المملكة الأردنية الهاشمية

Interagency Nutrition Surveys amongst Syrian Refugees in Jordan

Final Report

Data collection: September 3rd – October 8th 2016

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Acknowledgements

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List of Acronyms

ACF	Action Contre la Faim	**NGO**	Non-Governmental Organization
ANC	Antenatal Care	**ODK**	Open Data Kit
ARI	Acute Respiratory Infection	**ORS**	Oral Rehydration Salts
CDC	Centers for Disease Control and Prevention	**ORT**	Oral Rehydration Therapy
CI	Confidence Interval	**PAPFAM**	Pan Arab Project for Family Health Survey
CMAM	Community based Management of Acute Malnutrition	**PLF**	Prelacteal Feeds
DAG	Data Analysis Group	**PLW**	Pregnant and Lactating Women
DPS	Digit Preference Score	**PPS**	Probability Proportional to Size
ENA	Emergency Nutrition Assessment	**RC**	Reserve Cluster
FCS	Food Consumption Score	**RCSI**	Reduced Coping Strategies Index
GAM	Global Acute Malnutrition	**SAM**	Severe Acute Malnutrition
GAPPD	Global Action Plan for the Prevention and control of Pneumonia and Diarrhea	**SCJ**	Save the Children Jordan
		SD	Standard Deviation
HAZ	Height-for-Age Z-scores	**SENS**	Standardized Expanded Nutrition Survey
HDDS	Household Dietary Diversity Score	**SFP**	Supplementary Feeding Programme
HH	Household	**SMART**	Standardized Monitoring and Assessment of Relief and Transitions
IFA	Iron-Folic Acid		
IMC	International Medical Corps	**TFP**	Therapeutic Feeding Programme
IRD	International Relief and Development	**UNFPA**	United Nations Population Fund
IYCF	Infant and Young Child Feeding	**UNHCR**	United Nations High Commissioner for Refugees
JHAS	Jordan Health Aid Society		
MAM	Moderate Acute Malnutrition	**UNICEF**	United Nations Children's Fund
MFA	Monthly Financial Assistance	**WAZ**	Weight-for-Age Z-scores
MICS	Multi Indicator Cluster Survey	**WFP**	World Food Programme
MoH	Ministry of Health	**WHO**	World Health Organization
MUAC	Mid-Upper Arm Circumference	**WHZ**	Weight-for-Height Z-scores
		IYCF	Infant and Young Child Feeding

Executive Summary

Due to the protracted and evolving situation in the Syrian Republic, large numbers of Syrians have sought and continue to seek protection in the neighboring and nearby countries of Lebanon, Turkey, Iraq, Egypt and Jordan. According to UNHCR population figures as of 30 September 2016, there are 655,483 registered Syrian refugees in Jordan. Approximately 79% of Syrians are living outside camps with the majority living in Irbid, Mafraq, Amman and Zarqa governorates.

This report presents the results of the third round of Interagency Nutrition Surveys amongst Syrian refugees in Jordan. The surveys were conducted from September 3rd to October 8th, 2016, in Za'atri camp, in Azraq camp and among Syrian refugees living in host communities. The objectives of the surveys were to assess nutritional status of children aged 6-59 months and women aged 15-49 years, investigate coverage level of IYCF practices and define the current state of food security. Additionally, the objectives were to determine access to primary health services and health seeking behaviors, assess morbidities that are at risk to malnutrition and use of improved hygiene health facilities, among the Syrian refugee population.

Methodology

All efforts were made to follow SMART methods[1] and the SENS Guidelines[2] to ensure a high quality nutrition survey. The surveys were cross-sectional with two-stage cluster sampling. Three independent samples using the cluster sampling methodology were drawn; one from the residents of Za'atri camp, one from the residents of Azraq camp and the third one from the refugees living in host communities. In both camps, 48 clusters were randomly selected during the first stage sampling based on the block level population estimates as of August 2016 and using the Probability Proportional to population Size (PPS) technique. The population estimates from the UNHCR refugee registration database at the sub-district level were used to select clusters for the first stage sampling for the Syrian refugees living in host communities and 88 clusters were selected using the PPS technique. All selected clusters were visited and information on food security, anthropometry for children and for women, infant and young child feeding practices and child morbidity were collected. A training programme was conducted for 5 days covering the survey methodology, anthropometric measurements and practical sessions, as well as a standardization test and a pilot test. A total of 8 survey teams, each consisting of 4 members were used to collect data. The data collection lasted 6 days in each camp and 11 days in host communities. All data were collected on smartphones with the ODK application. Anthropometric data was analyzed using the ENA for SMART software. The remainder of the data were analyzed in STATA 11.

Key Findings

Food Security

In Za'atri and Azraq camps, the main source of income comes from the WFP's food vouchers. For Syrian refugees living in host communities, the main source of income comes from unskilled labour, followed by the Monthly Financial Assistance (MFA) from UNHCR (Table 10). This indicates that the majority of the refugees in the camps are reliant on food vouchers and on financial assistance, as they have limited livelihood options as refugees. The food vouchers from WFP form the main source of food for the refugees in both camps and in host communities (Table 14). They are distributed for a duration of one month, however, the average number of days in which purchased of food with these vouchers lasted was 16.7 days in Za'atri camp and in host communities, and 19.7 days in Azraq camp (Table 13). Nevertheless, the reduced Coping Strategies Index (RCSI) was lower than in 2014 showing that in order to maintain an adequate level of food consumption, Syrian refugees less often adopt severe coping strategies to meet their needs (Table 15). This could suggest a stable food security situation between 2014 and 2016, even if the values of the food vouchers decreased. On average, the households consumed more than seven food groups during the day preceding the survey, which denotes a satisfactory level of dietary diversity amongst the Syrian refugee population in Jordan (Table 17). Nevertheless, the consumption of vitamin A rich vegetables or fruit was low, as well as the consumption of a heme iron rich-food source (Table18). Based on the interagency activity information monitoring database 2016, only 63.5% of the Syrian refugees' households living in host communities are receiving food vouchers. In our sample, random selection

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[1] SMART. Standardized Monitoring and Assessment of Relief and Transitions. Available at: http://smartmethodology.org/
[2] SENS. Standardized Expanded Nutrition Survey for Refugee Populations. Available at: http://sens.unhcr.org/

did that more assisted households (90.5%) were interviewed than the non-assisted households, which may have slight consequences on the assessment of the food security situation in urban settings (Table 11).

Children Nutritional Status

According to the WHO classification, the results show a level of Global Acute Malnutrition (GAM) (WHZ<-2 z-scores and/or edema) considered "acceptable" (not exceeding the 5% threshold) for the three survey sites, with respectively 2.7% (95% CI 1.4-5.0), 1.9% (95% CI 0.9-4.2) and 1.8% (95% CI 1.0-3.4) for Za'atri camp, Azraq camp and in host communities. There is no Severe Acute Malnutrition (SAM) in Azraq camp nor in host communities. In Za'atri camp, a SAM of 0.3% was found, which is a very low prevalence (Table 25).

The survey results show a level of chronic malnutrition considered "Acceptable", not exceeding the 20% threshold for the three surveys. Nevertheless, in Azraq camp, the prevalence of stunting could possibly be higher than 20%, according to the upper limit of the confidence interval (22.9%). The prevalence of stunting in Azraq camp [19.2% (16.0-22.9)] is significantly higher than in Za'atri camp [11.3% (8.5-15.2)] (p<0.05) (Table 32).

Infant and Young Child Feeding (IYCF) Practices

The survey findings show a high proportion of children between 0 and 23 months who received liquids or food in the first three days after delivery: from 43.1% in Za'atri camp to 59.9% in host communities (Table 42). More than 50% of children 0-23 months initiated breastfeeding within 1 hour of birth in both camps, while only 37.1% of children 0-23 months received a timely introduction of breastfeeding in host communities (Table 41). In Za'atri camp, 53.7% of infants under six months of age were exclusively breastfed, which was improved from 2014 (46.4%). In Azraq camp and in host communities this proportion was lower than Za'atri camp, 38.2% and 19.1% respectively (Table 46). In host communities, the exclusive breastfeeding rate is lower (19.1%) than in 2014 (36.0%). Approximately 60% of children 12-15 months were fed breast milk during the day prior to the survey marking an improvement in comparison to 2014 (Table 47).

One woman out of three (30.2%) in host communities received a tin of infant formula after delivery from the health personnel. This proportion is lower in Za'atri camp (17.0%), and in Azraq camp (8.4%) (Table 43). For approximately 80% of the women in both camps, the tin of infant formula was given by the private health facilities where deliveries took place outside the camps (Table 44). The use of bottle with a nipple in children 0-23 months of age is significantly higher in host communities (50.2%) compared to the camps (13.8% in Za'atri and 21.8% in Azraq) (Table 49).

The survey shows a significant improvement of the timely introduction of the complementary food for infants 6-8 months of age, between 2014 and 2016 (Table 50). The proportion of children aged 6-23 months who received solid, semi-solid or soft foods the minimum number of times or more was around 64% in the camps and around 58% in host communities. The minimum meal frequency seems to be better among the non-breastfed children than among the breastfed children (Table 51). The proportion of children 6-23 months old who received an iron-rich food or iron-fortified food that is specially designed for young children was close to the results obtained in 2014 (28.7% Za'atri and 21.9% host community in 2014; 21.1% Za'atri and 29.4% host community in 2016) (Table 55).

More than 40% of the mothers with children under 2 years of age attended a session about breastfeeding or infant feeding, in both camps. In host communities, only 15.5% of the mothers attended a nutrition education session (Table 56). In Za'atri camp, 81% of the mothers received visit(s) at home to help with breastfeeding or infant feeding. This proportion is significantly lower in Azraq camp (49.8%, p<0.05) and in host communities (14.3%, p<0.05), which might be due to difficulty in accessing some villages in the camp (Table 58). In Za'atri and Azraq camps, the majority of the women are receiving 2, 3 or more than 4 visit(s) while feeding their child. In host communities, 71.4% of the mothers are receiving only one visit (Table 59).

Child Morbidity

The survey findings indicated that approximately one child out of five had diarrhea in the past two weeks preceding the survey (Table 61). The analysis of the drinking and eating practices during diarrhea shows that more than 50% of children with diarrhea drank more than usual. Approximately half of the children ate somewhat less (Tables 63 & 64). Use of ORS to treat diarrhea was ranging from 16% in host communities to 39% in Azraq (Table 65). The percentage of children with diarrhea who were given the ORS or an increased fluid intake (ORT), and at the same time, with continued feeding, was very low for the three surveys: 7.7% in Za'atri camp, 8.8% in Azraq camp and 2.3% in host communities. Between 20% and 30% of children with diarrhea were receiving antibiotics while most episodes of diarrhea are acute and of short duration and do not require antibiotics (Table 67).

More than one child out of five was reported to have had symptoms of ARI during the two weeks preceding the survey in Azraq camp. In Za'atri camp this proportion is significantly lower with 14.3% of children 0-59 months who were reported to have had symptoms of ARI (Table 68). In Za'atri camp around 43% of children with ARI symptoms received antibiotics against only approximately 20% in Azraq camp. In host communities, around one child out of four received antibiotics for the treatment of ARI symptoms (Table 70).

Nutritional Status of Women
The proportion of women of reproductive age who are malnourished (MUAC <230 mm) is higher among pregnant women with prevalence ranging from 7.7% in host communities to 8.5% in Azraq camp. The prevalence of acute malnutrition among lactating women was 7.6% in Azraq camp, which is significantly higher than in Za'atri camp (1.7%, $p<0.05$) (Table 74). The survey findings confirmed that adolescent girls (15-19 years) and women between 20 and 29 years of age are the most affected by acute malnutrition with for example in Za'atri camp, 21.6% of girls 15-19 years and 6.1% of women 20-29 years having a MUAC below 230 mm (non pregnant and non lactating) (Table 75). Almost all pregnant women in Za'atri camp were enrolled in ANC programme. In Azraq camp and in host communities, respectively 78.8% and 76.1% of pregnant women were followed by a doctor for ANC (Table 78). The proportion of pregnant women taking iron-folic acid supplements was below 50% in Azraq camp, about 63% in host communities while it was approximately 85% in Za'atri camp (Table 79).

Water and Sanitation
In the camps, approximately 30% of the households were disposing children's feces safely compared to 23.5% in 2014. In host communities, 21.7% of the households follow safe disposal of children's feces (25.8% in 2014). This may be an indication of poor hygienic practices among the refugees (Table 80).

Conclusion and Recommendations

The third round of Interagency Nutrition Surveys among Syrian refugees living in Jordan showed that wide coverage of food assistance has largely attributed to maintain the global acute malnutrition levels significantly below the acceptable level (<5%) of WHO cut-off values for public health significance. The last round of surveys done in 2014 found GAM results of 5.1% (2.9-73.3) for Za'atri camp and 3.5% (2.4-4.5) for host communities. WFP food assistance is the most common source of food for the majority of the households in the camps as well as in host communities and, in addition, a majority of Syrian refugees heavily relies on food assistance. Thus, any change to WFP food assistance is very likely to have a direct impact on the refugees' food security at the household level. The recommendations from the survey results are as follows.

With regards to food security, it is recommended to:
1. Continue the provision of food vouchers in both camps and host community;
2. Continue the distribution of fortified flour and fortified bread in the camps;
3. Support and strengthen the national food fortification programme;
4. Share with partners the regular M&E reports about prices and quality of food products in the camps;
5. Develop activities to improve dietary diversity and food consumption at household level along with a monitoring and evaluation system, in order to improve access to animal source foods (e.g. dairy, eggs, fish and meat), and make fruits and vegetables more available. For example, the implementation of fresh food vouchers or a gardening programme (at home and/or at school) could be investigated.

With regards to acute malnutrition, it is recommended to:
6. Continue and strengthen the existing nutrition programmes (Community-based Management of Acute Malnutrition (CMAM), screening activities especially at community level) in order to maintain these low levels of acute malnutrition and decrease prevalence of moderate acute malnutrition.

All forms of malnutrition were found high among children aged 6-23 months, therefore, it is highly recommended to consider children in this age group through improving infant and young child feeding practices and education towards behavioural and practice changes.

Consequently, it is recommended to:

7. Continue to build the capacity of and support the Ministry of Health, to improve the health and nutrition programmes in the community for promoting, supporting and protecting exclusive breastfeeding for the first six months of life, continued breastfeeding up to two years of age and beyond;
8. Scale-up community-based programmes to provide information and counselling on optimal and appropriate breastfeeding and complementary feeding practices in host communities;
9. Conduct communication campaigns on preventative activities more frequently: prenatal care, nutrition of pregnant women, promotion of exclusive breastfeeding, complementary feeding and continued breastfeeding, good hygienic practices, the production and consumption of available complementary foods focusing on Vitamin A and iron rich food;
10. Scale up activities on active case finding of malnourished children through screening activities and establish regular growth monitoring.

The breastfeeding practices were not optimal in the three survey areas even if some improvements were noticed as compared to the 2014 survey results (exclusive breastfeeding and continued breastfeeding at 1 year in Za'atri and host community). The surveys also show a significant improvement in the introduction of complementary food in Za'atri camp and host communities, but the consumption of iron-rich food was close to the results obtained in 2014 (<30%). The 2016 results shows that breastfeeding counselling and support provided to the mothers with children under two years of age could explain these small improvements regarding IYCF practices.

Consequently, it is recommended to:
11. Continue promoting appropriate IYCF practices (Early initiation of breastfeeding, exclusive breastfeeding, continued breastfeeding up to 2 years, timely introduction of appropriate and adequate complementary feeding) through the existing nutrition education sessions and using behaviour change communication interventions;
12. Continue and strengthen training sessions targeting the health care providers who are involved in antenatal, delivery and postpartum care to strengthen the early initiation of breastfeeding and avoid pre-lacteal feeds, focusing on facility based coaching.
13. Develop and highlight a separate training component/session for health care providers on the risks of prelacteal feeds and use of bottles with a nipple – and how to transfer the knowledge to the caregivers they encounter.
14. Increase the coverage of the nutrition education sessions focusing on breastfeeding and complementary feeding, and more specifically in host communities;
15. Increase follow up visit(s) at home to help with breastfeeding or infant feeding, and more specifically in Azraq camp and in host communities;
16. Strengthen the enforcement and accountability mechanisms for key legislations for breastmilk substitutes and more specifically in host communities. A joint monitoring body (MoH/UNICEF) could be created to discourage provision of infant formula just after birth in hospitals;
17. Increase availability of age-appropriate food for children aged 6 to 23 months. Several options could be investigated like the provision of appropriate locally available, culturally acceptable (non-perishable) complementary foods, local fortified porridges enriched with micronutrients or special food vouchers for children between 6 and 23 months (+5 JOD) for micronutrient rich food and protein-rich food, etc.

With regards to women of reproductive age and pregnant and lactating women, it is recommended to:
18. Find ways to increase adherence to iron-folic acid (IFA) supplementation in pregnancy and promote combined pills of iron and folic acid;
19. Review and strengthen the already existing protocol for management of malnutrition in pregnancy and improve access to a balanced energy-protein food in pregnancy especially in host;
20. Assess the barriers to utilization of antenatal care (ANC) programme to improve ANC programme coverage in host communities and in Azraq camp;
21. Improve adolescent girl and adult women's knowledge on diet quality through the already existing nutrition education sessions (focus on adolescent women and pregnant women food needs and on low birth weight matter).

Although it is difficult to compare cross sectional survey data collected during different seasons, there seems to have been no large reduction in the number of children who have diarrhea in the current survey compared to the

previous survey. In addition, a low proportion of the households were disposing children's feces safely. This may be an indication of poor hygienic practices among the refugees.

With regards to management of diarrhea episodes and hygiene it is recommended to:

22. Detect barriers to seeking appropriate healthcare during an episode of diarrhea (access to health care facilities, appropriate drinking and eating practices);
23. Increase awareness about the importance of oral rehydration therapy (ORS or increased fluids) and continuous feeding to treat an episode of diarrhea;
24. Strengthen sensitization about handwashing practices (critical times) and use of soap. Soap eliminates diarrhea-inducing pathogens from the skin. Research in refugee settings has shown that in households where soap was present, fewer children had diarrheal diseases regardless of whether they actually used soap;
25. Provide more dustbins / containers that can be closed, in the camps (for diapers).

The Interagency Nutrition Surveys among Syrian refugees living in Jordan could be conducted every two to three years but it is recommended to plan data collection for the next survey at the same period as this survey (September-October) in order to better monitor the effect of present and future interventions and to eliminate issues of seasonality.

1. Summary of Main Results

Surveyed area	Za'atri Camp	Azraq Camp	Refugees in Host communities
Date of survey	September 3rd-8th	September 17th-24th	Sept. 25th- October 8th
CHILDREN 6-59 months **% [95% CI]**			
Acute Malnutrition (WHO 2006 Growth Standards)			
Global Acute Malnutrition (GAM)	2.7% [1.4-5.0]	1.9% [0.9-4.2]	1.8% [1.0-3.4]
Moderate Acute Malnutrition (MAM)	2.4% [1.3-4.3]	1.9% [0.9-4.2]	1.8% [1.0-3.4]
Severe Acute Malnutrition (SAM)	0.3% [0.0-2.0]	0.0%	0.0%
Edema	0.0%	0.0%	0.0%
Stunting			
Total Stunting	11.3% [8.5-15.2]	19.2% [16.0-22.9]	6.4% [4.4-9.3]
Severe Stunting	0.3% [0.0-2.0]	2.7% [1.5-4.8]	0.8% [0.3-2.2]
MUAC Malnutrition			
Prevalence of MUAC 115-<126 mm	0.8% [0.3-2.4]	1.4% [0.7-3.0]	0.0%
Prevalence of MUAC <115 mm and/or edema	0.0%	0.0%	0.0%
Child Morbidity (0-59 months)			
Children with diarrhea in the last two weeks	19.3% [15.8-22.8]	22.3% [17.8-26.8]	24.6% [20.2-29.0]
Diarrhea treatment with oral rehydration salts (ORS)	28.4% [17.8-39.0]	38.7% [28.0-49.4]	15.9% [9.3-22.6]
Children with Acute Respiratory (ARI) symptoms	14.3% [9.8-18.8]	22.9% [17.4-28.4]	17.3% [13.0-21.5]
Antibiotic treatment for children with ARI symptoms	43.3% [24.9-61.8]	20.4% [10.9-29.8]	25.8% [15.0-36.5]
CHILDREN 0-23 months **% [95% CI]**			
Infant and Young Child Feeding Practices			
Timely initiation of breastfeeding	55.3% [47.3-63.3]	50.5% [41.3-59.8]	37.1% [29.0-45.2]
Exclusive breastfeeding under 6 months	53.7% [39.9-67.4]	38.2% [21.0-55.4]	19.1% [8.8-29.4]
Continued breastfeeding at 1 year	59.3% [37.9-80.6]	60.0% [45.0-75.0]	56.5% [40.8-72.3]
Continued breastfeeding at 2 years	18.9% [6.3-31.5]	16.0% [0.0-32.4]	25.7% [8.9-42.5]
Introduction of solid, semi-solid or soft foods	77.4% [63.1-91.8]	66.7% [42.8-90.5]	81.5% [66.6-96.4]
Consumption of iron-rich or iron-fortified foods	21.1% [15.1-27.1]	31.3% [22.8-39.8]	29.4% [22.4-36.4]
Children bottle fed	13.8% [8.8-18.7]	21.8% [16.0-27.6]	50.2% [42.9-57.5]
Children given infant formula	3.7% [1.2-6.3]	9.9% [5.6-14.2]	28.2% [22.6-33.7]

Surveyed area	Za'atri Camp	Azraq Camp	Refugees in Host communities
Date of survey	September 3rd-8th	September 17th-24th	Sept. 25th- October 8th
WOMEN 15-49 years **% [95% CI]**			
Acute Malnutrition (MUAC)			
Acute malnutrition – Pregnant women (<230 mm)	7.8% [0.9-14.8]	8.5% [0.7-16.3]	7.7% [1.6-13.8]
Acute malnutrition – Lactating women (<230 mm)	1.7% [0.0-4.0]	7.6% [3.1-12.1]	0.0%
Acute malnutrition – Non pregnant and non-lactating women (<230 mm)	5.7% [2.6-8.8]	5.4% [3.0-7.9]	4.7% [2.9-6.5]
Programme Coverage Pregnant Women			
Pregnant women currently enrolled in ANC programme	98.1% [94.1-100.0]	78.8% [66.2-91.5]	76.1% [65.1-87.0]
Pregnant women currently taking iron-folic acid pills	84.6% [75.3-93.9]	48.1% [32.9-63.3]	63.4% [50.9-75.8]
WATER SANITATION AND HYGIENE **% [95% CI]**			
Proportion of HH with children under 3 years of age that dispose faeces safely	31.6% [26.4-36.8]	29.4% [23.6-35.1]	21.7% [17.3-26.2]
FOOD SECURITY **% [95% CI]**			
Proportion of HH who are receiving food voucher from WFP	99.8% [99.3-100.0]	100%	90.5% [88.0-93.0]
Average number of days the food vouchers lasts	16.7 [16.1-17.2]	19.7 [18.8-20.6]	16.7 [16.2-17.3]
Reduced Coping Strategy Index (rCSI)	12.2	9.6	11.9
Average Household Dietary Diversity Score (HDDS)	7.9	7.8	7.9

2. Context and Justification

2.1 Introduction

Due to the protracted and evolving situation in the Syrian Republic, large numbers of Syrians have sought and continue to seek protection in the neighboring and nearby countries of Lebanon, Turkey, Iraq, Egypt and Jordan. According to UNHCR population figures as of 30 September 2016, there are 655,483 registered Syrian refugees in Jordan. Approximately 79% of Syrians are living outside camps with the majority living in Irbid, Mafraq, Amman and Zarqa governorates. As of 3rd of September 2016 Za'atri camp has an estimated 79,074 residents, Azraq camps 54,422residents and the Emirati-Jordanian camp has 7,307 residents (See Map of Syrian refugees in Jordan in Annex 1).

The first Inter-Agency Nutrition Survey amongst Syrian refugees in Jordan took place in November 2012. This survey was jointly conducted by Jordanian Ministry of Health and Department of Statistics, UNICEF and WFP with the participation from UNHCR, WHO, UNFPA, and Save the Children as well as other NGOs. The survey assessed the nutrition and food security status of Syrian refugees in both urban/rural areas and camp settings. According to the assessment, 23% of community-based refugees were found to have a 'poor' or 'borderline' Food Consumption Score (FCS) compared to 18.5% in camp settings. Infant and young child feeding indicators were unsatisfactory with the prevalence of breastfeeding among children aged 6-12 months in Za'atri camp being 80.9% and 65% among Syrians in the host community. Global acute malnutrition prevalence (GAM) was estimated to be less than 5% in children aged 6 to 59 months.

