (1.783), Height may be incorrect

Line=523/ID=2: HAZ (-4.975), Age may be incorrect

Line=548/ID=1: HAZ (-4.997), Height may be incorrect

Line=556/ID=1: HAZ (1.572), Age may be incorrect

Line=570/ID=1: **WHZ (2.562)**, Weight may be incorrect

Line=622/ID=2: **WHZ (5.979)**, WAZ (2.441), Weight may be incorrect

Line=623/ID=1: **WHZ (-3.915)**, Weight may be incorrect

Line=635/ID=2: HAZ (1.626), Age may be incorrect

Line=639/ID=1: HAZ (2.092), Age may be incorrect

Line=643/ID=1: HAZ (1.727), Age may be incorrect

Line=673/ID=3: HAZ (2.616), Age may be incorrect

Line=686/ID=3: **WHZ (-7.647)**, HAZ (-6.083), WAZ (-8.187)

Line=689/ID=2: **WHZ (-5.543)**, HAZ (1.799), Height may be incorrect

Line=697/ID=1: HAZ (2.448), Age may be incorrect

Line=710/ID=1: **WHZ (2.865)**, Weight may be incorrect

Line=711/ID=1: HAZ (4.180), Age may be incorrect

Line=762/ID=2: HAZ (2.584), WAZ (1.682), Age may be incorrect

Percentage of values flagged with SMART flags:WHZ: 2.5 %, HAZ: 5.4 %, WAZ: 2.5 %

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 : ##########

Month 60 : ###

Age ratio of 6-29 months to 30-59 months: 1.05 (The value should be around 0.85).:

p-value = 0.005 (significant difference)

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

Age cat.	mo.	boys	girls	total	ratio boys/girls
6 to 17	12	86/84.0 (1.0)	103/76.1 (1.4)	189/160.1 (1.2)	0.83
18 to 29	12	87/81.9 (1.1)	78/74.2 (1.1)	165/156.1 (1.1)	1.12
30 to 41	12	95/79.4 (1.2)	78/71.9 (1.1)	173/151.3 (1.1)	1.22
42 to 53	12	68/78.1 (0.9)	46/70.8 (0.6)	114/148.9 (0.8)	1.48
54 to 59	6	26/38.6 (0.7)	23/35.0 (0.7)	49/73.6 (0.7)	1.13
6 to 59	54	362/345.0 (1.0)	328/345.0 (1.0)		1.10

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

Overall sex ratio: p-value = 0.196 (boys and girls equally represented)

Overall age distribution: p-value = 0.000 (significant difference)

Overall age distribution for boys: p-value = 0.064 (as expected)

Overall age distribution for girls: p-value = 0.000 (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: **4** (0-7 excellent, 8-12 good, 13-20 acceptable and > 20 problematic)

p-value for chi2: 0.570

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: **6** (0-7 excellent, 8-12 good, 13-20 acceptable and > 20 problematic)

p-value for chi2: 0.020 (significant difference)

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

.	**no exclusion**	**exclusion from reference mean (WHO flags)**	**exclusion from observed mean (SMART flags)**
WHZ			
Standard Deviation SD:	1.35	1.18	1.09
(The SD should be between 0.8 and 1.2)			
Prevalence (< -2)			
observed:	12.0%	11.7%	11.0%
calculated with current SD:	16.0%	12.3%	10.6%
calculated with a SD of 1:	9.0%	8.5%	8.6%
HAZ			
Standard Deviation SD:	1.65	1.43	1.16
(The SD should be between 0.8 and 1.2)			
Prevalence (< -2)			
observed:	50.4%	50.6%	51.3%
calculated with current SD:	45.5%	46.1%	47.9%
calculated with a SD of 1:	42.6%	44.5%	47.6%
WAZ			
Standard Deviation SD:	1.29	1.19	1.08
(The SD should be between 0.8 and 1.2)			
Prevalence (< -2)			

observed:	32.2%	32.0%	32.2%
calculated with current SD:	34.3%	32.7%	32.5%
calculated with a SD of 1:	30.1%	29.7%	31.2%

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

WHZ	p= 0.000	p= 0.003	p= 0.012
HAZ	p= 0.000	p= 0.000	p= 0.001
WAZ	p= 0.000	p= 0.000	p= 0.138

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

Skewness

WHZ	-1.52	-0.12	-0.21
HAZ	1.74	0.88	0.27
WAZ	-0.24	0.31	0.05

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	14.94	0.52	-0.10
HAZ	8.17	2.57	-0.12
WAZ	5.84	0.83	-0.06

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=1.40 (p=0.037)

WHZ < -3: ID=1.01 (p=0.448)

GAM: ID=1.40 (p=0.037)

SAM: ID=1.01 (p=0.448)

HAZ < -2: ID=1.00 (p=0.476)

HAZ < -3: ID=0.77 (p=0.871)

WAZ < -2: ID=1.12 (p=0.272)

WAZ < -3: ID=1.12 (p=0.260)

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 wasrelated 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: 1.25 (n=47, f=1) ##################

