



# Joint Nutrition Assessment Syrian Refugees in LEBANON

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# 2013 JOINT Nutrition Assessment Syrian Refugees in LEBANON

**ASSESSMENT CONDUCTED: October and November 2013**

## FINAL Report

**FEBRUARY 2014**



# **Nutrition Assessment Report for Syrian Refugees in Lebanon**

**Undertaken through the SMART approach in conformity with the UNHCR SENS methodology**

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## Acronyms and abbreviations

<b>ANC</b>	Antenatal Care
<b>CDC</b>	Centers for Disease Control and prevention
<b>CI</b>	Confidence Interval
<b>DEFF</b>	Design effect
<b>ENA</b>	Emergency Nutrition Assessment
<b>EPI</b>	Expanded Programme on Immunization
<b>GAM</b>	Global Acute Malnutrition
<b>HAZ</b>	Height-for-Age z-score
<b>Hb</b>	Haemoglobin
<b>HH</b>	Household
<b>HIV/AIDS</b>	Human Immunodeficiency Virus/Acquired Immune Deficiency Syndrome
<b>IOCC</b>	International Orthodox Christian Charities
<b>IYCF</b>	Infant and Young Child Feeding
<b>MAM</b>	Moderate Acute Malnutrition
<b>MCH</b>	Maternal and Child Health
<b>MICS</b>	Multiple Indicators Cluster Survey
<b>MMU</b>	Medical mobile unit
<b>MOPH</b>	Ministry of Public Health
<b>MOSA</b>	Ministry of Social Affairs
<b>MUAC</b>	Middle Upper Arm Circumference
<b>NCHS</b>	National Centre for Health Statistics
<b>NGO</b>	Non-Government Organization
<b>PHC</b>	Primary Health Care
<b>PPS</b>	Probability Proportional to Size
<b>ProGres</b>	UNHCR registration database for refugees
<b>SAM</b>	Severe Acute Malnutrition
<b>SD</b>	Standard Deviation
<b>SENS</b>	Standardised Expanded Nutrition Survey methodology
<b>SMART</b>	Standardized Monitoring & Assessment of Relief & Transitions
<b>SOWC</b>	The State of the World's Children
<b>SPSS</b>	Statistical Package for Social Sciences (Statistical software)
<b>TOR</b>	Terms of Reference
<b>U5</b>	Children under 5 years old
<b>U18</b>	Children under 18 years old
<b>UN</b>	United Nations

<b>UNHCR</b>	United Nations High Commissioner for refugees
<b>UNICEF</b>	United Nations Children's Funds
<b>VASyr</b>	Vulnerability Assessment among Syrian refugees in Lebanon
<b>WASH</b>	Water Sanitation and Hygiene
<b>WAZ</b>	Weight-for-Age z-score
<b>WHZ</b>	Weight-for-Height z-score
<b>WFP</b>	World Food Programme
<b>WHO</b>	World Health Organization
<b>WRA</b>	Women of Reproductive Age

## Executive Summary

Among the basic indicators used to assess the severity of a crisis are excess mortality and the nutritional status of the population. An estimation of these two measures is reached through conducting an assessment study of the affected population. To know the magnitude of the problem is important to know the affected population's size and, if applicable, the demographic characteristics of the population. A high proportion of malnourished cases in a small population size are normally of less magnitude than a lower proportion of malnourished cases in a large population size. The scale and type of intervention depends on the magnitude of the emergency rather than simply on the prevalence of malnutrition.

In September 2012, the nutrition and food situation of Syrians displaced in Lebanon was assessed by a UN inter-agency nutrition assessment team. The nutrition situation was within the acceptable levels of acute malnutrition (the Global Acute Malnutrition rate was 4.4%). However, it was noted that the presence of aggravating factors such as poor living conditions for some of the refugees, onset of the cold season, high disease burden, sub-optimal coverage of immunization and the unpredictable income levels of families, many of whom lost their livelihood and rely on money to purchase food, could affect the nutrition well-being of the population, in the future.

The situation in Syria has not improved and the number of Syrian refugees arriving to Lebanon has continuously increased. UNHCR and partners' estimates at the end of 2013 indicate that there were 890,136 Syrian registered or awaiting registration in Lebanon of which 19.9% were estimated to be children under 5 years of age. This follow-up assessment aimed at identifying the nutrition wellbeing of vulnerable Syrian women and children and the potential nutrition and health related interventions taking into consideration existing public health programs and policies in Lebanon. The SMART (***Standardized Monitoring and Assessment of Relief and Transition***) methodology was utilised for the assessment due to its reliability and to facilitate comparison of results with those of 2012 results.

Since there is no database of the iron deficiency or anaemia levels of children under the age of 5 and women of reproductive age (WRA) among the Syrian refugees in Lebanon, the UN agencies and their partners decided to measure the prevalence of anaemia in children from 6-59 months of age and in women of reproductive age for surveillance purposes and to create a baseline of the iron deficiency situation.

A Task Force committee constituted by the representatives from UN agencies (UNICEF, WFP, WHO and UNHCR) in Lebanon, Ministry of Public Health (MOPH) and NGO partners helped and advised on the coordination of the nutrition assessment through all its stages.

**Objectives:** The nutrition assessment examined the nutritional status of Syrian refugees in Lebanon. Children under the age of five, as well as women of reproductive age were assessed for malnutrition. Women and children were also tested for anaemia. Any case of anaemia or malnutrition identified during the assessment was referred to the MOPH primary health care structures for treatment. Moreover, the infant and young child feeding (IYCF) practices among children 0-23 months were investigated and the level of access to health services and access and use of improved water, sanitation and hygiene facilities were also assessed. As the VASyr study was conducted by WFP three months before the current assessment (May-June 2013), assessing the Syrian refugee vulnerability including the situation of food security situation, this nutrition assessment did not cover food security.

Specific objectives of the assessment were:

1. To estimate the prevalence of acute malnutrition, stunting (chronic malnutrition) and underweight of children from 6-59 months of age.
2. To estimate the malnutrition levels among women of reproductive age based on middle-upper arm circumference (MUAC) measurement.
3. To assess the two-week period prevalence of diarrhea, cough and fever among children 6-59 months.
4. To measure the prevalence of anaemia among children 6-59 months and women of reproductive age (non-pregnant), 15-49 years.
5. To determine the coverage of measles and Polio vaccination among children 9-59 months.
6. To determine the coverage of vitamin A supplementation in the last six months among children 6-59 months and postnatal women.
7. To investigate IYCF practices among parents of children 0-23 months.
8. To determine the population's access to and use of improved water, sanitation and hygiene facilities.
9. To identify/document the underlying factors likely to influence the nutritional well-being of Syrian refugees in Lebanon.

Initially, the Joint Nutrition Assessment was planned to assess the overall nutrition status of both Syrian refugees and Lebanese host community concurrently in the areas where Syrian refugees live. However, at the end of the surveyor's preparation phase (selection and training) and the completion of the sampling process for Syrian refugees' assessment, the process to build the sample frame for Lebanese host communities was still pending due to political concerns. Thus, after a delay in commencing the field work for the Nutrition Assessment, it was decided to do the data collection for Syrian refugees (in all Lebanon) first. As a second step, it was planned that when the data collection of Syrian refugees ended, the sample frame process for Lebanese host communities would be ready and the data collection from host communities would begin directly.

Unfortunately, two months later (at the end of data collection for Syrian refugees) winter storms had arrived, and the sample frame process for Lebanese host communities was still not complete. So it was decided that the Nutrition Assessment for Lebanese host communities will be conducted after winter. Thus, this report will cover only the Nutrition Assessment of Syrian refugees in Lebanon.

**Design and methodology:** The SMART (*Standardized Monitoring and Assessment of Relief and Transition*) methodology, in conformity with a UNHCR SENS methodology, was used to collect and analyze data on child anthropometry. Additional questionnaires were designed to collect quantitative data on infant and young child feeding, health (disease and immunization), water and sanitation services. The basic anthropometric data was collected using standard anthropometric equipment and tools (questionnaire) to enable analysis of the basic nutrition indicators of wasting, stunting and underweight. Some of the data collected include age, sex, weight and height for 6-59 months old children and MUAC measurement (for both children and women of reproductive age from 15-49). Additional qualitative information was collected to complement the quantitative data – including infant feeding and access to basic services. In addition to the limited quantitative variables recommended in the SMART guidelines<sup>1</sup> for rapid assessment, haemoglobin concentration was added to assess anaemia for half of sample of children 6-59 months and for half of

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<sup>1</sup>Standardized Monitoring and Assessment of Relief and Transition (SMART) Methodology Guidelines

sample of women 15-49 years. Haemoglobin concentration was taken from a capillary blood sample from the fingertips.

Because of high number of Syrian refugees in Lebanon (more than 600,000, UNHCR database, July 2013), a stratified, two-stage cluster survey based on the SMART methodology was used for this second Nutrition Assessment. As the Syrian refugees reside in different regions of Lebanon, the UN geographical division of the country, which is 4 strata or 4 independent samples, was used. The 4 strata were: Beirut and Mount Lebanon; Bekaa; North of Lebanon and South of Lebanon. In each stratum or region, one independent sample for Syrian refugees was selected. The results in this report are presented per stratum and the 4 strata were combined to give one overall figure for all Syrian refugees in Lebanon.

A total of 120 clusters (26 clusters in Bekaa Region, 34 clusters in the North, 27 clusters in the South and 34 clusters in the Region of Beirut and Mount-Lebanon) were randomly selected from all registered refugees in Lebanon, using probability proportional to size (PPS). UNHCR population figures from ProGres<sup>2</sup> were used for cluster allocation.

Two-stage cluster sampling design was used. SMART software – Emergency Nutrition Assessment (ENA) was used to calculate the sample size, to select different clusters (localities) and households. The global sample size, for all Syrian refugees in Lebanon, was 1,200 households (120 clusters of 10 families<sup>3</sup>), 260 households for Bekaa sample, 340 households for North sample, 270 households for South sample and 330 households for Beirut and Mount-Lebanon sample. UNHCR registered family lists were used as the data reference for the household selection.

A total of nine assessment teams composed of three Arabic-speaking members each, were formed for the assessment. A training lasting seven days was provided, using a standard training package, followed by a one-day pre-test exercise to assess the training quality and the teams' readiness for data collection. The assessment teams were supported by supervisors and the assessment coordinator throughout the duration of data collection. Anthropometric data for children aged 6-59 months were entered using ENA for SMART software (Delta version, November 24<sup>th</sup> 2012) by the coordination team. All other data were double entered by a team of clerks using an Excel template. A data cleaning process was conducted whereby data capture and errors were eliminated. Data analysis was done using ENA for SMART, SPSS software and Epiinfo for anaemia data analysis.

## Key findings

- ✓ In different strata (Bekaa, North, South and Beirut and Mount-Lebanon) and in all Lebanon, the different nutrition assessments covered more than 94% of the targeted number of Syrian refugee households.
- ✓ The overall sex ratio was around 1.0 (sex ratio should be between 0.8 - 1.2), which confirms that both sexes were equally distributed and well represented, and that there was no bias in terms of sampling girls or boys.
- ✓ The prevalence of global acute malnutrition (GAM), among children 6-59 months of age, in all Syrians in Lebanon, in the assessments in Bekaa and in the North of Lebanon were more than 5% but less than 10% (5.9% for all Syrian refugees in Lebanon, 8.9% for Syrian refugees in Bekaa and 6.7% in the North of Lebanon) which is defined as a poor public health situation as per WHO classification. The nutrition

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<sup>2</sup> ProGres: UNHCR registration database for refugees

<sup>3</sup> Household: UNHCR definition of household was used which as the family registered



situation among refugees in South and in Beirut and Mount Lebanon was less than 5%, thus within acceptable levels.

- ✓ The prevalence of severe acute malnutrition (SAM) found in Bekaa assessment was 1.7% and 1.1% for refugees in the North of Lebanon.
- ✓ When compared to 2012, the prevalence of GAM increased in 2013 (GAM is 5.9% in 2013 vs. 4.4% in 2012) among children aged 6-59 months, but the difference is not statistically significant ( $X^2$ : 1.229,  $P > 0.05$ ) and the confidence intervals (CIs) for 2012 (2.6 - 7.3 95% C.I.) and 2013 (4.8 - 7.1 95% C.I.) are overlapping. However, the situation of children from 6 to 59 months of age with GAM has to be monitored among all Syrians in Lebanon, particularly in Bekaa and in the North of Lebanon and children with GAM (MAM and SAM) should be identified and treated
- ✓ The overall total anaemia prevalence among children from 6 to 59 months of age were, for all Syrian refugees in Lebanon: 21.0%; in Bekaa: 13.9%; for Syrian refugees in North: 25.8%; in South: 23.4% and for Syrian refugees in Beirut and Mount Lebanon: 21.2%.
- ✓ Children between 6-23 months tended to be the most affected by anaemia: 31.5% among all Syrian children from 6 to 23 months of age, 24.1% for the same group of age in Bekaa, 42.9% in the North, 30.8% in the South and 27.7% in Beirut and Mount Lebanon. The children from 6 to 23 months of age, in the North of Lebanon, were most affected by anaemia (more than 40%).
- ✓ For households (HH) that had been in Lebanon for less than 12 months (at the time of the survey), 45.3% of children received their vaccinations in Syria. This proportion was 31.1% among Syrian refugee HH who had been in Lebanon for 1 year or more. However, for the HH that had been in Lebanon for 1 year or more, more children received their immunization from the Primary Healthcare Center (PHC) (45.5% compared to 34.2%).
- ✓ For HH that had children of less than 24 months of age, 60.4% immunized their children in a PHC and only 18.1% of their children were vaccinated only in Syria. However, 20% of HH with children less than 2 years of age reported that they received vaccines from different places.
- ✓ Among all Syrian refugees in Lebanon, more than 85% of children 0-23 months were ever breastfed. More than 60% of mothers initiated breastfeeding in the first 23 hours after birth and 25% of children 0-23 months were exclusively breastfed. However, around 35% of children 0-23 months received bottle feedings.
- ✓ Regarding the duration of breastfeeding, more than 50% of children 0-23 months were breastfed until the age of one year and depending on the stratum, between 20-33% of children 0-23 months were breastfed until 2 years old.
- ✓ The prevalence of malnutrition among women aged 15-49 years was similar to the prevalence observed last year.
- ✓ The Syrian refugee women aged 15-49 years in the North and in the South presented the highest prevalence of malnutrition (the North for the severely malnourished and the South for the total malnourished).
- ✓ More than 75% of malnourished women among Syrian refugees in Lebanon were aged less than 35 years old. With the exception of the Beirut and Mount-Lebanon stratum (where 36% of malnourished were 15-19 years), more than 40% of malnourished Syrian refugee women were between 15-19 years old.
- ✓ The total prevalence of anaemia for non-pregnant women of reproductive age (15-49 years) was: for all Syrian refugees in Lebanon, 26.1%; in Bekaa, 18.4%; in North, 27.7%; in South, 27.0% and for Syrian refugees in Beirut and Mount Lebanon, 29.3%.

- ✓ The non-pregnant Syrian refugee women of reproductive age (15-49 years) who lived in Beirut and Mount-Lebanon had more anaemia cases and those who lived in Bekaa had fewer anaemia cases.

## **Conclusion**

The prevalence of GAM increased in 2013 (GAM is 5.9% in 2013 vs. 4.4% in 2012) among children aged 6-59 months, but the difference is not statistically significant ( $\chi^2$ : 1.229,  $P > 0.05$ ) and the CIs for 2012 (2.6 - 7.3 95% C.I.) and 2013 (4.8 - 7.1 95% C.I.) are overlapping. This nutrition situation is considered POOR with the prevalence of GAM (5.9%) falling between 5.0 and 9.9% among children; while among women aged 15-49 years the malnutrition rate is 5.0%. Due to aggravating factors (the increase in food prices in winter, risk of food insecurity, increasing of numbers and the new arrivals that could be in worse condition), the nutrition situation can change quickly and has the potential to deteriorate rapidly. Concerted, integrated efforts, in collaboration with MOPH, will be required to bring the GAM levels to the WHO acceptable level of < 5% because of the multi-factorial nature of malnutrition.

Immediate measures must be taken to improve and to strengthen the management of acute malnutrition, particularly in Bekaa where the SAM rate was 1.7% and all SAM cases were oedema. This should include screening and treatment of acute malnutrition in various age-groups, a supplementary feeding program for pregnant and lactating women, and addressing the inappropriate infant and young children feeding practices and micronutrient deficiencies.

Moreover, more than 90% of the Syrian refugee HH in Lebanon threw the stools of their children under 3 years old in garbage. This situation needs more investigation.

## **Recommendations and priorities**

### **Immediate term**

1. Discussing with MOPH, MOSA and all other partners to improve and to strengthen the mechanism for acute malnutrition management as well as capacity strengthening for the MOPH services, for preparedness.
2. Setting up a Nutrition Working Group and reinforcing the role and responsibility of the nutrition group and its respective members to organize and coordinate the nutrition sector and response.
3. Setting up or reinforcing a screening mechanism of children and mothers for malnutrition upon arrival in Lebanon.
4. Setting up or reinforcing services for children and mothers that are screened and ensure adequate treatment is available for those identified with severe acute malnutrition (SAM), including those with medical complications, and moderate acute malnutrition (MAM).
5. Developing national guidelines or national protocol for acute malnutrition management and prevention as well as a national plan of training.
6. Strengthening the awareness, promotion, and protection of positive infant and young child feeding practices through NGOs and PHCs or other government services' activities by accelerating sensitization and awareness creation on appropriate breast-feeding and complementary feeding practices as well as micronutrient provision.
7. Improving education and communication strategies in the health centers and in the community including integrating communication for development strategies to positively influence behavior and practices.

8. Support NGOs providing services to unregistered Syrians to integrate management of SAM and MAM into their services.
9. Scale-up of hygiene promotion activities (including adequate access to soap through either distribution or the means to purchase) and improve water quality access and monitoring the quality of water to address disease incidence and facilitate disease treatment through the health facilities.
10. Facilitate adequate dietary intake for women and children to promote optimal growth and prevent malnutrition through adequate food provision and livelihood support to families.
11. Scale-up of sanitation promotion activities (including how to dispose in an improved way the stools of the children under 3 years old).

#### **Medium term**

1. Strengthening the nutrition surveillance system and to explore how to integrate it in the existing Health Surveillance System and improve a food security monitoring system.
2. Putting a proper target of the most vulnerable refugees and host communities with a minimum response package on health and nutrition surveillance, disease treatment, appropriate health and nutrition promotion, adequate food security, water and sanitation services, and shelter against harsh weather.

#### **Longer term**

1. If the situation in Syria does not improve sufficiently to enable the return of the refugees to Syria, then a nutrition survey in different regions should be conducted every year (depending on the delivery of adequate response in the next 6 months). Survey methodology should be simplified to capture only key indicators of anthropometry in children aged 6-59 months and mortality in the whole population as recommended by the SMART methodology and if possible, to include components about nutrition response (CMAM, micronutrient and IYCF) coverage.
2. A full expanded nutrition survey should be repeated only every 2 years.

# Summary of the Results

		SYRIAN REFUGEES NUTRITION ASSESSMENT 2013										Classification of public health significance or target (where applicable)
Date of Assessment		October 2 <sup>nd</sup> to November 30 <sup>th</sup> 2013										
Assessment area		All Lebanon		Bekaa		North		South		Beirut Mount-Leb		
		N/Total	% (95%CI)	N/Total	% (95%CI)	N/Total	% (95%CI)	N/Total	% (95%CI)	N/Total	% (95%CI)	
FAMILY OR HOUSEHOLD CHARACTERISTICS												
Sample coverage (Response rate for HH)		1158/1200	96.5%	245/260	94.2%	325/340	95.6%	263/270	97.4%	325/330	98.5%	
Sample coverage (Response rate for Children U5)		1387/828	167.5%	303/207	146.4%	362/207	174.9%	303/207	146.4%	419/207	202.4%	
Average number of Children U5		----	1.4	---	1.4	---	1.3	----	1.3	----	1.5	
Average HH size		----	7.6	---	7.1	---	8.0	----	7.4	----	7.7	
Woman headed households		151/1158	13%	54/245	22%	50/325	15.4%	31/263	11.8%	16/325	4.9%	
Period stayed in Lebanon	< 3 month	22/1158	1.9% (1.26 – 2.86)	5/245	2.0% (0.87 – 4.69)	9/325	2.8% (1.46 – 5.18)	3/262	1.2% (0.39 – 3.32)	33/325	10.2% (7.32–13.91)	
	3-6 months	186/1158	16.1% (1.26 – 2.86)	53/245	21.7% (16.93 –	83/325	25.5% (21.10 – 30.55)	22/262	8.4% (5.61 – 12.39)	121/325	37.2% (32.15–42.6)	
	7-12 months	550/1158	47.5% (1.26 – 2.86)	130/245	53.1% (1.26–21.63)	164/325	50.5% (45.05 – 55.86)	135/262	51.5% (4.55 – 55.52)	126/325	38.8% (33.63–44.17)	
	12-24 months	313/1158	27.1% (1.26 – 2.86)	48/245	19.6% (15.11–25.01)	52/325	16.0% (12.41 – 20.38)	87/262	33.2% (27.79 –	45/325	13.8% (10.52–18.03)	
	≥ 24 months	86/1158	7.4% (1.26 – 2.86)	9/245	3.7% (1.94 – 6.83)	17/325	5.2% (3.29 – 8.22)	15/262	5.7% (0.35 – 9.24)	5/325	1.5% (0.66 – 3.55)	
Principal Sources of HH income	Work	592/1156	51.2% (48.33 – 58.08)	132/245	53.9% (47.63 – 60.01)	121/325	37.2% (32.15 – 42.61)	147/262	56.1% (50.06 – 61.99)	192/324	59.3% (53.83–64.47)	
	Skilled Labor	101/1156	8.7% (7.25 – 10.51)	14/245	5.7% (3.43 – 9.36)	24/325	7.4% (5.01 – 10.75)	23/262	8.8% (5.92 – 12.83)	40/324	12.3% (9.20 – 16.35)	
	Cash from Humanitarian Org	125/1156	10.8% (9.15 – 12.73)	25/245	10.2% (7.00 – 14.62)	53/325	16.3% (12.69 – 20.72)	24/262	9.2% (6.23 – 13.27)	23/324	7.1% (4.78 – 10.43)	

		SYRIAN REFUGEES NUTRITION ASSESSMENT 2013										Classification of public health significance or target (where applicable)
Date of Assessment		October 2 <sup>nd</sup> to November 30 <sup>th</sup> 2013										
Assessment area		All Lebanon		Bekaa		North		South		Beirut Mount-Leb		
		N/Total	% (95%CI)	N/Total	% (95%CI)	N/Total	% (95%CI)	N/Total	% (95%CI)	N/Total	% (95%CI)	
	Food Vouchers	209/1156	18.1% (15.97–20.45)	41/245	16.7% (12.58–21.91)	94/325	28.9% (24.26 – 34.07)	33/262	12.6% (9.11 – 17.17)	41/324	12.7% (9.46 – 16.71)	
CHILDREN UNDER 5 YEARS												
Acute Malnutrition (WHO 2006 Growth Standards) – 95% Confidence Interval (CI)												
Global Acute Malnutrition (GAM)		81/1384	5.9 % (4.8 - 7.1)	27/303	8.9 % (5.7 - 13.7)	24/360	6.7 % (4.6 - 9.5)	13/302	4.3 % (2.7 - 6.9)	17/419	4.1 % (2.6 - 6.4)	Critical: if ≥ 15% Serious: between 10-14.9% Poor: between 5 - 9.9%
Moderate Acute Malnutrition (MAM)		67/1384	4.8 % (4.0 - 5.9)	22/303	7.3 % (4.3 - 12.0)	20/360	5.6 % (3.9 - 7.9)	11/302	3.6 % (2.1 - 6.3)	14/419	3.3 % (2.1 - 5.2)	
Severe Acute Malnutrition (SAM)		14/1384	1.0 % (0.5 - 1.9)	5/303	1.7 % (0.5 - 5.3)	4/360	1.1 % (0.3 - 3.5 )	2/302	0.7 % (0.2 - 2.8)	3/419	0.7 % (0.2 - 2.2)	
Oedema		6/1384	0.4 % (0.20 - 0.94)	5/303	1.7 % (0.5 - 5.3)	1/360	0.3% (0.05 – 1.56)	0	0%	0	0%	
Stunting (WHO 2006 Growth Standards) – 95% CI												
Total stunting		239/1384	17.3 % (15.1 - 19.7)	61/303	20.1 % (15.1 - 26.3)	62/360	17.2 % (13.3 - 22.1)	60/302	19.9 % (15.8 - 24.6)	56/419	13.4 % (10.4-17.0)	Critical: if ≥ 40% Serious: between 30-39.9% Poor: between 20 - 29.9%
Severe stunting		38/1384	2.7 % (2.0 - 3.7)	14/303	4.6 % (2.7 - 7.7)	8/360	2.2 % (1.2 - 4.0)	11/302	3.6 % (2.1 - 6.3)	5/419	1.2 % (0.5 - 2.7)	
Underweight (WHO 2006 Growth Standards) – 95% CI												
Total underweight		46/1380	3.3 % (2.5 - 4.4)	8/298	2.7 % (1.2 - 5.8)	14/361	3.9 % (2.2 - 6.8)	13/302	4.3 % (2.7 - 6.9)	11/419	2.6 % (1.3 - 5.3)	Critical: if ≥ 30% Serious: between 20-29.9% Poor: between 10 - 19.9%
Severe underweight		12/1380	0.9 % (0.5 - 1.4)	3/298	1.0 % (0.3 - 3.1)	4/361	1.1 % (0.4 - 2.8)	3/302	1.0 % (0.3 - 3.0)	2/419	0.5 % (0.1 - 1.9)	
Programme coverage												
Vitamin A supplementation within past 6 months		82/1465	5.6% (4.53 – 6.90)	14/320	4.4% (2.63 – 7.21)	28/388	7.2% (5.04– 10.24)	21/311	6.8% (4.46 – 10.10)	19/446	4.3% (2.74 – 6.56)	Target of ≥ 95%

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Date of Assessment			October 2 <sup>nd</sup> to November 30 <sup>th</sup> 2013										
Assessment area			All Lebanon		Bekaa		North		South		Beirut Mount-Leb		
			N/Total	% (95%CI)	N/Total	% (95%CI)	N/Total	% (95%CI)	N/Total	% (95%CI)	N/Total	% (95%CI)	
Proportion of children vaccinated in Syria with card or recall			1117/1493	74.8% (72.56–76.96)	243/326	74.6% (69.54 – 78.96)	292/393	74.3% (69.76 – 78.37)	239/316	75.6% (70.61 – 80.04)	343/458	74.9% (70.72–78.64)	Target of ≥ 90%
Measles vaccination with card or recall (9-59 months)			349/1223	28.5% (26.08–31.14)	68/276	24.7% (19.93 – 30.05)	79/320	24.7% (20.28 – 29.70)	87/253	34.4% (28.81 – 40.44)	115/374	39.7% (26.29–35.60)	
Number of doses of Polio vaccine had given		1 dose	241/853	28.3% (25.33–31.36)	66/166	39.8% (32.63–47.36)	68/198	34.3% (28.08–41.20)	51/193	26.4% (20.70–33.06)	56/296	18.9% (14.87–23.77)	
		2 doses	279/853	32.7% (29.65–35.93)	57/166	34.3% (27.54–41.84)	51/198	25.8% (20.17–32.27)	64/193	33.2% (26.90–40.07)	107/296	36.2% (30.89–41.77)	
		3 doses	333/853	39.0% (45.82–42.36)	43/166	25.9% (19.83–33.06)	79/198	39.9% (33.33–46.85)	78/193	40.4% (33.74–47.45)	133/296	44.9% (39.36–50.63)	
Source of Immunization	PHC center	526/1379	38.1% (35.61–40.73)	97/293	33.1% (27.97–38.69)	127/349	36.4% (31.52–41.56)	141/295	47.8% (42.16–53.49)	161/442	36.4% (32.08–41.02)		
	Through MMU	24/1379	1.7% (1.17 – 2.58)	3/293	1.0% (0.35 – 2.96)	3/349	0.9% (0.29 – 2.50)	3/295	1.0% (0.35 – 2.95)	15/442	3.4% (2.06 – 5.52)		
	Private Dr	12/1379	0.9% (0.50 – 1.51)	2/293	0.7% (0.19 – 2.45)	3/349	0.9% (0.29 – 2.50)	0/295	0.0%	7/442	1.6% (0.77 – 3.23)		
	Different places	261/1379	18.9% (16.95–21.08)	83/293	28.3% (23.48–33.74)	45/349	12.9% (9.77 – 16.81)	44/295	14.9% (11.31–19.44)	89/442	20.1% (16.67–24.13)		
	Only in Syria	556/1379	40.3% (37.76–42.93)	108/293	36.9% (31.54–42.52)	171/349	49.0% (43.79 – 54.23)	107/295	36.3% (30.99–41.90)	170/442	38.5% (34.04–43.19)		
Children Morbidity													
Diarrhea in past 2 weeks			376/1511	24.9% (22.77–27.12)	88/330	26.7% (22.19–31.69)	133/399	33.3% (28.88–38.09)	76/322	23.6% (19.29–28.53)	79/460	17.2% (14.0 –20.88)	
Cough in past 2 weeks			605/1507	40.1% (37.70–42.65)	109/329	33.1% (28.26–38.39)	174/396	43.9% (39.13–48.86)	130/322	40.4% (35.16–45.81)	192/460	41.7% (37.32–46.30)	
Fever in past 2 weeks			512/1508	34.0% (31.60–36.38)	120/330	36.4% (31.35–41.68)	155/398	38.9% (34.28–43.81)	115/321	35.8% (30.78–41.21)	122/459	26.6% (22.75–30.80)	
Children Anaemia													
Total Anaemia (Hb <11 g/dl)			139/661	21.0% (17.6 - 24.5)	22/158	13.9% (8.2 - 19.6)	40/155	25.8% (16.9 - 34.7)	34/145	23.4% (16.3 - 30.6)	43/203	21.2% (15.3 - 27.1)	High iif ≥ 40%
Mild (Hb 10-10.9)			109/661	16.5% (13.5 - 19.5)	20/158	12.7% (7.6 - 17.7)	31/155	20.0% (11.8 - 28.2)	25/145	17.2% (11.0 - 23.5)	33/203	16.3% (11.3 - 21.2)	

		SYRIAN REFUGEES NUTRITION ASSESSMENT 2013										Classification of public health significance or target (where applicable)
Date of Assessment		October 2 <sup>nd</sup> to November 30 <sup>th</sup> 2013										
Assessment area		All Lebanon		Bekaa		North		South		Beirut Mount-Leb		
		N/Total	% (95%CI)	N/Total	% (95%CI)	N/Total	% (95%CI)	N/Total	% (95%CI)	N/Total	% (95%CI)	
Moderate (Hb 7-9.9)		30/661	4.5% (2.9 - 6.2)	2/158	1.3% (0.0 - 3.1)	9/155	5.8% (2.8 - 8.8)	9/145	6.2% (1.5 - 10.9)	10/203	4.9% (1.8 - 8.0)	
Severe (Hb <7)		0	0%	0	0%	0	0%	0	0%	0	0%	
IYCF indicators												
Timely Initiation of Breastfeeding (First time to put child to the breast)	< 24 hours	157/502	31.3% (27.37–35.45)	31/102	30.4% (22.31–39.89)	32/146	21.9% (15.98 – 29.3)	32/108	29.6% (21.84–38.82)	62/146	42.5% (34.75–50.58)	
	1-24 hours	201/502	40.0% (35.85–44.39)	34/102	33.3% (24.93–42.94)	74/146	50.7% (42.66–58.67)	46/108	42.6% (33.58–52.01)	47/146	32.2% (25.15–40.14)	
	≥ 24 hours	144/502	28.7% (24.91–32.8)	37/102	36.3% (27.6 –45.95)	40/146	27.4% (20.81–35.14)	30/108	27.8% (20.21–36.88)	37/146	25.3% (18.98–32.97)	
Exclusive Breastfeeding < 6 months		22/88	25.0% (17.13–34.96)	4/16	25.0% (10.18 – 49.5)	6/24	25.0% (12.0 – 44.9)	4/16	25.0% (10.18 – 49.5)	8/32	25.0% (13.25–42.11)	
Continued breastfeeding at 1 year		44/68	64.7% (52.85 – 75.0)	9/12	75.0% (46.77–99.11)	15/23	65.2% (44.89–81.19)	7/13	53.8% (29.15 – 76.8)	13/20	65.0% (43.29–81.88)	
Continued breastfeeding at 2 years		19/63	30.2% (20.24–42.36)	4/12	33.3% (13.81–60.93)	3/15	20.0% (7.05 – 45.19)	5/14	35.7% (16.34–61.23)	7/22	31.8% (16.36–52.68)	
WOMEN 15-49 YEARS												
Physiological Status												
Women aged 15-49 years who were pregnant		231/1896	12.2% (10.78–13.73)	51/395	12.9% (9.96 – 16.58)	64/558	11.5% (9.09 – 14.38)	59/425	13.9% (10.92–17.49)	57/518	11.0% (8.59 – 13.99)	
Women aged 15-49 years who were Lactating		288/1896	15.1% (16.64–16.88)	68/395	17.2% (13.82–21.25)	82/558	14.7% (12.0 – 17.88)	60/425	14.1% (11.13–17.75)	76/518	14.7% (11.88–18.08)	
MUAC Women												
Malnourished Women (MUAC < 23 cm)		92/1851	5.0% (4.07 - 6.06)	14/384	3.6% (2.19 - 6.03)	29/552	5.3% (3.68 - 7.44)	27/414	6.5% (4.52 - 9.32)	22/501	4.4% (2.92 – 6.56)	
Severely Malnourished Women (MUAC < 21 cm)		18/1851	1.0% (0.61 - 1.53)	4/384	1.0% (0.40 - 2.64)	7/552	1.3% (0.62 – 2.60)	4/414	1.0% (0.38 – 2.46)	3/501	0.6% (0.20 – 1.75)	

