AFGHANISTAN

Nutrition & Mortality SMART Survey
Final Report

Parwan Province, Afghanistan

26th Sep to 18th Oct 2016

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Action Against Hunger

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Abbreviations

ACF	Action contre la Faim/Action against Hunger
AIM-WG	Afghanistan Information Management Working Group
BCG	Bacillus Calmette Guerin
CDR	Crude Death Rate
CSO	Central Statistics Organization
ENA	Emergency Nutrition Assessment
GAM	Global Acute Malnutrition
HH	Household
IYCF	Infant and Young Child Feeding
MOPH	Minister of Public Health
MUAC	Mid Upper Arm Circumference
NNS	National Nutrition Survey
OW	observed Weight
OCHA	Office for the Coordination of Humanitarian Affairs
PPS	Proportional Population Size
PPHD	Provincial Public Health Directorate
PND	Public Health Nutrition Department
RC	Reserve Cluster
SAM	Severe Acute Malnutrition
SD	Standard Deviation
SMART	Standardized Monitoring and Assessment of Relief and Transition
SM	Strengthen Mechanism
MW	Mean Weight
WFP	World Food Program
WASH	Water Sanitation and Hygiene
WHZ	Weight for Height Z score
W/H	Weight for height
WHO	World Health Organization
U5DR	Under five Death Rates
U5	Under five
UNICEF	United Nation Children's Fund

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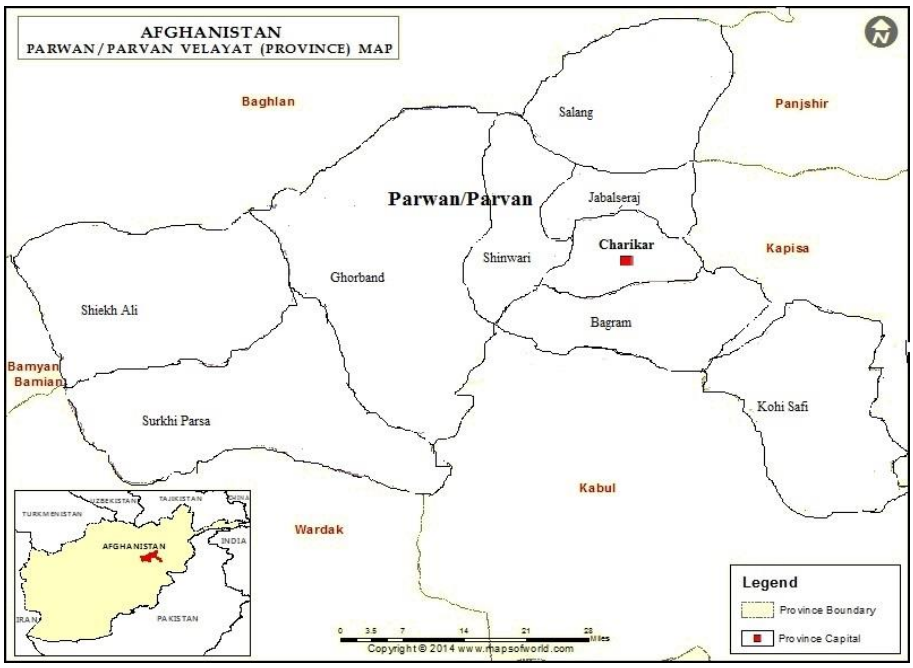
Executive summary

The nutrition and mortality SMART survey was conducted from 25th Sep to 18th Oct 2016, in the eight districts of Parwan province. A total of 631 households randomly selected were assessed. The nutrition and mortality SMART survey final report provides methodology used, completely survey findings with potential risk factors contributing the under nutrition, analysis and interpretation of the survey findings and recommendation proposed.

Summary findings

- A total of **815** children aged (0-59) months and **756** children aged (6-59) months children were assessed in 631 Households in the survey.
- Global Acute Malnutrition (GAM) and Severe Acute Malnutrition (SAM) prevalence based on Weight – for- Height Z-scores (WHZ) was at **13.5** % (11.1 - 16.3 95% C.I.) and **3.4** % (2.3 - 4.8 95% C.I.) Respectively.
- Prevalence of oedema was at **0.0**%
- GAM and SAM prevalence based on Mid Upper Arm Circumference (MUAC) was at **15.8** % (11.9 - 20.5 95% C.I.) and **4.1** % (2.6 - 6.6 95% C.I.) Respectively.
- The combined MUAC and WHZ based on both criteria revealed GAM and SAM rates 22.6 % (19.6-25.6 95% CI) and **7.0**% (5.2-8.8 95% CI) Respectively.
- Prevalence of stunting (HAZ) was at **45.5** % (41.3 - 49.7 95% C.I) while severe stunting was at **18.7** % (15.8 - 22.1 95% C.I.).
- Prevalence of underweight (WAZ) was **31.5** % (27.6 - 35.7 95% C.I.) and severe underweight was **10.5** % (8.0 - 13.7 95% C.I.).
- The maternal nutrition status of pregnant and lactating women years aged was **24.6** %.
- Crude Mortality Rate (CMR) was **0.23** % (0.07-0.70) with 2.88 design effect and **0.24**% (0.07-0.78) was male and **0.21**% (0.06-0.70) was female Crude mortality rate through **0.49**% (0.12-2.01) under five mortality rates.
- The coverage of Immunization (measles aged 9-59 months both by cards and recalls , Polio aged 0-59 months both by cards and recalls and BCG scare aged 0-59 months were **84.0** %, **89.4** % and **84.9** % respectively.

Introduction



Parwan is one of the 34 provinces of Afghanistan, located north of the Kabul province and south of Baghlan province. It is divided by 10 districts such as Bagram, kohi safi, Said Khial, Jabal Seraj, Salang, Surkh parsa, Shiekh Ali, Sya Gard, Shinwari and Charikar capital of the province.

The total population of the province is about 664,502[1]which is multi- ethnic such us Pashtun, Tajik, Uzbak, Qazilbash, Kuchi and hazara and the main ethnics are Pashtun and Tajik, it has the mostly rural society in the province.

Objective of the survey

Broad objective

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

[1] CSO updates population for 1394 (2015 - 2016)

- To assess food access and consumption on seven days recall period: households levels.

Justification

The justification of the proposed assessment is to estimate the current prevalence of under-nutrition among vulnerable populations in Parwan province. The survey was also investigate the current mortality rates, child health status (morbidity, immunization and supplementation), 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 National Nutrition Survey in 2013 and GAM rates was at poor levels of WHO classification. There is a need to investigate on the current prevalence of under-nutrition in the province. The Survey findings will be used to inform future programing in the Parwan province. It was also serve as a good opportunity of building the capacity of stakeholders.

Methodology

Sample Size

The sample size of households surveyed was determined using ENA for SMART software version 2011 (up dated 9th July 2015). A two stage cluster sampling 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, the random selection of household (13 households) was done 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 and 2 highlights sample size calculation for anthropometric and mortality surveys.

Table 1: Parameters for sample size calculation of anthropometric indicators, Parwan SMART, Oct 2016

Parameters for Anthropometry	Value	Assumptions based on context
Estimated prevalence of GAM (%)	6.9%	Due to limitation of current data on prevalence of acute malnutrition, the survey team was refer to the National Nutrition Survey (NNS), 2013. Global Acute Malnutrition (GAM) prevalence (WHZ) for Parwan province was estimated at 6.9 % (95 % CI: 5.27-9.07) with a Standard Deviation (SD) of 1.2[2]. The SD was equal to the recommended limit of 1.2. A review of the available secondary data gave no indication of a possible more dependable GAM estimates. Therefore the prevalence of 6.9% was used due to lack of current data but with caution.
± Desired precision	2.5%	It was based on survey objectives in line to estimated prevalence and SMART methodology recommendations. If we use an estimate point prevalence of 7.2% as our predicted GAM prevalence then a precision of. ±2.5 is recommended.
Design Effect (if applicable)	1.5	The population living in the targeted districts is considered as having similar living conditions and the same access to food and social conditions. Nevertheless, access to health facilities cannot be estimated as similar within the targeted population as some remote areas are not well served by health facilities. Hence the design effect was estimated at 1.5.
Children to be included	645	Minimum sample size-children aged 6-59 months. (However to avoid possible bias of selection for younger age group, all children from 0 to 59 months old found in the selected households were surveyed.)
Average HH Size	7.7	Based on National Nutrition Survey (NNS) 2013, the average household size was 7.7 – It's the most recent result data available.
% Children under-5	15.6%	The percentage of under-five (U5) was estimated at 20% according to the National Nutrition Policy (NNP) and CSO estimates[3]. However, the estimated U5 population according to the Afghanistan Mortality survey of 2010 was at 15.6% providing a more conservative and accurate percentage[4].
% Non-response Households	6%	The percentage of non-respondent households was estimated at 6%. Using the same percentage as that of 2011 and similar to the non-response rate of the NNS for Afghanistan (2013)[5] of 6%. The non-response rate was cater for unforeseen circumstances to include refusal, absenteeism or population movements
Households to be included	634	Minimum sample size-Households to be surveyed. Households was the basic sampling unit for the SMART survey

[2] MOPH and UNICEF, National Nutrition Survey of Afghanistan (2013)
[3] CSO: Central Statistics Office of Afghanistan, 2010-2011
[4] Afghanistan Mortality survey, 2010
[5] National Nutrition Survey of Afghanistan, UNICEF, 2013

Table 2: Sample size calculation for mortality surveys, Parwan SMART, Oct 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 was caters for heterogeneity in the population being sampled
Recall Period in days	105	Starting point of recall period was done from the start of Ramadan). 17th Jawza 1395 the date of recall is equivalent to 7th June 2016 as per Gregorian calendar.
Population to be included	3,319	Population
Average HH Size	7.7	National vulnerability assessment of Afghanistan -2010 and National Nutrition Survey 2013.
% Non-response Households	6%	The percentage of non-respondent households was estimated at 6%. Using the same percentage as that of 2011 and similar to the non-response rate of the national nutrition survey for Afghanistan (2013)[6] of 6%. The non-response rate was cater for unforeseen circumstances to include refusal, absenteeism or population movements
Households to be included	459	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[7] 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

Parameters for Anthropometry	Value	Assumptions based on context
Estimated Prevalence of indicator (%)	50%	No recent data, a standard prevalence of 50 % recommended by WHO will be used
± Desired precision	8%	Based on survey goals.

[6] National Nutrition Survey of Afghanistan, UNICEF, 2013
[7] WHO 2010, Indicators for Assessing Infant and Young Child Feeding Practices

Design Effect *(if applicable)*	2	Caters for heterogeneity within the population under study.
Survey subjects to be included	327	Children form 0-23 months
Average HH Size	7.7	National Nutrition Survey 2013
% Non-response Households	6%	From the past experiences of Afghanistan assessments due to sensitivities about mortality information.
Households to be included	330	House holds

Based on the parameters indicated both (mortality and IYCF) above, anthropometric sample was used as the overall sample size since it is the highest and therefore qualifies to represent the other indicators. Therefore with the selection of the highest sample size (531 HHs) the other indicators was represented within the larger samples selected.

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 (792) 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) were also selected by ENA software version 2011(updated 9th July 2015). Reserve clusters were used only if 10% or more clusters were impossible to reach during the survey as highlighted in **Annex 1**. A total of 49 clusters was covered if each survey team completes anthropometric measurements in 13 households in a day (634/13=49clusters). 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 was done from updated and complete list of households within a given village. In this case the actual survey data collection, was incorporating 660 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 were enumerated and given numbers by the survey team. The 13 households were 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 also offered with materials to assist in determining the households during the data collection exercise.

All the children living in the selected house aged (0 to 59) months old were included for anthropometric measurements. Children aged (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 also surveyed. All of the selected HH were included in the mortality survey as well as were responding to questions concerning the HH as a whole (ex. water storage).

Any empty households, or households with missing or absent children were 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: Details of proposed and actual sample size achieved, Parwan SMART, Oct 2016

Number of HH planned	Number of HH surveyed	% of surveyed / planned	Number of children 6-59 months planned	Number of children 6-59 months surveyed	% of surveyed children 6-59 months/Planned
634	631	99.5 %	645	756	117.2%

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.

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 collector. Each team was at least one female data collectors to ensure acceptance of the team amongst the surveyed households; particularly for IYCF questionnaires. Each female member of the survey team was accompanied with a mahram[8] to facilitate the work of the female data collectors at the community level. The teams

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

were supervised by ACF Nutrition SMART Program manager, nutrition SMART DPM and Parwan Public Nutrition officer.

Data entry and analysis

The anthropometric and mortality data analyzed using ENA for SMART software 2011 version (9th July 2015). Survey results were interpreting 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 used in complementing survey findings.

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

Mid Upper Arm Circumference (MUAC)

The mid upper arm circumference does not need to be related to any other anthropometric measurement. It is a reliable indicator of the muscular status of the child and is mainly used to identify children with a risk

of mortality. The MUAC is an indicator of malnutrition only for children greater or equal to 6 months. Table 4 provides the cut-off criteria for categorizing acute malnutrition cases.

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

Target group	MUAC (mm)	Nutritional status
Children 6-59 months	> or = 125 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 5: Definition of acute malnutrition according to weight-for-height index (W/H), expressed as a Z-score based on WHO standards

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

Chronic Malnutrition

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

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

from the studied population is expressed in Z-score (HAZ). The HAZ cut-off points are presented in table 6.

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

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

Mortality Indicator Calculation

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

Crude death rate (CDR)

The number of persons in the total population that dies over specified period of time.

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

Under-5 death rate (U5DR)

The number of children aged (0-5) years who die over specified period of time. Calculated as:

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

Health

Beside anthropometric data, additional information will be collected as follows:

- **Immunization status, deworming and vitamin A supplementation**

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

- **Morbidity**

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

- **Mothers nutritional status and Iron/Folate supplementation for pregnant**

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

WASH

- **Water storage and Usage**

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

- **Hand washing practices**

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

Infant and Young Child Feeding Practices Indicators (IYCF)

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

- **Child ever breastfed**

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

- **Provision of colostrum in the first 3 days of life**

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

indicator will look at the number of mothers with children 0-23 months who fed their children with Colostrum within the first 3 days after birth.

