**PRELIMINARY REPORT**

**STANDARDIZED EXPANDED NUTRITION SURVEY (SENS)**

**Dzaleka and Luwani Refugee Camps and the Host Communities,**

**Dowa and Neno Districts, Malawi**

**Survey Dates: 7th – 28th November 2016**

**Finalization of Preliminary Report: 22nd December 2016**

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| **BACKGROUND** |

Malawi has been hosting refugees in Dzaleka camp since 1994. By 2016 the camp reached a population of 25,202 refugees, most of whom live in the refugee camp (ProGres database). The refugees are mainly from the Great Lakes Region comprising of Democratic Republic of Congo (46%), Burundi (25%) and Rwanda (20%). About 8% of the remaining refugees come from Somalia, Ethiopia and other countries. Children under the age of 18 years constitute nearly 53% (13,309) and about 28% of them are aged below 5 years. Approximately 27% (6,702) of the camp population are women of childbearing age. The refugee population in the camp live in 9 zones led by community leaders. Dzaleka camp is surrounded by 11 villages with a total population of 37,412.

More recently, in 2016, the Government of Malawi opened Luwani Camp to primarily host asylum seekers from Mozambique. The camp has nearly 2,200 persons of concern and nearly 50% are females. Children under the age of 18 years constitute nearly 62% (1,321) and 22% of the population are children below 5 years. At the time of the survey, the refugee population lived in 10 zones and 1 reception area for new arrivals. The camp is surrounded by 6 villages with a total population of 4,614.

Children and women of child bearing age are particularly at high risk of malnutrition. According to the Standardised Expanded Nutrition Survey (SENS) conducted in 2014 in Dzaleka Camp and to the World Health Organisation (WHO) threshold to define a problem of public health significance, the overall nutrition situation in the camp was found to be ‘acceptable’ in terms of global acute malnutrition [2014 GAM: 1.1 (0.5-2.3%)] but ‘serious’ in terms of chronic malnutrition [2014: stunting 36.1% (30.2-42.5)]. In addition, the prevalence of anaemia in children aged 6-59 months was around 33% and was just below the 40% WHO threshold for defining a public health problem of high significance. The prevalence of anaemia in children aged 6-23 months was even higher (56.6%). The 2014 SENS results demonstrated that chronic malnutrition and anaemia in children aged 6-59 months was a major concern in the refugee population in the camp.

UNHCR and the World Food Programme (WFP) have been working to ensure that food security and related needs of the refugees are adequately addressed in the two existing refugee camps. WFP is responsible for the provision of the general food ration while UNHCR and its partners provide health services, water and sanitation, shelter, and other basic non-food items.

Due to foreseen pipeline breaks coupled with a lack of funding for the programmes and considerable delays in maintaining food supplies to the camp population, there was a great need to monitor the nutrition situation of the refugees in the two camps. In addition, similar surveys were felt necessary to be conducted in the host communities serving the two camps. Thus, four nutrition surveys were conducted in the two camps and their host communities. It is hoped that this information will provide a strong basis for advocacy for designing various interventions and to ensure the situation in the camps does not decline to emergency thresholds.

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| **SURVEY OBJECTIVES** |

The overall aim of the surveys were to assess the overall nutrition situation of the refugees and the host communities and to come up with appropriate recommendations for action.

Specifically, the objectives of the surveys were:

**Primary objectives**

1. To measure the prevalence of acute malnutrition among children 6-59 months.
2. To measure the prevalence of stunting among children 6-59 months.
3. To determine the coverage of measles vaccination among children 9-59 months.
4. To determine the coverage of vitamin A supplementation received during the last 6 months among children 6-59 months.
5. To assess the two-week period prevalence of diarrhoea among children 6- 59 months.
6. To assess the prevalence of anaemia among children 6-59 months and women of reproductive age (non-pregnant, 15-49 years).
7. To investigate Infant and Young Child Feeding (IYCF) practices among children 0-23 months.
8. To determine the coverage of ration cards and the duration the general food ration lasts for recipient households.
9. To determine the extent to which negative coping strategies are used by households.
10. To assess household dietary diversity.
11. To determine the population’s access to, and use of, improved water, sanitation and hygiene facilities.
12. To determine the ownership of mosquito nets (all types and LLINs) in households.
13. To determine the utilisation of mosquito nets (all types and LLINs) by the total population, children 0-59 months and pregnant women.
14. To determine the household coverage of indoor residual spraying.
15. To establish recommendations on actions to be taken to address the situation.

**Secondary objectives**

1. To determine the coverage of selective feeding programme for children aged 6-59 months.
2. To determine enrolment into Antenatal Care (ANC) clinic and coverage of iron-folic acid supplementation in pregnant women.

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| **METHODOLOGY** |

Four nutrition surveys were conducted targeting refugee populations of Dzaleka and Luwani Camps and host communities of these camps. All refugee population in camps and community members residing in the host communities were covered in these surveys. In the host communities, status of the household members as to whether they are host community members, refugees or mixture of host community members and refugees was assessed.

