NUTRITION SURVEYS

DADAAB REFUGEE CAMPS

Ifo-2, Hagadera, and Kambioos camps

Surveys conducted: September / October 2012

Report finalised: March 2013

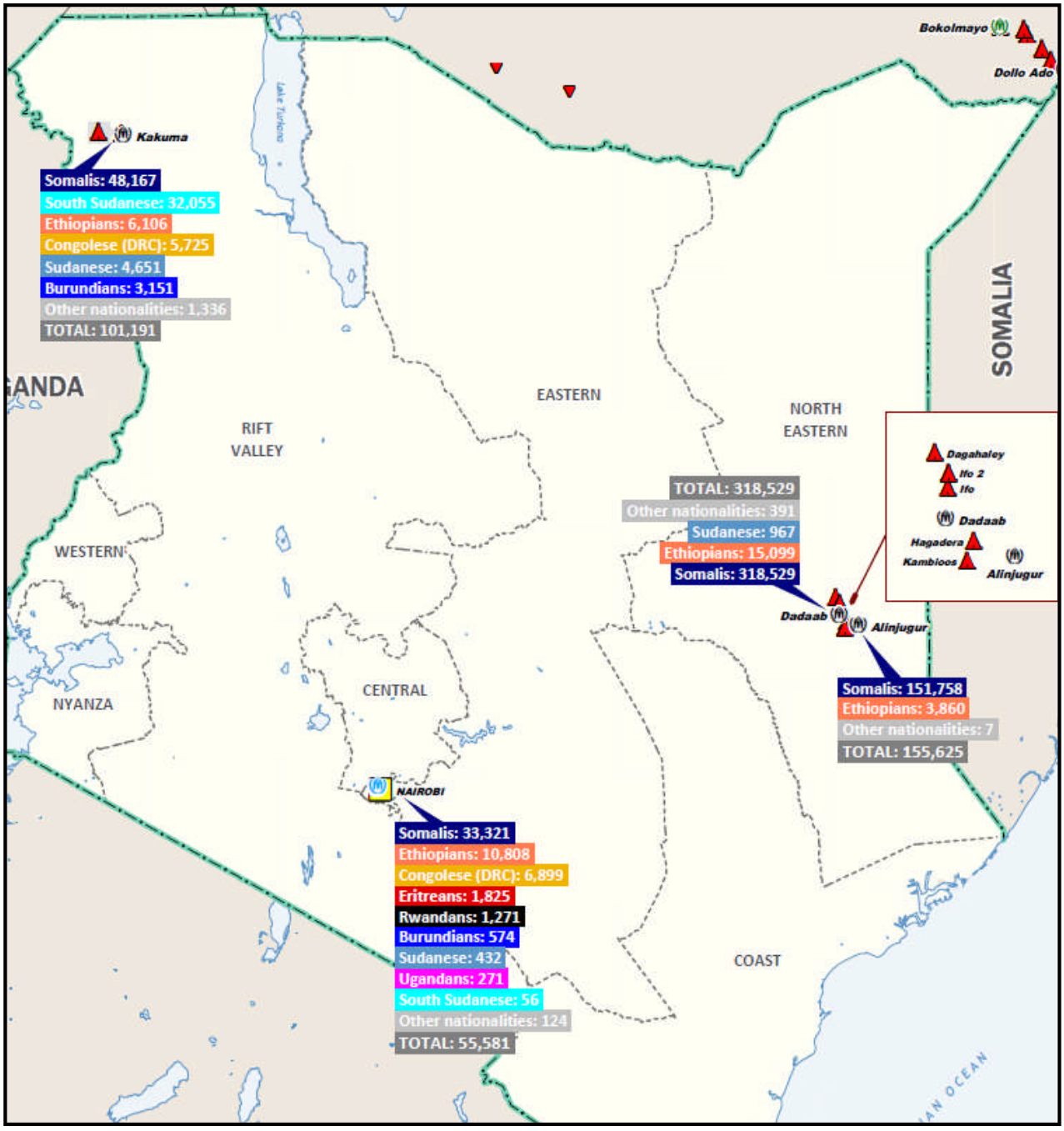
UNHCR

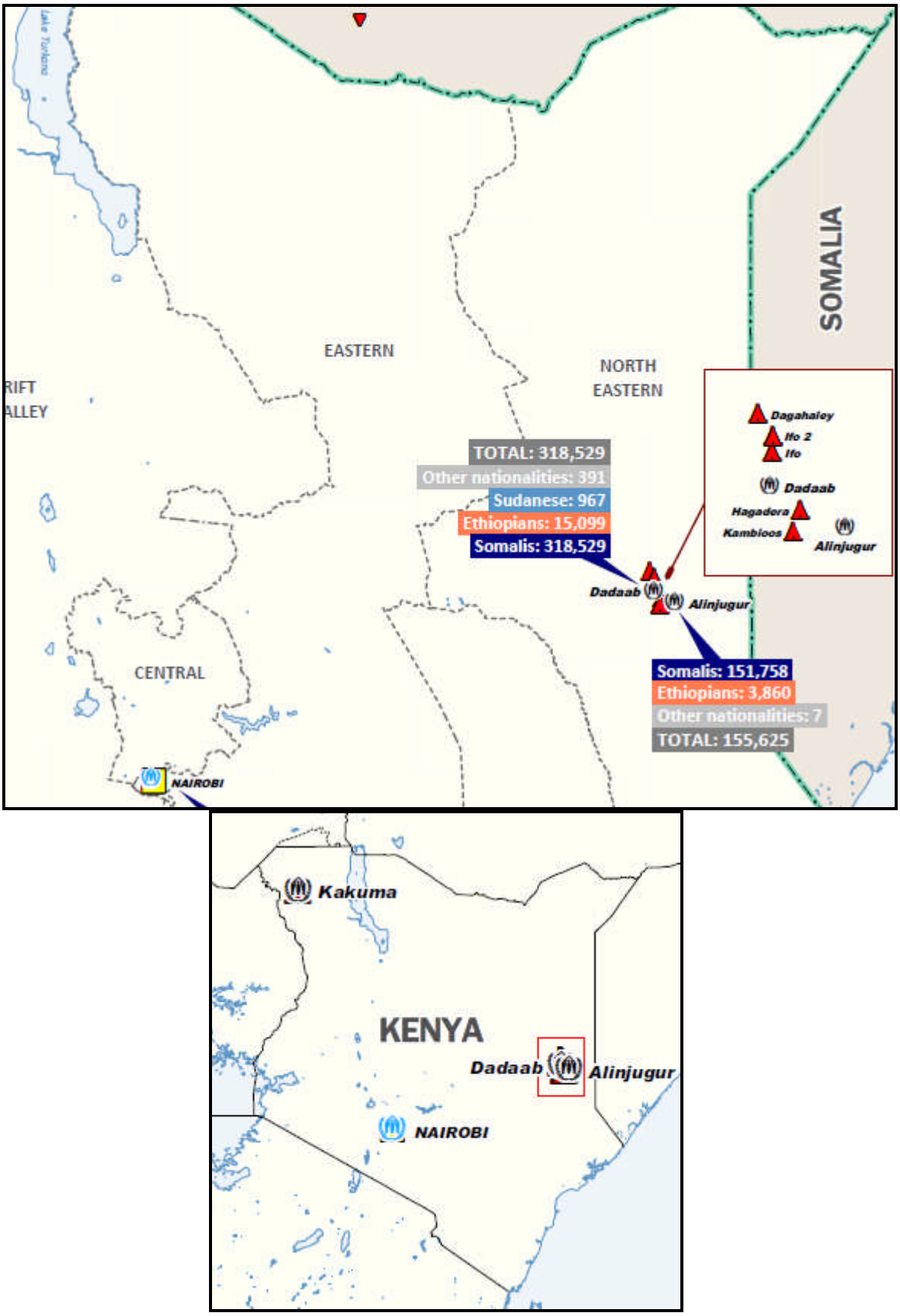
IN COLLABORATION WITH

UCL, ENN

KRCS, IRC, GIZ, IMC, ADEO

WFP, UNICEF


Bokolmayo
Dollo Ado
Kakuma
Somalis: 48,167
South Sudanese: 32,055
Ethiopians: 6,106
Congolese (DRC): 5,725
Sudanese: 4,651
Burundians: 3,151
Other nationalities: 1,336
TOTAL: 101,191
Lake Turkana
SOMALIA
EASTERN
NORTH EASTERN
RIFT VALLEY
WESTERN
NYANZA
CENTRAL
COAST
Dagahaley
Ifo 2
Ifo
Dadaab
Hagadera
Kambioos
Alinjugur
TOTAL: 318,529
Other nationalities: 391
Sudanese: 967
Ethiopians: 15,099
Somalis: 318,529
Dadaab
Alinjugur
Somalis: 151,758
Ethiopians: 3,860
Other nationalities: 7
TOTAL: 155,625
NAIROBI
Somalis: 33,321
Ethiopians: 10,808
Congolese (DRC): 6,899
Eritreans: 1,825
Rwandans: 1,271
Burundians: 574
Sudanese: 432
Ugandans: 271
South Sudanese: 56
Other nationalities: 124
TOTAL: 55,581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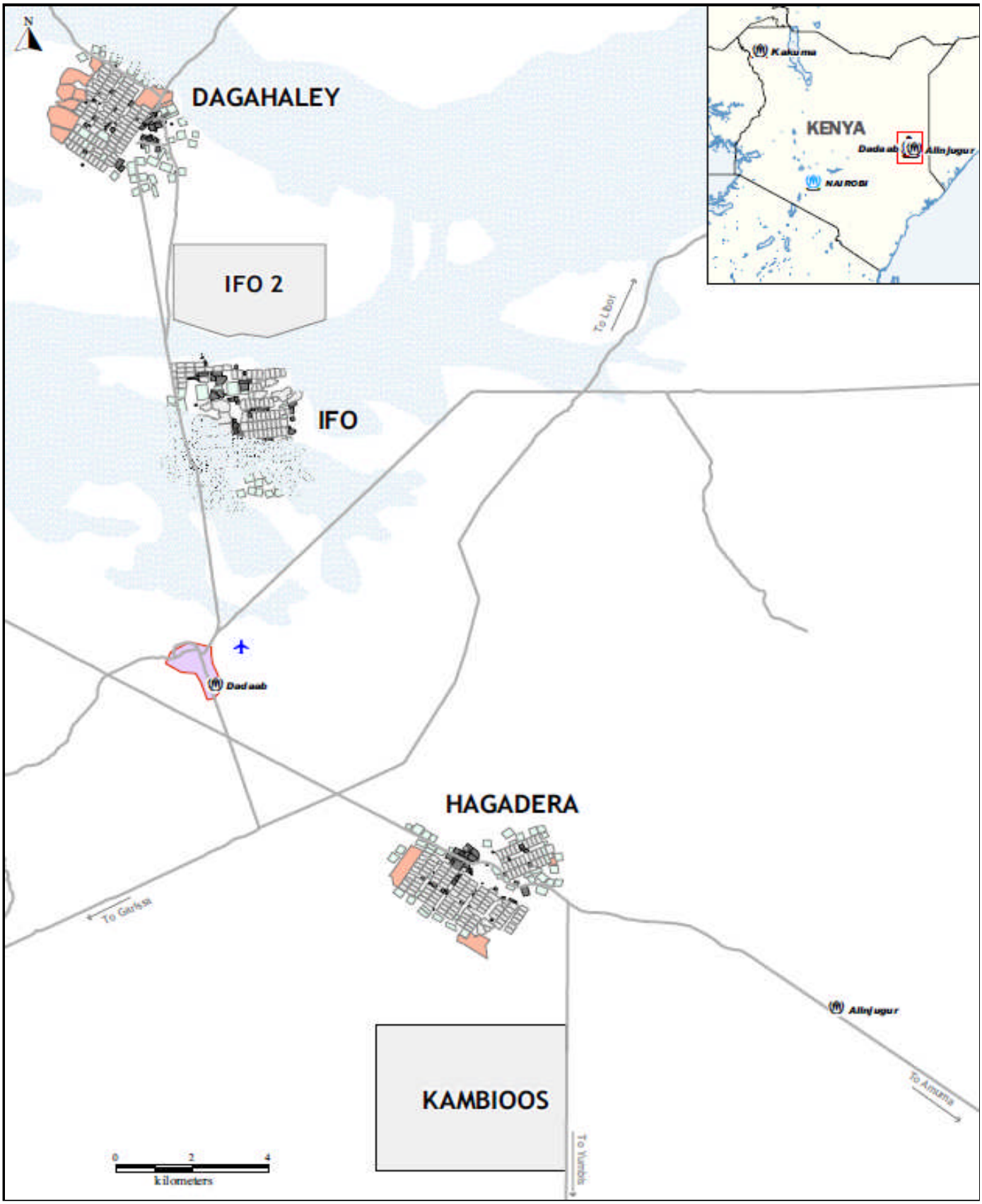
Alinjugur
NAIROBI


N
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Alinjugur
NAIROBI
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kilometers

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ACRONYMS AND ABBREVIATIONS

ANC	Ante Natal Care / Clinic
ADEO	African Development and Emergency Organization
BSFP	Blanket Supplementary Feeding Program
CDR	Crude Death Rate
CI	Confidence Interval
CHW	Community Health Workers
CSB++	Corn-Soya Blend (Super cereal++)
CTC	Community Therapeutic Care
DEFF	Design effect
ENA	Emergency Nutrition Assessment
ENN	Emergency Nutrition Network
EPI	Expanded Programme on Immunization
Epi Info	A software package for epidemiological investigations
FSNAU	Food Security and Nutrition Analysis Unit
GAM	Global Acute Malnutrition
GFD	General Food Distribution
GFR	General Food Ration
GPS	Global Positioning System
HAZ	Height-for-Age z-score
Hb	Haemoglobin
HH	Household
HIS	Health Information System
IPs	Implementing Partners
IYCF	Infant and Young Child Feeding
IMC	International Medical Corp
IRC	International Rescue Committee
KRCS	Kenya Red Cross Society
LNS	Lipid-based Nutrient Supplement
MAM	Moderate Acute Malnutrition
MCH	Maternal and Child Heath
MoH	Ministry of Health
MSF	Médecins sans Frontières
MUAC	Middle Upper Arm circumference
NCHS	National Centre for Health Statistics
OTP	Out-patient Therapeutic Programme
PDM	Post Distribution Monitoring
PPS	Probability Proportional to Size
ProGres	UNHCR registration database for refugees
RTI	Respiratory Tract Infection
SAM	Severe Acute Malnutrition
SC	Stabilization Centre
SD	Standard Deviation
SFP	Supplementary Feeding Programme
SMART `	Standardised Monitoring & Assessment of Relief & Transitions
TFP	Therapeutic Feeding Programme
UCL	University College of London
U5	Children under 5 years old
U5DR	Under-5 Death Rate
UNHCR	United Nations High Commissioner for Refugees
UNICEF	United Nations Children's Funds
WASH	Water, Sanitation, and Hygiene
WAZ	Weight-for-Age z-score
WHZ	Weight-for-Height z-score
WFP	World Food Programme
WHO	World Health Organization

FIGURES

TABLES

ACKNOWLEDGMENTS

UNHCR commissioned and coordinated the surveys with technical support from UCL, ENN and CartONG. The commitment and support provided to the Dadaab-based management team (Mary Koech, Sandra Sudhoff, Andrew Seal, Jo McElhinney) for such a large undertaking was much appreciated and is gratefully acknowledged - a number of indispensable persons stepped up to the challenge. Contributions from all stakeholders allowed these surveys to be conducted under difficult and insecure circumstances.

We would like to acknowledge all agencies involved in planning and conducting the surveys. Thanks go to KRCS, IRC, IMC, GIZ, MSF-CH and ADEO for providing staff for the entire duration of the exercise. Thanks to ADEO staff, and in particular Mary Orwenyo, for providing Logistics and Procurement for the survey.

Thanks to Edna Moturi, Geoffrey Luttah from the UNHCR Dadaab Sub-Office, Dr John Burton from the Kenya Branch Office, and Allison Oman and Ismail Arte Rage Kassim from the Regional Support Office, for hosting and supporting the UCL and CartONG survey team.

Thanks to UNICEF for contributing anthropometric equipment for the survey. Thanks for UNICEF and WFP for their support with team supervision during training and data collection, especially Frances Kidake.

The UNHCR IT support and ProGres staff in Dadaab are acknowledged for their great support throughout the duration of the training and data collection.

Thanks also to all drivers for their assistance.

A list of names of all people involved in the survey is provided in Appendix 1.

And finally, thanks go to the Dadaab refugee population for their participation and involvement.