		SYRIAN REFUGEES NUTRITION ASSESSMENT 2013										Classification of public health significance or target (where applicable)
Date of Assessment		October 2 <sup>nd</sup> to November 30 <sup>th</sup> 2013										
Assessment area		All Lebanon		Bekaa		North		South		Beirut Mount-Leb		
		N/Total	% (95%CI)	N/Total	% (95%CI)	N/Total	% (95%CI)	N/Total	% (95%CI)	N/Total	% (95%CI)	
Women Anaemia (non-pregnant)												
Total Anaemia (Hb <12 g/dl)		205/785	26.1% (23.2 - 29.0)	29/158	18.4% (12.6 - 24.1)	61/220	27.7% (22.3 - 33.2)	48/178	27.0% (20.0 - 34.2)	67/229	29.3% (24.0 - 34.6)	High iif ≥ 40%
Mild (Hb 11-11.9)		108/785	13.8% (11.3 - 16.2)	16/158	10.1% (5.2 - 15.0)	30/220	13.6% (8.7 - 18.5)	25/178	14.0% (7.4 - 20.7)	37/229	16.2% (12.0 - 20.3)	
Moderate (Hb 8-10.9)		92/785	11.7% (9.7 - 13.8)	12/158	7.6% (3.8 - 11.4)	31/220	14.1% (9.8 -18.4)	21/178	11.8% (7.7 - 16.0)	28/229	12.2% (8.1 - 16.3)	
Severe (Hb <8)		5/785	0.6% (0.1 - 1.2)	1/158	0.6% (0.0 - 2.0)	0	0%	2/178	1.1% (0.0 - 2.7)	2/229	0.9% (0.0 - 2.1)	
WASH												
Water												
Principal Main Source of drinking water	Water tap/water network (under 2H/day)	100/1155	8.7% (7.17 – 10.47)	27/245	11.0% (7.68 – 15.56)	9/323	2.8% (1.48 – 5.21)	34/262	13.0% (9.44 – 17.59)	30/325	9.2% (6.54 – 12.87)	
	Water tap/water network (More than 2H/day)	273/1155	23.6% (21.23–26.18)	58/245	23.7% (18.78–29.37)	84/323	26.0% (21.53 – 31.06)	92/262	35.1% (29.58 – 41.07)	39/325	12.0% (8.9 – 15.98)	
	Small Quantity purchased	351/1155	30.4% (27.81–33.15)	43/245	17.6% (13.3 – 22.8)	43/323	13.3% (10.03 – 17.45)	71/262	27.1% (22.08 – 32.78)	194/325	59.7% (54.27–64.88)	
	Public standpipe	106/1155	9.2% (7.65 – 10.98)	21/245	8.6% (5.67 – 12.75)	50/323	15.5% (11.94 – 19.83)	17/262	6.5% (4.09 – 10.15)	18/325	5.5% (3.53 – 8.59)	
	Protected borehole/well	136/1155	11.8% (10.04–13.76)	40/245	16.3% (12.23–21.47)	66/323	20.4% (16.39 – 25.16)	18/262	6.9% (4.39 – 10.6)	12/325	3.7% (2.12 – 6.34)	
Principal Main Source of cooking and washing water	Water tap/water network (under 2H/day)	166/1154	14.4% (12.47–16.52)	24/245	9.8% (6.67 – 14.17)	13/322	4.0% (2.38 – 6.79)	54/262	20.6% (16.15 – 25.92)	75/325	23.1% (18.83–27.96)	
	Water tap/water network (More than 2H/day)	472/1154	40.9% (3.81 – 43.76)	66/245	26.9% (21.77–32.82)	128/322	39.8% (34.56 – 45.19)	135/262	51.5% (45.5 – 57.52)	143/325	44.0% (38.7 – 49.44)	



		SYRIAN REFUGEES NUTRITION ASSESSMENT 2013										Classification of public health significance or target (where applicable)
Date of Assessment		October 2 <sup>nd</sup> to November 30 <sup>th</sup> 2013										
Assessment area		All Lebanon		Bekaa		North		South		Beirut Mount-Leb		
		N/Total	% (95%CI)	N/Total	% (95%CI)	N/Total	% (95%CI)	N/Total	% (95%CI)	N/Total	% (95%CI)	
	Small Quantity purchased	71/1154	6.2% (4.9 – 7.69)	27/245	11.0% (7.68 – 15.56)	12/322	3.7% (2.15 – 6.4)	13/262	5.0% (2.78 – 8.53)	19/325	5.8% (3.78 – 8.95)	
	Protected borehole/well	235/1154	20.4% (18.14–22.78)	56/245	22.9% (18.04–28.51)	84/322	26.1% (21.6 – 31.15)	33/262	12.6% (9.11 – 17.17)	62/325	19.1% (15.18– 23.7)	
	Unprotected borehole/well	71/1154	6.2% (4.9 – 7.69)	28/245	11.4% (8.03 – 16.02)	31/322	9.6% (6.87 – 13.34)	7/262	2.7% (0.13 – 5.41)	5/325	1.5% (0.66 – 3.55)	
Proportion of HH with water storage capacity		790/1156	68.3% (65.6 – 70.9)	155/245	63.3% (57.07–69.06)	211/324	65.1% (59.78 – 70.1)	181/262	69.1% (63.24 – 74.37)	243/325	74.8% (69.78–79.18)	
Volume of water storage capacity	Less than 500 Liters	214/769	27.8% (24.78–31.1)	37/152	24.3% (18.21–31.74)	55/204	27.0% (21.34 – 33.43)	46/180	25.6%	76/233	32.6%	
	500 – 1,000 Liters	359/769	46.7% (43.18–50.21)	63/152	41.4% (33.92–49.4)	99/204	48.5% (41.76 – 55.35)	93/180	51.7%	104/233	44.6%	
	1,000 – 3,000 Liters	176/769	22.9% (20.06–25.99)	46/152	30.3% (23.52–37.98)	44/204	21.6% (16.48 – 27.71)	37/180	20.6%	49/233	21.0%	
	More than 3,000 Liters	20/769	2.6% (1.69 – 3.98)	6/152	3.9% (1.82 – 8.35)	6/204	2.9% (1.35 – 6.27)	4/180	2.2%	4/233	1.7%	
Proportion of HH that say they are satisfied with drinking water supply		575/1156	49.7% (46.86–52.62)	110/245	44.9% (38.8 – 51.16)	171/324	52.8% (47.34 - 58.15)	145/262	55.3%	149/325	45.8%	
Reasons for none satisfaction with drinking water supply	Not enough for adequate personal hygiene of children	147/592	24.8% (21.52–28.46)	51/136	37.5% (29.81–45.87)	51/156	32.7% (25.82 – 40.39)	20/116	17.2%	25/184	13.6%	
	Have to pay for water – Cost	126/592	21.3% (18.17–24.76)	26/136	19.1% (13.4 – 26.54)	22/156	14.1% (9.5 – 20.43)	27/116	23.3%	51/184	27.7%	
	Bad Taste	21/592	3.5% (2.33 – 5.37)	4/136	2.9% (1.15 – 7.32)	6/156	3.8% (1.78 – 8.14)	3/116	2.6%	8/184	4.3%	
	Bad Quality of Water	199/592	33.6% (29.92–37.51)	51/136	37.5% (29.81–45.87)	55/156	35.3%	42/116	36.2%	51/184	27.7%	
Proportion of HH that say they have access to soap and hygiene products		686/1153	59.5% (56.8–62.46)	152/245	62.0% (55.82–67.89)	219/324	67.6%	147/261	56.3%	168/323	52.0%	
Proportion of HH by kind of toilet facility they use												
Traditional pit latrine/without slab/open pit		228/1155	19.7% (17.55–22.13)	83/245	33.9% (28.24–40.01)	82/325	25.2%	41/261	15.7%	22/324	6.8%	

	SYRIAN REFUGEES NUTRITION ASSESSMENT 2013										Classification of public health significance or target (where applicable)
Date of Assessment	October 2 <sup>nd</sup> to November 30 <sup>th</sup> 2013										
Assessment area	All Lebanon		Bekaa		North		South		Beirut Mount-Leb		
	N/Total	% (95%CI)	N/Total	% (95%CI)	N/Total	% (95%CI)	N/Total	% (95%CI)	N/Total	% (95%CI)	
Open air (Bush, stream)/Corner place in the compound	27/1155	2.3% (1.61 – 3.38)	18/245	7.3% (4.7 – 11.32)	5/325	1.5%	4/261	1.5%	0	0%	
Improved latrine with cement slab	403/1155	34.9% (32.2 – 37.68)	72/245	29.4% (24.04–35.38)	119/325	36.6%	109/261	41.8%	103/324	31.8%	
Flush Latrine	492/1155	42.6% (39.78–45.47)	70/245	28.6% (23.28–34.52)	116/325	35.7%	107/261	41.0%	199/324	61.4%	
No Facility, Field, Bush, Plastic bag	5/1155	0.4% (0.18 – 1.01)	2/245	0.8% (0.23 – 2.93)	3/325	0.9%	0	0%	0	0%	
Proportion of HH shared the kind of toilet facility they use											
Not shared	796/1145	69.5% (66.79–72.12)	157/243	64.6% (58.41–70.35)	220/321	68.5%	188/257	73.2%	231/324	71.3	
Shared with 1 HH	161/1145	14.1% (12.17–16.19)	33/243	13.6% (9.84 – 18.46)	44/321	13.7%	34/257	13.2%	50/324	15.4%	
Public Toilet	15/1145	1.3% (0.8 – 2.15)	4/243	1.6% (0.64 – 4.16)	5/321	1.6%	1/257	0.4%	5/324	1.5%	
Communal toilet (shared with 2 HH or more)	173/1145	15.1% (13.15 – 17.3)	49/243	20.2% (15.6 – 25.65)	52/321	16.2%	34/257	13.2%	38/324	11.7%	
Proportion of HH by how they disposed the stools of their child under 3 years old											
Child used toilet	25/642	3.9% (7.68 – 15.79)	10/138	7.2% (3.99 – 12.83)	2/176	1.1%	6/138	4.3%	7/190	3.7%	
Put/rinsed into toilet	1/642	0.2% (0.03 – 0.88)	0	0%	0	0%	1/138	0.7%	0	0%	
Thrown into garbage	596/642	92.8% (90.57–94.58)	121/138	87.7% (81.16–92.16)	168/176	95.5%	127/138	92.0%	180/190	94.7%	
Put/rinsed into drain or ditch	6/642	0.9% (0.43 – 2.02)	3/138	2.2% (0.74 – 6.19)	2/176	1.1%	1/138	0.7%	0	.0%	
Other	14/642	2.2% (1.3 – 3.63)	4/138	2.9% (1.13 – 7.22)	4/176	2.3%	3/138	2.2%	3/190	1.6%	

	SYRIAN REFUGEES NUTRITION ASSESSMENT 2013										Classification of public health significance or target (where applicable)
Date of Assessment	October 2 <sup>nd</sup> to November 30 <sup>th</sup> 2013										
Assessment area	All Lebanon		Bekaa		North		South		Beirut Mount-Leb		
	N/Total	% (95%CI)	N/Total	% (95%CI)	N/Total	% (95%CI)	N/Total	% (95%CI)	N/Total	% (95%CI)	
CHILD PROTECTION											
Average number of Children U18	-----	3.79	-----	3.69	-----	3.77	-----	3.93	-----	3.76	
Proportion of HH with children U18 from relatives	232/1058	21.9% (19.54–24.52)	46/225	20.4% (15.69–26.18)	70/291	24.1% (19.5 – 29.28)	45/249	18.1% (13.79–23.32)	71/293	24.2% (19.68–29.45)	
Proportion of HH by who is taking care of children U18											
Mother	924/1054	87.7% (85.55–87.67)	196/222	88.3% (83.39–91.88)	249/290	85.9% (81.38 – 89.4)	221/248	89.1% (84.62–92.41)	258/294	87.8 (83.52–91.03)	
Father	100/1054	9.5% (7.86 – 11.41)	19/222	8.6% (5.55 – 12.98)	31/290	10.7% (7.63 – 14.77)	18/248	7.3% (4.64 – 11.18)	32/294	10.9% (7.81 – 14.96)	
Brother or Sister	11/1054	1.1% (0.58 – 1.85)	2/222	0.9% (0.25 – 3.22)	5/290	1.7% (7.4 – 3.97)	4/248	1.6% (0.63 – 4.07)	0	0%	
Grand parent	16/1054	1.5% (0.94 – 2.45)	5/222	2.3% (0.96 – 5.16)	3/290	1.0% (2.7 – 2.99)	4/248	1.6% (0.63 – 4.07)	4/294	1.4% (0.53 – 3.68)	
Proportion of HH by status of children U18											
At School	439/1055	41.6% (38.67–44.61)	67/222	30.2% (24.52–36.51)	93/290	32.1% (26.96 – 37.65)	137/249	55.0% (48.81 – 61.08)	142/294	48.3% (42.65–54.0)	
With Disability	59/1055	5.6% (4.36 – 7.14)	21/222	9.5% (6.27 – 14.03)	16/290	5.5% (3.43 – 8.78)	12/249	4.8% (2.78 – 8.23)	10/294	3.4% (1.86 – 6.15)	
Orphan	50/1055	4.7% (3.61 – 6.25)	13/222	5.9% (3.46 – 9.76)	23/290	7.9% (5.34 – 11.62)	7/249	2.8% (1.37 – 5.69)	7/294	2.4% (1.16 – 4.83)	
On the street	9/1055	0.9% (0.45 – 1.67)	4/222	1.8% (0.7 – 4.54)	2/290	0.7% (0.19 – 2.48)	1/249	0.4% (0.07 – 2.24)	2/294	0.7% (0.19 – 2.45)	

## Introduction

This report presents the outcomes of a four independent strata nutrition assessment conducted in Lebanon to assess the overall nutrition situation of Syrian refugees in Lebanon and it presents presenting the specific nutrition situation in each stratum. Because of the high number of Syrian refugees in Lebanon (more than 600,000, UNHCR database, July 2013), for this second Nutrition Assessment (in which the first nutrition assessment was conducted in September 2012), a stratified, two-stage cluster survey based on the SMART methodology (in conformity with a UNHCR SENS methodology) was used. Since the Syrian refugees reside in different regions of Lebanon, the UN geographical division of the country in 4 strata or 4 independent samples, was used. The 4 strata were: Beirut and Mount Lebanon; Bekaa; North of Lebanon and South of Lebanon; and in stratum or region, we developed one independent sample for Syrian refugees.

The assessment was commissioned by UN agencies (UNICEF, UNHCR, WHO and WFP), led by UNICEF, in collaboration with MOPH and IOCC. The data collection for the assessment was conducted from October 2<sup>nd</sup> until November 30<sup>th</sup> 2013. At the time of writing this report (January 2014), the UNHCR database indicated that the number of Syrian refugees in Lebanon was 890,136 (841,942 registered and 48,194 Syrians in Lebanon awaiting registration).

The nutrition survey assessed the nutrition situation of the Syrian refugees residing in Lebanon. It is a nutrition assessment among Syrian refugees who lived in the Bekaa, North, South and Beirut & Mount-Lebanon regions.

This report is divided into the following sections:

- **Executive summary:** This section includes a brief summary of the methodology, main results and recommendations.
- **Background and Rationale:** In this section the background information related to Syrian situation and justification of survey is presented.
- **Methodology:** This section explains the methodology (in conformity with a UNHCR SENS methodology) used in this assessment; a standardized protocol of the methodology was used in the different regions.
- **Results:** The results are reported in combined sections.
- **The discussion:** The discussion highlights similarities and differences between the Syrian refugees in different regions, the implications of the results on the larger humanitarian situation and the relationships identified (or that emerged) between various factors.
- **Recommendations:** This section presents the recommendations regarding the overall humanitarian action needed targeting the Syrian refugees in Lebanon. It also

presents, when relevant, the specific needed humanitarian action of the Syrian refugees specified by region of residence.

## **I. Background and rationale**

The basic indicators used to assess the severity of a crisis are mortality or death rate and the nutritional status of the population. An estimation of these two measures is reached through conducting an assessment study of the affected population.

To know the magnitude of the problem is important to know the affected population size and, if applicable, the demographic characteristics of the population. A high proportion of malnourished cases in a small population size are normally of less magnitude than a lower proportion of malnourished cases in a large population size. The scale and type of intervention depends on the magnitude of the emergency rather than simply on the prevalence of malnutrition.

Since the beginning of the Syrian crisis in early 2011, the number of Syrians crossing the border into Lebanon has been gradually increasing. In Lebanon, joint registration of refugees by the Lebanese Government and UNHCR is ongoing. Many of these refugees might be in a precarious situation, with little or no financial resources to rely on.

The majority of the refugees are women and children, since many men/head of households could not leave Syria. Displaced dependents in Lebanon are therefore socially and economically vulnerable and have a myriad of needs. Most Syrians fled their homes and villages due to fighting in these areas. They have been deeply affected by the loss of their homes, neighborhoods and many have lost loved ones. Over 75% of those who are being assisted are woman and children. At the early stage of the crisis, many lived with hosting families who themselves struggle to meet their ends; however, recent data shows that refugees are now living on their own. Among the most pressing needs are food, basic non-food items, shelter, medical care and psychosocial support.

The 2012 Syrian refugee nutrition assessment results and recommendations led some nutrition activities to take place:

1. Health staff were trained to monitor or treat malnutrition cases.
2. Health centers were equipped (anthropometric material) to monitor or treat malnutrition cases.
3. Malnutrition screening was set-up by some NGOs and the children identified with acute malnutrition were referred for treatment.

## II. Justification of the assessment

According to UNICEF's State of the World's Children (2012), the nutrition situation in Syria was worse than that in Lebanon before the onset of the Syrian crisis, based on data available about wasting (12%), stunting (28%) and the proportion of children who were underweight (10%) (ref table 1 for comparison).

In September 2012, the nutrition and food situation of Syrians displaced in Lebanon was assessed by a UN inter-agency Nutrition assessment. The nutrition situation was within the acceptable levels of acute malnutrition (global acute malnutrition rate was 4.4%). However, it was noted that the presence of aggravating factors such as poor living conditions for some of the refugees, onset of the cold season, high disease burden, sub-optimal coverage of immunization and the unpredictable income levels of families, who lost their livelihood and rely on money to purchase food, could affect the nutritional well-being of the population in the future.

**Table 1: Nutrition status for Syria, Jordan, Lebanon and MENA Region Average, UNICEF SOWC, 2012 and FHS 2009**

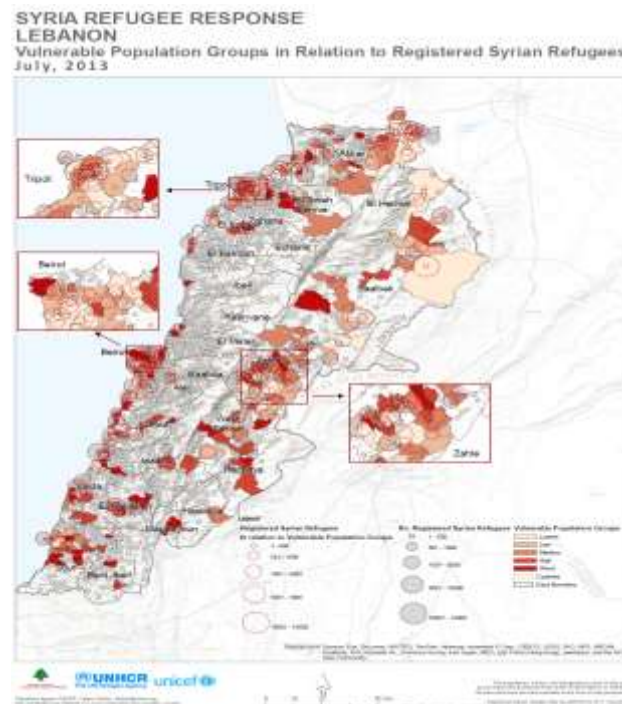
Nutrition status for Syria, Jordan, Lebanon and MENA Region Average, UNICEF SOWC, 2012 and FHS, 2009						
Country	Stunting (Moderate & Severe)	Wasting (Moderate & Severe)	Underweight (Moderate & Severe)	Exclusively Breast Fed (< 6 month)	Vitamin A supplementa tion coverage	% Households consuming Iodized salt
Syria	28	12	10	43	33	79
Jordan	8	2	2	22	-	88
Lebanon	11	5	-	27	-	92
MENA Average	28	9	11	34		48

The situation in Syria has not improved and the number of Syrian refugees arriving to Lebanon has continuously increased. UNHCR's latest estimates (January 2014) with partners indicate that there are 890,136 Syrian registered or awaiting registration in Lebanon of which 19.9% were estimated to be children under 5 years of age. This follow-up assessment aimed at identifying the nutritional wellbeing of vulnerable Syrian women and children and the potential nutrition and health related interventions taking into consideration existing public health programs and policies in Lebanon. The SMART (Standardized Monitoring and Assessment of Relief and Transition) methodology has been chosen to assess the nutrition situation.

Since the majority of Syrian refugees reside in the areas where the most vulnerable Lebanese families live (see figure 1), it was suggested to conduct an assessment of the nutrition situation of Lebanese families who live in the same localities. For this reason, both of these populations were initially targeted in this assessment.

Also, as there is no database about iron deficiency or anaemia levels of children under the age of 5 and women of reproductive age (WRA) among the Syrian refugees in Lebanon, the UN agencies and their partners decided to measure the prevalence of anaemia in children aged 6-59 months and in women of reproductive age for surveillance purposes and to create a baseline of the iron deficiency situation.

**Figure 1: Localization of Syrian refugees in Lebanon**



### III. Task force committee

The Joint Nutrition Assessment was planned to assess the nutrition situation of both Syrian refugees and Lebanese host community in the areas where the Syrian refugees live, by using SMART (**Standardized Monitoring and Assessment of Relief and Transition**) methodology. SMART has more requirements than other methodologies but can provide more reliable and accurate information/results easily and rapidly for decision makers.

To help and advise on the coordination of the nutrition assessment through all the stages of the assessment, a task force was established in the early planning phase of the assessment.

The duties of the members of the Task Force were to:



1. Review and validate the TOR of the nutrition assessment;
2. Review and validate the methodology and all the tools suggested for the Nutrition Assessment;
3. Advise the assessment coordination team on the feasibility of different activities planned and ensure smooth implementation;
4. Help the assessment coordination to resolve any difficulties that emerged during the assessment;
5. Review and validate the data and results of the Nutrition Assessment.
6. Review and validate the report and recommendations of the Nutrition Assessment.

The members of the task force have a good technical background and/or a good knowledge of the Lebanese and assessment context. They helped in the realization of the nutrition assessment by advising on the coordination process of the assessment and by supporting the preparatory and logistical aspects of the assessment.

The task force committee members are representatives from UN agencies (UNICEF, WFP, WHO and UNHCR) in Lebanon, the Ministry of Public Health (MOPH) and an NGO partner.

## **IV. Scope of the assessment**

The nutrition assessment aimed to examine the nutritional status of both Syrian refugees and Lebanese host community in the areas where the Syrian refugees live. Children under the age of five, as well as women of reproductive age were assessed for malnutrition. Women and children were also tested for anaemia. Any cases of anaemia or malnutrition identified during the assessment were referred to the MOPH primary health care structures for treatment. Moreover, the IYCF practices among children 0-23 months were investigated and the level of access to health services, access to and use of potable water, sanitation and hygiene facilities was also assessed. The food security situation among the Syrian refugees in Lebanon was assessed in the VASyr study conducted by WFP three months before the data collection of this assessment (May-June 2013). This nutrition assessment was initially planned to assess the food security only of Lebanese host community families who live in the areas where Syrian refugees also resided.

Initially, the Joint Nutrition Assessment was planned to assess the overall nutrition status of both Syrian refugees and Lebanese host community concurrently in the areas where the Syrian refugees live. However, at the end of the surveyor's preparation phase (selection and training) and the completion of the sampling process for Syrian refugees' assessment, the process to build the sample frame for Lebanese host communities was still pending



due to some political concerns. Thus, after a delay to start the field work for the Nutrition Assessment, it was decided to do the data collection for Syrian refugees (in all Lebanon) first. As a second step, it was planned that once the data collection of Syrian refugees was complete, the sample frame process for Lebanese host communities would be ready and the data collection from host communities would begin directly.

Unfortunately, two months later (at the end of data collection for Syrian refugees) the first winter storm arrived, and the sample frame process for Lebanese host communities was still not complete; so it was decided that the Nutrition Assessment for Lebanese host communities will be conducted after winter. The rest of this report will cover only the Nutrition Assessment of Syrian refugees in Lebanon.

## V. Demography

At the time the sampling of the assessment was done (end of July 2013), and according to UNHCR ProGres<sup>4</sup>, the total number of Syrian refugees in Lebanon registered or awaiting registration was 612,331 individuals (139,822 households). The total Syrian population and U5 Children in the various Lebanese regions at July 25th 2013 are presented in table 2 and table 3.

**Table 2: Distribution of Syrian refugees in the 4 strata**

Strata	Registered Syrian refugees (July 25 <sup>th</sup> 2013)					Awaiting for registration (August 1 <sup>st</sup> 2013)				
	Population	Number of HH	U5 children	HH average size	% of U5 children	Population	Number of HH	U5 children	HH average size	% of U5 children
<b>Beirut and Mount Lebanon</b>	101,841	24,293	19,204	4.2	18.9%	15,761	3,653	NA	4.3	NA
<b>Bekaa</b>	183,831	38,606	38,128	4.8	20.7%	33,867	6,622	NA	5.1	NA
<b>North Lebanon</b>	185,728	46,191	35,318	4.0	19.0%	15,745	3,862	NA	4.1	NA
<b>South Lebanon</b>	68,321	14,936	14,299	4.6	20.9%	7,237	1,659	NA	4.4	NA
<b>The country</b>	<b>539,721</b>	<b>124,026</b>	<b>106,949</b>	<b>4.4</b>	<b>19.8%</b>	<b>72,610</b>	<b>15,796</b>	<b>NA</b>	<b>4.6</b>	<b>NA</b>

**Table 3: Distribution of Syrian refugees in the 4 strata**

Strata	Syrian refugees (registered and awaiting for registration)			
	Population	Number of HH	Average HH size	% of U5 children <sup>*</sup>
<b>Beirut &amp; Mount Lebanon</b>	117,602	27,946	4.2	18.9%
<b>Bekaa</b>	217,698	45,228	4.8	20.7%

<sup>4</sup> ProGres: UNHCR registration database for refugees

<b>North of Lebanon</b>	201,473	50,053	4.0	19.0%
<b>South of Lebanon</b>	75,558	16,595	4.6	20.9%
<b>The country</b>	<b>612,331</b>	<b>139,822</b>	<b>4.4</b>	<b>19.8%</b>
* As the number of children under 5 is not available for awaiting Syrian refugees for registration, the % of U5 children among awaiting Syrian refugees families can't be calculated. Because of that, the % of U5 children among registered Syrian refugees' families will be used as a proxy.				

## VI. Objectives

The nutrition assessment aimed to assess the general nutrition status of Syrian refugees, identify some of the factors likely to undermine the nutrition status and to fill the information gap on the nutritional well-being of the vulnerable Syrian women and children in order to formulate workable recommendations for appropriate nutritional and public health interventions, if (or in case) the need for response to mitigate deterioration, is identified. Specific objectives for the assessment are:

1. To estimate the prevalence of acute malnutrition, stunting (chronic malnutrition), underweight and overweight of children aged 6-59 months in Lebanon.
2. To estimate the acute malnutrition levels for women of reproductive age in Lebanon based on MUAC measurement.
3. To assess the two-week period prevalence of diarrhea, cough and fever among children 6-59 months.
4. To measure the prevalence of anaemia among children aged 6-59 months and women of reproductive age (non-pregnant), 15-49 years.
5. To determine the coverage of measles and polio vaccination among children 9-59 months.
6. To determine the coverage of vitamin A supplementation in the last six months among children 6-59 months and postnatal women.
7. To investigate IYCF practices among children 0-23 months.
8. To determine the refugee population's access to and use of improved water, sanitation and hygiene facilities.
9. To identify and document the underlying factors likely to influence the nutritional well-being of the Syrian population in Lebanon.

## VII. Methodology

### 1. Study Population

The study population was the vulnerable Syrian women and children in Lebanon (registered or awaiting registration with UNHCR). Establishing the up-to-date Syrian population size and their current location as well as village-level Lebanese population details is a pre-requisite for sound sampling procedures application. This includes details of satellite villages/ settlements surrounding Bekaa Valley, Beirut and Mount Lebanon and North and South regions of the country. A detailed list of the locations and the population size was prepared, from which the sampling frame/ sampling universe was formed and used in the random selection of households; then the children and the mothers were enrolled in the assessment.

Based on the established study population and the estimated acute malnutrition prevalence (percentage for the case of Syrian refugees of 4.4% (GAM from 2012 Survey), the sample size for Syrian refugees in Lebanon was determined by using the Emergency Nutrition Assessment (ENA) for SMART software.

Because of the high number of Syrian refugees in Lebanon (more than 600,000, UNHCR database, July 2013), a stratified, two-stage cluster survey based on the SMART methodology was used for this second Nutrition Assessment. As the Syrian refugees reside in different regions of Lebanon, the UN geographical division of the country, which is 4 strata or 4 independent samples, was used. The 4 strata were: Beirut and Mount Lebanon; Bekaa; North of Lebanon and South of Lebanon. In each stratum or region, one independent sample for Syrian refugees was selected. The results in this report are presented per stratum and the 4 strata were combined to give one overall figure for all Syrian refugees in Lebanon.

An independent representative sample of Syrian refugee children from 0 to 59 months of age and women from 15 to 49 years old were surveyed.

In each stratum for Syrian refugees, an independent representative sample of Syrian refugee children from 0 to 59 months of age and women from 15 to 49 years old were randomly selected.

The sample size ranged between 300 and 600 households for each stratum, depending on the parameters<sup>5</sup> used in the calculation.

For this assessment, the sampling unit used was the household. The definition of household as used in this study is: a group of people who live together and routinely eat out from the same pot. In some cases, the survey teams combined 2 or more families, registered by UNHCR, in the same HH.

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<sup>5</sup> Parameters include estimated acute malnutrition rate, desired precision, design effect, average household size, % of U5 and % non-response.

## 2. Some definitions

Household (HH): a household is a group of people who live together and routinely eat out from the same pot.

Residence: is the group of people living under the same roof. Therefore, several households can be found in the same residence.

Head of household or of the family: a member of the family (usually a man or another adult) who manages the family resources and is the final decision maker in the house.

Respondent: is the person who takes care of the child (usually the mother or other woman) and will be able to answer the questions of the assessment.

## 3. Sampling and Sample Size Determination

Cluster sampling was the most appropriate sampling methodology for this situation and the HH was the sample unit.

A two stage Cluster sampling used is described in the next sections.

### 3.1 Sample size determination

The different sample sizes were calculated using **Standardized Monitoring and Assessment of Relief and Transitions** (ENA for SMART6) software7, in conformity with a UNHCR SENS methodology. The established study population and the estimated acute malnutrition prevalence was used (the percentage of GAM observed in 2012 Syrian refugees survey in Lebanon (4.4%) was used).

SMART methodology recommends using the fixed number of households method rather than the fixed number of children method. The main reasons are:

- It is more logical to have a fixed number of households as a target to reach in each cluster. In other words, since it is only possible to estimate the approximate number of eligible children per household prior to data collection (which might not reflect the actual number found in selected houses), it will be impossible to know in advance the number of HH to select that will contain the exact number of children. The ENA software for SMART first calculates the number of children to be surveyed and then converts the sample size from number of children into number of households to be surveyed. So, the target of the survey is not the number of children.
- Inclusion of HH with no children: When survey teams have a target number of children to reach, they may have a tendency to skip households that do not have children. This

<sup>6</sup> SMART : **Standardized Monitoring and Assessment of Relief and Transitions**

<sup>7</sup> Emergency Nutrition Assessment. Le logiciel ENA (Delta version) pour SMART peut-être téléchargé sur <http://www.nutrisurvey.net/ena/ena.html>

number of children is only an estimate of the approximate number of eligible children per household prior to data collection and it will be wrong for other indicators collected during the same survey (such as WASH, food security.) – it need to be measured at the household level. Measuring these indicators only in households with young children and excluding all other households will create a serious bias.

The total population to be surveyed was derived from ProGres database. A non-response rate of 10% was used in all sample size calculations. Systematic random sampling methodology was used at the second stage to identify households within the cluster.

#### A. Syrian refugees Samples

For different Syrian refugees' strata, to determine the sample for each stratum, we need the following parameters (cf. Table 4.1-1).

**Table 4.1-1: Parameters needed for sample size determination**

Syrian Refugees Nutrition Assessment, Lebanon	Parameters/Indicators	Rate/Number			
		Syrian Refugees in Lebanon			
		Beirut & Mount Lebanon	Bekaa	North Lebanon	South Lebanon
	Population Size in each stratum	117,602	217,698	201,473	75,558
	Number of Households or families	27,946	45,228	50,053	16,595
	Estimated Prevalence of Global Acute Malnutrition	4.4% (2012 Syrian refugees GAM rate)			
	Desired Precision	3.5%			
	Design Effect (DEF)	1.44 (2012 Survey DEF)			
	Average HH size (calculated from UNHCR data base)	4.2	4.8	4.0	4.6
	% Children under 5	18.9	20.7	19.0	20.9
	% Non-Response HH	10%			
	Children Sample Size	<b>207</b>	<b>207</b>	<b>207</b>	<b>207</b>
	Households Sample Size	<b>322</b>	<b>257</b>	<b>336</b>	<b>266</b>
	Number of HH by Cluster	<b>10</b>	<b>10</b>	<b>10</b>	<b>10</b>
	Number of Cluster in the sample	<b>33</b>	<b>26</b>	<b>34</b>	<b>27</b>

The Syrian refugee sample sizes for different components of the Assessment are presented in the table 3.1-2.

**Table 4.1-2: Household sample size and sampling-cluster**

Assessment component	Sampling (based on SMART and the UNHCR SENS methodology)	Sample size/Number of Clusters							
		Beirut and Mount Lebanon		Bekaa		North of Lebanon		South of Lebanon	
<b>Anthropometry, Health, IYCF and WASH</b>	All eligible children within all of the sampled HH will be assessed for anthropometry, health and WASH indicators.	322 HH	33 clusters of 10 HH	257 HH	26 clusters of 10 HH	336 HH	34 clusters of 10 HH	266 HH	27 clusters of 10 HH
<b>Children and women Anaemia</b>	Half of the selected HH (sub-sample) should be randomly assessed for anaemia and all eligible children found in these HH should be assessed for anaemia indicators.	161 HH	33 clusters of 5 HH	129 HH	26 clusters of 5 HH	168 HH	34 clusters of 5 HH	133 HH	27 clusters of 5 HH

### 3.2 First stage of cluster sampling methodology

The first stage of sampling consists of choosing randomly the number of clusters in each stratum for Syrian refugees, which is usually derived from census data or projected population data. The census data base is usually provided by the central statistics office of the country. However, in this case, the census data base was not appropriate because Syrian refugees are not the primary population and are not homogeneously distributed.