In the surveys, four target groups were included to cover the six survey modules namely: 1. Anthropometry and Health, 2. Anaemia, 3. Infant and Young Child Feeding, 4. Food Security, 5. Water Sanitation and Hygiene (WASH), and 6. Mosquito Net Coverage. The target groups were: 1. Children aged 6-59 months (Anthropometry, Health and Anaemia measurements), 2. non-pregnant women of reproductive age (15-49 years) (Aneamia measurement); 3. children aged 0-23 months (assessment of IYCF practices) and 4. all persons of concern (household as a whole) for assessment of food security, WASH and mosquito net coverage.

**Survey design:** The surveys were conducted using a cross-sectional survey design using a 2-stage cluster sampling method in 3 of the survey areas (Dzaleka camp, two host communities) and an exhaustive method in Luwani Camp as the total population was below 2500. The first stage of the cluster surveys sampled the required number of clusters with probability proportional to size (PPS). The second stage used a systematic random sampling method to select the required number of households. The surveys were conducted based on the Standardised Monitoring and Assessment of Relief and Transitions (SMART) methodology ([www.smartmethodology.org](http://www.smartmethodology.org)) and UNHCR Standardised Expanded Nutrition Survey (SENS) Guidelines for Refugee Populations (v 2, 2013) (<http://sens.unhcr.org>).

**Sample size and Sampling:** Sample size calculation for the cluster surveys were based on the expected prevalence of GAM, desired precision, design effect, average household size, percentage of children under 5 years of age, and the non-response rate. The sample sizes were calculated using the ENA-for-SMART (July 9, 2015 version) software following UNHCR SENS methodology. The calculated sample sizes for anthropometric indicators were then used in all the survey modules to estimate the required number of individuals and households to be included in the surveys. Sample sizes were all corrected for small population size factor as the total the population of children under 5 years were below 10,000.

Using the SENS guidelines, all eligible children aged 0-59 months from all selected households were included in the Child Anthropometry and Health, Anaemia and IYCF modules, whilst half of the selected households were selected for the Food Security, Mosquito net coverage and Women questionnaire (including anaemia). All households were selected for WASH in all the surveys. Table 1 summarises the assumptions used and the required number of children and households included in the surveys.

In the cluster surveys, the number of clusters was determined by dividing the total estimated number of households in the survey by the estimated number of households a team could cover in a day. In these surveys, it was estimated that teams could cover between 15-17 households in a day and therefore the number of households per survey area was divided by 17 to estimate the number of clusters.

**Table 1: Sample size calculation**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Survey Area** | **Estimated prevalence** | **Precision** | **Design effect** | **Average HH size** | **% children under 5** | **% Non-response rate** | **Children to be included** | **Households to be included** | **# clusters** |
| **Dzaleka Camp** | 2.5% | 2.0% | 1.3 | 5.0 | 14.8% | 10.0% | 302 | 503 | 30 |
| **Dzaleka Host** | 3.0% | 2.0% | 1.5 | 5.5 | 15.0% | 10.0% | 419 | 626 | 37 |
| **Luwani Camp** | Exhaustive survey used and hence not sample size estimation | | | | | | | | |
| **Luwani Host** | 3.0% | 2.0% | 1.5 | 5.5 | 15.0% | 10.0% | 264 | 395 | 26 |

The estimated prevalence of GAM for the refugee population and the host communities were based on the upper confidence limit of the 2014 Dzaleka Nutrition Survey and 2016 National Nutrition Surveys, respectively. Desired precision and design effect were based on the SMART methodology guidance based on the 2014 Nutrition survey. Average household size and % children under 5 years for the camps and the host communities were based on the ProGres database and the 2016 National Nutrition Survey, respectively.

**Data collection and analysis:** A total of 6 survey teams each consisting of 5 team members (anthropometry measurer, anthropometry assistant, haemoglobin measurer, interviewer and team leader) were trained for a total of 6 days including 2 days for the standardisation test and pilot testing under supervision by UNHCR. Data collection was carried out over 22 days for all the four surveys. UNHCR and WFP provided technical support in supervising the field data collection. Twelve android mobile phones with Open Data Kit (ODK) software were used for data collection, with daily data checks and feedback to survey teams. The data were then transferred to an offline server at the end of each day when all issues related to the data collected were addressed. Data analysis for anthropometry data was conducted using ENA-for-SMART software (July 9, 2015 version), and data analysis for the other variables was conducted using EPI INFO 7 for Windows using the SENS analysis codes for each of the six modules.

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| **RESULTS** |

Table 2 provides information on the obtained sample sizes and Table 3 provides a summary of the key findings. Additional results will be included in the final survey report.