02: 1.45 (n=46, f=3) ##########################

03: 1.01 (n=43, f=0) ########

04: 1.17 (n=40, f=1) ###############

05: 0.99 (n=43, f=0) ########

06: 1.11 (n=41, f=0) ############

07: 1.14 (n=40, f=1) ##############

08: 1.03 (n=45, f=0) ##########

09: 1.44 (n=41, f=3) ##########################

10: 2.36 (n=39, f=1) ##

11: 1.30 (n=35, f=2) ####################

12: 1.28 (n=35, f=1) ####################

13: 1.67 (n=34, f=1) ###################################

14: 1.29 (n=35, f=1) ####################

15: 1.14 (n=27, f=0) ##############

16: 1.08 (n=24, f=0) ############

17: 1.18 (n=17, f=0) OOOOOOOOOOOOOOOO

18: 0.92 (n=16, f=0) OOOOO

19: 1.74 (n=13, f=1) OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO

20: 1.12 (n=09, f=0) ~~~~~~~~~~~~~~

21: 2.63 (n=07, f=1) ~~~~~~

22: 0.54 (n=05, f=0)

23: 0.84 (n=02, f=0) ~~

24: 0.62 (n=03, f=0)

25: 1.63 (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 =	152	128	100	127	93	90
Percentage of values flagged with SMART flags:						
WHZ:	2.6	1.6	2.0	2.4	1.1	1.1
HAZ:	2.0	7.8	3.0	7.9	4.3	6.7
WAZ:	1.3	0.8	3.0	5.5	2.2	1.1
Age ratio of 6-29 months to 30-59 months:						
	1.05	1.06	1.17	1.05	1.21	0.80
Sex ratio (male/female):						
	1.03	1.17	0.89	1.49	0.94	1.14
Digit preference Weight (%):						
.0 :	9	7	11	9	11	10
.1 :	9	11	12	10	9	8
.2 :	9	12	12	18	11	12
.3 :	9	13	8	5	8	10
.4 :	11	9	8	14	12	8
.5 :	8	6	9	8	12	16

.6 :	10	9	14	5	8	10
.7 :	12	12	11	10	15	8
.8 :	9	9	10	15	11	11
.9 :	15	14	5	6	5	8
DPS:	7	8	8	14	9	8

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

Digit preference Height (%):

.0 :	9	7	24	14	6	36
.1 :	8	16	10	13	12	7
.2 :	11	17	9	13	18	8
.3 :	12	16	10	9	5	17
.4 :	13	8	7	5	8	3
.5 :	13	16	13	11	9	16
.6 :	9	7	4	8	6	8
.7 :	11	5	12	10	9	2
.8 :	4	3	4	9	13	2
.9 :	11	3	7	6	14	2
DPS:	9	19	18	10	13	33

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

Digit preference MUAC (%):

.0 :	7	2	19	10	0	33
.1 :	15	13	7	6	16	2
.2 :	7	13	16	13	15	3
.3 :	9	15	8	7	13	8
.4 :	12	11	8	13	4	10
.5 :	6	15	17	12	5	30
.6 :	11	11	7	10	9	3
.7 :	9	4	3	11	9	3
.8 :	13	7	5	7	12	4
.9 :	11	9	9	10	17	2
DPS:	9	14	17	8	18	37

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

Standard deviation of WHZ:

SD	1.19	1.12	1.21	1.69	1.15	1.64

Prevalence (< -2) observed:

%	15.1	9.4	11.0	10.2	9.7	16.7

Prevalence (< -2) calculated with current SD:

%	16.7	8.6	11.9	20.9	10.6	23.7

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

%	12.5	6.3	7.7	8.6	7.5	12.0

Standard deviation of HAZ:

SD	1.42	1.61	1.53	2.04	1.51	1.64

observed:

%	50.0	58.6	50.0	44.1	49.5	50.0

calculated with current SD:

%	44.8	55.1	47.6	40.3	43.7	41.5

calculated with a SD of 1:

%	42.7	58.2	46.3	30.8	40.5	36.2

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	20/17.9 (1.1)	22/17.4 (1.3)	42/35.3 (1.2)	0.91
18 to 29	12	18/17.4 (1.0)	18/17.0 (1.1)	36/34.4 (1.0)	1.00
30 to 41	12	18/16.9 (1.1)	16/16.4 (1.0)	34/33.3 (1.0)	1.13
42 to 53	12	13/16.6 (0.8)	11/16.2 (0.7)	24/32.8 (0.7)	1.18
54 to 59	6	8/8.2 (1.0)	8/8.0 (1.0)	16/16.2 (1.0)	1.00
6 to 59	54	77/76.0 (1.0)	75/76.0 (1.0)		1.03

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

Overall sex ratio: p-value = 0.871 (boys and girls equally represented)

Overall age distribution: p-value = 0.443 (as expected)

Overall age distribution for boys: p-value = 0.888 (as expected)

Overall age distribution for girls: p-value = 0.566 (as expected)

Overall sex/age distribution: p-value = 0.393 (as expected)

Team 2:

Age cat.	mo.	boys	girls	total	ratio boys/girls
6 to 17	12	10/16.0 (0.6)	29/13.7 (2.1)	39/29.7 (1.3)	0.34
18 to 29	12	19/15.6 (1.2)	8/13.3 (0.6)	27/29.0 (0.9)	2.38
30 to 41	12	27/15.1 (1.8)	15/12.9 (1.2)	42/28.1 (1.5)	1.80
42 to 53	12	10/14.9 (0.7)	6/12.7 (0.5)	16/27.6 (0.6)	1.67
54 to 59	6	3/7.4 (0.4)	1/6.3 (0.2)	4/13.7 (0.3)	3.00
6 to 59	54	69/64.0 (1.1)	59/64.0 (0.9)		1.17