Instead, we used as the sample frame, the database (list of registered Syrian refugees and list of awaiting for registration) from UNHCR. The current list of Syrian refugees obtained from UNHCR tallied individuals by districts, sub-districts, cities, neighborhoods, '*mohafaza*', '*qada*', and village. The ultimate assessment subjects were households' members, primarily children under five, and women of reproductive age. In each stratum, **after excluding all non-accessible areas for insecurity issue**, we selected randomly the different clusters (localities, district or sub-districts, '*mohafaza*', '*qada*', and village).

The first stage of sampling permitted us to have randomly the number of clusters needed for each stratum. However, we also needed to select 10 households randomly (as requested by Cluster sampling methodology), for each cluster.

### 3.3 Second stage of cluster sampling methodology

During the second stage of cluster sampling, in each stratum and for each geographical unit (locality, district or sub-district, '*mohafaza*', '*qada*' or village) chosen as a cluster,

similar to last year's assessment, we used the best database available about registered and awaiting for registration Syrian refugees – the most complete UNHCR lists (with name of head of family and phone number provided) – to choose randomly 10 households per cluster.

After choosing households for the different clusters, volunteers from NGO partner and different team leaders (in the field) verified the household's address prior to the date of data collection, through phone calls. During the actual date of data collection, the volunteers of NGO partner or the community guides helped the teams to find the Households. The sample assessed is presented in Annex 1.

#### 4. Questionnaire

The questionnaire is presented in Annexes 2-3. It was originally prepared in English language and then it was translated and administered in Arabic language. The questionnaire was pre-tested before the assessment.

All information regarding nutrition assessment of children aged between 0 and 59 months and women in childbearing age (15 – 49 years) at a household level was gathered using a validated interview questionnaire. Four modules were designed to provide information on the relevant indicators of the different target groups as indicated in the assessment objectives. The four module questionnaire covers the following areas and the following measurements:

**Module 1:** *A Household consent form* – This module permitted the team leader to explain to the head of household clearly the purpose of the assessment, the assessment procedures, the confidentiality of data collected and anonymity and that the information were used only for this Nutrition Assessment. It permitted the team leader, to explain clearly the right to refuse to participate, or to not answer any question and to stop at anytime. This module also permitted to collect the data about the HH characteristics and the data about WASH.

**Module 2:** *Women in reproductive age (15 to 49 years old)* - This module included questions and measures for women aged 15 – 49 years. Information was collected on women's physiological status (pregnancy and lactation statuses), intake of iron-folic acid pills and ANC attendance for pregnant women, post-natal vitamin A supplementation, haemoglobin assessment (for non pregnant women) and MUAC measurement.

**Module 3:** *Children 6-59 months* - This module included questions and measures on children aged 6-59 months. Information was collected on sex, age, anthropometric status (weight, height, oedema, MUAC) immunization (measles), vitamin A supplementation in last six months, morbidity from diarrhoea, cough and fever in past two weeks and haemoglobin assessment.

**Module 4:** *IYCF practices of infants 0-23 months* - This module included questions on infant feeding for children aged 0- 23 months, in conformity with UNHCR SENS methodology recommendations.

The Arabic questionnaire is presented in annex 2 and the English version is presented in annex 3.

## **5. Measurement methods**

### **a) Household-level indicators**

**WASH:** The VASyr study, conducted by WFP, 3 months before the data collection of this assessment (May-June 2013), also had a WASH section. However, the UNICEF WASH team suggested a more complete module. The questions about WASH were a combination between the questions suggested by UNICEF WASH team and some adapted questions from the ones recommended by UNHCR's newly developed Standardized Expanded Nutrition Survey Guidelines for Refugee Populations and which were validated by UNICEF and UNHCR WASH officers.

**Health:** The questionnaire on health was validated by WHO and UNHCR Lebanon.

### **b) Individual-level indicators**

**Sex of children:** Gender was recorded as either male or female.

**Age in months for children 0-59 months:** In Syria, a lot of births are registered up to 6 months after the exact date of birth, and parents usually provide a later date of birth than the actual one. So in this study, the child's age was estimated in months using the "Events Calendar", which was developed during the assessment planning phase (annex 4). The age was recorded in months on the questionnaire sheet. In the cases where the child's age was absolutely impossible to determine through the use of local events calendar or by probing, then the child's length/height were used to determine inclusion; the child had to measure between 65 cm and 110 cm to be included.

**Age of women 15-49 years:** Reported age was recorded in years.

**Weight of children 6-59 months:** Measurements were taken to the closest 100 grams using an electronic scale (SECA scale) with a wooden board placed under the scale, to stabilize when taking measurements. In the Syrian cultural context, most children were weighed with clothes. Hence, the mean weight of 100 grams (for clothes – an estimation of the average of clothes weight was made during the Pilot test) was taken into consideration during data analysis. Ideally, clothes were removed and only very light underwear will be allowed; however, if this was a problem, then teams were instructed to take weight inside of



the surveyed house. The double-weighing technique was used to weigh young children (usually under the age of 2), who were unable to stand on their own or unable to understand instructions such as not to move while on the scale.

**Height/length of children 6-59 months:** Children's height or length was taken to the closest millimeter using a wooden height board. Height was used to decide on whether a child should be measured lying down (length) or standing up (height). Children less than 87cm (who in most cases were under the age of 2 years) were measured lying down (length), while those greater than or equal to 87cm were measured standing up (height). However, for children taller than 87 cm who could not stand, length was taken and then later adjusted by deducting 0.7cm from the recorded reading.

**Oedema in children 6-59 months:** bilateral oedema was assessed by applying gentle thumb pressure on to the top of both feet of the child for a period of three seconds and thereafter observing for the presence or absence of an indent. All oedema cases reported by the assessment teams were verified by the assessment coordinators/supervisors and then were immediately referred to primary health care center.

**MUAC of children 6-59 months and women 15-49 years:** MUAC was measured at the mid-point of the left upper arm between the elbow and the shoulder and taken to the closest millimeter using a standard tape. MUAC was recorded in centimeters for women of reproductive age.

**Measles and Polio vaccination in children 6-59 months:** vaccination was assessed by checking for vaccine records on the EPI card if available or by asking the mother or the caregiver to recall if no EPI card was available. For measles and for ease of data collection, all children aged 6-59 months were assessed but analysis was only done on children aged 9-59 months.

**Measles vaccination coverage:** UNHCR recommends target coverage of 95% (same as Sphere Standards).

**Vitamin A supplementation in last 6 months in children 6-59 months:** to check if the child received a vitamin A capsule over the past six months in case it was recorded on the EPI card or health card if available; if no card was available, the mother or the caregiver was asked to recall. A vitamin A capsule image was shown to the caregiver to aid her/him when asked to recall.

**Vitamin A supplementation coverage in children:** UNHCR Strategic Plan for Nutrition and Food Security (2008-2012) states that the target for vitamin A supplementation coverage for children aged 6-59 months in camp, country and region should be > 90%.

**Haemoglobin concentration in children 6-59 months and women 15-49 years:** Haemoglobin concentration was measured from a capillary blood sample taken from the

fingertip and recorded to the closest gram per deciliter by using the portable HemoCue Hb 301 Analyzer (HemoCue, Sweden). If severe anaemia was detected, the child or the woman was referred for treatment immediately.

**Anaemia data:** UNHCR Strategic Plan for Nutrition and Food Security (2008-2012) states that the targets for the prevalence of anaemia in children 6-59 months of age and in women 15-49 years of age should be low i.e. < 20%. The severity of the public health situation should be classified according to WHO criteria.

**Diarrhea in last 2 weeks in children 0-59 months:** Mothers or caregivers were asked if their child had suffered from diarrhoea in the past two weeks and were asked about the duration (number of days) of the diarrhoea occurrence. **Diarrhoea:** Presence of three or more loose or watery stools in a 24-hour period was as used as the operational definition.

**Cough in last 2 weeks in children 0-59 months:** Mothers or caregivers were asked if their child had suffered from a cough in the past two weeks.

**Fever in last 2 weeks in children 0-59 months:** Mothers or caregivers were asked if their child had suffered from fever in the past two weeks.

**ANC enrolment and iron and folic acid pills coverage:** if the surveyed woman was pregnant, it was assessed whether she was enrolled in the ANC program and if she was receiving iron-folic acid pills. An iron-folic acid pill image was shown to the pregnant woman when asked to recall.

**Post-natal vitamin A supplementation:** if the surveyed woman delivered a baby in the last six months, it was assessed by card or recall whether she received vitamin A supplementation after delivery or not. A vitamin A capsule image was shown to her when asked to recall.

**Infant and young child feeding practices in children 0-24 months:** Infant and young child feeding practices were assessed based on UNHCR SENS methodology recommendations.

**Referrals:** In collaboration of MOPH and IOCC, Children aged 6-59 months were referred to health center for treatment when index weight/height indicated yellow or red (< - 2 SD), when MUAC was < 12.5 cm, when oedema was present, or when haemoglobin was < 7.0 g/dl. Women of reproductive age were referred to the hospital for treatment when haemoglobin was < 8.0 g/dl.

## **6. Different definitions and calculations**

### **A. Malnutrition in children 6-59 months**

**Acute malnutrition** is defined using weight-for-height index values or the presence of oedema and classified as shown in Table 5. Main results were reported after analysis using the WHO 2006 Growth Standards. Results using the NCHS 1977 Growth Reference were reported in an Annex 5.

**Table 5: Definitions of acute malnutrition using weight-for-height and/or oedema in children 6–59 months**

Categories of acute malnutrition	Z-scores (NCHS Growth Reference 1977 and WHO Growth Standards 2006)	Bilateral Oedema
Global acute malnutrition	< -2 z-scores	Yes/No
Moderate acute malnutrition	< -2 z-scores and $\geq$ -3 z-scores	No
Severe acute malnutrition	< -3 z-scores	Yes/No

**Stunting** also known as chronic malnutrition is defined using height-for-age index values and is classified as severe or moderate based on the cut-offs shown in Table 6. Main results were reported according to the WHO Growth Standards 2006. Results using the NCHS 1977 Growth Reference were reported in an Annex 5.

**Table 6: Definitions of stunting using height-for-age in children 6–59 months**

Categories of stunting	Z-scores (WHO Growth Standards 2006 and NCHS Growth Reference 1977)
Stunting	<-2 z-scores
Moderate stunting	<-2 z-scores and $\geq$ -3 z-scores
Severe stunting	<-3 z-scores

**Underweight** is defined using the weight-for-age index values and was classified as severe or moderate based on the cut-offs shown in Table 7. Main results are reported according to the WHO Growth Standards 2006. Results using the NCHS 1977 Growth Reference are reported in an Annex 5.

**Table 7: Definitions of underweight using weight-for-age in children 6–59 months**

Categories of underweight	Z-scores (WHO Growth Standards 2006 and NCHS Growth Reference 1977)
Underweight	<-2 z-scores
Moderate underweight	<-2 z-scores and >=-3 z-scores
Severe underweight	<-3 z-scores

**Mid Upper Arm Circumference (MUAC)** values for children aged 6-59 months is used to define malnutrition according to the cut-offs shown in Table 7. However, the official results are those based on the weight for height indicator.

**Table 7: Classification of acute malnutrition based on MUAC in children 6-59 months (WHO, 2000)**

Categories of Malnutrition	MUAC Reading
At risk of malnutrition	≥ 12.5 cm and <13.5 cm
Moderate malnutrition	≥ 11.5 cm and <12.5 cm
Severe malnutrition	< 11.5 cm

## **B. Anaemia**

This section is to give the background about anaemia, to introduce the HemoCue and describe how it can be used to assess anaemia.

### **Background**

Anaemia is a condition of low levels of the haemoglobin (Hb) concentration in the blood. This results in reduced oxygen-carrying capacity and a reduced amount of oxygen being transported in the body, and may lead to reduced aerobic activity in the body's cells.

Iron is a main component of Hb and iron deficiency is estimated to be responsible for over half of anaemia globally. Other causes of anaemia include malaria, hookworm and other helminthes; other micronutrient deficiencies such as vitamin A, vitamin B12 or folic acid deficiency; chronic infections; genetic conditions which vary by region (such as Sick Cell and Thalassemia here in the Middle East); HIV/AIDS; and high fertility.

Anaemia is a serious concern for pregnant women and children. It increases the risk of maternal mortality and poor birth outcomes. For children, iron deficiency adversely affects the cognitive performance, behaviour, and physical growth of infants. Moreover, iron deficiency can affect the immune status and morbidity from infections of all age groups; and the use of energy sources by muscles and thus the physical capacity and work performance of adolescents and adults of all age groups. WHO considers iron deficiency or

anaemia as a public health problem when there is prevalence of low Haemoglobin concentration (< 11.0 g/dl) that exceeds 5.0% of the intended population. The situation needs immediate action when the prevalence of anaemia exceeds 20%. The situation is considered a severe public health problem when the prevalence of Haemoglobin concentration exceeds 40.0% (WHO/UNICEF/UNU 2001. Iron Deficiency Anaemia: Assessment, prevention and control: A guide for program managers).

Anaemia is classified according to the cut-offs below in children 6-59 months and non-pregnant women of reproductive age. Anaemia cut-offs for pregnant women should be adjusted depending on the stage of pregnancy (gestational age), thus it was not included as part of this assessment.

**Table 8: Classification of public health significance of Anaemia prevalence (WHO, 2001)**

Prevalence %	Severe	Moderate	Low	Normal
Anaemia	≥ 40	20-39	5-19	< 5%

Information about the prevalence of anaemia can be useful for the development of health-intervention programs designed to prevent anaemia, such as promoting consumption of iron-rich foods, iron supplementation, home food fortification, malnutrition prevention and treatment, and deworming programs as appropriate.

Haemoglobin is a commonly used, well validated, and widely accepted indicator for anaemia. Mean Haemoglobin is one useful way to present this indicator. However, anaemia is also commonly presented based on cutoffs. The following Haemoglobin cutoffs are used to classify anaemia severity.

**Table 9: Definition of anaemia (WHO, 2001)**

Age/Sex groups	Categories of Anaemia (Hb g/dL)			
	Non-Anaemic	Mild	Moderate	Severe
Children 6 - 59 months	≥ 11.0	10.0 - 10.9	7.0 – 9.9	< 7.0
Non-pregnant adult females 15-49 years	≥ 12.0	11.0 - 11.9	8.0 - 10.9	< 8.0

### **Anaemia data measurement**

Data on the prevalence of anaemia is essential to collect to establish a baseline and for future monitoring purposes.

Because of sample size issues (usually a small number of pregnant women is found) as well as the difficulties in assessing gestational age of pregnant women, UNHCR SENS

methodology suggest to collect anaemia data on children aged 6-59 months and non-pregnant women of reproductive age (15-49 years). In this assessment data reflecting the prevalence of anaemia among children aged 6-59 months and non-pregnant women of reproductive age (15-49 years) was collected. Therefore, as is routine in emergency nutrition surveys, pregnant women were not included in the anaemia measurements portion of the assessment.

The anaemia data is presented by category of severity (mild, moderate, severe and total anaemia) for children 6–59 months of age, children 6-23 months and 24-59 months as well as for non-pregnant women 15-49 years of age. Mean Hb (g/dL) and (SD / 95% CI) as well as the range are also presented.

To ensure a good quality of Hb data, a thorough training was provided to the surveyors. Moreover, close supervision and checking of the quality of the equipment and measurements, were conducted on a regular basis throughout the survey to ensure that the anaemia data are reliable.

Standard methods for Hb measurements were followed when using HemoCue 301+, to maintain the quality, reliability and usability of the results.

**HemoCue** is a portable, field-friendly machine used to measure Hb concentration in the blood. **Haemoglobin** is the oxygen-carrying part of red blood cells. The amount of Hb in blood is typically expressed in g/dL (grams of Hb per deciliter of blood). It is also sometimes expressed in g/L (grams of Hb per liter of blood).



Because HemoCue use involves handling a blood sample, in a minimally invasive way, we provided appropriate teaching and quality training, and tried when applicable to have among the surveyors, one lab technician or nurse in each team.

Additional to Haemoglobin measured by HemoCue, other data was needed to assess the anaemia situation, including age of children 6-59 months and women 15-49 years and pregnancy status.

### **Sampling for Anaemia assessment by Haemoglobin measurement**

UNHCR SENS methodology recommends using the same sampling frame as for acute malnutrition with some modifications according to the context in which the data on anaemia prevalence is being collected. The different scenarios are presented in the table below. UNCHR SENS scenario number 1 was chosen. This scenario was chosen because we did not need to assess the impact of an intervention and we were not planning to intervene with a direct anaemia intervention in the very near future. However, we planned on measuring the prevalence of anaemia among children aged 6-59 months and women of reproductive age for surveillance purposes and to have a baseline data.

For anaemia measurements, half of the sampled households (sub-sample) were randomly selected and all eligible children aged 6-59 months and all eligible women in these households were assessed.

Component	Sample size	Sampling
<b>Anthropometry and health</b>		All eligible children within all of the sampled HH will be assessed for anthropometry and health indicators.
<b>Children Anaemia</b>	<b>Scenario 1:</b> If we need to measure the prevalence of anaemia in children aged 6-59 months for surveillance purposes but we do not need to assess the impact of an intervention and are not planning to intervene with a direct anaemia intervention in the immediate future	.With any survey design, half of the sampled households (sub-sample) should be randomly selected and all eligible children found in these households should be assessed for anaemia.
	<b>Scenario 2:</b> if we are planning to implement/have been implementing <u>a direct</u> intervention to reduce anaemia in children aged 6-59 months and we need to assess the baseline prevalence and impact of the intervention	With any survey design, all eligible children from all randomly selected HH will be assessed for anaemia.
<b>Women Anaemia</b>	<b>Scenario 1:</b> if we need to measure the prevalence of anaemia in women of reproductive age for surveillance purposes but we do not need to assess the impact of an intervention and are not planning to intervene with a direct anaemia intervention in the immediate future	With any anaemia scenario (as described above) and any survey design, half of the sampled households (sub-sample) should be randomly selected and all eligible women found in these households should be assessed for anaemia.
	<b>Scenario 2:</b> if we are planning to implement/have been implementing a direct intervention to reduce anaemia in women and we need to assess the baseline	



Component	Sample size	Sampling
	prevalence and impact of the intervention	

### C. Infant and young child feeding practices in children 0-23 months

To measure all WHO IYCF indicators requires much larger sample size than are feasible and necessary for anthropometric SMART survey. That is why the most of WHO IYCF indicators are measured mostly in MICS and DHS surveys that include large sample sizes.

Since our sample size was not large enough to measure all the WHO IYCF indicators, we followed the recommendations of UNHCR SENS survey guidelines and we included in this assessment, only the IYCF indicators recommended by UNHCR SENS methodology. The indicators that were included are: the timely initiation of breastfeeding (0-23 months), the exclusive breastfeeding under 6 months (0-5 months), the continued breastfeeding at 1 year (12-15 months); the continued breastfeeding at 2 years (20-23 months), the introduction of solid, semi-solid or soft foods (6-8 months), the consumption of iron-rich or iron fortified foods (6-23 months) and the bottle feeding (0-23 months).

The IYCF indicators, which were measured among children aged 0-23 months, were:

1) **Timely initiation of breastfeeding in children aged 0-23 months:**

Proportion of children 0-23 months that were put to the breast within one hour of birth.

Children 0-23 months who received breast milk within one hour of birth: Children 0-23 months of age

2) **Exclusive breastfeeding under 6 months:**

Proportion of infants 0–5 months of age who are fed exclusively with breast milk: including expressed breast milk or from a wet nurse, ORS, drops or syrups (vitamins, breastfeeding minerals, medicines)

Infants 0–5 months of age who received only breast milk during the previous day: Infants 0–5 months of age

3) **Continued breastfeeding at 1 year:**

Proportion of children 12–15 months of age who are fed breast milk

Children 12–15 months of age who received breast milk during the previous day: Children 12–15 months of age

4) **Continued breastfeeding at 2 years:**

Proportion of children 20–23 months of age who are fed breast milk

Children 20–23 months of age who received breast milk during the previous day: Children 20–23 months of age



5) **Introduction of solid, semi-solid or soft foods:**

Proportion of infants 6–8 months of age who receive solid, semi-solid or soft foods

Infants 6–8 months of age who received solid, semi-solid or soft foods during the previous day: Infants 6–8 months of age

6) **Consumption of iron rich or iron fortified foods in children aged 6-23 months:**

Proportion of children 6–23 months of age who receive an iron-rich or iron-fortified food that is specially designed for infants and young children, or that is fortified in the home.

Children 6–23 months of age who received an iron-rich food or a food that was specially designed for infants and young children and was fortified with iron, or a food that was fortified in the home with a product that included iron during the previous day: Children 6–23 months of age

7) **Bottle feeding:**

Proportion of children 0-23 months of age who are fed with a bottle

Children 0–23 months of age who were fed with a bottle during the previous day: Children 0–23 months of age

#### **D. Coverage of Nutrition Services**

To assess the coverage of nutrition services requires a coverage survey methodology; however, in this assessment, we assessed the kind of nutrition supplements that the children have received and if they received nutrition supplements, what was the frequency of distribution.

At the same sub-section, we assessed if the mother or caregiver had received nutritional advice about the importance of breastfeeding and how to provide appropriate complementary feeding or food to the child in accordance with his/her age.

#### **E. Malnutrition in women of reproductive age**

To assess the nutrition situation of women in reproductive age (WRA) is one of the purposes of this nutrition assessment. The Mid Upper Arm circumference (MUAC) in women was chosen to assess the WRA nutritional situation. MUAC was classified according to cut-offs, as per the recommendation of the Sphere Project's Handbook (2011), shown in Table 10.

**Table 10: Classification of under nutrition based on MUAC in women of reproductive age (15 to 49 years)**

Categories of Malnutrition	MUAC Reading
Global malnutrition	< 23 cm
Moderate malnutrition	≥ 21 cm and <23 cm
Severe malnutrition	< 21 cm

## F. Children Anthropometric data

UNHCR target for the prevalence of global acute malnutrition (GAM) for children 6-59 months of age by camp, country and region should be < 10% and the target for the prevalence of severe acute malnutrition (SAM) should be < 2%. Table 11 shows the classification of public health significance of the anthropometric results for children under-5 years of age according to WHO.

**Table 11: Classification of public health significance for children under 5 years of age (WHO, 2000)**

Prevalence %	Critical	Serious	Poor	Acceptable
Low weight-for-height	≥ 15	10-14	5-9	< 5
Low height-for-age	≥ 40	30-39	20-29	< 20
Low weight-for-age	≥ 30	20-29	10-19	< 10

## 7. Training and coordination

To support the realization of the nutrition assessment, UNICEF Lebanon hired IOCC Lebanon a twopartite partnership agreement to support the nutrition consultant. IOCC Lebanon conducted the preparatory work for the assessment (hiring the surveyors, preparing and organizing the logistics for the training); hired the clerks for the complementary data entry and managed the logistics during the data collection.

The design of assessments was conceptualized by a UNICEF nutrition consultant (Oumar Hamza), with the technical support of the Nutrition Specialist in UNICEF MENA Regional Office (James Kingori). The assessment was coordinated by UNICEF nutrition consultant (Oumar Hamza) with support from UNICEF Lebanon Health, Nutrition and Emergency specialist (Azzeddine Zeroual), with support of UNHCR Lebanon (Aye Aye Than) and with support of IOCC Lebanon (Linda Shaker Berbari, Sabeen Abdulsater, Marya Al Nawakil and Dima Ousta).

The training lasted seven days followed by two days to finalize the standardization test (and to organize the different teams) and one day pre-test. Training was conducted to all assessment team members (see annex 6): enumerators, team leaders and field supervisors. The training took place from September 18th to 26th and the pre-test was on September 27th. The training focused on: the purpose and objectives of the assessment; roles and responsibilities of each team member, familiarization with the questionnaires by reviewing the purpose for each question; interviewing skills and recording of data; interpretation of events calendar and age determination; how to take anthropometric measurements and haemoglobin measurements and common errors; and a practical session on sampling procedures. The practical session on anthropometric measurements involved volunteer children for practice as well as a standardization test. The practical session on haemoglobin measurements involved the trainees and trainers themselves as well as a standardization test.

Most of the training was held in Arabic when possible and at the end of this training, the team members were able to demonstrate good understanding and could follow the sampling procedure; were able to take and record measurements correctly under field conditions; and could administer the different modules of the questionnaire and some were able to use HemoCue machine properly.

The assessment was undertaken by 9 teams. Each team was composed of three members who speak Arabic; a team leader and two measurers. The daily supervision was conducted by the UNICEF nutrition consultant in addition to two field supervisors. The team leaders conducted the interview for all parts of the questionnaire. The rest of the team members took the anthropometric measurements and assisted with sampling, age determination and reading of health/vaccination cards or birth certificates. However, a tested or designated surveyor (team leader or other member of the team) had the responsibility of taking the haemoglobin measurements.

## **8. Pilot testing and revision of the assessment tools**

Before beginning of the assessment, tools and methods were pre-tested and revised. A half day pre-test exercise was conducted, that included all the process and data collection methods. This activity helped to ensure that the team leaders understood the questions and were able to follow the interview/data collection procedures as outlined in the assessment protocol and during training. It also helped in having feedback about to what extent interviewees understood questions. For the pre-test, each team selected five households, administered the questionnaire and took the required measurements.

The second half of the day (afternoon) was used to review and discuss the findings of the pre-test, logistic issues, questionnaires, and difficulties based on the pre-test assessment.

Based on this pre-test and discussions, the data collection tools and forms were reviewed and finalized.

## **9. Data collection**

Prior to the data collection phase, a sensitization session was done targeting community leaders gathered from sites in the sampling frame/ universe. It included a presentation of the assessment objectives and the role of the whole assessment team, roles expected from leaders, as well as clarification about possible expectations among communities.

Data collection lasted six days from 2nd – 7th October 2013 in Bekaa, seven days from 8th – 14th October 2013 in the North of Lebanon, seven days from 16th – 22th October 2013 in the South of Lebanon and five weeks from October 23rd to November 30th in the Beirut and Mount Lebanon. Due to difficulties with security and requirements to enter Mount-Lebanon Dahieh, the permission for data collection in the 10 clusters in the Dahieh area took 5 weeks. Each assessment team explained the purpose of the survey and issues of confidentiality and obtained verbal consent before proceeding with the survey in the selected households. The informed consent form is shown in Annex 7.

## **10. Field work and quality control**

Due to cultural and social considerations, female members performed the women's anthropometric measurements.

Throughout the field work, rigorous quality control measures were adopted. Anthropometric equipment (scales, height boards and MUAC tapes) were calibrated and checked before distribution to the teams and the calibration and accuracy verification was repeated every day before starting the field work (an example of a filled form in Annex 8).

Every day, filled questionnaires were reviewed on site by team leaders and checked by field supervisors for data accuracy and completeness. For each case of severe acute malnutrition or anaemia, a referral form (Annex 9) was filled with the child's details or woman's (in case of anaemia) details and the team leader advised the parent/caregiver or the woman to take the child or to go to a designated health center for further nutrition support or investigation and guidance.

Team leaders checked the questionnaires before leaving the household, identified errors and made sure data collected was correct before signing off. At the end of each day and/or before leaving the cluster, the team leader checked all the questionnaires for any identifiable errors and made sure data collected was correct. While still in the field or at the end of the day (before the anthropometric data entry began), supervisors re-checked the

questionnaires to ascertain completeness. After verification, team leaders prepared the questionnaires and brought them for the daily anthropometric data entry.

For the Hb testing control, the surveyor responsible of anaemia or one supervisor checked every day that the microcuvette containers of each team had enough are left for conducting the Hb tests for the day and to ensure that the survey team carries an additional microcuvette container with them. Moreover, the supervisor did a visual inspection of the HemoCue machine of each team and ensured that it was clean. If not, cleaning procedures were applied as indicated during the training. Survey supervisors or coordinators closely followed cleaning procedures and checked whether the machine was working properly, if not it was replaced with another machine. All HemoCue machines were cleaned in the beginning of data collection and after the data was done in the 2 strata among the 4.

The coordinator (Nutrition consultant) with the support of supervisors verified all the questionnaires filled by the team in each cluster on the same day. The anthropometric data entry using the ENA software was organized and checked for any suspect data (outliers) every night through the appropriate sections of the plausibility report (Plausibility check is an important data quality verification property of the ENA software). The nutrition consultant reviewed the anthropometric data quality report and gave the feedback to the supervisors and teams the next day, during the daily early morning meeting (planning of the day).

Plausibility reports and feed-back of the consultant determined whether the team needed to go back to the previous day's cluster to rectify the errors identified, before embarking on another cluster. In case of incorrect anthropometric measurements or "flagged" results which demanded the return to the previous day's cluster, the field supervisor accompanied the team back to the cluster to take fresh measurement of the child.

## **11. Data analysis**

All anthropometric data entry was completed every night in the field using ENA for SMART software (delta version, November 24<sup>th</sup> 2012), by the coordinator of the survey (Consultant) supported by the supervisors and team leaders. The entry of complementary data was completed by a team of four (4) clerks using an Excel template, at IOCC office in Beirut.

All questionnaires were manually checked for completeness, consistency and range before data entry by the supervisors and coordinator. This check was also used to provide feedback to the teams to improve data collection as the assessment progressed. All data files were cleaned before analysis. A data cleaning process was conducted whereby data capture and errors were eliminated.

Analysis was performed using ENA for SMART, SPSS software and Epiinfo for Anaemia data analysis. The SMART Plausibility Report was generated in order to check the quality

of the anthropometric data and a summary of the key quality criteria is shown in Annexes 10-1 to 10-5.

To ensure there were no data entry errors, after completion of the data entry, all entries were double checked one by one with the original questionnaire. For cleaning the anthropometric data, the flexible cleaning approach recommended in the UNHCR Standardized Nutrition Survey Guidelines (Version 1.2, June 2011) in accordance with SMART recommendations was used.

During the process of data analysis, the UNICEF nutrition consultant and assessment coordinator was supported by a UNHCR HQ Nutrition team for anaemia data analysis.

## VIII.

### 1. Response rate

Table 12 shows the different response rates and the total number of households and children under 5 who participated in the assessments. For all Syrian refugees in Bekaa, 26 clusters were sampled; in North of Lebanon, 34 clusters were sampled; in South of Lebanon, 27 clusters were sampled; and in Beirut and Mount-Lebanon, 33 clusters were sampled. Globally, for all Syrian refugees in Lebanon, 120 clusters were sampled for all indicators.

**Table 12: Target sample size and number covered during the survey**

Target groups		Target sample size	Families/ children covered	Response Rate (% of the target)
Syrian refugees in Bekaa Region Survey	Number of households	260	245	94.2%
	Number of Children U5	207	303	146.4%
Syrian refugees in North of Lebanon Survey	Number of households	340	325	95.6%
	Number of Children U5	207	362	174.9%
Syrian refugees in South of Lebanon Survey	Number of households	270	263	97.4%
	Number of Children U5	207	303	146.4%
Syrian refugees in Beirut & Mount-Lebanon Survey	Number of households	330	325	98.5%
	Number of Children U5	207	419	202.4%
All Syrian refugees in Lebanon (Global data)	Number of households	1,200	1,158	96.5%
	Number of Children U5	828	1,387	167.5%

For Syrian refugees in each of the 4 strata, the nutrition assessment covered more than 94% of the targeted number of households and for all Syrian refugees in Lebanon, the nutrition assessment covered more than 96% of the targeted number of households.

Regarding the number of children under 5 years of age, the average household size and consequently the number of children was under-estimated. The number of children identified after visiting the households was much higher than anticipated; hence the response rate was more than 145% of the targeted sample number of children U5 in each of the 4 strata and it was more than 165% for the targeted number of all children U5 among Syrian refugees in Lebanon.

### 2. Demography

For Syrian refugees in all Lebanon and in each stratum, the average household size was between 7 and 8 people. This finding is similar to the average size observed in VASyr assessment. However, the average household size for Syrian refugees in all Lebanon,

observed during this assessment (2013), was higher than the average size of household observed in 2012 (7.6 people vs. 6.7 people).

**Table 13: Proportion of HH headed by a woman, HH size and average number of children U5**

Target groups	Woman head of household	Average HH size	Average number of children U5
Syrian refugees in Bekaa Region	22%	7.1	1.4
Syrian refugees in North of Lebanon	15.4%	8.0	1.3
Syrian refugees in South of Lebanon	11.8%	7.4	1.3
Syrian refugees in Beirut & Mount-Lebanon	4.9%	7.7	1.5
<b>All Syrian refugees in Lebanon (Global data)</b>	<b>13%</b>	<b>7.6</b>	<b>1.4</b>

The proportion of female headed households was lower among the Syrian refugees surveyed in Beirut and Mount-Lebanon stratum (4.9%) when compared to other strata. However, the proportion of households headed by woman among all Syrian refugees in Lebanon was 13%, which is lower than proportion of Syrian refugees households being female headed (20% proportion) that was observed in 2012. These results are lower than what UNHCR reports as percentage of households headed by women. This may be due to women being registered as the head of family while men travel back and forth to Syria.

#### **a) Situation of Children under 18 years old**

Table 14 shows that one household in five (21.9%) of all Syrian refugees in Lebanon has children U5 and it was reported that the mother took care of more than 85% of children under 18 years of age.

Regarding the situation of children U18, the findings of the assessment showed that 55% of those established in the South of Lebanon were registered in school, while only 30% established in Bekaa region, were in school. Moreover, in the Bekaa Region, among the Syrian refugee children U18, it was reported that 9.5% have disability, 5.9% are orphans and 1.8% are on the street.