A follow up nutrition survey was conducted in April-May 2014. The prevalence of malnutrition among Syrian refugees both in camp at 1.2% and in host communities at 0.8% was low according to WHO classification. However, the levels of anemia among children (particularly the children under two years old) and women were severe in the camp population (≥ 40%) and moderate for Syrian refugees living in host communities (20.0-39.9%) according to WHO classification of public health significance. Infant and young child feeding (IYCF) practices, particularly exclusive breastfeeding up to 6 months and continued breastfeeding, were generally poor among the refugees though were comparable to the practices in Syria (pre-conflict). The household dietary diversity score (HDDS) was lower in the camp population compared to Syrian refugees living in host communities. Overall, 92% of households consumed more than four food groups during the day preceding the survey, which denotes a satisfactory level of dietary diversity amongst the Syrian refugee population in Jordan. However, WFP's food vouchers were the most common source of food for the majority of the households in the camp as well as in host communities. Indeed a majority of Syrian refugees heavily relied on food assistance followed by purchasing food using personal savings and borrowing. The continued food assistance has largely contributed to lower levels of acute malnutrition among refugee households both in camps and in communities. Thus, any change to WFP food assistance was very likely to have a direct impact on the refugees' food security status at the household level and hence nutritional status.

Since nutrition programming started among Syrian refugees, significant progress has been made. Community - based management of malnutrition is available in Za'atri and Azraq camps and in the urban settings. Facility level screening is conducted for children aged 6 to 59 months and in pregnant women. Infant and young child feeding activities have made considerable progress with counselling and breastfeeding support for pregnant and lactating women in Za'atri, Azraq and Emirati Jordanian camps and in urban settings. Much work has also been done with the Ministry of Health and private hospitals, which are part of the referral network for refugees in supporting baby-friendly approaches to breastfeeding. Anemia screening and follow up of pregnant women is in place in camps and in urban settings. Guidelines for the management of acute malnutrition have been developed by the Nutrition Working Group and approved by the Ministry of Health.

2.2 Justification for the survey

Despite the low acute malnutrition levels there are a number of reasons a follow-up nutrition survey is indicated:
- The WFP food vouchers have decreased since the last survey in 2014 with vulnerable families getting a 20 JOD voucher per person per month and less vulnerable 10 JOD per person per month. Those who are least vulnerable or non-vulnerable do not receive any food vouchers. Refugees in camps receive 20

JOD per person per month with daily distribution of bread. This is a reduction from 24 JOD with daily bread previously. Given the heavy reliance on WFP support, this reduction in both quantity and coverage may have affected food security and nutritional status.

- Secondly, there are continued concerns about the availability of age-appropriate food for children aged 6 to 23 months.
- Thirdly, the situation on the Eastern border of Jordan and Syria, where approximately 47,000 asylum seekers and others are stranded and living under dire circumstances with poor access to sanitation and hygiene, frequently reported episodes of diarrhea, increased risk of disease outbreaks and lack of age-appropriate food for very young children.

For these reasons, a third Inter-Agency Nutrition Survey was carried out from the 3rd of September to the 8th of October 2016 in Za'atri camp and Azraq camp, and in urban host communities. The survey results helped to determine if the nutritional situation has improved, remained stable, or deteriorated. The survey results also provided information on other areas of importance such as access to iron and folic acid supplements in pregnancy, and identified/documented the underlying factors likely to influence the nutritional well-being of the Syrian population in Jordan and those that require consideration in the response.

3. Objectives

The objectives of the survey were to assess nutritional status of children aged 6-59 months and women aged 15-49 years, investigate coverage level of IYCF practices, define the current state of food security and determine access to key health services, use of improved health facilities and indicators of health status which will contribute to nutritional well-being in children under-five, among the refugee population.

More specifically, the survey allowed to:
- Estimate the prevalence of acute malnutrition (wasting), chronic malnutrition (stunting) and underweight amongst Syrian refugee children aged 6-59 months in Jordan;

- Estimate the prevalence of acute malnutrition among women of reproductive age (15-49 years) based on Mid-Upper Arm Circumference (MUAC) in the Syrian refugee population in Jordan;

- Investigate IYCF practices among Syrian refugee children 0-23 months in Jordan:
    - Timely initiation of breastfeeding in children aged 0-23 months;
    - Exclusive breastfeeding under 6 months;
    - Continued breastfeeding at 1 year in children aged 12-15 months;
    - Continued breastfeeding at 2 years in children 20-23 months;
    - Introduction of solid, semi-solid or soft foods in children aged 6-8 months;
    - Consumption of iron-rich or iron-fortified foods in children aged 6-23 months;
    - Bottle feeding in children aged 0-23 months;

- Define the current state of food security amongst Syrian refugees in Jordan:
    - Determine the coverage of food vouchers in Azraq, Za'atri and in urban host communities and the duration the food voucher lasts for in recipient households;
    - Determine the extent to which negative coping strategies are used by households;
    - Assess household dietary diversity score (HDDS);

- Determine access to primary health services, use of improved hygiene facilities and indicators of health status which will contribute to nutritional well-being amongst Syrian refugee children aged 0-59 months and women in child bearing age in Jordan:
    - Morbidity (diarrhea and acute respiratory infection prevalence) in children under five years of age;
    - Use of oral rehydration therapy for last diarrheal episode in children under five years of age;
    - Need for health services in previous two weeks for children under five years of age;
    - Use of health services if needed in the previous two weeks;
    - Enrolment into antenatal care programme for currently pregnant women;

- Coverage of iron-folic acid supplementation in currently pregnant women;
- The proportion of households with children under five years old whose (last) stools were disposed of safely;

- Identify potential areas of interventions taking into consideration existing public health and nutrition programmes within Jordan and ensure that such interventions are fully aligned with existing strategies and integrated accordingly to ensure complementarity of efforts and avoid duplication.

4. Methodology

The survey was conducted using the Standardized Expanded Nutrition Survey (SENS) guidelines and tools[3]. SENS is a standardized tool for conducting nutrition surveys in refugee populations developed by UNHCR in collaboration with expert organizations and individuals in the fields of nutrition, public health, food security, water sanitation and hygiene, and malaria prevention. SENS is based on the internationally recognized SMART Methodology[4] (Standardized Monitoring and Assessment of Relief and Transitions) for survey design and anthropometric assessments, and adapted to the specific requirements of refugee settings. The SENS modules include standardized questionnaires, analysis guidance, reporting format and standard analysis procedures.

4.1   Study Population

The study population was the Syrian refugees living in Jordan who are registered with UNHCR. Three separate samples were drawn from the Syrian refugees in Jordan: one from the refugees living in Za'atri camp, one from the refugees living in Azraq camp and the other from the refugees in host communities. Numbers of refugees living in the camps as well as in host communities were obtained from ProGres, the UNHCR database for refugees, as of 14 August 2016.

4.2   Sample Size

This survey was designed as a cross-sectional household survey using a two-stage cluster sampling. The sample size was calculated using the ENA software (ENA for SMART 2011, July 9th 2015).

The sample size was based on anthropometry in children – i.e. Global Acute malnutrition (GAM) among children between 6 and 59 months. The expected prevalence of GAM used for the sample size calculations were from the 2014 Interagency Nutrition Surveys. The sample size was first calculated in number of children and then converted into number of households. The sample size was adjusted for non-response. The assumptions for the sample size calculation are given below (Tables 1, 2 and 3).

Table 1: Assumptions for the sample size calculation – Za'atri Camp

Parameters for Anthropometry	Value	Assumptions based on context
Estimated Prevalence of GAM (%)	3.3%	The prevalence of Global Acute Malnutrition (GAM) for Za'atri Camp from the Interagency Nutrition Surveys amongst Syrian refugees in Jordan and conducted in August 2014 is used for calculation of sample size. To be on the safe side, the upper limit of the confidence interval was chosen (1.2% [0.5-3.3% 95% CI]).
± Desired Precision	2.5%	The general purpose of this survey is to assess current nutrition situation in children under the age of five years and women of reproductive age and assist in monitoring the effectiveness and coverage of interventions. From a practical point of view, this means the level of precision needed for sample size calculations is high in order to allow valid comparisons between 2014 and 2016. Since the GAM prevalence is lower, a precision of ±2.5% was chosen.

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[3] SENS. Standardised Expanded Nutrition Survey for Refugee Populations. Available at: http://sens.unhcr.org/
[4] SMART. Standardized Monitoring and Assessment of Relief and Transitions. Available at: http://smartmethodology.org/

Parameters for Anthropometry	Value	Assumptions based on context
Design Effect	1.5	As nutrition outcomes are known to generally create relatively low design effects, the choice was made to use a 1.5 design effect to inflate the sample size and compensate the possible heterogeneity between clusters.
Children to be included	**320**	
Average Household Size	4.1	Data were taken from the DAG Team
% of Children Under Five years old	19.0%	Data were taken from the DAG Team
% Non-Response Households	3%	It is expected to have 3% non-response rate which refers to the number of basic sampling units that are not able to be reached due to the following reasons: refusal, accessibility, security reasons, absentees, etc.
Households to be included	**471**	

Table 2: Assumptions for the sample size calculation – Azraq Camp

Parameters for Anthropometry	Value	Assumptions based on context
Estimated Prevalence of GAM (%)	3.3%	The same parameters than for Za'atri Camp were used as that will be a baseline survey.
± Desired Precision	2.5%	Since the GAM prevalence is lower and it is a baseline survey, a precision of ±2.5% was chosen.
Design Effect	1.5	As nutrition outcomes are known to generally create relatively low design effects, the choice was made to use a 1.5 design effect to inflate the sample size and compensate the possible heterogeneity between clusters.
Children to be included	**320**	
Average Household Size	4.0	Data were taken from the DAG Team
% of Children Under Five years old	21.1%	Data were taken from the DAG Team
% Non-Response Households	3%	It is expected to have 3% non-response rate which refers to the number of basic sampling units that are not able to be reached due to the following reasons: refusal, accessibility, security reasons, absentees, etc.
Households to be included	**435**	

Table 3: Assumptions for the sample size calculation – Host communities

Parameters for Anthropometry	Value	Assumptions based on context
Estimated Prevalence of GAM (%)	2.2%	The prevalence of Global Acute Malnutrition (GAM) for the out-of-camp settings, from the Interagency Nutrition Surveys amongst Syrian refugees in Jordan, and conducted in August 2014 is used for calculation of sample size. To be on the safe side, the upper limit of the confidence interval was chosen for the estimated prevalence of GAM (0.8% [0.3-2.2% 95% CI]).
± Desired Precision	2.0%	The general purpose of this survey is to assess current nutrition situation in children under the age of five years and women of reproductive age and assist in monitoring the effectiveness and coverage of interventions. From a practical point of view, this means the level of precision needed for sample size calculations is high in order to allow valid comparisons between 2014 and 2016. Since the GAM prevalence is lower, a precision of ±2% was chosen.

Parameters for Anthropometry	Value	Assumptions based on context
Design Effect	1.5	As nutrition outcomes are known to generally create relatively low design effects, the choice was made to use a 1.5 design effect to inflate the sample size and compensate the possible heterogeneity between clusters.
Children to be included	**337**	
Average Household Size	3.4	Data were taken from the DAG Team
% of Children Under Five years old	15.1%	Data were taken from the DAG Team
% Non-Response Households	3%	It is expected to have 3% non-response rate which refers to the number of basic sampling units that are not able to be reached due to the following reasons: refusal, accessibility, security reasons, absentees, etc.
Households to be included	**753**	

The number of households to be completed per day (per cluster) was determined according to the time the team could spend on the field taking into consideration travelling time, break times and other procedures like finding location of the selected households. According to the calculated sample size in terms of households to investigate and based on the experience from 2014 (11 households per cluster in Za'atri camp and 10 households per cluster in the host community), the number of households per cluster was 10 for both camps and 9 for out of camp settings.

The total number of clusters was determined based on the number of households per cluster (10 or 9) as well as based on the total number of survey teams (8 teams - same number of working days between the teams). Thus, a total of 48 clusters was calculated (Planned to be surveyed) for both camps, and a total of 88 clusters was calculated (Planned to be surveyed) for the survey on Syrian refugees living in host communities.

Table 4: Sample size calculations for 2016 survey

Parameters for Anthropometry	Za'atri Camp	Azraq Camp	Host communities
Households to be included	471	435	753
Households/ cluster	10	10	9
Number of clusters	48	48	88
Number of days required for data collection (8 teams)	6 days	6 days	11 days

4.3 Sampling Design

This survey was designed as a cross-sectional household survey using a two-stage cluster sampling. Three independent samples were drawn separately for Za'atri and Azraq camps and refugees in the host communities using the cluster sampling methodology.

Za'atri Camp
The Za'atri camp is divided into districts and each district is further divided into blocks. The blocks were used as primary sampling unit and clusters were assigned to blocks. The first stage sample of clusters were drawn from the UNHCR registration database (ProGres) using the block level population estimates as of August 2016. Out of the 191 blocks in the camp, 48 clusters were randomly selected according to the probability proportional to size (PPS) method using the ENA software (ENA for SMART 2011, July 9th 2015). Random selection of the clusters has been done once.

The second stage of sampling consisted of selecting households within each selected cluster/block by using a systematic random selection procedure. A list of all the households living in the selected blocks was created with the help of the International Relief and Development (IRD) community health volunteers in the camp. Then, the survey consultant selected 10 households within the selected blocks by using systematic random sampling method (no segmentation was done). The sampling interval was determined by dividing the total number of households obtained from the volunteers for each selected cluster by 10. The day of the survey, the community health volunteers provided support to the teams by locating the selected blocks and the selected households. Additionally the day prior the survey, the volunteers were able to inform the selected households in order to ensure a high response rate.

Azraq Camp
The Azraq camp is divided into villages and each village is further divided into blocks. The blocks were used as primary sampling unit and clusters were assigned to blocks. The first stage sample of clusters has been drawn from the UNHCR registration database (ProGres) using the block level population estimates as of August 2016. Out of the 66 blocks in the camp, 48 clusters were randomly selected according to the PPS method using the ENA software. Random selection of the clusters has been done once.
The second stage of sampling consisted of selecting households within each selected cluster/block by using a systematic random selection procedure. A list of all the households living in the selected blocks was created with the help of the International Medical Corps (IMC) community health volunteers in the unfenced areas of the camp and with the help of the SCJ community health volunteers in the fenced areas of the camp. Then, the survey consultant selected 10 households within the selected blocks by using systematic random sampling method (no segmentation was done). Like in Za'atri camp, the community health volunteers provided support to the teams by locating the selected households and informed the selected households the day prior the survey.

Host Communities
Jordan is administratively divided into governorates, districts, sub-districts and neighbourhoods. The location of the Syrian refugees, who are living in host communities and are registered with UNHCR, is known and they have registration information up to the neighbourhood level. Nevertheless, the same methodology than in 2014 has been used for this survey, and the sub-district level refugee population estimates obtained from ProGres were used to select clusters. Eighty-eight clusters were randomly selected according to the PPS method using the ENA software. Random selection of the clusters has been done once.
At the second stage of the sampling, in each of the selected clusters, a list of all the refugee households with their identifiers (asylum seeker card numbers and phone numbers) was obtained from ProGres. In each cluster/sub-district, 15 households were randomly selected using simple random sampling. The first 9 randomly selected households were contacted using the phone numbers prior the survey and information on their availability and willingness to participate in the survey was obtained. If the total number of households available for the survey was less than 9, the survey teams contacted the remaining households from the list of 15 to potentially ensure a total of 9 households in each cluster.

Operational Definitions

Household:
In ProGres, a household is defined as members sharing a ration card or an asylum seeker card. If accurate and updated household lists are available from ProGres for sampling, a household should be defined as it appears in ProGres. To complete the individual-based section of the questionnaire (anthropometry, IYCF and child morbidity), only the children and women from the household according to the definition on the ProGres list, i.e. sharing one ration card were selected. To complete the food security section of the questionnaire, all household members who live together and routinely eat out of the same pot were selected.

Respondent:
"A knowledgeable adult or mother/primary caretaker of children in the household"

Special Cases

Absent household
If the household was absent, the survey team asked a neighbor of the residents' whereabouts. If they were expected to return before the survey team leaves the block or the sub-district, the survey team returned to administer the questionnaire on the same day. This household had an ID, even if the survey team was not able to revisit them. The survey team continued the survey by going to the next household according to the selection method described above. This household was not replaced. A household was considered as absent when its members slept there last night and went out for the day of the survey.

Abandoned house
If the household was abandoned, the survey team ignored this household and replaced it with the next household in the household list made by the community health volunteer[5] [6]. A household was considered as abandoned when neighbors (or the community health volunteer) reported that nobody has lived in that household in the past two weeks, or if the inhabitants have been repatriated.

Households without children and/or without women
If it was determined that a selected household does not have children between 0-59 months of age and/or women between 15-49 years, the survey team completed the section on food security. In the cluster control form, the team leader wrote the household's number and a note indicating that no children between the ages of 0 and 59 months and/or no women between the ages of 15 and 49 years belonged to the household.

Homes that cannot be visited
If the residents of the household refused to participate in the survey or could not participate because of important reasons, the team leader wrote down in the cluster control form the household's number and a note explaining that the home could not be visited. This household was not replaced with another one.

Absent children/women
The team leader asked the reason of the children's/women's absence. If the child/woman (or children or women) was close to the home, someone was sent to bring them back. If the child/woman was expected to return before the survey team leaves the block or the sub-district, then the survey team returned before the end of the day to take the measurements. If the child/woman could not be found before the team leaves the area, the child/woman available information (age, sex, etc.) was completed in the questionnaire and a note that the child/woman was absent was recorded in the cluster control form.

Disabled children/women
Disabled children/women have been included in the survey. If a physical deformity prevented the measurement of child's or woman's MUAC, the data were recorded as missing and the remaining data were collected.

4.4 Data collected

The SENS modules that were used for this survey are anthropometry and health, infant and young child feeding, and food security. The questionnaires were adapted to ensure local data collection needs were met. For assessing the morbidity of children under-five years old and their access to essential health services, the MICS5 Child Health questionnaire was used. The questionnaire had six main sections: household section (no individual demographics information included), household food security section, anthropometric section for children from 6 to 59 months of age, anthropometric section for women from 15 to 49 years of age, IYCF section for children from 0 to 23 months of age and child health section for children from 0 to 59 months of age. (See Questionnaire in Annex 2). The final survey questionnaire was translated into Arabic. The survey questionnaire was pre-tested before the survey. Interviews were held in Arabic and information was recorded on Android operated mobile phones (Samsung Galaxy Young and LG 3Gs). The survey questionnaire on the smartphones was available both in English and in Arabic. All supervisors spoke and read English and Arabic.

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[5] SMART. Standardized Monitoring and Assessment of Relief and Transitions. Available at: http://smartmethodology.org/
[6] SENS. Standardised Expanded Nutrition Survey for Refugee Populations. Available at: http://sens.unhcr.org/

Household section and Household food security section (all selected household)

The food security section of the SENS questionnaire was revised to include some additional questions on the use of consumption-based coping strategies, so that the reduced Coping Strategy Index (rCSI) was calculated. The Household Dietary Diversity Score (HDDS) is defined as the number of food groups consumed by any member of the household over a reference time period of 24 hours. To calculate the HDDS, the following set of 12 food groups was used (Guidelines for Measuring Household and Individual Dietary Diversity, FAO, 2011):

1. Cereals
2. White tubers and roots
3. Vegetables (combination of 3 sub-groups: vitamin A rich vegetables and tubers, dark green leafy vegetables and other vegetables)
4. Fruits (combination of 2 sub-groups: vitamin A rich fruits and other fruits)
5. Meat (combination of 2 sub-groups: organ meat and flesh meat)
6. Eggs
7. Fish and other seafood
8. Legumes, nuts and seeds
9. Milk and milk products
10. Oils and fats
11. Sweets
12. Spices, condiments and beverages

Anthropometric section (children from 6 to 59 months of age)

Sex
The child's sex was recorded on the questionnaire as "F" or "M": F = female and M = male.

Age
The date of birth was taken from any relevant document such as proof of registration/ration card, birth certificate, family book or health card, which recorded the name of the child and the date of birth. If the date of birth was unknown, the interviewer used the calendar of local events (See in Annex 3) and the recall of the mother or caregiver was used to estimate the most correct age in months to be recorded.

Weight
Children were weighted using a SECA Uniscale electronic scale with the precision of 100 grams. Children were measured naked following the recommended anthropometric methods, when it was possible to undress them. During the survey, some mothers or caregivers refused to remove the clothes for their children. During the survey training, the team leaders received the instructions to record if the weight of the child was measured with clothes. Smaller children when they were not able to stand on the scale were measured on their caregiver's hand using the mother-to-baby function of the scale.

Clothes
The team leaders recorded if the measurers measured weight with or without clothes
Y = yes, with clothes or diaper (100 grams are automatically removed from the weight result in the ENA software)
N = no, without clothes or with only an underwear (panties)

Height/Length
The children's height/length was measured with a precision of 0.1 cm by using SHORR two pieces height boards. Children were measured lightly dressed with no shoes or braids, hairpieces or barrettes on their head that could interfere with a correct height measurement. Children who were less than 24 months (or 87 cm) height were measured laying down while those 24 months or more (or 87 cm standing height or taller) were measured standing.

Measurement
The team leaders recorded if the measurers measured height or length.
L = length (recumbent length)
H = height (standing height)

Edema
Only bilateral pitting edema are considered as nutritional edema. Their presence was detected by applying a gentle pressure with the thumbs to top part of both feet during three seconds. If the imprint of the thumbs remained on both feet for a few seconds after releasing the thumbs, the child was considered to have nutritional edema. Bilateral edema were diagnosed and not graded. The diagnosis was simply recorded Y for "Yes" or N for "No".

Mid-Upper Arm Circumference (MUAC)
The MUAC was measured in millimeters on the left arm, at midpoint between the shoulder's tip and the elbow, on a relaxed arm.

Enrollment into a nutrition program (TFP/SFP)
The team leader asked the mother/caregiver of the child if he/she was receiving sachets of Plumpy Nut' or Plumpy Sup', by showing her both sachets. If the child was receiving the Plumpy Nut' sachets, he/she was enrolled in a therapeutic feeding programme (TFP); if he/she was receiving the Plumpy Sup', he/she was enrolled in a supplementary feeding programme (SFP). Some mothers/caregivers were receiving nutrition education session on breastfeeding or child feeding for better care of malnutrition, because their children refused to eat the Plumpy Nut' or Plumpy Sup' sachets. Those children were considered as enrolled in the nutrition programs.

Anthropometric survey (women from 15 to 49 years of age)

Age
The age was verified with an official document (if possible) and recorded in years on the questionnaire.

Mid-Upper Arm Circumference (MUAC)
The MUAC was measured in millimeters on the left arm, at midpoint between the shoulder's tip and the elbow, on a relaxed arm.

Pregnant and Lactating Status
The team leader asked all women if they were pregnant and/or lactating. If the woman was pregnant, the team leader asked two additional questions about her enrollment in an antenatal care programme and consumption of iron-folic-acid pills.
Enrollment in an ANC programme - Iron and folic acid supplementation
If the woman was pregnant, the team leader asked two additional questions about her enrollment in an antenatal care programme and consumption of iron-folic-acid pills.

Infant and Young Child Feeding practices (IYCF) (children from 0 to 23 months of age)
Several questions on breastfeeding practices and on complementary feeding practices were asked to the mothers/caregivers of children from 0 to 23 months of age.

Morbidity, access to key health services and use of improved hygiene facilities (children from 0 to 59 months of age)
Several questions on occurrence of diarrhea and cough in the last two weeks prior the survey, treatment taken, place for advices/treatment, etc. and about use of improved hygiene facilities were asked to the mothers/caregivers of children from 0 to 59 months of age.

4.5   Survey Personnel

The survey was implemented by Save the Children Jordan in collaboration with UNHCR, UNICEF and WFP. The survey was under the overall supervision of a Technical Committee. The Technical Committee was in charge of managing, coordinating and monitoring the key steps of the survey and was composed of representatives of the following organizations: Jordanian Ministry of Health, UNHCR, UNICEF, WFP, Save the Children Jordan, Medair, IMC and JHAS. As part of the implementation of this Inter-Agency Nutrition Survey, UNHCR recruited a Nutrition survey consultant to provide technical assistance for the implementation of the survey. Technical support was also provided by CartONG for the mobile data collection with the Android operated mobile phones

as well as by CDC and ACF-Canada for the mobile data collection, inclusion of data quality checks in the phones and supervision.

The survey needed 8 teams and 4 supervisors (1 for 2 teams). Each team was composed of 1 team leader, 1 enumerator and 2 measurers. The team leader was responsible for the anthropometric sections (children and women), the IYCF section and the child health section. The enumerator was responsible for the household section and the food security household section. The measurers took anthropometric measurements. The list of all persons involved in the 2016 Inter-Agency Nutrition Survey is presented in Annex 4.

4.6   Training

The survey training took place from Sunday 28th of August to Thursday 1st of September (5 days), at the Ayass Hotel in Amman, Jordan, bringing together some nutritionists and former students in nutrition, selected by Save the Children Jordan (SCJ) before the survey training. SCJ selected 34 participants for the survey training.

The purpose of this training was to train the participants on the Inter-Agency Nutrition Survey methodology and on the different tools that were used during data collection, including use of Android operated mobile phones for data collection.