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

Overall sex ratio: p-value = 0.377 (boys and girls equally represented)

Overall age distribution: p-value = 0.000 (significant difference)

Overall age distribution for boys: p-value = 0.002 (significant difference)

Overall age distribution for girls: p-value = 0.000 (significant difference)

Overall sex/age distribution: p-value = 0.000 (significant difference)

Team 3:

Age cat.	mo.	boys	girls	total	ratio boys/girls
6 to 17	12	13/10.9 (1.2)	17/12.3 (1.4)	30/23.2 (1.3)	0.76
18 to 29	12	10/10.6 (0.9)	14/12.0 (1.2)	24/22.6 (1.1)	0.71
30 to 41	12	11/10.3 (1.1)	14/11.6 (1.2)	25/21.9 (1.1)	0.79
42 to 53	12	12/10.1 (1.2)	4/11.4 (0.3)	16/21.6 (0.7)	3.00
54 to 59	6	1/5.0 (0.2)	4/5.7 (0.7)	5/10.7 (0.5)	0.25

6 to 59 54 47/50.0 (0.9) 53/50.0 (1.1) 0.89

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

Overall sex ratio: p-value = 0.549 (boys and girls equally represented)

Overall age distribution: p-value = 0.138 (as expected)

Overall age distribution for boys: p-value = 0.400 (as expected)

Overall age distribution for girls: p-value = 0.094 (as expected)

Overall sex/age distribution: p-value = 0.014 (significant difference)

Team 4:

Age cat.	mo.	boys	girls	total	ratio boys/girls
6 to 17	12	18/17.6 (1.0)	13/11.8 (1.1)	31/29.5 (1.1)	1.38
18 to 29	12	20/17.2 (1.2)	14/11.5 (1.2)	34/28.7 (1.2)	1.43
30 to 41	12	18/16.7 (1.1)	15/11.2 (1.3)	33/27.8 (1.2)	1.20
42 to 53	12	17/16.4 (1.0)	7/11.0 (0.6)	24/27.4 (0.9)	2.43
54 to 59	6	3/8.1 (0.4)	2/5.4 (0.4)	5/13.6 (0.4)	1.50
6 to 59	54	76/63.5 (1.2)	51/63.5 (0.8)		1.49

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

Overall sex ratio: p-value = 0.027 (significant excess of boys)

Overall age distribution: p-value = 0.098 (as expected)

Overall age distribution for boys: p-value = 0.431 (as expected)

Overall age distribution for girls: p-value = 0.233 (as expected)

Overall sex/age distribution: p-value = 0.007 (significant difference)

Team 5:

Age cat.	mo.	boys	girls	total	ratio boys/girls
6 to 17	12	11/10.4 (1.1)	12/11.1 (1.1)	23/21.6 (1.1)	0.92
18 to 29	12	12/10.2 (1.2)	16/10.9 (1.5)	28/21.0 (1.3)	0.75
30 to 41	12	10/9.9 (1.0)	10/10.5 (1.0)	20/20.4 (1.0)	1.00
42 to 53	12	10/9.7 (1.0)	7/10.4 (0.7)	17/20.1 (0.8)	1.43
54 to 59	6	2/4.8 (0.4)	3/5.1 (0.6)	5/9.9 (0.5)	0.67
6 to 59	54	45/46.5 (1.0)	48/46.5 (1.0)		0.94

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

Overall sex ratio: p-value = 0.756 (boys and girls equally represented)

Overall age distribution: p-value = 0.256 (as expected)

Overall age distribution for boys: p-value = 0.735 (as expected)

Overall age distribution for girls: p-value = 0.343 (as expected)

Overall sex/age distribution: p-value = 0.154 (as expected)

Team 6:

Age cat.	mo.	boys	girls	total	ratio boys/girls
6 to 17	12	14/11.1 (1.3)	10/9.7 (1.0)	24/20.9 (1.1)	1.40
18 to 29	12	8/10.9 (0.7)	8/9.5 (0.8)	16/20.4 (0.8)	1.00
30 to 41	12	11/10.5 (1.0)	8/9.2 (0.9)	19/19.7 (1.0)	1.38
42 to 53	12	6/10.4 (0.6)	11/9.1 (1.2)	17/19.4 (0.9)	0.55

54 to 59 6 9/5.1 (1.8) 5/4.5 (1.1) 14/9.6 (1.5) 1.80

---

6 to 59 54 48/45.0 (1.1) 42/45.0 (0.9) 1.14

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

Overall sex ratio: p-value = 0.527 (boys and girls equally represented)

Overall age distribution: p-value = 0.443 (as expected)

Overall age distribution for boys: p-value = 0.179 (as expected)

Overall age distribution for girls: p-value = 0.928 (as expected)

Overall sex/age distribution: p-value = 0.095 (as expected)

Evaluation of the SD for WHZ depending upon the order the cases are measured within each cluster (if one cluster per day is measured then this wasrelated 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: 1.45 (n=09, f=1) ##########################

02: 1.10 (n=08, f=0) ############

03: 1.12 (n=09, f=0) #############

04: 1.25 (n=09, f=1) ##################

05: 0.78 (n=09, f=0)

06: 1.26 (n=07, f=0) ##################

07: 1.44 (n=09, f=1) ##########################

08: 0.54 (n=08, f=0)