**Table 14: Situation of Children under 18 years old**

Target groups	Average number children U18	Proportion of HH have children U18 who are not their children	Person who is taking care of children U18					Status of Children U18			
			Mother	Father	Sister/ brother	Grand parent	Other	In school	With disability	Orphan	On street
Bekaa Region	3.69	20.4%	88.3%	8.6%	0.9%	2.2%	0.0%	30.2%	9.5%	5.9%	1.8%
North of Lebanon	3.77	24.1%	85.9%	10.7%	1.7%	1.0%	0.7%	32.1%	5.5%	7.9%	0.7%

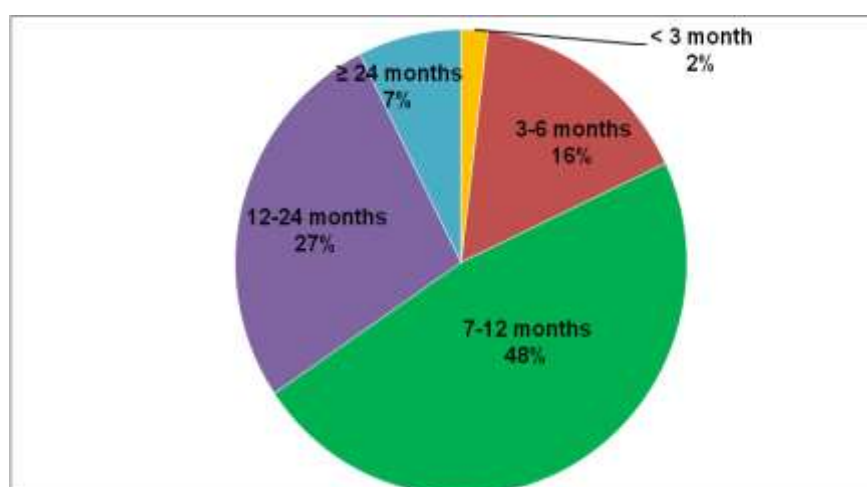


South of Lebanon	3.93	18.1%	89.1%	7.3%	1.6%	1.6%	0.4%	55.0%	4.8%	2.8%	0.4%
Beirut & Mount-Lebanon	3.76	24.2%	87.8%	10.9%	0%	1.4%	0.0%	48.3%	3.4%	2.4%	0.7%
All Lebanon (Global data)	3.79	21.9%	87.7%	9.5%	1.1%	1.5%	0.2%	41.6%	5.6%	4.7%	0.9%

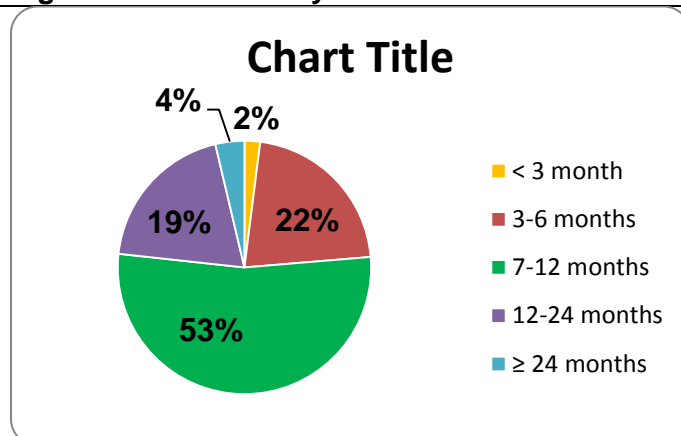
## b) Period stayed in Lebanon

The figures 2-1 to 2-5 below illustrate that, at the assessment period, more than 75% of all Syrian refugees assessed have been in Lebanon between 7-24 months. In comparison to 2012 Syrian refugees Nutrition Assessment in Lebanon 40% of all Syrian refugees assessed were in Lebanon for more than 6 months; whereas, this year findings show that more than 80% of all Syrian refugees assessed have been in Lebanon for a period greater than 6 months.

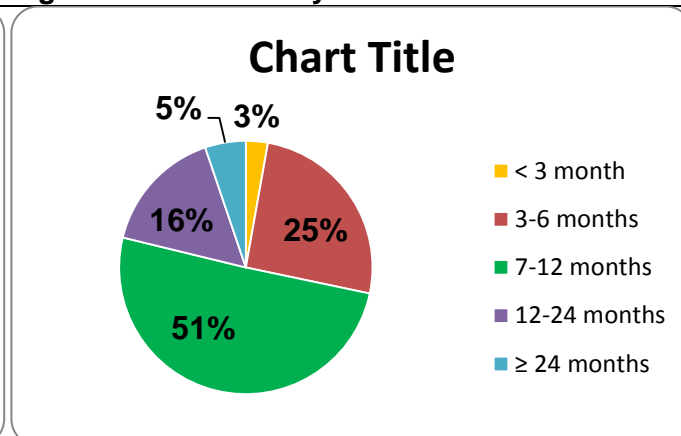
**Figure 2-1: Period stayed in Lebanon – All Syrian refugees**



**Figure 2-2: Period stayed in Bekaa**



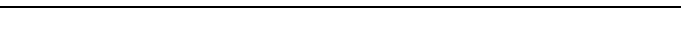
**Figure 2-3: Period stayed in North Lebanon**

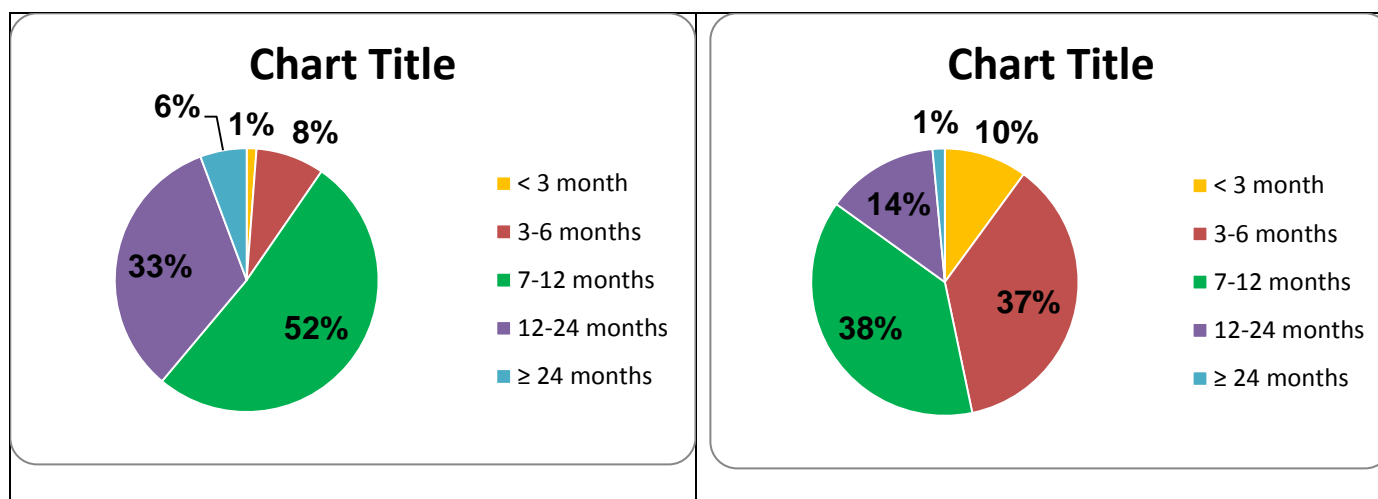


**Figure 2-4: Period stayed in South Lebanon**



**Figure 2-5: Period stayed in Beirut and Mount Lebanon**





The situation is a little different in Beirut and Mount-Lebanon. The findings of assessment show that the proportion of Syrian refugees in this stratum, who have been in Lebanon during 7-24 months was 52% (which is less than 75% if compared to the results in 2012 assessment) and the proportion of Syrian refugees in this stratum who have been in Lebanon less than 3 months is the highest one (10%).

### c) Sharing an accommodation

For Syrian refugees in Lebanon, 12.1% of households were hosted by resident families (table 15). Twenty-six percent (26.3%) of all Syrian refugees HHs reported that they shared accommodation with other Syrian refugee HHs. Among all the HHs who shared accommodation, 30.3% shared accommodation with one HH; 57.0% shared accommodation with 2-3 other Syrian HHs and 12.7% shared accommodation with 4 or more other Syrian HHs. These numbers are coherent with other sources, indicating that the majority of Syrian refugees in Lebanon have moved into their own settlements (not hosted by resident families). Moreover, in comparison to the proportion of Syrian refugee families who shared accommodation as observed in year 2012, the number of HHs who shared accommodation with one HH increased (12.4% in 2012 and 30.3% in 2013) and the number of HHs who shared accommodation with 4 HHs or more decreased (24.9% in 2012 and 12.7% in 2013). This result can be an indication of improvement in livelihood conditions of Syrian refugees.

**Table 15: Proportion of HH sharing ccommodation with other Syrian refugees HH**

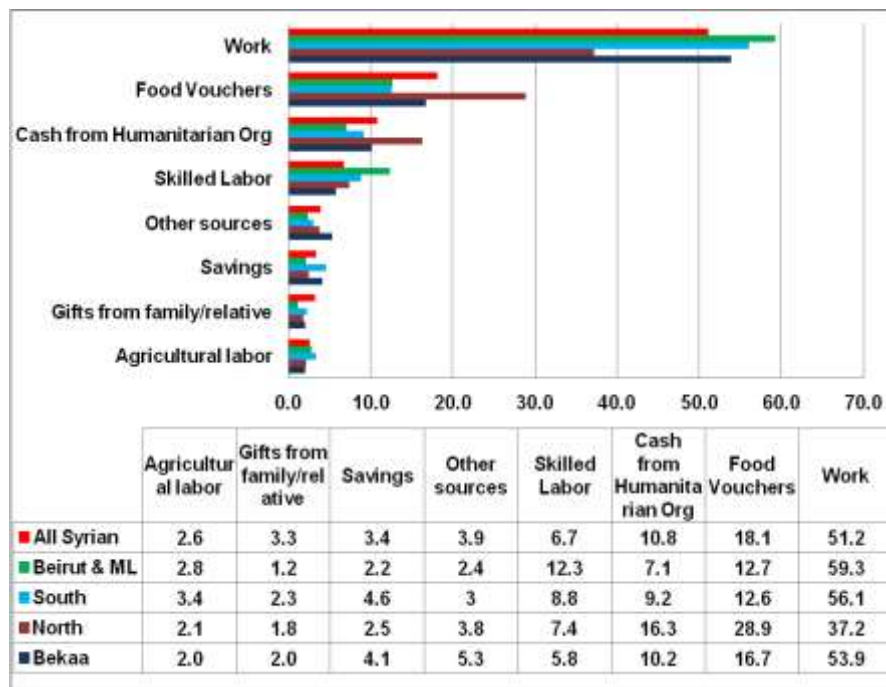
Target groups	Proporti on of HH hosted	N	Proportion HH shared accommodation	N	Proportion of HH shared accommodation			N
					With one HH	2-3 HH	4 HH or more	
<b>Bekaa Region</b>	13.1%	245	20.7%	227	35.8%	49.3%	14.9%	67
<b>North of Lebanon</b>	13.2%	325	26.4%	295	27.8%	57.7%	14.4%	97
<b>South of Lebanon</b>	8.4%	262	26.3%	247	32.9%	58.2%	8.9%	79
<b>Beirut and Mount Lebanon</b>	13.2%	325	30.6%	291	27.5%	60.0%	12.5%	120
<b>All Lebanon (Global data)</b>	<b>12.1%</b>	<b>1,157</b>	<b>26.3%</b>	<b>1,060</b>	<b>30.3%</b>	<b>57.0%</b>	<b>12.7%%</b>	<b>363</b>

### 3. Sources of income

For all Syrian refugees in Lebanon, the 3 main sources of income of HH surveyed were: work (51.2%), food vouchers (18.1%) and cash from humanitarian organization (10.8%).

The findings of the assessment (figure 3) show that in all the strata the first and second sources of income for the Syrian refugees were the income from work (first source) and then food vouchers. The third main source of income for Syrian refugees in Bekaa, in the North and in the South was the cash that the HH received from a humanitarian organization. However, the third main source of income for Syrian refugees in Beirut and Mount-Lebanon was not cash that the HH received from a humanitarian organization but rather the income from skilled labor.

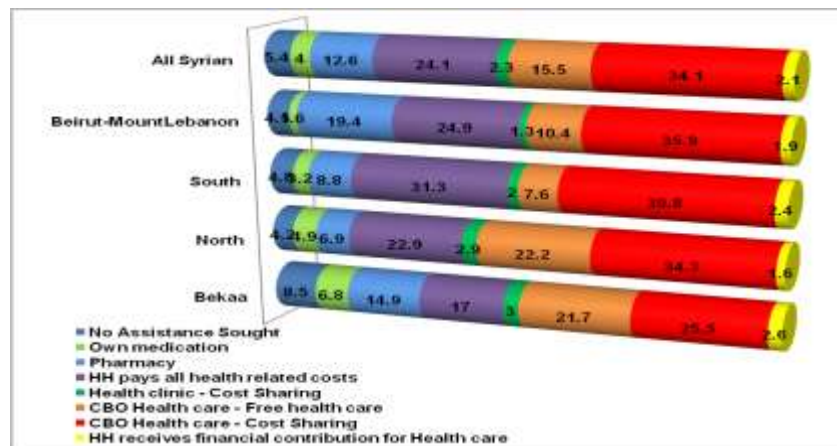
**Figure 3: Source of income of Syrian refugees HH in Lebanon**



#### 4. Health assistance

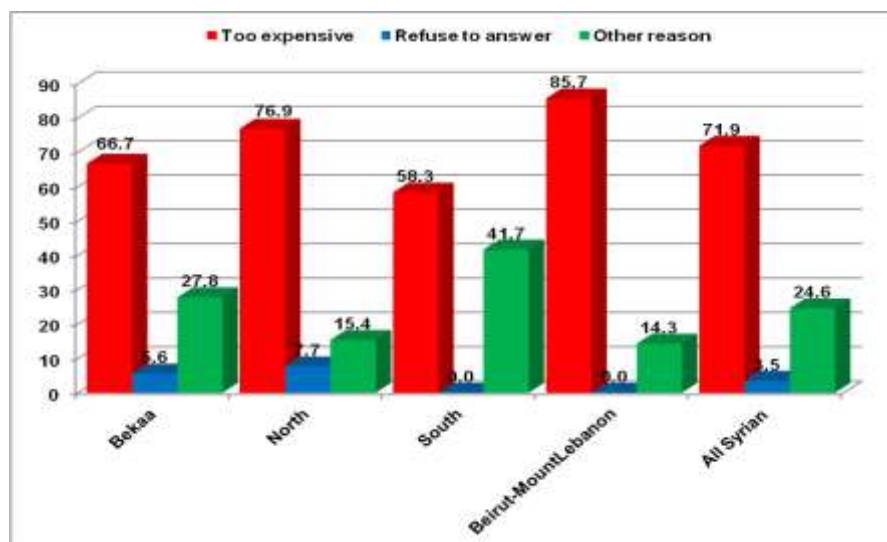
For all Syrian refugees in Lebanon, the main sources of health assistance were: CBO Health care – Cost sharing (34.1%); HH paid all health related cost (24.1%); CBO Health care – free health care (15.5%) and Pharmacy (12.6%).

Figure 4: Sources of Health Assistance



The principal reason for no health assistance was that the HH found the health services too expensive.

Figure 5: Reasons for no Health Assistance



## 5. Children 6-59 months

### A. Anthropometric results (based on who growth standards 2006)

#### Distribution of the sample per ages and per sex

The age distribution of the assessed children is presented in tables 16-1 to 16-5 and figures 6-1 to 6-5. For the four independent assessments (Syrian refugees in Bekaa, in North, in South and in Beirut and Mount-Lebanon) and for all Syrian refugees in Lebanon, the overall sex ratio was around 1.0 (sex ratio should be between 0.8 - 1.2), which confirms that both sexes were equally distributed and well represented in the different samples. For these different surveys, the sex ratio indicated that there was no bias in the sample in preference of either girls or boys.

Table 16-1: Distribution of age and sex of the all Syrian refugees in Lebanon (Global sample)

Age (mo)	Boys		Girls		Total		Ratio
	no.	%	no.	%	no.	%	Boy:girl
6-11	72	52.9	64	47.1	136	9.8	1.1
12-23	162	49.2	167	50.8	329	23.7	1.0
24-35	157	45.9	185	54.1	342	24.7	0.8
36-47	143	47.8	156	52.2	299	21.6	0.9
48-59	132	47.0	149	53.0	281	20.3	0.9
Total	666	48.0	721	52.0	1,387	100.0	0.9

Table 16-2: Distribution of age and sex of the all Syrian refugees in Bekaa Region

Age (mo)	Boys		Girls		Total		Ratio
	no.	%	no.	%	no.	%	Boy:girl

<b>6-11</b>	18	62.1	11	37.9	29	9.6	<b>1.6</b>
<b>12-23</b>	44	61.1	28	38.9	72	23.8	<b>1.6</b>
<b>24-35</b>	32	42.7	43	57.3	75	24.8	<b>0.7</b>
<b>36-47</b>	29	49.2	30	50.8	59	19.5	<b>1.0</b>
<b>48-59</b>	33	48.5	35	51.5	68	22.4	<b>0.9</b>
<b>Total</b>	<b>156</b>	<b>51.5</b>	<b>147</b>	<b>48.5</b>	<b>303</b>	<b>100.0</b>	<b>1.1</b>

**Table 16-3: Distribution of age and sex of the all Syrian refugees in North of Lebanon**

	<b>Boys</b>		<b>Girls</b>		<b>Total</b>		<b>Ratio</b>
<b>Age (mo)</b>	<b>no.</b>	<b>%</b>	<b>no.</b>	<b>%</b>	<b>no.</b>	<b>%</b>	<b>Boy:girl</b>
<b>6-11</b>	18	46.2	21	53.8	39	10.8	<b>0.9</b>
<b>12-23</b>	38	42.2	52	57.8	90	24.9	<b>0.7</b>
<b>24-35</b>	34	39.5	52	60.5	86	23.8	<b>0.7</b>
<b>36-47</b>	42	51.2	40	48.8	82	22.7	<b>1.0</b>
<b>48-59</b>	29	44.6	36	55.4	65	18.0	<b>0.8</b>
<b>Total</b>	<b>161</b>	<b>44.5</b>	<b>201</b>	<b>55.5</b>	<b>362</b>	<b>100.0</b>	<b>0.8</b>

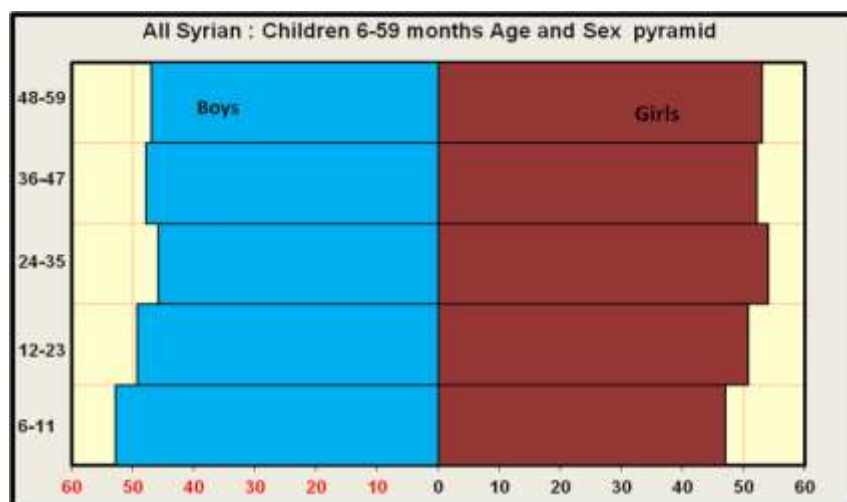
**Table 16-4: Distribution of age and sex of the all Syrian refugees in South of Lebanon**

	<b>Boys</b>		<b>Girls</b>		<b>Total</b>		<b>Ratio</b>
<b>Age (mo)</b>	<b>no.</b>	<b>%</b>	<b>no.</b>	<b>%</b>	<b>no.</b>	<b>%</b>	<b>Boy:girl</b>
<b>6-11</b>	17	63.0	10	37.0	27	8.9	<b>1.7</b>
<b>12-23</b>	34	42.0	47	58.0	81	26.7	<b>0.7</b>
<b>24-35</b>	31	48.4	33	51.6	64	21.1	<b>0.9</b>
<b>36-47</b>	31	41.9	43	58.1	74	24.4	<b>0.7</b>
<b>48-59</b>	21	36.8	36	63.2	57	18.8	<b>0.6</b>
<b>Total</b>	<b>134</b>	<b>44.2</b>	<b>169</b>	<b>55.8</b>	<b>303</b>	<b>100.0</b>	<b>0.8</b>

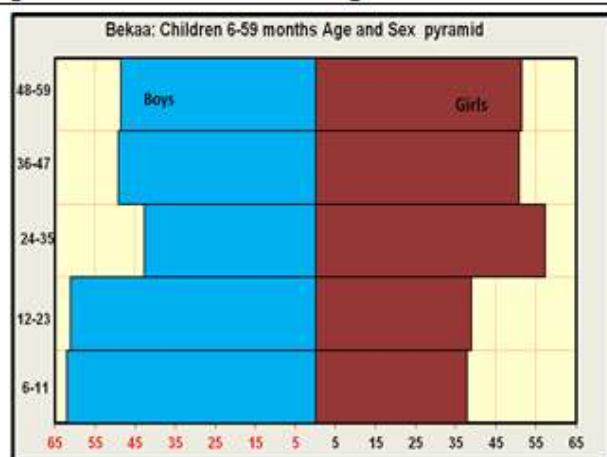
**Table 16-5: Distribution of age and sex of the all Syrian refugees in Beirut & Mount-Lebanon**

	<b>Boys</b>		<b>Girls</b>		<b>Total</b>		<b>Ratio</b>
<b>Age (mo)</b>	<b>no.</b>	<b>%</b>	<b>no.</b>	<b>%</b>	<b>no.</b>	<b>%</b>	<b>Boy:girl</b>
<b>6-11</b>	19	46.3	22	53.7	41	9.8	<b>0.9</b>
<b>12-23</b>	46	53.5	40	46.5	86	20.5	<b>1.1</b>
<b>24-35</b>	60	51.3	57	48.7	117	27.9	<b>1.1</b>
<b>36-47</b>	41	48.8	43	51.2	84	20.0	<b>1.0</b>
<b>48-59</b>	49	53.8	42	46.2	91	21.7	<b>1.2</b>
<b>Total</b>	<b>215</b>	<b>51.3</b>	<b>204</b>	<b>48.7</b>	<b>419</b>	<b>100.0</b>	<b>1.1</b>

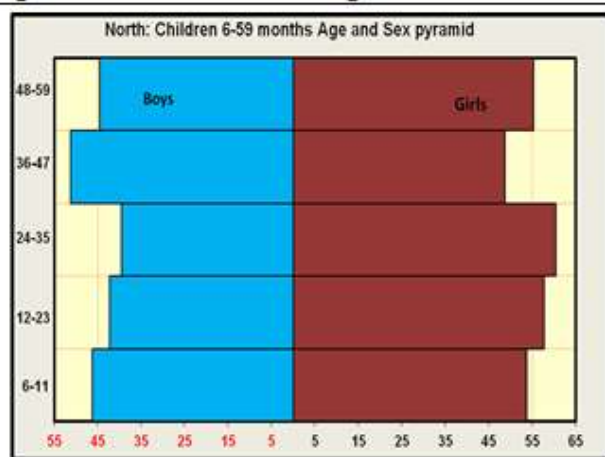
**Figure 6-1: Distribution of age and sex of the all Syrian refugees in Lebanon (Global sample)**



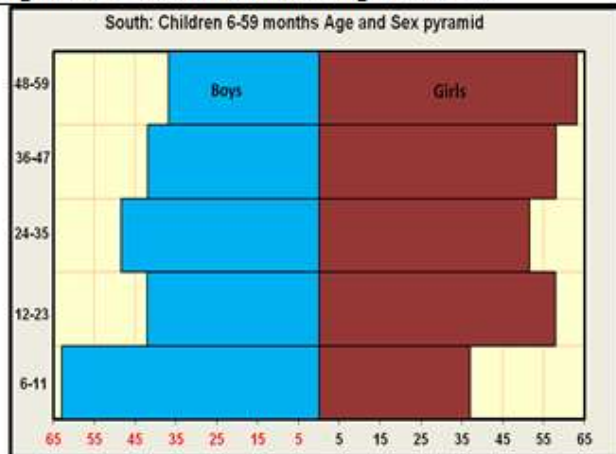
**Figure 6-2: Bekaa children age and sex**



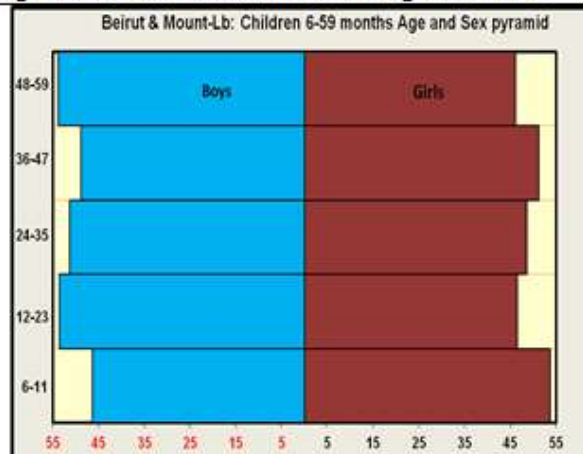
**Figure 6-3: North children age and sex**



**Figure 6-4: South children age and sex**



**Figure 6-5: Beirut-ML children age and sex**



## **Prevalence of Acute Malnutrition by sex**

The results from tables 17-1 to 17-5 show the global acute malnutrition rates for all Syrian refugees in Lebanon: **5.9%**; for Syrian refugees in Bekaa: **8.9%**; for Syrian refugees in North: **6.7%**; for Syrian refugees in the South of Lebanon: **4.3%** and for Syrian refugees in Beirut and Mount-Lebanon: **4.1%**. The tables also show variations between boys and girls in the prevalence of acute malnutrition, in both surveys. However, the difference between boys and girls in the prevalence of acute malnutrition is not statistically significant.

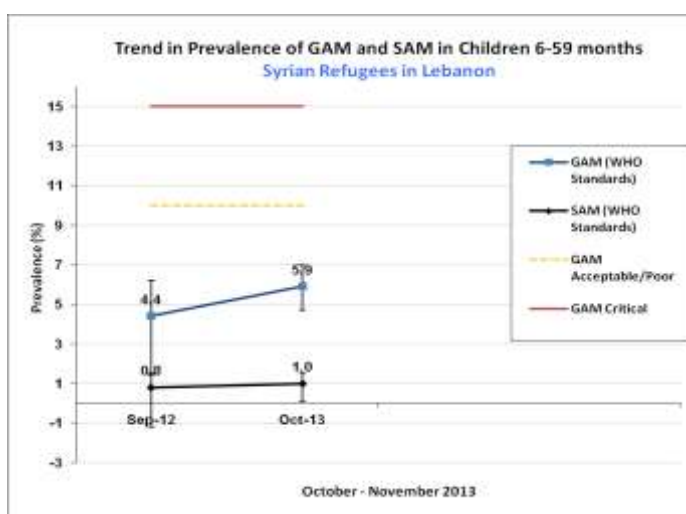
In Bekaa region, the findings of the assessment showed that the prevalence of oedema was very high (1.7%); all cases of SAM were identified by presence of oedema.

**Table 17-1: Prevalence of Acute Malnutrition based on weight-for-height z-scores (and/or oedema) and by sex, among all Syrian refugees in Lebanon**

Prevalence of	All n = 1384	Boys n = 665	Girls n = 719
<b>Global Acute Malnutrition (GAM)</b> (<-2 z-score and/or oedema)	(81) 5.9 % (4.8 - 7.1 95% C.I.)	(41) 6.2 % (4.7 - 8.1 95% C.I.)	(40) 5.6 % (3.8 - 8.1 95% C.I.)
<b>Moderate Acute Malnutrition (MAM)</b> (<-2 z-score and >=3 z-score, no oedema)	(67) 4.8 % (4.0 - 5.9 95% C.I.)	(35) 5.3 % (3.8 - 7.2 95% C.I.)	(32) 4.5 % (3.1 - 6.4 95% C.I.)
<b>Severe Acute Malnutrition (SAM)</b> (<-3 z-score and/or oedema)	(14) 1.0 % (0.5 - 1.9 95% C.I.)	(6) 0.9 % (0.4 - 2.2 95% C.I.)	(8) 1.1 % (0.5 - 2.3 95% C.I.)

The prevalence of oedema is (6) 0.4%. The difference between boys and girls in the prevalence of acute malnutrition is not statistically significant for all Syrian refugees in Lebanon ( $X^2$ : 0.6343,  $P > 0.05$ ).

**Figure 7: Syrian refugees in Lebanon Nutrition Survey (GAM, SAM) since 2012 and 2013**





Comparison between results from 2012 and 2013 shows a 1.5% increase in GAM among children aged 6-59 months, but still not statistically significant ( $X^2$ : 1.229,  $P > 0.05$ ) and that the CIs for 2012 (2.6 - 7.3 95% C.I.) and 2013 (4.8 - 7.1 95% C.I.) are overlapping.

### **Prevalence of Acute Malnutrition based on MUAC**

Under 5 children MUAC has a good relationship with the risk of mortality due to severe acute malnutrition. Comparatly to the prevalence of malnutrition based on weight-for-height, the prevalence of malnutrition based on MUAC is very low among all Syrian refugee children. That is meaning two things: the risk of mortality due to the severe actute malnutrition is very low and the measurers needed more practice to be good enough with children MUAC measurments. So, during the next assessment, the measurers should have more practice on MUAC measurments.

**Table 17-1-1: Prevalence of acute malnutrition based on MUAC in children 6-59 months**

	<b>All</b> n = 1386	<b>Boys</b> n = 665	<b>Girls</b> n = 721
<b>Prevalence of global malnutrition (&lt; 125 mm and/or oedema)</b>	(0) 0.0 % (0.0 - 0.0 95% C.I.)	(0) 0.0 % (0.0 - 0.0 95% C.I.)	(0) 0.0 % (0.0 - 0.0 95% C.I.)
<b>Prevalence of moderate malnutrition (&lt; 125 mm and &gt;= 115 mm, no oedema)</b>	(0) 0.0 % (0.0 - 0.0 95% C.I.)	(0) 0.0 % (0.0 - 0.0 95% C.I.)	(0) 0.0 % (0.0 - 0.0 95% C.I.)
<b>Prevalence of severe malnutrition (&lt; 115 mm and/or oedema)</b>	(0) 0.0 % (0.0 - 0.0 95% C.I.)	(0) 0.0 % (0.0 - 0.0 95% C.I.)	(0) 0.0 % (0.0 - 0.0 95% C.I.)

**Table 17-2: Prevalence of Acute Malnutrition based on weight-for-height z-scores (and/or oedema) and by sex, among Syrian refugees in Bekaa Region**

<b>Prevalence of</b>	<b>All</b> n = 303	<b>Boys</b> n = 156	<b>Girls</b> n = 147
<b>Global Acute Malnutrition (GAM) (&lt;-2 z-score and/or oedema)</b>	(27) 8.9 % (5.7 - 13.7 95% C.I.)	(17) 10.9 % (6.4 - 17.9 95% C.I.)	(10) 6.8 % (3.2 - 14.0 95% C.I.)
<b>Moderate Acute Malnutrition (MAM) (&lt;-2 z-score and &gt;=-3 z-score, no oedema)</b>	(22) 7.3 % (4.3 - 12.0 95% C.I.)	(14) 9.0 % (4.7 - 16.4 95% C.I.)	(8) 5.4 % (2.2 - 12.8 95% C.I.)
<b>Severe Acute Malnutrition (SAM) (&lt;-3 z-score and/or oedema)</b>	(5) 1.7 % (0.5 - 5.3 95% C.I.)	(3) 1.9 % (0.6 - 6.1 95% C.I.)	(2) 1.4 % (0.3 - 5.2 95% C.I.)

The prevalence of oedema was (5) 1.7%. The difference between boys and girls in the prevalence of acute malnutrition is not statistically significant for Syrian refugees in Bekaa ( $X^2$ : 1.064,  $P > 0.05$ ).

**Table 17-3: Prevalence of Acute Malnutrition based on weight-for-height z-scores (and/or**

oedema) and by sex, among Syrian refugees in North of Lebanon

Prevalence of	All n = 360	Boys n = 160	Girls n = 200
<b>Global Acute Malnutrition (GAM)</b> ( $<-2$ z-score and/or oedema)	(24) 6.7 % (4.6 - 9.5 95% C.I.)	(13) 8.1 % (4.7 - 13.8 95% C.I.)	(11) 5.5 % (2.8 - 10.5 95% C.I.)
<b>Moderate Acute Malnutrition (MAM)</b> ( $<-2$ z-score and $\geq -3$ z-score, no oedema)	(20) 5.6 % (3.9 - 7.9 95% C.I.)	(11) 6.9 % (3.7 - 12.4 95% C.I.)	(9) 4.5 % (2.4 - 8.4 95% C.I.)
<b>Severe Acute Malnutrition (SAM)</b> ( $<-3$ z-score and/or oedema)	(4) 1.1 % (0.3 - 3.5 95% C.I.)	(2) 1.3 % (0.2 - 8.7 95% C.I.)	(2) 1.0 % (0.2 - 4.1 95% C.I.)

The prevalence of oedema was (1) 0.3%. The difference between boys and girls in the prevalence of acute malnutrition is not statistically significant for Syrian refugees in the North ( $X^2$ : 0.984,  $P > 0.05$ ).

**Table 17-4: Prevalence of Acute Malnutrition based on weight-for-height z-scores (and/or oedema) and by sex, among Syrian refugees in South of Lebanon**

Prevalence of	All n = 302	Boys n = 134	Girls n = 168
<b>Global Acute Malnutrition (GAM)</b> ( $<-2$ z-score and/or oedema)	(13) 4.3 % (2.7 - 6.9 95% C.I.)	(4) 3.0 % (1.1 - 7.7 95% C.I.)	(9) 5.4 % (3.0 - 9.3 95% C.I.)
<b>Moderate Acute Malnutrition (MAM)</b> ( $<-2$ z-score and $\geq -3$ z-score, no oedema)	(11) 3.6 % (2.1 - 6.3 95% C.I.)	(4) 3.0 % (1.1 - 7.7 95% C.I.)	(7) 4.2 % (2.2 - 7.8 95% C.I.)
<b>Severe Acute Malnutrition (SAM)</b> ( $<-3$ z-score and/or oedema)	(2) 0.7 % (0.2 - 2.8 95% C.I.)	(0) 0.0 % (0.0 - 0.0 95% C.I.)	(2) 1.2 % (0.3 - 5.1 95% C.I.)

The prevalence of oedema was 0.0%. The difference between boys and girls in the prevalence of acute malnutrition is not statistically significant for Syrian refugees in the South ( $X^2$ : 1.018,  $P > 0.05$ ).

**Table 17-5: Prevalence of Acute Malnutrition based on weight-for-height z-scores (and/or oedema) and by sex, among Syrian refugees in Beirut and Mount Lebanon**

Prevalence of	All n = 419	Boys n = 215	Girls n = 204
<b>Global Acute Malnutrition (GAM)</b> ( $<-2$ z-score and/or oedema)	(17) 4.1 % (2.6 - 6.4 95% C.I.)	(7) 3.3 % (1.4 - 7.5 95% C.I.)	(10) 4.9 % (2.6 - 8.9 95% C.I.)
<b>Moderate Acute Malnutrition (MAM)</b> ( $<-2$ z-score and $\geq -3$ z-score, no oedema)	(14) 3.3 % (2.1 - 5.2 95% C.I.)	(6) 2.8 % (1.2 - 6.5 95% C.I.)	(8) 3.9 % (2.2 - 6.8 95% C.I.)
<b>Severe Acute Malnutrition (SAM)</b> ( $<-3$ z-score and/or oedema)	(3) 0.7 % (0.2 - 2.2 95% C.I.)	(1) 0.5 % (0.1 - 3.4 95% C.I.)	(2) 1.0 % (0.2 - 3.8 95% C.I.)