The survey training was done by the nutrition survey consultant in collaboration with SJC, UNICEF, UNHCR and CartONG.

The training included the following:
-   An overview of the survey and its objectives;
-   Interviewing and general communication skills;
-   Random selection of households;
-   Identification of individuals to measure or interview;
-   How to complete the questionnaires (anthropometry, IYCF, food security and child health);
-   Correct age in months estimation or validation using the calendar of local events;
-   How to make correct anthropometric measurements;
-   The standardization of anthropometric measures: Each measurer measured 10 children less than five years of age twice (height, weight and MUAC). The results of the standardization test by interviewer were produced immediately to determine if further training and standardization is needed;
-   The identification of bilateral edema and how to refer children or pregnant and lactating women with acute malnutrition to the nearest health center;
-   The use of Android operated mobile phones for data collection with ODK application.

Standardization of the anthropometric tools
Before testing the enumerators for accuracy and precision of measurements, all anthropometric equipment were tested to ensure that each tool produce the same measure of a standard object (standard weight, wooden stick and plastic pipe). The scales or height boards that did not produce exact measures were marked and eliminated before the standardization test and data collection.
Every day, before the start of fieldwork, the measurers were responsible to review their anthropometric equipment for damage and to measure the standard objects to ensure that the tools were still in good working order. Results were recorded daily on the standardization of anthropometric tools form.

Standardization of the enumerators
The standardization of anthropometry measurers was conducted on the 31st of August in two sessions (16 enumerators per session). Enumerators with good skills of measurement were assigned as a measurer within a team.
Conducting a standardization test for anthropometric measures is a fundamental step in the training of interviewers for an anthropometric survey. It allows for judging objectively the precision and accuracy of the measurements made by the enumerators.

Pilot test
The survey tools were tested on the 1st of September in Za'atri camp. Two blocks (block 2 and block 3) in District 10 were selected for the pilot test (blocks not included in the survey sample). Four teams were assigned to one block, in different households lines. The enumerators were divided into teams. Each team selected 5 households to investigate among households in the block. This process allowed to ensure that the methodology was well understood and the survey equipment was used appropriately, but also to complete the training of enumerators.

Final selection of the enumerators
At the end of the survey training, among the 34 potential enumerators, 32 were retained for data collection. Selection was done based on the results of the standardization test and the pre- and post-test assessments. 8 survey teams were devised to do data collection. At least one team member was a male in each team.

4.7 Implementation of Fieldwork

Fieldwork plan
Fieldwork began with 8 teams in Za'atri camp for 6 days (from Saturday 3rd to Thursday 8th of September). After Za'atri camp, the survey teams went to Azraq camp for 6 days (from Saturday 17th to Saturday 24th). The third survey in urban host communities was carried out from Sunday 25th of September to Saturday 8th of October. The survey teams completed one cluster per day.

Supervision
The enumerators for the survey were assessed before the launch of the survey and continually throughout the data collection. Supervision of fieldwork was conducted by 4 supervisors (1 for 2 teams). The supervisors were from UNHCR, Save the Children Jordan, UNICEF (Za'atri camp and Ruwayshid only), CDC (Azraq camp and urban host communities only) and ACF-Canada (urban host communities only). The team leader was responsible of the quality for his/her team. The supervisor was responsible for the quality of the work for two teams. Each evening, after the end of data collection, the nutrition survey consultant verified the data quality of the anthropometric measurements using the SMART plausibility check.
The Technical Committee from the Jordanian Ministry of Health came for a supervision visit in Za'atri camp on the 6th of September.

4.8 Data entry and Data Analysis

Data entry and data checks
Data was collected using mobile phones operated by the Android operating system (Samsung Galaxy Young and LG 3Gs) and the ODK application. During supervision in the field and at the end of each day, the nutrition survey consultant manually checked the phone questionnaires for completeness, consistency and accuracy. This check was also used to provide feedback to the teams to improve data collection as the surveys progressed. Data was downloaded and analyzed on a daily basis with the ENA software (ENA for SMART 2011, July 9th 2015). The SMART plausibility report was generated daily in order to identify any problems with anthropometric data collection such as flags and digit preference for age, height and weight, to improve the quality of the anthropometric data collected as the survey was on-going.

All data files were cleaned before analysis. Anthropometric data for children 6-59 months was cleaned and analysed using ENA for SMART software. The nutritional indices were cleaned using flexible cleaning criterion (+/- 3 SD from the observed mean; also known as SMART flags in the ENA for SMART software).

Analysis plan
The nutrition results are presented in the standard format following the report template from the ENA software (ENA for SMART 2011, July 9th 2015). This format includes GAM, SAM, Stunting, Underweight and Overweight with 95% confidence intervals. The report has estimates of malnutrition calculated with the WHO 2006 growth references. All other data were analyzed in STATA (version 11.1). The data quality reports for anthropometric measurements for children from 6 to 59 months are included in the annexes of the final report (Annex 5).

Nutritional Anthropometric Indicators
The following cut-offs were used to determine the prevalence of acute malnutrition, stunting and underweight (Z-scores) using the WHO 2006 growth references.

Table 5: Cut-offs for definition of acute malnutrition, stunting and underweight

Classification	Acute Malnutrition or Wasting (WHZ)	Chronic Malnutrition or Stunting (HAZ)	Underweight (WAZ)
Global	<-2SD &/or bilateral edema	<-2 SD	<-2 SD
Moderate	≥-3 SD & <-2 SD	≥-3 SD & <-2 SD	≥-3 SD & <-2 SD
Severe	<-3 SD &/or bilateral edema	<-3 SD	<-3 SD

Table 6: Cut-offs for definition of acute malnutrition based on MUAC[7]

Target	Classification	MUAC Cut-offs
Children 6-59 months	MAM	<126 mm
	SAM	<115 mm
Women 15-49 years	GAM	<230 mm

4.9   Ethical Considerations

This survey carried no risk for participating respondents. Privacy of respondents of the survey was not put in public. To ensure privacy and confidentiality all interviews were undertaken in a convenient place where other people were not able to listen or follow the proceedings. All respondents were informed about the nature of the survey, rights to terminate interview at any time, refusal to answer to any question that they deem sensitive, the data collection procedures and confidentiality. A consent statement was read by the team leader prior to the interview and the respondent was required to give a verbal consent before the beginning of the interview. Questionnaires were given unique identification number and confidentiality was observed for the names of the respondents. The names of the respondents were not used in the report and any communication emanating from the survey.

Results of weight, height and Mid Upper Arm Circumference (MUAC) measurements were verbally communicated to the mother/caregivers of the children. All children, all pregnant women in the second or the third trimester of pregnancy and all lactating women with a child under six months of age, with signs of acute malnutrition, were given referral form to go to the nearest health facility for immediate management of their situation. The team leader filled out two copies of the referral form (one for the mother/caregiver/PLW and one for the supervision team).

5. Results

5.1   Household Characteristics

Table 7: Proportion of men and women headed households in the surveyed populations

	Za'atri Camp (N=441)		Azraq Camp (N=436)		Host communities (N=756)	
	n	%	n	%	n	%
Father	337	76.4%	325	74.5%	487	64.4%
Mother	84	19.1%	95	21.8%	200	26.5%
Grandfather	3	0.7%	4	0.9%	10	1.3%
Grandmother	9	2.0%	3	0.7%	11	1.5%
Other	8	1.8%	9	2.1%	48	6.3%

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[7] Source: Jordan Inpatient and Outpatient Management of Acute Malnutrition Protocol

Table 7 above shows that the majority of the households are headed by a male, although around one household out of five is headed by a female in both camps, and around one household out of three is headed by a female in host communities.

Table 8: Duration of stay in Jordan as refugees

	Za'atri Camp (N=441)		Azraq Camp (N=436)		Host communities (N=755)	
	n	%	N	%	n	%
≤ 1 month	0	0.0%	0	0.0%	0	0.0%
1-3 months	0	0.0%	12	2.8%	0	0.0%
4-6 months	0	0.0%	222	50.9%	1	0.1%
7-12 months	0	0.0%	62	14.2%	5	0.7%
13-24 months	1	0.2%	40	9.2%	15	2.0%
≥ 2 years	364	82.5%	92	21.1%	474	62.8%
≥ 4 years	76	17.3%	8	1.8%	260	34.4%

According to Table 8, the majority of refugees in Za'atri camp (82.5%) and in host communities (62.8%) have been living as refugees in Jordan for more than 2 years. More than half of refugees in Azraq camp (50.9%) have been living in Jordan as refugees for less than 6 months.

Table 9: Proportion of households hosted by a Jordanian household, sharing an accommodation with another refugee household from Syria and average number of refugee households living in the same accommodation

Indicator	Za'atri Camp (N=440)		Azraq Camp (N=436)		Host communities (N=757)	
	n	% [95% CI]	n	% [95% CI]	n	% [95% CI]
Proportion of households hosted by a Jordanian household	n/a	n/a	n/a	n/a	63	8.3% [5.5-11.1]
Proportion of households sharing an accommodation with another refugee household from Syria	131	29.8% [24.1-35.5]	58	13.3% [9.9-16.7]	356	47.0% [42.7-51.4]
Indicator	Za'atri Camp		Azraq Camp		Host communities	
	n	Mean [95% CI]	n	Mean [95% CI]	n	Mean [95% CI]
Average number of refugee households living in the same accommodation	131	2.4 [2.3-2.5]	58	2.4 [2.1-2.7]	356	2.5 [2.4-2.6]

Table 9 shows that, of the Syrian refugees who are residing in host communities, 8.3% of them are hosted by a Jordanian household. Approximately one third of the households (29.8%) in Za'atri camp, and half of the households in host communities (47.0%) are sharing an accommodation with another refugee household from Syria. Of those living in shared accommodation, on average, about 2 households are sharing the same accommodation.

Table 10: Main source of cash/income that is sustaining the refugee household

	Za'atri Camp (N=440)		Azraq Camp (N=436)		Host communities (N=757)	
	n	%	n	%	n	%
Unskilled labour (casual labour, salaried work, provision of services)	81	18.4%	30	6.9%	264	34.9%
Skilled labour/work	4	0.9%	9	2.1%	24	3.2%
Formal commerce	0	0.0%	0	0.0%	6	0.8%
Informal commerce	8	1.8%	0	0.0%	7	0.9%
Sale of crops (agriculture)	0	0.0%	0	0.0%	3	0.4%
Sale of livestock and animal produce	0	0.0%	0	0.0%	2	0.3%

	Za'atri Camp (N=440)		Azraq Camp (N=436)		Host communities (N=757)	
	n	%	n	%	n	%
Agriculture waged labour	0	0.0%	0	0.0%	1	0.1%
Sale of assets (car, bicycle, TV, etc.)	2	0.5%	0	0.0%	2	0.2%
Remittances	1	0.2%	0	0.0%	4	0.5%
Savings	0	0.0%	0	0.0%	1	0.1%
Gifts from family/relatives	10	2.3%	12	2.7%	65	8.6%
Cash from humanitarian / charitable organizations	2	0.5%	0	0.0%	158	20.9%
In-kind assistance from humanitarian / charitable organizations	1	0.2%	0	0.0%	30	4.0%
Food vouchers	330	75.0%	385	88.3%	183	24.2%
Begging	0	0.0%	0	0.0%	3	0.4%
Other	1	0.2%	0	0.0%	4	0.5%

Table 10 indicates that for Za'atri and Azraq camps the main source of income comes from the WFP's food vouchers, followed by unskilled labour and money from family or relatives. This indicates that majority of the refugees are reliant on food vouchers as they have limited livelihood options as refugees. The main source of income for Syrian refugees living in host communities comes from unskilled labour followed by the Monthly Financial Assistance (MFA) from UNHCR (cash from humanitarian organization) and money from family or relatives.

5.2 Food Security

Table 11: Proportion of households with a ration card or asylum seeker card

Indicator	Za'atri Camp (N=441)		Azraq Camp (N=436)		Host communities (N=757)	
	n	% [95% CI]	n	% [95% CI]	n	% [95% CI]
Proportion of households with a ration card or asylum seeker card	440	99.8% [99.3-100.0]	436	100%	757	100%
Proportion of households who are receiving food voucher from WFP	440	99.8% [99.3-100.0]	436	100%	685	90.5% [88.0-93.0]

Table 11 shows that the coverage of UNHCR registration cards, which is required to receive food assistance, is nearly 100% among Syrian refugees living in Za'atri camp. Only one household did not have a ration card. This household was not registered but eligible. The same proportion of household (99.8%) was receiving food vouchers from WFP. In Azraq camp, 100% of the surveyed households had a ration card and were receiving food vouchers from WFP. In host communities, 90.5% of the surveyed households were receiving food vouchers from WFP.

Table 12: Value of the food vouchers from WFP

Indicator	Za'atri Camp (N=440)		Azraq Camp (N=435)		Host communities (N=679)	
	n	% [95% CI]	n	% [95% CI]	N	% [95% CI]
20 JOD/person/month	440	100%	425	97.7% [95.1-100.0]	378	55.7% [51.2-60.1]
10 JOD/person/month	0	0.0%	10	2.3% [0.0-4.9]	301	44.3% [39.9-48.8]

Table 13: Average number of days the food voucher lasts

Indicator	Za'atri Camp (N=439)		Azraq Camp (N=436)		Host communities (N=676)	
	n	Mean [95% CI]	n	Mean [95% CI]	n	Mean [95% CI]
Average number of days the food voucher lasts (out of one month – August 2016)	438	16.7 [16.1-17.2]	435	19.7 [18.8-20.6]	676	16.7 [16.2-17.3]

On average, the households were able to purchase food with the vouchers from WFP, and distributed for a theoretical duration of one month (August 2016), only during 16.7 days in Za'atri camp and for refugees in host communities, and during 19.7 days in Azraq camp (Table 13). The average duration in relation to the theoretical duration of the ration is consequently low with 53.9% in Za'atri camp and in host communities, and 63.5% in Azraq camp.

Table 14: Main source of food from the time the household arrived as a refugee

	Za'atri Camp (N=441)		Azraq Camp (N=436)		Host communities (N=757)	
	n	%	n	%	n	%
Purchase from personal resources	52	11.8%	15	3.4%	254	33.6%
Purchase with cash given by charity	10	2.3%	0	0.0%	30	4.0%
Purchase at credit, borrowed	7	1.6%	0	0.0%	7	0.9%
Received as gift from charity	3	0.7%	0	0.0%	1	0.1%
Shared with hosts	6	1.4%	3	0.7%	33	4.4%
Humanitarian food aid	362	82.1%	418	95.9%	424	56.0%
Bartered against other goods	1	0.2%	0	0.0%	0	0.0%
Other	0	0.0%	0	0.0%	8	1.0%

As shown in Table 14 above, the main sources of food are similar in both camps and in host communities even though the proportion differs between each population slightly. In general, humanitarian food aid (i.e. WFP food vouchers) forms the main source of food for the refugees in both camps and in host communities. WFP food assistance is followed by the purchase of food from personal resources. Food assistance has been reported as the main source of food for approximately 8 households out of 10 in Za'atri, and for more than 9 households out of 10 in Azraq.

Table 15: Reduced Coping Strategy Index (RCSI)

	Za'atri Camp (N=441)	Azraq Camp (N=436)	Host communities (N=757)
Reduced CSI (/56)	12.2	9.6	11.9

RCSI is based on a list of behaviors (coping strategies) which are not adopted in a normal day-to day life, to cope with reduced or declining access to food. The higher the figure, the more frequent and severe coping strategies are being adopted by refugees. As shown in Table 15, the RCSI in the camps and for refugees in host communities ranged from 9.6 in Azraq camp to 12.2 in Za'atri camp. This indicates that the frequency and severity of coping strategies used are quite similar between camps and community settings and shows that many refugees are adopting coping strategies (such as purchase less preferred or less expensive food, limitation of the portion size at mealtime, and borrow food or relied on help from relatives or friends).

Table 16: Proportion of households that use livelihood based strategies

Coping strategy employed in the past month to meet basic food and other needs	Survey Area	Yes	No	No, because this strategy has been exhausted
		% [95% CI]	% [95% CI]	% [95% CI]
Use of savings	Za'atri (N=441)	37.2% [31.9-42.5]	36.5% [31.1-41.9]	26.3% [21.1-31.5]

Coping strategy employed in the past month to meet basic food and other needs	Survey Area	Yes % [95% CI]	No % [95% CI]	No, because this strategy has been exhausted % [95% CI]
Purchase of food on creditor borrowing money to purchase food		65.6% [60.1-71.0]	28.3% [22.9-33.7]	6.1% [3.2-9.1]
Reduction of the essential non-food expenditures such as education/health		33.6% [25.9-41.2]	62.3% [54.4-70.3]	4.1% [1.7-6.5]
Sale of household goods (jewelry, phone, furniture, electro domestics, etc.)		17.7% [13.9-21.5]	51.5% [44.9-58.0]	30.8% [25.0-36.6]
Sale of productive assets or means of transport (sewing machine, wheelbarrow, bicycle, car, motorbike, etc.)		3.2% [1.3-5.0]	90.9% [87.7-94.1]	5.9% [3.2-8.6]
Use of savings	Azraq (N=436)	48.4% [42.1-54.7]	29.6% [23.8-35.3]	22.0% [17.1-26.9]
Purchase of food on creditor borrowing money to purchase food		48.6% [42.3-54.9]	43.8% [37.3-50.4]	7.6% [4.5-10.7]
Reduction of the essential non-food expenditures such as education/health		17.4% [11.4-23.4]	81.5% [75.3-87.5]	1.1% [0.2-2.1]
Sale of household goods (jewelry, phone, furniture, electro domestics, etc.)		11.7% [7.8-15.6]	75.5% [70.4-80.5]	12.8% [8.8-16.9]
Sale of productive assets or means of transport (sewing machine, wheelbarrow, bicycle, car, motorbike, etc.)		1.4% [0.0-2.8]	97.5% [95.8-99.1]	1.1% [0.2-2.1]
Use of savings	Host Communities (N=757)	28.8% [24.7-32.9]	45.7% [41.5-49.9]	25.5% [20.9-30.0]
Purchase of food on creditor borrowing money to purchase food		58.9% [55.1-62.8]	31.8% [28.3-35.4]	9.3% [6.6-11.9]
Reduction of the essential non-food expenditures such as education/health		46.5% [41.3-51.7]	49.5% [44.4-54.7]	4.0% [2.7-5.2]
Sale of household goods (jewelry, phone, furniture, electro domestics, etc.)		15.2% [11.9-18.5]	52.3% [48.0-56.6]	32.5% [28.4-36.6]
Sale of productive assets or means of transport (sewing machine, wheelbarrow, bicycle, car, motorbike, etc.)		0.9% [0.3-1.6]	97.2% [96.2-98.3]	1.9% [0.9-2.8]

Different livelihood based coping mechanisms employed by refugees to meet their basic food and other needs in the camp and in host communities are described in Table 16. The main coping mechanism employed by the refugee population, both in camps and in host communities, is the purchase of food on credit or borrowing money to purchase food. For the majority of the Syrians living in host communities the second most frequently used coping mechanism is the reduction in the essential non-food expenditures such as education/health (46.5%). While refugees in the camps use savings as their second major coping mechanism (37.2% in Za'atri camp and 48.4% in Azraq camp).

Table 17: Average Household Dietary Diversity Score (HDDS)

Indicator	Za'atri Camp (N=441)		Azraq Camp (N=436)		Host communities (N=757)	
	n	Mean [95% CI]	n	Mean [95% CI]	n	Mean [95% CI]
Average HDDS	441	7.9 [7.7-8.0]	436	7.8 [7.7-8.0]	757	7.9 [7.7-8.0]

Table 17 below shows the average Household Dietary Diversity Score (HDDS) for the Syrian refugees asking which food groups were consumed in the past 24 hours. The average HDDS ranged from 7.8 to 7.9 groups for the 3 surveys.
Figure 1 shows that the most common consumed foods are cereals, spices, condiment and beverages, oils and fats, sweetened food, then vegetables. Nevertheless, the consumption of vitamin A rich vegetables was below 20% in both camps and consumption of vitamin A fruit was below 3%.

Figure 1: Proportion of households consuming different food groups within the last 24 hours in Za'atri camp, in Azraq camp and in host communities
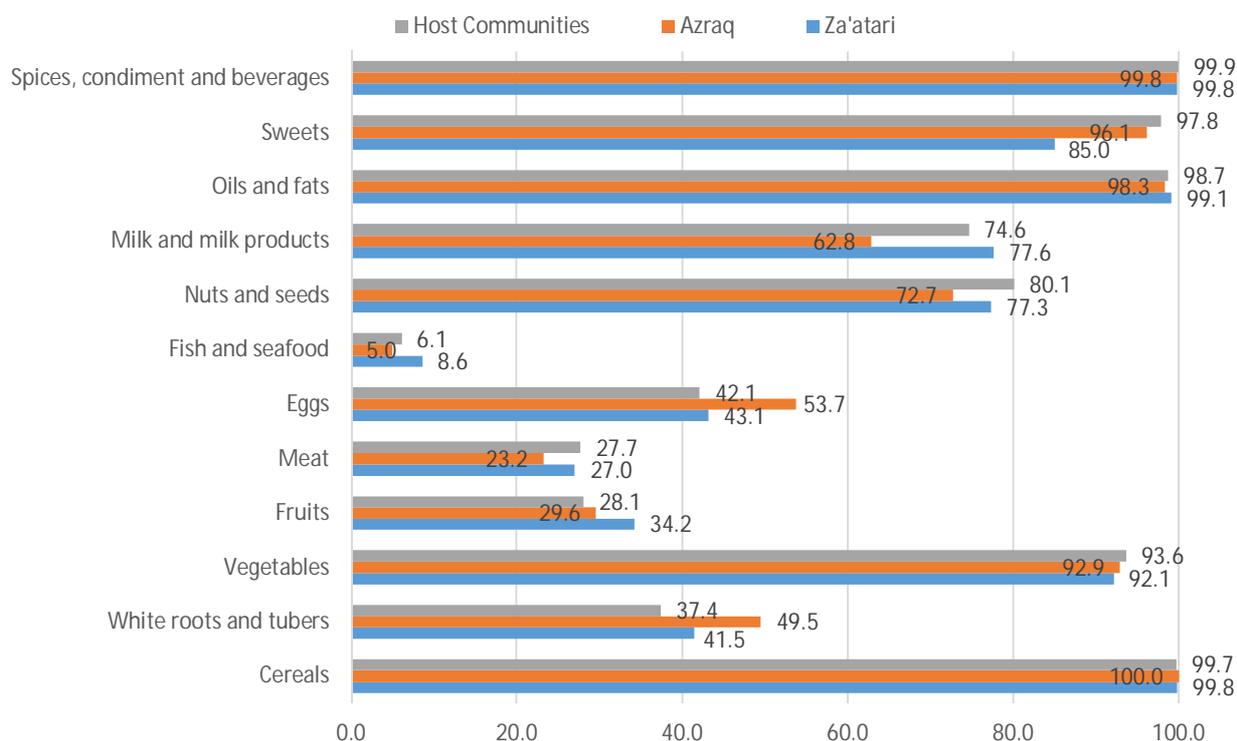
Table 18 shows the consumption of micronutrient rich foods by household. Approximately 9 households out of 10 were consuming either a plant or animal source of vitamin A in the 24 hours preceding the survey, but less than 1 household out of 3 was consuming a food source of heme iron.

Table 18: Consumption of micronutrient rich foods by households

Indicator	Za'atri Camp (N=441)		Azraq Camp (N=436)		Host communities (N=757)	
	n	% [95% CI]	n	% [95% CI]	n	% [95% CI]
Proportion of households not consuming any vegetables, fruits, meat, eggs, fish/seafood, and milk/milk products	2	0.5% [0.0-1.1]	11	2.5% [1.0-4.0]	7	0.9% [0.2-1.7]
Proportion of households consuming either a plant or animal source of vitamin A	393	89.1% [86.2-92.0]	374	85.8% [82.2-89.4]	681	90.0% [87.7-92.2]
Proportion of households consuming organ meat/flesh meat, or fish/seafood (food source of heme iron)	145	32.9% [27.6-38.1]	115	26.4% [21.9-30.9]	240	31.7% [27.9-35.5]

5.3   Children Nutritional Status (6-59 months)

Description of sample

All selected clusters were included in the survey. The non-response rate (absent households, refusal) ranged from 4.4% in host communities to 9.2% in Azraq camp (Table 19). There is no evidence of selection bias regarding the representativeness of the sample.

Table 19: Number and percentage of surveyed clusters, surveyed households (HH) and assessed children as compared to number of planned clusters, planned households and number of children calculated, by survey area

Survey Area	Number of cluster planned	Number of cluster surveyed	Number of HH calculated	Number of HH planned	Number of HH surveyed	% Non-Response HH	Number of children 6-59 calculated	Number of children 6-59 assessed
Za'atri	48	48	471	480	441	8.1%	320	378
Azraq	48	48	435	480	436	9.2%	320	422
Host Communities	88	88	753	792	757	4.4%	337	493

Boys and girls were represented in the same proportion in the samples for Azraq camp and in host communities with a sex ratio at 1.0. In Za'atri camp, the sex ratio of 1.2 means that there are more boys than girls in the sample, but this result is still acceptable according to SMART standards[8].