09: 1.38 (n=08, f=1) ########################

10: 1.63 (n=08, f=0) ###################################

11: 1.13 (n=07, f=0) ##############

12: 1.32 (n=07, f=0) ######################

13: 1.18 (n=07, f=0) ################

14: 1.47 (n=09, f=1) ############################

15: 0.95 (n=07, f=0) ######

16: 1.41 (n=08, f=0) ##########################

17: 1.18 (n=04, f=0) OOOOOOOOOOOOOOO

18: 1.20 (n=05, f=0) OOOOOOOOOOOOOOOO

19: 0.91 (n=05, f=0) OOOO

20: 0.74 (n=03, f=0)

21: 1.34 (n=03, f=0) OOOOOOOOOOOOOOOOOOOOOO

(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: 1.46 (n=09, f=1) ############################

02: 0.76 (n=09, f=0)

03: 0.37 (n=08, f=0)

04: 1.10 (n=05, f=0) #############

05: 1.31 (n=08, f=1) ######################

06: 1.13 (n=08, f=0) ##############

07: 1.22 (n=06, f=0) ##################

08: 1.47 (n=09, f=0) ############################

09: 1.62 (n=08, f=1) ################################

10: 1.17 (n=08, f=0) ################

11: 1.20 (n=07, f=0) #################

12: 0.47 (n=05, f=0)

13: 1.14 (n=08, f=0) ##############

14: 0.30 (n=05, f=0)

15: 1.04 (n=05, f=0) ##########

16: 1.09 (n=05, f=0) ############

17: 0.39 (n=05, f=0)

18: 0.61 (n=04, f=0)

19: 1.17 (n=03, f=0) OOOOOOOOOOOOOOO

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

Team: 3

Time SD for WHZ

point 0.8 0.9 1.0 1.1 1.2 1.3 1.4 1.5 1.6 1.7 1.8 1.9 2.0 2.1 2.2 2.3

01: 1.18 (n=09, f=0) ################

02: 1.94 (n=09, f=2) ##

03: 1.13 (n=07, f=0) ##############

04: 0.93 (n=08, f=0) ######

05: 1.28 (n=07, f=0) ####################

06: 1.00 (n=07, f=0) ########

07: 1.40 (n=07, f=0) ########################

08: 1.13 (n=08, f=0) ##############

09: 1.20 (n=06, f=0) #################

10: 0.61 (n=07, f=0)

11: 1.06 (n=07, f=0) ##########

12: 0.76 (n=06, f=0)

13: 1.14 (n=03, f=0) OOOOOOOOOOOOOO

14: 0.57 (n=04, f=0)

15: 1.47 (n=02, f=0) ~~~~~~~~~~~~~~~~~~~~~~~~~~

16: 0.52 (n=02, f=0)

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

Team: 4

Time SD for WHZ

point 0.8 0.9 1.0 1.1 1.2 1.3 1.4 1.5 1.6 1.7 1.8 1.9 2.0 2.1 2.2 2.3

01: 1.15 (n=09, f=0) ################

02: 1.27 (n=08, f=1) ####################

03: 1.28 (n=08, f=0) ####################

04: 1.14 (n=09, f=0) ##############

05: 0.82 (n=09, f=0) #

06: 1.28 (n=08, f=0) ####################

07: 0.92 (n=07, f=0) #####

08: 0.92 (n=08, f=0) #####

09: 1.35 (n=08, f=1) ######################

10: 5.89 (n=05, f=1) ##

11: 1.43 (n=06, f=1) ########################

12: 1.52 (n=06, f=0) ##############################

13: 1.44 (n=06, f=0) ########################

14: 1.12 (n=07, f=0) #############

15: 1.31 (n=05, f=0) ####################

16: 0.43 (n=03, f=0)

17: 1.84 (n=02, f=0) ~~~~~~

18: 0.45 (n=03, f=0)

19: 0.33 (n=03, f=0)

20: 1.31 (n=03, f=0) OOOOOOOOOOOOOOOOOOOO

22: 0.19 (n=02, f=0)

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

Team: 5

Time SD for WHZ

point 0.8 0.9 1.0 1.1 1.2 1.3 1.4 1.5 1.6 1.7 1.8 1.9 2.0 2.1 2.2 2.3

01: 1.15 (n=07, f=0) ###############

02: 2.01 (n=06, f=1) ##

03: 1.00 (n=06, f=0) #########

04: 1.03 (n=05, f=0) ##########

05: 0.66 (n=07, f=0)

06: 0.93 (n=07, f=0) #####

07: 0.96 (n=07, f=0) #######

08: 1.18 (n=07, f=0) ################

09: 0.87 (n=06, f=0) ###

10: 0.81 (n=05, f=0)

11: 0.51 (n=05, f=0)

12: 1.42 (n=06, f=0) ##########################

13: 1.12 (n=05, f=0) #############

14: 1.45 (n=05, f=0) ##########################

15: 0.98 (n=05, f=0) ########

16: 1.96 (n=02, f=0) ~~~~~~

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

Team: 6

Time SD for WHZ

point 0.8 0.9 1.0 1.1 1.2 1.3 1.4 1.5 1.6 1.7 1.8 1.9 2.0 2.1 2.2 2.3

01: 1.42 (n=05, f=0) ##########################

02: 1.53 (n=05, f=0) ###############################

03: 0.62 (n=05, f=0)