The prevalence of oedema was 0.0%. The difference between boys and girls in the prevalence of acute malnutrition is not statistically significant for Syrian refugees in Beirut & Mount-Lebanon ( $X^2$ : 0.729,  $P > 0.05$ ).

Anthropometric results based on NCHS 1977 Growth Reference are shown in Annex 5.

### **Prevalence of Acute Malnutrition (wasting) by age**

The results from tables 18-1 to 18-5 and figures 8-1 to 8-5 showed that among all Syrian refugees in Lebanon, the youngest children whose ages ranged between 6-11 months and the children whose ages ranged between 24-35 months were the most affected by moderate and severe wasting.

In Bekaa region, the same age groups (6-11 months and 24-35 months) tended to be the most affected by wasting. However, for severe wasting, the children of age group (23-35 months) were the most affected.

In the North of Lebanon, the situation was different: the age groups mostly affected by wasting were children from 6-23 months; for severe wasting, the youngest children (6-11 months) were the most affected.

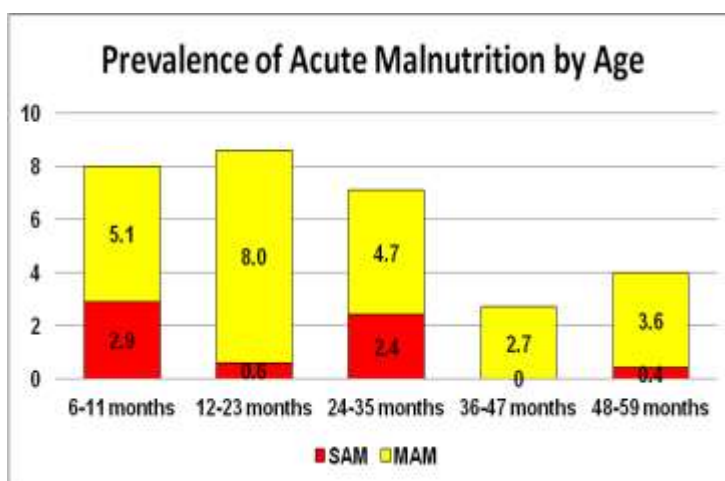
In the South of Lebanon, the situation was also different: the youngest (6-11 months) and the oldest children (48-59 months) were the most affected by severe wasting. However, in Beirut and Mount-Lebanon, the Syrian refugees aged between 12-23 months tended to be more affected by moderate wasting.

Overall higher levels of malnutrition were reported among the very young children (6-11 and 12 -23 months) than the older categories particularly in Bekaa, North and South, implying sub-optimal child care practices to support growth.

**Table 18-1: Prevalence of acute malnutrition by age among all Syrian refugees in all Lebanon**

		Severe wasting (<-3 z-score)		Moderate wasting (>= -3 and <-2 z- score )		Normal (> = -2 z score)		Oedema	
Age (mo)	Total no.	No.	%	No.	%	No.	%	No.	%
6-11	136	3	2.2	7	5.1	125	91.9	1	0.7
12-23	327	0	0.0	26	8.0	300	91.7	1	0.3
24-35	341	4	1.2	16	4.7	317	93.0	4	1.2
36-47	299	0	0.0	8	2.7	291	97.3	0	0.0
48-59	281	1	0.4	10	3.6	270	96.1	0	0.0
Total	1384	8	0.6	67	4.8	1303	94.1	6	0.4

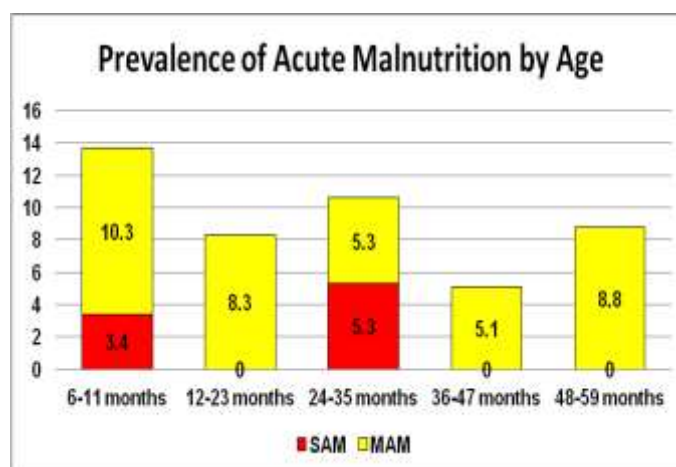
**Figure 8-1: Prevalence of acute malnutrition by age among Syrian refugees in all Lebanon**



**Table 18-2: Prevalence of acute malnutrition by age among all Syrian refugees in Bekaa**

		Severe wasting ( $< -3$ z-score)		Moderate wasting ( $\geq -3$ and $< -2$ z-score)		Normal ( $\geq -2$ z score)		Oedema	
Age (mo)	Total no.	No.	%	No.	%	No.	%	No.	%
6-11	29	0	0.0	3	10.3	25	86.2	1	3.4
12-23	72	0	0.0	6	8.3	66	91.7	0	0.0
24-35	75	0	0.0	4	5.3	67	89.3	4	5.3
36-47	59	0	0.0	3	5.1	56	94.9	0	0.0
48-59	68	0	0.0	6	8.8	62	91.2	0	0.0
Total	303	0	0.0	22	7.3	276	91.1	5	1.7

**Figure 8-2: Prevalence of acute malnutrition by age among Syrian refugees in Bekaa**



**Table 18-3: Prevalence of acute malnutrition by age among all Syrian refugees in the North**

		Severe wasting (<-3 z-score)		Moderate wasting (>= -3 and <-2 z-score)		Normal (>= -2 z score)		Oedema	
Age (mo)	Total no.	No.	%	No.	%	No.	%	No.	%
6-11	39	2	5.1	2	5.1	35	89.7	0	0.0
12-23	89	0	0.0	8	9.0	80	89.9	1	1.1
24-35	85	1	1.2	5	5.9	79	92.9	0	0.0
36-47	82	0	0.0	3	3.7	79	96.3	0	0.0
48-59	65	0	0.0	2	3.1	63	96.9	0	0.0
Total	360	3	0.8	20	5.6	336	93.3	1	0.3

Figure 8-3: Prevalence of acute malnutrition by age among Syrian refugees in the North

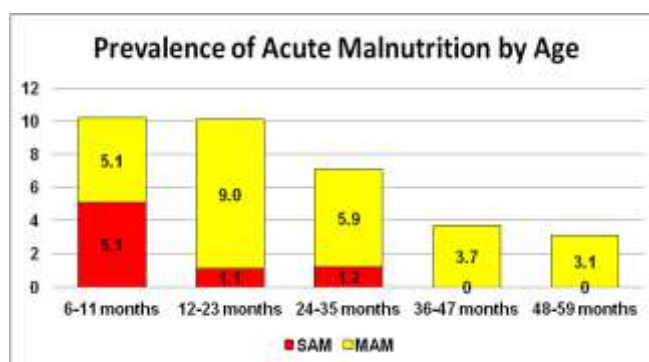
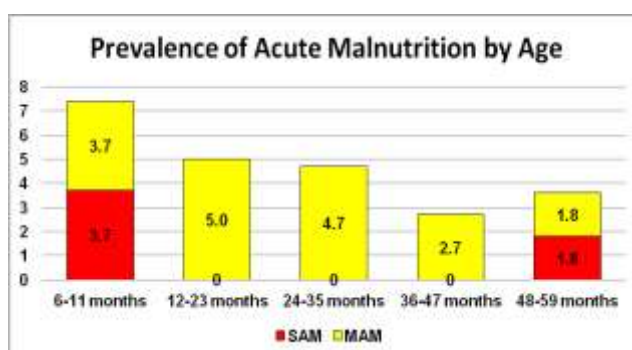


Table 18-4: Prevalence of acute malnutrition by age among all Syrian refugees in South

		Severe wasting (<-3 z-score)		Moderate wasting (>= -3 and <-2 z-score)		Normal (>= -2 z score)		Oedema	
Age (mo)	Total no.	No.	%	No.	%	No.	%	No.	%
6-11	27	1	3.7	1	3.7	25	92.6	0	0.0
12-23	80	0	0.0	4	5.0	76	95.0	0	0.0
24-35	64	0	0.0	3	4.7	61	95.3	0	0.0
36-47	74	0	0.0	2	2.7	72	97.3	0	0.0
48-59	57	1	1.8	1	1.8	55	96.5	0	0.0
Total	302	2	0.7	11	3.6	289	95.7	0	0.0

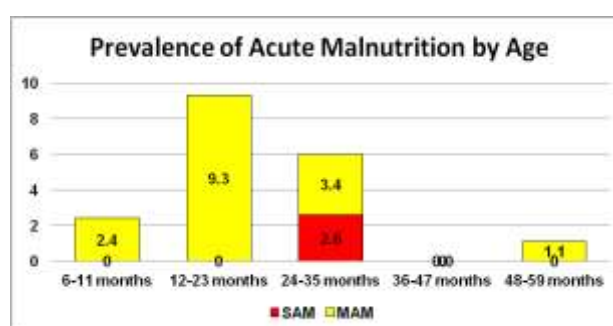
Figure 8-4: Prevalence of acute malnutrition by age among Syrian refugees in South



**Table 18-5: Prevalence of acute malnutrition by age among all Syrian refugees in Beirut and Mount Lebanon**

		Severe wasting (<-3 z-score)		Moderate wasting (>= -3 and <-2 z-score )		Normal (> = -2 z score)		Oedema	
Age (mo)	Total no.	No.	%	No.	%	No.	%	No.	%
6-11	41	0	0.0	1	2.4	40	97.6	0	0.0
12-23	86	0	0.0	8	9.3	78	90.7	0	0.0
24-35	117	3	2.6	4	3.4	110	94.0	0	0.0
36-47	84	0	0.0	0	0.0	84	100.0	0	0.0
48-59	91	0	0.0	1	1.1	90	98.9	0	0.0
<b>Total</b>	<b>419</b>	<b>3</b>	<b>0.7</b>	<b>14</b>	<b>3.3</b>	<b>402</b>	<b>95.9</b>	<b>0</b>	<b>0.0</b>

**Figure 8-5: Prevalence of acute malnutrition by age among Syrian refugees in Beirut and**



Mount Lebanon

**Table 19-1: Distribution of acute malnutrition and oedema based on weight-for-height z-scores**

	SYRIAN REFUGGEES IN					
	All Lebanon		Bekaa		North of Lebanon	
	<-3 z-score	>=-3 z-score	>=-3 z-score	>=-3 z-score	<-3 z-score	>=-3 z-score
Oedema present	Marasmic kwashiorkor No. 0 (0.0 %)	Kwashiorkor No. 6 (0.4 %)	Marasmic kwashiorkor No. 0 (0.0 %)	Kwashiorkor No. 5 (1.7 %)	Marasmic kwashiorkor No. 0 (0.0 %)	Kwashiorkor No. 1 (0.3 %)
Oedema absent	Marasmic No. 8 (0.6 %)	Not severely malnourished No. 1370 (99.0 %)	Marasmic No. 0 (0.0 %)	Not severely malnourished No. 298 (98.3 %)	Marasmic No. 3 (0.8 %)	Not severely malnourished No. 356 (98.9 %)

**Table 19-2: Distribution of acute malnutrition and oedema based on weight-for-height z-scores**

	SYRIAN REFUGGEES IN			
	South of Lebanon		Beirut and Mount-Lebanon	
	<-3 z-score	>= -3 z-score	<-3 z-score	>= -3 z-score
<b>Oedema present</b>	Marasmic kwashiorkor No. 0 (0.0 %)	Kwashiorkor No. 0 (0.0 %)	Marasmic kwashiorkor No. 0 (0.0 %)	Kwashiorkor No. 0 (0.0 %)
<b>Oedema absent</b>	Marasmic No. 2 (0.7 %)	Not severely malnourished No. 300 (99.3 %)	Marasmic No. 3 (0.7 %)	Not severely malnourished No. 416 (99.3 %)

All cases (6) of children with oedema were confirmed by Nutrition Assessment coordinator and/or supervisor. After confirmation of oedema, the treatment was initiated and the child was referred to the PHC or to another health/nutrition unit, for follow-up.

### **Prevalence of Chronic Malnutrition (Stunting) by sex**

In the current context gathering data on the exact ages of children can be difficult as many children are not registered, or their birth dates are not correctly registered and parents or caregivers do not remember precise dates; for these reasons and as explained in the methodology section, teams made reference to the “Events Calendar” to estimate and verify age in months. Even though great caution was taken to ensure quality of age data, the data must be understood in light of its limitations.

The assessments found low prevalence of chronic malnutrition (between 13.4% in Beirut & Mount-Lebanon and 20.1% in Bekaa region) in the four strata surveys (tables 20-1 to 20-5 and figures 9-1 to 9-5), based on the 2006 WHO child growth standards. The prevalence of stunting found in the four surveys, was lower than the previous available data (SOWC 2012 and FHS 2009).

However, it was higher than the prevalence of stunting observed in last year’s Nutrition assessment (17.3% stunting in 2013 vs. 12.2% stunting in 2012). The difference may be due to: the number of Syrian refugees in Lebanon during the year 2013 was 10 times greater than the numbers in 2012, the population studied in 2013 has more similarity than the population (all Syrian in Syria) assessed by MICS Survey in 2006.



**Table 20-1: Prevalence of stunting based on height-for-age z-scores and by sex among all Syrian refugees in Lebanon**

	<b>All</b> n = 1384	<b>Boys</b> n = 665	<b>Girls</b> n = 719
<b>Prevalence of stunting (&lt;-2 z-score)</b>	(239) 17.3 % (15.1 - 19.7 95% C.I.)	(121) 18.2 % (14.8 - 22.1 95% C.I.)	(118) 16.4 % (13.9 - 19.3 95% C.I.)
<b>Prevalence of moderate stunting (&lt;-2 z-score and &gt;=-3 z-score)</b>	(201) 14.5 % (12.5 - 16.9 95% C.I.)	(98) 14.7 % (11.9 - 18.1 95% C.I.)	(103) 14.3 % (11.9 - 17.1 95% C.I.)
<b>Prevalence of severe stunting (&lt;-3 z-score)</b>	(38) 2.7 % (2.0 - 3.7 95% C.I.)	(23) 3.5 % (2.2 - 5.3 95% C.I.)	(15) 2.1 % (1.2 - 3.6 95% C.I.)

**Table 20-2: Prevalence of stunting based on height-for-age z-scores and by sex among Syrian refugees in Bekaa**

	<b>All</b> n = 303	<b>Boys</b> n = 156	<b>Girls</b> n = 147
<b>Prevalence of stunting (&lt;-2 z-score)</b>	(61) 20.1 % (15.1 - 26.3 95% C.I.)	(28) 17.9 % (12.5 - 25.1 95% C.I.)	(33) 22.4 % (15.4 - 31.5 95% C.I.)
<b>Prevalence of moderate stunting (&lt;-2 z-score and &gt;=-3 z-score)</b>	(47) 15.5 % (11.0 - 21.4 95% C.I.)	(20) 12.8 % (8.5 - 19.0 95% C.I.)	(27) 18.4 % (12.6 - 26.0 95% C.I.)
<b>Prevalence of severe stunting (&lt;-3 z-score)</b>	(14) 4.6 % (2.7 - 7.7 95% C.I.)	(8) 5.1 % (2.6 - 9.9 95% C.I.)	(6) 4.1 % (1.5 - 10.6 95% C.I.)

**Table 20-3: Prevalence of stunting based on height-for-age z-scores and by sex among Syrian refugees in the North of Lebanon**

	<b>All</b> n = 360	<b>Boys</b> n = 160	<b>Girls</b> n = 200
<b>Prevalence of stunting (&lt;-2 z-score)</b>	(62) 17.2 % (13.3 - 22.1 95% C.I.)	(30) 18.8 % (12.0 - 28.1 95% C.I.)	(32) 16.0 % (11.6 - 21.6 95% C.I.)
<b>Prevalence of moderate stunting (&lt;-2 z-score and &gt;=-3 z-score)</b>	(54) 15.0 % (11.4 - 19.5 95% C.I.)	(25) 15.6 % (9.8 - 23.9 95% C.I.)	(29) 14.5 % (10.6 - 19.5 95% C.I.)
<b>Prevalence of severe stunting (&lt;-3 z-score)</b>	(8) 2.2 % (1.2 - 4.0 95% C.I.)	(5) 3.1 % (1.4 - 7.0 95% C.I.)	(3) 1.5 % (0.5 - 4.6 95% C.I.)

**Table 20-4: Prevalence of stunting based on height-for-age z-scores and by sex among Syrian refugees in the South of Lebanon**

	<b>All</b> n = 302	<b>Boys</b> n = 134	<b>Girls</b> n = 168
<b>Prevalence of stunting (&lt;-2 z-score)</b>	(60) 19.9 % (15.8 - 24.6 95% C.I.)	(29) 21.6 % (14.8 - 30.6 95% C.I.)	(31) 18.5 % (13.8 - 24.3 95% C.I.)
<b>Prevalence of moderate stunting</b>	(49) 16.2 %	(22) 16.4 %	(27) 16.1 %



( $<-2$ z-score and $\geq-3$ z-score)	(12.0 - 21.6 95% C.I.)	(10.0 - 25.8 95% C.I.)	(11.8 - 21.5 95% C.I.)
Prevalence of severe stunting ( $<-3$ z-score)	(11) 3.6 % (2.1 - 6.3 95% C.I.)	(7) 5.2 % (2.2 - 11.7 95% C.I.)	(4) 2.4 % (0.9 - 6.2 95% C.I.)

**Table 20-5: Prevalence of stunting based on height-for-age z-scores and by sex among Syrian refugees in Beirut & Mount-Lebanon**

	All n = 419	Boys n = 215	Girls n = 204
Prevalence of stunting ( $<-2$ z-score)	(56) 13.4 % (10.4 - 17.0 95% C.I.)	(34) 15.8 % (11.3 - 21.7 95% C.I.)	(22) 10.8 % (7.0 - 16.2 95% C.I.)
Prevalence of moderate stunting ( $<-2$ z-score and $\geq-3$ z-score)	(51) 12.2 % (9.4 - 15.7 95% C.I.)	(31) 14.4 % (9.9 - 20.5 95% C.I.)	(20) 9.8 % (6.1 - 15.4 95% C.I.)
Prevalence of severe stunting ( $<-3$ z-score)	(5) 1.2 % (0.5 - 2.7 95% C.I.)	(3) 1.4 % (0.5 - 4.0 95% C.I.)	(2) 1.0 % (0.2 - 4.1 95% C.I.)

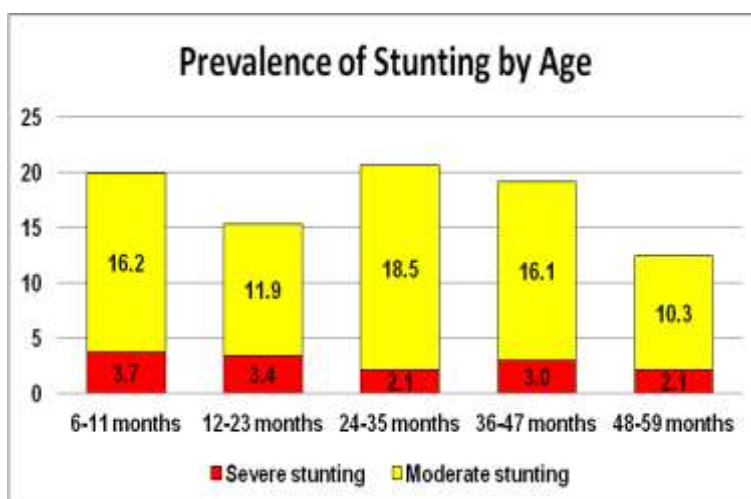
### **Prevalence of Chronic Malnutrition (Stunting) by age**

For all Syrian refugees in Lebanon, the youngest children whose ages ranged from 6 to 11 months and the children from 24 to 47 months were most affected by chronic malnutrition. However, in Bekaa region and in the South of Lebanon, the youngest children (6-11 months) tended to be the most group affected by chronic malnutrition.

**Table 21-1: Prevalence of stunting by age based on height-for-age z-scores among All Syrian refugees in Lebanon**

Age (mo)	Total no.	Severe stunting ( $<-3$ z-score)		Moderate stunting ( $\geq -3$ and $<-2$ z-score )		Normal ( $\geq -2$ z score)	
		No.	%	No.	%	No.	%
6-11	136	5	3.7	22	16.2	109	80.1
12-23	327	11	3.4	39	11.9	277	84.7
24-35	341	7	2.1	63	18.5	271	79.5
36-47	299	9	3.0	48	16.1	242	80.9
48-59	281	6	2.1	29	10.3	246	87.5
Total	1384	38	2.7	201	14.5	1145	82.7

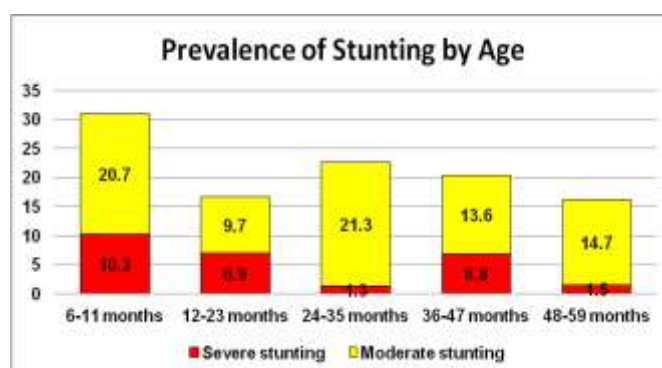
**Figure 9-1: Prevalence of stunting by age based on height-for-age z-scores among All Syrian refugees in Lebanon**



**Table 21-2: Prevalence of stunting by age based on height-for-age z-scores among Syrian refugees in Bekaa**

Age (mo)	Total no.	Severe stunting (<-3 z-score)		Moderate stunting (>= -3 and <-2 z-score )		Normal (> = -2 z score)	
		No.	%	No.	%	No.	%
6-11	29	3	10.3	6	20.7	20	69.0
12-23	72	5	6.9	7	9.7	60	83.3
24-35	75	1	1.3	16	21.3	58	77.3
36-47	59	4	6.8	8	13.6	47	79.7
48-59	68	1	1.5	10	14.7	57	83.8
Total	303	14	4.6	47	15.5	242	79.9

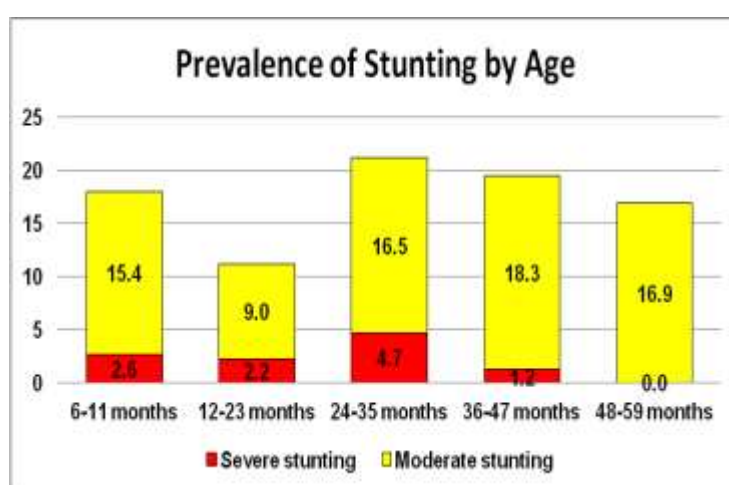
**Figure 9-2: Prevalence of stunting by age based on height-for-age z-scores among Syrian refugees in Bekaa**



**Table 21-3: Prevalence of stunting by age based on height-for-age z-scores among Syrian refugees in the North of Lebanon**

Age (mo)	Total no.	Severe stunting (<-3 z-score)		Moderate stunting (>= -3 and <-2 z-score )		Normal (> = -2 z score)	
		No.	%	No.	%	No.	%
6-11	39	1	2.6	6	15.4	32	82.1
12-23	89	2	2.2	8	9.0	79	88.8
24-35	85	4	4.7	14	16.5	67	78.8
36-47	82	1	1.2	15	18.3	66	80.5
48-59	65	0	0.0	11	16.9	54	83.1
<b>Total</b>	<b>360</b>	<b>8</b>	<b>2.2</b>	<b>54</b>	<b>15.0</b>	<b>298</b>	<b>82.8</b>

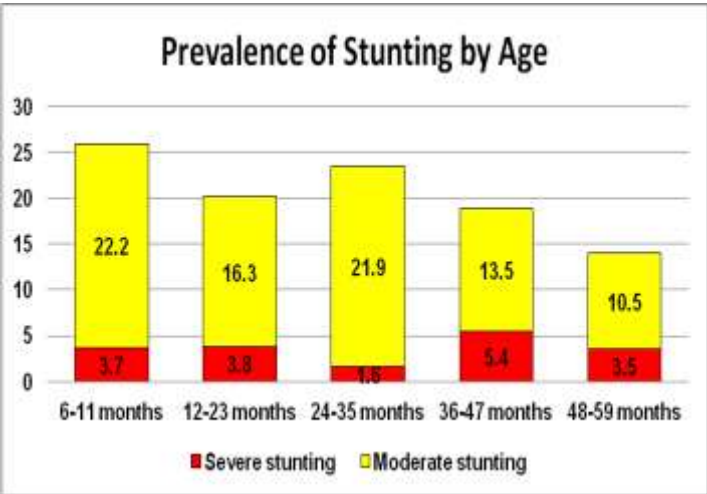
**Figure 9-3: Prevalence of stunting by age based on height-for-age z-scores among Syrian refugees in the North of Lebanon**



**Table 21-4: Prevalence of stunting by age based on height-for-age z-scores among Syrian refugees in the South of Lebanon**

Age (mo)	Total no.	Severe stunting (<-3 z-score)		Moderate stunting (>= -3 and <-2 z-score )		Normal (> = -2 z score)	
		No.	%	No.	%	No.	%
6-11	27	1	3.7	6	22.2	20	74.1
12-23	80	3	3.8	13	16.3	64	80.0
24-35	64	1	1.6	14	21.9	49	76.6
36-47	74	4	5.4	10	13.5	60	81.1
48-59	57	2	3.5	6	10.5	49	86.0
<b>Total</b>	<b>302</b>	<b>11</b>	<b>3.6</b>	<b>49</b>	<b>16.2</b>	<b>242</b>	<b>80.1</b>

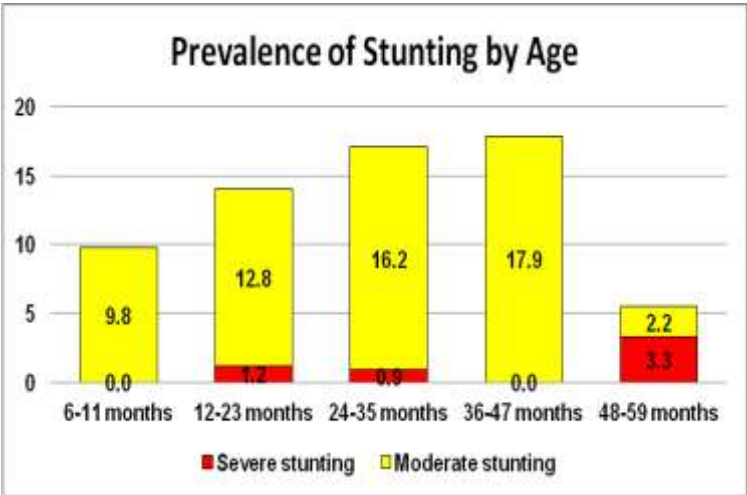
**Figure 9-4: Prevalence of stunting by age based on height-for-age z-scores among Syrian refugees in the South of Lebanon**



**Table 21-5: Prevalence of stunting by age based on height-for-age z-scores among Syrian refugees in Beirut and Mount-Lebanon**

Age (mo)	Total no.	Severe stunting (<-3 z-score)		Moderate stunting (>= -3 and <-2 z-score )		Normal (> = -2 z score)	
		No.	%	No.	%	No.	%
6-11	41	0	0.0	4	9.8	37	90.2
12-23	86	1	1.2	11	12.8	74	86.0
24-35	117	1	0.9	19	16.2	97	82.9
36-47	84	0	0.0	15	17.9	69	82.1
48-59	91	3	3.3	2	2.2	86	94.5
Total	419	5	1.2	51	12.2	363	86.6

**Figure 9-5: Prevalence of stunting by age based on height-for-age z-scores among Syrian refugees in Beirut and Mount-Lebanon**



## **Prevalence of Underweight by Sex**

The prevalence of underweight by sex found in the different assessments is given in tables 22-1 to 22-5. The assessment found very low prevalence of underweight in both study groups, similar to last year's results (tables -1 to 22-5) which were based on the 2006 WHO classification.

**Table 22-1: Prevalence of underweight based on weight-for-age z-scores and by sex among all Syrian refugees in Lebanon**

	<b>All</b> n = 1380	<b>Boys</b> n = 663	<b>Girls</b> n = 717
<b>Prevalence of underweight (&lt;-2 z-score)</b>	(46) 3.3 % (2.5 - 4.4 95% C.I.)	(22) 3.3 % (2.2 - 5.1 95% C.I.)	(24) 3.3 % (2.4 - 4.6 95% C.I.)
<b>Prevalence of moderate underweight (&lt;-2 z-score and &gt;=-3 z-score)</b>	(34) 2.5 % (1.8 - 3.4 95% C.I.)	(15) 2.3 % (1.3 - 4.0 95% C.I.)	(19) 2.6 % (1.8 - 3.9 95% C.I.)
<b>Prevalence of severe underweight (&lt;-3 z-score)</b>	(12) 0.9 % (0.5 - 1.4 95% C.I.)	(7) 1.1 % (0.5 - 2.1 95% C.I.)	(5) 0.7 % (0.3 - 1.6 95% C.I.)

**Table 22-2: Prevalence of underweight based on weight-for-age z-scores and by sex among Syrian refugees in Bekaa**

	<b>All</b> n = 298	<b>Boys</b> n = 153	<b>Girls</b> n = 145
<b>Prevalence of underweight (&lt;-2 z-score)</b>	(8) 2.7 % (1.2 - 5.8 95% C.I.)	(4) 2.6 % (1.0 - 6.4 95% C.I.)	(4) 2.8 % (0.7 - 10.1 95% C.I.)
<b>Prevalence of moderate underweight (&lt;-2 z-score and &gt;=-3 z-score)</b>	(5) 1.7 % (0.5 - 5.3 95% C.I.)	(1) 0.7 % (0.1 - 4.9 95% C.I.)	(4) 2.8 % (0.7 - 10.1 95% C.I.)
<b>Prevalence of severe underweight (&lt;-3 z-score)</b>	(3) 1.0 % (0.3 - 3.1 95% C.I.)	(3) 2.0 % (0.7 - 5.7 95% C.I.)	(0) 0.0 % (0.0 - 0.0 95% C.I.)

**Table 22-3: Prevalence of underweight based on weight-for-age z-scores and by sex among Syrian refugees in the North of Lebanon**

	<b>All</b> n = 361	<b>Boys</b> n = 161	<b>Girls</b> n = 200
<b>Prevalence of underweight (&lt;-2 z-score)</b>	(14) 3.9 % (2.2 - 6.8 95% C.I.)	(9) 5.6 % (2.4 - 12.5 95% C.I.)	(5) 2.5 % (1.1 - 5.6 95% C.I.)
<b>Prevalence of moderate underweight (&lt;-2 z-score and &gt;=-3 z-score)</b>	(10) 2.8 % (1.6 - 4.8 95% C.I.)	(6) 3.7 % (1.6 - 8.6 95% C.I.)	(4) 2.0 % (0.8 - 5.0 95% C.I.)
<b>Prevalence of severe underweight (&lt;-3 z-score)</b>	(4) 1.1 % (0.4 - 2.8 95% C.I.)	(3) 1.9 % (0.6 - 5.7 95% C.I.)	(1) 0.5 % (0.1 - 3.8 95% C.I.)

**Table 22-4: Prevalence of underweight based on weight-for-age z-scores and by sex among Syrian refugees in the South of Lebanon**

	All n = 302	Boys n = 134	Girls n = 168
Prevalence of underweight (<-2 z-score)	(13) 4.3 % (2.7 - 6.9 95% C.I.)	(4) 3.0 % (1.1 - 7.7 95% C.I.)	(9) 5.4 % (3.1 - 9.1 95% C.I.)
Prevalence of moderate underweight (<-2 z-score and >=-3 z-score)	(10) 3.3 % (1.9 - 5.7 95% C.I.)	(4) 3.0 % (1.1 - 7.7 95% C.I.)	(6) 3.6 % (1.7 - 7.5 95% C.I.)
Prevalence of severe underweight (<-3 z-score)	(3) 1.0 % (0.3 - 3.0 95% C.I.)	(0) 0.0 % (0.0 - 0.0 95% C.I.)	(3) 1.8 % (0.6 - 5.2 95% C.I.)

**Table 22-5: Prevalence of underweight based on weight-for-age z-scores and by sex among Syrian refugees in Beirut and Mount-Lebanon**

	All n = 419	Boys n = 215	Girls n = 204
Prevalence of underweight (<-2 z-score)	(11) 2.6 % (1.3 - 5.3 95% C.I.)	(5) 2.3 % (0.9 - 6.1 95% C.I.)	(6) 2.9 % (1.3 - 6.7 95% C.I.)
Prevalence of moderate underweight (<-2 z-score and >=-3 z-score)	(9) 2.1 % (1.0 - 4.7 95% C.I.)	(4) 1.9 % (0.6 - 5.9 95% C.I.)	(5) 2.5 % (1.1 - 5.3 95% C.I.)
Prevalence of severe underweight (<-3 z-score)	(2) 0.5 % (0.1 - 1.9 95% C.I.)	(1) 0.5 % (0.1 - 3.4 95% C.I.)	(1) 0.5 % (0.1 - 3.6 95% C.I.)

The prevalence of underweight among children whose age ranged from 6-59 months was lower than previous available data. For all Syrian refugees in Lebanon, the prevalence of underweight was less than 10% and therefore the overall growth of children as reflected in underweight data, was acceptable, according to the WHO classification. Considering the suspected inaccuracies associated with estimations of birth dates among children from 6 to 59 months of age, the event calendar was used by the teams to ascertain age.