EXECUTIVE SUMMARY

UNHCR, with technical support from UCL / ENN, and in collaboration with WFP, UNICEF, and its implementing partners, KRCS, IMC, GIZ, IRC, MSF-CH, and ADEO, carried out a nutrition survey in each of the five camps of Dadaab Complex: Dagahaley, Hagadera, Ifo, Ifo-2 and Kambioos. These five surveys took place between 19th September and 8th October 2012, with the overall aim of determining the extent and severity of malnutrition of children aged 6-59 months and to monitor selected indicators of programme performance, in order to deliver appropriate recommendations. Only three of the five survey results are reported here due to concerns regarding the quality of data collected from two camps; Dagahaley and Ifo.

The survey objectives were as follows:

Primary Objectives

1. To determine the prevalence of acute malnutrition among children 6-59 months.
2. To determine the prevalence of stunting among children 6-59 months.
3. To investigate IYCF practices among children 0-23 months.
4. To assess the prevalence of anaemia among children 6-59 months.
5. To assess the prevalence of anaemia among non-pregnant women of reproductive age (15-49 years).
6. To assess the two-week period prevalence of diarrhoea among children (0-59 months).
7. To determine the coverage of measles vaccination among children (9-59 months).
8. To determine the coverage of de-worming in children (24-59 months) and vitamin A supplementation among children (6-59 months) in the last six months.
9. To assess the coverage of blanket supplementary feeding programmes for children 6-23 months.
10. To determine the coverage of ration cards and the duration the general food ration lasts for recipient households.
11. To determine which coping strategies are used by households to address shortfalls in the general ration.
12. To determine the population's access to improved water, sanitation and hygiene facilities.
13. To assess crude and under-five death rates in the camps in the last three months in Kambioos.
14. To establish recommendations on actions to be taken to address the situation.

Secondary Objectives:

15. To assess the coverage of targeted selective feeding programmes for children 6-59 months.
16. To determine the coverage of iron and folate supplementation in pregnant women.

Summary of results

Surveyed area	Camps			Classification of public health significance or target (where applicable)
	Hagadera (excluding outskirts)	Ifo-2 (East & West)	Kambioos	
Date of survey	**Oct 3rd – 8th**	**Sept 19th – 24th**	**Sept 26th – 1st**	
CHILDREN (6-59 months)				
Planned sample size	600	600	600	
Number of children surveyed	600	630	599	
Acute Malnutrition (WHO 2006 Growth Standards)	% (95% CI)	% (95% CI)	% (95% CI)	
Valid measurements available	594	622	594	
Global Acute Malnutrition (GAM)	**10.3** (8.0 – 13.0)	**15.0** (12.3 – 18.0)	**17.2** (14.4 – 20.3)	Critical if ≥ 15%
Moderate Acute Malnutrition (MAM)	**7.1** (5.2 – 9.6)	**9.8** (7.8 – 12.2)	**10.8** (8.2 – 14.0)	
Severe Acute Malnutrition (SAM)	**3.2** (1.9 – 5.2)	**5.1** (3.7 – 7.1)	**6.4** (4.6 – 8.9)	
Oedema	**0.5** (n=3)	**0.8** (n=5)	**0.7** (n=4)	
Stunting (chronic malnutrition) (WHO 2006 Growth Standards)				
Total stunting (<2 z-scores)	**25.7%** (20.4 – 31.8)	**41.7%** (37.3 – 46.3)	**28.3%** (23.1 – 34.3)	Critical if ≥ 40%
Moderate stunting (>=-3z scores and <-2z scores	18.4% (14.4 – 23.3)	22.8% (19.9 – 25.9)	18.5% (14.7 – 23.0)	

Surveyed area	Camps			Classification of public health significance or target (where applicable)
	Hagadera (excluding outskirts)	Ifo-2 (East & West)	Kambioos	
Date of survey	**Oct 3rd – 8th**	**Sept 19th – 24th**	**Sept 26th – 1st**	
Severe stunting (<-3 z-scores)	7.3% (5.2 – 10.1)	18.9% (15.3 – 23.2)	9.8% (7.4 – 13.1)	
Anaemia (6-59 months)	% (95% CI)	% (95% CI)	% (95% CI)	
Valid measurements	600	629	599	
Total Anaemia (Hb <11 g/dl)	**44.5%** (39.2 50.0)	**45.5%** (40.9 - 50.1)	**50.8%** (45.3 - 56.2)	High if ≥ 40%
Mild Anaemia	**23.0%** (19.4 – 26.6)	**28.8%** (25.5 – 32.0)	**29.4%** (25.4 – 33.4)	
Moderate Anaemia	**20.8%** (16.8 – 24.8)	**16.4%** (13.2 – 19.5)	**21.0%** (17.0 – 25.0)	
Severe Anaemia	**0.7%** (0.0 – 1.3)	**0.3%** (0.0 – 0.8)	**0.3%** (0.0 – 0.8)	
Programme Coverage	% (95% CI)	% (95% CI)	% (95% CI)	
OTP (based on all admission criteria: WHZ, oedema and MUAC)	N= 1/19 **5.3%** (0.7 – 31.4%)	N= 18/39 **46.2%** (32.4 – 60.0)	N= 7/43 **16.3%** (5.6 – 38.7)	Target >= 90%
OTP (based on MUAC and oedema admission criteria only)	N= 0/4 **0.0%** -	N= 13/21 **61.9%** (36.0 – 82.4)	N= 6/17 **35.3%** (10.3 – 70.2)	
TSFP (based on all admission criteria: WHZ and MUAC)	N= 5/51 **9.8%** (2.8 – 29.1)	N=13/76 **17.1%** (9.7 – 28.4)	N= 12/76 **15.8%** (9.4 – 25.3)	Target >= 90%

Surveyed area	Camps			Classification of public health significance or target (where applicable)
	Hagadera (excluding outskirts)	Ifo-2 (East & West)	Kambioos	
Date of survey	**Oct 3rd – 8th**	**Sept 19th – 24th**	**Sept 26th – 1st**	
TSFP (based on MUAC admission criteria only)	N= 6/23 **26.1%** (8.5 – 57.1)	N= 13/36 **36.1%** (20.9 – 54.7)	N= 13/39 **33.3%** (20.5 – 49.2)	
BSFP - Currently receiving CSB++ *[1] (6-23 months)	N= 13/204 **6.4%** (2.4 – 10.3)	N= 34/177 **19.2%** (11.1 – 27.3)	N= 19/205 **9.3%** (2.9 – 15.6)	
Measles Vaccination with card (9-59 months)	N= 291/572 **50.9%** (36.7 – 65.0)	N=133/596 **22.3%** (16.3 - 29.8)	N= 61/584 **10.4%** (3.4 – 17.4)	Target >= 95%
Measles Vaccination with card or recall (9-59 months)	N= 560/572 **97.9%** (96.0 – 99.8)	N= 497/596 **83.4%** (70.1 – 91.5)	N= 564/584 **96.6%** (93.9 – 99.2)	
Vitamin A Supplementation coverage with card, within past 6 months (6-59 months)	N= 242/600 **40.3%** (25.4 – 55.3)	N=146/630 **23.2%** (15.9 – 32.9)	N= 35/599 **5.8%** (2.9 – 8.7)	Target >= 90%
Vitamin A supplementation coverage with card or recall, within past 6 months (6-59 months)	N= 578/600 **96.3%** (91.8 - 100.0)	N=617/630 **97.9%** (95.1 – 99.1)	N= 569/599 **94.8%** (90.9 – 98.8)	
Deworming coverage by recall, within past 6 months (24-59 months)	N= 379 / 395 **95.9%** (91.1 – 100.0)	N= 301/447 **67.3%** (52.6 – 79.3)	N= 502/599 **83.8%** (77.7 – 89.6)	

[1] *The low coverage of the BSFP was confirmed by also looking at data on the proportion of children (6-23 months) who had received porridge made from CSB+ or CSB++ in the last 24 hours. While these proportions are, in general, a little higher (10 – 49%) consumption of either type of CSB was low in this age group.

Surveyed area	Camps			Classification of public health significance or target (where applicable)
	Hagadera (excluding outskirts)	Ifo-2 (East & West)	Kambioos	
Date of survey	**Oct 3rd – 8th**	**Sept 19th – 24th**	**Sept 26th – 1st**	
Morbidity (children 6 – 59 months)				
Diarrhoea in past 2 weeks	N= 5/599 **0.8%** (0.1 – 1.5)	N= 195/630 **31.0%** (22.3 – 39.6)	N= 75/599 **12.5%** (7.8 – 17.3)	
Demographics (children 6 – 59 months)				
Mean Age (months)	**31.9** (31.1 – 32.8)	**33.6** (32.3 – 34.9)	**32.6** (31.6 – 33.7)	
Date of Arrival in Dadaab: **Before Oct 2011**	**98.7** (97.5 -99.9)	**98.3%** (96.2 – 100.0)	**95.0%** (88.7 – 100.0)	
October – December 2011	**0.3%** (0.0 – 0.8)	**0.5%** (0.0 – 1.5)	**1.2%** (0.0 – 3.0)	
January – March 2012	**0.0%**	**0.5%** (0.0 – 1.5)	**0.7%** (0.0 – 1.7)	
April – June 2012	**0.7%** (0.0 – 1.6)	**0.8%** (0.0 – 2.4)	**3.0%** (0.0 – 7.8)	
July – Sept 2012	**0.3%** (0.0 – 1.0)	**0.0%**	**0.2%** (0.0 – 0.5)	
Ethnic Group: **Somali**	**77.0%** (64.8 – 89.2)	**87.8%** (81.2 – 94.4)	**93.3%** (89.0 – 97.8)	
Somali Bantu	**23.0%** (10.8 – 35.2)	**12.2%** (5.6 – 18.8)	**6.7%** (2.2 – 11.1)	
Other	**0.0%**	**0.0%**	**0.0%**	

Surveyed area	Camps			Classification of public health significance or target (where applicable)
	Hagadera (excluding outskirts)	Ifo-2 (East & West)	Kambioos	
Date of survey	**Oct 3rd – 8th**	**Sept 19th – 24th**	**Sept 26th – 1st**	
INFANTS AND YOUNG CHILDREN 0-23 MONTHS				
Anaemia in children aged 6 – 23 months				
Total Anaemia (Hb <11 g/dl)	**63.4%** (55.1 – 71.7)	**63.4%** (57.1 – 69.7)	**66.5%** (58.3 – 74.8)	
Infant and Young Children Feeding Practices (IYCF)				
Children ever breastfed	93.4% (89.0 – 97.8)	98.3% (96.7 – 100.0)	97.2% (95.0 – 99.5)	
Timely initiation of breastfeeding	96.0% (91.9 – 100.0)	68.1% (53.1 – 83.1)	87.6% (78.6 – 96.6)	
Exclusive breastfeeding under 6 months	83.0% (73.4 – 92.6)	72.7% (62.2 – 83.1)	84.3% (77.1 - 91.3)	
Continued breastfeeding at 1 year	63.4% (45.3 – 81.5)	78.4% (66.4 – 90.5)	57.1% (40.2 – 74.0)	
Introduction of solid, semi-solid or soft foods	66.7% (45.7 – 87.6)	50.0% (30.6 – 69.4)	20.0% (0.0 – 46.1)	
Children bottle fed	3.1% (0.2 – 6.0)	3.3% (1.1 – 5.6)	4.3% (1.7 – 6.9)	
Children given infant formula	1.9% (0.0 – 3.8)	1.0% (0.0 – 2.2)	6.2% (1.0 – 11.4)	
Reported prevalence of diarrhoea	4.7% (2.0 – 7.3)	16.7% (10.2 – 23.1)	10.8% (5.7 – 15.9)	
Continued feeding during diarrhoea	46.7% (7.2 – 86.2)	34.0% (19.8 – 51.9)	0.0% -	

Surveyed area	Camps			Classification of public health significance or target (where applicable)
	Hagadera (excluding outskirts)	Ifo-2 (East & West)	Kambioos	
Date of survey	**Oct 3rd – 8th**	**Sept 19th – 24th**	**Sept 26th – 1st**	
WOMEN 15-49 YEARS				
Anaemia (non-pregnant women)				
Total Anaemia (Hb <12 g/dl)	38.8% (30.9 – 46.7)	33.3% (25.4 – 41.3)	32.0% (23.7 – 40.3)	
Mild (Hb 11-11.9)	18.1% (12.9 – 23.4)	19.9% (14.8 – 25.0)	12.5 (8.5 – 16.5)	
Moderate (Hb 8-10.9)	19.6% (12.9 – 26.2)	12.6% (7.5 – 17.8)	19.1% (11.4 – 26.8)	
Severe (Hb<8)	1.1% (0.0 – 2.3)	0.8% (0.0 – 1.8)	0.4% (0.0 – 1.2)	
Programme coverage, pregnant and lactating				
Pregnant women currently enrolled in ANC with card	96.0% (87.5 – 100.0)	72.6% (59.3 – 87.9)	96.6% (91.3 – 100.0)	
Pregnant women currently enrolled in ANC with card or recall	100.0% -	75.0% (61.0 – 89.0)	96.6% (91.3 – 100.0)	
Pregnant women currently receiving iron-folic acid pills	96.0% (87.5 – 100.0)	70.8% (56.7 – 84.9)	86.2% (72.4 – 100.0)	
Post-natal women who received vitamin A supplementation since delivery with card	45.8% (27.3 – 64.3)	39.5% (21.0 – 56.1)	48.5% (30.8 – 66.2)	

Surveyed area	Camps			Classification of public health significance or target (where applicable)
	Hagadera (excluding outskirts)	Ifo-2 (East & West)	Kambioos	
Date of survey	**Oct 3rd – 8th**	**Sept 19th – 24th**	**Sept 26th – 1st**	
Post-natal women who received vitamin A supplementation since delivery with card or recall	93.1% (87.4 – 98.7)	84.9% (74.2 – 95.6)	94.1% (88.3 – 99.9)	
HOUSEHOLD WATER, SANITATION, AND HYGIENE				
Soap distribution % (95% CI)				
Proportion of HH that received soap during last two distribution cycles	98.6% (96.8 – 100.0)	90.1% (85.2 – 95.0)	98.8% (97.6 – 100.0)	Target: >90% are provided with >250 g per person per month
Water quality				
Proportion of HH that report having enough water containers to collect water	73.3% (62.8 – 87.7)	3.7% (0.5 – 7.0)	22.5% (13.3 – 31.7)	
Use Public Tap or Standpipe as main source of drinking water	99.7% (99.2 – 100.0)	100.0% -	96.8% (90.3 – 100.0)	
Proportion of households that say they are satisfied with the drinking water supply	85.2% (76.6 – 93.8)	84.8% (74.0 – 95.5)	98.9% (97.0 – 100.0)	
Safe excreta disposal				
Proportion of HH using an improved toilet (improved toilet facility, not shared)	36.6% (27.4 – 48.4)	51.3% (36.5 – 66.2)	4.1% (1.7 – 6.4%)	
Proportion of HH using an improved toilet	17.3% (10.3 – 24.4)	7.0% (2.5 – 11.4)	27.4% (18.5 – 36.4)	

Surveyed area	Camps			Classification of public health significance or target (where applicable)
	Hagadera (excluding outskirts)	Ifo-2 (East & West)	Kambioos	
Date of survey	**Oct 3rd – 8th**	**Sept 19th – 24th**	**Sept 26th – 1st**	
Proportion of HH using a communal toilet	14.5% (7.4 – 21.6)	30.0% (17.0 – 43.0)	64.9% (54.3 – 75.4)	
Proportion of HH using an unimproved toilet	31.0% (18.7 – 44.4)	11.8% (4.4 – 19.1)	3.4% (0.1 – 7.1)	
HOUSEHOLD FOOD SECURITY				
Proportion of HH with a ration card % (95% CI)	99.4% (98.7 – 100.0)	100.0% -	98.2% (94.6 – 100.0)	
Proportion of HH with 1 or more members without a ration card	6.7%	N/A*	18.0%	
Average number of days GFR lasts	12.6 days (12.1-13.1)	10.3 days (9.8-10.7)	9.7 days (9.1 – 10.3)	
Proportion of HH reporting that GFR lasted <15 days	61.8% (53.1 – 70.6)	93.3% (89.7 – 97.0)	95.6% (92.8 – 98.4)	
KAMBIOOS - RETROSPECTIVE MORTALITY (~3 MONTH RECALL)				
Crude Death Rate (CDR) Deaths/10,000/day (95% CI)	-	-	0.21 (0.10 - 0.45)	Very serious if >1
U5 Death Rate (U5DR) Deaths/10,000/day (95% CI)	-	-	0.56 (0.24 - 1.31)	Very serious if >2

* Result for Proportion of surveyed HH with 1 or more members not registered is not available for Ifo-2 because this question was incorporated only after the first survey (Ifo-2) was completed, due to the overwhelming response from Households that the 'food ration was not big enough'.