Table 20: Distribution of children by sex and sex-ratio by survey area

Survey Area	N	Boys	Girls	Ratio: Boys /Girls
Za'atri	378	208	170	1.2
Azraq	422	215	207	1.0
Host Communities	493	252	241	1.0

The Table 21 presents the distribution by age group of the sample of children from 6 to 59 months assessed in anthropometry part of the survey. In Za'atri camp, the 30-59 months age group is slightly less represented than the 6-29 months age group with an age-ratio at 1.03 instead of 0.85. In the sample for Za'atri camp, there are more younger children than older ones.

Table 21: Distribution of children by age group and age ratio by survey area

Survey Area	Age group	N	Ratio: 6-29 /30-59
Za'atri	6-29 months	192	1.03
	30-59 months	186	
Azraq	6-29 months	190	0.82
	30-59 months	232	
Host Communities	6-29 months	233	0.90
	30-59 months	260	

Review of data quality

In Za'atri camp and in host communities, nearly 100% of the children were found to have an age calculated from an exact day, month and year of birth. In Azraq camp, 87% of the children had a recorded date of birth. These findings highlight the excellent quality of age data.

Table 22: Proportion of children with an exact date of birth by survey area

Survey Area	Percentage of exact date of birth
Za'atri	97%
Azraq	87%
Host Communities	99%

The data quality reports (plausibility check reports), for the 3 surveys, are included in the annexes of the report (Annex 3). The data quality review was done after deleting the SMART flags from the anthropometric data. The plausibility check reports, for the 3 surveys, highlighted the "Excellent" quality of the anthropometric data, both in terms of sample representativeness and quality of anthropometric measurements. There were no significant digit preferences for weight, height and MUAC measures.

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[8] UNHCR SENS Guidelines 2013, SENS Anthropometry and health module (www.sens.unhcr.org), page 77

The Table 23 shows the overall data quality score by survey area. Data quality was "Excellent" in all survey areas, as per SMART standards.

Table 23: Overall data quality score by survey area

Survey Area	Missing and flagged data	Overall Sex Ratio	Overall Age Distrib	DPS Weight	DPS Height	DPS MUAC	SD WHZ	Skewness WHZ	Kurtosis WHZ	Poisson Dist.	Overall Data Quality Score
Za'atri											7%
Azraq											3%
Host communities											2%

Excellent (Overall data quality score 0-9)
Good (Overall data quality score 10-14)
Acceptable (Overall data quality score 15-24)
Problematic (Overall score data quality score >25)

Children with missing data for weight, height, edema or MUAC were automatically excluded from the analysis by the ENA software for their respective estimation of prevalence.

The standard deviation for the distribution of Weight-for Height z-score (WHZ), Height-for-Age z-score (HAZ) and Weight-for-Age z-score (WAZ) was within the acceptable range of standard deviation from good quality data (0.8-1.2), for the three surveys (Table 24).

Table 24: Mean z-scores, Design Effects and excluded subjects following SMART flags application by survey area (WHO 2006 Growth References)

	Indicator	Total	Mean z-scores ± SD	Design Effect (z-score < -2)	z-scores not available	z-scores out of range
1	**Za'atri**					
	Weight-for-Height	377	-0.11 ± 0.92	1.01	0	1
	Height-for-Age	373	-0.75 ± 1.06	1.12	0	5
	Weight-for-Age	377	-0.48 ± 0.93	1.00	0	1
2	**Azraq**					
	Weight-for-Height	418	-0.07 ± 0.92	1.26	4	0
	Height-for-Age	411	-1.11 ± 1.06	1.00	4	7
	Weight-for-Age	419	-0.67 ± 0.97	1.02	2	1
3	**Host communities**					
	Weight-for-Height	487	-0.07 ± 0.95	0.95	4	2
	Height-for-Age	484	-0.51 ± 1.00	1.00	4	5
	Weight-for-Age	488	-0.32 ± 0.97	0.97	3	2

Anthropometry Results

The results presented in this report applied the WHO growth reference standards of 2006. The estimates of malnutrition are presented for children from 6-59 months of age.

As recommended by the SMART Methodology, SMART flags (exclusion of z-scores from observed mean) were used for analysis to exclude extreme values that were likely resulted from incorrect anthropometric measurements or incorrect estimation of age (-3 z-scores/+3 z-scores for WHZ, HAZ and WAZ in all survey areas).

Prevalence of Global Acute Malnutrition (GAM)

Figure 2: Weight-for-Height z-score (WHO 2006) - Za'atri camp, Azraq camp and Host communities
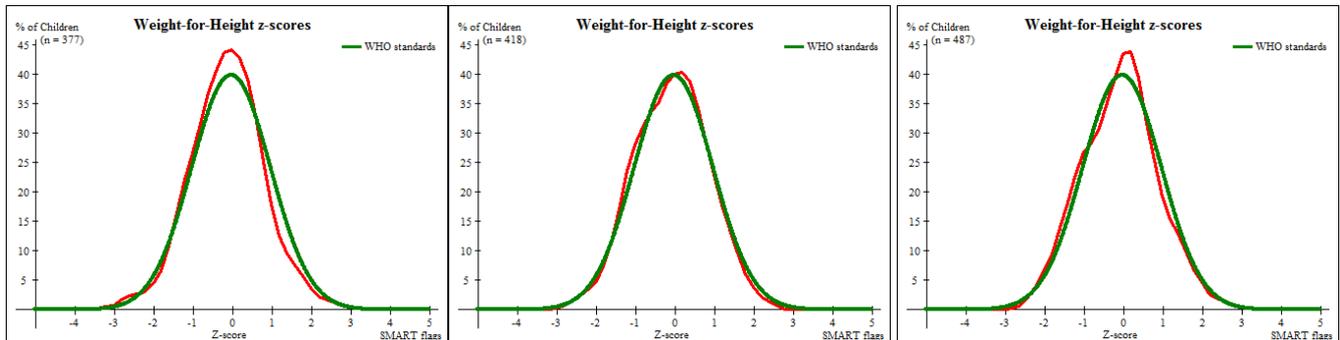
Figure 2 shows that the distribution of Weight-for-Height follows very closely to the WHO standard normal distribution of reference population for the three surveys. The mean WHZ is ranging from -0.07 in Azraq camp and in host communities to -0.11 in Za'atri camp. The standard deviation (SD) of 0.92 in the camps and of 0.95 in host communities indicates the good quality of weight and height measurements during data collection.

Table 25: Prevalence of Global, Moderate and Severe Acute Malnutrition (Weight-for-Height Z-score and edema) in children 0 to 59 months of age by survey area (WHO 2006)

Survey Area	N	Global Acute Malnutrition (WHZ <-2 and/or edema)								Moderate Acute Malnutrition (WHZ <-2 and >=-3)		Severe Acute Malnutrition (WHZ <-3 and/or edema)	
		All		Boys		Girls				All		All	
		n	% [95% CI]	n	% [95% CI]	n	% [95% CI]			n	% [95% CI]	n	% [95% CI]
Za'atri	377	10	2.7% [1.4-5.0]	7	3.4% [1.5-7.3]	3	1.8% [0.6-5.4]			9	2.4% [1.3-4.3]	1	0.3% [0.0-2.0]
Azraq	418	8	1.9% [0.9-4.2]	3	1.4% [0.5-4.2]	5	2.4% [0.9-6.4]			8	1.9% [0.9-4.2]	0	0.0%
Host communities	487	9	1.8% [1.0-3.4]	5	2.0% [0.8-4.7]	4	1.7% [0.6-4.3]			9	1.8% [1.0-3.4]	0	0.0%

No case of bilateral pitting edema was found in the three surveys. There is no statistical significant differences between boys and girls regarding the prevalence of GAM.

Tables 26, 27 and 28 show that the GAM rates are slightly higher among children under two years of age compared to children above two years of age. The GAM rate in Za'atri camp, and more particularly for the 12-23 months age group, could be a little bit overestimated due to the fact that the sample was composed of more younger children than older ones.

Table 26: Prevalence of Global, Moderate and Severe Acute Malnutrition (Weight-for-Height Z-score and edema) in children 6 to 59 months of age by age group, in Za'atri camp (WHO 2006)

Age group	N	Global Acute Malnutrition (WHZ <-2 and/or edema)		Moderate Acute Malnutrition (WHZ <-2 and >=-3)		Severe Acute Malnutrition (WHZ <-3 and/or edema)	
		n	%	n	%	n	%
6-11 months	47	1	2.1%	1	2.1%	0	0.0%
12-23 months	99	6	6.1%	6	6.1%	0	0.0%
24-35 months	80	1	1.3%	0	0.0%	1	1.3%
36-47 months	79	0	0.0%	0	0.0%	0	0.0%
48-59 months	72	2	2.8%	2	2.8%	0	0.0%

Table 27: Prevalence of Global, Moderate and Severe Acute Malnutrition (Weight-for-Height Z-score and edema) in children 6 to 59 months of age by age group, in Azraq camp (WHO 2006)

Age group	N	Global Acute Malnutrition (WHZ <-2 and/or edema)		Moderate Acute Malnutrition (WHZ <-2 and >=-3)		Severe Acute Malnutrition (WHZ <-3 and/or edema)	
		n	%	n	%	n	%
6-11 months	47	2	4.3%	2	4.3%	0	0.0%
12-23 months	100	4	4.0%	4	4.0%	0	0.0%
24-35 months	92	1	1.1%	1	1.1%	0	0.0%
36-47 months	89	1	1.1%	1	1.1%	0	0.0%
48-59 months	90	0	0.0%	0	0.0%	0	0.0%

Table 28: Prevalence of Global, Moderate and Severe Acute Malnutrition (Weight-for-Height Z-score and edema) in children 6 to 59 months of age by age group, in Host communities (WHO 2006)

Age group	N	Global Acute Malnutrition (WHZ <-2 and/or edema)		Moderate Acute Malnutrition (WHZ <-2 and >=-3)		Severe Acute Malnutrition (WHZ <-3 and/or edema)	
		n	%	n	%	n	%
6-11 months	48	1	2.1%	1	2.1%	0	0.0%
12-23 months	128	2	1.6%	2	1.6%	0	0.0%
24-35 months	111	1	0.9%	1	0.9%	0	0.0%
36-47 months	99	3	3.0%	3	3.0%	0	0.0%
48-59 months	101	2	2.0%	2	2.0%	0	0.0%

Table 29: Prevalence of Global, Moderate and Severe Acute Malnutrition (MUAC cut-offs and edema) in children 0 to 59 months of age by survey area (WHO 2006)

Survey Area	N	Global Acute Malnutrition (MUAC <126 and/or edema)						Moderate Acute Malnutrition (MUAC <126 and >=115)		Severe Acute Malnutrition (MUAC <115 and/or edema)	
		All		Boys		Girls		All		All	
		n	% [95% CI]	n	% [95% CI]	n	% [95% CI]	n	% [95% CI]	n	% [95% CI]
Za'atri	376	3	0.8% [0.3-2.4]	0	0.0%	3	1.8% [0.6-5.4]	3	0.8% [0.3-2.4]	0	0.0%
Azraq	418	6	1.4% [0.7-3.0]	3	1.4% [0.5-4.2]	3	1.4% [0.5-4.3]	6	1.4% [0.7-3.0]	0	0.0%
Host communities	488	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%

Table 29 shows that the prevalence of acute malnutrition based on MUAC is also low for refugees living in both the camps and in host communities. There is no SAM in the three surveys and the prevalence of GAM by MUAC is 0.0% for children living in host communities.

Children enrolment in Supplementary Feeding Programme (SFP) and in Therapeutic Feeding Programme (TFP) (6-59 months)

MUAC is being used for screening and admission to TFP and SFP. Feeding programme coverage results are provided in Table 30 and Table 31. These results must be interpreted with caution due to the small number of cases that were sampled during the survey.

Table 30: Programme coverage for acutely malnourished children (MUAC cut-offs and edema) by survey area

Survey Area	Programme	Number/Total	% [95% CI]
Za'atri	SFP	2/3	66.7% [0.0-100.0]
	TFP	0/0	-
Azraq	SFP	1/6	16.7% [0.0-59.5]
	TFP	0/0	-
Host Communities	SFP	0/0	-
	TFP	0/0	-

Table 31: Programme coverage for acutely malnourished children (Weight-for-Height Z-score, MUAC cut-offs and edema) by survey area

Survey Area	Age group	Number/Total	% [95% CI]
Za'atri	SFP	3/9	33.3% [0.0-71.8]
	TFP	0/1	0.0%
Azraq	SFP	3/8	37.5% [0.0-97.8]
	TFP	0/0	-
Host Communities	SFP	0/5	0.0%
	TFP	0/0	-

Prevalence of Chronic Malnutrition

**Figure 3: Height-for-Age z-score (WHO 2006) - Za'atri camp, Azraq camp and Host communities**
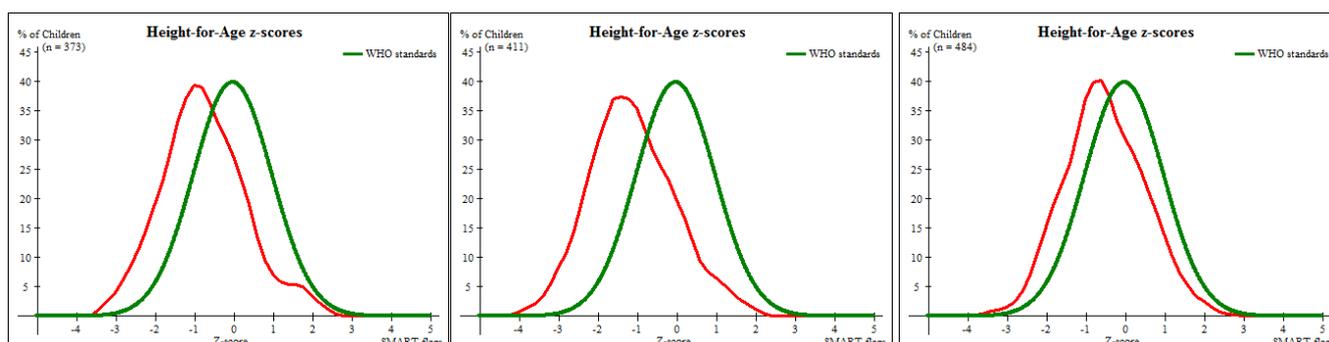
These graphs show that the distribution of Height-for-Age of the assessed children, for the three surveys, was shifted to the left illustrating a poorer nutritional status than the international WHO standard population of children aged 6-59 months. The mean HAZ is ranging from -0.51 in host communities to -1.11 in Azraq camp. The standard deviation (SD) of 1.06 in the camps and of 1.00 in host communities indicates the good quality of age and height measurements during data collection.

Table 32: Prevalence of Global, Moderate and Severe Chronic Malnutrition (Height-for-Age Z-score) in children 6 to 59 months of age by survey area (WHO 2006)

Survey Area	N	Stunting (HAZ <-2)						Moderate Stunting (HAZ <-2 and >=-3)		Severe Stunting (HAZ <-3)	
		All		Boys		Girls		All		All	
		n	% [95% CI]	n	% [95% CI]	n	% [95% CI]	n	% [95% CI]	n	% [95% CI]
Za'atri	373	42	11.3% [8.5-15.2]	18	8.8% [5.4-14.1]	24	14.2% [9.6-20.6]	41	11.0% [8.0-14.9]	1	0.3% [0.0-2.0]
Azraq	411	79	19.2% [16.0-22.9]	38	18.3% [13.9-23.6]	41	20.2% [15.0-26.6]	68	16.5% [13.5-20.2]	11	2.7% [1.5-4.8]
Host communities	484	31	6.4% [4.4-9.3]	16	6.5% [4.0-10.2]	15	6.3% [3.6-10.9]	27	5.6% [3.7-8.3]	4	0.8% [0.3-2.2]

Table 33: Prevalence of Global, Moderate and Severe Chronic Malnutrition (Height-for-Age Z-score) in children 6 to 59 months of age by age group, in Za'atri camp (WHO 2006)

Age group	N	Stunting (HAZ <-2)		Moderate Stunting (HAZ <-2 and >=-3)		Severe stunting (HAZ <-3)	
		n	%	n	%	n	%
6-11 months	47	3	6.4%	3	6.4%	0	0.0%
12-23 months	98	13	13.3%	13	13.3%	0	0.0%
24-35 months	79	5	6.4%	4	5.1%	1	1.3%
36-47 months	77	9	11.7%	9	11.7%	0	0.0%
48-59 months	72	12	16.7%	12	16.7%	0	0.0%

Table 34: Prevalence of Global, Moderate and Severe Chronic Malnutrition (Height-for-Age Z-score) in children 6 to 59 months of age by age group, in Azraq camp (WHO 2006)

Age group	N	Stunting (HAZ <-2)		Moderate Stunting (HAZ <-2 and >=-3)		Severe stunting (HAZ <-3)	
		n	%	n	%	n	%
6-11 months	46	10	21.8%	9	19.6%	1	2.2%
12-23 months	97	24	24.7%	23	23.7%	1	1.0%
24-35 months	89	15	16.8%	9	10.1%	6	6.7%
36-47 months	89	12	13.5%	12	13.5%	0	0.0%
48-59 months	90	18	20.0%	15	16.7%	3	3.3%

Table 35: Prevalence of Global, Moderate and Severe Chronic Malnutrition (Height-for-Age Z-score) in children 6 to 59 months of age by age group, in Host communities (WHO 2006)

Age group	N	Stunting (HAZ <-2)		Moderate Stunting (HAZ <-2 and >=-3)		Severe stunting (HAZ <-3)	
		n	%	n	%	n	%
6-11 months	48	7	14.6%	6	12.5%	1	2.1%
12-23 months	126	8	6.4%	6	4.8%	2	1.6%
24-35 months	111	9	8.1%	8	7.2%	1	0.9%
36-47 months	99	5	5.1%	5	5.1%	0	0.0%
48-59 months	100	2	2.0%	2	2.0%	0	0.0%

Tables 33, 34 and 35 confirm that the critical age for the onset of malnutrition for children is between 6 and 23 months. In both camp, the prevalence of stunting is high in the 48-59 months age group. By this age, the majority of the damage of malnutrition in childhood is done and cannot be reversed.

Prevalence of Underweight

Figure 4: Weight-for-Age z-score (WHO 2006) - Za'atri camp, Azraq camp and Host communities
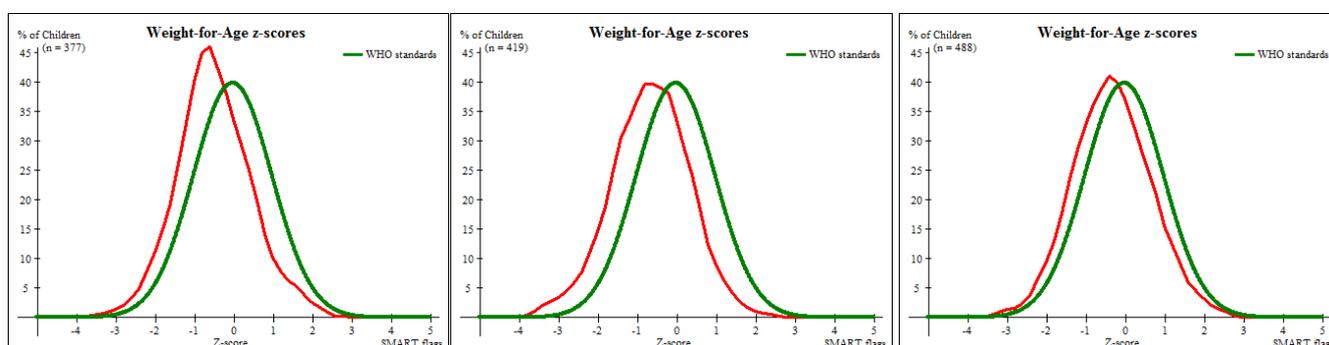
These above graphs show that the distribution of Weight-for-Age of the assessed children, for the three surveys, was shifted to the left with illustrating a poorer nutritional status than the international WHO standard population of children aged 6-59 months. In Za'atri camp, the curve is slightly pointed but the SD of 0.93 indicates the good quality of age and weight measurements during data collection. The mean WAZ is ranging from -0.32 in host communities to -0.67 in Azraq camp.

Table 36: Prevalence of Global, Moderate and Severe Underweight (Weight-for-Age Z-score) in children 6 to 59 months of age by survey area (WHO 2006)

Survey Area	N	Underweight (WAZ <-2)						Moderate Underweight (WAZ <-2 and >=-3)		Severe Underweight (WAZ <-3)	
		All		Boys		Girls		All		All	
		n	% [95% CI]	n	% [95% CI]	n	% [95% CI]	n	% [95% CI]	n	% [95% CI]
Za'atri	377	16	4.2% [2.6-6.8]	7	3.4% [1.5-7.4]	9	5.3% [2.9-9.4]	14	3.7% [2.1-6.4]	2	0.5% [0.1-2.1]
Azraq	419	36	8.6% [6.2-11.8]	14	6.6% [4.0-10.7]	22	10.7% [6.7-16.6]	28	6.7% [4.6-9.7]	8	1.9% [0.9-3.9]
Host communities	488	19	3.9% [2.4-6.2]	11	4.4% [2.4-7.9]	8	3.4% [1.6-7.1]	18	3.7% [2.3=6.0]	1	0.2% [0.0-1.5]

Prevalence of Overweight

Table 37: Prevalence of Overweight (Weight-for-Height Z-score – no edema) in children 6 to 59 months of age by survey area (WHO 2006)

Survey Area	N	Overweight (WHZ >2)		Severe Overweight (WHZ >3)	
		n	% [95% CI]	n	% [95% CI]
Za'atri	377	6	1.6% [0.7-3.4]	0	0.0%
Azraq	418	4	1.0% [0.4-2.5]	0	0.0%
Host communities	487	8	1.6% [0.8-3.2]	0	0.0%

Table 38: Prevalence of Overweight (Weight-for-Height Z-score – no edema) in children 6 to 59 months of age by age (WHO 2006), in Za'atri camp (WHO 2006)

Age group	N	Overweight (WHZ >2)		Severe Overweight (WHZ >3)	
		n	%	n	%
6-11 months	47	1	2.1%		0.0%
12-23 months	100	2	2.0%		0.0%
24-35 months	80	1	1.3%		0.0%
36-47 months	79	2	2.5%		0.0%
48-59 months	72	0	0.0%		0.0%

Table 39: Prevalence of Overweight (Weight-for-Height Z-score – no edema) in children 6 to 59 months of age by age (WHO 2006), in Azraq camp (WHO 2006)

Age group	N	Overweight (WHZ >2)		Severe Overweight (WHZ >3)	
		n	%	n	%
6-11 months	47	0	0.0%		0.0%
12-23 months	100	1	1.0%		0.0%
24-35 months	92	2	2.2%		0.0%
36-47 months	89	1	1.1%		0.0%
48-59 months	90	0	0.0%		0.0%

Table 40: Prevalence of Overweight (Weight-for-Height Z-score – no edema) in children 6 to 59 months of age by age (WHO 2006), in Host communities (WHO 2006)

Age group	N	Overweight (WHZ >2)		Severe Overweight (WHZ >3)	
		n	%	n	%
6-11 months	48	1	2.1%		0.0%
12-23 months	128	2	1.6%		0.0%
24-35 months	111	4	3.6%		0.0%
36-47 months	99	0	0.0%		0.0%
48-59 months	101	1	1.0%		0.0%

5.4 Infant and Young Child Feeding Practices (0-23 months)

Timely Initiation of Breastfeeding

Table 41: Timely Initiation of breastfeeding by survey area (Children 0-23 months)

Survey Area	N	Proportion of children born in the past 24 months who were put to the breast within one hour of birth	
		n	% [95% CI]
Za'atri	179	99	55.3% [47.3-63.3]
Azraq	188	95	50.5% [41.3-59.8]
Host communities	229	85	37.1% [29.0-45.2]

Practice of feeding after delivery and Infant formula

Table 42: Practice of feeding in the first three days after delivery by survey area (Children 0-23 months)

Survey Area	N	Proportion of children born in the past 24 months who received feeding in the first three days after delivery	
		n	% [95% CI]
Za'atri	174	75	43.1% [33.8-52.4]
Azraq	186	104	55.9% [46.7-65.1]
Host communities	222	133	59.9% [51.6-68.2]

Table 43: Infant formula after delivering from the health personnel

Survey Area	N	Proportion of mothers with children under 2 years who received infant formula after delivering from the health personnel	
		n	% [95% CI]
Za'atri	188	32	17.0% [10.4-23.7]
Azraq	202	17	8.4% [3.8-13.0]
Host communities	245	74	30.2% [21.9-38.5]

Table 44: Type of hospital delivering infant formula to mothers with children under 2 years after delivering

Survey Area	N	Private		Public		NGO		Other	
		N	% [95% CI]	n	% [95% CI]	n	% [95% CI]	N	% [95% CI]
Za'atri	32	27	84.4% [68.1-100.0]	2	6.2% [0.0-15.4]	3	9.4% [0.0-20.1]	0	0.0
Azraq	17	13	76.5% [51.6-100.0]	2	11.8% [0.0-28.1]	2	11.7% [0.0-26.7]	0	0.0
Host communities	74	53	71.6% [60.5-82.8]	16	21.6% [11.5-31.8]	5	6.8% [1.7-11.8]	0	0.0

Table 45: Formula feeding (Children 0-23 months)

Survey Area	N	Proportion of children 0-23 months of age who received infant formula during the previous day	
		n	% [95% CI]
Za'atri	188	7	3.7% [1.2-6.3]
Azraq	202	20	9.9% [5.6-14.2]
Host communities	245	69	28.2% [22.6-33.7]

Exclusive breastfeeding under 6 months

Table 46: Exclusive breastfeeding by survey area (Infants 0-5 months)

Survey Area	N	Proportion of infants 0-5 months of age who are fed exclusively with breast milk	
		n	% [95% CI]
Za'atri	41	22	53.7% [39.9-67.4]
Azraq	55	21	38.2% [21.0-55.4]
Host communities	68	13	19.1% [8.8-29.4]

Continued breastfeeding at 1 year

Table 47: Continued breastfeeding at 1 year by survey area (Children 12-15 months)

Survey Area	N	Proportion of children 12-15 months of age who are fed breast milk during the previous day	
		n	% [95% CI]
Za'atri	27	16	59.3% [37.9-80.6]
Azraq	35	21	60.0% [45.0-75.0]
Host communities	46	26	56.5% [40.8-72.3]

Continued breastfeeding at 2 year

Table 48: Continued breastfeeding at 2 year by survey area (Children 20-23 months)

Survey Area	N	Proportion of children 20-23 months of age who are fed breast milk during the previous day	
		n	% [95% CI]
Za'atri	37	7	18.9% [6.3-31.5]
Azraq	25	4	16.0% [0.0-32.4]
Host communities	35	9	25.7% [8.9-42.5]

Table 49: Use of bottle with a nipple (Children 0-23 months)

Survey Area	N	Proportion of children 0-23 months of age who drink anything from a bottle with a nipple during the previous day	
		n	% [95% CI]
Za'atri	189	26	13.8% [8.8-18.7]
Azraq	202	44	21.8% [16.0-27.6]
Host communities	245	123	50.2% [42.9-57.5]

Introduction of complementary food

Table 50: Introduction of complementary food by survey area (Infant 6-8 months)

Survey Area	N	Proportion of infants 6-8 months of age who received solid, semi-solid or soft foods during the previous day	
		n	% [95% CI]
Za'atri	31	24	77.4% [63.1-91.8]
Azraq	21	14	66.7% [42.8-90.5]
Host communities	27	22	81.5% [66.6-96.4]

Minimum Meal Frequency

Table 51: Minimum meal frequency by age group and breastfeedign status, by survey area

Survey Area	N	Breastfed Children 6-23 months		Non-breastfed children 6-23 months		Children 6-23 months	
		n	% [CI 95%]	n	% [CI 95%]	n	% [CI 95%]
Za'atri	147	48	60.8% [47.0-74.5]	47	79.7% [68.0-91.3]	95	64.6% [55.4-73.8]
Azraq	148	41	57.7% [44.3-71.1]	53	84.1% [75.0-93.2]	94	63.5% [54.9-72.1]
Host communities	166	37	46.8% [33.4-60.2]	60	69.0% [59.1-78.9]	97	58.4% [49.7-67.2]

The minimum meal frequency seems to be better among the non-breastfed children than among the breastfed children. Findings presented in the tables below (Tables 50, 51 and 52) show that the minimum meal frequency is increased gradually from 6 to 23 months. There is no significant difference by sex.