### **Quality of Children anthropometric measurements**

Tables 23-1 to 23-5 provide mean z-scores, design effect, and excluded subjects, for the quality of children's anthropometric measurements for different Nutrition Assessments.

**Table 23-1: Mean z-scores, design effects and excluded subjects – all Syrian refugees in Lebanon**

Indicators	N	Mean z-scores $\pm$ SD	Design Effect (z-score < -2)	z-scores not available*	z-scores out of range	SD of measurements	% of values flagged
Weight-for-Height	1378	0.28 $\pm$ 1.03	1.00	9	0	0.97	0.9%
Weight-for-Age	1380	-0.31 $\pm$ 0.99	1.00	7	0	0.94	0.9%
Height-for-Age	1384	-0.92 $\pm$ 1.20	1.21	3	0	1.10	1.4%

\* Contains for WHZ and WAZ the children with edema.

**Table 23-2: Mean z-scores, design effects and excluded subjects – Syrian refugees in Bekaa**

Indicators	N	Mean z-scores $\pm$ SD	Design Effect (z-score < -2)	z-scores not available*	z-scores out of range	SD of measurements	% of values flagged
Weight-for-Height	298	0.22 $\pm$ 1.07	1.47	5	0	1.03	1.0%
Weight-for-Age	298	-0.37 $\pm$ 0.99	1.20	5	0	0.95	0.7%
Height-for-Age	303	-0.94 $\pm$ 1.37	1.39	0	0	1.21	3.0%

\* Contains for WHZ and WAZ the children with edema.

**Table 23-3: Mean z-scores, design effects and excluded subjects – Syrian refugees in the North of Lebanon**

Indicators	N	Mean z-scores $\pm$ SD	Design Effect (z-score < -2)	z-scores not available*	z-scores out of range	SD of measurements	% of values flagged
Weight-for-Height	359	0.23 $\pm$ 1.03	1.00	3	0	0.97	0.8%
Weight-for-Age	361	-0.33 $\pm$ 1.03	1.13	1	0	0.99	0.8%
Height-for-Age	360	-0.89 $\pm$ 1.24	1.17	2	0	1.12	1.7%

\* Contains for WHZ and WAZ the children with edema.

**Table 23-4: Mean z-scores, design effects and excluded subjects – Syrian refugees in the South of Lebanon**

Indicators	N	Mean z-scores $\pm$ SD	Design Effect (z-score < -2)	z-scores not available*	z-scores out of range	SD of measurements	% of values flagged
Weight-for-Height	302	0.35 $\pm$ 1.02	1.00	1	0	0.94	1.7%
Weight-for-Age	302	-0.30 $\pm$ 1.01	1.00	1	0	0.98	0.7%
Height-for-Age	302	-1.01 $\pm$ 1.13	1.00	1	0	1.11	0.3%

\* Contains for WHZ and WAZ the children with edema.

**Table 23-5: Mean z-scores, design effects and excluded subjects – Syrian refugees in Beirut and Mount Lebanon**

Indicators	N	Mean z-scores $\pm$ SD	Design Effect (z-score < -2)	z-scores not available*	z-scores out of range	SD of measurements	% of values flagged
Weight-for-Height	419	0.32 $\pm$ 0.99	1.00	0	0	0.95	0.7%
Weight-for-Age	419	-0.25 $\pm$ 0.95	1.38	0	0	0.89	1.0%
Height-for-Age	419	-0.86 $\pm$ 1.06	1.00	0	0	1.00	1.0%

\* Contains for WHZ and WAZ the children with edema.

The other indicators of quality for children's anthropometric data were also very good. The percentage of values flagged or abnormal values, for the 3 children anthropometric index, was under 5% (thus falling within the recommendation: under 5%) and the standard deviation of the 3 anthropometric indexes was also within the acceptable range (SD should be between 0.8 - 1.2).

## **B. Anaemia results for children 6-59 months**

During the emergency situation, data on the prevalence of anaemia is essential to collect in order to assess the anaemia and iron deficiency situation, and to establish a data baseline for future monitoring purposes.

The Haemoglobin concentration was measured from a capillary blood sample from the fingertip and recorded to the closest gram per decilitre by using the portable HemoCue Hb 301 Analyser (HemoCue, Sweden). All children from every second HH in the selected cluster list were tested.

The results from tables 24-1 to 24-5 show the overall total anaemia prevalence in children whose ages ranged from 6-59 months for all Syrian refugees in Lebanon was **21.0%**; for Syrian refugees in Bekaa: **13.9%**; for Syrian refugees in North: **25.8%**; for Syrian refugees in the South of Lebanon: **23.4%** and for Syrian refugees in Beirut & Mount-Lebanon: **21.2%**.

The tables also show that the children between 6-23 months of age tended to be the most affected by anaemia: **31.5%** among all Syrian children aged from 6-23 months, **24.1%** for the same age group in Bekaa, **42.9%** in the North, **30.8%** in the South and **27.7%** in Beirut and Mount-Lebanon for the same age group. The children whose ages ranged from 6-23 months, from the North of Lebanon, were affected by anaemia (more than 40%).

According to WHO classification and in conformity of UNHCR operational guidance, anaemia prevalence between 20-39% is classified as a MODERATE public health significance and that is not an indication of need for preventive interventions with MNPs.

Regarding the WHO classification and the UNHCR operational guidance, with the prevalence of 21.0% of anaemia among all Syrian refugee children in Lebanon and considering the rate of GAM in Lebanon (5.9%), the situation is acceptable and does not need a preventive intervention with micro-nutrient supplementation.



**Table 24-1: Prevalence of total anaemia, Anaemia categories, and mean haemoglobin concentration in children 6-59 months of age and by age group - All Syrian refugees in Lebanon**

	<b>6-59 months</b> n = 661*	<b>6-23 months</b> n = 238	<b>24-59 months</b> n = 421
<b>Total Anaemia (Hb&lt;11.0 g/dL)</b>	(139) 21.0% (17.6-24.5 95% CI)	(75) 31.5% (25.9-37.2 95% CI)	(64) 15.2% (11.8-18.6 95% CI)
<b>Mild Anaemia (Hb 10.0-10.9 g/dL)</b>	(109) 16.5% (13.5-19.5 95% CI)	(57) 24.0% (18.7-29.2 95% CI)	(52) 12.4% (9.3-15.4 95% CI)
<b>Moderate Anaemia (7.0-9.9 g/dL)</b>	(30) 4.5% (2.9-6.2 95% CI)	(18) 7.6% (4.1-11.0 95% CI)	(12) 2.9% (1.3-4.4 95% CI)
<b>Severe Anaemia (&lt;7.0 g/dL)</b>	(0) 0%	(0) 0%	(0) 0%
<b>Mean Hb (g/dL) (95% CI) [range]</b>	11.9 g/dL (11.8-12.0 95% CI) [7.0, 15.7]	11.5 g/dL (11.3-11.6 95% CI) [8.6, 15.7]	12.1 g/dL (12.0-12.2 95% CI) [7.0, 15.6]

\*2 children did not have information on age and are included in the anaemia analysis among 6-59 months, but not in age specific anaemia analysis.

Among all Syrian refugee children in Lebanon, children aged 6-23 months are more at risk of being anaemic than children aged 24-59 months ( $\chi^2$ : 24.217;  $p < 0.05$ ).

**Table 24-1-1 Prevalence of Moderate and Severe anaemia in children 6-59 months of age and by age group, Syrian refugees in Lebanon**

	<b>6-59 months</b> n = 661*	<b>6-23 months</b> n = 238	<b>24-59 months</b> n = 421
<b>Moderate and Severe Anaemia (Hb&lt;10.0 g/dL)</b>	(30) 4.5% (2.9-6.2 95% CI)	(18) 7.6% (4.1-11.0 95% CI)	(12) 2.9% (1.3-4.3 95% CI)

\*2 children did not have information on age and are included in the anaemia analysis among 6-59 months, but not in age specific anaemia analysis.

**Table 24-2: Prevalence of total anaemia, Anaemia categories, and mean haemoglobin concentration in children 6-59 months of age and by age group – Syrian refugees in Bekaa**

	<b>6-59 months</b> n = 158*	<b>6-23 months</b> n = 58	<b>24-59 months</b> n = 98
<b>Total Anaemia (Hb&lt;11.0 g/dL)</b>	(22) 13.9% (8.2-19.6 95% CI)	(14) 24.1% (14.1-34.2 95% CI)	(8) 8.2% (2.4-14.0 95% CI)
<b>Mild Anaemia (Hb 10.0-10.9 g/dL)</b>	(20) 12.7% (7.6-17.7 95% CI)	(13) 22.4% (12.6-32.2 95% CI)	(7) 7.1% (1.7-12.6 95% CI)
<b>Moderate Anaemia (7.0-9.9 g/dL)</b>	(2) 1.3% (0.0-3.1 95% CI)	(1) 1.7% (0.0-5.4 95% CI)	(1) 1.0% (0.0-3.2 95% CI)

<b>Severe Anaemia (&lt;7.0 g/dL)</b>	(0) 0%	(0) 0%	(0) 0%
<b>Mean Hb (g/dL) (95% CI) [range]</b>	12.2 g/dL (12.0-12.4 95% CI) [9.1, 15.7]	11.8 g/dL (11.5-12.0 95% CI) [9.1, 15.7]	12.5 g/dL (12.2-12.7 95% CI)

\*2 children did not have information on age and are included in the anaemia analysis among 6-59 months, but not in age specific anaemia analysis.

In Bekaa, Syrian refugee children aged 6-23 months are more at risk of being anaemic than children aged 24-59 months ( $\chi^2$ : 5.222;  $p < 0.05$ ).

**Table 24-2-1: Prevalence of Moderate and Severe anaemia in children 6-59 months of age and by age group, Syrian refugees in Bekaa**

	<b>6-59 months</b> n = 158*	<b>6-23 months</b> n = 58	<b>24-59 months</b> n = 98
<b>Moderate and Severe Anaemia (Hb&lt;10.0 g/dL)</b>	(2) 1.3% (0.0-3.1 95% CI)	(1) 1.7 % (0.0-5.4 95% CI)	(1) 1.0% (0.0-3.2 95% CI)

\*2 children did not have information on age and are included in the anaemia analysis among 6-59 months, but not in age specific anaemia analysis.

**Table 24-3: Prevalence of total anaemia, Anaemia categories, and mean haemoglobin concentration in children 6-59 months of age and by age group – Syrian refugees in the North of Lebanon**

	<b>6-59 months</b> n = 155	<b>6-23 months</b> n = 63	<b>24-59 months</b> n = 92
<b>Total Anaemia (Hb&lt;11.0 g/dL)</b>	(40) 25.8% (16.9-34.7 95% CI)	(27) 42.9% (30.3-55.4 95% CI)	(13) 14.1% (6.0-22.2 95% CI)
<b>Mild Anaemia (Hb 10.0-10.9 g/dL)</b>	(31) 20.0% (11.8-28.2 95% CI)	(21) 33.3% (19.7-47.0 95% CI)	(10) 10.9% (4.6-17.1 95% CI)
<b>Moderate Anaemia (7.0-9.9 g/dL)</b>	(9) 5.8% (2.8-8.8 95% CI)	(6) 9.5% (2.3-16.8 95% CI)	(3) 3.3% (0.0-6.8 95% CI)
<b>Severe Anaemia (&lt;7.0 g/dL)</b>	(0) 0%	(0) 0%	(0) 0%
<b>Mean Hb (g/dL) (95% CI) [range]</b>	11.7 g/dL (11.4-11.9 95% CI)	11.1 g/dL (10.9-11.4 95% CI)	12.0 g/dL (11.7-12.3 95% CI)

In North, Syrian refugee children aged 6-23 months are more at risk of being anaemic than children aged 24-59 months ( $\chi^2$ : 16.117;  $p < 0.05$ ).

**Table 24-3-1 Prevalence of Moderate and Severe anaemia in children 6-59 months of age and by age group, Syrian refugees in North of Lebanon**

	<b>6-59 months</b> n = 155	<b>6-23 months</b> n = 63	<b>24-59 months</b> n = 92
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<b>Moderate and Severe Anaemia (Hb&lt;10.0 g/dL)</b>	(9 ) 5.8% (2.8-8.8 95% CI)	(6) 9.5% (2.3-16.8 95% CI)	(3) 3.3% (0.0-6.8 95% CI)
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**Table 24-4: Prevalence of total anaemia, Anaemia categories, and mean haemoglobin concentration in children 6-59 months of age and by age group – Syrian refugees in the South of Lebanon**

	<b>6-59 months</b> n = 145	<b>6-23 months</b> n = 52	<b>24-59 months</b> n = 93
<b>Total Anaemia (Hb&lt;11.0 g/dL)</b>	(34) 23.4% (16.3-30.6 95% CI)	(16) 30.8% (17.6-44.0 95% CI)	(18) 19.4% (11.5-27.2 95% CI)
<b>Mild Anaemia (Hb 10.0-10.9 g/dL)</b>	(25) 17.2% (11.0-23.5 95% CI)	(9) 17.3% (9.0-25.6 95% CI)	(16) 17.2% (9.1-25.3 95% CI)
<b>Moderate Anaemia (7.0-9.9 g/dL)</b>	(9) 6.2% (1.5-10.9 95% CI)	(7) 13.5% (2.8-24.1 95% CI)	(2) 2.2% (0.0-5.2 95% CI)
<b>Severe Anaemia (&lt;7.0 g/dL)</b>	(0) 0%	(0) 0%	(0) 0%
<b>Mean Hb (g/dL) (95% CI) [range]</b>	11.7 g/dL (11.6-11.9 95% CI) [8.6, 14.4]	11.5 g/dL (11.0-11.9 95% CI) [8.6, 14.0]	11.9 g/dL (11.7-12.1 95% CI) [9.0, 14.4]

In the South, the difference between the prevalence of total anaemia in Syrian refugee children aged 6-23 months and the prevalence of anaemia in children aged 24-59 months is not statistically significant ( $X^2$ : 2.421;  $p > 0.05$ ).

**Table 24-4-1 Prevalence of Moderate and Severe anaemia in children 6-59 months of age and by age group, Syrian refugees in South of Lebanon**

	<b>6-59 months</b> n = 145	<b>6-23 months</b> n = 52	<b>24-59 months</b> n = 93
<b>Moderate and Severe Anaemia (Hb&lt;10.0 g/dL)</b>	(9) 6.2% (1.5-10.9 95% CI)	(7) 13.5% (2.8-24.1 95% CI)	(2) 2.2% (0.0-5.2 95%

**Table 24-5: Prevalence of total anaemia, Anaemia categories, and mean haemoglobin concentration in children 6-59 months of age and by age group – Syrian refugees in Beirut & Mount-Lebanon**

	<b>6-59 months</b> n = 203	<b>6-23 months</b> n = 65	<b>24-59 months</b> n = 138
<b>Total Anaemia (Hb&lt;11.0 g/dL)</b>	(43) 21.2% (15.3-27.1 95% CI)	(18) 27.7% (17.9-37.5 95% CI)	(25) 18.1% (12.4-23.8 95% CI)
<b>Mild Anaemia (Hb 10.0-10.9 g/dL)</b>	(33) 16.3% (11.3-21.2 95% CI)	(14) 21.5% (12.7-30.4 95% CI)	(19) 13.8% (8.8-18.8 95% CI)

<b>Moderate Anaemia (7.0-9.9 g/dL)</b>	(10) 4.9% (1.8-8.0 95% CI)	(4) 6.2% (0.4-12.0 95% CI)	(6) 4.3% (1.3-7.4 95% CI)
<b>Severe Anaemia (&lt;7.0 g/dL)</b>	(0) 0%	(0) 0%	(0) 0%
<b>Mean Hb (g/dL) (95% CI) [range]</b>	11.8 g/dL (11.7-12.0 95% CI) [7.0, 15.2]	11.8 g/dL (11.7-12.0 95% CI) [7.0, 15.2]	11.9 g/dL (11.7-12.1 95% CI) [7.0, 15.2]

In Beirut and Mount-Lebanon, the difference between the prevalence of total anaemia in Syrian refugee children aged 6-23 months and the prevalence of anaemia in children aged 24-59 months is not statistically significant ( $\chi^2$ : 2.427;  $p > 0.05$ ).

**Table 24-5-1 Prevalence of Moderate and Severe anaemia in children 6-59 months of age and by age group, Syrian refugees in Beirut & Mount-Lebanon**

	<b>6-59 months</b> n = 203	<b>6-23 months</b> n = 65	<b>24-59 months</b> n = 138
<b>Moderate and Severe Anaemia (Hb&lt;10.0 g/dL)</b>	(10) 4.9% (1.8-8.0 95% CI)	(4) 6.2% (0.4-12.0 95% CI)	(6) 4.3% (1.3-7.4 95% CI)

### C. Child morbidity

The prevalence of reported diarrhea, cough and fever during the two last weeks before data collection among all Syrian refugees in Lebanon and among Syrian refugees in Bekaa, in North, in South and in Beirut & Mount-Lebanon are presented in the table below.

**Table 25: Prevalence of reported diarrhea, cough and fever in the two weeks prior to the interview**

<b>Target groups</b>	<b>Diarrhea during the last 2 weeks</b>	<b>Average duration of Diarrhea</b>	<b>Cough during the last 2 weeks</b>	<b>Fever during the last 2 weeks</b>
<b>Bekaa Region</b>	<b>26.7%</b> (22.19 – 31.69)	4.83 days	<b>33.1%</b> (28.26 – 38.39)	<b>36.4%</b> (31.35 – 41.68)
<b>North of Lebanon</b>	<b>33.3%</b> (28.88 – 38.09)	5.91 days	<b>43.9%</b> (39.13 – 48.86)	<b>38.9%</b> (34.28 – 43.81)
<b>South of Lebanon</b>	<b>23.6%</b> (19.29 – 28.53)	5.69 days	<b>40.4%</b> (35.16 – 45.81)	<b>35.8%</b> (30.78 – 41.21)
<b>Beirut &amp; Mount-Lebanon</b>	<b>17.2%</b> (14.0 – 20.88)	4.86 days	<b>41.7%</b> (37.32 – 46.30)	<b>26.6%</b> (22.75 – 30.80)
<b>All Lebanon (Global data)</b>	<b>24.9%</b> (22.77 – 27.12)	<b>5.39 days</b>	<b>40.1%</b> (37.70 – 42.65)	<b>34.0%</b> (31.60 – 36.38)

In all Lebanon and in each of the 4 strata, mothers/caretakers of children less than 5 years of age had reported more cases of diarrhea, cough and fever two weeks prior to the interview date.

The link between this morbidity and acute malnutrition is not statistically significant for diarrhea ( $X^2$ : 1.445,  $P > 0.05$ ) and for cough ( $X^2$ : 0.110,  $P > 0.05$ ). However, the link between acute malnutrition and fever is statistically significant ( $X^2$ : 3.886,  $P < 0.05$  –  $P = 0.049$ ). The high morbidity however remains a risk factor likely to undermine the nutrition wellbeing of the Syrian refugees in Lebanon.

As for the occurrence of diarrhea during the last 2 weeks before the starting of the different assessments, the findings showed that the highest rate was among the Syrian refugee children in the North of Lebanon, where also the average duration of diarrhea was almost 6 days (5.91 days). The lowest rate of diarrhea during the last 2 weeks before the assessment was observed in Beirut and Mount-Lebanon.

In comparison with last year's findings, the rate of diarrhea during the last 2 weeks before the onset of this year's assessment was found to be lower than the diarrhea rate observed last year (24.9% in 2013 compared to 40.2% in 2012). This difference may be due to the different periods of data collection: in 2012, the assessment was done during the month of September, in which highest incidents of diarrhea usually occur.

#### **D. Children vaccination coverage**

The data collection of the nutrition assessment including the vaccination data was done from October 2<sup>nd</sup> to November 30<sup>th</sup> and the data collection in 110 localities or areas among 120 was done before the end of October. However, the last polio and measles campaign was done from November 8<sup>th</sup> to 15<sup>th</sup>. In that case, a minor possible overlap in the polio campaign activity versus data collection could have occurred in only 10 clusters (in Mount-Lebanon Dahieh) x 10 households interviewed.

The findings of the assessment show that, for HH who had been in Lebanon for less than 12 months (by the time of data collection), 45.3% of their children received their vaccines in Syria; this proportion was 31.1% among Syrian refugee HHs that have been in Lebanon for 1 year or more. However, for the HH that had spent 1 year or more in Lebanon, more children received their immunization from the PHC Center (45.5% vs. 34.2%).

**Table 26-1: Sources of immunization of children reported by mother or caregiver and by period stayed in Lebanon**

Target groups	PHC Center		Through MMU		Private Dr		Different places		Only in Syra	
	Period stayed in Lebanon									
	< 1 year	≥ 1 year	< 1 year	≥ 1 year	< 1 year	≥ 1 year	< 1 year	≥ 1 year	< 1 year	≥ 1 year
Bekaa Region	32.0%	38.5%	1.2%	0.0%	0.0%	3.8%	26.1%	38.5%	40.7%	19.2%
North of Lebanon	35.7%	39.1%	0.7%	1.4%	0.7%	1.4%	13.6%	10.1%	49.3%	47.8%
South of Lebanon	40.0%	60.0%	0.0%	2.6%	0.0%	0.0%	20.6%	6.1%	39.4%	31.3%
Beirut & Mount-Lebanon	29.2%	42.1%	2.6%	4.0%	3.1%	0.4%	14.4%	24.7%	50.8%	28.7%
All Lebanon (Global data)	34.2%	45.5%	1.1%	2.9%	0.9%	0.8%	18.5%	19.7%	45.3%	31.1%

**Table 26-2: Source of children's immunization reported by mother/caregiver, by age of children**

Target groups	PHC Center		Through MMU		Private Dr		Different places		Only in Syra	
	Age of children (0-23 months and 24-59 months)									
	< 2	≥ 2	< 2	≥ 2	< 2	≥ 2	< 2	≥ 2	< 2	≥ 2
Bekaa Region	45.8%	25.8%	2.8%	0.0%	1.9%	0.0%	33.6%	25.3%	15.9%	48.9%
North of Lebanon	57.3%	23.9%	1.5%	0.5%	1.5%	0.5%	15.3%	11.5%	24.4%	63.8%
South of Lebanon	72.6%	32.4%	0.0%	1.6%	0.0%	0.0%	12.4%	16.5%	15.0%	49.5%
Beirut & Mount-Lebanon	64.1%	21.3%	5.1%	2.4%	2.6%	1.0%	11.5%	24.8%	16.7%	50.3%
All Lebanon (Global data)	60.4%	25.2%	2.6%	1.3%	1.6%	0.5%	17.4%	19.8%	18.1%	53.2%

The findings of the assessment also show that, for HH who had children of less than 24 months of age, 60.4% immunized their children in PHC center and only 18.1% immunized their children only in Syria. However, 20% of HH with children of less than 2 years of age reported that they received vaccines from different places (PHC, MMU or Private Doctor).

**Figure 10: Immunization of children – Doses of Polio**

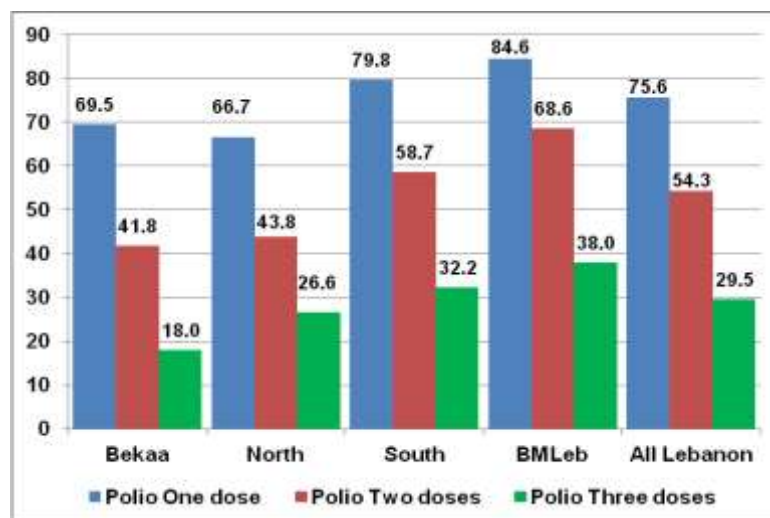
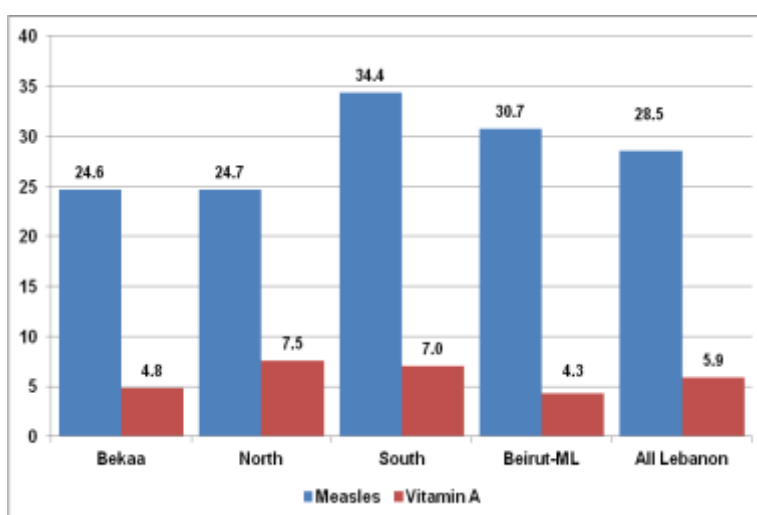


Figure 10 above shows that the coverage for Polio vaccine was higher for Syrian refugees in Beirut and Mount-Lebanon. However, the coverage for the third dose was lower in Bekaa.

**Figure 11: Measles and Vitamin A Supplementation**



Usually the coverage of vitamin A supplementation and Measles vaccination is the same. The results of the assessments however, showed that the coverage of Vitamin A supplementation was very low in comparison with the coverage of Measles. This difference could be explained by the fact that the surveyors did not show the samples of vitamin A capsule to all mothers or to all caregivers. In addition, the nutrition data collection took place just one month before Polio/ Vitamin A vaccination/ supplementation campaign.

## E. Infant and young child feeding

When IYCF indicators are collected in nutritional surveys, it is not feasible to achieve a large sample size, that would allow for some of the indicators to be estimated as precisely as desired, especially the indicators that cover a very narrow age range (e.g. 12-15 months, 6-8 months). Hence, trend analyses need to be interpreted with caution. Nevertheless, trend analyses are useful for assessing the situation and major differences seen from year to year should warrant further investigation.

For the global sample, with the sample of 1,200 HH, we were able to obtain interesting results about IYCF for all Syrian refugee children whose ages ranged from 0-23 months. The tables 27-1 to 27-5 present the results about IYCF.

**Table 27-1: Prevalence of IYCF practices indicators – Syrian refugees in all Lebanon**

Indicator		Age range	Number/total	Prevalence	95% CI
Children ever breastfed		0-23 months	399/457	<b>87.3%</b>	(83.94–90.05)
Timely initiation of breastfeeding	< One hour	0-23 months	157/502	<b>31.3%</b>	(27.37–35.45)
	1-24 hours		201/502	<b>40.0%</b>	(35.85–44.39)
	≥ 24 hours		144/502	<b>28.7%</b>	(24.91–32.8)
Exclusive breastfeeding under 6 months		0-5 months	22/88	<b>25.0%</b>	(17.13–34.96)
Continued breastfeeding at 1 year		12-15 months	44/68	<b>64.7%</b>	(52.85 – 75.0)
Continued breastfeeding at 2 years		20-23 months	19/63	<b>30.2%</b>	(20.24–42.36)
Introduction of solid, semi-solid or soft		6-8 months	20/35	<b>57.1%</b>	(40.85–72.01)
Consumption of iron-rich or iron-fortified		6-23 months	135/371	<b>36.39%</b>	(31.66–41.40)
Bottle feeding		0-23 months	154/372	<b>41.4%</b>	(36.51–46.47)

**Table 27-2: Prevalence of IYCF practices indicators – Syrian refugees in Bekaa**

Indicator		Age range	Number/total	Prevalence (%)	95% CI
Children ever breastfed		0-23 months	73/88	<b>83.0%</b>	(73.76–89.39)
Timely initiation of breastfeeding	< One hour	0-23 months	31/102	<b>30.4%</b>	(22.31–39.89)
	1-24 hours		34/102	<b>33.3%</b>	(24.93–42.94)
	≥ 24 hours		37/102	<b>36.3%</b>	(27.6 –45.95)
Exclusive breastfeeding under 6 months		0-5 months	4/16	<b>25.0%</b>	(10.18 – 49.5)
Continued breastfeeding at 1 year		12-15 months	9/12	<b>75.0%</b>	(46.77–99.11)
Continued breastfeeding at 2 years		20-23 months	4/12	<b>33.3%</b>	(13.81–60.93)
Introduction of solid, semi-solid or soft foods		6-8 months	4/7	<b>57.1%</b>	(25.04–88.19)
Consumption of iron-rich or iron-fortified foods		6-23 months	11/70	<b>15.71%</b>	(9.0–25.98)
Bottle feeding		0-23 months	31/70	<b>44.3%</b>	(33.25–55.92)



**Table 27-3: Prevalence of IYCF practices indicators – Syrian refugees in the North of Lebanon**

Indicator		Age range	Number/total	Prevalence (%)	95% CI
Children ever breastfed		0-23 months	110/123	<b>89.4%</b>	(82.75–93.72)
Timely initiation of breastfeeding	< One hour	0-23 months	32/146	<b>21.9%</b>	(15.98 – 29.3)
	1-24 hours		74/146	<b>50.7%</b>	(42.66–58.67)
	≥ 24 hours		40/146	<b>27.4%</b>	(20.81–35.14)
Exclusive breastfeeding under 6 months		0-5 months	6/24	<b>25.0%</b>	(12.0 – 44.9)
Continued breastfeeding at 1 year		12-15 months	15/23	<b>65.2%</b>	(44.89–81.19)
Continued breastfeeding at 2 years		20-23 months	3/15	<b>20.0%</b>	(7.05 – 45.19)
Introduction of solid, semi-solid or soft foods		6-8 months	5/10	<b>50.0%</b>	(23.66–76.34)
Consumption of iron-rich or iron-fortified foods		6-23 months	28/95	<b>15.8%</b>	(29.47–39.29)
Bottle feeding		0-23 months	36/95	<b>37.9%</b>	(28.79–47.94)

**Table 27-4: Prevalence of IYCF practices indicators – Syrian refugees in the South of Lebanon**

Indicator		Age range	Number/total	Prevalence (%)	95% CI
Children ever breastfed		0-23 months	92/101	<b>91.1%</b>	(83.93–95.24)
Timely initiation of breastfeeding	< One hour	0-23 months	32/108	<b>29.6%</b>	(21.84–38.82)
	1-24 hours		46/108	<b>42.6%</b>	(33.58–52.01)
	≥ 24 hours		30/108	<b>27.8%</b>	(20.21–36.88)
Exclusive breastfeeding under 6 months		0-5 months	4/16	<b>25.0%</b>	(10.18 – 49.5)
Continued breastfeeding at 1 year		12-15	7/13	<b>53.8%</b>	(29.15 – 76.8)
Continued breastfeeding at 2 years		20-23	5/14	<b>35.7%</b>	(16.34–61.23)
Introduction of solid, semi-solid or soft foods		6-8 months	4/7	<b>57.1%</b>	(25.04–88.19)
Consumption of iron-rich or iron-fortified foods		6-23 months	43/87	<b>49.43%</b>	(39.17–59.74)
Bottle feeding		0-23 months	38/88	<b>43.2%</b>	(33.33–53.6)

**Table 27-5: Prevalence of IYCF practices indicators – Syrian refugees in Beirut and Mount-Lebanon**

Indicator		Age range	Number/total	Prevalence (%)	95% CI
Children ever breastfed		0-23 months	124/145	<b>85.5%</b>	(78.88–90.33)
Timely initiation of breastfeeding	< One hour	0-23 months	62/146	<b>42.5%</b>	(34.75–50.58)
	1-24 hours		47/146	<b>32.2%</b>	(25.15–40.14)
	≥ 24 hours		37/146	<b>25.3%</b>	(18.98–32.97)
Exclusive breastfeeding under 6 months		0-5 months	8/32	<b>25.0%</b>	(13.25–42.11)
Continued breastfeeding at 1 year		12-15	13/20	<b>65.0%</b>	(43.29–81.88)

Continued breastfeeding at 2 years	20-23	7/22	<b>31.8%</b>	(16.36–52.68)
Introduction of solid, semi-solid or soft foods	6-8 months	7/11	<b>63.6%</b>	(35.38–84.84)
Consumption of iron-rich or iron-fortified foods	6-23 months	53/119	<b>44.54%</b>	(34.92–53.50)
Bottle feeding	0-23 months	49/119	<b>41.2%</b>	(32.75–50.16)

The findings of the different assessments showed that among Syrian refugees in all Lebanon, more than 85% of children of 0-23 months of age were breastfed. More than 60% of mothers initiated the breastfeeding in the first 23 hours after birth and 25% of children of 0-23 months of age were exclusively breastfed. However, around 35% of children of 0-23 months of age received bottle feedings.

Moreover, the findings of the assessments showed that more than 50% of children, whose ages ranged from 0-23 months, were breastfed until the age of one and varying between the strata, 20-33% of children 0-23 months of age were breastfed until the age of 2.

The IYCF indicators have a link with acute malnutrition prevalence. The link between complementary food introduction (the introduction of solid, semi-solid or soft foods), receiving bottle feeding, length of breastfeeding (continued breastfeeding at 1 year and continued breastfeeding at 2 years) and acute malnutrition, was analysed. The link is not statistically significant for introduction of solid, semi-solid or soft foods ( $\chi^2$ : 0.05,  $P > 0.05$ ), for bottle feeding ( $\chi^2$ : 0.936,  $P > 0.05$ ), for continued breastfeeding at 1 year ( $\chi^2$ : 3.091,  $P > 0.05$ ), and for continued breastfeeding at 2 years ( $\chi^2$ : 0.023,  $P > 0.05$ ).

The non significant statistical link between the IYCF indicators can be explained by the fact that, at the national level too, the indicators that cover a very narrow age range and the number of children with acute malnutrition is not very high.

## 6. Women 15-49 years

### A. Physiological status

Tables 28-1 to 28-5 present the results of the different assessments about the physiological status of women whose ages ranged between 15-49 years. For all Syrian refugees in Lebanon, the results of the assessment showed that 12% of women 15-49 years old were pregnant and 15.1% were lactating. The Syrian refugees in Bekaa presented the highest proportion of lactating women (17.2%).