- **Exclusive breastfeeding under 6 months**

Proportion of infants 0-5 months of age who 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.

- **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

- **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. Its 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

- **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 will be assessed for their nutritional status based on MUAC measurements. The nutritional status of pregnant and lactating mothers will be derived using the MUAC cut-off of 230 mm.

The indicator for iron-folate supplementation will be derived from dividing the total number of pregnant mothers supplemented with Iron-folate in the last 90days by total number of pregnant mothers.

Training, team composition and supervision

Six teams of four members will conduct the field data collection. Each team will be composed of one supervisor, one team leader and two data collector. Each team will have at least one female data collectors

to ensure acceptance of the team amongst the surveyed households; particularly for IYCF questionnaires. Each female member of the survey team will be accompanied with a mahram[10] to facilitate the work of the female data collectors at the community level. The teams will be supervised by ACF Nutrition SMART Program manager and Parwan Public Nutrition officer.

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

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

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

Survey findings

Anthropometric results (based on WHO standard)

Anthropometric results are presented with exclusive of SMART flags: Z score values ranging outside- -3 to +3 for all three index (WHZ, HAZ and WAZ). The survey finding opened the distribution of the boys and girls in the sample were equality represented, the percentage of values flagged with SMART flags was WHZ: 1.9 %, HAZ: 4.0% and WAZ: 1.9 %, age ratio of 6-29 months to 30-59 months: 1.1(the value should be around 0, 85). P-Value=0.000 (significant difference) for more details refer to **ANNEX 1** plausibility report.

Table 5: Distribution of age and sex of sample, Parwan SMART, Oct 2016

	Boys		Girls		Total		Ratio
AGE (mo)	no.	%	no.	%	no.	%	Boy: girl
6-17	125	54.6	104	45.4	229	30.3	1.2
18-29	91	52.3	83	47.7	174	23.0	1.1
30-41	79	47.3	88	52.7	167	22.1	0.9
42-53	67	55.4	54	44.6	121	16.0	1.2
54-59	38	58.5	27	41.5	65	8.6	1.4
Total	400	52.9	356	47.1	756	100.0	1.1

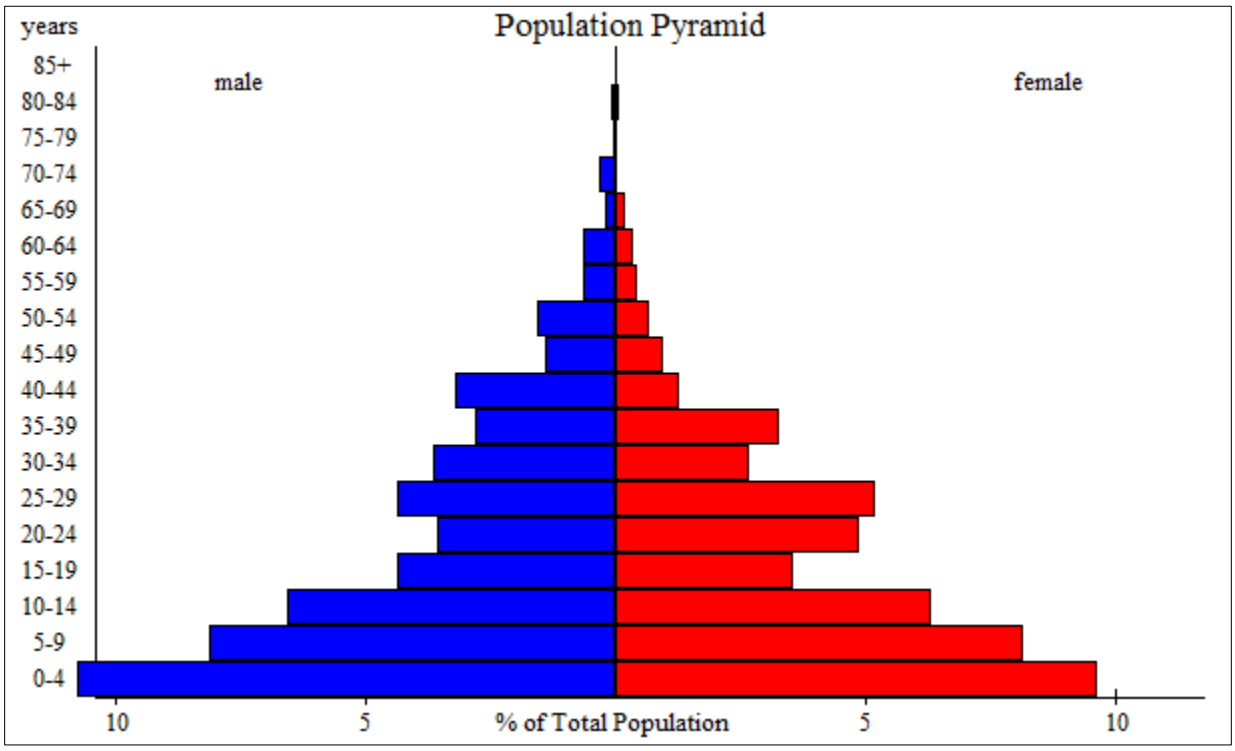


Figure 1: population age and sex pyramid SMART Parwan, Oct 2016

Data quality

The anthropometric data were analyzed using ENA for SMART Software (version 2011, July, 2015 updated).

The plausibility check report is available in Annex 1.

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

Table 6: Mean z-scores, Design Effects and excluded subjects, Parwan SMART, Oct 2016

Indicator	n	Mean z-scores ± SD	Design Effect (z-score < -2)	z-scores not available*	z-scores out of range
Weight-for-Height	742	-0.80±1.07	1.03	0	14
Weight-for-Age	742	-1.59±1.05	1.41	0	14
Height-for-Age	726	-1.86±1.20	1.30	0	30

* contains for WHZ and WAZ the children with edema.

Prevalence of acute malnutrition based on weight for height z – score:

The sex and age disaggregated results are presented in tables below respectively

Table 7: Prevalence of acute malnutrition based on weight-for-height z-scores (and/or oedema) and by sex, Parwan SMART, Oct 2016

	All n = 742	Boys n = 392	Girls n = 350
Prevalence of global malnutrition (<-2 z-score and/or oedema)	**(100) 13.5 % (11.1 - 16.3 95% C.I.)**	**(60) 15.3 % (12.2 - 19.0 95% C.I.)**	**(40) 11.4 % (8.2 - 15.8 95% C.I.)**
Prevalence of moderate malnutrition (<-2 z-score and >=-3 z-score, no oedema)	**(75) 10.1 % (8.0 - 12.7 95% C.I.)**	**(49) 12.5 % (9.7 - 15.9 95% C.I.)**	**(26) 7.4 % (4.5 - 11.9 95% C.I.)**
Prevalence of severe malnutrition (<-3 z-score and/or oedema)	**(25) 3.4 % (2.3 - 4.8 95% C.I.)**	**(11) 2.8 % (1.7 - 4.7 95% C.I.)**	**(14) 4.0 % (2.3 - 6.8 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, Parwan SMART, Oct 2016

		Severe wasting (<-3 z-score)		Moderate wasting (>= -3 and <-2 z-score)		Normal (> = -2 z score)		Oedema	
Age (mo)	**Total no.**	**No.**	**%**	**No.**	**%**	**No.**	**%**	**No.**	**%**
6-17	221	14	6.3	40	18.1	167	75.6	0	0.0
18-29	171	6	3.5	14	8.2	151	88.3	0	0.0
30-41	166	3	1.8	11	6.6	152	91.6	0	0.0
42-53	119	1	0.8	5	4.2	113	95.0	0	0.0
54-59	65	1	1.5	5	7.7	59	90.8	0	0.0
Total	742	25	3.4	75	10.1	642	86.5	0	0.0

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

	<-3 z-score	>=-3 z-score
Oedema present	Marasmic kwashiorkor No. 0 (0.0 %)	Kwashiorkor No. 0 (0.0 %)
Oedema absent	Marasmic No. 34 (4.5 %)	Not severely malnourished No. 722 (95.5 %)

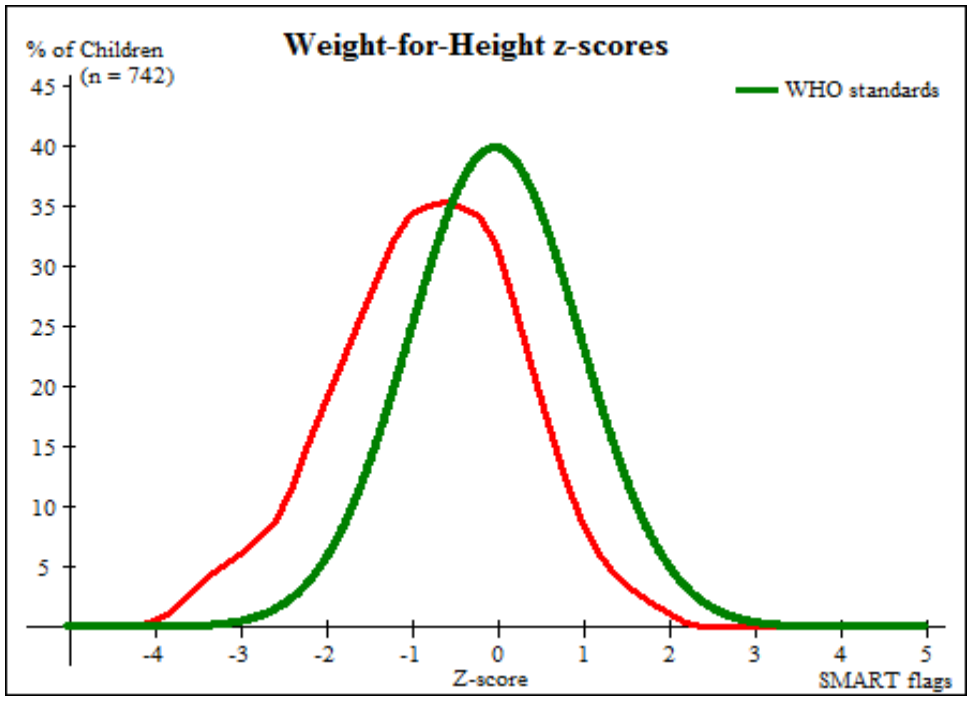


Figure 2: Distribution curves weight –for-height SMART Parwan, Oct 2016

MUAC cut off classification and/ Or oedema:

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

Table 10: Prevalence of acute malnutrition based on MUAC cut off's (and/or oedema) and by sex, Parwan SAMRT, Oct 2016

	All n = 749	Boys n = 398	Girls n = 351
Prevalence of global malnutrition (< 125 mm and/or oedema)	**(118) 15.8 % (11.9 - 20.5 95% C.I.)**	**(51) 12.8 % (9.2 - 17.6 95% C.I.)**	**(67) 19.1 % (13.9 - 25.7 95% C.I.)**
Prevalence of moderate malnutrition (< 125 mm and >= 115 mm, no oedema)	**(87) 11.6 % (8.9 - 15.1 95% C.I.)**	**(35) 8.8 % (6.0 - 12.8 95% C.I.)**	**(52) 14.8 % (10.5 - 20.6 95% C.I.)**
Prevalence of severe malnutrition (< 115 mm and/or oedema)	**(31) 4.1 % (2.6 - 6.6 95% C.I.)**	**(16) 4.0 % (2.1 - 7.7 95% C.I.)**	**(15) 4.3 % (2.3 - 7.8 95% C.I.)**

Table 11: Prevalence of acute malnutrition by age, based on MUAC cut off's and/or oedema, Parwan SMART. Oct 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	222	25	11.3	54	24.3	143	64.4	0	0.0
18-29	174	5	2.9	19	10.9	150	86.2	0	0.0
30-41	167	1	0.6	12	7.2	154	92.2	0	0.0
42-53	121	0	0.0	1	0.8	120	99.2	0	0.0
54-59	65	0	0.0	1	1.5	64	98.5	0	0.0
Total	749	31	4.1	87	11.6	631	84.2	0	0.0

Prevalence of underweight (WHO 2006)

The underweight is defined by weight for age Z score (WAZ), the sex and age disaggregated results are present in the table below.

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

	All n = 742	Boys n = 394	Girls n = 348
Prevalence of underweight (<-2 z-score)	**(234) 31.5 % (27.6 - 35.7 95% C.I.)**	**(132) 33.5 % (28.4 - 39.0 95% C.I.)**	**(102) 29.3 % (24.3 - 34.9 95% C.I.)**
Prevalence of moderate underweight (<-2 z-score and >=-3 z-score)	**(156) 21.0 % (18.0 - 24.4 95% C.I.)**	**(83) 21.1 % (17.2 - 25.5 95% C.I.)**	**(73) 21.0 % (17.1 - 25.5 95% C.I.)**
Prevalence of severe underweight (<-3 z-score)	**(78) 10.5 % (8.0 - 13.7 95% C.I.)**	**(49) 12.4 % (9.0 - 17.0 95% C.I.)**	**(29) 8.3 % (5.7 - 12.0 95% C.I.)**

Table 13: Prevalence of underweight by age, based on weight-for-age z-scores, Parwan SMART, Oct 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	219	31	14.2	50	22.8	138	63.0	0	0.0
18-29	173	22	12.7	34	19.7	117	67.6	0	0.0
30-41	165	16	9.7	39	23.6	110	66.7	0	0.0
42-53	120	7	5.8	20	16.7	93	77.5	0	0.0
54-59	65	2	3.1	13	20.0	50	76.9	0	0.0
Total	742	78	10.5	156	21.0	508	68.5	0	0.0

Prevalence of stunting based on height for age z score (HAZ)

The stunting or chronic malnutrition is defined by height for age Z score (HAZ), the sex and age disaggregated results are presented in table below.