RECOMMENDATIONS

Immediate

1. Resume the BSFP for all children aged 6 - 59 months in all camps until levels of GAM fall below globally acceptable levels and anaemia drops to below 40%. The decision to reduce the scope of the BSFP from 6-59 to 6-23 months should be reversed in light of the data on GAM prevalence that shows an elevated prevalence in the older children. (WFP)

2. Urgent monitoring of the BSFP distribution process should be undertaken to investigate reasons for the apparent poor coverage of the programme and to ensure all eligible children are receiving the supplementary food. The reasons for the divergence between the results from the survey data and data from programme monitoring should be investigated. (WFP)

3. New surveys in Dagahaley and Ifo camps should be urgently conducted to establish the prevalence of malnutrition and key indicators of programme performance in these camps. (UNHCR)

4. Implementing Partners should be encouraged to deploy more international and senior technical staff to Dadaab to ensure adequate monitoring of nutrition and health programmes. This need for international monitoring is particularly acute given the continuing involvement of Kenya in the conflict in southern Somalia and the possibility that the Government of Kenya may forcibly relocate refugees from Nairobi to Dadaab. (All partners)

5. The outreach component of the Nutrition Programs and referral process urgently needs to be reviewed to improve coverage and targeting of the most vulnerable children. (Health and Nutrition partners)

6. The hospital in Kambioos should be made operational as soon as possible to facilitate treatment of complicated cases of severe acute malnutrition. (UNHCR and partners)

7. Distribute additional water containers for household water collection, especially in Ifo-2 and Kambioos. (UNHCR and partners)

8. Improve coverage of improved toilet provision. (UNHCR and partners)

Medium term

9. Planning for the next full annual Nutrition Survey, scheduled for August 2013, should be started at least 6 months before the implementation date and involve wide consultation with all IPs and stakeholders at Nairobi and Dadaab levels in order to ensure commitment and participation. (UNHCR and partners)

10. Expand the use of EPI / health cards for children under five and pregnant/lactating women, to ensure that every child has a card. Emphasis also needs to be placed on the importance of cards by all stakeholders, in order to increase the presentation of cards when needed and the recording of vaccinations and supplementation. (Health and Nutrition partners)

11. Nutrition Co-ordinators should give a high priority to staff development for members of their nutrition programmes and ensure that adequate training is provided and performance monitored. (Health and Nutrition partners)

12. Improved reporting of admissions/discharges and mortality to the HIS should be done. (Health and Nutrition partners)

Longer term

13. Strengthen work on IYCF with the aim of further improving feeding practices. (Health and Nutrition partners)

14. Explore feasibility of child-spacing and family planning to improve the nutritional status of women and the prenatal and postnatal health of infants.

INTRODUCTION

This report presents the results of three nutrition surveys conducted in Hagadera, Ifo-2 and Kambioos camps of the Dadaab Refugee Complex. Coordinated by the United Nations High Commissioner for Refugees (UNHCR), the surveys took place from 19th September to 8th October 2012. Due to the worsening security situation of the wider Dadaab region, like many programs, the UNHCR registration process had been closed since late 2011 leaving many new arrivals unregistered, thereby being hosted and supported by established households.

At the time of writing, a lengthy verification exercise to confirm the registration of refugees is continuing and will be completed for all five camps. With much uncertainty due to interrupted operations since late 2011, the official population at the time of the data collection was estimated to be approximately 474,000 people.

The following sections make up the report;

- *Background*: contextual and background information related to the health, nutrition and food security situation is reported for the Dadaab Complex as a whole.
- The *methodology* for data collection for the surveys was the same in all the camps; however a Mortality Questionnaire was additional for Kambioos only.
- Results are reported separately for each camp / survey.
- The *discussion* refers to all camps and highlights similarities and differences between the camps.
- *Recommendations* are made for Dadaab Complex as a whole due to the similar context of insecurity and altered service provision. Recommendations for individual camps are also made due to two of these camps being newly established since the previous surveys in 2011.
- *Appendices*: contain acknowledgements, tools used, additional information and other relevant data that supports the main report.

BACKGROUND

The Town of Dadaab is situated in Garissa County, a semi-arid part of North Eastern Kenya, which has a fragile ecological system. Approximately 500 km from Nairobi and 60 km from the Somali border, the Dadaab Refugee Complex now has five refugee camps (Ifo-2, Hagadera, Ifo, Dagahaley and Kambioos), as of early 2012. The five camps now stretch across approximately 30 km, with Dagahaley located 15 km to the north of Dadaab town and the newest camp, Kambioos sitting about 15 km south-east of Dadaab town. The region surrounding Dadaab is a semi-arid desert with sparse vegetation and no surface water. Before the establishment of the camps, the area was used as rangeland by nomadic livestock owners.

The camps were established in 1991/92 to cater for the arrival of refugees from Somalia. Following drought across the Horn of Africa and the resurgence of conflict in Somalia in 2011, the consequent famine resulted in a large wave of new arrivals during the second half of 2011. Dadaab and the surrounding areas have also experienced a deteriorating security situation. The kidnapping of two humanitarian aid workers in October 2011 and the targeting of Kenyan Police by explosive devices severely impacted the delivery of health and nutrition services, and other programs throughout 2012 and have faced on-going interruptions.

In fact, the Kenyan Government's Department of Refugee Affairs closed the reception centre at Liboi (close to the Somali border) in October 2011. A one month registration exercise was conducted from 4th June to 4th July 2012 with a temporary registration site in Ifo camp set up, and this saw the registration of 7,971 individuals, more than the 4,066 previously identified for registration.

Therefore in each camp, UN agencies and partners are still adjusting to the unprecedented influx of about 160,000 refugees experienced from January 2011 to mid-2012 and the immense needs of these vulnerable arrivals.

The total registered population was 474,154 at the end of August 2012, shortly before the surveys were done. To accommodate the influx and reduce congestion, two more sites – Ifo extension and Kambioos were allocated and opened during 2011, bringing the number of camps to five.

Somali refugees make up the vast majority of the refugee population in the Dadaab camps. Dadaab also hosts other nationalities, including Ethiopians, Sudanese, and Congolese, as well as some refugees from Burundi, Uganda, and Eritrea. Islam is the dominant religion while Christianity is largely practiced by non-Somali refugees. Although the Somali refugee population comprises mainly of nomadic pastoralists, this population also includes farmers, former civil servants, and traders.

The partnership between UNHCR and the World Food Programme (WFP) has continued to ensure that food security and other basic needs of the refugees are adequately provided for. WFP is responsible for the provision of the general food ration (GFR) while UNHCR and its partners provide health services, water and sanitation, shelter, and basic non-food items.

Food Security Situation

Many refugees have limited access to employment or additional sources of income. Whilst some family members move to Nairobi to find employment, generally the refugees are restricted to the refugee camps with little or no options for establishing a livelihood.

The majority of the refugee population is thus largely dependent on the GFR distributed by WFP as their source of food. During September 2012 (throughout survey data collection), the General Food Distribution (GFD) was the same as during the 2011 nutrition survey; all registered refugees received 560g of food items per person per day as follows in Table 2, providing almost 2,200 kcal/day.

Table 1 Contents of the general food ration – Dadaab refugee camps

Food item	Grams/person/day	Kilocalories	Energy Provided (%)
Maize meal	210	768	35%
Wheat flour	210	764	35%
Pulses	60	205	9%
Vegetable Oil	35	310	14%
CSB	40	150	7%
Salt	5	0	-
	560	**2,197**	

Recommended daily minimum is 2,100 kcal

Each camp had a food distribution point except Kambioos, where residents have to collect their rations from the Hagadera distribution centre.

Health Situation

Significant improvements and extensions have been made to existing health services in all camps to help cater for the much greater population since the recent influx of refugees in 2011. All camps have health posts, Kambioos having only one owing to its much smaller population and being the newest of the camps. Hagadera continues operating its hospital and a new hospital has been constructed in Ifo-2 West. Due to overcrowding in Hagadera camp, there is a serious strain on existing health services and it seems likely that further health posts or a second hospital will be needed in future.

While each camp has multiple health posts, Ifo-2 East and Kambioos do not have a hospital or a 24 hours medical service, requiring refugees to travel or be referred to hospitals in Ifo-2 West and Hagadera respectively. At health posts, primary health care services provided to the community include treatment of common illnesses, antenatal care and post natal care, immunization and supplementary feeding programmes. Despite being fully operational, at times the health posts in the camps were staffed by incentive staff only due to heightened insecurity and relied on remote technical support from qualified staff. This impacted effective service delivery to some extent and interrupted the accurate and consistent reporting of health statistics since October 2011.

Outbreaks have affected Dadaab camps since 2011 as follows:

- Cholera outbreak in Hagadera from Oct 2011 to March 2012 with over 1,200 cases reported
- Measles outbreak from January 2012 to August affecting mainly Hagadera and Kambioos populations
- Six cases of Hepatitis E were detected by the end of August 2012 in Ifo-2
- Two cases of Type 2 Polio were confirmed in Ifo-2
- Bloody diarrhoea in Ifo-2 from June – August 2012.

The first round of Kenya's nationwide health promotion campaign 'Malezi bora' was held in May 2012 and the focus was 'Together let's fight malnutrition', which was fitting for the current Dadaab context. Extensive deworming, vitamin A supplementation and measles vaccinations were achieved during this time, with Ifo-2 Hagadera and Kambioos reaching beyond the 100% coverage planned for some components of the campaign.

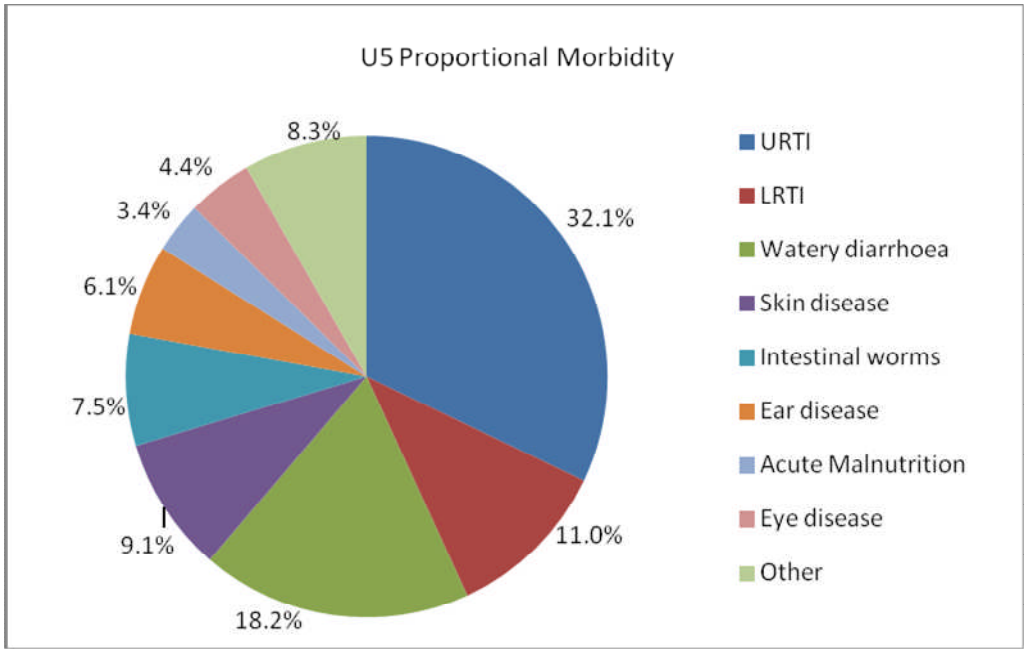
The mortality rates recorded by each IP in the Health information System (HIS) in the Dadaab camps have increased and peaked in December 2011 – January 2012, fitting with the on-going arrival of refugees who had experienced poor state of health and nutrition for a protracted time before leaving Somalia. Kambioos recorded high levels of U5 mortality with rates of 1.4 and 1.7 deaths/1,000/month in January and February respectively, but has since been well under 1.0 with the exception of August when it spiked to 1.9 deaths/1,000/month.

For children under 5 years old, the main causes of illness in 2012 were upper respiratory tract infections, lower respiratory tract infections, and watery diarrhoea (see Figure 1), making up 61.4% of all morbidity under 5 years old, according to HIS data.

Nutrition Situation

The nutrition situation in Dadaab has been improving since 2005, however in 2011 this took a turn for the worse as a result of the significant influx of approximately 150,000 refugees fleeing from nearby Somalia and arriving in very poor condition. Consequently, levels of malnutrition dramatically increased during 2011, as shown by the previous nutrition surveys. Coping mechanisms of the established refugee population have continued to be stretched by hosting and supporting the most recent arrivals since the official registration system was suspended in October 2011.

Figure 1 Under-five proportional morbidity from October 2011 to September 2012 - cumulative (UNHCR Health Information System)



Current Nutrition Services and Activities

- Targeted supplementary feeding programmes for moderately malnourished children under 5 year olds, pregnant and lactating women and patients with chronic illnesses such as TB and HIV
- Outpatient and inpatient therapeutic feeding programmes for severely malnourished children (Stabilization Centres are currently operating in 3 of 5 camps)
- Blanket supplementary feeding programme for children 6 - 23 months (lowered from 6 - 59 months in Sept 2012)
- Infant and young child feeding support and promotion programme
- Anaemia reduction and control programme for under-5 year olds and pregnant/lactating women.
- Biannual Vitamin A supplementation and deworming for under 5 year olds
- Routine bi-annual mass MUAC screening of children 6-59 months

In 2011, the selective feeding programmes recorded a high number of admissions which was attributed to the influx of new arrivals. As shown in Figure 2 and Figure 3 below, admissions to the selective feeding programmes began to increase sharply from mid-late 2011 with about 50% being new arrivals from Somalia.

Rapid Nutrition Assessments Carried Out in 2012

From 26th to 30th March 2012 a mass-MUAC screening was carried out by UNHCR and nutrition partners. MUAC-based SAM estimates were reported to range from 0.5% in Dagahaley to 9.0% in Kambioos and MUAC-based GAM estimates ranged from 3.1% in Dagahaley to 20.6% in Kambioos, according to the report.

It is well known that there is a low level of agreement between the malnutrition prevalence estimated using MUAC and the malnutrition prevalence estimated using weight-for-height z-scores. Therefore, caution was used when considering these results in order to estimate the current GAM levels for planning the 2012 Nutrition survey.

Figure 2 Admissions to community therapeutic care October 2011 to September 2012 (Health Information System)

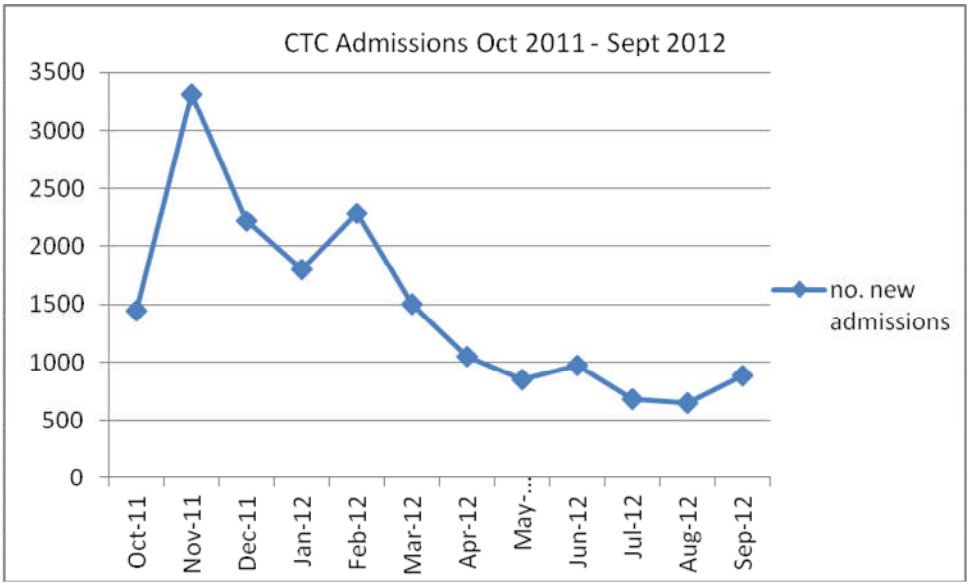
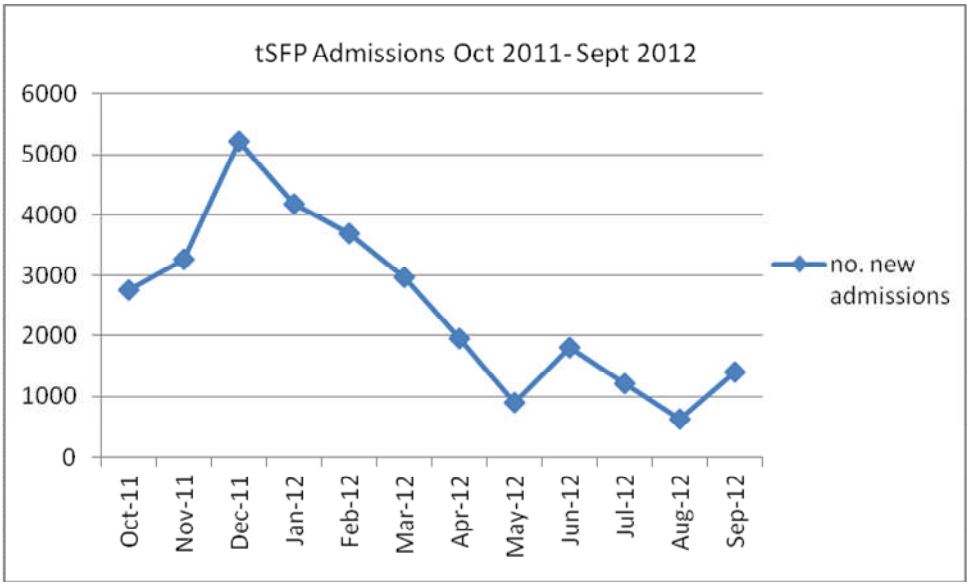


Figure 3 Admissions to Targeted SFP October 2011 to September 2012 (Health Information System)



SURVEY OBJECTIVES

Primary Objectives

1. To determine the prevalence of acute malnutrition among children 6-59 months.
2. To determine the prevalence of stunting among children 6-59 months.
3. To investigate IYCF practices among children 0-23 months.
4. To assess the prevalence of anaemia among children 6-59 months.
5. To assess the prevalence of anaemia among non-pregnant women of reproductive age (15-49 years).
6. To assess the two-week period prevalence of diarrhoea among children 0-59 months.
7. To determine the coverage of measles vaccination among children 9-59 months.
8. To determine the coverage of de-worming and vitamin A supplementation in the last six months among children 6-59 months
9. To assess the coverage of blanket supplementary feeding programmes for children 6-23 months.
10. To determine the coverage of ration cards and the duration the general food ration lasts for recipient households.
11. To determine which coping strategies are used by households to address shortfalls in the general ration.
12. To determine the population's access to improved water, sanitation and hygiene facilities.
13. To assess crude and under-five death rates in the camps in the last three months in Kambioos.
14. To establish recommendations on actions to be taken to address the situation.