TablE 2: Sample sizes and response rate

| **Survey Area** | **Expected number of children (6-59 m)** | **Number of children (6-59 m) surveyed** | **Response rate in children** | **Expected number of households** | **Number of households surveyed** | **Household response rate** |
| --- | --- | --- | --- | --- | --- | --- |
| **Dzaleka camp** | 302 | 491 | 162.6% | 503 | 501 | 99.6% |
| **Dzaleka host** | 419 | 333 | 79.5%\* | 626 | 669 | 106.9% |
| **Luwani camp\*\*** | - | 397 | - | - | 450 | - |
| **Luwani host\*** | 264 | 279 | 105.7% | 395 | 456 | 115.4% |
| \* The Reserve clusters were utilized since the number of children from the initial clusters was below 80%.  \*\* An exhaustive survey was conducted. | | | | | | |

**Table 3: Summary of final survey results**

| **Surveyed area** | **Dzaleka Refugee**  **Camp** | **Dzaleka Host Communities** | **Luwani**  **Refugee Camp\*** | **Luwani Host Communities** | **Classification or target** |
| --- | --- | --- | --- | --- | --- |
| **Survey Date (2016)** | **14-19 Nov** | **7-13 Nov** | **21-24 Nov** | **23-28 Nov** |  |
| **Children 6-59 months, % (95% C.I)** | | | | | |
| **Acute malnutrition (WHO 2006 growth standards)** | | | | | |
| **N** | **479** | **328** | **383** | **276** | Critical if ≥ 15% |
| Global Acute Malnutrition (GAM) | 1.0 % (0.4 - 2.9) | 0.9 % (0.3 - 2.8) | 1.6 % | 2.2 % (0.9 - 5.4) |  |
| Moderate Acute Malnutrition (MAM) | 1.0 % (0.4 - 2.9) | 0.9 % (0.3 - 2.8) | 1.6 % | 2.2 % (0.9 - 5.4) |  |
| Severe Acute Malnutrition (SAM) | 0.0 % (0.0 - 0.0) | 0.0 % (0.0 - 0.0) | 0.0 % | 0.0 % (0.0 - 0.0) |  |
| **Mid Upper Arm Circumference (MUAC): (n) % (95% CI)** | | | | | |
| **N** | **489** | **333** | **397** | **279** |  |
| MUAC <125 mm and/or oedema | 0.8 % (0.3 - 2.2) | 1.8 % (0.8 - 3.9) | 1.8 % | 1.4 % (0.4 - 4.8) |  |
| MUAC 115-124 mm | 0.4 % (0.1 - 1.7) | 1.5 % (0.6 - 3.5) | 1.5 % | 1.1 % (0.2 - 4.7) |  |
| MUAC <115 mm and/or oedema | 0.4 % (0.1 - 1.7) | 0.3 % (0.0 - 2.3) | 0.3 % | 0.4 % (0.0 - 2.8) |  |
| **Stunting (WHO 2006 growth standards)** | | | | | |
| **N** | **463** | **328** | **371** | **267** |  |
| Prevalence of stunting  (<-2 z-score) | 34.8 % (31.1 - 38.6) | 35.4 % (29.7 - 41.5) | 47.7 % | 35.2 % (28.0 - 43.2) | Critical if ≥ 40% |
| Prevalence of moderate stunting  (<-2 z-score and >=-3 z-score) | 25.5 % (22.1 - 29.2) | 27.4 % (22.9 - 32.5) | 32.9 % | 27.0 % (21.5 - 33.2) |  |
| Prevalence of severe stunting  (<-3 z-score) | 9.3 % (7.2 - 11.9) | 7.9 % (5.2 - 11.9) | 14.8 % | 8.2 % (4.4 - 14.9) |  |
| **Underweight (WHO 2006 Growth Standards): Children aged 6 - 59 months (n) % (95% CI)** | | | | | |
| **N** | **483** | **328** | **387** | **278** |  |
| Prevalence of underweight (<-2 z-score) | 8.1 % (6.0 - 10.8) | 13.4 % (9.4 - 18.8) | 13.2 % | 15.8 % (11.0 - 22.3) | Critical if ≥ 30% |
| Prevalence of moderate underweight (<-2 z-score and >=-3 z-score) | 6.8 % (4.9 - 9.5) | 12.2 % (8.5 - 17.2) | 11.4 % | 13.3 % (9.0 - 19.3) |  |
| Prevalence of severe underweight (<-3 z-score) | 1.2 % (0.6 - 2.6) | 1.2 % (0.5 - 3.1) | 1.8 % | 2.5 % (1.1 - 5.6) |  |
| **Programme coverage: (n/N); % (95% CI)** | | | | | |
| Measles vaccination with card (9-59 months) | (151/456)  33.1% (25.4- 40.8) | (202/315)  64.1% (55.8- 72.5) | (55/381) 14.4% | (150/259)  57.9% (45.7- 70.1) | Target of ≥ 95% |