04: 0.78 (n=04, f=0)

05: 0.90 (n=04, f=0) ####

06: 0.46 (n=04, f=0)

07: 0.77 (n=04, f=0)

08: 0.68 (n=05, f=0)

09: 1.34 (n=05, f=0) ######################

10: 0.89 (n=05, f=0) ####

11: 2.33 (n=04, f=1) ##

12: 2.22 (n=05, f=1) ##

13: 3.67 (n=04, f=1) ##

14: 1.06 (n=05, f=0) ###########

15: 0.74 (n=03, f=0)

16: 0.40 (n=04, f=0)

17: 1.04 (n=04, f=0) ##########

18: 1.40 (n=03, f=0) ########################

19: 3.76 (n=02, f=1) OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO

20: 0.42 (n=02, f=0)

21: 4.37 (n=02, f=1) OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO

22: 0.06 (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)

Annexe 3: Qustionaires

سوالنامه مادر یا پایواز

SMART

۱ معرفت

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

قسمت 2 : مراقبت قبل از ولادت و پرسش صحت

ANC	ایا کدام معاینه رابخاطر طفل تان قبل از ولادت اجرا نموده اید ؟	1. بلی 2. نخیر
WHOM	اگر جوا بلی باشد کیها شما را معاینه کرده بود ؟	1. کارکن صحی / مسلکی (داکتر ، قابله ،کومکی قابله ، نرس) شخص 2. دایه محلی 3. رضا کار صحی 4. اقارب

		..... مشخص نماید).96

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

قسمت ۳ : حفظالصحه

Code	چی قسم و چی وقت 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 خودم شیر یا غذا میدهیم	1	2

Code	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 مالیم	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

Food Security Assessment - Household Questionnaire

بررسی مصؤنیت غذایی - پرسشنامه خانوار

Section 0 - Survey information **- معلومات سروی بخش 0**

سرویر باید نخست خود را معرفی نموده وهدف سروی خودرا تشریح نماید. بعد ازخانوار مورد سروی اجازه مصاحبه خواسته وصرف بعد از موافقه ایشان مصاحبه را آغاز نماید. باید به خانوار اطمینان داده شود که معلومات ارائه شده ایشان محرم خواهد ماند وبا هیچ کسی شریک نخواهد شد. همچنان به خانوار گفته شود که مصاحبه هذا متضمن هیچ نوع مساعدت به خانوار ایشان فعلا، و درآینده نمی باشد.

0.1 Province name نام ولایت		**0.5** Date of interview تاریخ مصاحبه	__|__| روز __|__| ماه __|__|__|__| سال
0.2 District name نام ولسوالی		**0.6** Name of respondent نام پاسخ دهنده	
0.3 Community Name نام قریه/ناحیه		**0.7** Household Number نمبر خانوار	
0.4 Name of surveyor نام سروی کننده		**0.8** Team number تیم نمبر	

8.1 Reduced Coping Strategy Index (related to food consumption) شیوه های مجادلوی مربوط مصرف غذا

	In the past 7 days, if there have been times when you did not have enough food or money to buy food, how often has your household had to: **در 7 روز گزشته اگر گاهی غذای کافی و پول برای خرید آن را نداشته اید چند بار به یکی از اقدامات ذیل متوصل شده اید ؟**	**Frequency (تکرار)** No. of Days the strategy repeated in last 7 days (from 0 to 7) تکرار: تعداد روز هایکه چنین روش ها را در 7 روزگذشته تکرار کرده اید (از 0 الی 7)
a.	Rely on less preferred and less expensive foods **تکیه روی غذای کمتر مورد پسند و کم ارزش؟**	__|
b.	Borrow food, or rely on help from a friend or relative **قرض گرفتن غذا یا تکیه به کمک ا قارب و دوستان**	__|

c.	Limit portion size at mealtimes **کاهش در مقدارغذا در وقت صرف طعام**	|___|
d.	Restrict consumption by adults in order for small children to eat **نخوردن غذا توسط بالغین بخاطر ایکه اطفال سیر شوند**	|___|
e.	Reduce number of meals eaten in a day **کاستن از اوقات غذا**	|___|

Food Access and Consumption	**بخش 8- دسترسی و مصرف غذا**

8.2 Food Consumption Score (7 day recall) **نمره حاصله از مصرف غذا (طی 7 روز گذشته)**

Could you please tell me how many days in the past week your household has eaten the following food types? Please make sure that we are asking about food groups eaten by the entire household members and also in a quantity which make sense.
If two or more food of the same food group is eaten in one day the number of day eaten will be one.
متوانید برایم بگوئید که در مدت 7 روز گزشته اعضاً خانوار شما چند روز از غذا های ذکرشده در ذیل صرف نموده اند؟
کوشش کنید که غذا های را ثبت نمائید که توسط تمام ویا اکثریت اعضای خانوار به مقدار قابل ملاحظه خورده شده باشد. اگردو ویا بیشترغذا از عین گروپ غذایی در عین روز مصرف شده باشد آنرا یکی بشمارید.