Secondary Objectives:

15. To assess the coverage of targeted selective feeding programmes for children 6-59 months.
16. To determine the coverage of iron and folate supplementation in pregnant women.

METHODOLOGY

Sample size

Two stage cluster surveys were conducted in the 5 camps of Dadaab Complex: Ifo-2, Hagadera, Kambioos, Ifo, and Dagahaley (this report only describes the results from the first 3).

No current ProGres data was available for average HH size and what was available could not be used because the definition of the household in ProGres is based on ration card sharing, whereas in the nutrition survey it is based on "a group of people who live together and routinely eat out of the same pot". This latter definition of a household is widely used in nutrition surveys and has been used in Dadaab previously. Similarly, the percentage of U5 was unknown and unable to be estimated with any precision. It was therefore decided that, as in 2011, the *quota* sampling method was best used to sample from population sub-groups (clusters), rather than the *fixed household* sampling method.

Calculation of sample sizes for the four population groups to include in the surveys: 1) children 6-59 months, 2) infants 0-5 months and 3) women of reproductive age 15-49 year and 4) households (including mortality for Kambioos, and WASH and food security for all camps) was completed and is summarised in tables 2-4. A sample size of households was chosen for assessing WASH and food security indicators based on logistic feasibility. The anaemia sample size in children aged 6-59 months was the same as the sample size for GAM as is recommended in the UNHCR Standardised Expanded Nutrition Survey (SENS) guidelines.

Table 2 Sample size justification for household-level indicators

Indicator	Camp	Assumptions	Assumed current value	Desired precision	Assumed DEFF	Sample size needed (households)	Final sample size with non-response rate	Number required per cluster
Mortality in one selected camp	Kambioos	Rate based on recent mortality data of HIS. Considered most vulnerable sub-group with possibly more recent arrivals	0.5/10,000/d Recall period of 98-104 days (World Refugee Day 2012 – 20th June)	± 0.35 /10,000/d	1.5	436 (average HH size assumed to be 6)	450 (3% HH NRR)	15/cluster
WASH and food security indicators	All camps	Use one fixed household sample based on feasibility	-	-	-	-	360 HH per camp	12/cluster

Abbreviations: DEFF: design effect; NRR: non-response rate

Table 3 Sample size justification for individual-level indicators (all camps)

Survey target group and indicator	Prevalence (%) from previous surveys or assumptions	Assumed current value	Desired precision	Assumed DEFF	Sample size needed (individuals)	Final sample size with NRR	Number required per cluster
Acute malnutrition in children 6-59 months	See Table 4 below	HAG: 20% KAM: 23% IFO-2: 25%	HAG, KAM, IFO-2: ±5%	2.0	HAG: 535 IFO-2: 627 KAM: 593	600 for all camps (10% NRR)	20/cluster
IYCF in children 0-5 months	Convenient sample determined by 6-59 months sample sizes (infants 0-5 months should comprise about 25% of the total 300 infants needed)	-	-	-	-	300 infants per camp	4 / cluster (additional infants 0-5 months to complete sample)
Anaemia in women 15-49 years	Based on anaemia in non-pregnant women from the 2011	50%	± 9%	2.0	258 women required	300 women per camp	10/cluster

	survey. Assumed pregnancy and lactation prevalence of 30% hence sample size multiplied by 1.3						

Abbreviations: DEFF: design effect; NRR: non-response rate; ANC: Antenatal Care

Table 4 Sample size justification and rationale for acute malnutrition in children 6-59 months

Camp	Description	Nutrition surveys Aug / Sep 2011	Estimated prevalence, desired precision and DEFF	Sample size with NRR
IFO-2 (Survey 1)	Based on MUAC screening March 2012, GAM of 13.1% and SAM of 4.5% and at risk of malnutrition were 24.5% GAM estimated to be ~25% or lower.	N/A (this population were predominantly resettled from Dagahaley outskirts – 38% GAM in 2011)	2.0 – assuming heterogeneity particularly between Ifo 2 East and Ifo 2 West 25%, ±5, DEFF 2.0	627
KAM (Survey 3)	Based on MUAC screening of children 6-59 months March 2012 – GAM – 20.6% and SAM – 9.0% at risk of malnutrition is 21.0%. GAM estimated to be ~23% or lower	N/A	23%, ±5%, DEFF 2.0	593
HAG (Survey 4)	Based on MUAC screening of children 6-59 months March 2012 – GAM – 5.6% and SAM – 1.4% at risk of malnutrition is 14.4%. GAM estimated to be ~15% or lower	GAM – 17.2% SAM – 4.6%	20%, ±5%, DEFF 2.0	535
Rationale	Expectation that prevalence estimate based on WHZ will give a higher prevalence than that based on MUAC. Expectation that there is significant heterogeneity in malnutrition within the camps, hence the use of a design effect of 2, due to some unregistered households and continued hosting of new arrivals (not yet registered)			

Abbreviations: DEFF: design effect; NRR: non-response rate; KAM: Kambioos; HAG: Hagadera.

Sampling procedure: selecting clusters

Due to the large number of indicators and based on the pre-testing of the questionnaires, it was estimated that no more than 12 households could be surveyed in one day by each team. Hence, a total of 30 clusters were randomly selected in each of the five camps using probability

proportional to size (PPS). Clusters were allocated to blocks according to their population size, as recorded in the UNHCR ProGres database at the time of planning.

Some editing of the ProGres database was required; for example there were very few residents listed in some Blocks, and these were considered errors in the database. In addition, there was the occasional Block that did not actually exist and these were removed from the sampling frame. These adjusted population estimates were used in cluster allocation calculations conducted in ENA for SMART. See Appendix 4 for the listing of clusters used.

Sampling procedure: selecting households and individuals

As the blocks structures remained unchanged in four of the Dadaab camps; blocks are usually rectangular in shape with narrow paths going across them – the same method was used as in the 2011 Nutrition Survey. For consistency, second stage sampling was performed using the same adapted version of the standard EPI (spin the pen) method to select the households to survey. To select the first household to survey, the survey teams walked around the perimeter of the block and assigned a number to each path entering the block. A path was selected randomly using random numbers and the team then walked down that path assigning a number to each compound door found on the left and on the right until the end of the path was reached or until the first intersection with another path. The first household was then selected by choosing a household number using random numbers. If this was a compound, each individual household was surveyed. After leaving, subsequent households were selected by walking out of the same compound door, turning left out of the household, following the path and selecting the next house on the left-hand side.

In Kambioos only, the most recently constructed camp where refugees continue to be relocated to, the blocks are organised a little differently – in a more geometrical pattern with many more pathways entering each block. It was therefore decided that following the random selection of the entry path, only households on the left would be numbered and this was done until the team reached an exit to the block. This meant walking in a U-shape from point of entry. (See Appendix 6 for a plan of Kambioos blocks).

In all surveys, standardised procedures were followed by all teams. All households were selected, whether or not they had an eligible individual, until the quota for the household indicator was reached. All eligible individuals within the selected households were measured until the quota for that target group was reached. When a household was visited to get the last individual for the target group quota and there were several eligible individuals in the household, all were measured and included in the sample to avoid the possibility of selection bias and unequal selection probability.

If an individual or an entire household was absent, the teams were instructed to return to the absent household or revisit the absent individual up to two times on the same survey day. If they were unsuccessful after this, the individual or the household were recorded as an absence and they were not replaced with another household or individual.

If an individual or an entire household refused to participate, then it was considered a refusal and the individual or the household were not replaced with another household or individual.

If a selected household was abandoned, the household was replaced by another household.

If a selected child was disabled with a physical deformity preventing certain anthropometric measurements, the child was still included in the assessment of other indicators.

Questionnaires

The paper versions of the questionnaires are included in Appendix 7, along with the household listing form and cluster control sheets, which were used to monitor field work progress.

The questionnaires were prepared on paper in English before being coded as electronic questionnaires in Open Data Kit Collect (ODK Collect) and uploaded onto Android smart phones for testing. The questionnaires were revised with the input of Supervisors and Team Leaders and then piloted by teams in two to three households before the survey. Data validation ranges and skip patterns were coded in the questionnaires to help reduce data entry errors. Following piloting and several rounds of revision, the electronic questionnaires were finalised. They were administered in Somali via translators if required – many team members spoke Somali and associated dialects.

Four Questionnaires were created and administered in Ifo-2 and Hagadera to provide information on the relevant indicators for the different target groups. Five questionnaires were used in Kambioos where an additional mortality questionnaire was included. Data on time of arrival in the camp and ethnicity were collected in the different modules.

It was decided not to determine long-lasting insecticidal net (LLIN) coverage in the present survey due to the already extensive length of the survey and in light of the security concerns. It was also not identified as a priority by the IPs. During discussions with stakeholders at the survey planning stage, IPs had prioritised the IYCF module for inclusion due to the implementation of a IYCF program by ACF during the previous 12 months.

Questionnaire 1*: Household Food Security and WASH*- This included questions on access and use of the GFD ration and coping mechanisms when the general ration ran out prior to the next distribution. A shortened version of the SENS WASH questionnaire was undertaken in households and included questions on availability of jerry-cans, access to improved drinking water source, satisfaction with the water supply, type and quality of excreta disposal facilities in use and coverage of soap distribution.

Questionnaire 2: *Women 15-49 years* - This included questions and measurements on women aged 15-49 years. Information was collected on women's pregnancy and lactating status, coverage of iron-folic acid pills and post-natal vitamin A supplementation, and haemoglobin assessment for non-pregnant women only.

Questionnaire 3*: Children 6-59 months* - This included questions and measurements on children aged 6-59 months. Information was collected on anthropometric status, oedema, enrolment in selective feeding programmes and coverage of blanket supplementary feeding programmes (CSB++), immunisation (measles and PENTA), vitamin A supplementation and deworming in last six months, morbidity from diarrhoea in past two weeks, haemoglobin assessment (for 6-59 months), and feeding practices for infants (6-23 months).

***Questionnaire* 4**: *Infant 0-5 months* - This included questions on breastfeeding practices, introduction of solid foods and other aspects of infant feeding for children aged 0-5 months..

***Questionnaire* 5**: *Mortality* - This included questions related to mortality in the last three months among the population of Kambioos camp only. The memorable date chosen to define the recall period was World Refugee Day on 20th June. The questionnaire was combined with the household listing form used in the other camps and to save time during the survey planning stage, it was administered on paper, instead of being converted to an electronic form.

Measurement methods for household-level indicators:

Food security: The questionnaire used was based on UNHCR SENS Food Security Questionnaire, yet was reduced and combined with WASH questionnaire to form the 'Household

Questionnaire'. Discussions with stakeholders, the most important one being WFP, led to the revised food security questions whilst attempting to retain as much similarity as possible to previous questionnaires for comparison.

WASH: The questionnaire used was an adapted version of UNHCR SENS Guidelines, and was developed in consultation with UNHCR WASH unit. Similar to the Food Security, the WASH questionnaire was contracted and combined in an attempt to contain the overall time required to complete all questionnaires for one household. The decision to include WASH questions was related to the recent outbreak of Hepatitis E reported in at least one camp and with consideration that two camps are newly established since the last survey.

Mortality: An individual-level mortality form was merged with the household listing form to allow the mortality data to be collected most efficiently, as the household members were already being listed on that form, including gender and age. Kambioos was chosen as it was thought to have been worst affected with respect to mortality, as it was the last camp to be set up and populated with less services running compared to the more established camps. Data entry and analysis was done in ENA for SMART with the individual level data derived from the adapted HH listing form (see appendix 7).

Measurement methods for individual-level indicators:

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

Birth date or age in months for children 0-59 months: The exact date of birth (day, month, year) was recorded from either an EPI card, UNHCR manifest (if not 1st January), child health card or birth notification if available. If no reliable proof of age was available, age was estimated in months using a local event calendar (see Appendix 8) or by comparing the selected child with a sibling whose ages were known, and was recorded in months on the questionnaire.

Age of women 15-49 years: Unlike small children, the exact date of birth of women was not recorded. Reported age was recorded in years.

Weight of children 6-59 months: Measurements were taken to the closest 100 grams using new electronic scales (SECA scale) with a wooden board to stabilise it on the ground. Some children were weighed with clothes due to the cultural sensitivities of removing clothes and this was noted. Previous experience in Dadaab has shown that it can be difficult to convince caregivers to remove clothes from children during weighing in nutrition surveys. The mean weight of samples of typical clothes from children 6 – 59 months was used to identify an adjustment figure. The weight of 117 grams (the same used in 2011) was used to adjust if weighed with clothes.

Height/Length of children 6-59 months: Children's height or length was taken to the closest millimetre using a wooden height board. A height stick and the age of the child were used to decide whether a child should be measured lying down (length) or standing up (height). Children less than 87 cm were measured lying down, while those greater than or equal to 87 cm were measured standing up.

Oedema in children 6-59 months: bilateral oedema was assessed by measurers applying gentle thumb pressure on to the tops of both feet of the child for a period of three seconds then observing for the presence or absence of a pit. All oedema cases reported by the survey teams were verified by the survey coordinators and were referred immediately.

MUAC of children 6-59 months: MUAC was measured at the mid-point of the left upper arm between the elbow and the shoulder and taken to the closest millimetre using a standard MUAC tape. MUAC was recorded in centimetres.

Child enrolment in selective feeding programme for children 6-59 months: Selective feeding programme coverage was assessed for the outpatient therapeutic programme and for the targeted supplementary feeding programme using the direct method.

Haemoglobin (Hb) concentration in children 6-59 months and non-pregnant women 15-49 years: Hb concentration was taken 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). If severe anaemia was detected, the child or the woman was referred immediately.

Measles vaccination in children 6-59 months: Measles vaccination was assessed by checking for the measles vaccine on the EPI card if available or by asking the caregiver to recall if no EPI card was available.

PENTA vaccination in children 6-59 months: The PENTA vaccination contains five components: Diphtheria, Pertussis, Tetanus, Hepatitis B, Haemophilus Influenza Type b and is given in three doses on three different occasions. PENTA vaccination was assessed by checking for the first, second, or third PENTA dose and was only recorded as 'yes' when confirmed by examination of the vaccination card.

Vitamin A supplementation within last 6 months in children 6-59 months: the receipt of vitamin A supplementation within the last 6 months was checked by the EPI or health card (if documented) and also via recall by the child's caregiver if no card was available (without showing a Vitamin A capsule).

Deworming in last 6 months in children 24-59 months: receipt of a deworming pill within the past six months was determined by recall only in this year's survey, as it was not consistently recorded on the EPI / health cards.

Diarrhoea in last 2 weeks in children 0-59 months: Caregivers were asked if their child had suffered from diarrhoea in the past two weeks and were asked about feeding practices during diarrhoea.

ANC enrolment and iron and folic acid pills coverage: If the surveyed woman was pregnant, enrolment in the ANC programme and receipt of iron-folic acid pills was assessed by card or recall.

Post-natal vitamin A supplementation: If the surveyed woman had delivered a baby in the last six months, it was assessed by card or recall whether she had received vitamin A supplementation.