| Measles vaccination with card or recall (9-59 months) | (422/456)  92.5% (89.7- 95.4) | (300/315)  95.2% (92.5-98.0) | (302/381) 79.3% | (248/259)  95.8% (92.8- 98.7) | Target of ≥ 95% |
| Vitamin A supplementation within past 6 months with card | (121/491)  24.6% (16.0- 33.3) | (146/333)  43.8% (33.5- 54.2) | (40/397) 10.1% | (93/279)  33.3% (20.5- 46.2) | Target of ≥ 90% |
| Vitamin A supplementation within past 6 months with card or recall | (429/491)  87.4% (84.1- 90.7) | (304/333)  91.3% (88.1- 94.5) | (298/397) 75.1% | (235/279)  84.2% (75.6- 92.9) | Target of ≥ 90% |
| **Diarrhoea: (n/N); % (95% CI)** | | | | | |
| Diarrhoea in last 2 weeks | (133/489)  27.2% (22.9 - 31.5) | (100/333)  30.0% (24.4­- 35.6) | (138/394) 35.0% | (85/277)  30.7% (25.1- 36.3) |  |
| **Anaemia (6-59 months)** | | | | | |
| **N** | **488** | **331** | **394** | **279** |  |
| Total Anaemia (Hb <11 g/dl) | 22.7% (17.9- 27.6) | 26.9% (22.0- 31.8) | 48.2% | 50.9% (43.5- 58.3) | High if ≥ 40% |
| Mild (Hb 10-10.9) | 16.4% (12.7- 20.1) | 20.2% (15.7- 24.7) | 29.7% | 30.5% (24.9- 36.1) |  |
| Moderate (Hb 7-9.9) | 5.7% (3.2- 8.3) | 6.3% (3.9- 8.8) | 17.5% | 20.1% (14.0- 26.1) |  |
| Severe (Hb <7) | 0.6% (0.0- 1.3) | 0.3% (0.0- 0.9) | 1.0% | 0.4% (0.0-1.1) |  |
| Moderate and Severe Anaemia (Hb<10.0 g/dL) | 6.4% (3.7 -9.0) | 6.6% (4.1 -9.2) | 18.5% | 20.4% (14.3 -26.6) |  |
| Mean Hb, g/dL (95% CI)  [range] | 11.8 (11.6- 11.9)  [5.7-14.9] | 11.6 (11.5- 11.8)  [6.6-14.9] | 10.9  [5.6-14.6] | 10.9 (10.7- 11.1)  [6.5-13.9] |  |
| **Anaemia in children aged 6 - 23 months: (n) % (95% CI)** | | | | | |
| **N** | **183** | **111** | **134** | **113** |  |
| Total Anaemia (Hb <11 g/dl) | 39.3% (31.0- 47.7) | 47.7% (38.4- 57.1) | 64.9% | 69.0% (59.8- 78.2) | High if ≥ 40% |
| Mild (Hb 10-10.9) | 26.2% (19.5- 32.9) | 34.2% (26.5- 42.0) | 35.1% | 39.8% (31.9- 47.8) |  |
| Moderate (Hb 7-9.9) | 12.0% (6.5- 17.5) | 12.6% (6.3- 18.9) | 28.4% | 28.3% (19.3- 37.4) |  |
| Severe (Hb <7) | 1.1% (-0.4- 2.6) | 0.9% (0.0- 2.7) | 1.5% | 0.9% (0.0- 2.7) |  |
| Moderate and Severe Anaemia (Hb<10.0 g/dL) | 13.1% (7.1 - 19.1) | 13.5% (6.9 - 20.1) | 29.9% | 29.2% (20.1 - 38.4) |  |
| Mean Hb, g/dL (95% CI)  [range] | 11.242 (11.0- 11.5)  [5.7-14.1] | 11.023 (10.8-11.3)  [6.6-13.6] | 10.4  [6.6-13.3] | 10.3 (10.1-10.6)  [6.5-12.6] |  |
| **Anaemia in children aged 24 - 59 months: (n) % (95% CI)** | | | | | |
| **N** | **305** | **220** | **260** | **166** |  |
| Total Anaemia (Hb <11 g/dl) | 12.8% (8.8- 16.8) | 16.4% (1.0- 22.0) | 39.6% | 38.6% (29.8- 47.3) | High if ≥ 40% |
| Mild (Hb 10-10.9) | 10.5% (6.7- 14.3) | 13.2% (8.2- 18.2) | 26.9% | 24.1% (17.3- 30.9) |  |
| Moderate (Hb 7-9.9) | 2.0% (0.3- 3.7) | 3.2% (1.1- 5.3) | 11.9% | 14.5% (8.1- 20.8) |  |
| Severe (Hb <7) | 0.3% (0.0- 1.0) | 0.0% | 0.8% | 0.0% |  |
| Moderate and Severe Anaemia (Hb<10.0 g/dL) | 2.3% (0.5 - 4.1) | 3.2% (1.1 - 5.3) | 12.7% | 14.5% (8.1 - 20.8) |  |
| Mean Hb, g/dL (95% CI)  [range] | 12.1 (12.0-12.2)  [6.9-14.9] | 11.9 (11.8-12.1)  [7.8-14.9] | 11.1  [5.6-14.6] | 11.2 (11.0-11.4)  [8.1-13.9] |  |
| **Children 0-23 months** | | | | | |
| **IYCF indicators: (n/N); % (95% CI)** | | | | | |
| Timely initiation of breastfeeding | (168/234)  71.8% (63.1- 80.6) | (120/158)  76.0% (65.4- 86.5) | (139/176) 79.0% | (110/135)  81.5% (71.9- 91.1) |  |