Food Group **گروپ غذایی**	**No. of Days the food group is eaten in last 7 days (from 0 to 7)** تعداد روز هایکه در 7 روز گزشته گروپ غذایی مذکور صرف شده است (از 0 الی 7)	**What was the main source of this food in the last 7 days?** **منبع عمده این غذا در 7روز گذشته چی بوده؟** **1**= Own production; (تولیدات خود) **2**= Purchase on cash; (توسط پول خریداری شده) **3**= Purchase on credit (طور قرضه خریداری گردیده) **4**= Bartering; (تبادله جنس به جنس) **5**= Gifts/Charity; (تحفه/خیرات) **6**= Collecting wild foods (جمع اوری غذاهای وحشی) **7**= Food aid (Gov, NGO/WFP) (کمک غذایی از طرف دولت، موسسات/WFP)
Cereals or tubers (Bread, wheat, rice, maize, Potatoes, sweet potatoes, etc) **غله جات مانند نان، گندم ، برنج، جواری، کچالو وغیره**	|__|	|__|

Pulses (Beans, lentilles, peas, etc) **حبوبات (لوبیا، نخود، عدس وغیره)**	|__|	|__|
Vegetables **سبزیجات**	|__|	|__|
Fruits **میوه جات**	|__|	|__|
Meat, of all type, fishes and eggs **انواع گوشت، ماهی و تخم**	|__|	|__|
Dairy (milk, yogurt, Cheese, other milk prod) **لبنیات (شیر، ماست، پنیرو تولیدات دیگرلبنی)**	|__|	|__|
Sugar, honey **شکر، عسل وامثال**	|__|	|__|
Oil, fats **روغن، شحمیات**	|__|	|__|
Condiments **مصاله جات**	|__|	|__|

8.3 **Household General Coping Strategies** **شیوه های مجادلوی عمومی خانوار**	
10.3.1 In the past 12 months, have there been times when you did not have enough money to buy food and basic none food needs? **در 12 ماه گذشته گاهی شده که پول برای خرید غذا و ضروریات اساسی دیگرنداشته باشید؟** 1=Yes (بلی) 2=No >> Section11 (به بخش 11 بروید)	|___|
8.3.2 If yes, has anyone in your household used any of the following strategies when facing difficulties to obtain food or cover other expenditures? **اگر پاسخ بلی باشد، پس آیا شما ویا کدام عضو دیگر خانوار شما به یکی از شیوه های ذیل بخاطر حصول غذا ویا مصارف دیگر متوصل شده است ؟** 1= Yes (بلی) 2= No (نخیر)	
Sold reproductive livestock فروش مواشی نسلی	|___|

Sold house or land فروش خانه و زمین	|___|
Sold animals (more than usual or earlier than usual) فروش حیوانات اهلی غیر از آنچه معمول است	|___|
Worked to feed himself اجرای کار صرف در بدل غذا	|___|
Migrated to look for work مهاجرت به منظور کار یافتن	|___|
Increased daily labour (Increase number of daily worker, increase number of days, increase number of working hours) افزایش در روز مزدی (افزایش در تعداد روزمزدان ، تعداد روز های کاری ویا ساعات کاری)	|___|
Decreased expenditures on health, education, etc کاستن از مصارف صحی، تعلیم و غیره	|___|
Increased collection and sale of natural resources افزایش در جمع آوری و فروش منابع طبیعی	|___|
Spent savings or investments مصرف از پس انداز و سرمایه گذاریها	|___|
Sold household assets (appliances, furniture, doors, windows, roof beams) فروش لوازم خانه مانند تجهیزات، مبل و فرنیچر، دروازه، کلکین و غیره	|___|
Sold income generating equipment فروش وسایل تولیدی	|___|
Rented out house/land کرایه دادن خانه یا زمین	|___|
Begging/ Relying on kinship گدایی/ اتکاء به خویشاوندان	|___|
Sold farm equipment فروش وسایل زراعت	|___|
Sent children for labor work outside household فرستادن اطفال بخاطرکار خارج از خانه	|___|
Pulling out children from school to have more labor force کشیدن کودکان از مکتب بخاطر کار	|___|

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 98. نمی فهمم
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 چند سوال نمایم			
Ever BF	ایا این طفل شما شیر خورده	1. بلی	2. نه	98. نمی فهمم
time to BF	بعد از ولادت (اسم طفل) چیُ 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	غذا 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

SLD & Soft Food	ایا این طفل (نام طفل) در شب و روز گذشته جامد نیمه جامد و یا غذاهای نیمه نرم را داد اید ؟	1. بلی	2. نه	98. نمی فهمم
No. time	چند دفعه در شب و رزو گشذشته 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 (نام طفل) در 14 رزو گذشته مریض شده ؟	1. بلی	2.نه	98. نمی فهمم
FVR	تب	1. بلی	2. نه	98. نمی فهمم
ARI	سرفه یا مشکلات تنفسی	1. بلی	2. نه	98. نمی فهمم
DIAR	اسهال	1. بلی	2 . نه	98. نمی فهمم
Other	دیگر مشخص نماید			

تعریفات

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

جواب	کرم زدایی معافیت و ویتامین A	
1. بلی 2. نه 98. نمی فهمم	ایا این طفل (نام طفل) و یتامین A کپسول در 6 ماه گذشته اخذ نموده ؟	Vit A
1. بلی 2. نه 98. نمی فهمم	ایا این طفل (نام طفل) در 6 ماه گذشته ادویه ضد یی کرم را اخذ نموده (12-59 ماهه طفل) ؟	DWM
1. بلی 2. نه 98. نمی فهمم	ایا این طفل ندبه واکسین BCG دارد ؟	BCG
1. بلی کارد دارد 2. بل یکارد ندارد 3. نه خیر 98. نمی فهمم	ایا این طفل (نام طفل) واکسین فلج را گرفته ؟	Polio
1 . بلی کارد دار د 2. بل یکارد ندارد 3. نه خیر 98نمی فهمم	ایا این طفل واکسین سرخکان را اخذ نموده (9-59 ماه طفل) ؟	Measles