Infant and young child feeding practices in children 0-23 months: Infant and young child feeding practices were assessed based on standard WHO recommendations (WHO 2007) as was used in previous years in Dadaab.

Referrals: Children aged 6-59 months were referred to health posts for treatment 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.

Case definitions and calculations

Mortality: The crude death rate (CDR) and the U5 death rate (U5DR) were expressed as the number of deaths per 10,000 people per day. The formula below was applied:

Crude Death Rate (CDR) = 10,000/a*f/ (b+f/2-e/2+d/2-c/2)
Where:
a = Number of recall days
b = Number of current household residents
c = Number of people who joined household during recall period
d = Number of people who left household during recall period
e = Number of births during recall period
f = Number of deaths during recall period

Malnutrition in children 6-59 months: Acute malnutrition was determined using the globally accepted measure of weight-for-height index values (z-scores) or the presence of oedema and classified as shown in Table 5. Main results are reported following analysis using the WHO 2006 Growth Standards.

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

Categories of acute malnutrition	Percentage of median (NCHS Growth Reference 1977 only)	Z-scores (NCHS Growth Reference 1977 and WHO Growth Standards 2006)	Bilateral oedema
Global acute malnutrition	<80%	< -2 z-scores	Yes/No
Moderate acute malnutrition	<80% to ≥70%	< -2 z-scores and ≥ -3 z-scores	No
Severe acute malnutrition	>70%	> -3 z-scores	Yes
	<70%	< -3 z-scores	Yes/No

Stunting, also known as chronic malnutrition, was defined using height-for-age index values and was classified as severe or moderate based on the cut-offs shown in Table 6. Then results are reported according to the WHO Growth Standards 2006.

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-score and >=-3 z-score
Severe stunting	<-3 z-scores

Underweight was 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.

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 in children 6-59 months were used to define malnutrition according to the cut-offs shown in Table 8.

Table 8 Classification of acute malnutrition based on MUAC in children 6-59 months (WHO)

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

Child enrolment in selective feeding programme for children 6-59 months:

Selective feeding programme coverage was assessed using the direct method as follows:

Coverage of TSFP programme (%) =

$$100 \times \frac{\text{No. of surveyed children with MAM according to TSFP admission criteria who reported being registered in SFP}}{\text{No. of surveyed children with MAM } \textit{according to TSFP admission criteria}}$$

(This calculation excludes children already enrolled in the OTP program as they cannot be eligible for both programmes at the same time, and would be in the recovery phase).

Coverage of OTP programme (%) =

$$100 \times \frac{\text{No. of surveyed children with SAM according to OTP admission criteria who reported being registered in OTP}}{\text{No. of surveyed children with SAM } \textit{according to OTP admission criteria}}$$

Infant and young child feeding practices in children 0-23 months:

Infant and young child feeding practices were assessed as follows based on standard WHO Indicators for Assessing IYCF practices (2010).

WHO core indicator 1. Early initiation of breastfeeding:
Proportion of children 0-23 months who were put to the breast within one hour of birth.

$$\frac{\text{Children 0-23 months who were put to the breast within one hour of birth}}{\text{Children 0-23 months}}$$

WHO core indicator 2. Exclusive breastfeeding under 6 months:
Proportion of infants 0–5 months of age who are fed exclusively with breast milk: including milk expressed or from a wet nurse, ORS, drops or syrups (vitamins, minerals, medicines)

$$\frac{\text{Infants 0–5 months of age who received only breast milk during the previous day}}{\text{Infants 0–5 months of age}}$$

WHO core indicator 3. Continued breastfeeding at 1 year:
Proportion of children 12–15 months of age who are fed breast milk.

$$\frac{\text{Children 12–15 months of age who received breast milk during the previous day}}{\text{Children 12–15 months of age}}$$

WHO core indicator 4. Introduction of solid, semi-solid or soft foods:
Proportion of infants 6–8 months of age who receive solid, semi-solid or soft foods.

$$\frac{\text{Infants 6–8 months of age who received solid, semi-solid or soft foods during the previous day}}{\text{Infants 6–8 months of age}}$$

WHO optional indicator 9. Children ever breastfed:
Proportion 0-23 months who were ever breastfed.

$$\frac{\text{Children 0-23 months who were ever breastfed}}{\text{Children 0-23 months}}$$

WHO optional indicator 10. Continued breastfeeding at 2 years:
Proportion of children 20–23 months of age who are fed breast milk.

$$\frac{\text{Children 20–23 months of age who received breast milk during the previous day}}{\text{Children 20–23 months of age}}$$

WHO optional indicator 14. Bottle feeding:
Proportion of children 0-23 months of age who are fed with a bottle

$$\frac{\text{Children 0–23 months of age who were fed with a bottle during the previous day}}{\text{Children 0–23 months of age}}$$

Diarrhoea: Three or more loose or watery stools in a 24-hour period.

Continued feeding during diarrhoea: Breastfeeding or food offered at about the same or greater frequency during diarrhoea as before diarrhoea started (FANTA 1999).

Anaemia in children 6-59 months and women of reproductive age: Anaemia was classified according to the cut-offs in children 6-59 months and non-pregnant women of reproductive age shown in Table 9. Pregnant women are not included in routine UNHCR nutrition surveys for the assessment of anaemia due sample size issues (usually a small number of pregnant women are found) as well as the difficulties in assessing gestational age in pregnant women.

Table 9 Definition of anaemia (WHO 2000)

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

Classification of public health problems and targets

Mortality: The thresholds used for mortality are shown in Table 10.

Table 10 Mortality benchmarks for defining crisis situations (NICS, 2010)

Emergency threshold
CDR > 1/10,000 / day: 'very serious' CDR > 2 /10,000 /day: 'out of control' CDR > 5 /10,000 /day: 'major catastrophe' (double for U5MR thresholds)

Anthropometric data: UNHCR Strategic Plan for Nutrition and Food Security (2008-2012) states that the target for the prevalence of global acute malnutrition (GAM) for children 6-59 months of age by camp, country and region should be < 5% and the target for the prevalence of severe acute malnutrition (SAM) should be <1%. 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 1995, 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

Selective feeding programmes: UNHCR Strategic Plan for Nutrition and Food Security 2008-2012 includes the following indicators:

- % of targeted supplementary feeding programmes that meet SPHERE standards for performance: recovery >75%, case fatality <3%, defaulter rate <15%, and coverage >90% for camps – by camp and country.
- % of programmes for management of SAM that meet SPHERE standards for performance and adhere to standard treatment protocols: recovery >75%, case fatality <10%, defaulter rate <15%, and coverage >90% for camps regardless of whether facility based or community based – by camp or facility (if non camp-based).

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

Vitamin A supplementation coverage: 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 by camp, country and region should be >90%.

Anaemia data*:* UNHCR Strategic Plan for Nutrition and Food Security (2008-2010) 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 as shown in Table 12.

Table 12 Classification of public health significance (WHO 2000)

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

WASH: Diarrhoea caused by poor water, sanitation and hygiene, globally accounts for the annual deaths of over two million children under five years old. Diarrhoea also contributes to high infant and child morbidity and mortality by directly affecting their nutritional status. Refugee populations are often more vulnerable to public health risks and reduced funding can mean that long term refugee camps often struggle to ensure the provision of essential services, such as water, sanitation and hygiene. Hygienic conditions and adequate access to safe water and sanitation services is a matter of ensuring human dignity and is recognised as a fundamental human right. The standards (amongst others) shown in Table 13 apply to UNHCR WASH programmes.

Table 13 UNHCR WASH Programme Standards

UNHCR Standard	Indicator
Latrine provision	20 people/latrine
Soap provision	> 250 g per person per month

Training, coordination and supervision

Coordination of the surveys was conducted from UNHCR Dadaab Sub-Office (SO) by the UNHCR Nutritionist (Mary Koech) with technical support from an UCL team of two consultants (Jo McElhinney and Andrew Seal), one CartONG Consultant (Sandra Sudhoff) and logistics support from ADEO (Mary Orwenyo). The UCL team were instructed by UNHCR that visits to the camp were not permitted due to the security situation.

The surveys were undertaken by five teams per camp (total of 25 teams) drawn from each agency's staff or daily workers; IRC, GIZ, MSF-CH, KRCS, IMC. Each team was composed of five members; a team leader, a mobiliser/translator, two measurers and one HemoCue operator. The supervision of data collection was conducted by the nutritionists from each of the five lead agencies. In addition, there was additional support by one UNICEF Nutritionist (Francis Kidake), two ADEO Nutritionists and an ADEO nurse, one WFP Nutritionist (Colin Buleti) and the UNHCR Nutritionist (Mary Koech) on a daily basis throughout the data collection period.

The team leader was the interviewer for all questionnaires and entered the responses into the Android phone after completing the HH listing form (Appendix 7). The team leader worked with the translator/mobiliser who at times assisted with recording the HH listing form. The other team members were occupied with taking their respective measurements. All team members were literate and some had previous experience conducting surveys.

A standardised training lasting four days was provided to Supervisors and Team Leaders at the Dadaab SO. This was followed by training of measurers in the field by the Supervisors and Team Leaders, and thereafter by a day of Standardisation testing and then one day of piloting.

Training lasted from September 12th – 15th and the Standardisation test and pilot day were held during the two days prior to each survey starting.

Whilst the measurers were being trained in the camps, two sessions of training for the HemoCue Operators were conducted at Dadaab SO, with staff from GIZ, IRC and MSF, and who were either Laboratory staff, Community Health workers or Auxiliary Nurses.

Due to the extended time-frame for data collection and the volume of material covered during the initial training, refresher training was held for the four surveys during the final days of the previous survey. This allowed improvements to be made and issues to be raised in time for each subsequent survey and attention to be paid to particular areas of difficulty or potential error.

The initial training covered: the purpose and objectives of the survey; roles and responsibilities of each team member; designing and fine-tuning each question including responses of the questionnaires; interviewing skills and recording of data; designing and use of calendar of events for age determination; correct techniques for taking anthropometric measurements and common errors; and sampling procedures. The practical session on haemoglobin measurements involved the trainees and trainers acting as volunteers for practice sessions as well as a standardisation exercise.

One day was set aside for the standardisation test for anthropometry as recommended by SMART and UNHCR SENS guidelines. Due to the insecurity and lack of supervision from the survey manager, it was decided that an adapted standardisation test would be conducted. This involved the measurers working in pairs instead of as individuals, and also measuring three children twice each.

For the pilot test, two to three households were selected by each of the teams who administered the questionnaires and took the required measurements. The data collection tools were then reviewed based on the feedback from the field piloting.

Two stage cluster surveys were conducted in all five camps in Dadaab (Hagadera, Ifo, Dagahaley, Ifo 2, and Kambioos). It is important to note that the surveys did *not include* the outskirt areas of Dagahaley, Hagadera, or Ifo camps as they are no longer recognised as areas for refugees to reside (and most have been relocated) and also due to a lack of validated population data for these areas. Although five surveys were conducted, concerns were raised regarding the quality of data in Dagahaley and Ifo camps and UNHCR made the decision not to release these results.

Data collection lasted six days per camp with one camp undertaken during the first week (19th – 24th September), to allow any arising problems to be addressed. This was followed by surveys in Kambioos and Dagahaley from 26th Sept – 1st October and finally Hagadera and Ifo were conducted from 3rd – 8th October. Upon entering the household, each survey team explained the purpose of the survey and the confidentiality agreement, and then obtained verbal consent before proceeding with the survey in the selected households.

Data Collection using Android phones

In contrast to the 2011 Nutrition Survey in Dadaab, Android phones (also known as Smart phones) were used to collect data in the form of electronic questionnaires. CartONG the partner agency to provide all technical support, was responsible for setting up of equipment, pre-testing the system once set up, training the teams and survey management team and also coding the questionnaires from paper format.

Whilst this process was very technical and required extra logistics and human resources it greatly reduced the time usually required for data entry, and also appeared to help to minimise errors by the teams entering data.

ODK was the Android application used to produce the questionnaires and collect data, and the Android phones were either Motorola Milestone or HTC Desire Z. Both models were used as some problems were initially encountered with preparing the new HTCs for use, whereas the older Motorola's had been used in surveys elsewhere and were considered a reliable option.

Data analysis
Data entry was checked and then confirmed at UNHCR Dadaab SO each evening upon receiving the phones from the field. Each record was checked against the paper Household Listing form and either confirmed or marked to be returned to the team for correction and/or confirmation the following day. By sending the Android phones back to the teams with corrections or confirmations required, the teams received practical feedback and further learned the importance of accuracy and thoroughness in recording the measurements and responses.

Records for each questionnaire in each household were checked for completeness, consistency with HH listing form, and range of data, before being confirmed and synchronised (uploaded) from the phones to the server each evening.

Records were downloaded from the server at the conclusion of each evening as .csv files to serve as a back-up and minimise the risk of loss of data from the server. Data for children 6-59 months were then transferred from the .csv files into ENA for SMART software (version November 24th 2012) each evening by the coordination team for a Plausibility check to be generated, which was used to provide daily feedback to the Supervisors.

At the end of day six of data collection, a complete set of data was ready for the next stage of 'cleaning'. All data files were cleaned before analysis. Entries were double checked, one by one, with the original questionnaire to ensure there were no data entry errors. Duplicate entries were identified in Excel and removed.

Analysis was performed using ENA for SMART and Epi Info software. The SMART Plausibility Report was generated for each complete set of survey data in order to check the quality of the anthropometric data and a summary of the key quality criteria is shown in Appendix 2.

The nutritional indices from this year's surveys have been cleaned using flexible cleaning criteria from the observed mean (also known as SMART flags in the ENA for SMART software), rather than the reference mean (also known as WHO flags in the ENA for SMART software).

This flexible cleaning approach is recommended in the UNHCR SENS Guidelines (Version 1.2, June 2011) in accordance with SMART recommendations. For the weight-for-height index, a cleaning window of +/- 4 SD was used again instead of the default +/- 3 SD value contained in the SMART for ENA software for comparability reasons. In 2011, a wider cleaning window was also applied which is consistent with WHO recommendations. This was appropriate as the target population in the refugee camps and the new arrivals were considered, (1) likely to be suffering from high levels of severe acute malnutrition, and (2) likely to be heterogeneous, with some sub-groups more seriously affected than others. In such situations, using the default +/- 3 SD cleaning window is inappropriate and likely to lead to the exclusion of some true cases of severe acute malnutrition.

RESULTS FROM HAGADERA CAMP, DADAAB (OCT 2012)

- **INDIVIDUAL-LEVEL INDICATORS:**
  CHILDREN 6-59 MONTHS,
  INFANTS 0-23 MONTHS,
  WOMEN OF REPRODUCTIVE AGE 15-49 YEARS
- **HOUSEHOLD INDICATORS: WASH AND FOOD SECURITY**

Table 14 provides the planned sample size and the actual units sampled during the survey for each target population group. Thirty clusters were sampled for all indicators, therefore the number of required records per cluster varied according to the total target sample size required.

Table 14 Target sample size and actual number captured during the survey - Hagadera camp, Dadaab (Oct 2012)

Target group	Target sample size	Subjects measured/interviewed during the survey	% of the target
Children 6-59 months	600	600	100%
Children 0-23 months	300	320	107%
Women 15-49 years	300	306	102%

CHILDREN 6-59 MONTHS - HAGADERA CAMP, DADAAB (OCT 2012)

Outlined below in Table 15 is the demographic data of children surveyed: nationality, time of arrival to Dadaab and the region of origin if recently arrived (i.e. within past 12 months).

Table 15 Demographic information - Hagadera camp, Dadaab (Oct 2012)

	Number/total	%
Nationality		
Somali	462 / 600	77.0
Somali Bantu	138 / 600	23.0
Others	0 / 600	0.0%
Arrival in camp		
<3 months	2 / 600	0.3
3-6 months	4 / 600	0.7
6-12 months	2 / 600	0.3
>12 months	592 / 600	98.7
Region of origin for children in camp for <12 months		
Lower Juba	7 / 8	87.5
Middle Juba	-	-
Gedo	1 / 8	12.5
Bay	-	-
Bakool	-	-
Lower Shabelle	-	-
Middle Shabelle	-	-
Hiraan	-	-
Mogadishu/Banadir	-	-
Other	-	-

Anthropometric results (based on WHO Growth Standards 2006)
The coverage of age documentation was high with 81% of children having an exact birth date. The age group 18 – 29 months was slightly over-represented and 42-53 months under-represented. There were equal numbers of boys and girls represented in the survey in

Hagadera, shown in Table 16 below, by the sex-ratio of 1.02 (within the accepted range of 0.8 – 1.2).