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

	All n = 726	Boys n = 384	Girls n = 342
Prevalence of stunting (<-2 z-score)	**(330) 45.5 % (41.3 - 49.7 95% C.I.)**	**(185) 48.2 % (42.3 - 54.1 95% C.I.)**	**(145) 42.4 % (36.8 - 48.2 95% C.I.)**
Prevalence of moderate stunting (<-2 z-score and >=-3 z-score)	**(194) 26.7 % (23.5 - 30.3 95% C.I.)**	**(107) 27.9 % (23.2 - 33.1 95% C.I.)**	**(87) 25.4 % (21.5 - 29.8 95% C.I.)**

Prevalence of severe stunting (<-3 z-score)	**(136) 18.7 % (15.8 - 22.1 95% C.I.)**	**(78) 20.3 % (16.0 - 25.4 95% C.I.)**	**(58) 17.0 % (13.1 - 21.6 95% C.I.)**

Table 15: Prevalence of stunting by age based on height-for-age z-scores, Parwan SMART, Oct 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	214	34	15.9	62	29.0	118	55.1
18-29	169	38	22.5	53	31.4	78	46.2
30-41	159	39	24.5	40	25.2	80	50.3
42-53	119	17	14.3	33	27.7	69	58.0
54-59	65	8	12.3	6	9.2	51	78.5
Total	726	136	18.7	194	26.7	396	54.5

Figure 3 shows the distribution of HAZ of the observed population (SMART flags excluded) compared to WHO reference curve, in Parwan province; it was strongly shifted to the left, suggesting restricted liner growth of the observed population. Further analysis (Figure 4) suggests that liner growth retardation is at its highest in the lower age group of children (6-17 moths).

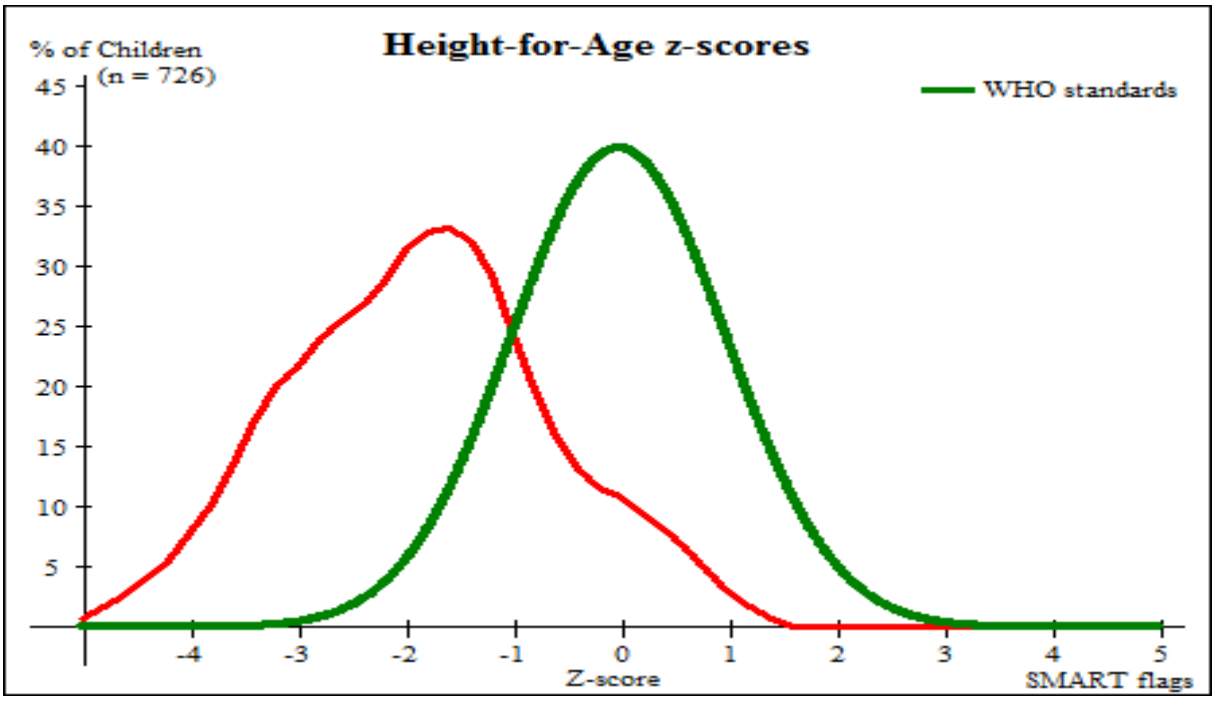


Figure 3: Gaussian distributed curve (HAZ), SMART Parwan, Oct 2016

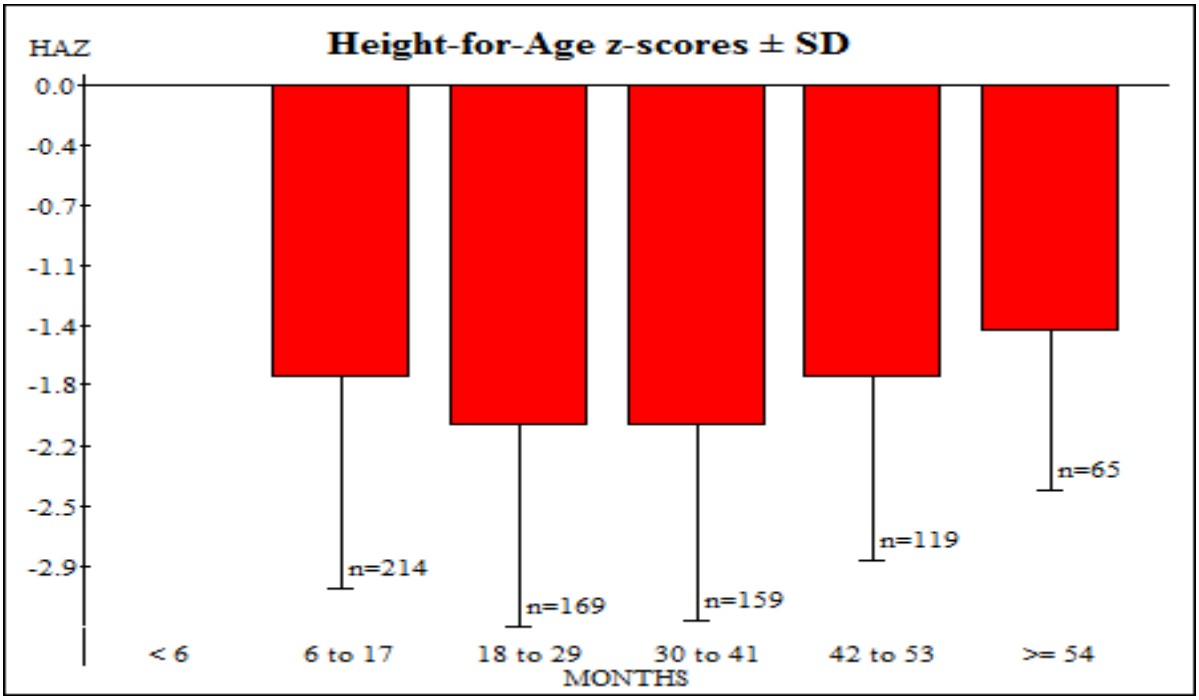


Figure 4: Trends of stunting over the age distribution, SMART Parwan, Oct 2016

Maternal nutrition status of pregnant and lactating women

633 women in child bearing age living in the selected households have been surveyed; the survey results are presented in table below as a proportion from the total number of women, included in the analysis of the following keys indicators:

- Physiologic status
- Nutrition status of pregnant and lactating women based on MUAC.
- Iron/ folate for pregnant women.
- Antenatal care (ANC).

Table 16: Physiological status of women of reproductive age (15-49 years), Parwan SMART, Oct 2016

Status	Frequency (633)	%
Pregnant	103	16.3% (95% CI,13.4-19.1)
Lactating	320	50.6% (95% CI, 46.7-54.4)
None of the above(no pregnant and no lactating)	210	33.2% (95% CI, 29.5-36.8)

Table 17: Nutrition status of pregnant and lactating women based on MUAC cut off, Parwan SMART, Oct 2016

	Frequency (N=423)	Results
Global Acute Malnutrition MUAC<230 mm	104	24.6% (95% CI, 20.6-28.7)
Moderate acute malnutrition MUAC >210 mm - <230 mm	74	17.5 % 95% CI, 13.9-21.1)
Sever acute malnutrition MUAC< 210 mm	30	7.1% (95% CI, 4.6-9.5)

Table 18: Iron folate for pregnant women based on available answers Parwan SMART, Oct 2016

Iron folate	Frequency (n=103)	%
Yes	52	50.5% (95% CI, 40.8-60.1)
No	51	49.5% (95% CI, 39.9-59.2)
Don't know	0	0.0% (95% CI, 0.0-0.0)

Table 19: ANC visits in the last pregnancy, Parwan SMART, Oct 2016

ANC visits by Whom	Frequency (633)	Results
Health professional	435	68.7% (95% CI, 65.1-72.3)
Traditional birth attendance	28	4.4 % 995% CI, 2.8-6.0)
Community health workers (CHW)	2	0.3% (95% CI, 0.1-0.8)
Relative/ friends	19	3.0% (95% Ci, 1.7-4.3)
No visited during pregnancy	149	23.5% (95% CI, 20.2-26.8)

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

Table 20: Hand washing practice, Parwan SMART, Oct 2016

Hand washing care takers (n=633)	Frequency (633)	Results
Soap	485	76.5% (95% CI, 73.2-79.8)
Wash both hands	619	97.8% (95% CI, 96.6-98.9)
Rubs hands together at least three times	422	66.7% (95% Ci, 63.0-70.3)
Dries hands hygienically by air-drying or using a clean cloths	335	52.9% (95% Ci, 49.0-56.8)

Table 21: Hand washing at 5 critical moments (N=633) Parwan SMART, Oct 2016

Hand washing practice in 5 critical points	Frequency (633)	%
Hand washing practice in 5 critical points	318	50.2% (95% CI, 46.2-54.1)
After toilet/ latrine	615	97.2% (95% CI, 95.9-98.5)

After cleaning baby	495	78.2% (95% CI, 75.0-81.4)
Before eating	619	97.8% (95% CI, 96.6-98.9)
Before preparation food	499	78.8% (95% CI, 75.6-82.0)
Before feed child	346	54.7% (95% CI, 50.8-58.5)

*: 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

Child health and immunization

Retrospective morbidity data was collected among children 0-59 months with two weeks recall period to assess the prevalence of main disease. The survey findings show that 51.2 % (95% CI, 47.7-54.6) of children had at least one episode of illness in the 2 weeks recall period to the survey. The major illnesses reported such as fever diarrhea and ARI as highlighted in table below.

Table 22 : Major illnesses reported among children 0-59 months, Parwan SMART, Oct 2016

Parameter	Frequency (815)	Results
Acute Respiratory infection (ARI)	282	34.6% (95% CI, 31.3-37.9)
Fever	313	38.4% (95% Ci, 35.1-41.7)
Diarrhea	282	34.6% (95% CI, 31.3-37.9)

Table 23: Immunization coverages for BCG, measles and Polio, Parwan SMART, Oct 2016

Indicators	Class	Frequency	Results
Measles (children form 9-59 months) N= 701	Yes by cards	414	59.1%(95% CI,55.4-62.7)
	Yes by recall	177	25.2%(95% CI, 22.0-28.5)
	Both by cards and recall	589	84.0%(95%CI, 81.3-86.7)
	No	101	14.4%(95%CI, 11.8-17.0)
	Don't know	11	1.6%(95%CI, 0.602.5)
Polio (children from 0-59 months) N= 815	Yes by cards	535	65.6%(95CI, 62.4-68.9)
	Yes by recall	194	23.8%(95CI, 20.9-26.7)
	Both by cards and recall	729	89.4%(95%CI, 87.3-91.6)
	No	82	10.1%(95%CI, 8.0-12.1)
	Don't know	4	0.5%(95%CI, 0.0-1.0)
BCG scares (children 0-59 months	By scare confirmation	692	84.9%(95%CI, 82.5-87.4)

Vitamin A supplementation was quite satisfactory, deworming was significantly low; see table below.

Table 24: Vitamin A supplementation and Deworming for under five children, Parwan SMART, Oct 2016

Indicators	Class	Frequency	Results
Vitamin A supplementation 6-59 months (N= 757)	Yes	641	84.8% (95%CI, 82.1-87.7)
	No	79	10.4%(95% CI, 8.3-12.6)
	Don't know	37	4.9%(95%CI, 3.4-6.4)
Deworming 12-59 months (N=642)	Yes	416	64.8%(95%CI, 61.1-68.5)
	No	183	28.5%(95%CI, 25.0-32.0
	Don't know	43	6.7%(95%CI, 4.8-8.6)

IYCF indicators

Indicators for Infant Young Children (IYCF) practice included al children 0-23 months. A total of 361 children are included in the sample. The results are presented as percentage of the total answers available, see table below for IYCF core indicators.

Table 25: Infant Young Child Feeding practice, Parwan SMART, Oct 2016

Core indicators	Definition	N	Results
Child ever breastfed N= 361	Proportion of children who have ever received breast milk	360	99.7 %(95% CI, 99.2-100
Timely initiation of breastfeeding N = 361	Proportion of children born in the last 23 months who were put to the breast within one hour of birth	314	87.0 %(95% CI, 83.5-90.5)
Provision of colostrum with in first 3 days N= 361	Proportion of children who received colostrum (yellowish liquid) within the first 3 days after birth	343	95.0%(95% CI, 92.8-97.3)
Still breast feeding at 1 year N= 77	Proportion of children 12–15 months of age who are fed breast milk.	63	81.8%(95% CI, 73.2-90.4)
Exclusive breastfeeding N= 58	Proportion of infants 0–5 months of age who are fed exclusively with breast milk.	40	69.0(95% CI,57.1-80.9)
Introduction of solid , semisolid or soft foods N= 56	Proportion of infants 6–8 months of age who receive solid, semi-solid or soft foods.	23	41.0 %(95% CI, 28.2-54.0)

Households information

Crude and U5 mortality rate

The crude and mortality rate were below the emergency thresholds, see table below mortality rate with sex and age mortality rate with design effect.