**Table 28-1: Women physiological status and age – All Syrian refugees in Lebanon**

Physiological status		Number/total	% of sample
Non-pregnant		1379/1896	72.7%
Pregnant		231/1896	12.2%
Lactating women		286/1896	15.1%
Age groups	15-19 years	356/1934	18.4%
	20-24 years	440/1934	22.8%
	25-29 years	396/1934	20.5%
	30-34 years	300/1934	15.5%
	35-39 years	192/1934	9.9%
	40-44 years	148/1934	7.7%
	45-49 years	102/1934	5.3%
Mean age (range)		27.8 years	

**Table 28-2: Women physiological status and age – Syrian refugees in Bekaa**

Physiological status		Number/total	% of sample
Non-pregnant		276/395	69.9%
Pregnant		51/395	12.9%
Lactating women		68/395	17.2%
Age groups	15-19 years	69/399	17.3%
	20-24 years	98/399	24.6%
	25-29 years	71/399	17.8%
	30-34 years	56/399	14.0%
	35-39 years	43/399	10.8%

	<b>40-44 years</b>	44/399	11.0%
	<b>45-49 years</b>	18/399	4.5%
<b>Mean age (range)</b>		28.2 years	

**Table 28-3: Women physiological status and age –Syrian refugees in the North of Lebanon**

<b>Physiological status</b>		<b>Number/total</b>	<b>% of sample</b>
<b>Non-pregnant</b>		412/558	73.8%
<b>Pregnant</b>		64/558	11.5%
<b>Lactating women</b>		82/558	14.7%
<b>Age groups</b>	<b>15-19 years</b>	110/576	19.1%
	<b>20-24 years</b>	137/576	23.8%
	<b>25-29 years</b>	122/576	21.2%
	<b>30-34 years</b>	82/576	14.3%
	<b>35-39 years</b>	52/576	9.0%
	<b>40-44 years</b>	35/576	6.1%
	<b>45-49 years</b>	37/576	6.4%
<b>Mean age (range)</b>		27.5 years	

**Table 28-4: Women physiological status and age –Syrian refugees in the South of Lebanon**

<b>Physiological status</b>		<b>Number/total</b>	<b>% of sample</b>
<b>Non-pregnant</b>		306/425	72.0%
<b>Pregnant</b>		59/425	13.9%
<b>Lactating women</b>		60/425	14.1%
<b>Age groups</b>	<b>15-19 years</b>	84/435	19.3%
	<b>20-24 years</b>	84/435	19.3%
	<b>25-29 years</b>	82/435	18.9%
	<b>30-34 years</b>	80/435	18.4%
	<b>35-39 years</b>	49/435	11.3%
	<b>40-44 years</b>	33/435	7.6%
	<b>45-49 years</b>	23/435	5.3%
<b>Mean age (range)</b>		28.2 years	

**Table 28-5: Women physiological status and age – Syrian refugees in Beirut and Mount Lebanon**

Physiological status		Number/total	% of sample
Non-pregnant		385/518	74.3%
Pregnant		57/518	11.0%
Lactating women		76/518	14.7%
Age groups	15-19 years	93/525	17.7%
	20-24 years	121/525	23.0%
	25-29 years	121/525	23.0%
	30-34 years	82/525	15.6%
	35-39 years	48/525	9.1%
	40-44 years	36/525	6.9%
	45-49 years	24/525	4.6%
Mean age (range)		27.6 years	

The findings of the assessments presented in figures 12-1 to 12-5 showed that among all Syrian refugees in Lebanon 12.4% of pregnant women and 10.3% of lactating women were 15 to 20 years old. However, in Beirut and Mount-Lebanon, the proportion of pregnant women and lactating women whose age ranged from 15 to 20 years, were the highest group: 16.3% for young pregnant women and 14.1% for young lactating women. Regarding the young pregnant women, 7.0% of the pregnant women are under 18 years old (15-17 years).

However, the findings of different assessments showed that more than 80% of pregnant and lactating Syrian refugee women in Lebanon were between 20 and 40 years of age.

**Figure 12-1: Physiological status by age, women 15-49 years – All Syrian refugees in Lebanon**

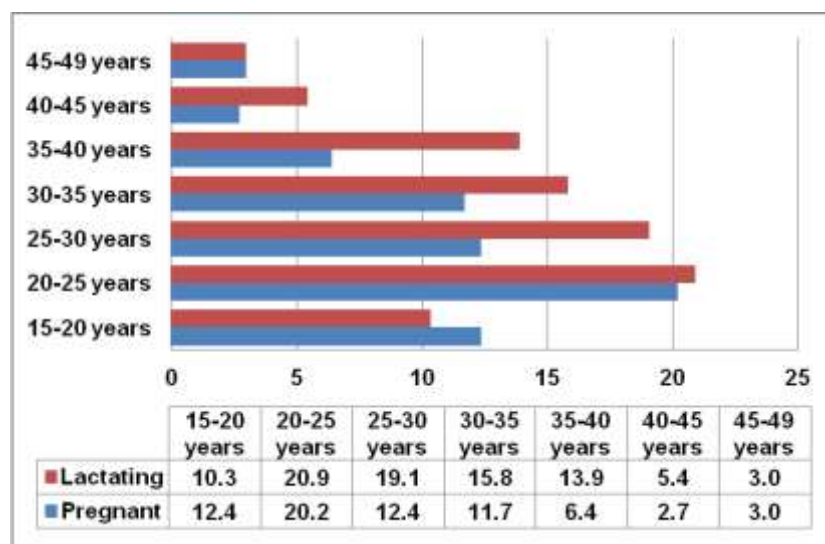


Figure 12-2: Physiological status by age, women 15-49 years – Syrian refugees in Bekaa

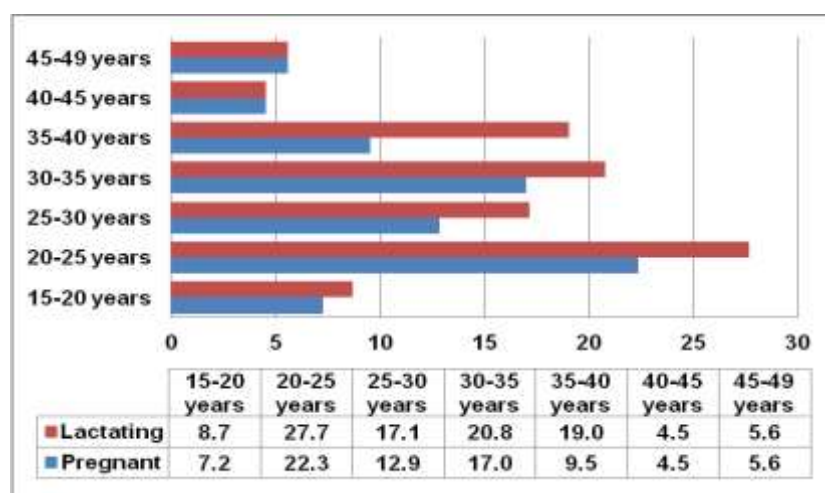
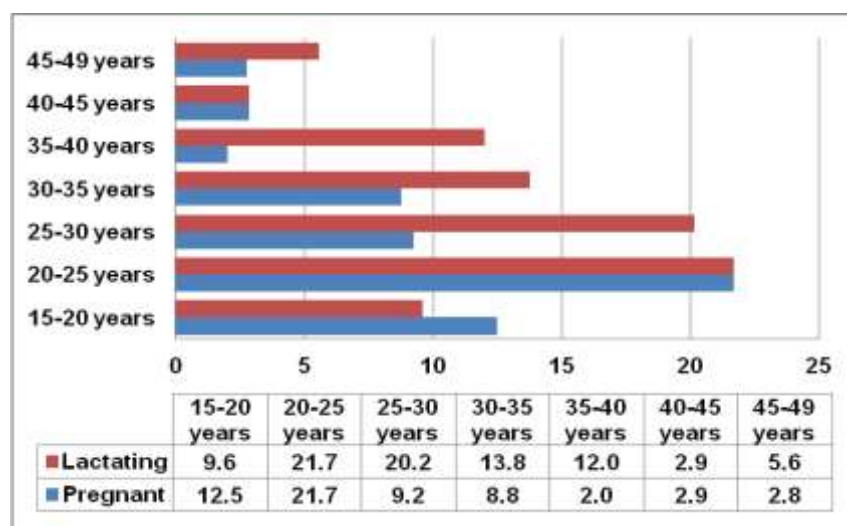
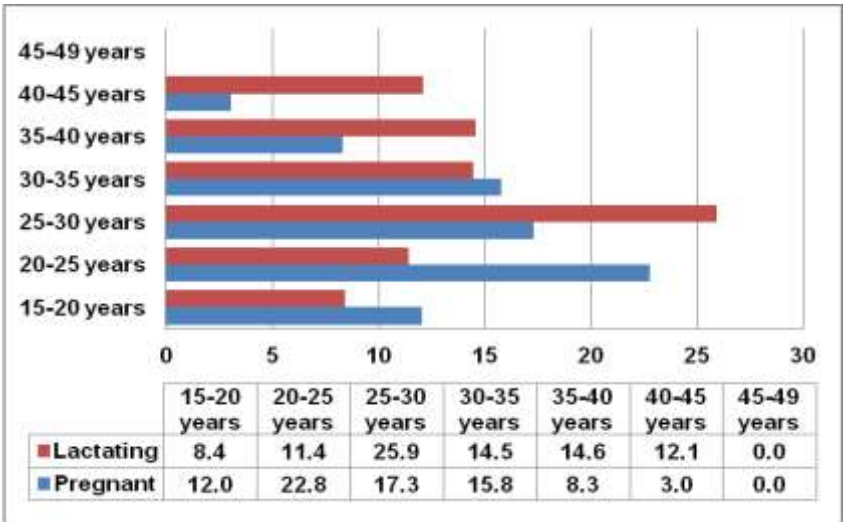


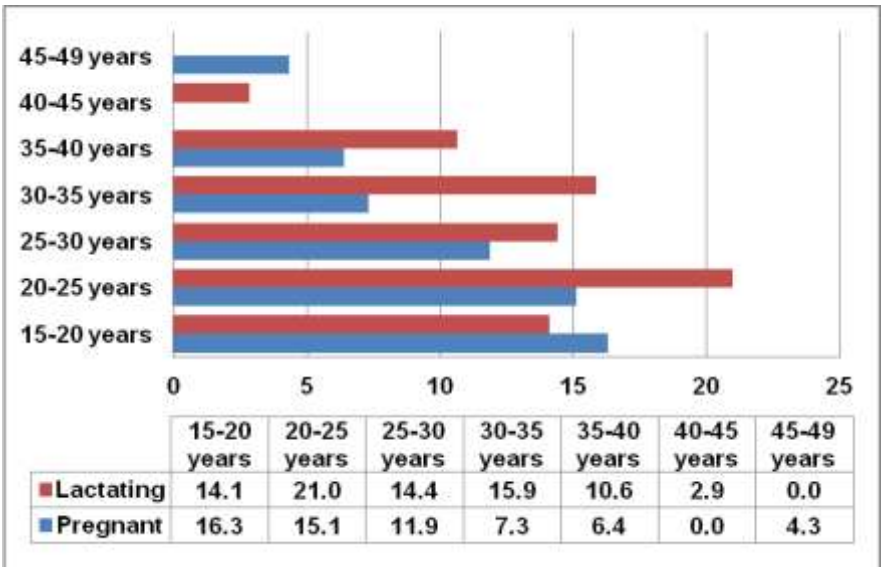
Figure 12-3: Physiological status by age, women 15-49 years – Syrian refugees in North



**Figure 12-4: Physiological status by age, women 15-49 years – Syrian refugees in South**



**Figure 12-5: Physiological status by age, women 15-49 years – Syrian refugees in Beirut and Mount Lebanon**



### **B. Women malnutrition**

Mid Upper Arm circumference (MUAC) in women was classified according to the Sphere Project's Handbook (2011) cut-offs of:

- ✓ Total malnutrition: MUAC < 23 cm
- ✓ Moderate malnutrition: MUAC ≥21 cm and <23 cm
- ✓ Severe malnutrition: MUAC < 21 cm

The assessment results show that, like the prevalence of malnutrition observed last year among Syrian refugee women in Lebanon, there were 5.0% (4.05-6.06 95% C.I.) malnourished (MUAC < 23 cm) Syrian refugee women whose age ranged from 15-49 years and among them 1.0% (0.61-1.53 95% C.I.) were severely malnourished (MUAC < 21 cm). The Syrian refugee women whose age ranged from 15 to 49 years old in the North and in the South of Lebanon presented the highest prevalence of malnutrition (the North for the severe malnourished and the South for the total malnourished).

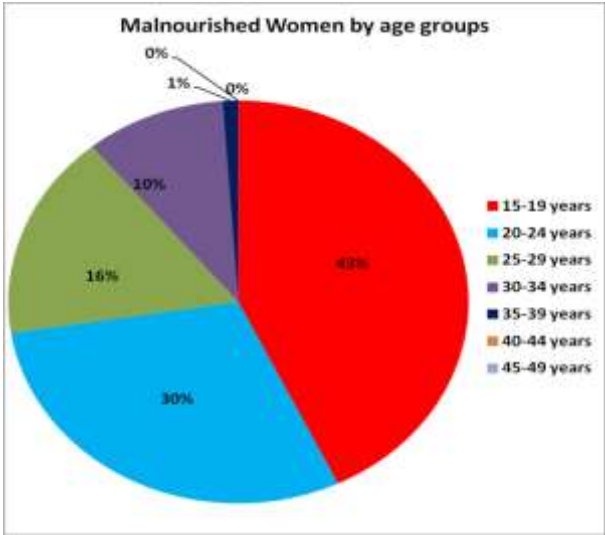
**Table 29: Prevalence of malnutrition among Syrian women 15-49 years in Lebanon**

Target groups	Total Malnutrition (MUAC < 23 cm)		Moderate Malnutrition (MUAC ≥21 cm and <23 cm)		Severe Malnutrition (MUAC < 21 cm)	
	N/total	Prevalence (%)	N/total	Prevalence (%)	N/total	Prevalence (%)
<b>Bekaa Region</b>	14/384	<b>3.6%</b> (2.19-6.03 95% C.I.)	10/384	<b>2.6%</b> (1.42-4.72 95% C.I.)	4/384	<b>1.0%</b> (0.04-2.64 95% C.I.)
<b>North of Lebanon</b>	29/552	<b>5.3%</b> (3.68-7.44 95% C.I.)	22/552	<b>4.0%</b> (2.65-5.97 95% C.I.)	7/552	<b>1.3%</b> (0.62-2.60 95% C.I.)
<b>South of Lebanon</b>	27/414	<b>6.5%</b> (4.52-9.32 95% C.I.)	23/414	<b>5.6%</b> (3.73-8.20 95% C.I.)	4/414	<b>1.0%</b> (0.38-2.46 95% C.I.)
<b>Beirut &amp; Mount-Lebanon</b>	22/501	<b>4.4%</b> (2.92-6.56 95% C.I.)	19/501	<b>3.8%</b> (2.44-5.84 95% C.I.)	3/501	<b>0.6%</b> (0.20-1.75 95% C.I.)
<b>All Lebanon (Global data)</b>	<b>92/1851</b>	<b>5.0%</b> (4.05-6.06 95% C.I.)	<b>74/1851</b>	<b>4.0%</b> (4.20-4.99 95% C.I.)	<b>18/1851</b>	<b>1.0%</b> (0.61-1.53 95% C.I.)

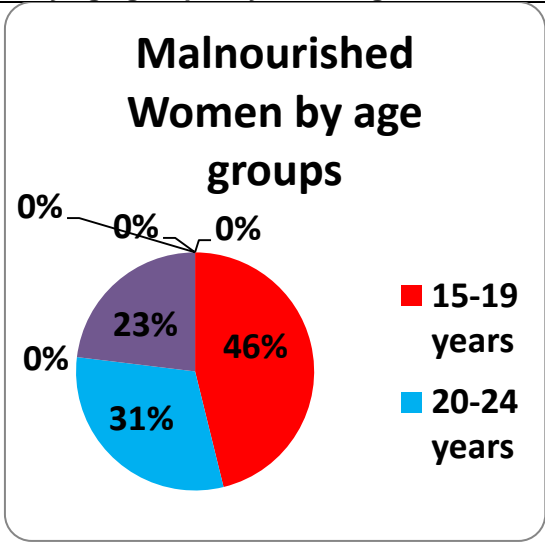
Figures 13-1 to 13-5 show that more than 75% of malnourished women among Syrian refugees in Lebanon were less than 35 years old. With the exception of the Beirut and Mount-Lebanon stratum (36% of malnourished were 15-19 years), in the other regions, more than 40% of malnourished Syrian refugee women were between 15-19 years of age.



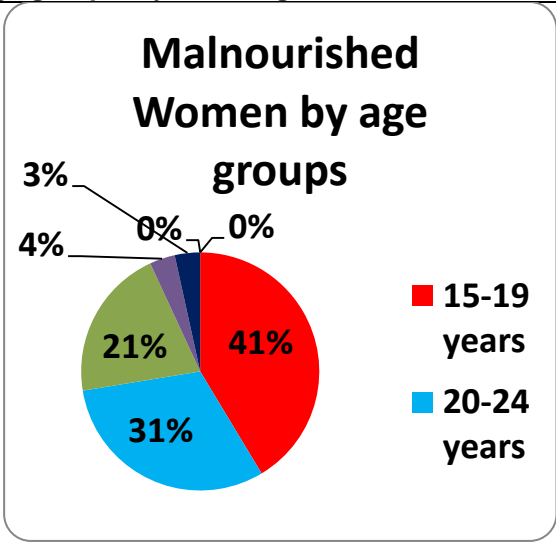
**Figure 13-1: Prevalence of malnutrition among women by age group – All Syrian refugees in Lebanon**



**Figure 13-2: Prevalence of malnutrition among women by age group – Syrian refugees in Bekaa**

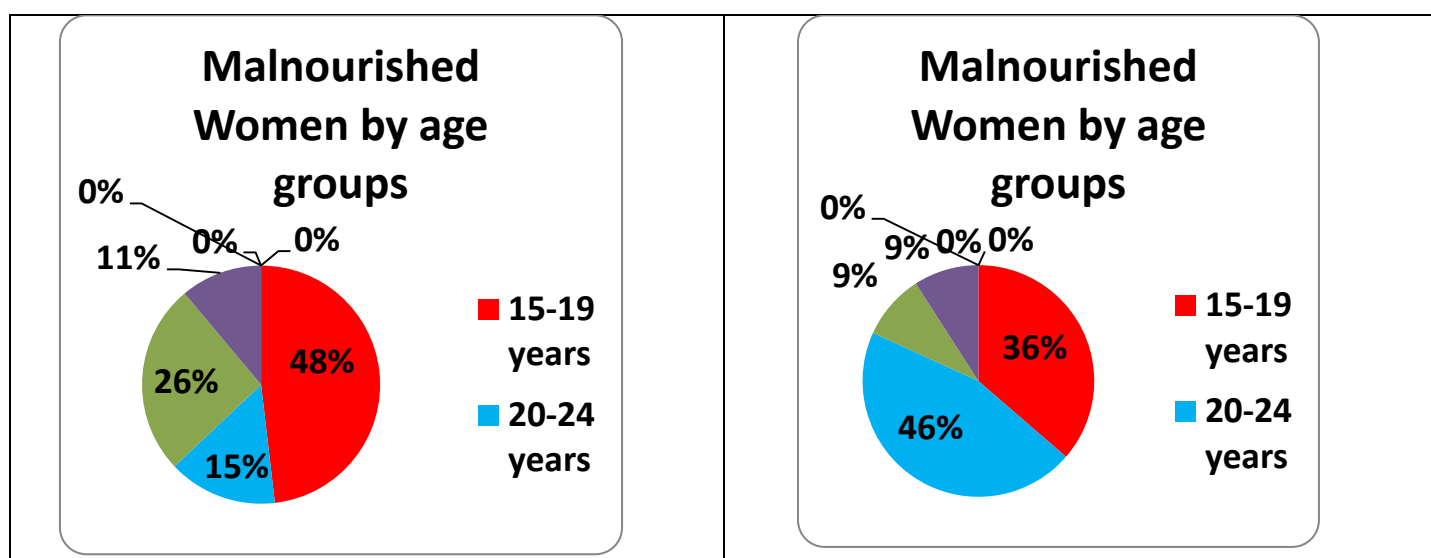


**Figure 13-3: Prevalence of malnutrition among women by age group – Syrian refugees in North**



**Figure 13-4: Prevalence of malnutrition among women by age group – Syrian refugees in South**

**Figure 13-5: Prevalence of malnutrition among women by age group –Syrian refugees in Beirut and Mt Lebanon**



### C. Anc enrolment and iron-folic acid supplementation coverage

Table 30 shows that more than 45% of all pregnant Syrian refugees in Lebanon were enrolled in ANC program. This proportion was more than 50% of the pregnant Syrian refugees in the North and in the South of Lebanon.

For the distribution of iron-folic acid pills, more than 35% of all pregnant Syrian refugee women in Lebanon received this vitamin and mineral supplementation. This proportion was around 45% among pregnant Syrian refugees in Bekaa.

**Table 30: ANC enrolment and iron-folic acid pills coverage, among Syrian Women 15-49 years in Lebanon**

Target groups	Currently enrolled in ANC program		Currently receiving iron-folic acid pills)	
	N/total	% (95% CI)	N/total	% (95% CI)
Bekaa Region	23/51	45.1% (26.1 - 64.1)	22/49	44.9% (28.4 - 61.4)
North of Lebanon	31/61	50.8% (36.5 - 65.1)	19/56	33.9% (18.9 - 48.9)
South of Lebanon	31/59	52.5% (37.5 - 67.6)	19/58	32.8% (20.2 - 45.3)
Beirut and Mount-Lebanon	24/54	44.4% (31.2 - 57.7)	20/53	37.7% (19.9 - 55.5)
All Lebanon (Global data)	109/225	48.4% (41.2 - 55.7)	80/216	37.0% (29.6-44.5)

#### D. Anaemia results for women 15-49 years

For women 15 to 49 years old, the anaemia assessment was done for non pregnant women. All non pregnant women of 15 to 49 years old from every second HH were tested.

The Haemoglobin concentration was measured by a capillary blood sample taken from the fingertip and recorded to the closest gram per decilitre by using the portable HemoCue Hb 301 Analyser (HemoCue, Sweden).

**Table 31: Prevalence of Anaemia and Haemoglobin concentration in non-pregnant women of reproductive age (15-49 years) – Syrian refugees in Lebanon**

Anaemia in non-pregnant women of reproductive age (15-49 years)	All Syrian refugees in Lebanon n = 785	All Syrian refugees in Bekaa n = 158	All Syrian refugees in the North of Lebanon n = 220	All Syrian refugees in the South of Lebanon n = 178	All Syrian refugees in Beirut & Mount-Lebanon n = 229
<b>Total Anaemia (&lt;12.0 g/dL)</b>	(205) <b>26.1%</b> (23.2-29.0 95% CI)	(29) <b>18.4%</b> (12.6-24.1 95% CI)	(61) <b>27.7%</b> (22.3-33.2 95% CI)	(48) <b>27.0%</b> (20.0-34.2 95% CI)	(67) <b>29.3%</b> (24.0-34.6 95% CI)
<b>Mild Anaemia (11.0-11.9 g/dL)</b>	(108) <b>13.8%</b> (11.3-16.2 95% CI)	(16) <b>10.1%</b> (5.2-15.0 95% CI)	(30) <b>13.6%</b> (8.7-18.5 95% CI)	(25) <b>14.0%</b> (7.4-20.7 95% CI)	(37) <b>16.2%</b> (12.0-20.3 95% CI)
<b>Moderate Anaemia (8.0-10.9 g/dL)</b>	(92) <b>11.7%</b> (9.7-13.8 95% CI)	(12) <b>7.6%</b> (3.8-11.4 95% CI)	(31) <b>14.1%</b> (9.8-18.4 95% CI)	(21) <b>11.8%</b> (7.7-16.0 95% CI)	(28) <b>12.2%</b> (8.1-16.3 95% CI)
<b>Severe Anaemia (&lt;8.0 g/dL)</b>	(5) <b>0.6%</b> (0.1-1.2 95% CI)	(1) <b>0.6%</b> (0.0-2.0 95% CI)	(0) <b>0%</b>	(2) <b>1.1%</b> (0.0-2.7 95% CI)	(2) <b>0.9%</b> (0.0-2.1 95% CI)
<b>Mean Hb (g/dL) (95% CI) [range]</b>	<b>12.7 g/dL</b> (12.6-12.8 95% CI) [6.5, 17.9]	<b>13.3 g/dL</b> (13.0-13.5 95% CI) [7.8, 17.1]	<b>12.6 g/dL</b> (12.4-12.7 95% CI) [8.6, 15.4]	<b>12.6 g/dL</b> (12.4-12.8 95% CI) [6.5, 16.3]	<b>12.5 g/dL</b> (12.3-12.7 95% CI) [7.2, 17.9]

The results from table 31 show the overall Total Anaemia prevalence for non-pregnant women of reproductive age (15-49 years) which were, for all Syrian refugees in Lebanon: **26.1%**; for Syrian refugees in Bekaa: **18.4%**; for Syrian refugees in North: **27.7%**; for Syrian refugees in the South of Lebanon: **27.0%** and for Syrian refugees in Beirut and Mount-Lebanon: **29.3%**.

The findings of the different assessments showed that the non-pregnant Syrian refugee women of reproductive age (15-49 years) who lived in Beirut and Mount-Lebanon had the highest anaemia incidences and those who lived in Bekaa had the fewest anaemia incidences.

According to WHO classification and in conformity of UNHCR operational guidance, anaemia prevalence between 20-39% is classified as a MODERATE public health significance and that is not an indication of need for preventive interventions with MNPs.

Regarding the WHO classification and the UNHCR operational guidance, with the prevalence of 26.1% of anaemia among all Syrian refugee women of reproductive age in Lebanon, the situation is acceptable and does not need a preventive intervention with micro-nutrient supplementation.

## IX. Results - household level – wash

### 1. WASH

The inclusion of the basic WASH module in the nutrition assessment provided key information for planning interventions to address public health concerns and to ensure that basic rights are upheld. Poor water, sanitation and hygiene have serious consequences for the health and nutrition status of people.

All households (UNHCR registered) randomly selected, responded on questions about water, sanitation and hygiene. This module of the nutrition assessment report presents the key findings.

**Table 32: WASH quality - Syrian refugees in Lebanon**

Target groups	Proportion of HH using an improved drinking water		Proportion of HH that say they are satisfied with their drinking water supply	
	N/total	% (95% CI)	N/total	% (95% CI)
<b>Bekaa Region</b>	137/245	<b>55.92%</b> (49.66 – 62.0)	155/245	<b>63.3%</b> (57.07–69.06)
<b>North of Lebanon</b>	230/323	<b>71.21</b> (66.05 – 75.88)	211/324	<b>65.1%</b> (59.78 – 70.1)
<b>South of Lebanon</b>	137/262	<b>52.29</b> (46.25 – 58.26)	181/262	<b>69.1%</b> (63.24 – 74.37)
<b>Beirut and Mount-Lebanon</b>	79/325	<b>24.31</b> (19.96 – 29.26)	243/325	<b>74.8%</b> (69.78–79.18)
<b>All Lebanon (Global data)</b>	583/1155	<b>50.48</b> (47.6 – 53.36)	790/1156	<b>68.3%</b> (65.6 – 70.9)

The findings presented in table 32 show that more than 60% of HH surveyed were satisfied with their drinking water supply; 75% of the Syrian refugee participants in Beirut and Mount-Lebanon were satisfied with their drinking water supply. The table indicates that more than 50% of Syrian refugee HH used the improved drinking water supply and the three main reasons for dissatisfaction about the water supply were: the bad quality of water, having to pay for water (cost) and not enough water (quantity) for personal hygiene.

Figure 14-1: Proportion of HH that said they are satisfied with the drinking water supply

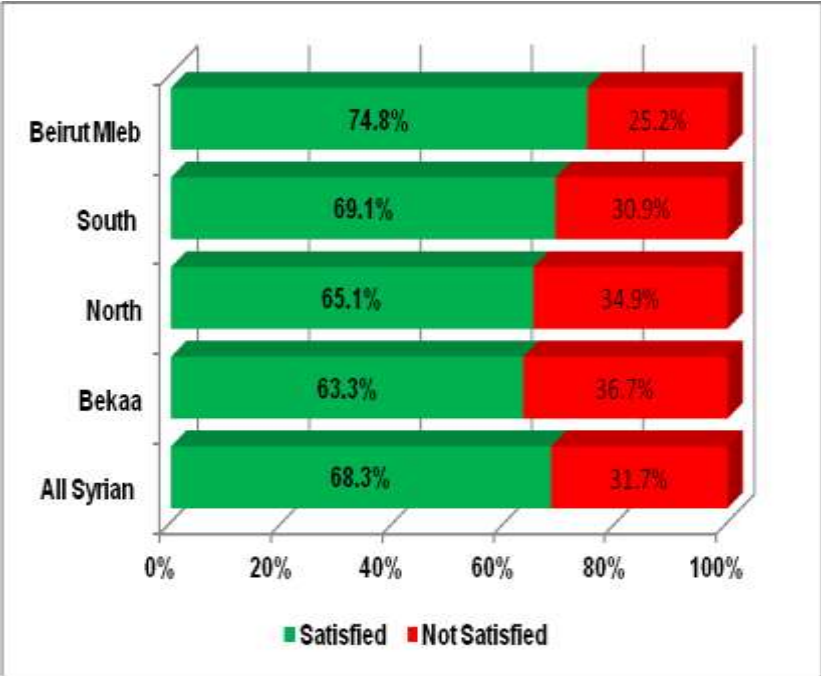
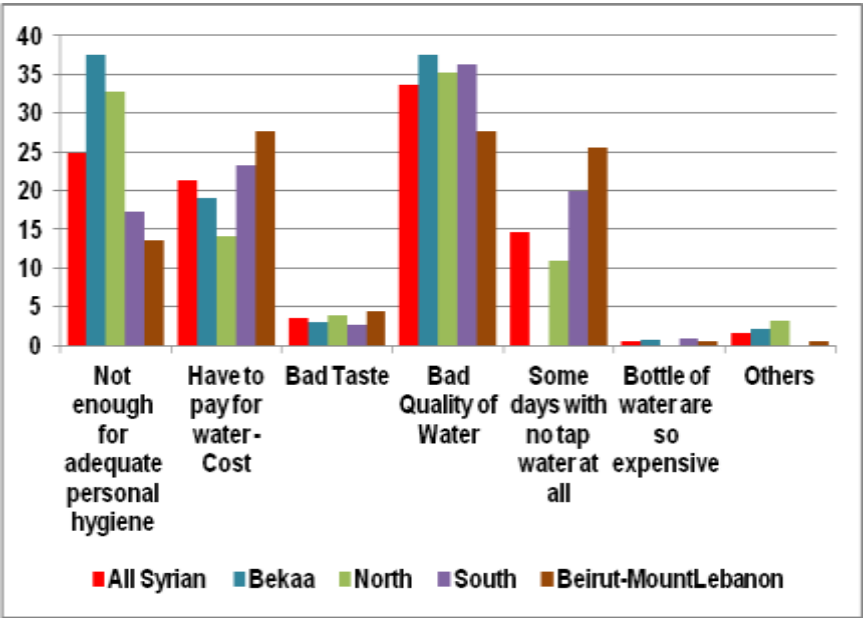


Figure 14-1: Main reason for dissatisfaction among households not satisfied with the water supply



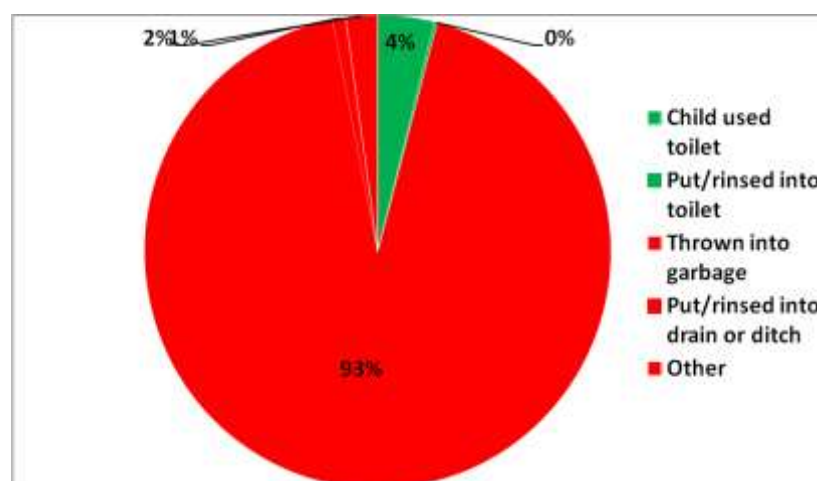
About sanitation (toilet), the findings of the different assessments show that:

- 77.5% of Households used an improved excreta disposal facility;
- 14% of the HH used a shared family toilet;
- 16.4% of the HH used the communal toilet;

- Only 4% of the HH with children under 3 years old, disposed feces safely and 92.8% discarded into garbage.

The distinction between throwing the used dipper in garbage or directly throwing the feces in the garbage was not made (it was not clear in the modality how to dispose the feces by throwing it into the garbage). Due to this limitation, probably, the proportion of HH that disposed feces by throwing it directly into the garbage could be high, but this result has to be interpreted with caution, and the situation needs more investigation.

**Figure 15: Proportion of HH with children under 3 years old whose (last) stools**



The link between the satisfaction about the drinking water supply, the kind of toilet used (improved or unimproved) and acute malnutrition, was analysed. The link is not statistically significant for the satisfaction with the drinking water supply ( $X^2$ : 0.056,  $P > 0.05$ ) and for the kind of toilet used (improved or unimproved) ( $X^2$ : 5.300,  $P > 0.05$ ). However, the analysis of the link between the same WASH indicators and the prevalence of diarrhea showed that the link between the kind of toilet used (improved or unimproved) and the prevalence of diarrhea is statistically significant ( $X^2$ : 17.869,  $P < 0.05$ ). However, the relationship between the satisfaction on the drinking water supply and the prevalence of diarrhea is not statistically significant ( $X^2$ : 3.187,  $P > 0.05$  –  $p=0.074$ ).