Table 52: Minimum meal frequency by age group and by sex (Children 6-23 months) in Za'atri camp

Background characteristic	N	Children 6-23 months	
		n	% [95% CI]
Age			
6-11 months	47	28	59.6% [42.9-76.2]
12-17 months	43	29	67.4% [52.4-82.4]
18-23 months	57	38	66.7% [53.3-80.0]
Sex			
Male	80	51	63.8% [51.5-76.0]
Female	67	44	65.7% [53.4-78.0]

Table 53: Minimum meal frequency by age group and by sex (Children 6-23 months) in Azraq camp

Background characteristic	N	Children 6-23 months	
		n	% [95% CI]
Age			
6-11 months	48	23	47.9% [32.9-62.9]
12-17 months	55	38	69.1% [56.3-81.9]
18-23 months	45	33	73.3% [59.5-87.2]
Sex			
Male	69	44	63.8% [50.6-76.9]
Female	79	50	63.3% [52.4-74.1]

Table 54: Minimum meal frequency by age group and by sex (Children 6-23 months) in Host communities

Background characteristic	N	Children 6-23 months	
		n	% [95% CI]
Age			
6-11 months	44	23	52.3% [34.6-70.0]
12-17 months	61	33	54.1% [42.2-66.0]
18-23 months	61	41	67.2% [55.0-79.5]
Sex			
Male	88	48	54.5% [43.0-66.1]
Female	78	49	62.8% [51.4-74.2]

Consumption of iron-rich food

The iron-rich or iron-fortified foods included in the 24-hours recall was any meat, Plumpy products (Plumpy Nut' or Plumpy Sup'), infant formula enriched with iron, and baby food/cereals fortified with iron. Iron fortified bread meant for the general population was not included in this IYCF indicator because it is not specifically designed for young children.

Table 55: Consumption of iron-rich food by survey area (Children 6-23 months)

Survey Area	N	Proportion of children 6-23 months of age who received iron-rich food during the previous day	
		n	% [95% CI]
Za'atri	147	31	21.1% [15.1-27.1]
Azraq	147	46	31.3% [22.8-39.8]
Host communities	177	52	29.4% [22.4-36.4]

Nutrition Education

Table 56: Proportion of mothers with children under 2 years who attended a session about breastfeeding or infant feeding

Survey Area	N	Proportion of mothers with children under 2 years who attended a session about breastfeeding or infant feeding	
		n	% [95% CI]
Za'atri	189	80	42.3% [33.5-51.1]
Azraq	203	84	41.4% [32.6-50.2]
Host communities	245	38	15.5% [9.9-21.1]

Table 57: Place where the mothers with children under 2 years attended a session about breastfeeding or infant feeding

Survey Area	N	IYCF caravan		Clinic		Hospital		CBO		Other	
		n	% [95% CI]	n	% [95% CI]	n	% [95% CI]	n	% [95% CI]	n	% [95% CI]
Za'atri	80	60	75.0% [63.6-86.4]	1	1.2% [0.0-3.8]	18	22.5% [10.9-34.1]	-	n/a	1	1.3% [0.0-3.8]
Azraq	84	71	84.5% [74.8-94.2]	8	9.5% [2.1-16.9]	0	0.0	-	n/a	5	6.0% [0.0-11.9]
Host communities	38	2	5.3% [0.0-13.0]	2	5.3% [0.0-15.9]	11	28.9% [11.3-46.6]	21	55.3% [35.4-75.1]	2	5.3% [0.0-13.0]

Table 58: Proportion of mothers with children under 2 years who received visit(s) at home to help with breastfeeding or infant feeding

Survey Area	N	Proportion of mothers with children under 2 years who received visit(s) at home to help with breastfeeding or infant feeding	
		n	% [95% CI]
Za'atri	189	153	81.0% [75.2-86.7]
Azraq	203	101	49.8% [37.5-62.0]
Host communities	245	35	14.3% [8.9-19.7]

Table 59: Number of visit at home to help with breastfeeding or infant feeding

Survey Area	N	1 visit		2-3 visits		More than 4 visits		Don't know	
		n	% [95% CI]	n	% [95% CI]	n	% [95% CI]	n	% [95% CI]
Za'atri	151	26	17.2% [10.8-23.7]	44	29.1% [21.2-37.0]	81	53.7% [45.6-61.7]	0	0.0%
Azraq	101	16	15.8% [7.0-24.7]	29	28.7% [20.3-37.1]	56	55.4% [44.9-66.0]	0	0.0%
Host communities	35	25	71.4% [55.4-87.5]	10	28.6% [12.5-44.6]	0	0.0%	0	0.0%

Table 60: Satisfaction with the nutrition services provided (sessions about breastfeeding or infant feeding and/or visit(s) at home)

Survey Area	N	Satisfied	
		n	% [95% CI]
Za'atri	161	152	94.4% [90.7-98.2]
Azraq	135	125	92.6% [87.9-97.3]
Host communities	66	61	92.4% [84.7-100.0]

5.5 Child Morbidity (0-59 months)

Diarrhea

Table 61: Children with diarrhea

Survey Area	N	Percentage of children with diarrhea in the last two weeks	
		n	% [95% CI]
Za'atri	419	81	19.3% [15.8-22.8]
Azraq	475	106	22.3% [17.8-26.8]
Host communities	560	138	24.6% [20.2-29.0]

Table 62: Care-seeking for diarrhea

Survey Area	N	Percentage of children with diarrhea in the last two weeks from whom advice or treatment was sought, by source of advice or treatment								No advice or treatment sought	
		Public		Private		Charity/NGO clinic		Others			
		n	% [95% CI]	n	% [95% CI]	n	% [95% CI]	n	% [95% CI]	n	% [95% CI]
Za'atri	81	1	2.0% [0.0-6.0]	2	4.0% [0.0-9.9]	41	82.0% [71.5-92.5]	6	12.0% [2.4-21.6]	31	38.3% [26.0-50.5]
Azraq	106	1	1.4% [0.0-4.4]	4	5.8% [0.3-11.3]	58	84.1% [75.7-92.4]	6	8.7% [1.3-16.1]	37	34.9% [25.4-44.4]
Host communities	138	17	24.3% [12.1-36.4]	30	42.9% [27.4-58.3]	8	11.4% [3.8-19.0]	15	21.4% [10.6-32.3]	68	49.3% [38.7-59.9]

Table 63: Drinking practices during diarrhea

Survey Area	N	Percent distribution of children age 0-59 months with diarrhea in the last two weeks by amount of liquids given during episode of diarrhea									
		Less		About the same		More		Nothing to drink		Don't know	
		n	% [95% CI]	n	% [95% CI]	n	% [95% CI]	n	% [95% CI]	n	% [95% CI]
Za'atri	81	7	8.6% [0.8-16.5]	23	28.4% [17.4-39.4]	51	63.0% [50.6-75.3]	0	0.0%	0	0.0%
Azraq	106	5	4.7% [1.0-8.5]	41	38.8% [26.5-50.9]	58	54.7% [42.4-67.0]	1	0.9% [0.0-2.8]	1	0.9% [0.0-2.8]
Host communities	138	15	10.9% [4.8-17.0]	50	36.2% [26.4-46.0]	72	52.2% [41.9-62.4]	1	0.7% [0.0-2.1]	0	0.0%

Table 64: Eating practices during diarrhea

Survey Area	N	Percent distribution of children age 0-59 months with diarrhea in the last two weeks by amount of food given during episode of diarrhea*									
		Less		About the same		More		Nothing to eat		Don't know	
		n	% [95% CI]	n	% [95% CI]	n	% [95% CI]	n	% [95% CI]	n	% [95% CI]
Za'atri	78	38	48.7% [36.7-60.7]	29	37.2% [25.3-49.1]	4	5.1% [0.4-9.9]	7	9.0% [2.0-16.0]	0	0.0%
Azraq	102	58	56.9% [44.3-69.4]	35	34.3% [22.2-46.4]	4	3.9% [0.0-8.5]	4	3.9% [0.2-7.7]	1	1.0% [0.0-3.0]
Host communities	133	68	51.1% [40.9-61.4]	45	33.9% [25.0-42.6]	2	1.5% [0.0-3.5]	16	12.0% [5.7-18.3]	2	1.5% [0.0-3.6]

* Children under six months of age and exclusively breastfed were excluded from this analysis

Table 65: Diarrhea treatment with oral rehydration salts (ORS)

Survey Area	N	Percentage of children with diarrhea in the last two weeks who received oral rehydration salts (ORS)	
		n	% [95% CI]
Za'atri	81	23	28.4% [17.8-39.0]
Azraq	106	41	38.7% [28.0-49.4]
Host communities	138	22	15.9% [9.3-22.6]

Table 66: Source of ORS

Survey Area	N	Percentage of children with diarrhea in the last two weeks who were given ORS, by the source of ORS							
		Public		Private		Charity/NGO clinic		Others	
		n	% [95% CI]	n	% [95% CI]	n	% [95% CI]	n	% [95% CI]
Za'atri	23	0	0.0%	0	0.0%	22	95.7% [86.5-100.0]	1	4.3% [0.0-13.5]
Azraq	41	1	2.4% [0.0-7.5]	2	4.9% [0.0-11.3]	38	92.7% [84.8-100.0]	0	0.0%
Host communities	21	3	14.3% [0.0-30.3]	15	71.4% [50.2-92.6]	2	9.5% [0.0-23.6]	1	4.8% [0.0-14.9]

Table 67: Diarrhea treatment with oral rehydration therapy (ORT) and continued feeding, and percentage who were given other treatment

Survey Area	N	ORS or increased fluids %	ORT with continued feeding %	Pill or Syrup				Injection			Intravenous %	Home remedy, herbal medicine %	Other %	Don't know %	No other treatment %	Not given any treatment or drug %
				Antibiotic %	Antimotility %	Other %	Unknown %	Antibiotic %	Non-antibiotic %	Unknown %						
Za'atri	81	18.5	7.7	29.3	19.0	5.2	3.4	1.7	0	1.7	1.7	36.2	3.4	8.6	20.0	23.5
Azraq	106	24.5	8.8	20.6	11.1	7.9	3.2	3.2	0	3.2	1.6	41.3	31.7	1.6	23.1	30.2
Host communities	138	11.6	2.3	28.2	28.2	6.4	0.0	1.3	0.0	0.0	0.0	39.7	17.9	10.3	12.5	39.9

Acute Respiratory Infection (ARI) symptoms

Table 68: Children with ARI symptoms

Survey Area	N	Percentage of children with ARI symptoms in the last two weeks	
		n	% [95% CI]
Za'atri	420	60	14.3% [9.8-18.8]
Azraq	476	`109	22.9% [17.4-28.4]
Host communities	561	97	17.3% [13.0-21.5]

Table 69: Care-seeking for children with ARI symptoms

Survey Area	N	Percentage of children with ARI symptoms in the last two weeks from whom advice or treatment was sought, by source of advice or treatment*									No advice or treatment sought	
		Public		Private		Charity/NGO clinic		Others				
		n	% [95% CI]	n	% [95% CI]	n	% [95% CI]	n	% [95% CI]	n	% [95% CI]	
Za'atri	60	3	7.7% [0.0-22.7]	1	2.6% [0.0-8.0]	36	92.3% [83.6-100.0]	1	2.6% [0.0-8.0]	21	35.0% [20.1-49.9]	
Azraq	109	0	0.0%	7	9.1% [1.2-7.0]	66	85.7% [76.8-94.6]	4	5.2% [0.0-10.5]	32	29.4% [18.9-39.8]	
Host communities	97	16	24.6% [10.7-38.5]	30	46.2% [32.0-60.3]	9	13.8% [1.8-25.9]	10	15.4% [6.5-24.3]	32	33.0% [20.5-45.5]	

* The percentages do not necessarily add to 100, since care seekers may have visited several places for advice or treatment

Table 70: Antibiotic treatment for children with ARI symptoms

Survey Area	N	Percentage of children with ARI symptoms in the last two weeks who received antibiotics	
		n	% [95% CI]
Za'atri	60	26	43.3% [24.9-61.8]
Azraq	109	22	20.4% [10.9-29.8]
Host communities	97	25	25.8% [15.0-36.5]

Table 71: Source of antibiotics

Survey Area	N	Percentage of children with symptoms of ARI in the last two weeks who were given antibiotics, by the source of antibiotics							
		Public		Private		Charity/NGO clinic		Others	
		n	% [95% CI]	n	% [95% CI]	n	% [95% CI]	n	% [95% CI]
Za'atri	26	3	11.5% [0.0-34.5]	1	3.8% [0.0-12.2]	24	92.3% [81.9-100.0]	0	0.0%
Azraq	22	0	0.0%	4	18.2% [0.0-41.9]	18	81.8% [58.1-100.0]	0	0.0%
Host communities	25	5	20.0% [0.0-45.6]	16	64.0% [35.8-92.2]	4	16.0% [0.0-35.6]	0	0.0%

* The percentages do not necessarily add to 100, since care seekers may have visited several places for antibiotics

5.6   Women Nutritional Status (15-49 years)

Description of sample and review of data quality

Table 72: Description of the data (age and MUAC) collected from women aged 15 to 49 years by survey area

Survey Area	N	Age			MUAC	
		Missing Data		Median Age	Missing Data	
		n	%	Years	n	%
Za'atri	419	0	0.0%	29.7	0	0.0%
Azraq	434	1	0.2%	29.7	0	0.0%
Host communities	669	0	0.0%	28.8	1	0.1%

Table 71 shows the distribution of the sample of women aged 15 to 49 years according to the status of pregnancy and the status on breastfeeding. Among all women surveyed, approximately 10% of them were pregnant. Depending on the survey area, lactating women represented between 19% and 28% of the sample.

Table 73: Distribution of the sample of women aged 15 to 49 years by survey area

Survey Area	N	Non pregnant and non-lactating women		Pregnant women		Lactating women		Pregnant and Lactating women		Missing data / Don't know	
		n	%	n	%	n	%	n	%	n	%
Za'atri	419	246	58.7	51	12.2	118	28.2	1	0.2	3	0.7
Azraq	434	258	59.4	47	10.8	119	27.4	5	1.2	5	1.2
Host communities	669	469	70.1	65	9.7	126	18.8	6	0.9	3	0.5

Nutritional status of women of reproductive age (15-49 years) (MUAC < 230 mm)

Eligible women with missing age, MUAC and/or pregnancy status were excluded from the analysis.

Table 74: Prevalence of malnutrition among non-pregnant and non-lactating women, pregnant women and lactating women (15-49 years) according to MUAC (MUAC <230 mm), by survey area

Survey Area	N	Non pregnant and non-lactating women		Pregnant women		Lactating women	
		n	% [CI 95%]	n	% [CI 95%]	n	% [CI 95%]
Za'atri	419	14	5.7% [2.6-8.8]	4	7.8% [0.9-14.8]	2	1.7% [0.0-4.0]
Azraq	434	14	5.4% [3.0-7.9]	4	8.5% [0.7-16.3]	9	7.6% [3.1-12.1]
Host Communities	668	22	4.7% [2.9-6.5]	5	7.7% [1.6-13.8]	0	0.0%

Table 75: Nutritional status of non-pregnant women 15 to 49 years according to MUAC (MUAC <230 mm) by age group in Za'atri camp

Age group	N	Non pregnant and non-lactating women		Pregnant women		Lactating women	
		n	% [CI 95%]	n	% [CI 95%]	n	% [CI 95%]
15-19 years	77	11	21.6% [8.8-34.4]	0	0.0	0	0.0
20-29 years	142	3	6.1% [0.0-13.3]	4	12.5% [1.0-24.0]	2	3.3% [0.0-7.9]
30-39 years	125	0	0.0	0	0.0	0	0.0
40-49 years	75	0	0.0	0	0.0	0	0.0

Table 76: Nutritional status of non-pregnant women 15 to 49 years according to MUAC (MUAC <230 mm) by age group in Azraq camp

Age group	N	Non pregnant and non-lactating women		Pregnant women		Lactating women	
		n	% [CI 95%]	n	% [CI 95%]	n	% [CI 95%]
15-19 years	69	5	9.8% [2.0-17.6]	0	0.0%	3	23.1% [0.0-48.5]
20-29 years	145	6	8.5% [2.4-14.5]	3	13.6% [0.0-28.9]	6	11.5% [3.1-20.0]
30-39 years	148	2	2.5% [0.0-6.1]	1	5.3% [0.0-14.3]	0	0.0%
40-49 years	71	1	1.8% [0.0-5.1]	0	0.0%	0	0.0%

Table 77: Nutritional status of non-pregnant women 15 to 49 years according to MUAC (MUAC <230 mm) by age group in Host communities

Age group	N	Non pregnant and non-lactating women		Pregnant women		Lactating women	
		n	% [CI 95%]	n	% [CI 95%]	n	% [CI 95%]
15-19 years	126	15	16.1% [9.3-22.9]	2	14.3% [0.0-33.5]	0	0.0%
20-29 years	252	6	4.2% [0.9-7.5]	4	10.8% [1.1-20.5]	1	1.4% [0.0-4.1]
30-39 years	182	1	0.8% [0.0-2.3]	0	0.0%	0	0.0%
40-49 years	108	0	0.0%	0	0.0%	0	0.0%

Enrolment in ANC programme and Iron-Folic Acid Supplementation

Table 78: Proportion of pregnant women attending ANC programme (15-49 years)

Survey Area	N	Proportion of pregnant women attending ANC programme	
		n	% [95% CI]
Za'atri	52	51	98.1% [94.1-100.0]
Azraq	52	41	78.8% [66.2-91.5]
Host communities	71	54	76.1% [65.1-87.0]

Table 79: Proportion of pregnant women taking iron-folic acid supplements (15-49 years)

Survey Area	N	Proportion of pregnant women taking iron-folic acid supplements	
		n	% [95% CI]
Za'atri	52	44	84.6% [75.3-93.9]
Azraq	52	25	48.1% [32.9-63.3]
Host communities	71	45	63.4% [50.9-75.8]

5.7   Water and Sanitation

Table 80: Child excreta disposal

Survey Area	N	Proportion of households with children under 3 years of age that dispose feces safely	
		n	% [95% CI]
Za'atri	269	85	31.6% [26.4-36.8]
Azraq	293	86	29.4% [23.6-35.1]
Host communities	359	78	21.7% [17.3-26.2]

The safe disposal of children's faeces is of particular importance because children's faeces are the most likely cause of faecal contamination to the immediate household environment. The standard SENS definition (based on international standards) were used in the analysis. "Safe" is understood to mean disposal in a safe sanitation facility (toilet/latrine) or by burying.

6. Discussion

Food Security

In Za'atri camp (where majority of refugees (82.5%) are living in Jordan for more than 2 years) like in Azraq camps (where more than half of refugees (50.9%) are living in Jordan for less than 6 months), the main source of income comes from WFP's food vouchers. The main source of income for Syrian refugees living in host communities (majority of them (62.8%) are living in Jordan for more than 2 years) is from unskilled labour, followed by the Monthly Financial Assistance (MFA) from UNHCR. This indicates that majority of the refugees in the camps are reliant on food vouchers and on financial assistance as they have limited livelihood options as refugees.

Since 2014, the families in the host communities who are vulnerable have been receiving food vouchers of 20 or 10 JOD/person/month and the families who are less vulnerable or non-vulnerable do not receive any food vouchers. Despite that, 90.5% of the surveyed households reported to be receiving food vouchers from WFP. Approximately 56% of these households were receiving 20 JOD/person/month and 44% were receiving 10 JOD/person/month. Almost all households in both camps (100% and 97.7% for Za'atri and Azraq respectively)

were receiving 20 JOD/person/month for the month of August 2016. The food vouchers from WFP are distributed for a duration of one month, however, the average number of days which households were able to purchase food with these vouchers for the month of August was 16.7 days in Za'atri camp and in host communities, and 19.7 days in Azraq camp.

In general, the WFP food vouchers forms the main source of food for the refugees in both camps and in host communities (82.1% in Za'atri and 95.9% in Azraq), followed by the purchase of food from personal resources.

Reduced Coping Strategy Index (RCSI) is often used as a proxy indicator of household food insecurity. RCSI is based on a list of behaviors (coping strategies) which are not adopted in a normal day-to day life, to cope with reduced or declining access to food. The RCSI in the camps and for refugees in host communities ranged from 9.6 in Azraq camp to 12.2 in Za'atri camp. This indicates that the frequency and severity of coping strategies used are quite similar between camps and community settings. The more frequent coping strategies used were to purchase less preferred or less expensive food, then to limit portion size at mealtime, and to borrow food or rely on help from relatives or friends. These RCSI are lower than in 2014 (respectively 19.1 in Za'atri camp and 17.8 in host communities). This could suggest a stable food security situation between 2014 and 2016, even if the values of the food vouchers decreased. Based on the interagency activity information monitoring database 2016 only 63.5% of the Syrian refugees' households living in host communities are receiving food vouchers. In our sample, more assisted households (90.5%) were interviewed than non-assisted households, which may have slight consequences on the assessment of the food security situation in urban settings.

The main livelihood coping mechanism employed by the refugee population to meet their basic food and other needs, both in camps and in host communities, is the purchase of food on credit or borrowing money to purchase food. For the majority of the Syrians living in host communities the second coping mechanism is the reduction in the essential non-food expenditures such as education/health (46.5%). While refugees in the camps use savings as their second major coping mechanism (37.2% in Za'atri camp and 48.4% in Azraq camp).