Table 16 Distribution of age and sex of sample - Hagadera camp, Dadaab (Oct 2012)

	Boys		Girls		Total		Ratio
AGE (months)	**no.**	**%**	**no.**	**%**	**no.**	**%**	**Boy:girl**
6-17	64	47.1	72	52.9	136	22.7	0.89
18-29	74	47.4	82	52.6	156	26.0	0.90
30-41	64	49.6	65	50.4	129	21.5	0.98
42-53	65	58.0	47	42.0	112	18.6	1.38
54-59	36	53.7	31	46.3	67	11.2	1.16
Total	303	50.5	297	49.5	600	100.0	1.02

Table 17 below, shows that compared with results from the 2011 survey, there has been a significant decrease in GAM (from 17.2%, 95% CI: 13.2 – 22.1 to 10.3%, 95% CI: 8.0 – 13.0) ($p<0.05$), among children in Hagadera, aged 6-59 months.

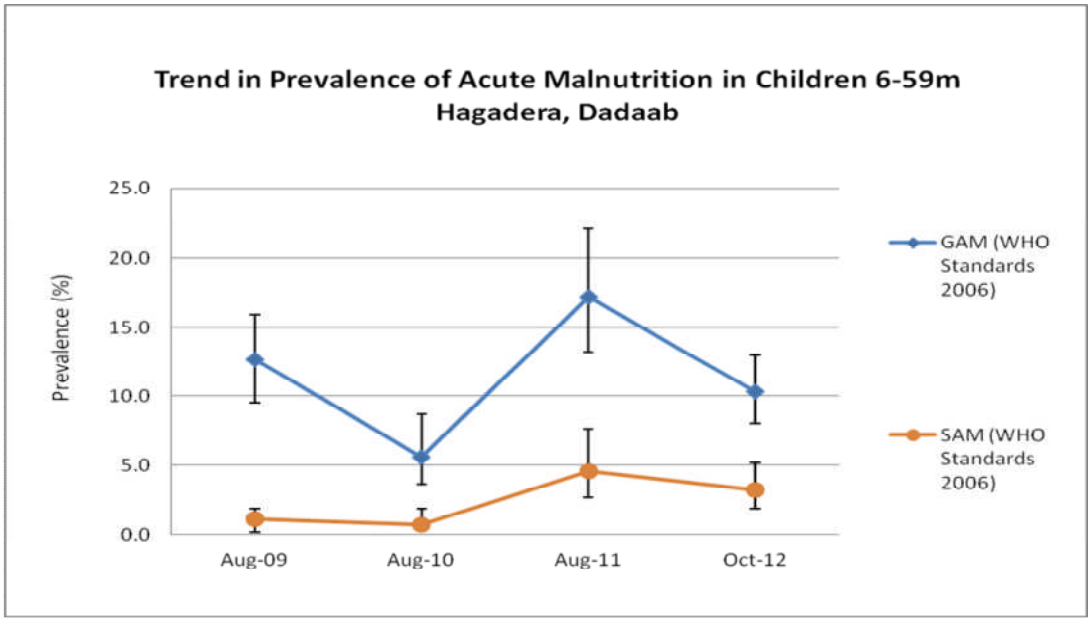
Table 17 Prevalence of acute malnutrition based on weight-for-height z-scores (and/or oedema) and by sex - Hagadera camp, Dadaab (Oct 2012)

	All n = 594	**Boys** n = 299	**Girls** n = 295
Prevalence of global malnutrition (<-2 z-score and/or oedema)	N = 61 10.3% (8.0 – 13.0)	N = 36 12.0% (9.0 – 16.0)	N = 25 8.5% (5.7 – 12.3)
Prevalence of moderate malnutrition (<-2 z-score and >=-3 z-score, no oedema)	N = 42 7.1% (5.2 – 9.6)	N = 27 9.0% (6.1 – 13.1)	N = 15 5.1% (3.0 – 8.4)
Prevalence of severe malnutrition (<-3 z-score and/or oedema)	N = 19 3.2% (1.9 – 5.2)	N = 9 3.0% (1.7 – 5.3)	N = 10 3.4% (1.7 – 6.5)

The prevalence of oedema is 0.5 % (n=3)

Whilst there has been a decrease in GAM since the 2011 survey, the levels have not returned to the pre-2011 influx seen in the 2010 nutrition survey as seen in Figure 4.

Figure 4 Trends in GAM and SAM since 2009 - Hagadera camp, Dadaab (Oct 2012)



The number of cases of severe and moderate wasting, as seen in Table 18, are higher in the younger age-groups, particularly in the 6-17 month age group. In this sample it appears that the prevalence (%) is also high in the 54 – 59 month age-group, as seen in the Figure below. This is the same pattern as seen in the 2011 nutrition survey.

Table 18 Prevalence of acute malnutrition by age, based on weight-for-height z-scores and/or oedema - Hagadera camp, Dadaab (Oct 2012)

		Severe wasting (<-3 z-score)		Moderate wasting (>= -3 and <-2 z-score)		Normal (> = -2 z score)		Oedema	
Age (months)	**Total no.**	**No.**	**%**	**No.**	**%**	**No.**	**%**	**No.**	**%**
6-17	134	4	3.0	11	8.2	117	87.3	2	1.5
18-29	154	5	3.2	11	7.1	137	89.0	1	0.6
30-41	129	5	3.9	5	3.9	119	92.2	0	0.0
42-53	111	0	0.0	8	7.2	103	92.8	0	0.0
54-59	66	2	3.0	7	10.6	57	86.4	0	0.0
Total	**594**	16	2.7	42	7.1	533	89.7	3	0.5

Figure 5 Trends in the prevalence of wasting by age in children 6-59 months - Hagadera camp, Dadaab (Oct 2012)

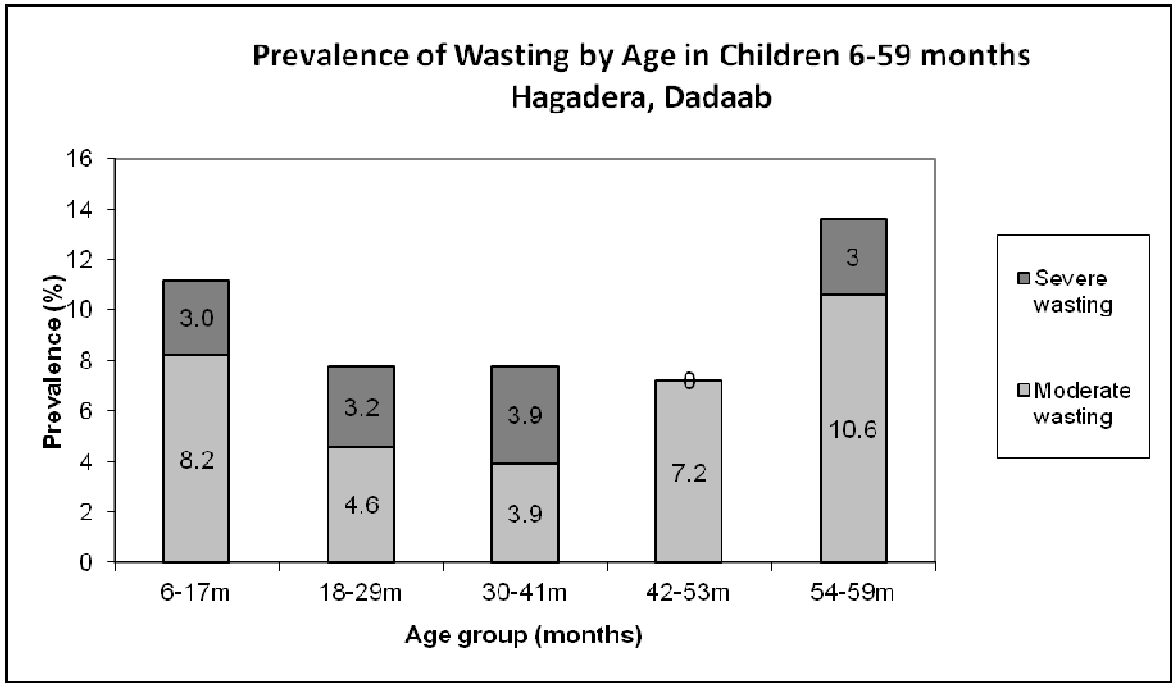


Table 19 Distribution of severe acute malnutrition and oedema based on weight-for-height z-scores - Hagadera camp, Dadaab (Oct 2012)

	<-3 z-score	**>=-3 z-score**
Oedema present	Marasmic kwashiorkor N = 0	Kwashiorkor N = 3
Oedema absent	Marasmic N = 17	Not severely malnourished N = 577

Figure 6 shows that the weight-for-height z-score distribution is shifted to the left, illustrating a poorer nutritional status than the international WHO Standard (2006) population of children aged 6-59 months.

Figure 6 Distribution of weight-for-height z-scores (based on WHO Growth Standards; the reference population is shown in green) of survey population compared to reference population-Hagadera camp, Dadaab (Oct 2012).

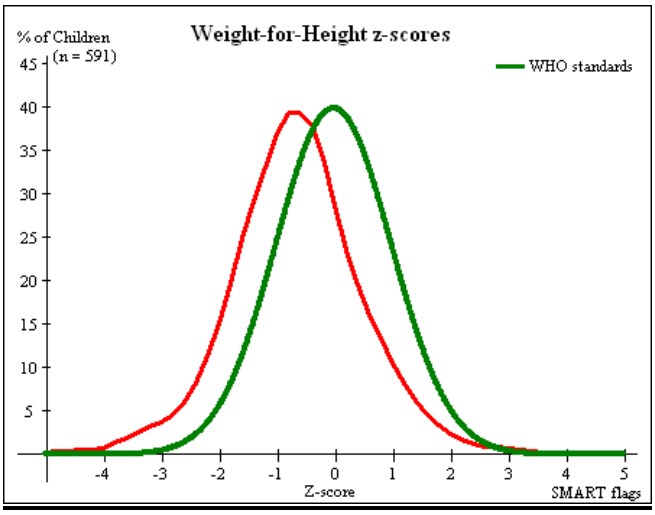


Table 20 Prevalence of stunting based on height-for-age z-scores and by sex - Hagadera camp, Dadaab (Oct 2012)

	All n = 576	**Boys** n = 291	**Girls** n = 285
Prevalence of stunting (<-2 z-score)	n = 148 25.7% (20.4 – 31.8)	n = 88 30.2% (23.8 – 37.6)	n = 60 21.1% (15.3 – 28.3)
Prevalence of moderate stunting (<-2 z-score and >=-3 z-score)	n = 106 18.4% (14.4 – 23.3)	n = 66 22.7% (17.6 – 28.7)	n = 40 14.0% (9.4 – 20.4)
Prevalence of severe stunting (<-3 z-score)	n = 42 7.3 (5.2 – 10.1)	n = 22 7.6% (5.0 – 11.2)	n = 20 7.0% (4.6 – 10.5)

Table 21 Prevalence of stunting by age based on height-for-age z-scores - Hagadera camp, Dadaab (Oct 2012)

		Severe stunting (<-3 z-score)		**Moderate stunting (>=-3 and <-2 z-score)**		**Normal (> = -2 z score)**	
Age (months)	**Total no.**	**No.**	**%**	**No.**	**%**	**No.**	**%**
6-17	130	10	7.7	23	17.7	97	74.6
18-29	148	16	10.8	28	18.9	104	70.3
30-41	124	9	7.3	24	19.4	91	73.4
42-53	109	3	2.8	23	21.1	83	76.1
54-59	65	4	6.2	8	12.3	53	81.5
Total	**576**	42	7.3	106	18.4	428	74.3

Children aged 6-29 months were most affected by severe stunting followed by children 30-41 months, and this is consistent with the age groups showing higher rates of stunting in the 2011 surveys. The overall change in stunting levels are not statistically significant; severe stunting was 6.3% (95% CI: 4.7 – 8.3) and moderate stunting 15.5% (95% CI: 12.5 – 19.1) in 2011.

The overall prevalence of underweight in Hagadera has decreased from 28.0% in the 2011 nutrition survey to 18.3% this year, as seen in the table below. Prevalence of both moderate and severe categories of underweight saw a non-significant decrease from the levels seen in 2011.

Table 22 Prevalence of underweight based on weight-for-age z-scores by sex-Hagadera camp, Dadaab (Oct 2012)

	All n = 591	**Boys** n **=** 298	**Girls** n **=** 293
Prevalence of underweight (<-2 z-score)	n = 108 18.3% (15.1 – 22.0)	n = 62 20.8% (16.3 – 26.3)	n = 46 15.7% (11.5 – 21.0)
Prevalence of moderate underweight (<-2 z-score and >=-3 z-score)	n = 82 13.9% (11.4 – 16.8)	n = 50 16.8% (13.5 – 20.7)	n = 32 10.9% (7.6 – 15.5)
Prevalence of severe underweight (<-3 z-score)	n = 26 4.4% (3.0 – 6.5)	n = 12 4.0% (2.1 – 7.7)	n = 14 4.8% (2.8 – 8.0)

Table 23 Mean z-scores, Design Effects and excluded subjects - Hagadera camp, Dadaab (Oct 2012)

Indicator	**n**	**Mean z-scores ± SD**	**Design Effect (z-score < -2)**	**z-scores not available***	**z-scores out of range**
Weight-for-Height	594	-0.66 ± 1.13	1.00	6	3
Weight-for-Age	591	-1.10 ± 1.04	1.12	3	6
Height-for-Age	576	-1.16 ± 1.19	2.35	3	21

* For WHZ and WAZ this figure includes children with oedema.

MUAC is being used in the community for screening and admission to therapeutic and supplementary feeding programmes as it is a good indicator of risk of mortality in children under 5 and is easy to do. As seen by Table 24, there is no useful agreement between MUAC-based estimates of acute malnutrition and GAM and SAM determined by weight-for-height.

Table 24 Prevalence of malnutrition based on MUAC (N=600) - Hagadera camp, Dadaab (Oct 2012)

Malnutrition Category	**Number of cases, prevalence and 95% CI**
Prevalence of global malnutrition (< 125 mm and/or oedema)	n=23 3.8 % (2.4 - 6.1)
Prevalence of moderate malnutrition (< 125 mm and >= 115 mm, no oedema)	n=18 3.0 % (1.7 - 5.1)
Prevalence of severe malnutrition (< 115 mm and/or oedema)	n=5 0.8 % (0.3 - 2.3)

The caseloads for the selective feeding programmes were estimated to aid in future programme planning. The total population estimate for Hagadera used during the survey was 138,942 (based on UNHCR ProGres data). The total population of the surveyed households and the proportion that were under 5 years of age was calculated from the household listing forms (and household questionnaires). It was found that approximately 25.8% of the surveyed population in Hagadera was under-5 years, which was equivalent to 35,847 infants and children in the whole of Hagadera. It was assumed that 10% of under-fives were 0-5 months, so it could be estimated that 32,262 children were 6-59 months. This figure was then multiplied by the estimated proportion of children eligible to be enrolled in either TFP or TSFP for Hagadera to give the estimated caseload.

Table 25 Estimated number of malnourished children aged 6-59 months eligible to be enrolled in acute malnutrition treatment feeding programmes (case load) at the time of the survey (based on all admission criteria) - Hagadera camp, Dadaab (Oct 2012)

	Prevalence % (95% CI)*	Total estimated caseload
Eligible for Therapeutic Feeding Programme**	3.4% (1.8 – 4.9)	1,097
Eligible for Targeted Supplementary Feeding Programme**	8.5% (5.8 – 11.2)	2,904

*WHZ flags excluded from analysis

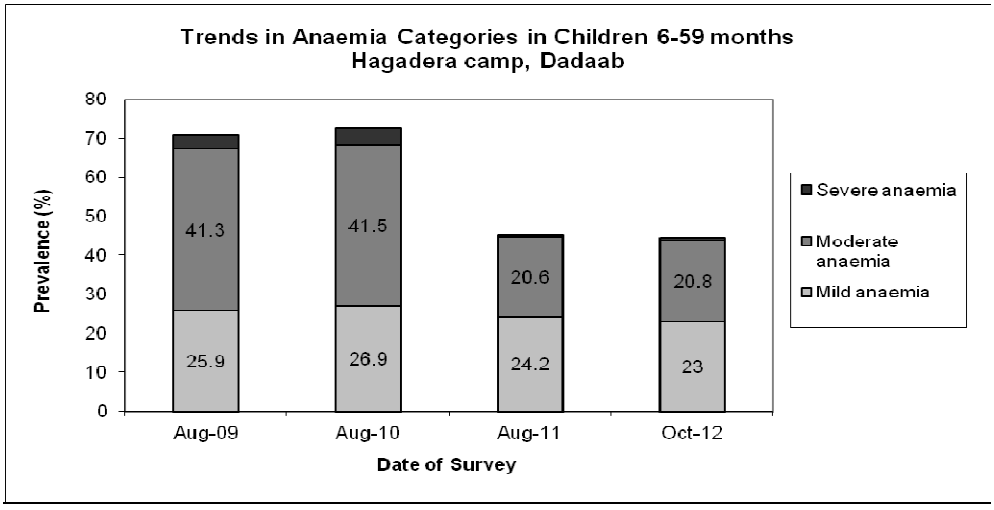
Anaemia results

Table 26 Prevalence of anaemia and haemoglobin concentration in children 6-59 months of age - Hagadera camp, Dadaab (Oct 2012) (n = 600)

Anaemia Categories	Number of cases Prevalence (95% CI)
Total Anaemia (Hb<11.0 g/dL)	n = 267 44.5% (39.2 – 50.0)
Mild Anaemia (Hb 10.0-10.9 g/dL)	n = 138 23.0% (19.4 – 26.6)
Moderate Anaemia (7.0-9.9 g/dL)	n = 125 20.8% (16.8 – 24.8)
Severe Anaemia (<7.0 g/dL)	n = 4 0.7% (0.0 – 1.3)
Mean Hb	10.9 g/dL (5.5 – 14.5)

Comparison with results from 2011 shows that the levels of anaemia remain stable. No change is seen between the prevalence this year, 44.5% (95% 39.2 - 50.0), and total anaemia in 2011, 45.3% (95% 40.4-50.2).