Table 26: Mortality rate by age category with design effect, Parwan SMART, Oct 2016

	Crude Death Rate (95% CI)	Design Effect
'Overall	0.23 (0.07-0.70)	2.88
'Sex		
'Male	0.24 (0.07-0.78)	1.74
'Female	0.21 (0.06-0.70)	1.44
'Years		
'0-4	0.49 (0.12-2.01)	1.99
'5-11	0.23 (0.06-0.93)	1
'12-17	0.00 (0.00-0.00)	1
'18-49	0.12 (0.03-0.51)	1
'50-64	0.58 (0.08-4.29)	1.02
'65-120	0.00 (0.00-0.00)	1

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 3793 Individuals were surveyed and 549 HHs were reported to have children under age of 5 years.

Table 27: short summary of demographics, Parwan SMART, Oct 2016

Indicators	Value
Averages	6
Children under 5	20.9 %
Birth Rate	0.83%

Water treatment and sources at households level

Total of 631 responders, representing 631 households and 3793 individuals, the information collected from household's regarding water sources; see below tables for more details

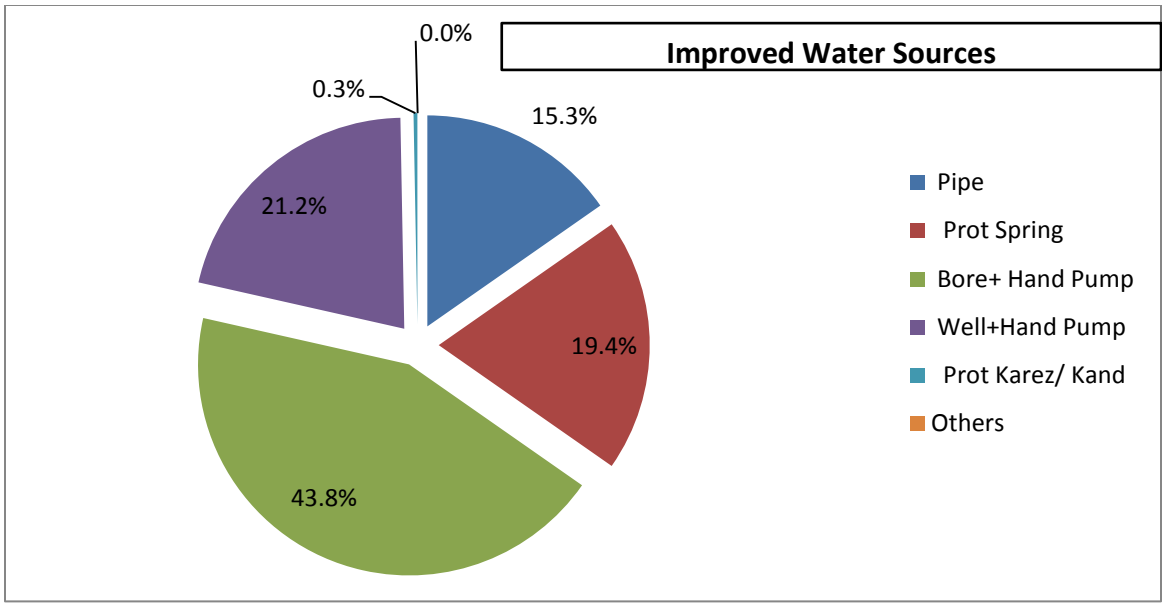


Figure 5: Household level daily Improved Water Sources, (N=340), Parwan SMART, Oct 2016

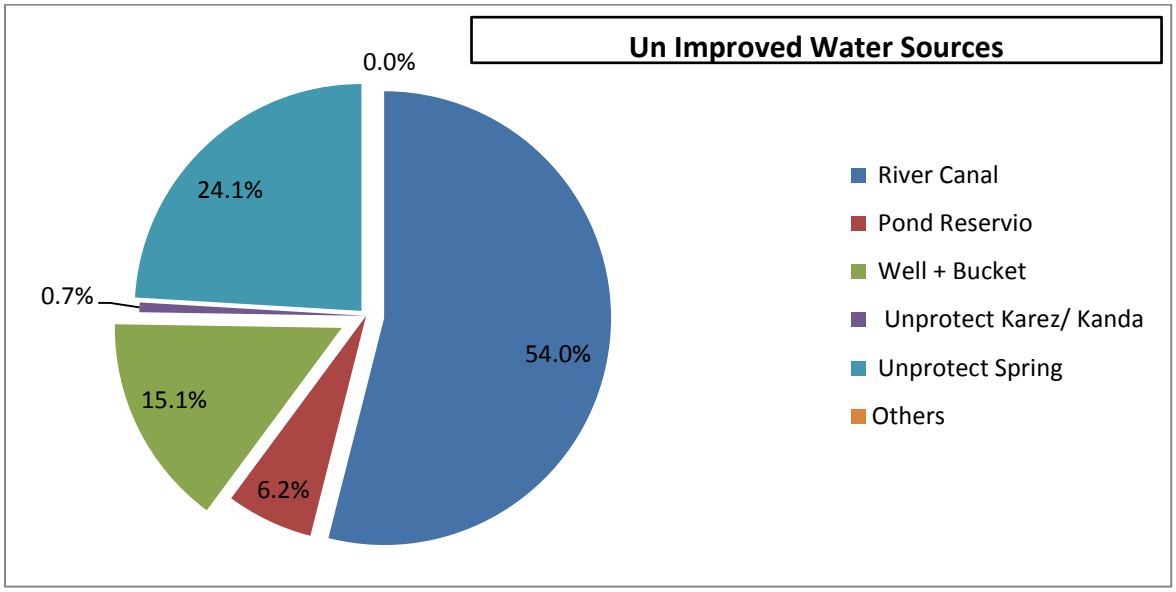


Figure 6: Household level daily Unimproved Water Sources, (N=291), Parwan SMART, Oct 2016

Table 28: Percentage of households with access to water treatment (n=631)

WTR treatment:	Frequency	%
Boil	16	2.5%
Chlorine	4	0.6 %
Strain it through a cloth	6	0.9 %
Water Filter	12	1.9 %
Stand and settle	593	93.9 %

Food Security and lively hood

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 in secured see below (figure 8) or more details.

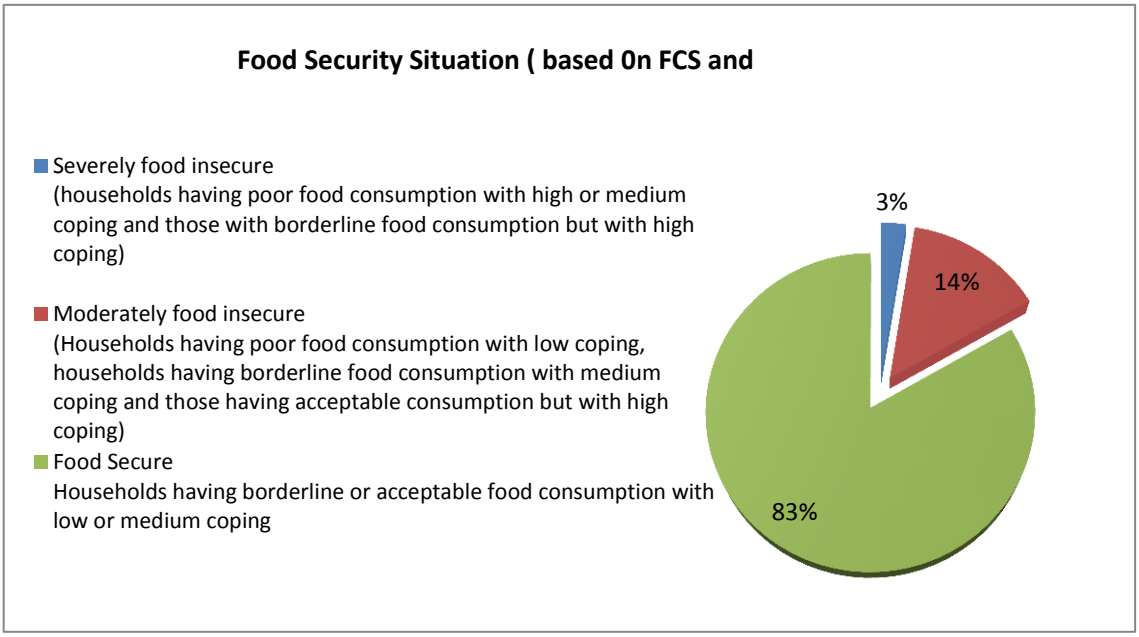


Figure 7 : Food security situation based on FCS and rCSI, Parwan SMART, Oct 2016

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)*

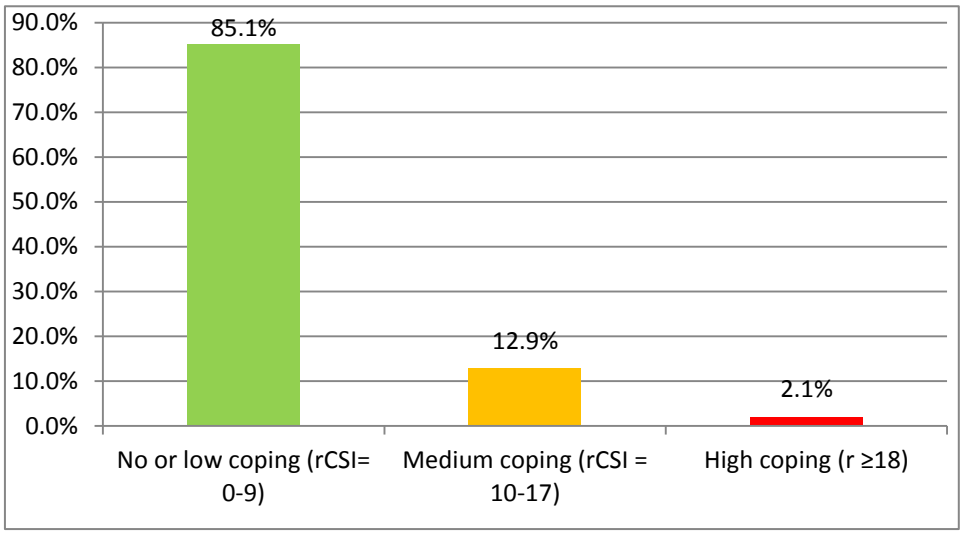


Figure 8: reduced coping strategy index, Parwan SMART, Oct 2016

- 2.1 % of HHs with a high level of coping (rCSI≥18 score.
- 12.9 % of HHs with a medium level of coping (rCSI=10-17 score).
- 85.1 % of HHs with No or Low level coping (rCSI=0-9 score).

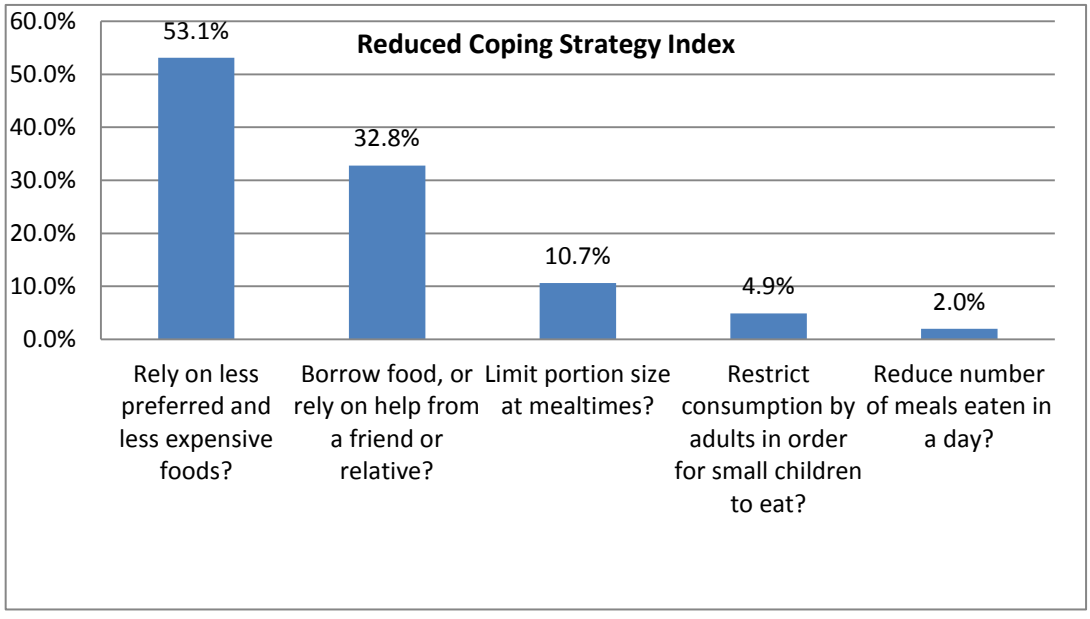


Figure 9 : coping strategy index reducing

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.

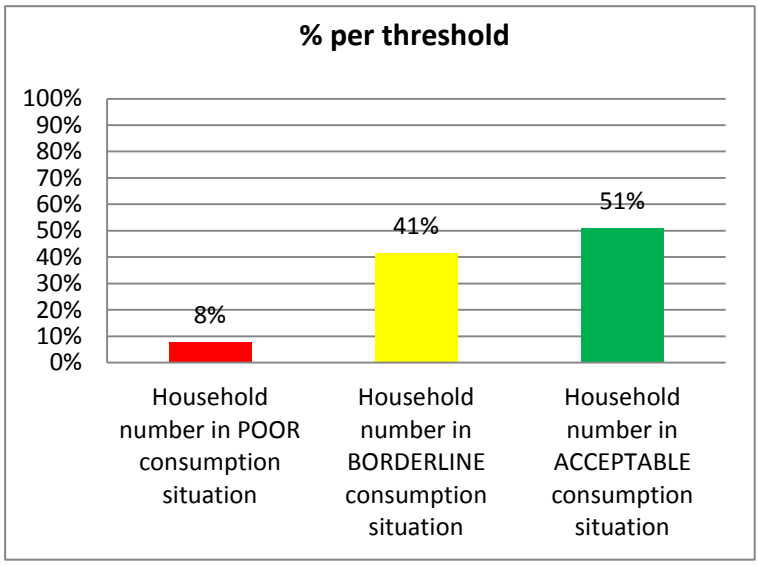


Figure 10 : food consumption score per households level

- 8 % households surveyed have Poor consumption scores (FCS = 1.0 to 28).
- 41 % households surveyed have Border line consumption scores (FCS = 28.1 to 42).
- 51 % households surveyed have acceptable food consumption scores (FCS = >42.0).