The Household Dietary Diversity Score (HDDS) is used as a proxy measure of the socio-economic level of the household. The HDDS is meant to reflect the economic ability of a household to access a variety of foods. The average HDDS ranged from 7.8 to 7.9 (out of a total of 12 food groups) for the three surveys. This means that households are consuming around two third of the total number of food groups. The most common foods being consumed being cereals, spices/condiment/beverages, oils/fats, sweetened food, then vegetables. Approximately 9 households out of 10 were consuming a plant or animal source of vitamin A, but less than 1 household out of 3 was consuming a food source of heme iron. Due to the important level of anemia found in 2014 among children and women, this low consumption of iron-rich food should be addressed.

The average HDDS for Za'atri camp and in host communities was respectively 5.1 and 7.1 in 2014, indicating that the Syrian refugees may have slightly increased their economic ability to access a better quality of food between 2014 and 2016. Nevertheless, to capture changes in HDDS over time accurately, data should be collected at the same time of year, to avoid seasonal differences. In 2014, the survey was conducted in April-May.

Children Nutritional Status

Acute Malnutrition
According to the WHO classification, the results show a level of GAM (WHZ<-2 z-scores) considered "acceptable" (not exceeding the 5% threshold) for the three surveys, with respectively 2.7% (95% CI 1.4-5.0), 1.9% (95% CI 0.9-4.2) and 1.8% (95% CI 1.0-3.4) for Za'atri camp, Azraq camp and in host communities (Figure 5). There is no SAM in Azraq and in host communities. In Za'atri camp, a SAM of 0.3% was found which is a very low prevalence. No case of bilateral pitting edema was found in the three survey areas. The GAM rates are slightly higher among children under two years of age compared to children above two years of age.

Figure 5 shows that in Za'atri camp and in host communities, prevalence of acute malnutrition was higher than in the survey conducted in 2014. For Za'atri camp, the GAM rate increased from 1.2% in 2014 to 2.7% in 2016. In host communities, the GAM rate increased from 0.8% in 2014 to 1.8% in 2016. Nevertheless, these differences are not statistically significant. In Za'atri camp, the 30-59 months age group was slightly less represented than the 6-29 months age group, meaning that there were more younger children than older ones in the sample. This difference may have slightly overestimated the prevalence of acute malnutrition.

Between 2014 and 2016, the prevalence of SAM remained unchanged in Za'atri camp and in host communities, with respectively 0.3% and 0.0%.

Figure 5: Prevalence of Acute Malnutrition (Global, Moderate and Severe) according to WHO 2006 Growth Standards among children 6 to 59 months of age (WHZ) – Interagency Nutrition Surveys 2014 versus Interagency Nutrition Surveys 2016, by survey area
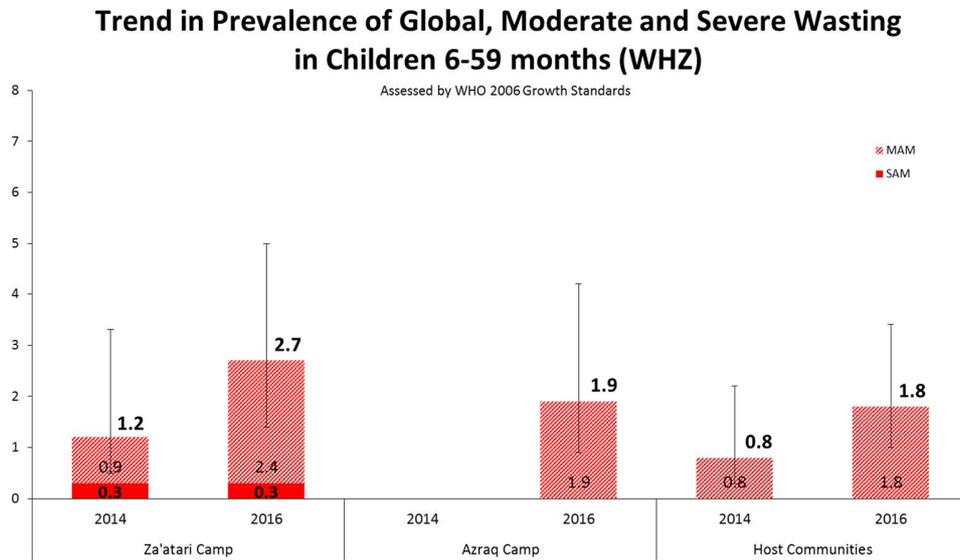
Based on MUAC, wasting rates ranged from 0.0% in host communities to 1.4% in Azraq camp (Figure 6). The GAM rates are lower than the prevalence of acute malnutrition based on WHZ, as commonly found in certain populations. There were no SAM in the three survey areas and the prevalence of GAM was 0.0% for children living in host communities.

Figure 6: Prevalence of Wasting (Global, Moderate and Severe) according to WHO 2006 Growth Standards among children 6 to 59 months of age (MUAC) – Interagency Nutrition Surveys 2014 versus Interagency Nutrition Surveys 2016, by survey area
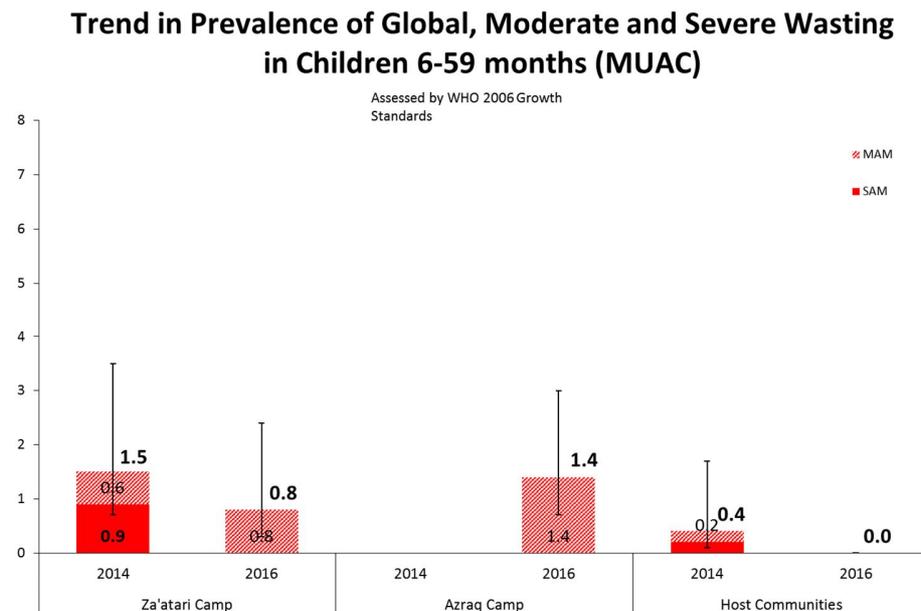
For Za'atri camp, the prevalence of GAM based on MUAC decreased from 1.5% in 2014 to 0.8% (Figure 6) but the difference is not statistically significant.

Chronic malnutrition
Based on the WHO classification, the survey results show a level of chronic malnutrition considered "Acceptable", not exceeding the 20% threshold for the three survey areas (Figure 7). Nevertheless, in Azraq camp, the prevalence of stunting could possibly be higher than 20%, according to the upper limit of the confidence interval (22.9%). The prevalence of stunting in Azraq camp [19.2% (16.0-22.9)] is significantly higher than in Za'atri camp [11.3% (8.5-15.2)] (p<0.05). In host communities, the prevalence of stunting is below 10%, at 6.4%.

The survey findings show a high prevalence among children younger than 24 months. In both camps, the prevalence of stunting is high in the 48-59 months age group. By this age, the majority of the damage of malnutrition in childhood is done and cannot be reversed. These prevalence results reflect the existence of long-term undernutrition and highlights the need to prioritize stunting prevention interventions in the camps and more particularly in Azraq camp. The most effective interventions in preventing stunting should occur during the window of opportunity, from the time of pregnancy until the end of the first two years of life of the child.

Figure 7: Prevalence of Chronic Malnutrition (Global, Moderate and Severe) according to WHO 2006 Growth Standards among children 6 to 59 months of age – Interagency Nutrition Surveys 2014 versus Interagency Nutrition Surveys 2016, by survey area

Trend in Prevalence of Global, Moderate and Severe Stunting in Children 6-59 months
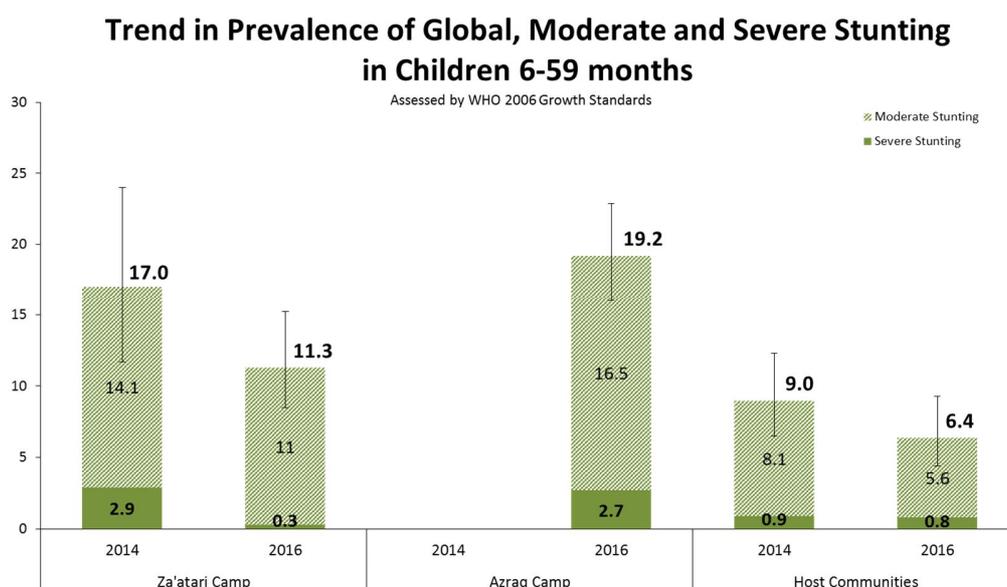Assessed by WHO 2006 Growth Standards

In Za'atri camp and in host communities, stunting rates are lower than in 2014. For Za'atri camp, the prevalence of chronic malnutrition decreased from 17.0% in 2014 to 11.3% in 2016. In host communities, the prevalence of chronic malnutrition decreased from 9.0% in 2014 to 6.4% in 2016 (Figure 7). These differences are not statistically significant.
In Za'atri camp, the prevalence of chronic malnutrition sharply declined (almost 6 percentage points) between 2014 and 2016. The stunting rate in 2016 may be slightly underestimated due to the fact that there is more younger children than older ones in the sample. In addition, the stunting rate in 2014 should have been slightly overestimated with a SD of 1.19. According to the plausibility check report for Za'atri camp in 2014, the prevalence of chronic malnutrition with a SD of 1.0 (instead of 1.19) should have been 12.9% instead of 17.0%.

Underweight
Weight-for-Age is a composite index of Height-for-Age and Weight-for-Height. It takes into account both acute and chronic malnutrition.
Regarding the prevalence of underweight, the level can be considered "Acceptable" by WHO cut-offs for level of public health significance (<10%) in the three survey areas with 4.2% in Za'atri camp, 8.6% in Azraq camp and

3.9% in host communities. The upper limit of the confidence interval for Azraq camp reached 11.8%, level considered "medium" (10-19%) according to WHO.

Overweight

The prevalence of overweight in children 6 to 59 months of age ranged from 1.0% in Azraq camp to 1.6% in Za'atri camp and in host communities. The prevalence of severe overweight was 0.0% for the three survey areas. The prevalence of overweight is lower in 2016 than in 2014 but this difference is not statistically significant.

Infant and Young Child Feeding (IYCF) Practices

Following recommended feeding practices for infants and young children can increase their chances of survival. It can also promote optimal growth and development, especially during the critical "window of opportunity" from pregnancy to 2 years of age. Ideally, infants should be breastfed within one hour of birth, breastfed exclusively for the first six months of life and continue to be breastfeed up to 2 years of age and beyond. Starting at 6 months, breastfeeding should be combined with safe, age-appropriate feeding of solid, semi-solid and soft foods.

The survey findings indicate that IYCF practices are poor in general in both the camps and in refugee population living in host communities, although the situation seems better than it was in 2014.

Breastfeeding Practices

Among Syrian refugees, like in many cultures, it is common practice to give babies other liquids to drink within the first days of life. When such fluids are given before lactation is established, they are known as prelacteal feeds (PLF). PLF result in the baby receiving insufficient breast milk and may lead to lactation failure, diarrhea and shortening of the duration of breastfeeding[9]. It is for these reasons that UNICEF/ WHO discourage the use of PLF unless medically indicated[10].

The survey findings show that the proportion of children between 0 and 23 months who received liquids or food (Other than milk formula or breast milk including water and sugar or dates) in the first three days after delivery was high with proportion ranging from 43.1% in Za'atri camp to 59.9% in host communities. In host communities the proportion of 59.9% is significantly higher than in Za'atri camp (p<0.05). The lower rates in the camps could be due to the better access to nutrition education through the IYCF programs (sessions on breastfeeding and infant feeding, and/or visit(s) at home) (See section "Nutrition Education" below).

Early initiation of breastfeeding has the potential to prevent 22% of newborn deaths. The survey revealed that more than 55% of children 0-23 months initiated breastfeeding within 1 hour, in both camps. In host communities, around one child out of three (37.1%) was initiated to breastfeeding within 1 hour. These results are low but are close to the results found in 2014 (57% in Za'atri camp and 48.7% in host communities), as well as the national rate of 45.5% in Syria (PAPFAM 2009[11]).

WHO recommends mothers to exclusively breastfeed infants for the first six months of life to achieve optimal growth, development and good health. An infant that is not exclusively breastfed is at greater risk of death from diarrhea or pneumonia than one who is. Moreover, breastfeeding supports infants' immune systems and may protect them later in life from chronic conditions such as obesity and diabetes. In addition, breastfeeding protects mothers against certain types of cancer and other health conditions.

In Za'atri camp more than one infant under six months of age out of two (53.7%) was exclusively breastfed, which was improved from 2014 (46.4%). In Azraq camp, the proportion of infant 0-5 months of age who were exclusively breastfed was lower than in Za'atri, at 38.2%. The 2009 PAPFAM shows the proportion of children exclusively breastfed was 42.6%. In host communities, less than 20% of infants under six months of age were exclusively breastfed, which is very low and lower than in 2014 (36.0%). However, the small sample size means caution must be exercised in interpreting the results.

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[9] Sources : - Blomquist HK, Jonsbo F, Persson LA. (1994). Supplement feeding in the maternity ward shortens the duration of breast-feeding. Acta Paediat., 83: 122-1126.- Hossain MM, Reves RR, Radivan MM, Habib M, Dupont HL. (1995). The timing of breast-feeding initiation and its correlates in cohort of rural Egyptian infants. *J. Trop. Pediatr.,* **41:** 354-359.

[10] WHO-UNICEF. (1990). *Innocent Declaration on the Protection, Promotion and Support of Breastfeeding. Breast-feeding in the 1990s. A Global Initiative.* UNICEF, New York.

[11] Family health survey of the Arab Republic of Syria 2009: Principal report (PAPFAM).

The survey revealed that approximately 60% of children 12-15 months were fed breast milk during the day prior to the survey. This result is very close to the national rate recorded in 2009 (55.8% - PAPFAM 2009) and marks an improvement in comparison to 2014 where 24.2% and 39.5% of children 12-15 months were fed breast milk during the day prior to the survey respectively in Za'atri camp and in host communities.

The survey revealed that less than 20% of children 20-23 months were still breastfed in the camps (Table 46). The proportion of children 20-23 months of age who were fed breast milk the day prior the survey was higher in host communities with 25.7%. This result is very close to the national average recorded in 2009: 24.9% (PAPFAM 2009). Similar results were found in 2014 with 15.0% and 23.8% in Za'atri camp and in host communities respectively.

One woman out of three in host communities (30.2%) received a tin of infant formula after delivery from the health personnel. This proportion is lower in Za'atri camp with 17.0% and in Azraq camp with 8.4%. For approximately 80% of the women in both camps, the tin of infant formula was given by the private hospital where deliveries took place outside the camps. In host communities, approximately 70% of the women received a tin of infant formula from a private hospital and around 20% from a public hospital.

The prevalence of formula feeding in children 0-23 months of age is significantly higher in host communities (28.2%) compared to the camps (3.7% in Za'atri camp and 9.9% in Azraq camp). The proportion of children 0-23 months of age who received infant formula the day prior the survey was higher in 2014 in Za'atri camp with 9.8%, and lower in host communities with 16.1%.

The use of bottle with a nipple is very high among Syrian refugees living in host communities with more than 50% of the children under two years of age who drink from a bottle with a nipple the day prior the survey. This proportion is lower in Azraq camp (21.8%) and in Za'atri camp (13.8%).

Complementary Feeding Practices

Adequate feeding from 6 months onwards can prevent undernutrition and decrease the risk of infectious diseases, such as diarrhea and pneumonia. Complementary foods (solid or semi-solid foods fed to infants in addition to continued breastfeeding for the first two years of life and beyond) are recommended to be started at after 6 completed months of age.

The survey shows a significant improvement of the timely introduction of the complementary food for infants 6-8 months of age, between 2014 and 2016. In Za'atri camp, the proportion of infants 6-8 months of age who received solid, semi-solid or soft foods the day prior the survey increased from 42.1% to 77.4% ($p<0.05$). In host communities, this proportion increased from 36.4% to 81.5% ($p<0.05$).

The proportion of children aged 6-23 months who received solid, semi-solid or soft foods the minimum number of times or more was around 64% in the camps and around 58% in host communities. The minimum meal frequency seems to be better among the non-breastfed children than among the breastfed children. The minimum meal frequency is increased gradually from 6 to 23 months.

The proportion of children 6-23 months old who received an iron-rich food or iron-fortified food that is specially designed for infants and young children was close to the results obtained in 2014 in Za'atri camp (28.7% in 2014 versus 21.1% in 2016) and in host communities (21.9% in 2014 and 29.4% in 2016; no statistically significant differences). The iron-rich or iron-fortified foods included in the 24-hours recall was any meat, Plumpy products (Plumpy Nut' or Plumpy Sup'), infant formula enriched with iron, and baby food/cereals fortified with iron. Iron fortified bread meant for the general population was not included in this IYCF indicator because it is not specifically designed for young children.

Nutrition Education

More than 40% of the mothers with children under 2 years of age attended a session about breastfeeding or infant feeding, in both camps (42.3% in Za'atri and 41.4% in Azraq). For the majority of these mothers, the sessions were organized in the IYCF caravan. In host communities, only 15.5% of the mothers with children under 2 years of age attended a session about breastfeeding or infant feeding. The sessions in host communities were organized by the Community Based Organizations (CBO) or at hospital.

In Za'atri camp, approximately 8 mothers with children under two years of age out of 10 (81%) received visit(s) at home to help with breastfeeding or infant feeding. This proportion is significantly lower in Azraq with only one mother out of two (49.8%) ($p<0.05$) which might be due to difficulty accessing some villages in the camp. In host

communities, only 14.3% of the mother with children under two years of age received visit(s) at home to help with breastfeeding or infant feeding. In Za'atri and Azraq camps, majority of the women are receiving 2, 3 or more than 4 visit(s) while feeding their child. In host communities, 71.4% of the mothers are receiving only one visit.

Generally, the mothers are satisfied with the nutrition services provided (sessions about breastfeeding or infant feeding and/or visit(s) at home) with more than 90% of the mothers who were satisfied in the three survey areas.

Child Morbidity

The Global Action Plan for the Prevention and Control of Pneumonia and Diarrhea (GAPPD) aims to end preventable pneumonia and diarrhea death by reducing mortality from pneumonia to 3 deaths per 1,000 live births and mortality from diarrhea to 1 death per 1,000 live births by 2025.

Diarrhea

Diarrhea is a leading cause of death among children under five worldwide. Most diarrhea related deaths in children are due to dehydration from loss of large quantities of water and electrolytes from the body in liquid stools. Management of diarrhea (either through oral rehydration salts (ORS) or recommended home fluid) can prevent many of these deaths. Preventing dehydration and malnutrition by increasing fluid intake and continuing to feed the child are also important strategies for managing diarrhea.

The survey findings indicate that approximately one child out of five had diarrhea (3 or more times loose or watery stools in a day) in the past two weeks preceding the survey. The highest rate was in host communities (24.6%) and the lowest in Za'atri camp (19.3%). The prevalence of diarrhea in Za'atri camp is lower than in 2014 (19.3% in 2016 versus 27.0% in 2014). In host communities, the prevalence of diarrhea is significantly higher than in 2014 (24.6% in 2016 versus 14.5% in 2014).

Among the children with diarrhea during the two weeks preceding the survey in the camps, for more than one third of them no advice or treatment was sought; in host communities, for almost half of them no advice or treatment was sought. In the camps, advice or treatment are mainly provided by NGOs' clinics while in host communities advice or treatment are provided through the private medical sector.

The analysis of the drinking and eating practices during diarrhea shows that more than 50% of children under five years of age with diarrhea drank more than usual. Approximately half of the children ate somewhat less.

About 28% of children with diarrhea in the past two weeks preceding the survey received the ORS sachets, in Za'atri camp. This proportion is higher in Azraq camp where around 39% of children with diarrhea in the past two weeks preceding the survey received the ORS sachets. Use of ORS to treat diarrhea in host communities is significantly lower than in the camps with only 16% of children with diarrhea who were given ORS ($p<0.05$).

In the camps, the ORS sachets are mainly provided by NGOs (96% in Za'atri camp and 93% in Azraq camp) while in host communities, the ORS sachets are mainly provided by the private medical sector (71%).

The percentage of children with diarrhea who were given the ORS or an increased fluid intake (ORT), and at the same time, with continued feeding, is very low in both camps (7.7% in Za'atri and 8.8% in Azraq) and in host communities (2.3%). It is also important to note that between 20% and 30% of children with diarrhea were receiving antibiotics. Approximately 40% of children received a home remedy to treat diarrhea (mashed potatoes in general). Among the children with diarrhea during the two weeks preceding the survey, 23.5% in Za'atri camp, 30.2% in Azraq camp and 39.9% in host communities, received no treatment or drug for diarrhea.

Acute Respiratory Infection (ARI) symptoms

Pneumonia is a leading cause of death in children and the use of antibiotics in under-fives with suspected pneumonia or ARI is a key intervention. More than one child out of five was reported to have had symptoms of ARI during the two weeks preceding the survey in Azraq camp. In Za'atri camp, this proportion is significantly lower with 14.3% of children 0-59 months who were reported to have had symptoms of ARI.

In Za'atri camp around 43% of children with ARI symptoms received antibiotics against only approximately 20% in Azraq camp. In host communities, around one child out of four received antibiotics for the treatment of ARI symptoms. In the camps, the antibiotics are mainly provided by UN supported clinic run by NGOs (92% in Za'atri camp and 82% in Azraq camp) while in the host communities, the antibiotics are mainly provided by the private medical sector (64%). Among the children with ARI symptoms during the two weeks preceding the survey in the camps, for approximately one third of them no advice or treatment was sought.

Nutritional Status of Women
A growing body of evidence indicates undernutrition is handed down from one generation to the next as a grim inheritance. Malnourished women or adolescent girls give birth to babies who are born stunted. If these children grow up in an environment of suboptimal infant and young child feeding practices and a high burden of infectious diseases, these children do not experience much catch-up growth in subsequent years, leading to an intergenerational cycle of stunting[12]. Children who are stunted are more likely to get sick or die. If they survive they enter school late, do not learn well, and are less productive as adults. In later life, they are at an increased risk of chronic diseases. To illustrate, childhood stunting-even in its moderate form increases mortality by 60%[13]. It is related to a 2-3 year reduced school attendance and to a 22% lower income in adult life[14]. Beyond the individual impacts of this problem, stunting is an enormous drain on economic productivity and growth. Economists estimate that stunting can reduce a country's GDP by as much as 12%.[15]

The proportion of women of reproductive age who are malnourished (MUAC <230 mm) is higher among pregnant women with prevalence ranging from 7.7% in host communities to 8.5% in Azraq camp. It is also important to note that the prevalence of acute malnutrition among lactating women is 7.6% in Azraq camp. The prevalence in Azraq camp is significantly higher than in Za'atri camp (1.7%, $p < 0.05$). No acute malnutrition was noted among lactating women in host communities.
The survey findings confirmed that the adolescent girls (15-19 years) and women between 20 and 29 years of age are the most vulnerable to acute malnutrition, with for example in Za'atri camp 21.6% of girls 15-19 years and 6.1% of women 20-29 years having a MUAC below 230 mm (non pregnant and non lactating).

Enrolment in ANC programme and Iron-Folic Acid (IFA) supplementation
Almost all pregnant women interviewed as part of this survey in Za'atri camp were enrolled in ANC programme. In Azraq camp and in host communities, only 3 out of 4 pregnant women were followed by a doctor for ANC the day of the survey (respectively 78.8% and 76.1%). Further assessment is required to assess whether at least 4 ANC visits at the time of delivery were made.