| Exclusive breastfeeding under 6 months | (36/53)  67.9% (55.6- 80.3) | (34/49)  69.4% (52.8- 85.9) | (31/44) 70.5% | (13/24)  54.2% (34.0- 74.4) |  |
| Continued breastfeeding at 1 year | (33/37)  89.2% (72.4-100.0) | (26/27)  96.3% (88.3-100.0) | (37/39) 94.9% | (26/27)  96.3% (88.3-100) |  |
| Continued breastfeeding at 2 years | (14/38)  36.8% (21.9 -51.8) | (18/21)  85.7% (70.3 -100.0) | (21/30) 70.0% | (14/27)  51.9% (32.8-70.9) |  |
| Introduction of solid, semi-solid or soft foods | (18/35)  51.4% (31.4- 71.4) | (12/18)  66.7% (46.1- 87.2) | (5/16) 31.3% | (7/20)  35.0% (12.6- 57.4) |  |
| Consumption of iron-rich or iron-fortified foods | (105/185)  56.8% (46.4- 67.1) | (51/111)  45.9% (33.9- 58.0) | (71/134) 53.0% | (41/113)  36.3% (25.6- 47.0) |  |
| **Women 15-49 years** | | | | | |
| **Anaemia (non-pregnant)** | | | | | |
| **N** | **242** | **357** | **169** | **169** |  |
| Total Anaemia (Hb <12 g/dl) | (21.9% (15.9- 27.9) | 18.5% (13.5- 23.4) | (75) 44.4% | 46.7% (38.3- 55.2) | High if ≥ 40% |
| Mild (Hb 11-11.9) | 11.2% (7.0- 15.4) | 9.0% (5.8- 12.1) | (46) 27.2% | 20.1% (13.1- 27.1) |  |
| Moderate (Hb 8-10.9) | 9.5% (4.4- 14.6) | 8.7% (6.0- 11.4) | (29) 17.2% | 21.9% (13.6- 30.2) |  |
| Severe (Hb <8) | 1.2% (0.0- 2.6) | 0.8% (0.0- 2.5) | 0.0% | 4.7% (1.4- 8.1) |  |
| Mean Hb, g/dL (95% CI)  [range] | 13.0 (12.7-13.3)  [6.8-16.9] | 12.9 (12.7 - 13.1)  [5.6-16.6] | 12.1  [8.3-14.7] | 11.8 (11.5- 12.1)  [5.9-16.0] |  |
| **Programme coverage (pregnant)** | | | | | |
| Currently enrolled in ANC programme | (8/19)  42.1% (16.9-67.3) | (14/25)  56.0% (34.7- 77.3) | (8/12) 66.7% | (10/20)  50.0% (27.8- 72.2) |  |
| Currently receiving iron-folic acid pills | (3/19)  15.8% (-1.2-32.8) | (11/25)  44.0% (22.7-65.3) | (8/12) 66.7% | (8/20)  40.0% (18.0- 62.0) |  |
| **FOOD SECURITY** | | | | | |
| **Food distribution** | | | | | |
| Proportion of households with a ration card | (207/245)  84.5% (79.5- 89.5) | - | (223/224) 99.6% | - |  |
| Average number of days general food ration lasts out of 30 days (mean [95% CI] or SD) | 18.6 (17.5-19.7) | - | 23.2±5.4 | - |  |
| Proportion of households reporting that the food ration lasts the entire duration of the cycle (>=30 days) | (18/194)  9.3% (3.8- 14.7) |  | (51/203) 25.1% |  |  |
| **Negative household coping strategies** | | | | | |
| Proportion of households reporting using none of the negative coping strategies over the past month | (12/245)  4.9% (1.6- 8.2) | (31/355)  8.7% (5.3- 12.2) | (51/223) 22.9% | (14/236)  5.9% (3.0- 8.9) | Critical Range: ≤49% |
| **Household dietary diversity** | | | | | |
| Average HDDS (mean (95%CI or ± SD) | 4.5 (4.2-4.8) | 4.6 (4.3-4.9) | 4.6 | 4.540 (4.2-4.9) | Max HDDS is 12 |
| Proportion of households not consuming any vegetables, fruits, meats, eggs, fish/seafood and milk/milk products | (38/245)  15.5% (10.4- 20.7) | (18/355)  5.1% (1.6- 8.5) | (60/224) 26.8% | (22/237)  9.3% (5.6- 13.0) |  |
| Proportion of households consuming either a plant or animal source of vitamin A | (157/245)  64.1% (57.2- 71.0) | (288/355)  81.1% (75.8- 86.4) | (142/224) 63.4% | (200/237)  84.4% (78.6- 90.2) |  |
| Proportion of households consuming organ meat/flesh meat, or fish/seafood | (53/245)  21.6% (15.5- 27.7) | (106/355)  29.9% (23.9- 35.8) | (52/244) 23.2% | (67/237)  28.3% (20.9- 35.6) |  |
| **WASH** | | | | | |
| **Water quality and storage** | | | | | |