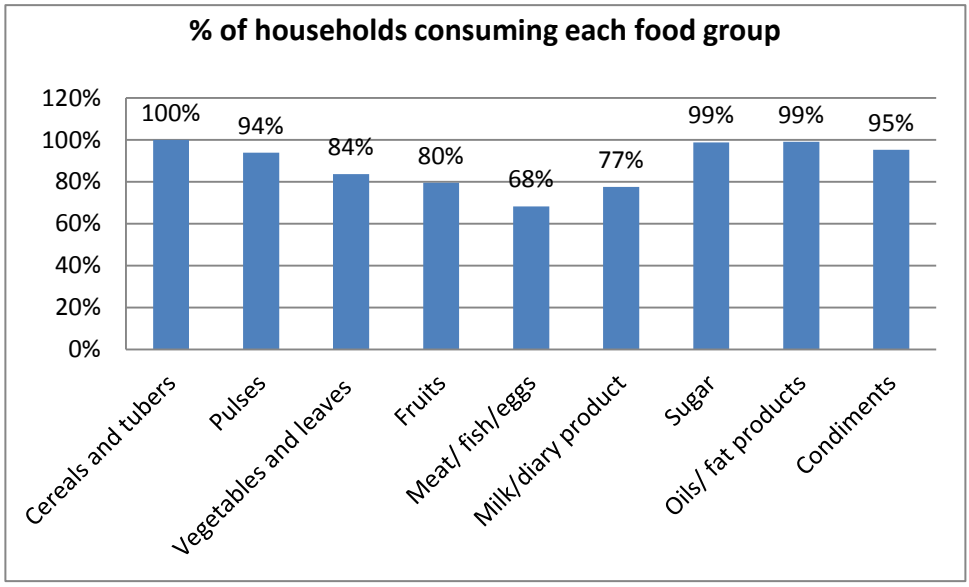


Figure 11: Households consuming each food groups

Discussions

Nutrition status

The survey findings revealed that the prevalence of Global Acute Malnutrition (GAM) based on weight-for-height z-scores (WHZ) was at 13.5 % (95 % CI 11.1-16.3) indicating a "serious" nutrition situation, and the prevalence of GAM based on MUAC cut-offs was 15.8 % (11.9-20.5 95% CI) can be classified as "emergency" according to WHO classification of acute malnutrition[6]. SAM prevalence by WHZ and MUAC was at 3.4% and 4.1% respectively.

Further analysis of the data suggests that these rates do not refer to the same children. Children classified as wasted based WHZ are not fully overlapping with those classified wasted based on MUAC.

The GAM and SAM prevalence in Parwan province can be considered to be serious. CDC two- sample test(SRS) Calculator shows there is significant difference (P<0.05) in the GAM rates for the NNS 2013 and 2016 Nutrition SMART survey,(see figure below), it needs to more focus in the treatment and prevention of malnutrition

If both criteria are combined, overall rate of children likely to be eligible for SAM and MAM management rises to 22.6% (95% CI 19.6-25.6). SAM combined rates is estimated to be 7.0% (5.2-8.8 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.

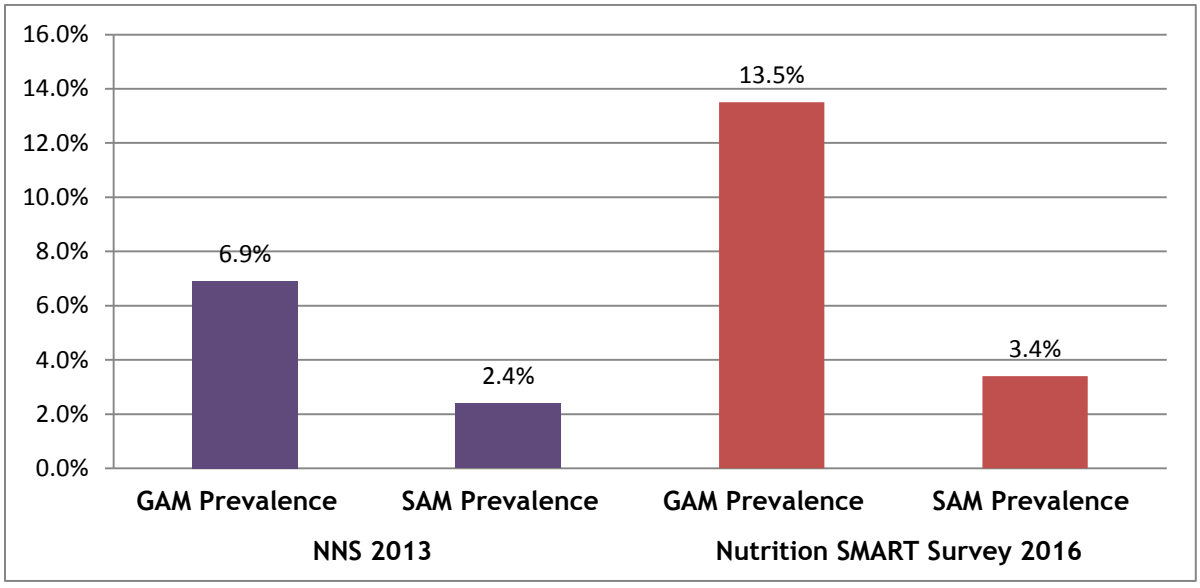


Figure 12: GAM and SAM prevalence compared between 2013 and 2016 based on WHZ and or Oedema

Stunting and underweight prevalence in Parwan can be considered to be high. Although they are higher than the national rates as reported by NNS 2013 and lower than most of the other provinces assessed. It is

important however to enhance efforts to ensure that they do not increase. Poor micronutrient supplementation and deworming, low maternal nutritional status as witnessed in Parwan province if not addressed can contribute to increasing the levels of chronic malnutrition. The fact that chronic malnutrition is not given the attention in the health facilities could be a factor exacerbating the situation. Currently there is no clear guidance in Afghanistan on how to address chronic malnutrition.

IYCF practice

Although high proportion of (87.2%) of children from 0-23.9 months was timely breastfed in one hour of breastfed at the time of assessments and 41.0 % introduced solid, semisolid and soft foods at 12-15 months of the children, from other hand exclusive breasting was 68.9% for proportion of infants. 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 more than 90 % not treated, (3.1%) only treated with boiled and chlorinated, from other site hand-washing practice with soap was not a common practice on 5 critical time (50.2%) and 76.6 % care taker had hand washing practice only by clean water and soap leading to contribute diarrhea incidences (34.6%).

Death rates

Crude Death Rate and Under-five Death rate was at 0.23/10,000/day and 0.49/10,000/per day. The rates are both below SPHERE emergency thresholds.

Risk factors

Morbidity, immunization, Supplementation and deworming

The UNICEF conceptual frame work of malnutrition can be used to explain the probable cause of under nutrition in this area. Disease weakens in individual immune system causing to have side effects such us reduced food intake and diarrhea. In this province more than half of sampled children suffered form on or two form illnesses of another (78.2 %) such as diarrhea, ARI / Cough and fever. The used of deworming treatment in 6 months to the survey prior was low (64.8 %) and one of the core function of deworming to boost an individual immunity and malabsorption, therefore this is important to dewormed all under five children two times in the year. Awareness is important at health facilities and community level to increase the supplementation, immunization and deworming of the children.

Conclusion

The survey has indicated that there is a problem of malnutrition in Parwan province. From the results presented above it is notable that although the different measures of malnutrition (WHZ and MUAC) are indicating a poor and serious nutrition situation respectively, a combination of these results/measures indicate that the number of cases found malnourished is high in the province. It is also noted that cases of child morbidity are high in the province; more than 1 in 2 children was reported ill.

Stunting prevalence in Parwan can be considered to be serious. Although for comparing this survey results for stunting significant high from NNS 2013 as a reported it is important to consider for the stunting situation in the province. Poor micronutrient supplementation and deworming, low maternal nutritional status as observed in Parwan province if not addressed can contribute to increasing the levels of chronic malnutrition. The fact that chronic malnutrition is not given the attention in the health facilities could be a factor exacerbating the situation. Currently there is no clear guidance in Afghanistan on how to address chronic malnutrition.

Poor breastfeeding and complementary feeding habits has been known to expose children to morbidity, malnutrition and even death. The reduced food intake among the children and the household in general 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 County. 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 facilities 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...) and a series of traumatic situations (conflict, insecurity, loss…) 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 8% 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.

Recommendation

The summery of the recommendation is as below

Under nutrition

- To strength the awareness of IYCF and support the women and their families to practice optimal breast feeding and ensure timely and adequate complementary feeding in facilities and health facilities level.
- To scale up IPD-SAM and implement OPD- SAM management at DHs, CHSs and BHCs level to treat and prevent acute malnutrition case.
- Priorities activities addressing chronic malnutrition at the community level through food security/ agriculture, cooking demonstrations growth monitoring and improving maternal nutrition and health seeking.
- To strength the TSFP program and increase referral system through CHWs in the community level.

Maternal nutrition status

- To increase awareness on nutrition and antenatal care (ANC) to strength maternal health seeking and iron folate supplementation.
- To increase health education and focus on hand washing practice and environmental hygiene.
- Starting MAM programing with closed follow up.
- Sensitization of community to use food adequate and keep balance foods.

Health and immunization

- Promote proper care seeking practice through health education at health facilities and community level.
- To strengthen and increase outreach activities of health facilities to addressed immunization coverages.
- Promote health education in health facilities on prevention of communicable disease.

Food security and livelihoods

- To change the behavior of the community in food consumption.
- As labor opportunities such us food worker or cash for worker are the most likely to alleviate food insecurity in the short to mid-term.

Annex

Annex1: Plausibility check for: Parwan_SMART_Survey_Oct 2016_FV.as

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

Criteria	Flags*	Unit	Excel.	Good	Accept	Problematic	**Score**
Flagged data	Incl	%	0-2.5	>2.5-5.0	>5.0-7.5	>7.5	
(% of out of range subjects)			0	5	10	20	**0** (1.9 %)
Overall Sex ratio	Incl	p	>0.1	>0.05	>0.001	<=0.001	
(Significant chi square)			0	2	4	10	**0** (p=0.110)
Age ratio(6-29 vs 30-59)	Incl	p	>0.1	>0.05	>0.001	<=0.001	
(Significant chi square)			0	2	4	10	**10** (p=0.000)
Dig pref score - weight	Incl	#	0-7	8-12	13-20	> 20	
			0	2	4	10	**0** (3)
Dig pref score - height	Incl	#	0-7	8-12	13-20	> 20	
			0	2	4	10	**0** (7)
Dig pref score - MUAC	Incl	#	0-7	8-12	13-20	> 20	
			0	2	4	10	**2** (9)
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** (1.07)
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** (-0.17)
Poisson dist WHZ-2	Excl	p	>0.05	>0.01	>0.001	<=0.001	
			0	1	3	5	**0** (p=0.598)
OVERALL SCORE WHZ =			0-9	10-14	15-24	>25	**13** %

The overall score of this survey is 13 %, this is good.
There were no duplicate entries detected.
Percentage of children with no exact birthday: 35 %
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=61/ID=2: HAZ (-4.848), Height may be incorrect
Line=75/ID=1: HAZ (1.671), Height may be incorrect
Line=76/ID=2: **WHZ (-3.923)**, Weight may be incorrect
Line=80/ID=1: HAZ (-5.578), Height may be incorrect
Line=98/ID=1: **WHZ (2.496)**, HAZ (-6.004), Height may be incorrect
Line=108/ID=1: **WHZ (2.239)**, Height may be incorrect
Line=157/ID=2: HAZ (1.643), Age may be incorrect
Line=170/ID=1: WAZ (1.686), Weight may be incorrect
Line=301/ID=2: HAZ (1.201), Height may be incorrect
Line=319/ID=1: HAZ (3.149), Age may be incorrect
Line=339/ID=1: **WHZ (11.410)**, WAZ (7.686), Weight may be incorrect
Line=365/ID=2: HAZ (2.345), Age may be incorrect
Line=367/ID=2: HAZ (-5.731), Age may be incorrect
Line=368/ID=1: **WHZ (2.269)**, Weight may be incorrect
Line=387/ID=2: **WHZ (-5.891)**, HAZ (2.501), Height may be incorrect
Line=390/ID=1: HAZ (-9.486), WAZ (-7.507), Age may be incorrect
Line=392/ID=2: HAZ (1.177), Age may be incorrect
Line=423/ID=1: HAZ (2.957), WAZ (1.494), Age may be incorrect
Line=424/ID=2: **WHZ (3.177)**, WAZ (2.206), Weight may be incorrect
Line=430/ID=1: **WHZ (-3.900)**, Weight may be incorrect