Figure 7 Nutrition survey results (anaemia in children 6-59 months) since 2009 - Hagadera camp, Dadaab (Oct 2012)



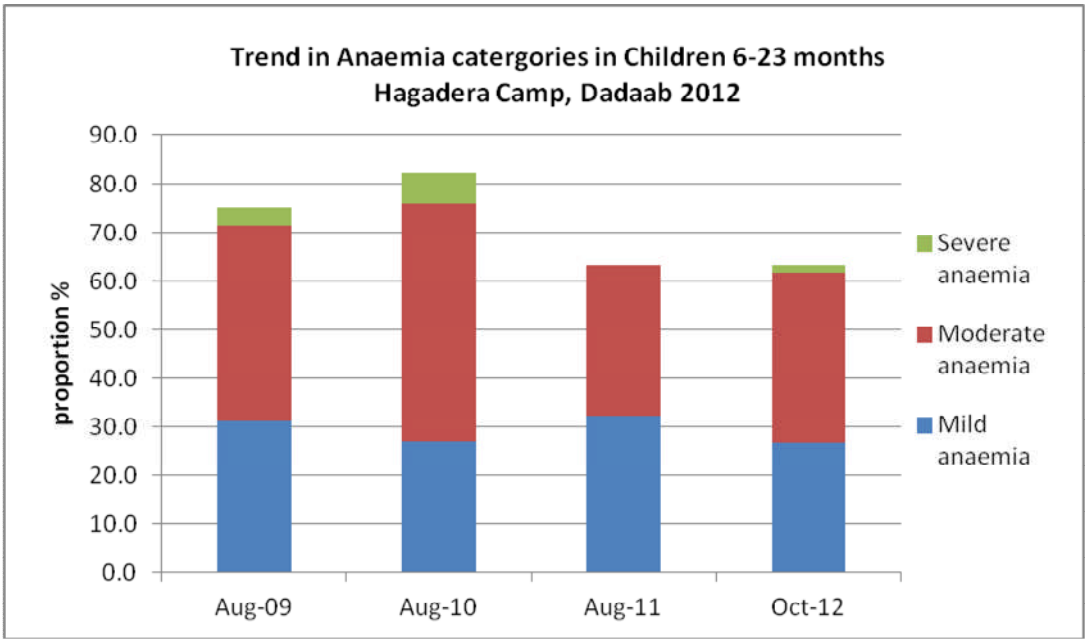
As expected, for every category of anaemia (severe, moderate or mild) the age group most affected by anaemia is the youngest children between 6 – 23 months, confirming them as the most vulnerable group.

Table 27 Prevalence of anaemia by age - Hagadera camp, Dadaab (Oct 2012)

		Severe Anaemia (<7.0 g/dL)		Moderate Anaemia (7.0-9.9 g/dL)		Mild Anaemia (Hb 10.0-10.9 g/dL)		Total Anaemia (Hb<11g.0 g/dL)		Normal (Hb≥11.0 g/dL)	
Age (mon)	**Total no.**	**No.**	**%** (95% CI)	**No.**	**%** (95% CI)	**No.**	**%** (95% CI)	**No.**	**%** (95% CI)	**No.**	**%** (95% CI)
6-23	205	3	1.5% (0 – 3.1)	72	35.1% (26.8 – 43.4)	55	26.8% (20.1 – 33.6)	130	63.4% (55.1 – 71.7)	75	36.6% (28.3 – 44.9)
24-35	150	1	0.7% (0.0 – 2.0)	36	24.0% (16.4 – 31.6)	32	21.3% (15.9 – 26.7)	69	46.0% (36.9 – 55.1)	81	54.0% (44.9 – 63.1)
36-59	245	0	0.0 -	17	6.9% (3.5 – 10.4)	51	20.8% (14.9 – 26.7)	68	27.8% (22.4 – 33.1)	177	72.2% (66.9 – 77.6)
Total	**600**	**4**	**0.7%** (0.0 – 1.3)	**125**	**20.8%** (16.8 – 24.8)	**138**	**23.0%** (19.4 – 26.6)	**267**	**44.5%** (39.2 – 50.0)	**333**	**55.5%** (50.1 – 60.9)

Figure 8 below shows trends in anaemia prevalence since 2009, in children aged 6-23. This can be useful to assess the impact of the special nutritional product used (CSB++ used since survey in 2011) to help reduce anaemia in children 6-23 months.

Figure 8 Anaemia in children 6-23 months, since 2009-Hagadera camp, Dadaab (Oct 2012)



Programme coverage

Selective feeding programmes

Table 28 Acute malnutrition treatment programme coverage based on all admission criteria (weight-for-height, MUAC, oedema) - Hagadera camp, Dadaab (Oct 2012)

	Number/total	% (95% CI)
Proportion of children aged 6-59 months with Severe Acute Malnutrition currently enrolled in Therapeutic Feeding Programme*	1 / 19	5.3% (0.7 – 31.4%)
Proportion of children aged 6-59 months with Moderate Acute Malnutrition currently enrolled in Targeted Supplementary Feeding Programme*	5 / 51	9.8% (2.8 – 29.1)

*WHZ flags excluded in analysis

Table 29 Acute malnutrition treatment programme coverage based on MUAC and oedema admission criteria only - Hagadera camp, Dadaab (Oct 2012)

	Number/total	**% (95% CI)**
Proportion of children aged 6-59 months with Severe Acute Malnutrition currently enrolled in Therapeutic Feeding Programme	0 / 4	0.0 -
Proportion of children aged 6-59 months with Moderate Acute Malnutrition currently enrolled in Targeted Supplementary Feeding Programme	6 / 23	26.1% (8.5 – 57.1)

Blanket Supplementary Feeding Programme (BSFP)

The coverage of the Blanket Supplementary Feeding Programme (BSFP) is shown in the table below and this year was extremely low. The coverage of BSFP in 2011 was 48.9% (95% CI 39.5 - 58.3) (Nutributter® was distributed to children 6-23 months until August 2011, when it was replaced by CSB++).

Table 30 CSB++ Distribution (BSFP programme) for children aged 6-23 months - Hagadera camp, Dadaab (Oct 2012)

	Number/total	**% (95% CI)**
Currently receiving CSB++	13 / 204	6.4% (2.4 – 10.3)

Vaccination and supplementation programmes

Measles vaccination coverage

Following the outbreak of measles in the first half of 2012, it is important to know the measles vaccination coverage, as there had been no mass measles vaccination campaign since early in 2011.

Table 31 Measles vaccination coverage for children aged 9-59 months (n=572) - Hagadera camp, Dadaab (Oct 2012)

Measles Vaccination (with card confirmation) n= 291	**Measles Vaccination (with card or confirmation from mother) n=560**
50.9% (36.7 – 65.0)	97.9 % (96.0 – 99.8)

PENTA vaccination coverage

PENTA vaccination coverage was measured in light of a potential outbreak of pertussis (whooping cough).

Table 32 PENTA vaccination coverage for children aged 6-59 months (n= 600) - Hagadera camp, Dadaab (Oct 2012)

	PENTA 1 (only) n= 0	PENTA 2 n=14	PENTA 3 n= 491
Vaccination (with card confirmation)	0.0 % (-)	2.3 % (0.0 - 4.7)	81.8% (70.4 – 93.3)

Vitamin A supplementation coverage

Vitamin A supplementation was a focus of the Malezi Bora campaign in May 2012 and it is therefore expected that even if not recorded on the child's card, the caregiver could recall if the child received it or not.

Table 33 Vitamin A supplementation (n=600) for children aged 6-59 months

Vitamin A capsule received (with card confirmation) n=242	Vitamin A capsule received (with card confirmation or from mother's recall) n=578
40.3% (25.4 – 55.3)	96.3 % (91.8 – 100.0)

The coverage of Vitamin A supplementation confirmed by card almost doubled from the 2011 nutrition survey (20.9%, 95% CI: 13.6 - 28.2). Levels of vitamin A supplementation by either card or recall also increased from the 2011 value (86.8%, 95% CI: 82.1 - 91.5).

Figure 9 Nutrition survey results: vitamin A supplementation within past 6 months with card) since 2010 - Hagadera camp, Dadaab (Oct 2012)

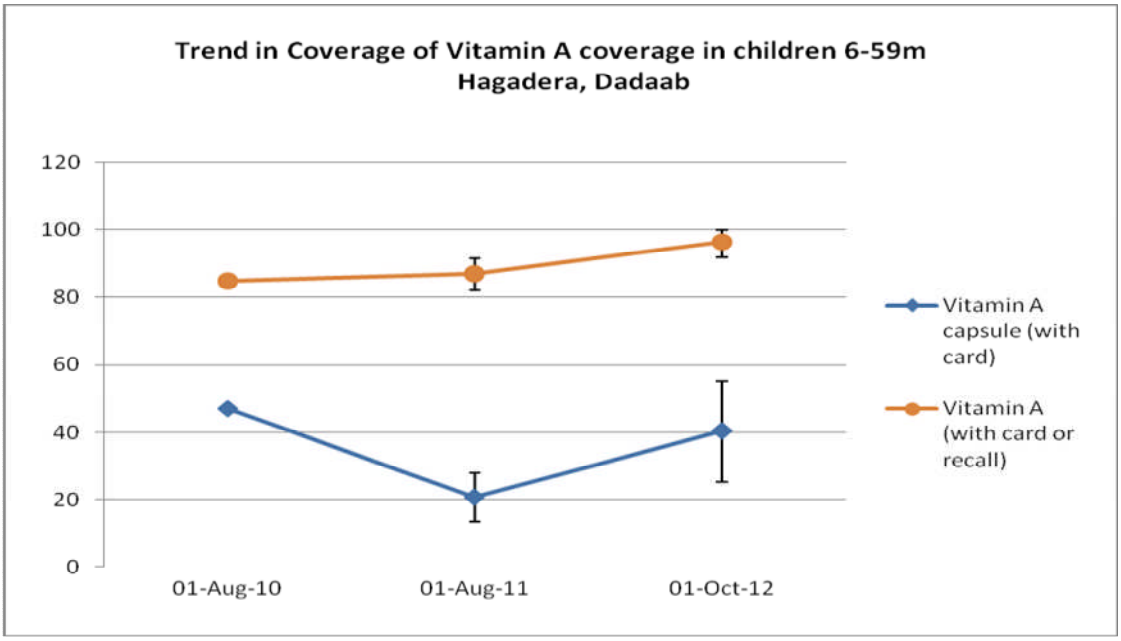
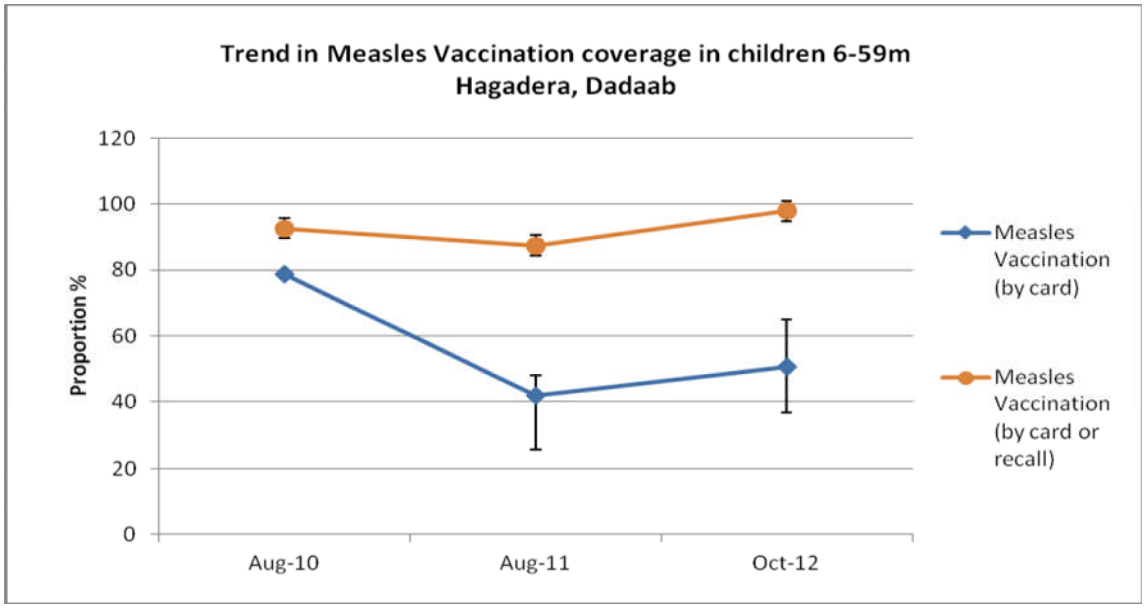


Figure 10 Measles vaccination coverage trends since August 2010 – Hagadera camp, Dadaab (Oct 2012)



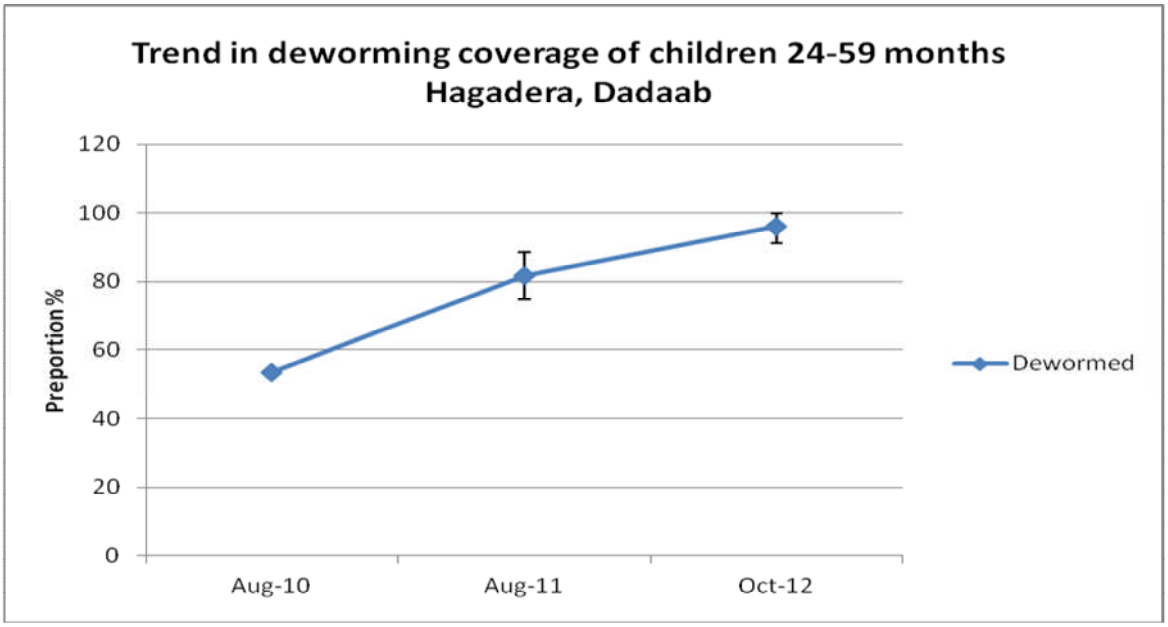
Deworming coverage

Table 34 Deworming for children aged 24-59 months within past 6 months (n = 395) - Hagadera camp, Dadaab (Oct 2011)

Dewormed	% (95% CI)
379 / 395	95.9% (91.1 – 100.0%)

Deworming of children aged 24 – 59 months was measured by recall only. Compared with results from 2011, the coverage of deworming within the past 6 months has significantly increased (from 81.7%, 95% CI: 74.9 - 88.5) in 2011, ($p<0.05$).

Figure 11 Nutrition survey results (deworming for children aged 24-59 months within past 6 months) since 2010 – Hagadera camp, Dadaab (Oct 2012)



The prevalence of reported diarrhoea in Hagadera was very low in the two weeks leading up to the survey, as seen in Table 35.

Morbidity from diarrhoea and feeding during diarrhoea

Table 35 Prevalence of reported diarrhoea in the two weeks prior to the interview - Hagadera camp, Dadaab (Oct 2012)

	Number/total	% (95% CI)
Diarrhoea in past 2 weeks	5 / 599	0.8% (0.1 – 1.5)

Below in Table 36, three of the five children having diarrhoea in the past two weeks were fed no food and one was fed less than normal.