| **N** | **501** | **669** | **450** | **456** |  |
| Proportion of households using an improved drinking water source | (498)  99.4% (98.5- 100) | (610)  91.2% (83.8- 98.5) | (450) 100% | (430)  94.3% (90.2- 98.4) |  |
| Proportion of households that use a covered or narrow necked container for storing their drinking water | (239)  47.7% (39.0- 56.4) | (106)  15.8% (11.9- 19.8) | (268) 59.6% | (149)  32.7% (24.8- 40.5) |  |
| **Water quantity** | | | | | |
| Proportion of households that use: |  |  |  |  |  |
| **N** | **501** |  | **450** |  |  |
| ≥ 20 lpppd | (251)  50.1% (43.7- 56.5) | - | (254) 56.4% | - |  |
| 15 - <20 lpppd | (81)  16.2% (12.0- 20.3) | - | (69) 15.3% | - |  |
| <15 lpppd | (169)  33.7% (27.9- 39.5) | - | (127) 28.2% | - |  |
| Average water usage in lpppd | 23.5 (21.1- 25.8) |  | 23.9548 |  | Target of ≥20 lpppd |
| **Safe excreta disposal** | | | | | |
| **Proportion of households that use:** | | | | | |
| An improved excreta disposal facility (improved toilet facility, 1 household) | (184/499)  36.9% (31.3- 42.4) | (72/669)  10.8% (6.8- 14.7) | (133/434) 30.7% | (51/453)  11.3% (6.6-15.9) |  |
| A shared family toilet (improved toilet facility, 2 households) | (61/499)  12.2% (8.2- 16.3) | (20/669)  3.0% (0.8- 5.2) | (17/434) 3.9% | (13/453)  2.9% (0.5-5.2) |  |
| A communal toilet (improved toilet facility, 3 households or more) | (42/499)  8.4% (5.7- 11.1) | (5/669) 0.7% (0.1- 1.4) | (78/434) 18.0% | (7/453)  1.5% (0.3-2.8) |  |
| An unimproved toilet (unimproved toilet facility or public toilet) | (212/499)  42.5% (34.9- 50.1) | (572/669)  85.5% (80.4- 90.6) | (206/434) 47.5% | (382/453)  84.3% (78.1-90.6) |  |
| Proportion of households with children under 3 years of age that dispose of faeces safely | (254/269)  94.4% (91.6- 97.3) | (194/236)  82.2% (76.2- 88.2) | (238/248) 96.0% | (145/175)  82.9% (73.6- 92.2) |  |
| **MOSQUITO NET COVERAGE** | | | | | |
| **Mosquito net ownership** | | | | | |
| Proportion of total households owning at least one mosquito net of any type | (80/249)  32.1% (24.5- 39.7) | (210/351)  59.8% (54.5- 65.1) | (204/227) 89.9% | 114/236)  48.3% (40.1- 56.5) |  |
| Proportion of households owning at least one LLIN | (76/249)  30.5% (23.1- 38.0) | (199/351)  56.7% (51.2- 62.2) | 192/227) 84.6% | (91/236)  38.6% (30.4- 46.7) | Target of >80% |
| Average number of persons per LLIN (mean) | (1544/132) 11.7 | (1442/310) 4.7 | (1080/412) 2.6 | (981/128) 7.7 | 2 persons per LLIN |
| **Mosquito net utilization** | | | | | |
| Proportion of household members (all ages) who slept under a net of any type | (296/1544) 19.2% | (549/1442) 38.1% | (457/1080) 42.3% | (344/981) 35.1% |  |
| Proportion of household members (all ages) who slept under an LLIN | (286/1544) 18.5% | (523/1442) 36.3% | (442/1080) 40.9% | (266/981) 27.1% |  |
| Proportion of children 0-59 months who slept under a net of any type | (80/281) 28.5% | (127/221) 57.5% | (113/240) 47.1% | (77/158) 48.7% |  |
| Proportion of children 0-59 months who slept under an LLIN | (77/281) 27.4% | (124/221) 56.1% | (107/240) 44.6% | (61/158) 38.6% |  |
| Proportion of pregnant women who slept under a net of any type | (6/36) 16.7% | (15/36) 41.7% | (11/24) 45.8% | (5/21) 23.8% |  |
| Proportion of pregnant women who slept under an LLIN | (6/36) 16.7% | (14/36) 38.9% | (11/24) 45.8% | (4/21) 19.0% |  |