Line=431/ID=1: **WHZ (-4.267)**, Weight may be incorrect
Line=435/ID=1: **WHZ (-4.533)**, WAZ (-4.784), Weight may be incorrect
Line=450/ID=1: HAZ (-5.248), Age may be incorrect
Line=467/ID=2: **WHZ (-3.931)**, Weight may be incorrect
Line=470/ID=2: HAZ (-6.075), Age may be incorrect
Line=476/ID=1: HAZ (-5.313), Age may be incorrect
Line=487/ID=1: HAZ (-5.897), WAZ (-6.214), Age may be incorrect
Line=531/ID=3: HAZ (1.489), Age may be incorrect
Line=564/ID=1: HAZ (3.846), WAZ (1.728), Age may be incorrect
Line=570/ID=1: HAZ (-5.330), Age may be incorrect
Line=571/ID=1: **WHZ (-6.166)**, WAZ (-5.240), Weight may be incorrect
Line=577/ID=1: **WHZ (-9.160)**, HAZ (9.195), Height may be incorrect
Line=584/ID=2: HAZ (4.418), WAZ (2.774), Age may be incorrect
Line=585/ID=1: HAZ (-8.645), WAZ (-6.154), Age may be incorrect
Line=645/ID=1: WAZ (-4.616), Age may be incorrect
Line=676/ID=2: **WHZ (-4.659)**, HAZ (7.109), Height may be incorrect
Line=691/ID=1: WAZ (-4.803), Weight may be incorrect
Line=717/ID=1: HAZ (-8.184), WAZ (-5.525), Age may be incorrect
Line=737/ID=1: HAZ (1.286), Age may be incorrect
Line=755/ID=1: HAZ (-5.351), Age may be incorrect
Line=766/ID=1: HAZ (1.409), Height may be incorrect
Line=771/ID=1: HAZ (2.607), Age may be incorrect
Line=793/ID=1: HAZ (2.899), Age may be incorrect
Percentage of values flagged with SMART flags:WHZ: 1.9 %, HAZ: 4.0 %, WAZ: 1.9 %
Age distribution:
Month 6 : #######
Month 7 : ########################
Month 8 : ##############
Month 9 : ######################
Month 10 : ########################
Month 11 : ################
Month 12 : ##########################
Month 13 : ########################
Month 14 : ############
Month 15 : ###################
Month 16 : ####################
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Age ratio of 6-29 months to 30-59 months: 1.14 (The value should be around 0.85).:
p-value = 0.000 (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	125/92.8 (1.3)	104/82.6 (1.3)	229/175.4 (1.3)	1.20
18 to 29	12	91/90.5 (1.0)	83/80.5 (1.0)	174/171.0 (1.0)	1.10
30 to 41	12	79/87.7 (0.9)	88/78.1 (1.1)	167/165.8 (1.0)	0.90
42 to 53	12	67/86.3 (0.8)	54/76.8 (0.7)	121/163.1 (0.7)	1.24
54 to 59	6	38/42.7 (0.9)	27/38.0 (0.7)	65/80.7 (0.8)	1.41
6 to 59	54	400/378.0 (1.1)	356/378.0 (0.9)		1.12

The data are expressed as observed number/expected number (ratio of obs/expect)
Overall sex ratio: p-value = 0.110 (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 = 0.002 (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: **3** (0-7 excellent, 8-12 good, 13-20 acceptable and > 20 problematic)
p-value for chi2: 0.655

Digit preference Height:

Digit .0 : ##
Digit .1 : ##################################
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Digit .7 : ##############################
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Digit .9 : ##############################
Digit preference score: **7** (0-7 excellent, 8-12 good, 13-20 acceptable and > 20 problematic)
p-value for chi2: 0.000 (significant difference)

Digit preference MUAC:

Digit .0 : ##
Digit .1 : ##
Digit .2 : ##
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Digit .8 : ########################
Digit .9 : ###################################
Digit preference score: **9** (0-7 excellent, 8-12 good, 13-20 acceptable and > 20 problematic)
p-value for chi2: 0.000 (significant difference)

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

.	no exclusion	exclusion from reference mean (WHO flags)	exclusion from observed mean (SMART flags)
WHZ			
Standard Deviation SD:	1.28	1.13	1.07
(The SD should be between 0.8 and 1.2)			
Prevalence (< -2)			
observed:	14.4%	14.1%	13.5%
calculated with current SD:	17.9%	14.8%	13.2%
calculated with a SD of 1:	11.9%	11.8%	11.6%
HAZ			
Standard Deviation SD:	1.54	1.38	1.20
(The SD should be between 0.8 and 1.2)			
Prevalence (< -2)			
observed:	45.4%	45.1%	45.5%
calculated with current SD:	45.5%	44.6%	45.3%
calculated with a SD of 1:	43.0%	42.5%	44.3%
WAZ			
Standard Deviation SD:	1.21	1.12	1.05
(The SD should be between 0.8 and 1.2)			
Prevalence (< -2)			
observed:	32.0%	31.8%	31.5%
calculated with current SD:	36.9%	35.6%	34.7%
calculated with a SD of 1:	34.3%	34.0%	34.0%

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

WHZ	p= 0.000	p= 0.010	p= 0.007
HAZ	p= 0.000	p= 0.000	p= 0.003
WAZ	p= 0.000	p= 0.000	p= 0.001

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

Skewness

WHZ	0.47	-0.23	-0.21
HAZ	0.64	0.43	0.10
WAZ	0.17	-0.18	-0.26

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	13.25	0.34	-0.17
HAZ	6.45	1.21	-0.39
WAZ	5.58	0.59	-0.11

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=0.94 (p=0.598)
WHZ < -3: ID=0.82 (p=0.811)
GAM: ID=0.94 (p=0.598)
SAM: ID=0.82 (p=0.811)
HAZ < -2: ID=0.93 (p=0.605)
HAZ < -3: ID=0.97 (p=0.539)
WAZ < -2: ID=1.31 (p=0.078)
WAZ < -3: ID=1.40 (p=0.035)

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 point — SD for WHZ

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: 1.16 (n=48, f=0) ###############
02: 1.02 (n=44, f=0) #########
03: 1.19 (n=44, f=1) ################
04: 1.13 (n=44, f=1) ##############
05: 1.07 (n=45, f=0) ##########
06: 1.14 (n=47, f=1) ##############
07: 0.97 (n=45, f=0) #######
08: 1.58 (n=43, f=1) ################################
09: 1.35 (n=46, f=3) ########################
10: 2.13 (n=46, f=1) ##
11: 1.20 (n=43, f=0) #################
12: 1.14 (n=46, f=1) ##############
13: 1.40 (n=41, f=2) ########################
14: 1.15 (n=39, f=1) ###############
15: 1.34 (n=33, f=1) ######################
16: 1.64 (n=23, f=1) ####################################
17: 1.07 (n=23, f=0) ##########
18: 0.55 (n=15, f=0)
19: 0.90 (n=13, f=0) OOOO
20: 0.90 (n=10, f=0) OOOO
21: 0.70 (n=04, f=0)
22: 1.21 (n=03, f=0) ~~~~~~~~~~~~~~~~~
23: 0.27 (n=02, f=0)
24: 1.26 (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 =	135	120	113	149	118	121

Percentage of values flagged with SMART flags:

WHZ:	0.0	2.5	0.9	1.3	2.5	2.5
HAZ:	2.2	2.5	1.8	0.7	10.2	2.5
WAZ:	1.5	2.5	0.9	0.7	3.4	0.8

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

	1.05	0.97	0.79	1.66	1.23	1.24

Sex ratio (male/female):

	1.21	1.31	0.85	0.91	1.07	1.57

Digit preference Weight (%):

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

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

Digit preference Height (%):

.0 :	21	28	7	0	13	17
.1 :	4	11	13	9	9	7
.2 :	8	9	12	13	10	11
.3 :	10	8	15	13	11	13
.4 :	4	11	9	10	19	2
.5 :	19	12	14	13	8	16
.6 :	7	1	10	15	7	13
.7 :	10	8	4	11	9	6
.8 :	9	4	9	7	4	12
.9 :	7	8	8	10	9	5
DPS:	18	23	11	13	13	16

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

Digit preference MUAC (%):

.0 :	20	14	11	7	10	8
.1 :	7	9	11	16	13	12
.2 :	8	14	16	11	9	16
.3 :	8	9	13	11	9	6
.4 :	7	9	6	7	7	8
.5 :	20	18	8	21	11	12
.6 :	6	7	9	7	7	11
.7 :	11	6	9	4	9	8
.8 :	3	8	6	5	14	7
.9 :	10	6	12	10	11	11
DPS:	19	13	10	16	7	9

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

Standard deviation of WHZ:

SD	0.96	1.62	1.05	1.19	1.51	1.21

Prevalence (< -2) observed:

%		10.8	8.8	15.4	17.8	17.4

Prevalence (< -2) calculated with current SD:

%		17.6	10.0	16.0	24.7	18.8

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

%		6.6	8.9	11.8	15.1	14.1

Standard deviation of HAZ:

SD	1.25	1.54	1.25	1.49	2.15	1.33

observed:

%	51.9	40.0	40.7	53.0	37.3	46.3

calculated with current SD:
% 50.3 38.9 41.8 53.9 38.8 49.4
calculated with a SD of 1:
% 50.4 33.2 39.8 55.7 27.1 49.2

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	20/17.2 (1.2)	19/14.2 (1.3)	39/31.3 (1.2)	1.05
18 to 29	12	17/16.7 (1.0)	13/13.8 (0.9)	30/30.5 (1.0)	1.31
30 to 41	12	22/16.2 (1.4)	13/13.4 (1.0)	35/29.6 (1.2)	1.69
42 to 53	12	10/16.0 (0.6)	13/13.2 (1.0)	23/29.1 (0.8)	0.77
54 to 59	6	5/7.9 (0.6)	3/6.5 (0.5)	8/14.4 (0.6)	1.67
6 to 59	54	74/67.5 (1.1)	61/67.5 (0.9)		1.21

The data are expressed as observed number/expected number (ratio of obs/expect)
Overall sex ratio: p-value = 0.263 (boys and girls equally represented)
Overall age distribution: p-value = 0.135 (as expected)
Overall age distribution for boys: p-value = 0.213 (as expected)
Overall age distribution for girls: p-value = 0.461 (as expected)
Overall sex/age distribution: p-value = 0.028 (significant difference)

Team 2:

Age cat.	mo.	boys	girls	total	ratio boys/girls
6 to 17	12	16/15.8 (1.0)	10/12.1 (0.8)	26/27.8 (0.9)	1.60
18 to 29	12	20/15.4 (1.3)	13/11.8 (1.1)	33/27.1 (1.2)	1.54
30 to 41	12	13/14.9 (0.9)	15/11.4 (1.3)	28/26.3 (1.1)	0.87
42 to 53	12	12/14.7 (0.8)	9/11.2 (0.8)	21/25.9 (0.8)	1.33
54 to 59	6	7/7.3 (1.0)	5/5.5 (0.9)	12/12.8 (0.9)	1.40
6 to 59	54	68/60.0 (1.1)	52/60.0 (0.9)		1.31

The data are expressed as observed number/expected number (ratio of obs/expect)
Overall sex ratio: p-value = 0.144 (boys and girls equally represented)
Overall age distribution: p-value = 0.650 (as expected)
Overall age distribution for boys: p-value = 0.712 (as expected)
Overall age distribution for girls: p-value = 0.715 (as expected)
Overall sex/age distribution: p-value = 0.173 (as expected)

Team 3:

Age cat.	mo.	boys	girls	total	ratio boys/girls
6 to 17	12	10/12.1 (0.8)	16/14.2 (1.1)	26/26.2 (1.0)	0.63
18 to 29	12	8/11.8 (0.7)	16/13.8 (1.2)	24/25.6 (0.9)	0.50
30 to 41	12	15/11.4 (1.3)	14/13.4 (1.0)	29/24.8 (1.2)	1.07
42 to 53	12	12/11.2 (1.1)	10/13.2 (0.8)	22/24.4 (0.9)	1.20
54 to 59	6	7/5.5 (1.3)	5/6.5 (0.8)	12/12.1 (1.0)	1.40
6 to 59	54	52/56.5 (0.9)	61/56.5 (1.1)		0.85

The data are expressed as observed number/expected number (ratio of obs/expect)
Overall sex ratio: p-value = 0.397 (boys and girls equally represented)
Overall age distribution: p-value = 0.902 (as expected)
Overall age distribution for boys: p-value = 0.537 (as expected)
Overall age distribution for girls: p-value = 0.785 (as expected)
Overall sex/age distribution: p-value = 0.243 (as expected)

Team 4:

Age cat.	mo.	boys	girls	total	ratio boys/girls
6 to 17	12	30/16.5 (1.8)	33/18.1 (1.8)	63/34.6 (1.8)	0.91
18 to 29	12	16/16.1 (1.0)	14/17.6 (0.8)	30/33.7 (0.9)	1.14
30 to 41	12	9/15.6 (0.6)	22/17.1 (1.3)	31/32.7 (0.9)	0.41

42 to 53 12 11/15.3 (0.7) 7/16.8 (0.4) 18/32.2 (0.6) 1.57
54 to 59 6 5/7.6 (0.7) 2/8.3 (0.2) 7/15.9 (0.4) 2.50
---
6 to 59 54 71/74.5 (1.0) 78/74.5 (1.0) 0.91
The data are expressed as observed number/expected number (ratio of obs/expect)
Overall sex ratio: p-value = 0.566 (boys and girls equally represented)
Overall age distribution: p-value = 0.000 (significant difference)
Overall age distribution for boys: p-value = 0.003 (significant difference)
Overall age distribution for girls: p-value = 0.000 (significant difference)
Overall sex/age distribution: p-value = 0.000 (significant difference)

Team 5:

Age cat. mo. boys girls total ratio boys/girls
---
6 to 17 12 25/14.2 (1.8) 11/13.2 (0.8) 36/27.4 (1.3) 2.27
18 to 29 12 11/13.8 (0.8) 18/12.9 (1.4) 29/26.7 (1.1) 0.61
30 to 41 12 6/13.4 (0.4) 16/12.5 (1.3) 22/25.9 (0.9) 0.38
42 to 53 12 13/13.2 (1.0) 6/12.3 (0.5) 19/25.5 (0.7) 2.17
54 to 59 6 6/6.5 (0.9) 6/6.1 (1.0) 12/12.6 (1.0) 1.00
---
6 to 59 54 61/59.0 (1.0) 57/59.0 (1.0) 1.07
The data are expressed as observed number/expected number (ratio of obs/expect)
Overall sex ratio: p-value = 0.713 (boys and girls equally represented)
Overall age distribution: p-value = 0.271 (as expected)
Overall age distribution for boys: p-value = 0.011 (significant difference)
Overall age distribution for girls: p-value = 0.158 (as expected)
Overall sex/age distribution: p-value = 0.001 (significant difference)