۳. 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 خو را در جریان بماند و عکس طفل به شکل واضح گرفته شود در صورت امکان	Edema
	موک به ملی متر	MUAC

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 خانه وار 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 برای نوشیدن از کدام اب 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 مشحص سازید_____
WTR treatment	**ان اب که همیشه استفاده می کنید برای نوشیدن برای تصفیه ان چی می کنید ؟** **<u>تاکید کنید که چیزی بگوید</u>**	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 لیتره بوشکه را بدهید**	A. **حجم یا اندازه یی بوشکه** [_____] B. **تعداد بوشکه** [_____] **اب مجموعی**= A*B = [_____]

Demography and Mortality فورم مرگ ومیر و جمیعت شناسی

Province / ولایت		District / ولسوالی		VILLAGE: قریه	
NAME OF INTERVIEWER: اسم مصاحبه کننده			Date of the survey تاریخ سروی :		
CLUSTER NO. کلستر نمبر		TEAM NO. تیم نمبر		HOUSEHOLD NO. نمبر خانواده	

از شروع نوروز تا به حالی (17/3/1395)

(Start date of the recall)

WRITE 'Y' for YES. Leave BLANK if NO

و اگر نه بود خانه خالی مانده می شودYاگر بلی بود نوشته نماید

01	02	03	04	05	06	07	08	09	10
No.	Name نام اعضای خانواده	Sex جنس (M یا F)	Age (years) عمر با سال	Joined on or after: یک جا شده	Left on or after: خانه را ترک کرده	Born on or after: تولد شده	Died on or after: فوت کرده	Cause of death (optional) علت مرگ (اختیاری)	Location of death (optional) موقیعت مرگ (اختیاری)
a) List all the Household membres That are **curent living** in This Household. لیست تمام اعضای خانواده **که فعلا در این خانه زندگی** می نماید									
1									

2									
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									
13									
14									
15									
16									
17									

18									
19									
20									
b) List all the household membres that have **left this household** (out migrants) **since the start** of the recall period. لیست تمام اعضای خانوادیکه خانه را **تر ک کرده** یا مهاجر شده **از شروع نوروزتا به حالی** (b									
1					Y				
2					Y				
3					Y				
4					Y				
5					Y				
who **died** since the start of the recall period. c) List all the household members لیست تمام اعضای خانوادیکه **فوت** نموده **از شروع نوروزتا به حالی** (c									
1							Y		
2							Y		
3							Y		
4							Y		
5							Y		

Was anyone in the household pregnant at the start of the recall period? No [ ] Yes [ ] If yes, how many? _____

ایا در این خانه کدام خانم حامله است بلیY _____ : نه No_____ اگر است جند نفر است تعدا ان بنویسید _____