**\***No confidence intervals are included because it was an exhaustive survey.

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| **BRIEF INTERPRETATION OF RESULTS** |

**Acute and chronic malnutrition**

Table 4: Classification of public health significance for children under 5 years of age

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **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 |

Source: WHO (1995) Physical Status: The Use and Interpretation of Anthropometry and WHO (2000) The Management of Nutrition in Major Emergencies

* The overall nutrition situation based on GAM in 2016 in all the surveys is within the ‘acceptable’ level of < 5% (Table 4). The acute malnutrition level found in Dzaleka Camp is low and similar to those levels found in the previous two surveys conducted in 2012 and 2014. Luwani host community appears to have the highest level of GAM prevalence [2.2% (95% CI 0.9-5.4).
* The prevalence of stunting (chronic malnutrition) in children in all the survey areas was found to be high and well above the ‘acceptable level’ of <20% (Table 4). The stunting results are in the ‘serious’ category (30-39%) according to WHO thresholds in three of the survey areas (Dzaleka camp, Dzaleka host community and Luwani host community) and in the ‘critical’ category (≥40%) in Luwani camp. In Dzaleka Camp, chronic malnutrition remains high and the level is similar to the one obtained in 2014 as shown in Figure 1. The figure shows that the prevalence of stunting increased from 22.4% in 2012 to 36.1% in 2014 but slightly dropped to 34.8% in 2016. The difference between 2014 and 2016 are however not statistically significant (p<0.05).
* The coverage of age documentation was very high in all 4 surveys. Hence, the stunting results can be considered to be reliable and of high quality. Luwani camp had the lowest coverage of age documentation with 11% of the surveyed children having no official age documentation.

FIGURE 1 Prevalence of GAM and Stunting, Dzaleka camp, 2012, 2014 & 2016

**Diarrhea**

* Diarrhea in the last 2 weeks (according to mother’s recall) is high in all 4 survey areas and ranges from 27% to 35% with Luwani camp having the highest value.

**Anaemia**

**Table 5:** Classification of public health significance

|  |  |  |  |
| --- | --- | --- | --- |
| **Prevalence %** | **High** | **Medium** | **Low** |
| **Anaemia** | ≥40 | 20-39 | 5-19 |

Source: WHO (2000) The Management of Nutrition in Major Emergencies

*Children aged 6-59 months*

* The prevalence of anaemia among children 6-59 months is above the UNHCR target of <20% in all the 4 surveys, however very large differences were found between Dzaleka camp and its host community, and Luwani camp and its host community. The prevalence of anaemia was found to be very high and above the 40% mark for defining a problem of high public health significance according to WHO in both Luwani camp (48.2%) and its host communities (50.9%). The prevalence of anaemia in Dzaleka camp (22.7%) and its host community (26.9%) is much lower and nearly half as compared to Luwani camp and its host community, and in the ‘medium’ category for classifying a problem of public health significance (Table 5).
* The prevalence of anaemia in Dzaleka camp significantly dropped from 33.4% (95% CI 28.6-38.7%) obtained in 2014 to 22.7% (17.9-27.6%) obtained this year (p<0.05) (Figure 2).
* By age group and in all 4 surveys, the prevalence of anaemia was the highest in the 6-23 months age group compared to those aged 24 months and above. Anaemia results are above 39% in all surveys in children aged 6-23 months which is alarming.

*Women of reproductive age (non-pregnant, 15-49 years)*

* In women of reproductive age (non-pregnant), prevalence of anaemia showed similar patterns as for the children 6-59 months. Prevalence of anaemia was the highest in Luwani camp (44.4%) and its host community (46.7%) and were above the critical threshold for intervention of 40%. The prevalence of anaemia in Dzaleka camp (21.9%) was similar to that obtained in 2014 (23.2%) (Figure 3).
* Severe anaemia is particularly high and concerning in Luwani host community [4.7% (95% CI 1.4-8.1%)].
* Pregnant women enrollment in ANC was found to be between 40-65% in all survey arears. Coverage of iron-folate pills varied between survey areas and ranged from a lowest of 15.8% in Dzaleka camp to a high of 66.7% in Luwani camp.

*Overall anaemia results*

* The higher anaemia prevalence results found in Luwani camp and its host community reflect a poorer situation in the Luwani area affecting anaemia status in young children and women requiring further investigation.