Team 6:

Age cat. mo. boys girls total ratio boys/girls
---
6 to 17 12 24/17.2 (1.4) 15/10.9 (1.4) 39/28.1 (1.4) 1.60
18 to 29 12 19/16.7 (1.1) 9/10.6 (0.8) 28/27.4 (1.0) 2.11
30 to 41 12 14/16.2 (0.9) 8/10.3 (0.8) 22/26.5 (0.8) 1.75
42 to 53 12 9/16.0 (0.6) 9/10.1 (0.9) 18/26.1 (0.7) 1.00
54 to 59 6 8/7.9 (1.0) 6/5.0 (1.2) 14/12.9 (1.1) 1.33
---
6 to 59 54 74/60.5 (1.2) 47/60.5 (0.8) 1.57
The data are expressed as observed number/expected number (ratio of obs/expect)
Overall sex ratio: p-value = 0.014 (significant excess of boys)
Overall age distribution: p-value = 0.105 (as expected)
Overall age distribution for boys: p-value = 0.173 (as expected)
Overall age distribution for girls: p-value = 0.622 (as expected)
Overall sex/age distribution: p-value = 0.003 (significant difference)

Evaluation of the SD for WHZ depending upon the order the cases are measured within each cluster (if one cluster per day is measured then this 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: 0.64 (n=08, f=0)
02: 0.50 (n=08, f=0)
03: 0.87 (n=08, f=0) ###
04: 1.29 (n=07, f=0) ######################
05: 0.96 (n=06, f=0) #######
06: 0.68 (n=08, f=0)
07: 1.09 (n=07, f=0) ############
08: 0.80 (n=07, f=0)
09: 0.68 (n=08, f=0)
10: 0.63 (n=08, f=0)
11: 1.53 (n=06, f=0) ################################
12: 1.00 (n=07, f=0) ########

13: 0.99 (n=08, f=0) ########
14: 0.80 (n=08, f=0)
15: 0.82 (n=08, f=0) #
16: 2.18 (n=05, f=0) OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
17: 0.55 (n=06, f=0)
18: 0.39 (n=04, f=0)
19: 1.21 (n=04, f=0) OOOOOOOOOOOOOOOOO
20: 1.30 (n=03, f=0) OOOOOOOOOOOOOOOOOOOOO
(when n is much less than the average number of subjects per cluster different symbols are used: 0 for n < 80% and ~ for n < 40%;
The numbers marked "f" are the numbers of SMART flags found in the different time points)

Team: 2

Time SD for WHZ
point 0.8 0.9 1.0 1.1 1.2 1.3 1.4 1.5 1.6 1.7 1.8 1.9 2.0 2.1 2.2 2.3
01: 0.89 (n=08, f=0) ####
02: 1.11 (n=07, f=0) #############
03: 1.42 (n=07, f=0) ##########################
04: 1.18 (n=08, f=0) ################
05: 0.71 (n=07, f=0)
06: 0.78 (n=07, f=0)
07: 0.58 (n=08, f=0)
08: 1.20 (n=07, f=0) #################
09: 1.16 (n=08, f=0) ###############
10: 4.48 (n=07, f=1) ##
11: 1.14 (n=08, f=0) ##############
12: 1.68 (n=08, f=1) #####################################
13: 1.84 (n=07, f=1) ##
14: 1.69 (n=07, f=0) #####################################
15: 1.10 (n=04, f=0) OOOOOOOOOOOOO
16: 0.53 (n=03, f=0)
17: 0.71 (n=03, f=0)
18: 0.21 (n=02, f=0)
(when n is much less than the average number of subjects per cluster different symbols are used: 0 for n < 80% and ~ for n < 40%;
The numbers marked "f" are the numbers of SMART flags found in the different time points)

Team: 3

Time SD for WHZ
point 0.8 0.9 1.0 1.1 1.2 1.3 1.4 1.5 1.6 1.7 1.8 1.9 2.0 2.1 2.2 2.3
01: 1.08 (n=08, f=0) ############
02: 1.11 (n=08, f=0) #############
03: 0.68 (n=08, f=0)
04: 0.65 (n=08, f=0)
05: 1.00 (n=08, f=0) #########
06: 1.12 (n=08, f=0) #############
07: 0.58 (n=07, f=0)
08: 1.07 (n=08, f=0) ############
09: 1.26 (n=08, f=0) ###################
10: 0.72 (n=08, f=0)
11: 1.28 (n=08, f=0) ####################
12: 1.28 (n=08, f=0) ####################
13: 1.54 (n=06, f=0) ###############################
14: 0.78 (n=05, f=0)
15: 0.59 (n=04, f=0)
16: 2.24 (n=02, f=0) ~~~~~~
(when n is much less than the average number of subjects per cluster different symbols are used: 0 for n < 80% and ~ for n < 40%;
The numbers marked "f" are the numbers of SMART flags found in the different time points)

Team: 4

Time SD for WHZ
point 0.8 0.9 1.0 1.1 1.2 1.3 1.4 1.5 1.6 1.7 1.8 1.9 2.0 2.1 2.2 2.3
01: 0.99 (n=08, f=0) ########
02: 0.88 (n=08, f=0) ###

03: 1.42 (n=08, f=1) ##########################
04: 0.95 (n=07, f=0) ######
05: 1.30 (n=08, f=0) ####################
06: 0.61 (n=08, f=0)
07: 1.01 (n=08, f=0) #########
08: 1.04 (n=08, f=0) ##########
09: 1.91 (n=08, f=1) ##
10: 1.33 (n=08, f=0) ######################
11: 0.68 (n=08, f=0)
12: 0.64 (n=08, f=0)
13: 1.29 (n=08, f=1) ####################
14: 0.71 (n=07, f=0)
15: 0.93 (n=08, f=0) ######
16: 1.91 (n=07, f=1) ##
17: 1.21 (n=08, f=0) ##################
18: 0.68 (n=06, f=0)
19: 0.83 (n=06, f=0) #
20: 0.92 (n=03, f=0) OOOOO
(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

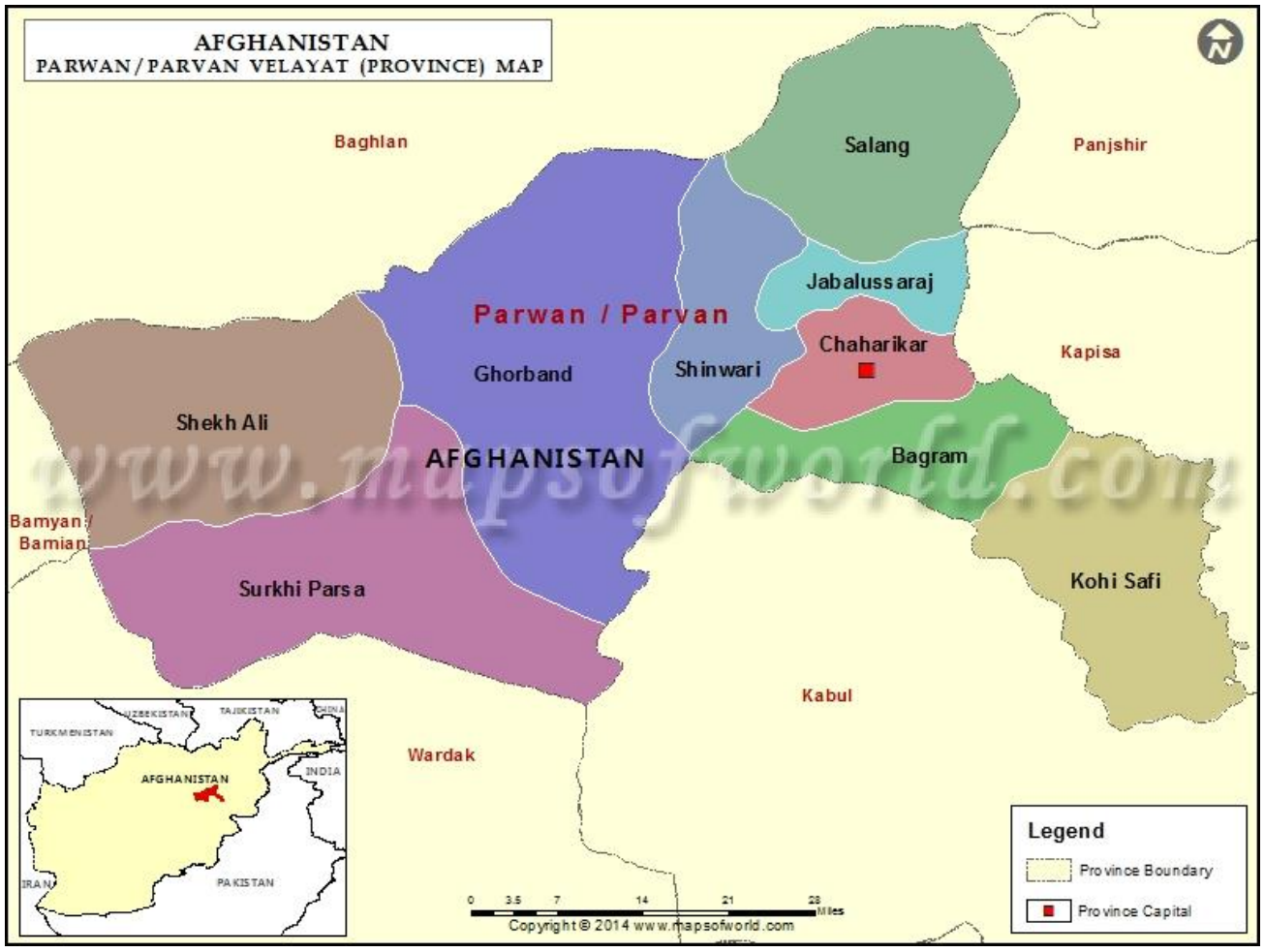
Time SD for WHZ
point 0.8 0.9 1.0 1.1 1.2 1.3 1.4 1.5 1.6 1.7 1.8 1.9 2.0 2.1 2.2 2.3
01: 1.28 (n=08, f=0) ####################
02: 0.78 (n=06, f=0)
03: 1.26 (n=06, f=0) ###################
04: 1.12 (n=06, f=0) ##############
05: 1.17 (n=08, f=0) ################
06: 1.41 (n=08, f=0) ##########################
07: 1.36 (n=08, f=0) ########################
08: 3.33 (n=07, f=1) ##
09: 0.83 (n=07, f=0) #
10: 1.73 (n=07, f=0) ##
11: 1.16 (n=07, f=0) ###############
12: 0.71 (n=07, f=0)
13: 0.69 (n=06, f=0)
14: 1.69 (n=06, f=0) ######################################
15: 2.87 (n=05, f=1) ##
16: 0.61 (n=05, f=0)
17: 0.95 (n=03, f=0) OOOOOO
18: 0.86 (n=02, f=0) ~~~
19: 0.68 (n=02, f=0)
20: 0.71 (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: 1.36 (n=08, f=0) ########################
02: 1.20 (n=07, f=0) ##################
03: 1.26 (n=07, f=0) ###################
04: 1.48 (n=08, f=1) ############################
05: 1.15 (n=08, f=0) ###############
06: 1.75 (n=08, f=0) ##
07: 0.89 (n=07, f=0) ####
08: 0.88 (n=06, f=0) ###
09: 1.72 (n=07, f=1) ##
10: 0.81 (n=08, f=0)
11: 1.31 (n=06, f=0) ####################

12: 0.87 (n=08, f=0) ###
13: 1.78 (n=06, f=0) ##
14: 0.99 (n=06, f=0) ########
15: 0.92 (n=04, f=0) #####
17: 2.02 (n=02, f=0) OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
(When n is much less than the average number of subjects per cluster different symbols is used: 0 for n < 80% and ~ for n < 40%; the numbers marked "f" are the numbers of SMART flags found in the different time points)
(for better comparison it can be helpful to copy/paste part of this report into Excel)

Annex 2: Parwan physical map



Annex 3: local event calendar

1395	ماهای	1394	ماهای	1393	ماهای	1392	ماهای	1391	ماهای	1390	ماهای	ماه
نوروز ، شگوفه ها ،میله نوروز، ارغوان غرس نهال ، روز دهقان شروع مکاتب	7	نوروز ، شگوفه ها ،میله نوروز، ارغوان غرس نهال ، روز دهقان شروع مکاتب	19	نوروز ، شگوفه ها ،میله نوروز، ارغوان غرس نهال ، روز دهقان شروع مکاتب	31	نوروز ، شگوفه ها ،میله نوروز، ارغوان غرس نهال ، روز دهقان شروع مکاتب	43	نوروز ، شگوفه ها ،میله نوروز، ارغوان غرس نهال ، روز دهقان شروع مکاتب	55	نوروز ، شگوفه ها ،میله نوروز، ارغوان غرس نهال ، روز دهقان شروع مکاتب		حمل
روز هشت ثور ، کشت ترکاری میله ارغوان	6	روز هشت ثور ، کشت ترکاری میله ارغوان	18	روز هشت ثور ، کشت ترکاری میله ارغوان	30	روز هشت ثور ، کشت ترکاری میله ارغوان	42	روز هشت ثور ، کشت ترکاری میله ارغوان	54	روز هشت ثور ، کشت ترکاری میله ارغوان		ثور
گندم دروی . روز مادر . پخته شدن رزدالو . ماه رمضان پخته شدن	5	گندم دروی . روز مادر . پخته شدن رزدالو . ماه رمضان پخته شدن توت	17	گندم دروی . روز مادر . پخته شدن رزدالو . ماه رمضان پخته شدن توت	29	گندم دروی . روز مادر . پخته شدن رزدالو . ماه رمضان پخته شدن توت	41	گندم دروی . روز مادر . پخته شدن رزدالو . ماه رمضان پخته شدن توت	53	گندم دروی . روز مادر . پخته شدن رزدالو . ماه رمضان پخته شدن توت		جوزا