**Table 33: Different WASH indicators - Syrian refugees in Lebanon**

		SYRIAN REFUGEES NUTRITION ASSESSMENT 2013										Classification of public health significance or target (where applicable)
Date of Assessment		October 2 <sup>nd</sup> to November 30 <sup>th</sup> 2013										
Assessment area		All Lebanon		Bekaa		North		South		Beirut Mont-Leb		
		N/Total	% (95%CI)	N/Total	% (95%CI)	N/Total	% (95%CI)	N/Total	% (95%CI)	N/Total	% (95%CI)	
WASH												
Water												
Principal Main Source of drinking water	Water tap/water network (under 2H/day)	100/1155	8.7% (7.17 – 10.47)	27/245	11.0% (7.68 – 15.56)	9/323	2.8% (1.48 – 5.21)	34/262	13.0% (9.44 – 17.59)	30/325	9.2% (6.54 – 12.87)	
	Water tap/water network (More than 2H/day)	273/1155	23.6% (21.23–26.18)	58/245	23.7% (18.78–29.37)	84/323	26.0% (21.53 – 31.06)	92/262	35.1% (29.58 – 41.07)	39/325	12.0% (8.9 – 15.98)	
	Small Quantity purchased	351/1155	30.4% (27.81–33.15)	43/245	17.6% (13.3 – 22.8)	43/323	13.3% (10.03 – 17.45)	71/262	27.1% (22.08 – 32.78)	194/325	59.7% (54.27–64.88)	
	Public standpipe	106/1155	9.2% (7.65 – 10.98)	21/245	8.6% (5.67 – 12.75)	50/323	15.5% (11.94 – 19.83)	17/262	6.5% (4.09 – 10.15)	18/325	5.5% (3.53 – 8.59)	
	Protected borehole/well	136/1155	11.8% (10.04–13.76)	40/245	16.3% (12.23–21.47)	66/323	20.4% (16.39 – 25.16)	18/262	6.9% (4.39 – 10.6)	12/325	3.7% (2.12 – 6.34)	
Principal Main Source of cooking and washing water	Water tap/water network (under 2H/day)	166/1154	14.4% (12.47–16.52)	24/245	9.8% (6.67 – 14.17)	13/322	4.0% (2.38 – 6.79)	54/262	20.6% (16.15 – 25.92)	75/325	23.1% (18.83–27.96)	
	Water tap/water network (More than 2H/day)	472/1154	40.9% (3.81 – 43.76)	66/245	26.9% (21.77–32.82)	128/322	39.8% (34.56 – 45.19)	135/262	51.5% (45.5 – 57.52)	143/325	44.0% (38.7 – 49.44)	
	Small Quantity purchased	71/1154	6.2% (4.9 – 7.69)	27/245	11.0% (7.68 – 15.56)	12/322	3.7% (2.15 – 6.4)	13/262	5.0% (2.78 – 8.53)	19/325	5.8% (3.78 – 8.95)	
	Protected borehole/well	235/1154	20.4% (18.14–22.78)	56/245	22.9% (18.04–28.51)	84/322	26.1% (21.6 – 31.15)	33/262	12.6% (9.11 – 17.17)	62/325	19.1% (15.18– 23.7)	
	Unprotected borehole/well	71/1154	6.2% (4.9 – 7.69)	28/245	11.4% (8.03 – 16.02)	31/322	9.6% (6.87 – 13.34)	7/262	2.7% (0.13 – 5.41)	5/325	1.5% (0.66 – 3.55)	
Proportion of HH with water storage capacity		790/1156	68.3% (65.6 – 70.9)	155/245	63.3% (57.07–69.06)	211/324	65.1% (59.78 – 70.1)	181/262	69.1% (63.24 – 74.37)	243/325	74.8% (69.78–79.18)	
Volume of water storage capacity	Less than 500 Liters	214/769	27.8% (24.78–31.1)	37/152	24.3% (18.21–31.74)	55/204	27.0% (21.34 – 33.43)	46/180	25.6% (21.34 – 33.43)	76/233	32.6%	
	500 – 1,000 Liters	359/769	46.7% (43.18–50.21)	63/152	41.4% (33.92–49.4)	99/204	48.5% (41.76 – 55.35)	93/180	51.7% (41.76 – 55.35)	104/233	44.6%	

		SYRIAN REFUGEES NUTRITION ASSESSMENT 2013										Classification of public health significance or target (where applicable)
Date of Assessment		October 2 <sup>nd</sup> to November 30 <sup>th</sup> 2013										
Assessment area		All Lebanon		Bekaa		North		South		Beirut Mont-Leb		
		N/Total	% (95%CI)	N/Total	% (95%CI)	N/Total	% (95%CI)	N/Total	% (95%CI)	N/Total	% (95%CI)	
WASH												
	1,000 – 3,000 Liters	176/769	22.9% (20.06–25.99)	46/152	30.3% (23.52–37.98)	44/204	21.6% (16.48 – 27.71)	37/180	20.6%	49/233	21.0%	
	More than 3,000 Liters	20/769	2.6% (1.69 – 3.98)	6/152	3.9% (1.82 – 8.35)	6/204	2.9% (1.35 – 6.27)	4/180	2.2%	4/233	1.7%	
Proportion of HH that say they are satisfied with drinking water supply		575/1156	49.7% (46.86–52.62)	110/245	44.9% (38.8 – 51.16)	171/324	52.8% (47.34 - 58.15)	145/262	55.3%	149/325	45.8%	
Reasons for none satisfaction with drinking water supply	Not enough for adequate personal hygiene of children	147/592	24.8% (21.52–28.46)	51/136	37.5% (29.81–45.87)	51/156	32.7% (25.82 – 40.39)	20/116	17.2%	25/184	13.6%	
	Have to pay for water – Cost	126/592	21.3% (18.17–24.76)	26/136	19.1% (13.4 – 26.54)	22/156	14.1% (9.5 – 20.43)	27/116	23.3%	51/184	27.7%	
	Bad Taste	21/592	3.5% (2.33 – 5.37)	4/136	2.9% (1.15 – 7.32)	6/156	3.8% (1.78 – 8.14)	3/116	2.6%	8/184	4.3%	
	Bad Quality of Water	199/592	33.6% (29.92–37.51)	51/136	37.5% (29.81–45.87)	55/156	35.3%	42/116	36.2%	51/184	27.7%	
Proportion of HH that say they have access to soap and hygiene products		686/1153	59.5% (56.8–62.46)	152/245	62.0% (55.82–67.89)	219/324	67.6%	147/261	56.3%	168/323	52.0%	
Proportion of HH by kind of toilet facility they use												
Traditional pit latrine/without slab/open pit		228/1155	19.7% (17.55–22.13)	83/245	33.9% (28.24–40.01)	82/325	25.2%	41/261	15.7%	22/324	6.8%	
Open air (Bush, stream)/Corner place in the compound		27/1155	2.3% (1.61 – 3.38)	18/245	7.3% (4.7 – 11.32)	5/325	1.5%	4/261	1.5%	0	0%	
Improved latrine with cement slab		403/1155	34.9% (32.2 – 37.68)	72/245	29.4% (24.04–35.38)	119/325	36.6%	109/261	41.8%	103/324	31.8%	
Flush Latrine		492/1155	42.6% (39.78–45.47)	70/245	28.6% (23.28–34.52)	116/325	35.7%	107/261	41.0%	199/324	61.4%	
No Facility, Field, Bush, Plastic bag		5/1155	0.4% (0.18 – 1.01)	2/245	0.8% (0.23 – 2.93)	3/325	0.9%	0	0%	0	0%	



	SYRIAN REFUGEES NUTRITION ASSESSMENT 2013										Classification of public health significance or target (where applicable)
Date of Assessment	October 2 <sup>nd</sup> to November 30 <sup>th</sup> 2013										
Assessment area	All Lebanon		Bekaa		North		South		Beirut Mont-Leb		
	N/Total	% (95%CI)	N/Total	% (95%CI)	N/Total	% (95%CI)	N/Total	% (95%CI)	N/Total	% (95%CI)	
WASH											
Proportion of HH shared the kind of toilet facility they use											
Not shared	796/1145	69.5% (66.79–72.12)	157/243	64.6% (58.41–70.35)	220/321	68.5%	188/257	73.2%	231/324	71.3	
Shared with 1 HH	161/1145	14.1% (12.17–16.19)	33/243	13.6% (9.84 – 18.46)	44/321	13.7%	34/257	13.2%	50/324	15.4%	
Public Toilet	15/1145	1.3% (0.8 – 2.15)	4/243	1.6% (0.64 – 4.16)	5/321	1.6%	1/257	0.4%	5/324	1.5%	
Communal toilet (shared with 2 HH or more)	173/1145	15.1% (13.15 – 17.3)	49/243	20.2% (15.6 – 25.65)	52/321	16.2%	34/257	13.2%	38/324	11.7%	
Proportion of HH by how they disposed the stools of their child under 3 years old											
Child used toilet	25/642	3.9% (7.68 – 15.79)	10/138	7.2% (3.99 – 12.83)	2/176	1.1%	6/138	4.3%	7/190	3.7%	
Put/rinsed into toilet	1/642	0.2% (0.03 – 0.88)	0	0%	0	0%	1/138	0.7%	0	0%	
Thrown into garbage	596/642	92.8% (90.57–94.58)	121/138	87.7% (81.16–92.16)	168/176	95.5%	127/138	92.0%	180/190	94.7%	
Put/rinsed into drain or ditch	6/642	0.9% (0.43 – 2.02)	3/138	2.2% (0.74 – 6.19)	2/176	1.1%	1/138	0.7%	0	.0%	
Other	14/642	2.2% (1.3 – 3.63)	4/138	2.9% (1.13 – 7.22)	4/176	2.3%	3/138	2.2%	3/190	1.6%	

## Limitations

- ✓ **Poor quality of age data for children U5 years:** Considering the inaccuracies in birth registration (date of birth has been changed), there were challenges in age documentation among children 6-59 months of age. Due to this limitation and although an event calendar was used by the teams to ascertain age, stunting and underweight results were to be interpreted with caution because z-scores for height-for-age (and weight for age) require accurate ages to be within two weeks of exact birth date (CDC/WFP: A manual: Measuring and Interpreting Mortality and Malnutrition, 2005).
- ✓ **The distinction between to dispose the used diaper in garbage or to dispose directly the feces in the garbage was not made** (it was not clear in the modality how to dispose the feces by throwing it into the garbage). Due to this limitation, probably, the proportion of HH that they disposed feces by throwing it directly into the garbage could be high but this result has to be interpreted with caution, and the situation needs more investigation.
- ✓ **Sample had not covered the unregistered Syrian families:** The analysis only included those who are part of aid programs (registered by UNHCR). Households that were not registered or with incorrect information were not represented in this assessment.
- ✓ **The questionnaire was heavy** to administrate due to the needs of different UN agencies
- ✓ **Coverage of Vitamin A supplementation:** Enumerators had Vitamin A capsules. However the surveyors did not show the samples of the vitamin A capsule to all mothers or to all caregivers.

## Discussion

For Syrian refugees in different strata (Bekaa, North, South and Beirut and Mount-Lebanon) and in all Lebanon, the different nutrition assessments covered more than 94% of the targeted number of Syrian refugees' households. For the different assessments, the overall sex ratio was around 1.0 (sex ratio should be between 0.8 - 1.2), which confirms that both sex were equally distributed and well represented and that there was no bias in terms of sampling girls or boys.

For children under 5 years old, in each stratum and globally the assessment covered more than 140% of the targeted sample. Among all the samples surveyed, the average size of HH was 7.6 people and only 13% of the HH were female headed. These 2013 Assessment findings are higher than the average size of family (6.2 people) and lower than the 20% female headed HH, observed in 2012.

The findings of the assessment show that 88% of HH reported the mother as the person who takes care of the children. However, 22% of all HH surveyed said that they take care of children under 18 years old who are not their children.

### 1. Nutritional status of young children

The close supervision and the daily data entry of anthropometric measurements combined with the daily feed-back to assessment teams on the data quality enabled achievement of valid anthropometric data for children under 5 years old (tables 23-1 to 23-5).

**Table 34: Prevalence of malnutrition compared to UNICEF SOWC, 2012 and FHS 2009**

SURVEY	Wasting (GAM rate)	Total Underweight rate	Total Stunting rate
Syrian refugees in Bekaa communities – October 2013	8.9 % (5.7 - 13.7)	2.7 % (1.2 - 5.8)	20.1 % (15.1 - 26.3)
Syrian refugees in The North – October 2013	6.7 % (4.6 - 9.5)	3.9 % (2.2 - 6.8)	17.2 % (13.3 - 22.1)
Syrian refugees in The South – October 2013	4.3 % (2.7 - 6.9)	4.3 % (2.7 - 6.9)	19.9 % (15.8 - 24.6)
Syrian refugees in Beirut and Mount-Lebanon – October and November 2013	4.1 % (2.6 - 6.4)	2.6 % (1.3 - 5.3)	13.4 % (10.4 - 17.0)
All Syrian refugees in Lebanon – October and November 2013	5.9 % (4.8 - 7.1)	3.3 % (2.5 - 4.4)	17.3 % (15.1 - 19.7)
All Syrian refugees in Lebanon – September 2012	4.4 % (2.6 - 7.3)	3.1 % (1.9 - 4.9)	12.2 % (9.2 - 16.1)

<b>Syrian refugees in Jordan – Host Communities – October</b>	<b>5.1 %</b> (3.2 - 8.0)	<b>8.2 %</b> (6.1 - 10.9)	<b>2.0 %</b> (1.0 - 4.2)
<b>Syrian refugees in Jordan – Za’atari Camp – November 2012</b>	<b>5.8 %</b> (3.8 - 8.6)	<b>15.9 %</b> (12.6 - 20.0)	<b>6.3 %</b> (4.5 - 8.7)
<b>SOWC (2012) and MICS 2006</b>	<b>12%</b>	<b>10%</b>	<b>28%</b>

The prevalence of global acute malnutrition (GAM), among children 6-59 months of age, among all Syrians in Lebanon, in the assessments in Bekaa and in the North of Lebanon were more than 5% but less than 10% (5.9% for all Syrian refugees in Lebanon, 8.9% for Syrian refugees in Bekaa and 6.7% in the North of Lebanon) and were defined as a poor public health situation as per WHO classification. The prevalence of severe acute malnutrition (SAM) found in Bekaa assessment was 1.7% and 1.1% for refugees in the North of Lebanon.

The prevalence of GAM increased in 2013 when compared to 2012 (GAM is 5.9% in 2013 vs. 4.4% in 2012) among children aged 6-59 months, but still not statistically significant ( $\chi^2$ : 1.229,  $P > 0.05$ ) and the CIs for 2012 (2.6 - 7.3 95% C.I.) and 2013 (4.8 - 7.1 95% C.I.) are overlapping. However, the situation of children from 6 to 59 months of age with GAM has to be monitored among all Syrians in Lebanon and particularly in Bekaa and in the North of Lebanon and children with GAM (MAM and SAM) should be screened and treated.

Table 34 shows the malnutrition rates found in the different assessments compared to the Syrian rates from the SOWC 2012 and FHS 2009. All malnutrition rates found from the 2013 assessment were lower than previous rates for Syria. Due to lack of updated sub national prevalence levels of malnutrition in Syria and in view that data on the actual place of origin for the refugees was not collected – due to the associated security related sensitivities – conclusions on whether the refugees’ nutrition situation has improved or not cannot be made. Further, characteristics of the refugees crossing the border are yet to be understood, i.e., whether they are the most vulnerable group, or if they the group that had means to escape, what kind of social services were they accessing back in their country before, in order to gauge their resilience.

However, for the comparability of the prevalence of stunting and underweight among Syrian refugees’ children 6-59 months of age in the different surveys with the Syrian rates from SOWC (2012) and FHS (2009), the difference could be explained by the estimation of age and the previous data from the national survey like MICS. Considering the inaccuracies in registration (in many cases, date of birth has been changed), there were challenges in age documentation among children 6-59 months. Due to this limitation and although an event calendar was used by the teams to ascertain age, stunting and underweight results were to be interpreted with caution because z-scores for height-for-

age (and weight for age) require accurate ages to within two weeks (CDC/WFP: A manual: Measuring and Interpreting Mortality and Malnutrition, 2005).

Moreover, the findings of the different assessments showed that the prevalence of stunting and underweight, among Syrian refugees in Lebanon was higher than the prevalence of stunting and underweight observed last year (2012) among Syrian refugees living in Lebanon.

By gender, the prevalence of wasting, from the different assessments' findings (tables 17-1 to 17-5) showed that the prevalence of acute malnutrition was higher among Syrian refugee boys. However, the difference between boys and girls in the prevalence of acute malnutrition was not statistically significant for all Syrian refugees in Lebanon ( $\chi^2$ : 0.6343,  $P > 0.05$ ) and for each stratum: Bekaa ( $\chi^2$ : 1.064,  $P > 0.05$ ); North ( $\chi^2$ : 0.984,  $P > 0.05$ ); South ( $\chi^2$ : 1.018,  $P > 0.05$ ) and Beirut and Mount-Lebanon ( $\chi^2$ : 0.729,  $P > 0.05$ ).

By group of age, tables 18-1 to 18-5 and figures 8-1 to 8-5 showed that among all Syrian refugees in Lebanon, the youngest children (6-11 months) and the children whose age ranged between 24-35 months tended to be the most affected by moderate and severe wasting.

In Bekaa region, the same age groups (6-11 months and 24-35 months) were the most affected by wasting. However, for severe wasting, the children of age group (23-35 months) were the most affected.

In the North of Lebanon, the situation was different: the age groups that tended to be most affected by wasting were children from 6-23 months and for severe wasting, the youngest children (6-11 months) were the most affected.

In the South of Lebanon, the situation was also different: the youngest (6-11 months) and the oldest children (48-59 months) were the most affected by severe wasting. However, in Beirut and Mount-Lebanon, the Syrian refugees aged between 12-23 months tended to be more affected by moderate wasting.

Overall, higher levels of malnutrition were reported among very young children (6-11 and 12-23 months) than the older categories particularly in Bekaa, North and South, implying sub-optimal child care practices to support growth.

## **2. Anaemia among children 6-59 months**

In the different strata assessed and among all Syrian refugees in Lebanon, the results from tables 24-1 to 24-5 show that the overall total anaemia prevalence among children from 6 to 59 months of age were, for all Syrian refugees in Lebanon: 21.0%; for Syrian refugees in Bekaa: 13.9%; for Syrian refugees in North: 25.8%; for Syrian refugees in the South of Lebanon: 23.4% and for Syrian refugees in Beirut and Mount-Lebanon: 21.2%.

Children between 6-23 months tended to be the most affected by anaemia: 31.5% among all Syrian children from 6 to 23 months of age, 24.1% for the same group of age in Bekaa, 42.9% in the North, 30.8% in the South and 27.7% in Beirut and Mount-Lebanon for the same group of age. The children from 6 to 23 months of age, in the North of Lebanon, were affected by anaemia (more than 40%).

According to WHO classification and in conformity of UNHCR operational guidance, anaemia prevalence between 20-39% is classified as a MODERATE public health significance and that is not an indication of need for preventive interventions with MNPs.

Regarding the WHO classification and the UNHCR operational guidance, with the prevalence of 21.0% of anaemia among all Syrian refugee children in Lebanon and considering the rate of GAM in Lebanon (5.9%), the situation is acceptable and does not need a preventive intervention with micro-nutrient supplementation.

### **3. Child morbidity**

The relationship between disease and nutrition is well documented. Repeated episodes of infection or persistent subclinical infection can cause or aggravate the child malnutrition. Diarrhea is associated with insufficient water quality and quantity, and poor hygiene practices. And in general, infections compromise the nutritional status of children because of higher nutrient requirements and appetite suppression and malnourished children are prone to infections because of a compromised immune system.

Regarding diarrhea during the last 2 weeks before the different assessments, the findings showed that the highest rate was among the Syrian refugees in the North of Lebanon, where the average duration of diarrhea was almost 6 days (5.91 days) and the lowest rate of diarrhea during the last 2 weeks before the assessment was observed in Beirut and Mount-Lebanon.

In comparison with last year findings, the rate of diarrhea during the last 2 weeks before the assessment found this year was lower than the diarrhea rate observed last year (24.9% in 2013 compared to 40.2% in 2012). This difference can likely be explained by the different periods of data collection: in 2012, the assessment was during one of the high periods of diarrhea (in September).

The link between the child morbidity and acute malnutrition is not statistically significant for diarrhea ( $X^2$ : 1.445,  $P > 0.05$ ) and for cough ( $X^2$ : 0.110,  $P > 0.05$ ). However, the link between acute malnutrition and fever is statistically significant ( $X^2$ : 3.886,  $P < 0.05$  –  $P = 0.049$ ). The high morbidity however remains a risk factor likely to undermine the nutrition wellbeing of the Syrian refugees in Lebanon.

#### **4. Vaccination and vitamin a supplementation**

The data collection of the nutrition assessment including the vaccination data was done from October 2nd to November 30th and the data collection in 110 localities or areas among 120 was done before end October. However, the last polio and measles campaign was done from November 8th to 15th. In that case, a minor possible overlap in the polio campaign activity vs data collection could have happened in only 10 clusters (in Mount-Lebanon Dahieh) x 10 households interviewed.

The findings of the different assessments show that, for HH that had been in Lebanon for fewer than 12 months (at the time of the survey), 45.3% of their children received their vaccines in Syria and this proportion was 31.1% among Syrian refugee HH who had been in Lebanon for 1 year or more. However, for the HH who had been 1 year or more in Lebanon, more children received their immunization from the PHC Center (45.5% vs. 34.2%). As for the HH that had children of less than 24 months of age, 60.4% immunized their children in PHC center and only 18.1% of their children received their vaccines only in Syria. However, 20% of HH with children less than 2 years of age reported that they received vaccines from different places.

The coverage number of Polio doses was higher for Syrian refugees in Beirut and Mount-Lebanon. For the supplementation of vitamin A, usually the coverage is the same as the coverage of Measles vaccination. The results of the different assessments showed that the coverage of Vitamin A supplementation was very low compared with the coverage of measles vaccination. This difference could be explained by the fact that the surveyors did not show the samples of the vitamin A capsule to all mothers or to all caregivers. In addition, the nutrition data collection took place just one month before Polio/ Vitamin A vaccination/ supplementation campaign. Vitamin A enhances immune system hence it is essential in the disease outbreak prevention. The situation necessitates urgent improvement of vitamin A supplementation coverage.

The coverage of measles, of polio doses and of supplementation of vitamin A through routine programmes looks very low hence there is need to consider regular accelerated campaigns to address the gaps.

#### **5. IYCF indicators**

Adequate food alone will not result in improved nutritional status if practices related to child care remain poor. It has been shown that children from food secure and well off households can still be malnourished if caring practices such as hygiene and child feeding practices are poor.



When IYCF indicators are collected in nutritional surveys, it is not feasible to achieve a large enough sample size for some of the indicators to be estimated as precisely as desired, especially for indicators covering a very narrow age range (e.g. 12-15 months, 6-8 months). Hence, trend analyses need to be interpreted with caution. Nevertheless, trend analyses are useful for assessing the situation and major differences seen from year to year should warrant further investigation.

For the global sample, with the sample of 1,200 HH, we were able to obtain interesting results about IYCF for all Syrian refugees children aged from 0-23 months. The tables 27-1 to 27-5 presented the results about IYCF.

The findings of the different assessments showed that among Syrian refugees in all Lebanon, more than 85% of children 0-23 months were ever breastfed. More than 60% of mothers initiated breastfeeding in the first 23 hours after birth and 25% of children 0-23 months were exclusively breastfed. However, around 35% of children 0-23 months received bottle feedings.

Moreover, the findings of the assessments showed that more than 50% of children 0-23 months were breastfed until the age of one year and depending on the stratum, between 20-33% of children 0-23 months were breastfed until 2 years old.

The link between complementary food introduction (the introduction of solid, semi-solid or soft foods), receiving bottle feeding, length of breastfeeding (continued breastfeeding at 1 year and continued breastfeeding at 2 years) and acute malnutrition, was analysed. The link is not statistically significant for introduction of solid, semi-solid or soft foods ( $\chi^2$ : 0.05,  $P > 0.05$ ), for bottle feeding ( $\chi^2$ : 0.936,  $P > 0.05$ ), for continued breastfeeding at 1 year ( $\chi^2$ : 3.091,  $P > 0.05$ ), and for continued breastfeeding at 2 years ( $\chi^2$ : 0.023,  $P > 0.05$ ).

The non significant statistical link between the IYCF indicators can be explained by the fact that, at the national level too, the indicators that cover a very narrow age range and the number of children with acute malnutrition is not very high.

## **6. Physiological status**

The results of the assessment showed that 12% of women 15-49 years old were pregnant and 15.1% were lactating. However, the Syrian refugees in Bekaa presented the highest proportion of lactating women (17.2%). Among all Syrian refugees in Lebanon 12.4% of pregnant women and 10.3% of lactating women were between the ages of 15 and 20 years old. However, in Beirut and Mount-Lebanon, the proportion of pregnant women and lactating women aged 15-20 years were the highest: 16.3% for young pregnant women and 14.1% for young lactating women.



Moreover, the findings of different assessments showed that more than 80% pregnant and lactating Syrian refugee women in Lebanon were aged between 20 and 40 years old.

## **7. Nutritional status of women 15-49 years**

Mid Upper Arm circumference (MUAC) in women was classified according to different cut-offs. Global malnutrition: MUAC < 23 cm; Moderate malnutrition: MUAC  $\geq$ 21 cm and <23 cm and Severe malnutrition: MUAC < 21 cm as per the recommendation of the Sphere Project's Handbook (2011).

The assessment results show that, like the prevalence of malnutrition observed last year among Syrian refugee women in Lebanon, there were 5.0% (4.05-6.06 95% C.I.) malnourished (MUAC < 23 cm) Syrian refugee women aged 15-49 years and among them 1.0% (0.61-1.53 95% C.I.) were severely malnourished (MUAC < 21 cm). The Syrian refugee women aged 15-49 years in the North and in the South of Lebanon presented highest prevalence of malnutrition (the North for the severe malnourished and the South for the total malnourished).

Moreover, more than 75% of malnourished women among Syrian refugees in Lebanon were aged less than 35 years old. With the exception of the Beirut and Mount-Lebanon stratum (where 36% of malnourished were 15-19 years), in the other regions more than 40% of malnourished Syrian refugee women were between 15-19 years old.

These prevalence figures can be used as a basic situation to provide a food supplementation program to pregnant (from second trimester) and lactating women (up to 6 months post delivery) on a bi-monthly basis in addition to addressing the broader maternal nutrition and health issues including maternal care, access to adequate micronutrient supplementation, and adequate household security.

## **8. Anaemia among non-pregnant women 15-49 years**

In the different strata assessed and among all Syrian refugees in Lebanon, the results from table 31 show the overall total anaemia prevalence for non-pregnant women of reproductive age (15-49 years) as follows, for all Syrian refugees in Lebanon: **26.1%**; for Syrian refugees in Bekaa: **18.4%**; for Syrian refugees in North: **27.7%**; for Syrian refugees in the South of Lebanon: **27.0%** and for Syrian refugees in Beirut and Mount-Lebanon: **29.3%**.

The non-pregnant Syrian refugee women of reproductive age (15-49 years) who lived in Beirut and Mount-Lebanon had more anaemia cases and those who lived in Bekaa had fewer anaemia cases.

According to WHO classification and in conformity of UNHCR operational guidance, anaemia prevalence between 20-39% is classified as a MODERATE public health significance and that is not an indication of need for preventive interventions with MNPs.

Regarding the WHO classification and the UNHCR operational guidance, with the prevalence of 26.1% of anaemia among all Syrian refugee women of reproductive age in Lebanon, the situation is acceptable and does not need a preventive intervention with micro-nutrient supplementation.

## **9. WASH indicators**

Poor water, sanitation and hygiene have serious consequences on health and nutritional status, especially among the most vulnerable population groups. Improvements in hygiene and particularly hand washing with soap can have a significant impact on reducing diarrhea prevalence.

The inclusion of the basic WASH module in the nutrition assessment provided key information for planning interventions that address public health concerns and to ensure that basic rights are upheld. Poor water, sanitation and hygiene have serious consequences for the health and nutrition status of people.

During the different assessments, the findings showed that more than 60% of HH surveyed were satisfied with their drinking water supply and 75% of Syrian refugees assessed in Beirut and Mount-Lebanon were satisfied with their drinking water supply. Table 33 indicates that more than 50% of Syrian refugee HH used the improved drinking water supply and the three main reasons for dissatisfaction about the water supply were: the bad quality of water, having to pay for water (cost) and not enough water for personal hygiene.

About sanitation (toilet), the findings of the different assessments show that:

- 77.5% of Households used an improved excreta disposal facility;
- 14% of the HH used a shared family toilet;
- 16.4% of the HH used the communal toilet;
- Only 4% of the HH with children under 3 years old, disposed of feces safely and 92.8% threw it in garbage.

The distinction between: to throw the used diaper in garbage or to directly throw the feces in the garbage was not made (it was not clear in the modality how to dispose the feces by throwing it into the garbage). Due to this limitation, probably, the proportion of HH that they disposed feces by throwing it directly into the garbage could be high, but this result has to be interpreted with caution, and the situation needs more investigation.

Concerning the questions about access to “Soap and/or Hygienic products”, 59.5% among all Syrian refugees in Lebanon reported that they had access to “Soap and/or Hygienic

products” and in Bekaa and the North, the proportion of people who had access to “Soap and/or Hygienic products” was more than 60% (62.0% in Bekaa and 67.6% in the North).

The link between the satisfaction about the drinking water supply, the kind of toilet used (improved or unimproved) and acute malnutrition, was analysed. The link is not statistically significant for the satisfaction with the drinking water supply ( $X^2$ : 0.056,  $P > 0.05$ ) and for the kind of toilet used (improved or unimproved) ( $X^2$ : 5.300,  $P > 0.05$ ). However, the analysis of the link between the same WASH indicators and the prevalence of Diarrhea showed that the link between the kind of toilet used (improved or unimproved) and the prevalence of diarrhea is statistically significant ( $X^2$ : 17.869,  $P < 0.05$ ) but it is not significant between the satisfaction about the drinking water supply and the prevalence of diarrhea is statistically significant ( $X^2$ : 3.187,  $P > 0.05$  –  $p=0.074$ ).

## Conclusion

The prevalence of GAM increased in 2013 (GAM is 5.9% in 2013 vs. 4.4% in 2012) among children aged 6-59 months, but the difference is not statistically significant ( $X^2$ : 1.229,  $P > 0.05$ ) and the CIs for 2012 (2.6 - 7.3 95% C.I.) and 2013 (4.8 - 7.1 95% C.I.) are overlapping. This nutrition situation is considered POOR with the prevalence of GAM (5.9%) falling between 5.0 and 9.9% among children; while among women aged 15-49 years the malnutrition rate is 5.0%. However, because of some aggravating factors (winter, risk of food insecurity, increasing of numbers and the new arrivals that could be in worse condition), nutrition situation can change quickly and has the potentio to deteriorate. Concerted integrated efforts, in collaboration with MOPH, will be required to bring the GAM levels to the WHO acceptable level of  $< 5\%$  because of the multi-factorial nature of malnutrition.

Immediate measures must be taken to improve and to strengthen the management of acute malnutrition, particularly in Bekaa where the SAM rate was 1.7% and all SAM cases were oedema. This should include screening and treatment of acute malnutrition in various age-groups, supplementary feeding program for pregnant and lactating women, and addressing the inappropriate infant and young children feeding practices and micronutrient deficiencies.

Moreover, more than 90% of the Syrian refugee HH in Lebanon threw the stools of their children under 3 years old in garbage. This situation needs more investigation.

## Recommendations and priorities

### Immediate term

1. Having a discussion with MOPH, MOSA and all other partners to improve and to strengthen the mechanism for acute malnutrition management as well as capacity strengthening for the Ministry of Public Health services, for preparedness.
2. Setting up a Nutrition Working Group and reinforcing role and responsibility of the nutrition group and its respective members to organize and coordinate the nutrition sector and response.
3. Setting up or reinforcing a screening mechanism of children and mothers for malnutrition upon arrival in Lebanon.
4. Setting up or reinforcing services for children and mothers that are screened and ensure adequate treatment is available for those identified with Severe Acute Malnutrition (SAM), including those with medical complications, and Moderate Acute Malnutrition (MAM).
5. Developing national guidelines or national protocol for acute malnutrition management and prevention as well as national plan of training.
6. Strengthening the awareness, promotion, and protection of positive infant and young child feeding practices through NGOs and PHC or other government services activities by accelerating sensitization and awareness creation on appropriate breast-feeding and complementary feeding practices as well as micronutrient provision.
7. Improving education and communication strategies in the health centers and in the community including integrating communication for development strategies to positively influence behavior and practices.
8. Support NGOs providing services to unregistered Syrians to integrate management of SAM and MAM into their services.
9. Scale-up of hygiene promotion activities (including adequate access to soap through either distribution or the means to purchase) and improve water quality access and monitoring the quality of water to address disease incidence and facilitate disease treatment through the health facilities.
10. Scale-up of sanitation promotion activities (including how to dispose in the improved way the stools of the children under 3 years old).
11. Facilitate adequate dietary intake for women and children to promote optimal growth and prevent malnutrition through adequate food provision and livelihood support to families.

**Medium term**

1. Strengthen the nutrition surveillance system and explore how to integrate it in the existing Health Surveillance System and improve a food security monitoring system.
2. Agree a proper target of the most vulnerable refugees and host communities with a minimum response package on health and nutrition surveillance, disease treatment, appropriate health and nutrition promotion, adequate food security, water and sanitation services, and shelter against harsh weather.

**Longer term**

1. If the situation in Syria does not improve sufficiently to enable the return of the refugees, then a nutrition survey in different regions should be conducted every year (depending on the delivery of adequate response in the next 6 months). Survey methodology should be simplified to capture only key indicators of anthropometry in children aged 6-59 months and mortality in the whole population as recommended by the SMART methodology and if possible, to include components about nutrition response (CMAM, micronutrient and IYCF) coverage.
2. A full expanded nutrition survey should be repeated only every 2 years.

## ANNEX

- Annex 1: Sample for Syrian refugees in Lebanon
- Annex 2: Arabic Questionnaire for Syrian refugees in Lebanon
- Annex 3: Questionnaire in English, for Syrian refugees in Lebanon, before Arabic translation and last revision
- Annex 4: Event Calendar
- Annex 5: Results using the NCHS 1977 Growth Reference for Syrian refugees in Lebanon
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- Annex 7: Consent form for Syrian refugees in Lebanon
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- Annex 10-1: SMART Plausibility Report for All Syrian refugees in Lebanon
- Annex 10-2: SMART Plausibility Report for Syrian refugees in stratum of Bekaa
- Annex 10-3: SMART Plausibility Report for Syrian refugees in stratum of North
- Annex 10-4: SMART Plausibility Report for Syrian refugees in stratum of South
- Annex 10-5: SMART Plausibility Report for Syrian refugees in stratum of Beirut & Mount-Lebanon



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