The proportion of pregnant women taking iron-folic acid supplements was below 50% in Azraq camp (48.1%) while it was approximately 85% in Za'atri camp. This difference between the two camps is significant ($p < 0.05$). About 63% of all pregnant women in host communities were taking iron-folic acid supplements. It should also be noted that combined iron-folic acid pills were not available in Azraq camp during the survey. Deficiencies in iron and folic acid during pregnancy can potentially negatively impact the health of the mother, her pregnancy, as well as fetal development. Evidence has shown that the use of iron and folic acid supplements is associated with a reduced risk of iron deficiency and anemia in pregnant women. According to WHO, a daily oral iron and folic acid supplementation is recommended as part of the antenatal care to reduce the risk of low birth weight, maternal anemia and iron deficiency as well as neural tube defects in new-borns.

Water and Sanitation

The safe disposal of children's faeces is of particular importance because children's faeces are the most likely cause of faecal contamination to the immediate household environment. In the camps, approximately 30% of the households (31.6% in Za'atri and 29.4% in Azraq) were disposing children's feces safely compared to 23.5% in 2014 (in Za'atri). In host communities, 21.7% of the households follow safe disposal of children's feces (25.8% in 2014). This may be an indication of poor hygienic practices among the refugees.

[12] ACC/SCN. Fourth Re port on the World Nutrition Situa tion. Geneva: ACC/SCN in col labo ra tion with IFPRI; 2000.
[13] Black RE, Allen LH, Bhutta ZA, Caulfield LE, de Onis M, Ezzati M, Mathers C, Rivera J. Maternal and child undernutrition: global and regional exposures and health consequences. Lancet. 2008 Jan 19;371:243-60.
[14] Victora CG, Adair L, Fall C, Hallal PC, Martorell R, Richter L, Sachdev HS. Maternal and child undernutrition: consequences for adult health and human capital. Lancet. 2008 Jan 26;371:340-57.
[15] Source : http://thousanddays.org/the-issue/stunting/

7. Conclusion and Recommendations

The third round of Interagency Nutrition Surveys among Syrian refugees living in Jordan showed that wide coverage of food assistance has largely attributed to maintain the global acute malnutrition levels significantly below the acceptable level (<5%) of WHO cut-off values for public health significance. The last round of surveys done in 2014 found GAM results of 5.1% (2.9-73.3) for Za'atri camp and 3.5% (2.4-4.5) for host communities.

WFP food assistance is the most common source of food for the majority of the households in the camp as well as in host communities and, in addition, a majority of Syrian refugees heavily rely on food assistance. Thus, any change to WFP food assistance is very likely to have a direct impact on the refugees' food security at the household level.

The RCSI was lower than in 2014, showing that in order to maintain an adequate level of food consumption, Syrian refugees less often adopt severe coping strategies to meet their needs. This could suggest a stable food security situation between 2014 and 2016, even if the values of the food vouchers decreased. On average, the households consumed more than seven food groups (out of 12) during the day preceding the survey, which denotes a satisfactory level of dietary diversity amongst the Syrian refugee population in Jordan. The Syrian refugees have slightly increased their economic ability to access a better variety of food between 2014 and 2016. Nevertheless, the most common foods groups consumed were cereals, spices/condiment/beverages, oils/fats and sweetened food. The consumption of vitamin A rich vegetables was below 20% in both camps and consumption of vitamin A fruit was below 3%. In addition, the findings show a low consumption of a food source of heme iron. Due to the important level of anemia found in 2014 among children and women, this low consumption of micronutrient-rich food and more particularly, iron-rich food should be addressed.

With regards to food security, it is recommended to:
1. Continue the provision of food vouchers in both camps and host community;
2. Continue the distribution of fortified flour and fortified bread in the camps;
3. Continue to support and strengthen the national food fortification programme.
4. Share with partners the regular M&E reports about prices and quality of food products in the camps;
5. Develop activities to improve dietary diversity and food consumption at household level along with a monitoring and evaluation system, in order to improve access to animal source foods (e.g. dairy, eggs, fish and meat), and make fruits and vegetables more available. For example, the implementation of fresh food vouchers or a gardening programme (at home and/or at school) could be investigated.

Children suffering from stunting or acute malnutrition are more likely vulnerable to infectious diseases and have higher mortality rate and impaired learning capacities. Malnutrition affects brain development and reduces cognitive and learning capacities among children. Malnourished children have lower performance at school and are more likely to attain lower education level and lower revenues when adults.

The results show a level of GAM not exceeding the 5% threshold for the three survey sites. There was no SAM in Azraq and in host communities among the surveyed sample. Based on MUAC, wasting rates ranged from 0.0% in host communities to 1.4% in Azraq camp and no MUAC below 115 mm was found in the three survey sites indicating no SAM cases.

With regards to acute malnutrition, it is recommended to:
6. Continue and strengthen the existing nutrition programmes (Community-based Management of Acute Malnutrition (CMAM), screening activities especially at community level) in order to maintain these low levels of acute malnutrition and decrease prevalence of moderate acute malnutrition.

Based on the WHO classification, the results show a level of chronic malnutrition considered "Acceptable", not exceeding the 20% threshold for the three surveys. Nevertheless, in Azraq camp, the prevalence of stunting could possibly be higher than 20%, according to the upper limit of the confidence interval (22.9%).
The most effective interventions in preventing stunting occur during the window of opportunity, from the time of pregnancy until the end of the first two years of life of the child. All forms of malnutrition were found high in the first two years of age. Therefore, it is highly recommended to consider children in this age group through

improving infant and young child feeding practices and maternal education towards behavioural and practice changes.

Consequently, it is recommended to:
7. Continue to build the capacity of and support the Ministry of Health, to improve the health and nutrition programmes in the community for promoting, supporting and protecting exclusive breastfeeding for the first six months of life, continued breastfeeding up to two years of age and beyond;
8. Scale-up community-based programmes to provide information and counselling on optimal and appropriate breastfeeding and complementary feeding practices in host communities;
9. Conduct communication campaigns on preventative activities more frequently: prenatal care, nutrition of pregnant women, promotion of exclusive breastfeeding, complementary feeding and continued breastfeeding, good hygienic practices, the production and consumption of available complementary foods focusing on Vitamin A and iron rich food;
10. Scale up activities on active case finding of malnourished children through screening activities and establish regular growth monitoring.

The breastfeeding practices were not optimal in the three survey areas even if some improvements were noticed as compared to the 2014 survey results (exclusive breastfeeding and continued breastfeeding at 1 year in Za'atri and host community). The survey shows also a significant improvement of the timely introduction of the complementary food in Za'atri camp and host communities, the consumption of iron-rich food was close to the results obtained in 2014 (<30%). The 2016 results show that breastfeeding counselling and support provided to the mothers with children under two years of age could explain these small improvements regarding IYCF practices.

Consequently, it is recommended to:
11. Continue promoting appropriate IYCF practices (Early initiation of breastfeeding, exclusive breastfeeding, continued breastfeeding up to 2 years, timely introduction of appropriate and adequate complementary feeding) through the existing nutrition education sessions and using behavior change communication interventions;
12. Continue and strengthen training sessions targeting the health care providers who are involved in antenatal, delivery and postpartum care to strengthen the early initiation of breastfeeding and avoid prelacteal feeds, focusing on facility based coaching
13. Develop and highlight a separate training component/session for health care providers on the risks of prelacteal feeds and use of bottles with a nipple – and how to transfer the knowledge to the caregivers they encounter.
14. Increase the coverage of the nutrition education sessions focusing on breastfeeding and complementary feeding, and more specifically in host communities;
15. Increase follow-up visit(s) at home to help with breastfeeding or infant feeding, and more specifically in Azraq camp and in host communities;
16. Strengthen the enforcement and accountability mechanisms for key legislations for breastmilk substitutes and more specifically in host communities. A joint monitoring body (MoH/UNICEF) could be created to discourage provision of infant formula just after birth in hospitals;
17. Increase availability of age-appropriate food for children aged 6 to 23 months. Several options could be investigated like the provision of appropriate locally available, culturally acceptable (non-perishable) complementary foods, local fortified porridges enriched with micronutrients or special food vouchers for children between 6 and 23 months (+5 JOD) for micronutrient rich food and protein-rich food, etc.

Maternal under nutrition is one of the main contributing factors for low birth weight babies. The proportion of women of reproductive age who are malnourished (MUAC <230 mm) was higher among the pregnant women with prevalence ranging from 7.7% in host communities to 8.5% in Azraq camp. The prevalence of acute malnutrition among lactating women was also significantly higher in Azraq camp in comparison to Za'atri camp and refugees in host communities.
Almost all pregnant women in Za'atri camp were enrolled in ANC programme, but only 3 out of 4 pregnant women were followed by a doctor in Azraq camp and in host communities. The proportion of pregnant women taking iron-folic acid supplements was below 50% in Azraq camp while it was approximately 85% in Za'atri camp and 63% in host communities.

With regards to women of reproductive age and pregnant and lactating women, it is recommended to:

18. Find ways to increase adherence to iron-folic acid (IFA) supplementation in pregnancy and promote combined pills of iron and folic acid;
19. Review and strengthen the already existing protocol for management of malnutrition in pregnancy and improve access to a balanced energy-protein food in pregnancy especially in host community;
20. Assess the barriers to utilization of antenatal care (ANC) programme to improve ANC programme coverage in host communities and in Azraq camp;
21. Improve adolescent girl and adult women's knowledge on diet quality through the already existing nutrition education sessions (focus on adolescent women and pregnant women food needs and on low birth weight matter).

Although it is difficult to compare cross sectional survey data collected during different seasons, there seems to have no large reduction in the number of children who have diarrhea in the current survey compared to the previous survey. The rate in host communities was higher than in the camps. This may largely be due to poor hygienic practices. In addition, a low proportion of the households were disposing children's feces safely. This may be a second indication of poor hygienic practices among the refugees.

With regards to management of diarrhea episodes and hygiene it is recommended to:

22. Detect barriers to seeking appropriate healthcare during an episode of diarrhea (access to health care facilities, appropriate drinking and eating practices);
23. Increase awareness about the importance of oral rehydration therapy (ORS or increased fluids) and continuous feeding to treat an episode of diarrhea;
24. Strengthen sensitization about handwashing practices (critical times) and use of soap. Soap eliminates diarrhea-inducing pathogens from the skin. Research in refugee settings has shown that in households where soap was present, fewer children had diarrheal diseases regardless of whether they actually used soap (UNHCR, UNICEF, hygiene promotion partners of UNICEF);
25. Provide more dustbins / containers that can be closed, in the camps (for diapers).

The Interagency Nutrition Surveys among Syrian refugees living in Jordan could be conducted every two to three years but it is recommended to plan data collection for the next survey at the same period as this survey (September-October) in order to better monitor the effect of present and future interventions and to eliminate issues of seasonality.

Annexes

Annex 1 – Map of Syrian refugees in Jordan

Syrian Refugees in Jordan - Governorate Level
Syrain Refugees in Jordan (Total Population) as of 30 September 2016

Total Number of Syrian Refugees in Jordan
as of the end of September 2016
is 655,483 Individuals

Legend:
- ▲ Refugee Camp
- — Major Road
- Armistice Demarcation Line
- Boundary of former Palestine Mandate
- International Boundary

Syrian Refugees
- 1 - 5,000
- 5,001 - 10,000
- 10,001 - 50,000
- 50,001 - 150,000
- 150,001 - 179,626

Bar chart (Syrian Refugees by Governorate):
- Amman: 179,626
- Mafraq: 158,653
- Irbid: 136,322
- Zarqa: 110,079
- Balqa: 19,472
- Madaba: 11,025
- Jerash: 9,867
- Karak: 8,712
- Ajloun: 8,174
- Maan: 7,434
- Aqaba: 3,344
- Tafiela: 1,517

The boundaries and names shown and the designations used on this map do not imply official endorsement or acceptance by the United Nations.

Printing date: 23 Oct 2016   Sources: UNHCR   Author: UNHCR Jordan   Feedback: alsagban@unhcr.org   Filename: Syrian_Refugees_Admn1_Sep2016_A3L

Annex 2 – Questionnaire

Interagency Nutrition Surveys Amongst Syrian Refugees in Jordan
Sept. – Oct. 2016

HOUSEHOLD FORM – FOR ALL SELECTED HOUSEHOLDS
This form must be administrated to the head of the household and, if he/she is absent, another adult member of the household

Governorate/Camp	District/Villages	Sub-District/Blocks
_____	_____	_____

Survey Date (DD/MM/YYYY)	Team Number	Cluster Number	HH Number
|___|___|/|___|___|/|___|___||___|___|	|___|	|___|___|___|	|___|___|

No	Question	Answer Codes	
HH1	Who is the head of the household? *SELECT ONLY ONE (1) RESPONSE*	01= Father 02= Mother 03= Grandfather 04= Grandmother 96= Other	|___|___|
HH2	How long has your (refugee) household lived in Jordan?	1= ≤ 1 Month 2= ≤ 3 Months 3= ≤ 6 Months 4= ≤ 12 Months 5= ≤ 24 Months 6= ≥ 2 years 7= ≥ 4 years	|___|
HH3	Are you hosted by a resident household? **(Out-of-camp only)**	1= Yes 2= No	|___|
HH4	Are you sharing an accommodation with another refugee household from Syria?	1= Yes 2= No	|___|
HH5	How many households are living in this structure, <u>including your household?</u>	Number of households ……..... |___|___| Don't know…........... 98	
HH6	What is the main source of cash/income that is sustaining your household? *SELECT ONLY ONE (1) RESPONSE* *DO NOT READ THE ANSWERS*	01= Unskilled labour / work (casual labour, salaried work, provision of services) 02= Skilled labour/work 03= Formal commerce 04= Informal commerce 05= Sale of crops (agriculture) 06= Sale of livestock and animal produce 07= Agriculture waged labour	11= Formal credit/debts (e.g. banks) 12= Informal credit/debts (shops, friends hosts) 13= Gifts from family/relatives 14= Sale of food aid (food vouchers or parcels) 15= Sale of non-food assistance 16= Cash from humanitarian/charitable organizations 17= In-kind assistance from	|___|___|

		08=Sale of assets (car, bicycle, refrigerator, TV) 09= Remittances 10= Savings	humanitarian/charitable Organization 18= Food vouchers 19= Begging 96= Other	

HOUSEHOLD FOOD SECURITY FORM – FOR ALL SELECTED HOUSEHOLDS
This form must be administrated to the head of the household and, if he/she is absent, another adult member of the household

Governorate/Camp	District/Villages	Sub-District/Blocks
_____	_____	_____

Survey Date (DD/MM/YYYY)	Team Number	Cluster Number	HH Number
|___|___|/|___|___|/|___|___||___|___|	|___|	|___|___|___|	|___|___|

No	Question	Answer Codes	
FS1	Does your household have a ration card or asylum seeker card?	1= Yes 2= No	|___| IF ANSWER IS 1 GO TO FS3
FS2	Why do you not have a ration card or asylum seeker card?	01= Not given one at registration 02= Lost card 03= Traded/sold card 04= Not registered but eligible 05= Not eligible (not in targeting criteria) 96 = Other	|___|___| GO TO FS6
FS3	Do you receive food vouchers from WFP?	1= Yes 2= No	|___| IF ANSWER IS 2 GO TO FS6
FS4	If yes, what is the value of the vouchers received?	20= 20 JOD/person/month 10= 10 JOD/person/month	|___|___|
FS5	How many days did the food you purchased with the vouchers you received for the month of August 2016 last?	*RECORD THE NUMBER OF DAYS IF KNOWN (RECORD 98 IF UNKNOWN)*	|___|___|
FS6	What has been the main source of food, from the time the family arrived here as a refugee? *SELECT ONLY ONE*	01 = Purchase from personal resource 02 = Purchase with cash given by charity 03 = Purchase at credit, borrowed 04 = Received as gift from charity 05 = Shared with hosts 06 = Humanitarian food aid 07 = Received against work (in-kind payment) 08 = Bartered against other goods 96 = Other 99 = Not eaten during the 7 past days	|___|___|
FS7	During the last 7 days, how many times (in days) did your household have to rely on less preferred and less expensive food (i.e. cheaper lower quality food) to cope with a lack of food or money to buy it?	Number of days ……... |___|___| Not applied…........... 00 Everyday…………… 07	
FS8	During the last 7 days, how many times (in days) did your household have to borrow food or relied	Number of days ……... |___|___|	

	on help from relative(s) or friend(s) to cope with a lack of food or money to buy it?	Not applied…........... 00 Everyday……………. 07	
FS9	During the last 7 days, how many times (in days) did your household have to reduce number of meals eaten in a day to cope with a lack of food or money to buy it?	Number of days …….... |___|___| Not applied…........... 00 Everyday……………. 07	
FS10	During the last 7 days, how many times (in days) did your household have to limit portion size at mealtime (different from above: i.e. less food per meal) to cope with a lack of food or money to buy it?	Number of days …….... |___|___| Not applied…........... 00 Everyday……………. 07	
FS11	During the last 7 days, how many times (in days) did your household have to restrict consumption by adults in order for small children to eat to cope with a lack of food or money to buy it?	Number of days …….... |___|___| Not applied…........... 00 Everyday……………. 07	
FS12	In the past 30 days, has your household spent savings to meet basic food needs?	1 = Yes 2 = No, I did no need to use this strategy 3 = No, because I have exhausted this strategy already and cannot do it anymore	|___|
FS13	In the past 30 days, has your household bought food on credit or borrowed money to purchase food to meet basic food needs?	1 = Yes 2 = No, I did no need to use this strategy 3 = No, because I have exhausted this strategy already and cannot do it anymore	|___|
FS14	In the past 30 days, has your household reduced essential non-food expenditures such as education/health to meet basic food needs?	1 = Yes 2 = No, I did no need to use this strategy 3 = No, because I have exhausted this strategy already and cannot do it anymore	|___|
FS15	In the past 30 days, has your household sold household goods (jewelry, phone, furniture, electro domestics, etc.) to meet basic food needs?	1 = Yes 2 = No, I did no need to use this strategy 3 = No, because I have exhausted this strategy already and cannot do it anymore	|___|
FS16	In the past 30 days, has your household sold productive assets or means of transport (sewing machine, wheel barrow, bicycle, car, motorbike, etc.) to meet basic food needs?	1 = Yes 2 = No, I did no need to use this strategy 3 = No, because I have exhausted this strategy already and cannot do it anymore	|___|
FS17	Now I would like to ask you about the types of foods that you or anyone else in your household ate yesterday during the day and at night. I would like you to recall food items whether you or anyone else in your household had the item even if it was combined together. I am interested in knowing about meals, beverages and snacks eaten or drank inside or outside the home. *READ THE LIST OF FOODS AND DO NOT PROBE.* *CIRCLE '1' IF ANYONE IN THE HOUSEHOLD ATE THE FOOD IN QUESTION. CIRCLE '2' IF NO ONE IN THE HOUSEHOLD ATE THE FOOD. IF RESPONDENT DOES NOT KNOW, CIRCLE '8'.* *EVERY LINE MUST HAVE A CODE.*		

	Yes	No	DK
1. Any wheat, corn, rice, or any foods made from these such as bread, porridge, noodles, pasta, rice, etc.	1	2	8
2. Any white roots and tubers such as, white potatoes, or any foods made from roots and tubers?	1	2	8
3A. Any Vitamin A rich vegetables and tubers such carrot, pumpkins, squash, beets or red sweet pepper, sweet potatoes	1	2	8
3B. Any dark green leafy vegetables such spinach like leaves (khubez), celery, Chicory, Rocca, chard or Mulkhyeh	1	2	8
3C. Any other vegetables such as cabbage, green pepper, tomato, onion, eggplant, zucchini, or cauliflower	1	2	8
4A. Any vitamin A rich fruits such as mango papaya or cantaloupe, apricot (fresh and dried), and 100% fruit juice made from these fruits	1	2	8
4B. Any other fruits such as apple, banana, dates, and orange or 100% fruit juice made from these fruits	1	2	8
5A. Any organ meat or blood-based food such as liver, kidney, heart	1	2	8
5B. Any flesh meat such as beef, lamb, rabbit, chicken, duck, and all types of flesh meat that is called either meat or chicken	1	2	8
6. Any eggs	1	2	8
7. Any fresh, frozen, dried, or canned fish or shellfish such as tuna, sardines, or shrimp	1	2	8
8. Any pulses such as chick peas, dried beans, lentils, or any foods made from these such as hummus, falafel, foul	1	2	8
9. Any nuts and seeds such as peanuts, almonds, sesame	1	2	8
10. Any milk and milk products such fresh milk, pasteurized milk, infant formula, white cheese, yogurt, lebenah	1	2	8
11. Any oils and fats added to food or used for cooking e.g. vegetable oil, samna, and Zobda	1	2	8
12. Any sweets, sweetened soda or juice drinks (lemon juice) and sugary food such as sugar, honey, soda drinks, chocolates, candies, cookies, sweet biscuits and cakes, Harissa, knafa, baklawa	1	2	8
13. Any spices, condiments and beverages such as black pepper, salt, chilies, ginger, herbs, ketchup, mustard, coffee, tea, curry, fil, shatha, baharath	1	2	8

CHILD 6-59 MONTHS FORM – FOR ALL SELECTED HOUSEHOLDS
This form must be administered to all children between 6 and 59 months of age in the selected household

Governorate/Camp	District/Villages	Sub-District/Blocks
_____	_____	_____

Survey Date (DD/MM/YYYY)	Team Number	Cluster Number	HH Number
|___|___|/|___|___|/|___|___||___|___|	|___|	|___|___|___|	|___|___|

CH1	CH2	CH3	CH4	CH5	CH6	CH7	CH8	CH9	CH10	CH11	CH12
ID#	Consent given 1= Yes 2= No 3= Absent	Sex M=male F=female	Birthdate* (DD/MM/YYYY)	Age in months** *Fill only if no birthdate*	Weight (kg) (00.0)	Height/Length (cm) (000.0)	Bilateral Pitting Edema Y=Yes N=No	MUAC (mm) (000) *Left arm*	Child enrolled 1= cSFP[a] 2= hSFP[b] 3= TFP[c] 4= None *SHOW SACHETS*	Measure L=Length H= Height	Clothes Y=Yes N=No
01	|__|	|__|	|__|__|/|__|__|/|__|__||__|__|	|__|__|	|__|__|·|__|	|__|__|__|·|__|	|__|	|_|_|_|	|__|	|__|	|__|
02	|__|	|__|	|__|__|/|__|__|/|__|__||__|__|	|__|__|	|__|__|·|__|	|__|__|__|·|__|	|__|	|_|_|_|	|__|	|__|	|__|
03	|__|	|__|	|__|__|/|__|__|/|__|__||__|__|	|__|__|	|__|__|·|__|	|__|__|__|·|__|	|__|	|_|_|_|	|__|	|__|	|__|
04	|__|	|__|	|__|__|/|__|__|/|__|__||__|__|	|__|__|	|__|__|·|__|	|__|__|__|·|__|	|__|	|_|_|_|	|__|	|__|	|__|
05	|__|	|__|	|__|__|/|__|__|/|__|__||__|__|	|__|__|	|__|__|·|__|	|__|__|__|·|__|	|__|	|_|_|_|	|__|	|__|	|__|
06	|__|	|__|	|__|__|/|__|__|/|__|__||__|__|	|__|__|	|__|__|·|__|	|__|__|__|·|__|	|__|	|_|_|_|	|__|	|__|	|__|

* The exact birth date should be taken from an official documentation (birth certificate, family book, vaccination card, etc.) showing name of the child, day, month and year of birth or the mother recall. **If mother recalls the exact date of birth, cross check with an official age documentation if available.**

** If the date of birth is unknown, estimate age using the local event calendar and the recall of the mother/caregiver to estimate the most correct age in months.