توت													
شروع فضل تابستان . پخته شدن میوه های . عید رمضان .	4	شروع فضل تابستان . پخته شدن میوه های . عید رمضان .	16	شروع فضل تابستان . پخته شدن میوه های . عید رمضان .	28	شروع فضل تابستان . پخته شدن میوه های . عید رمضان .	49	شروع فضل تابستان . پخته شدن میوه های . عید رمضان .	52	شروع فضل تابستان . پخته شدن میوه های . عید رمضان .		سرطان	
گرمی شدید . رخضتی مکاتب . جشن ازادی . کم ابی	3	گرمی شدید . رخضتی مکاتب . جشن ازادی . کم ابی	15	گرمی شدید . رخضتی مکاتب . جشن ازادی . کم ابی	27	گرمی شدید . رخضتی مکاتب . جشن ازادی . کم ابی	39	گرمی شدید . رخضتی مکاتب . جشن ازادی . کم ابی	51	گرمی شدید . رخضتی مکاتب . جشن ازادی . کم ابی		اسد	
روز شهادت امر صاحب هفته شهدا . وفت جواری . شروع پخته شدن انگور	2	روز شهادت امر صاحب هفته شهدا . وفت جواری . شروع پخته شدن انگور	14	روز شهادت امر صاحب هفته شهدا . وفت جواری . شروع پخته شدن انگور	26	روز شهادت امر صاحب هفته شهدا . وفت جواری . شروع پخته شدن انگور	38	روز شهادت امر صاحب هفته شهدا . وفت جواری . شروع پخته شدن انگور	50	روز شهادت امر صاحب هفته شهدا . وفت جواری . شروع پخته شدن انگور		سنبله	

ماه خزان . برگ ریزی 13 میزان . روز عاشورا	1	ماه خزان . برگ ریزی 13 میزان . روز عاشورا	13	ماه خزان . برگ ریزی 13 میزان . روز عاشورا	25	ماه خزان . برگ ریزی 13 میزان . روز عاشورا	37	ماه خزان . برگ ریزی 13 میزان . روز عاشورا	49	ماه خزان . برگ ریزی 13 میزان . روز عاشورا		میزان
تیر ماه . هوا سرد می شود		تیر ماه . هوا سرد می شود	12	تیر ماه . هوا سرد می شود	24	تیر ماه . هوا سرد می شود	36	تیر ماه . هوا سرد می شود	48	تیر ماه . هوا سرد می شود		عقرب
اغاز امتحانات . ختم مکاتب . کندم کاری . شاندن بخاری		اغاز امتحانات . ختم مکاتب . کندم کاری . شاندن بخاری	11	اغاز امتحانات . ختم مکاتب . کندم کاری . شاندن بخاری	23	اغاز امتحانات . ختم مکاتب . کندم کاری . شاندن بخاری	35	اغاز امتحانات . ختم مکاتب . کندم کاری . شاندن بخاری	47	اغاز امتحانات . ختم مکاتب . کندم کاری . شاندن بخاری	59	قوس
شب یلدا ، چله کلان یا چله خشک بر میلاد نبیږ سردی هوا		شب یلدا ، چله کلان یا چله خشک بر میلاد نبیږ سردی هوا	10	شب یلدا ، چله کلان یا چله خشک بر میلاد نبیږ سردی هوا	22	شب یلدا ، چله کلان یا چله خشک بر میلاد نبیږ سردی هوا	34	شب یلدا ، چله کلان یا چله خشک بر میلاد نبیږ سردی هوا	46	شب یلدا ، چله کلان یا چله خشک بر میلاد نبیږ سردی هوا	58	جدی
چله خورد . تر برف . بامن دامن . یخ بندان		چله خورد . تر برف . بامن دامن . یخ بندان . وفت شکار . میله سمنک	9	چله خورد . تر برف . بامن دامن . یخ بندان . وفت شکار . میله سمنک	21	چله خورد . تر برف . بامن دامن . یخ بندان . وفت شکار . میله سمنک	33	چله خورد . تر برف . بامن دامن . یخ بندان . وفت شکار . میله سمنک	45	چله خورد . تر برف . بامن دامن . یخ بندان . وفت شکار . میله سمنک	57	دلوه

. وفت شکار . میله سمنک														
نهال شانی ، اول حوت . ۱۵ حوت . اخر حوت		نهال شانی ، اول حوت . ۱۵ حوت . اخر حوت	**8**	نهال شانی ، اول حوت . ۱۵ حوت . اخر حوت	**20**	نهال شانی ، اول حوت . ۱۵ حوت . اخر حوت	**32**	نهال شانی ، اول حوت . ۱۵ حوت . اخر حوت	**44**	نهال شانی ، اول حوت . ۱۵ حوت . اخر حوت	**56**	نهال شانی ، اول حوت . ۱۵ حوت . اخر حوت	**68**

Annex 4: selected clusters

Province	district	Geographical unit	Population size	Cluster
Parwan	Charikar	Gazare Chrsoq	4200	1
Parwan	Charikar	Gazare Khalifa	1260	2
Parwan	Charikar	Parcha 8	4400	3
Parwan	Charikar	Myanshakh	2370	4
Parwan	Charikar	Khwjasyarn ulia	7500	5
Parwan	Charikar	Deh Ghawchak	560	6
Parwan	Charikar	Rahesht	3000	7
Parwan	Charikar	Bayane ulia-	42000	RC,8,9
Parwan	Charikar	Abdibai	5950	10
Parwan	Charikar	Tatamdara Ulia	13000	11
Parwan	Charikar	Akhtachi	4800	12
Parwan	Charikar	Ofyan shr	10990	13
Parwan	Charikar	Parcha 11	5500	14
Parwan	Charikar	Sayadan	6500	15
Parwan	Charikar	Baltookhil	1400	16
Parwan	Bagram	Qalai khwja	8400	17
Parwan	Bagram	Choqorkhil-NorMohd khil	1400	18
Parwan	Bagram	Marza Jalal-Bajwri-e-	480	19
Parwan	Bagram	Deh Meskin	4900	20
Parwan	Bagram	Qalae noeDawod khil	3050	21
Parwan	Bagram	QalaiBala-QalaiBazid	1160	22
Parwan	Bagram	Masjide jami	3050	23
Parwan	Bagram	Qoroughchi	2450	24
Parwan	Bagram	Qaracha	2300	25
Parwan	Bagram	Barik Ab	280	26
Parwan	Bagram	Sae Dokan	3050	27
Parwan	Kohi Safi	Senzali	480	28
Parwan	Saidkhil	Chqark	224	RC
Parwan	Saidkhil	Kamangar-e-khanjan	1015	29
Parwan	Saidkhil	Barwd khil	1160	RC
Parwan	Saidkhil	Raza khil	490	RC
Parwan	Saidkhil	Khadaikhil	896	30
Parwan	Jabalusseraj	Tajikan	2300	31
Parwan	Jabalusseraj	Famaili Nasaji	230	32

Parwan	Jabalusseraj	Salangi-e-	480	33
Parwan	Jabalusseraj	Shamarzakhil	245	34
Parwan	Jabalusseraj	Bhawarakkhil	460	35
Parwan	Jabalusseraj	Dara-e-Chapquol	2800	36
Parwan	Jabalusseraj	Qalai shara-U-S	2400	37
Parwan	Salang	Nawach	3050	38
Parwan	Salang	Taj	560	39
Parwan	Salang	Paoli Sakhta	3050	40
Parwan	Salang	Tanakhak	126	RC
Parwan	Surkh Parsa	Dahane Parandaz	460	41
Parwan	Surkh Parsa	Golak	770	42
Parwan	Surkh Parsa	Dasterzan	1400	43
Parwan	Surkh Parsa	Shina	3050	44
Parwan	Surkh Parsa	Poshtgand	280	45
Parwan	Surkh Parsa	Chehelroya	140	46
Parwan	Shekh ali	Dashte Kham	700	47
Parwan	Shekh ali	Orkosh-ayambek	3000	48
Parwan	Shekh ali	Badkhni Mir Afghan	301	49

Annex 5: Questionnaires explanation

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 will be done together with the team at the **training hall.** Important to note that once Cluster number has been assigned it cannot be changed.
4. **Team ID number:** Teams will be formed during the training session. Each team will be 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 will be 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 will be provided with a consent form that they will be required to ask for permission to conduct the survey in each HH. This is meant to seek permission from the HH head or caregiver to be allowed to conduct the assessment. It is important to note the reason for refusal in case the HH does not accept the interview.

A. Wash: Description of the following key WASH indicators

1. **Source of drinking water:** This question will be asked to the respondent of the HH to find out where HH are accessing their drinking water. The sources of water are categorised into two main categories I.e. Improved sources and un-improved sources. These are based on the two main recommended categories of responses.

- Number of HH accessing water from improved sources[15]/ total number of respondents.
- Number of HH accessing water from unimproved sources[16]/ total number of respondents.

2. **Water treatment methods:** This question will seek to find out what methods HH are using to make their drinking water safe. This indicator will show the proportion of HH practicing safe methods of water treatment in the survey area. The calculation of this will be:

- Total number of HH practicing safe water treatment methods[17]/ 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 will be 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 will be 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 will be asked to ascertain the hand washing practice by asking the caregiver to demonstrate how they wash their hands and what they use to wash their hands.

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

Food access and consumption

1. **Food consumption scoring:** this question will be seeking to find out the group of food to check whether households are consuming in the past 7 days and check the source of the food.
2. **Reduced coping of strategy index:** this question will check enough many and food to buy.

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 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 will be done together with the team at the **training hall.** Important to note that once Cluster number has been assigned it cannot be changed.
4. **Team ID number:** Teams will be formed during the training session. Each team will be 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 will be assigned a number. There are a total of 14 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 will be assigned a specific unique number. This is the same number that will appear in the Caregiver questionnaire. In case of more than one caregiver in a HH each will be assigned a unique number to identify and distinguish them from each other. Each caregiver will be 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 will be assigned a specific unique number. In case of more than one child in a HH each will be assigned a unique

number to identify and distinguish them from each other. Each child will be 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 will be included. Height will not be considered as a valid criterion in absence of age due to the high stunting rates in Parwan province. Age will be confirmed by showing a vaccination card or a birth certificate, if available. If these documents are not available, the use of a local event calendar built for Parwan province will be used to determine the age. The age will be recorded into the questionnaire in months.
9. **Sex:** Male or female
10. **Weight (in kg):** Children will be weighed to the nearest 0.1kg by using an Electronic Uni-scale. The children who can easily stand will be 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 will be applied.
11. **Height (in cm):** Measuring board will be used to measure bare headed and barefoot children. The precision of the measurement is 1 mm. Children of less than 2 years of age will be measured lying down and those equal to or above 2 years of age measured standing up.
12. **Mid-Upper Arm Circumference (in mm):**MUAC will be used as an indicator of mortality risk for malnutrition and will be measured to the nearest 1mm for all children with an indicated age of greater than 6 months, using the UNICEF MUAC strips. An adult MUAC tape will be used to measure women of reproductive age (15-49 years)
13. **Oedema:** Only children with bilateral pitting nutrition oedema will be recorded as having nutritional oedema this will be checked by applying normal thumb pressure for at least 3 seconds to both feet.

Infant and Young Child Feeding

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

1. **Ever Breastfed:** This indicator will be looking at the number of mothers who have ever breast fed their children. This will 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 will look at the amount of time it took for mothers to put their children to the breast after giving birth. The focus will be on the mother's last pregnancy in which the child is between 0-23months.
3. **Colostrum feeding:** this indicator will 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 will 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 will 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. **Minimum dietary diversity:** This indicator will ask the mothers on the types of food given to the child 0-23 months one day (day and night) prior to the day of data collection. The food groups are categorised based on the WHO-IYCF guidelines.
7. **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.
8. **Minimum Meal frequency:** This indicator will 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 will look at all children in the HH between the ages of 0-59 months.

1. **Type of Illness:** This question will ask about the types of illness that the child (0-59 months) has had in the last 14 days prior to the data collection day. A small definition of the key illness is provided in the questionnaire to enable the data collector identify the illness correctly
2. **Vitamin A supplementation:** This question will ask the caregiver of child 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 will be provided with a Sample of the Vitamin A tablet to enable the caregivers to easily identify it.
3. **Deworming:** This question will 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 will be provided with a Sample of the deworming tablet to enable the caregivers to easily identify it.
4. **BCG vaccination:** This question will 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 will be done together with the team at the **training hall.** Important to note that once Cluster number has been assigned it cannot be changed.
4. **Team ID number:** Teams will be formed during the training session. Each team will be 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 will be 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 will be assigned a specific unique number. This is the same number that will appear in the Caregiver questionnaire. In case of more than one caregiver in a HH each will be assigned a unique number to identify and distinguish them from each other. Each caregiver will be 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 will be asked on whether they sought ante-natal care during their last pregnancy. In this case last pregnancy will be 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 behaviour:** Caregivers who respond positive to seeking antenatal care will be asked who they sought assistance from. This question seeks to identify the health seeking pattern of the respondents from the first point of contact to the last point of contact.
3. **Distance to Health centre:** This question seeks to identify how long it takes a caregiver to access the health facility and ascertain if geographical distance is a factor affecting access to the health centre

Maternal Nutrition

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

1. **MUAC measurement:** The caregivers mid – upper arm circumference will be measured using the standard WFP issued adult MUAC tape.
2. **Physiological status:** Each of the caregivers will 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 will be asked whether they are taking iron folate tablets or not. This is to ascertain the number of pregnant mothers who are supplemented and using iron –folate/ferrous.

References

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WHO 2010: indicators for Assessing of Infant Young Child Feeding Practice (IYCF).
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