FIGURE 2: Anaemia prevalence in Dzaleka camp in 2012, 2014, and 2016 in children 6-59 months at Dzaleka Camp

FIGURE 3: Anaemia prevalence in Dzaleka camp in 2012, 2014, and 2016 in non-pregnant women 15-49 years

**Programme coverage**

* The coverage results of Vitamin A supplementation in the last 6 months and measles vaccination based on both card documentation and mother’s recall were generally high (around 90%) across all the survey areas except at Luwani camp (around 75-80%). However, coverage based on card documentation alone was low in all the survey areas as most of the vitamin A supplementation and measles vaccination were received during national campaigns which are rarely documented in the child’s card. The two host communities met the recommended target of 95% for measles vaccination based on card and mother’s recall.
* The results for both vitamin A supplementation and measles vaccination were lower in Luwani camp as compared to the other survey areas probably because most of the asylum seekers had joined the camp in recent weeks/months and over 40% of them were still in the reception area at the time of the survey.

**Infant and Young Child Feeding**

* The proportion of children who were timely initiated on breast feeding and exclusively breastfed (below 6 months) averaged around 70-75% in all survey areas with a low of 54.2% to a high of 81.5% in Luwani community.
* Introduction of solid, semi-solid or soft foods and consumption of iron-rich or iron-fortified foods were generally low in all areas (range from 30-65%).
* Continued breastfeeding at 1 year was high in all areas (>89%) which shows wide breastfeeding practice during the first year while continued breastfeeding at 2 years ranged from a low of 36.8% to a high of 85.7% which shows varying practices in terms of breastfeeding into the second year.

**Food security**

* The average duration of the food ration (out of the theoretical duration of 30 days) ranged from 18.6 days in Dzaleka camp to 23.2 days in Luwani camp. These results show that the ration does not last long enough for the recipient households.
* The average household dietary diversity score (HDDS) was low across all the survey areas and was around 4.5 (out of a maximum of 12). In Dzaleka camp, there was no improvement in the average HDDS between 2014 and 2016 (4.3 vs 4.5, respectively).
* A very large proportion of households in all 4 survey areas use negative coping strategies.

**WASH**

* The proportion of households using an improved drinking water source was high in all the surveys, ranging from 90-100%. However, the proportion of households safely storing the water was low and ranged from a lowest of 15.8% in Dzaleka host community to a highest of 59.6% in Luwani camp.
* The average daily water usage was above the target of 20 litres per person per day (lpppd) in the two camps. Nevertheless, only about half of the households in both were found to use enough water (≥ 20 lpppd). A large proportion of households in both camps (around 30%) were found to use less than 15 lpppd which might point out to a water supply / quantity issue.
* The proportion of households using an improved extreta disposal facility (improved toilet facility, 1 household) was low in all the survey areas (ranged from a lowest of 10.8% in Dzaleka host community to a highest of 36.9% in Dzaleka camp). The usage of an improved excreta disposal facility in Dzaleka camp did not greatly improve from the 34.1% result found in 2014. Safe disposal of children under 3 years feces was practiced by the majority of households (>80%) in all 4 survey areas.
* Overall, WASH results were better in the camps as compared to the host communities.

**Mosquito net coverage and utilisation**

* Ownership of mosquito nets was generally low across the survey areas (range from 32-48%) except in Luwani camp with over 80% of the households owning at least one net of any type. Similarly, net utilisation by children under 5, pregnant women or the whole population was found to be generally low accorss the survey sites.
* All areas except for Luwani camp were far below the target of 80% for owning at least one LLIN and the target of 2 persons per LLIN. Luwani camp met the target of 80% for owning at least one LLIN and was close to the target of 2 persons of LLIN (2.6).
* Results suggest that major improvments are needed in terms of coverage and utilisation of nets, especially in Dzaleka camp and community, and Luwani community.

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| **AREAS FOR DISCUSSION AND PRIORITIES** |

The preliminary report aims to provide the main survey results necessary to estabish the key recommendations. Recommendations will be included in the final survey report following in-depth discussions on the main survey results with the partners working in the survey area on the various activities and programmes related to malnutrition, anaemia, public health, IYCF, WASH, food security and mosquito nets.

The following areas were identified as priorities to address:

* Maintain low GAM levels in children aged 6-59 months by continuing current nutrition programmes;
* Decrease stunting in children aged 6-59 months;
* Understanding why diarrhea is highly prevalent among children 6-59 months;
* Decrease anaemia in children aged 6-59 months focussing on children aged 6-23 months and women of reproductive age, especially in Luwani camp and its host community;
* Increased enrolment of pregnant women into ANC and increased iron-folic acid pills coverage;
* Improvements in IYCF indicators;
* Improvements in household dietary diversity;
* Decrease use of negative coping strategies;
* Improvements in safe water storage, quantity of water usage and use of improved latrines by population;
* Distribution of LLIN and increased usage.