Annexe 4: Local event calender

اسم ماه	ماه	1390	ماه	1391	ماه	1392	ماه	1393	ماه	1394	ماه	1395
حمل		روز دهقان . شروع مکاتب. کشت زراعت و نهال شانی . روز نوروز . امدن پرنده گان . وقت سیچک	54	روز دهقان . شروع مکاتب. کشت زراعت و نهال شانی . روز نوروز . امدن پرنده گان . وقت سیچک	42	روز دهقان . شروع مکاتب. کشت زراعت و نهال شانی . روز نوروز . امدن پرنده گان . وقت سیچک	30	روز دهقان . شروع مکاتب. کشت زراعت و نهال شانی . روز نوروز . امدن پرنده گان . وقت سیچک	18	روز دهقان . شروع مکاتب. کشت زراعت و نهال شانی . روز نوروز . امدن پرنده گان . وقت سیچک	6	روز دهقان . شروع مکاتب. کشت زراعت و نهال شانی . روز نوروز . امدن پرنده گان . وقت سیچک
ثور		8 ثور. کچال شانی . رفتن به ایلاق در گرم سیر . امدن کوچیها. گل درختان . اخر جفت و وقت سیلاب باز شدن راها	53	8 ثور. کچال شانی . رفتن به ایلاق در گرم سیر . امدن کوچیها. گل درختان . اخر جفت و وقت سیلاب باز شدن راها	41	8 ثور. کچال شانی . رفتن به ایلاق در گرم سیر . امدن کوچیها. گل درختان . اخر جفت و وقت سیلاب باز شدن راها	29	8 ثور. کچال شانی . رفتن به ایلاق در گرم سیر . امدن کوچیها. گل درختان . اخر جفت و وقت سیلاب باز شدن راها	17	8 ثور. کچال شانی . رفتن به ایلاق در گرم سیر . امدن کوچیها. گل درختان . اخر جفت و وقت سیلاب باز شدن راها	5	8 ثور. کچال شانی . رفتن به ایلاق در گرم سیر . امدن کوچیها. گل درختان . اخر جفت و وقت سیلاب باز شدن راها
جوزا		جو درو . رفتن به ایلاق در سر سیر . وقت کل نمودن گوسفند . وقت گل کچالو. وخت خاک دادن کچالو	52	جو درو . رفتن به ایلاق در سر سیر . وقت کل نمودن گوسفند . وقت گل کچالو. وخت خاک دادن کچالو	40	جو درو . رفتن به ایلاق در سر سیر . وقت کل نمودن گوسفند . وقت گل کچالو. وخت خاک دادن کچالو	28	جو درو . رفتن به ایلاق در سر سیر . وقت کل نمودن گوسفند . وقت گل کچالو. وخت خاک دادن کچالو	16	جو درو . رفتن به ایلاق در سر سیر . وقت کل نمودن گوسفند . وقت گل کچالو. وخت خاک دادن کچالو	4	جو درو . رفتن به ایلاق در سر سیر . وقت کل نمودن گوسفند . وقت گل کچالو. وخت خاک دادن کچالو
سرطان		عید رمضان . پخته شدن حبوبات و علف درو	51	عید رمضان . پخته شدن حبوبات و علف درو	39	عید رمضان . پخته شدن حبوبات و علف درو	27	عید رمضان . پخته شدن حبوبات و علف درو	15	عید رمضان . پخته شدن حبوبات و علف درو	3	عید رمضان . پخته شدن حبوبات و علف درو
اسد		رخصتی مکتب . جشن ارادی . وقت جو درو و وقت جمع واری علف	50	رخصتی مکتب . جشن ارادی . وقت جو درو و وقت جمع واری علف	38	رخصتی مکتب . جشن ارادی . وقت جو درو و وقت جمع واری علف	26	رخصتی مکتب . جشن ارادی . وقت جو درو و وقت جمع واری علف	14	رخصتی مکتب . جشن ارادی . وقت جو درو و وقت جمع واری علف	2	رخصتی مکتب . جشن ارادی . وقت جو درو و وقت جمع واری علف
سنبله		عید قربان . وقت گندم درو . روز عاشورا . مزار پخک	49	عید قربان . وقت گندم درو . روز عاشورا . مزار پخک	37	عید قربان . وقت گندم درو . روز عاشورا . مزار پخک	25	عید قربان . وقت گندم درو . روز عاشورا . مزار پخک	13	عید قربان . وقت گندم درو . روز عاشورا . مزار پخک	1	عید قربان . وقت گندم درو . روز عاشورا . مزار پخک
میزان		وقت برگ ریزی	48	وقت برگ ریزی .	36	وقت برگ ریزی .	24	وقت برگ ریزی .	12	وقت برگ ریزی .		وقت برگ ریزی .

وخت زیات شدن اب . شروع سردی هوا . جمع واری مواد سوخت . چیدن سیب . وقت خرمن		وخت زیات شدن اب . شروع سردی هوا . جمع واری مواد سوخت . چیدن سیب . وقت خرمن		وخت زیات شدن اب . شروع سردی هوا . جمع واری مواد سوخت . چیدن سیب . وقت خرمن		وخت زیات شدن اب . شروع سردی هوا . جمع واری مواد سوخت . چیدن سیب . وقت خرمن		وخت زیات شدن اب . شروع سردی هوا . جمع واری مواد سوخت . چیدن سیب . وقت خرمن			
کشت برای تیر ماهی . جمع واری حاصلات (کجالو . زردک)		11	کشت برای تیر ماهی . جمع واری حاصلات (کجالو . زردک)	23	کشت برای تیر ماهی . جمع واری حاصلات (کجالو . زردک)	35	کشت برای تیر ماهی . جمع واری حاصلات (کجالو . زردک)	47	کشت برای تیر ماهی . جمع واری حاصلات (کجالو . زردک)	59	عقرب
شروع برف باری . شب یلدا .میلاد نبی . شروع یخ بندی		10	شروع برف باری . شب یلدا .میلاد نبی . شروع یخ بندی	22	شروع برف باری . شب یلدا .میلاد نبی . شروع یخ بندی	34	شروع برف باری . شب یلدا .میلاد نبی . شروع یخ بندی	46	شروع برف باری . شب یلدا .میلاد نبی . شروع یخ بندی	58	قوس
چله کلان . شروع زمستان . برف باری شدید. وقت شکار کردن و وقت رفتن اطفال به مسجد		9	چله کلان . شروع زمستان . برف باری شدید. وقت شکار کردن و وقت رفتن اطفال به مسجد	21	چله کلان . شروع زمستان . برف باری شدید. وقت شکار کردن و وقت رفتن اطفال به مسجد	33	چله کلان . شروع زمستان . برف باری شدید. وقت شکار کردن و وقت رفتن اطفال به مسجد	45	چله کلان . شروع زمستان . برف باری شدید. وقت شکار کردن و وقت رفتن اطفال به مسجد	57	جدی
شروع چله خورد		8	شروع چله خورد	20	شروع چله خورد	32	شروع چله خورد	44	شروع چله خورد	56	دلو
تغیر اب هوا . چاقوک گیری. ده سختک یا ده پیر زالک . وقت یخ اب		7	تغیر اب هوا . چاقوک گیری. ده سختک یا ده پیر زالک . وقت یخ اب	19	تغیر اب هوا . چاقوک گیری. ده سختک یا ده پیر زالک . وقت یخ اب	31	تغیر اب هوا . چاقوک گیری. ده سختک یا ده پیر زالک . وقت یخ اب	43	تغیر اب هوا . چاقوک گیری. ده سختک یا ده پیر زالک . وقت یخ اب	55	حوت

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