[a] programme run by Save the Children in the camps; Plumpy Sup' is distributed once every 2 weeks
[b] programme run by JHAS in urban settings; Plumpy Sup' is distributed once every 2 weeks
[c] programme run by JHAS/IMC; Plumpy Nut' is distributed

WOMEN 15-49 YEARS OF AGE FORM – FOR ALL SELECTED HOUSEHOLDS
This form must be administered to all women aged between 15 and 49 years in the selected household

Governorate/Camp	District/Villages	Sub-District/Blocks
_____	_____	_____

Survey Date (DD/MM/YYYY)	Team Number	Cluster Number	HH Number
|__|__|/|__|__|/|__|__||__|__|	|__|	|__|__|__|	|__|__|

WM1	WM2	WM3	WM4	WM5	WM6	WM7
ID#	Consent given 1= Yes 2= No 3= Absent	Age in years	MUAC (mm) (000) *Left arm*	Are you pregnant or lactating? 1= Pregnant 2= Lactating 3= Pregnant and lactating 4= No 8= Don't know **IF ANSWER IS 2, 4 or 8 STOP NOW**	Are you currently **enrolled** in an antenatal care programme? 1= Yes 2= No 8= Don't know	Are you currently **receiving** iron-folate pills? 1= Yes 2= No 8= Don't know *SHOW PILLS*
01	|__|	|__|__|	|__|__|__|	|__|	|__|	|__|
02	|__|	|__|__|	|__|__|__|	|__|	|__|	|__|
03	|__|	|__|__|	|__|__|__|	|__|	|__|	|__|
04	|__|	|__|__|	|__|__|__|	|__|	|__|	|__|
05	|__|	|__|__|	|__|__|__|	|__|	|__|	|__|
06	|__|	|__|__|	|__|__|__|	|__|	|__|	|__|
07	|__|	|__|__|	|__|__|__|	|__|	|__|	|__|
08	|__|	|__|__|	|__|__|__|	|__|	|__|	|__|
09	|__|	|__|__|	|__|__|__|	|__|	|__|	|__|

CHILD 0-23 MONTHS FORM – FOR ALL SELECTED HOUSEHOLDS
This form must be administrated to the mother or the main caregiver who is responsible for feeding the child and the child should be between 0 and 23 months of age; Fill one form for each child between 0 and 23 months in the household

Governorate/Camp	District/Villages	Sub-District/Blocks
_____	_____	_____

Survey Date (DD/MM/YYYY)	Team Number	Cluster Number	HH Number	Child ID Number
|__|__|/|__|__|/|__|__||__|__|	|__|	|__|__|__|	|__|__|	|__|

No	Question	Answer Codes	
IF1	Sex	1= Male 2= Female	|__|
IF2	Birthdate *RECORD FROM AGE DOCUMENTATION* *LEAVE BLANK IF NO VALID AGE DOCUMENTATION*	(DD/MM/YYYY) |__|__|/|__|__|/|__|__||__|__|	
IF3	Child's age in months	*IF AGE DOCUMENTATION NOT AVAILABLE, ESTIMATE USING EVENT CALENDAR. IF AGE DOCUMENTATION IS AVAILABLE, RECORD THE AGE IN MONTHS FROM THE DATE OF BIRTH*	|__|__|
IF4	Has **[NAME]** ever been breastfed?	1= Yes 2= No 8= Don't know	|__|
IF5	How long after birth did you first put **[NAME]** to the breast?	1= Less than one hour 2= Between 1 and 23 hours 3= More than 24 hours 8= Don't know	|__|
IF6	In the first three days after delivery, was your infant given anything before initiation of breastfeeding like plain water, sugar water, fruit juice, dates, infusion or other liquids?	1= Yes 2= No 8= Don't know	|__|
IF7	When you went out of the hospital after delivering your baby did you get a tin of infant formula from the health personnel working in the hospital?	1= Yes 2= No 8= Don't remember	|__| **IF ANSWER IS 2 or 8 GO TO IF8**
IF8	At what type of hospital were you given the infant formula?	01= Private 02= Public 03= NGO 96= Other	|__|__|
IF9	Was **[NAME]** breastfed yesterday during the day or at night?	1 = Yes 2 = No 8 = Don't know	|__|

IF10	Now I would like to ask you about liquids that **[NAME]** may have had yesterday during the day and at night. I am interested in whether your child had the item even if it was combined with other foods. Yesterday, during the day or at night, did **[NAME]** receive any of the following? *ASK ABOUT ALL LIQUIDS. IF ITEM WAS GIVEN, CIRCLE '1'. IF ITEM WAS NOT GIVEN, CIRCLE '2'. IF CAREGIVER DOES NOT KNOW, CIRCLE '8'. EVERY LINE MUST HAVE A CODE.*				

		Yes	No	DK
	10A. Plain water	1	2	8
	10B. Infant Formula like **S26, Babyluck, Sahaa, Nan** or other infant formula	1	2	8
	10C. Milk such as tinned, powdered, condensed or fresh animal milk, like **Nido, Luna, Carnation**	1	2	8
	10D. Juice or juice drinks, like **Squeeze, Darina, Tang, Slush**	1	2	8
	10E. Clear broth	1	2	8
	10F. Yogurt and home-made yogurt like **Shinina, Buk, Leban**	1	2	8
	10G. Thin porridge, like **Cerelac, Oatmeal**	1	2	8
	10H. Tea or coffee with milk	1	2	8
	10I. Any sodas or other sweet drinks, like, **Pepsi,** local herbs (**Methe**), clear tea with no milk, black coffee	1	2	8

IF11	Yesterday, during the day or at night, did **[NAME]** eat solid or semi-solid (soft, mushy) food?	1 = Yes 2 = No 8 = Don't know	|___|
IF12	Did **[NAME]** drink anything from a bottle with a nipple yesterday during the day or at night?	1 = Yes 2 = No 8 = Don't know	|___|
IF13	Since the birth of **[NAME]**, did you ever attend a session about breastfeeding or infant feeding?	1 = Yes 2 = No 8 = Don't know	|___| **IF ANSWER IS 2 or 8 SKIP TO IF15**
IF14	Where did you attend this session?	1 = At home 2 = IYCF caravan 3 = Clinic 4 = Hospital 5 = Other	|___|
IF15	Did anyone visit you <u>at home</u> to help you with breastfeeding or feeding this child?	1 = Yes 2 = No 8 = Don't know	|___| **IF ANSWER IS 2 or 8 SKIP TO IF17**
IF16	How many visits did you receive while you were feeding this child?	1 = 1 2 = 2-3 3 = More than 4 8 = Don't know	|___|
IF17	Were you satisfied with the nutrition services provided (sessions about breastfeeding or infant feeding and/or visits at home)?	1 = Yes 2 = No 0 = Not applicable	|___|
IF18	IS CHILD IS AGED 6-23 MONTHS? *REFER TO IF2 / IF3*	1= Yes 2= No	|___|

			IF ANSWER IS 2 STOP NOW

| **IF19** | Now I would like to ask you about some particular foods **[NAME]** may eat. I am interested in whether your child had the item even if it was combined with other foods.

Yesterday, during the day or at night, did **[NAME]** receive any of the following?

ASK ABOUT ALL FOOD ITEMS. IF ITEM WAS GIVEN, CIRCLE '1'. IF ITEM WAS NOT GIVEN, CIRCLE '2'. IF MOTHER/CAREGIVER DOES NOT KNOW, CIRCLE '8'.
EVERY LINE MUST HAVE A CODE. |

		Yes	**No**	**DK**
	19A. Any meat such as beef, lamb, goat, chicken, liver, kidney, heart or other organ meats	1	2	8
	19B. Any of the Plumpy' products (**Plumpy Nut', Plumpy Sup'**) *SHOW SACHET*	1	2	8
	19C. Infant formula (**Nan, S26**)	1	2	8
	19D. Any baby cereal or baby food (**Cerelac, Farlaz, Sahha, Oatmeal**)?	1	2	8
IF20	How many times did **[NAME]** eat solid, semi-solid, or soft foods other than liquids yesterday during the day or at night?	Number of times ……..... |___|___| Don't know…........... 98		

CHILD 0-59 MONTHS FORM – FOR ALL SELECTED HOUSEHOLDS

This form must be administered to the mother or the main caregiver who is responsible for the child and the child should be between 0 and 59 months of age; Fill one form for each child between 0 and 59 months in the household

Governorate/Camp	District/Villages	Sub-District/Blocks
_____	_____	_____

Survey Date (DD/MM/YYYY)	Team Number	Cluster Number	HH Number	Child ID Number
|__|__|/|__|__|/|__|__||__|__|	|__|	|__|__|__|	|__|__|	|__|

No	Question	Answer Codes	
CA1	In the last two weeks, has **[NAME]** had diarrhea*? *Diarrhea is defined as the passage of three or more loose or liquid stools in the past 24 hours. Frequent passing of formed stools is not diarrhea, nor is the passing of loose, "pasty" stools by breastfed babies.*	1= Yes 2= No 8= Don't know	|__| **IF ANSWER IS 2 or 8 SKIP TO CA8**
CA2	I would like to know how much **[NAME]** was given to drink during the diarrhea (including breastmilk). During the time **[NAME]** had diarrhea was he/she given less than usual to drink, about the same amount, or more than usual, or nothing to drink?	1= Less 2= About the same 3= More 4= Nothing to drink 8= Don't know	|__|
CA3	During the time **[NAME]** had diarrhea was he/she given less than usual to eat, about the same amount, or more than usual, or nothing to eat?	1= Less 2= About the same 3= More 4= Nothing to eat 8= Don't know	|__|
CA4A	Did you seek any advice or treatment for the diarrhea from any source?	1= Yes 2= No 8= Don't know	|__| **IF ANSWER IS 2 or 8 SKIP TO CA5A**
CA4B	From where did you seek advice or treatment? *PROBE:* Anywhere else? *CIRCLE ALL PROVIDERS MENTIONED BUT <u>DO NOT</u> PROMPT WITH ANY SUGGESTIONS*	Government hospital ………….. Government health centre ……. Private hospital …………………. Private physician ……………….. Private pharmacy ………………. Charity/NGO clinic ……………... Relative/Friend …………………. Community Health Volunteer … Other …………………………….	… A … B … C … D … E … F … G … H … X
CA5A	During the time **[NAME]** had diarrhea, was **[NAME]** given to drink a salted or rehydration solution? (**Aquasal**) *SHOW SACHET*	1= Yes 2= No 8= Don't know	|__| **IF ANSWER IS 2 or 8 SKIP TO CA6**
CA5B	Where did you get the ORS?	Government hospital ………… Government health centre …..	… A … B

66

	CIRCLE ALL PROVIDERS MENTIONED BUT DO NOT PROMPT WITH ANY SUGGESTIONS	Private hospital ……………….. Private physician …………….. Private pharmacy …………….. Charity/NGO clinic …………… Relative/Friend ……………….. Community Health Volunteer .. Other ………………………………	… C … D … E … F … G … H … X
CA6	Was anything (else) given to treat the diarrhea?	1= Yes 2= No 8= Don't know	|___| **IF ANSWER IS 2 or 8 SKIP TO CA8**
CA7	What (else) was given to treat the diarrhea? *PROBE:* Anything else? *CIRCLE ALL PROVIDERS MENTIONED BUT DO NOT PROMPT WITH ANY SUGGESTIONS*	**Pill or Syrup** Antibiotic ………………………… Antimotility ……………………… Other pill or syrup (not antibiotic, antimotility or zinc) … Unknown pill or syrup …………. **Injection** Antibiotic ……………………… Non-antibiotic …………………. Unknown injection …………….. Intravenous ……………………. Home remedy / Herbal medicine …………………………. Other ……………………………… Don't know ………………………	… A … B … C … D … E … F … G … H … I … X ... Z
CA8	At any time in the last two weeks, has **[NAME]** had an illness with a cough?	1= Yes 2= No 8= Don't know	|___| **IF ANSWER IS 2 or 8 SKIP TO CA16**
CA9	When **[NAME]** had an illness with a cough, did he/she breathe faster than usual with short, rapid breaths or have difficulty breathing?	1= Yes 2= No 8= Don't know	|___| **IF ANSWER IS 2 or 8 SKIP TO CA11**
CA10	Was the fast or difficult breathing due to a problem in the chest or a blocked or runny nose?	1= Problem in the chest only 2= Blocked or runny nose only 3= Both 4= Other 8= Don't know	|___|
CA11	Did you seek any advice or treatment for the illness from any source?	1= Yes 2= No 8= Don't know	|___| **IF ANSWER IS 2 or 8 SKIP TO CA13**
CA12	From where did you seek advice or treatment? *PROBE:* Anywhere else? *CIRCLE ALL PROVIDERS MENTIONED BUT DO NOT PROMPT WITH ANY SUGGESTIONS*	Government hospital …………. Government health centre …… Private hospital ………………… Private physician ………………. Private pharmacy ……………… Charity/NGO clinic ……………. Relative/Friend …………………. Community Health Volunteer …	… A … B … C … D … E … F … G … H

		Other	... X
CA13	At any time during the illness, was **[NAME]** given any medicine for the illness?	1= Yes 2= No 8= Don't know	|___| **IF ANSWER IS 2 or 8 SKIP TO CA15**
CA14	What medicine was **[NAME]** given? *PROBE:* Any other medicine?	**Antibiotics** Pill / Syrup .... Injection .... **Other medications** Paracetamol / Panadol / Acetaminophen .... Aspirin .... Ibuprofen .... Other .... Don't know	... A ... B ... C ... D ... E ... X ... Z
CA15	Where did you get the (*NAME OF THE MEDICINE FROM CA14*)? *CIRCLE ALL PROVIDERS MENTIONED BUT DO NOT PROMPT WITH ANY SUGGESTIONS*	Government hospital .... Government health centre .... Private hospital .... Private physician .... Private pharmacy .... Charity/NGO clinic .... Relative/Friend .... Community Health Volunteer ...... Other	... A ... B ... C ... D ... E ... F ... G ... H ... X
CA16	The last time **[NAME]** passed stools, what was done to dispose of the stools?	01= Child used toilet / latrine 02= Put / Rinsed into toilet or latrine 03= Put / Rinsed into drain or ditch 04= Thrown into garbage (solid waste) 05= Buried 06= Left in the open 96= Other (*SPECIFY*) _____ 98= Don't know	|___|___|

Annex 3 – Calendar of events (September)

Season	Religious Holidays/National Holidays	Syrian Events	Month / Year	Age (month)
Calendar of Events 2011-2016 – Interagency Nutrition Surveys Amongst Syrian Refugees in Jordan **Data Collection: September**			
	Aïd Al Adha:11ᵗʰ		September 2016	0
End of summer			August 2016	1
Summer	Aïd Al Fitr: 7ᵗʰ		July 2016	2
Start of summer	Beginning of Ramadan: 7ᵗʰ		June 2016	3
	Al Isra' wal Miraj: 4ᵗʰ	Martyrs' day: 6ᵗʰ	May 2016	4
		Independence day: 17ᵗʰ	April 2016	5
	Mother's day: 21ˢᵗ Easter day: 27ᵗʰ	Revolution day: 8ᵗʰ	March 2016	6
End of winter			February 2016	7
Winter	New year's day: 1ˢᵗ		January 2016	8
Start of winter	Aïd Al Mawlid Annabawi: 24ᵗʰ Christmas: 25ᵗʰ		December 2015	9
			November 2015	10
	Muharram: 15ᵗʰ		October 2015	11
	Aïd Al Adha:24ᵗʰ		September 2015	12
End of summer			August 2015	13
Summer	Aïd Al Fitr: 18ᵗʰ		July 2015	14
Start of summer	Beginning of Ramadan: 18ᵗʰ		June 2015	15
	Al Isra' wal Miraj: 4ᵗʰ	Martyrs' day: 6ᵗʰ	May 2015	16
	Easter day: 5ᵗʰ	Independence day: 17ᵗʰ	April 2015	17
	Mother's day: 21ˢᵗ	Revolution day: 8ᵗʰ	March 2015	18
End of winter	Valentine's day: 14ᵗʰ		February 2015	19
Winter	New year's day: 1ˢᵗ Aïd Al Mawlid Annabawi: 3ʳᵈ		January 2015	20
Start of winter	Christmas: 25ᵗʰ		December 2014	21
			November 2014	22
	Aïd Al Adha:4ᵗʰ Muharram: 25ᵗʰ		October 2014	23
			September 2014	24
End of summer			August 2014	25
Summer	Aïd Al Fitr: 28ᵗʰ		July 2014	26
Start of summer	Beginning of Ramadan: 29ᵗʰ		June 2014	27
	Al Isra' wal Miraj: 26ᵗʰ	Martyrs' day: 6ᵗʰ	May 2014	28
	Easter: 20ᵗʰ	Independence day: 17ᵗʰ	April 2014	29

	Mother's day: 21st	Revolution day: 8th	March 2014	30
End of winter			February 2014	31
Winter	New year's day: 1st Aïd Al Mawlid Annabawi: 13th		January 2014	32
Start of winter	Christmas: 25th		December 2013	33
	Muharram: 7th		November 2013	34
	Aïd Al Adha:15th		October 2013	35
			September 2013	36
End of summer	Aïd Al Fitr: 8th		August 2013	37
Summer	Beginning of Ramadan: 9th		July 2013	38
Start of summer	Al Isra' wal Miraj: 5th		June 2013	39
		Martyrs' day: 6th	May 2013	40
		Independence day: 17th	April 2013	41
	Mother's day: 21st Easter day: 31th	Revolution day: 8th	March 2013	42
End of winter			February 2013	43
Winter	New year's day: 1st Aïd Al Mawlid Annabawi: 24th		January 2013	44
Start of winter	Christmas: 25th		December 2012	45
	Muharram: 15th		November 2012	46
	Aïd Al Adha:25th		October 2012	47
			September 2012	48
End of summer	Aïd Al Fitr: 19th		August 2012	49
Summer	Beginning of Ramadan: 20th		July 2012	50
Start of summer	Al Isra' wal Miraj: 17th		June 2012	51
		Martyrs' day: 6th	May 2012	52
	Easter day: 8th	Independence day: 17th	April 2012	53
	Mother's day: 8th	Revolution day: 8th	March 2012	54
End of winter	Aïd Al Mawlid Annabawi: 4th		February 2012	55
Winter	New year's day: 1st		January 2012	56
Start of winter	Christmas: 25th		December 2011	57
	Aïd Al Adha:7th Muharram: 27th		November 2011	58
			October 2011	59
			September 2011	60

Annex 4 – Persons Involved in the Interagency Nutrition Surveys amongst Syrian Refugees in Jordan

Technical Committee – MoH
- Dr Basheer Qaseer - Director of the Primary Health Care Directorate
- Hanan Masad - Head of Nutrition Section/ Non-communicable Disease Directorate
- Dr Hanan Al Najmi - Head of the Maternal and Child Health Section/ Directorate of Maternal and Child Health
- Rawhieh Barham - Deputy of the head of the Nutrition Section/ Non-communicable Disease Directorate

Implementing Partner
- SCJ

Donors for the Survey
- UNHCR
- UNICEF
- WFP

Nutrition Survey Consultant
- Fanny Cassard - UNHCR

Trainers
- Fanny Cassard - UNHCR
- Dina Jardaneh - UNHCR
- Sura Alsamman - SCJ
- Hannah Kalbouneh - SCJ
- Sanjay Kumar Das - UNICEF
- Francis Vachon - CartONG

Supervisors
- Fanny Cassard - UNHCR
- Dina Jardaneh - UNHCR
- Sura Alsamman - SCJ
- Hannah Kalbouneh - SCJ
- Sanjay Kumar Das - UNICEF
- Eva Leidman - CDC
- Alina Michalska - ACF-Canada
- Isra'a Abu Jamouse - SCJ

Team	Roles	Name
Team 1	Team Leader	Maha Talal Jawarneh
Team 1	Enumerator	Abdul Rahman Dabash
Team 1	Measurer	Rua'a Abo Sokhen
Team 1	Assistant	Haya Rudaini
Team 2	Team Leader	Tala Maragha
Team 2	Enumerator	Safa'a Barakat
Team 2	Measurer	Sabreen Arabeyat
Team 2	Assistant	Sakher Ababneh
Team 3	Team Leader	Rima Issa
Team 3	Enumerator	Tha'er Abu Hassan
Team 3	Measurer	Heba Al Shqirat
Team 3	Assistant	Areej Al Refa'i
Team 4	Team Leader	Mohanad Ramadan
Team 4	Enumerator	Juman Khallad
Team 4	Measurer	Haya Al Nimer
Team 4	Assistant	Gardena Kittaneh
Team 5	Team Leader	Farah Hijjawi
Team 5	Enumerator	Haneen Mashni
Team 5	Measurer	Wala'a Qasem
Team 5	Assistant	Yousef Suwan
Team 6	Team Leader	Amalead Yousef
Team 6	Enumerator	Abdullah Rateb Tahat
Team 6	Measurer	Riyadh Al Nadi
Team 6	Assistant	Al Anood Al Owisat
Team 7	Team Leader	Shaima Diknash
Team 7	Enumerator	Dalal Na'eem Mustafa
Team 7	Measurer	Seham Hisham Tofaha
Team 7	Assistant	Ja'afar Al Jazzazi
Team 8	Team Leader	Hadeel Ismail
Team 8	Enumerator	Islam Abu Hardan
Team 8	Measurer	Hala Abo Sokhen
Team 8	Assistant	Fatima Ata Said

Plausibility check for: JOR_0916_ZAATARI_CHILDREN_VF.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 (0.3 %)

Overall Sex ratio     Incl   p     >0.1  >0.05   >0.001  <=0.001
(Significant chi square)          0     2        4        10      2 (p=0.051)

Age ratio(6-29 vs 30-59) Incl p    >0.1  >0.05   >0.001  <=0.001
(Significant chi square)          0     2        4        10      2 (p=0.059)

Dig pref score - weight  Incl #    0-7   8-12    13-20   > 20
                                  0     2        4        10      0 (4)

Dig pref score - height  Incl #    0-7   8-12    13-20   > 20
                                  0     2        4        10      0 (5)

Dig pref score - MUAC    Incl #    0-7   8-12    13-20   > 20
                                  0     2        4        10      0 (7)

Standard Dev WHZ      Excl   SD    <1.1  <1.15   <1.20   >=1.20
.                                  and            or
.                     Excl   SD    >0.9  >0.85   >0.80   <=0.80
                                  0     5        10        20      0 (0.92)

Skewness   WHZ        Excl   #     <±0.2 <±0.4   <±0.6   >=±0.6
                                  0     1        3        5       0 (0.01)

Kurtosis   WHZ        Excl   #     <±0.2 <±0.4   <±0.6   >=±0.6
                                  0     1        3        5       3 (0.53)

Poisson dist WHZ-2    Excl   p     >0.05 >0.01   >0.001  <=0.001
                                  0     1        3        5       0 (p=0.448)

OVERALL SCORE WHZ =                0-9   10-14   15-24   >25     7 %
```

The overall score of this survey is 7 %, this is excellent.

Plausibility check for: JOR_0916_AZRAQ_CHILDREN_VF.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 (0.0 %)

Overall Sex ratio     Incl   p     >0.1  >0.05   >0.001  <=0.001
(Significant chi square)          0     2        4        10      0 (p=0.697)

Age ratio(6-29 vs 30-59) Incl p    >0.1  >0.05   >0.001  <=0.001
(Significant chi square)          0     2        4        10      0 (p=0.704)

Dig pref score - weight  Incl #    0-7   8-12    13-20   > 20
                                  0     2        4        10      0 (4)
```

```
Dig pref score - height  Incl   #    0-7   8-12   13-20    > 20
                                       0     2       4       10      0 (5)


Dig pref score - MUAC    Incl   #    0-7   8-12   13-20    > 20
                                       0     2       4       10      2 (10)


Standard Dev WHZ         Excl   SD   <1.1  <1.15  <1.20   >=1.20
.                                          and            or
.                        Excl   SD   >0.9  >0.85  >0.80   <=0.80
                                       0     5      10       20      0 (0.92)


Skewness   WHZ          Excl   #    <±0.2 <±0.4  <±0.6   >=±0.6
                                       0     1       3        5      0 (-0.05)


Kurtosis   WHZ          Excl   #    <±0.2 <±0.4  <±0.6   >=±0.6
                                       0     1       3        5      1 (-0.27)


Poisson dist WHZ-2       Excl   p    >0.05 >0.01  >0.001  <=0.001
                                       0     1       3        5      0 (p=0.050)


OVERALL SCORE WHZ =                  0-9   10-14  15-24    >25       3 %
```

The overall score of this survey is 3 %, this is excellent.

Plausibility check for: JOR_0916_URBAN_ANTHROPO_VF.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 (0.4 %)


Overall Sex ratio        Incl    p    >0.1  >0.05    >0.001   <=0.001
(Significant chi square)               0     2         4        10      0 (p=0.620)


Age ratio(6-29 vs 30-59) Incl    p    >0.1  >0.05    >0.001   <=0.001
(Significant chi square)               0     2         4        10      0 (p=0.558)


Dig pref score - weight  Incl    #    0-7   8-12     13-20     > 20
                                       0     2         4        10      0 (4)


Dig pref score - height  Incl    #    0-7   8-12     13-20     > 20
                                       0     2         4        10      0 (7)


Dig pref score - MUAC    Incl    #    0-7   8-12     13-20     > 20
                                       0     2         4        10      2 (10)


Standard Dev WHZ         Excl    SD   <1.1  <1.15    <1.20    >=1.20
.                                            and               or
.                        Excl    SD   >0.9  >0.85    >0.80    <=0.80
                                       0     5         10       20      0 (0.95)


Skewness   WHZ          Excl    #    <±0.2 <±0.4    <±0.6    >=±0.6
                                       0     1         3        5      0 (0.12)


Kurtosis   WHZ          Excl    #    <±0.2 <±0.4    <±0.6    >=±0.6
                                       0     1         3        5      0 (-0.11)


Poisson dist WHZ-2       Excl    p    >0.05 >0.01    >0.001   <=0.001
                                       0     1         3        5      0 (p=0.719)


OVERALL SCORE WHZ =                   0-9   10-14    15-24     >25       2 %
```

The overall score of this survey is 2 %, this is excellent.