Table 36 Feeding during diarrhoea episodes - Hagadera camp, Dadaab (Oct 2012)

Feeding Practices	Cases (N = 5)*
Less than normal	n = 1
Same as normal	n = 1
More than normal	n = 0
No food	n = 3

*Proportions and 95% CI are not given due to the low number of responses to this question.

CHILDREN 0-23 MONTHS - HAGADERA CAMP, DADAAB (Oct 2012)

Demographic information of children 0 – 23 months is consistent with the demographic data of children 6 – 59 months.

Table 37 Demographic information - Hagadera camp, Dadaab (Oct 2012)

	Number/total	%
Nationality		
Somali	251 / 320	78.4%
Somali Bantu	69 / 320	21.6%
Others	0 / 320	-
Arrival in camp		
<3 months	2 / 320	0.6%
3-6 months	2 / 320	0.6%
9-12 months	1 / 320	0.3%
Before October 2011	315 / 320	98.4%

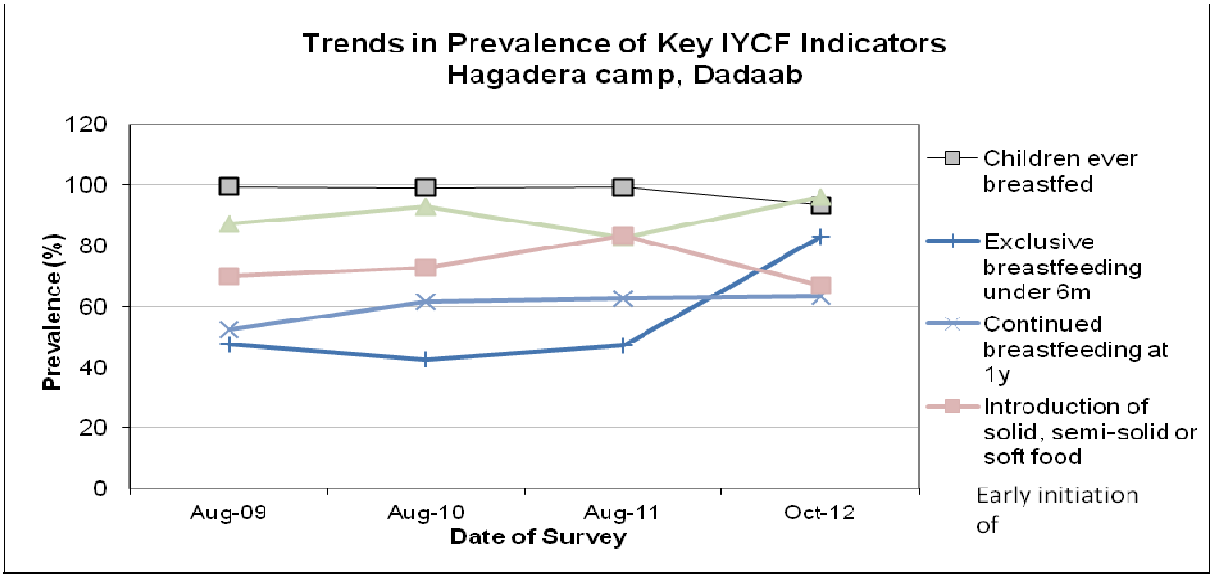
Results of the IYCF questionnaire are summarised in the table below, which includes the responses for four of the WHO core Indicators and three optional indicators for IYCF, plus the provision of other fluids to children, and feeding practices during diarrhoea in infants.

Table 38 Prevalence of Infant and Young Child Feeding Practices indicators - Hagadera camp, Dadaab (Oct 2012)

Indicator	Age range	n / total	Prevalence (%)	95% CI
Children ever breastfed	0-23 m	299 / 320	93.4%	89.0 – 97.8
Early initiation of breastfeeding	0-23 m	287 / 299	96.0%	91.9 – 100.0
Exclusive breastfeeding under 6 months	0-5 m	93 / 112	83.0%	73.4 – 92.6
Continued breastfeeding at 1 year	12-15 m	26 / 41	63.4%	45.3 – 81.5
Continued breastfeeding at 2 years	20-23 m	8 / 35	22.9%	5.7 – 40.0
Introduction of solid, semi-solid, soft foods	6-8 m	20 / 30	66.7%	45.7 – 87.6
Children bottle fed	0-23 m	10 / 320	3.1%	0.2 – 6.0
Children given infant formula	0-23 m	6 / 320	1.9%	0.0 – 3.8
Children given milk or milk alternative	0-12 m	39 / 181	21.5%	14.6 – 28.5
Children given Tea/coffee	0-23 m	111 / 320	34.7%	26.4 – 42.9
Children given water or sugar water	0-6 m	19 / 114	16.7%	7.2 – 26.2
Reported prevalence of diarrhoea	0-23 m	15 / 320	4.7%	2.0 – 7.3
Continued feeding during diarrhoea	0-23 m	7 / 15	46.7%	7.2 – 86.2

By noting the confidence intervals it can be seen that some indicators have improved since the previous survey in 2011; early initiation of breastfeeding and exclusive breastfeeding under 6 months. Other indicators appear to have decreased; namely children ever breastfed. The clearest changes in IYCF indicators for Hagadera, is the jump in exclusively breastfed infants under 6 months.

Figure 12 Nutrition survey results (key IYCF indicators) since 2009 - Hagadera camp, Dadaab (Oct 2012)



WOMEN 15-49 YEARS-HAGADERA CAMP, DADAAB (Oct 2012)

As expected, the demographic data of women 15 – 49 years is similar to that of the surveyed children and infants.

Table 39 Demographic profile of survey sample - Hagadera camp, Dadaab (Oct 2012)

	Number/total	%
Nationality		
Somali	245 / 306	80.1
Somali Bantu	61 / 306	19.9
Others	0 / 306	0.0
Arrival in camp		

<3 months	0 / 306	0.0
3-6 months	2 / 306	0.7
Pre October 2011 (>12 months)	304 / 306	99.3
Physiological status		
Pregnant	25 / 306	8.2
Lactating (until 6 months post-natal	72 / 306	23.5
Neither lactating nor pregnant	209 / 306	68.3
Age of Women		
Mean Age	26.6 years	(25.8 – 27.5)

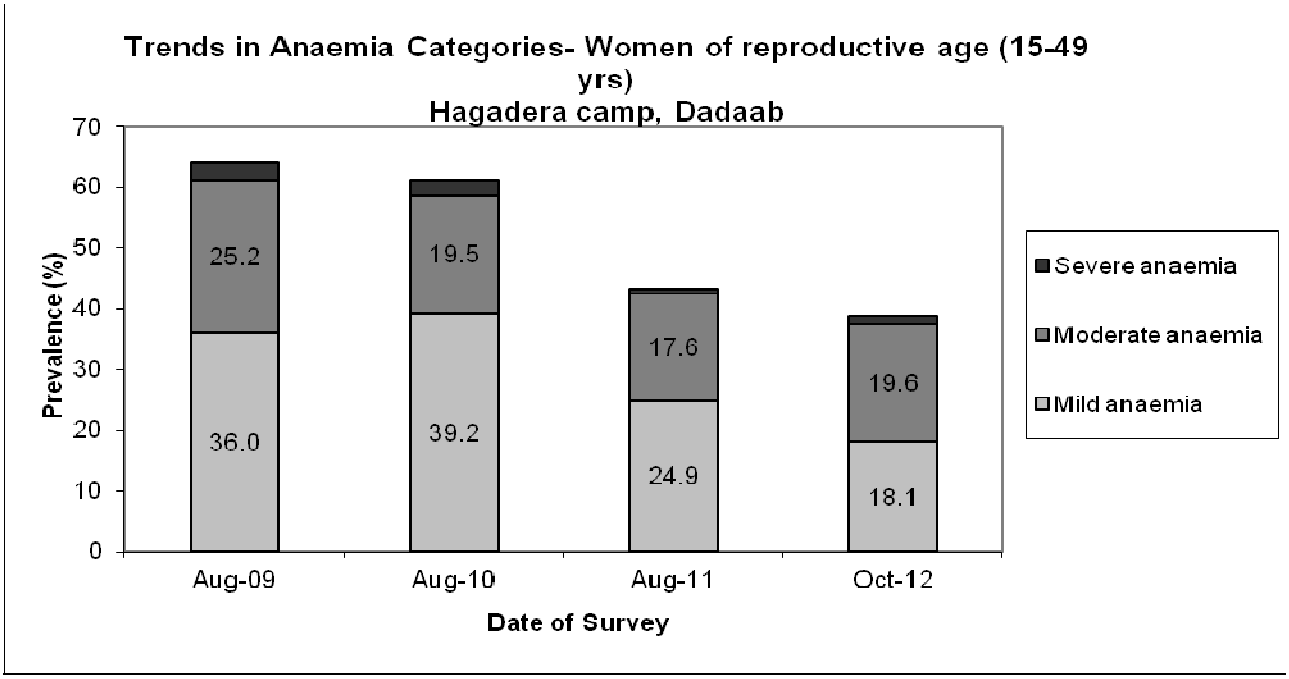
As seen in the table below, the prevalence of anaemia amongst non-pregnant women (15 – 49 years) was similar to 2011 (43.3%; 95% CI: 35.6 - 50.9).

Table 40 Prevalence of anaemia in non-pregnant women of reproductive age (15-49 years) - Hagadera camp, Dadaab (Oct 2012) (n = 281)

Anaemia Categories	**Number of cases Prevalence (95% CI)**
Total Anaemia (<12.0 g/dL)	n=109 38.8% (30.9 - 46.7)
Mild Anaemia (11.0-11.9 g/dL)	n=51 18.1% (12.9 - 23.4)
Moderate Anaemia (8.0-10.9 g/dL)	n=55 19.6% (12.9 - 26.2)
Severe Anaemia (<8.0 g/dL)	n=3 1.1% (0.0 - 2.3)
Mean Hb (g/dL)	12.2 g/dL (7.4 -16.4)

Figure 13 below shows a decreasing trend in the prevalence of anaemia, while the proportion of anaemia in each category has remained about the same as in the 2011 survey.

Figure 13 Nutrition survey results (anaemia) since 2009-Hagadera camp, Dadaab (Oct 2012)



ANC enrolment and iron-folic acid supplementation coverage

Enrolment in ANC programme and coverage of iron-folic acid supplement is very high and the number of women able to present their enrolment card was also high, as seen in Table 41.

Table 41 ANC enrolment and iron-folic acid pills coverage among pregnant women (15-49 years) - Hagadera camp, Dadaab (Oct 2012)

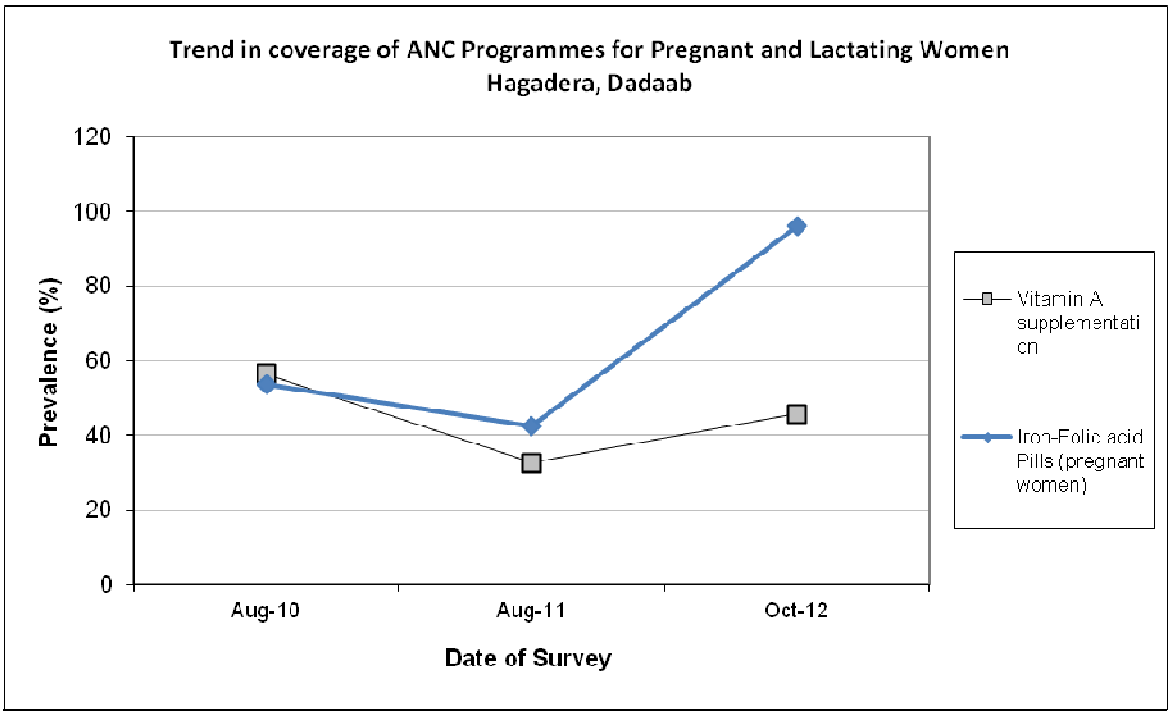
	Number/total	% (95% CI)
Currently enrolled in ANC programme with card confirmation	24 / 25	96.0% (87.5 – 100.0)
Currently enrolled in ANC programme with card confirmation or recall	25 / 25	100.0% -
Currently receiving iron-folic acid pills	24 / 25	96.0% (87.5 – 100.0)

The coverage of post-natal Vitamin A supplementation for women in Hagadera was good. It was much higher than in 2011, as seen in Figure 14 below.

Table 42 Post-natal vitamin A supplementation among women (15-49 years) - Hagadera camp, Dadaab (Oct 2012)

	Number/total	% (95% CI)
Received vitamin A supplementation since delivery with card	N = 33 / 72	45.8% (27.3 – 64.3)
Received vitamin A supplementation since delivery with card or recall	N = 67 / 72	93.1% (87.4 – 98.7)

Figure 14 Trends in coverage of ANC programmes, Hagadera (2012)



HOUSEHOLD-LEVEL INDICATORS - WASH AND FOOD SECURITY-HAGADERA CAMP, DADAAB (OCT 2012)

Table 43 shows the target sample size and actual number of households sampled for household level indicators in Hagadera camp. All households were included whether or not they had eligible individuals for the individual-level questionnaires.

Table 43 Target sample size and actual number captured during the survey-Hagadera camp, Dadaab (Oct 2012)

Indicator	Target sample size	Households interviewed during the study	% of the target
WASH / Food Security	360	359	99.7%

In Hagadera, households arriving in the camp within the last 12 months represented 2.2% of the sample for the Household questionnaire (Food Security and WASH). The number of households hosting recent arrivals was 19 of 359 (5.3%).

Table 44 Demographic information - Hagadera camp, Dadaab (Oct 2012)

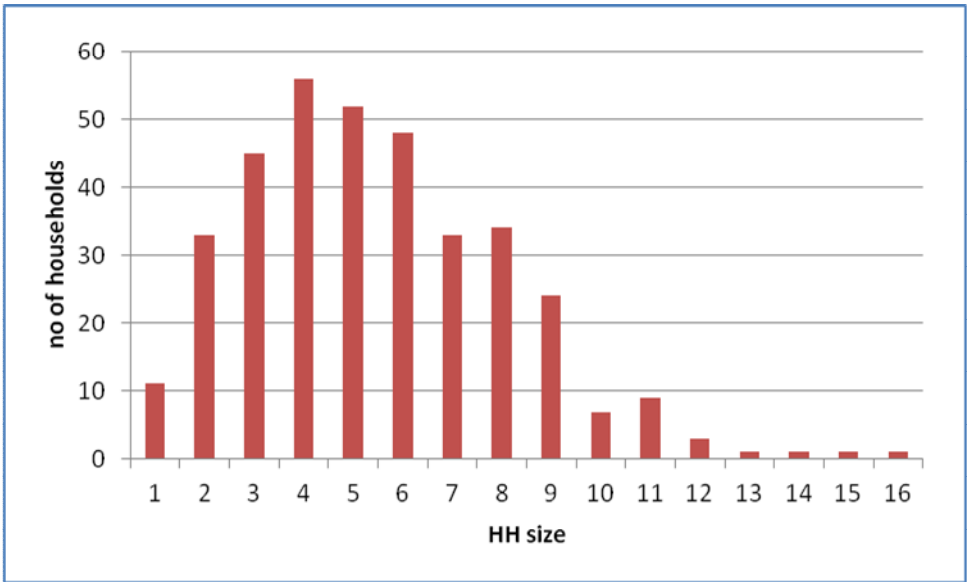
	Number/total	%
Date of arrival of household in camp		
<3 months	1	0.3%
3-6 months	4	1.1%
6-9 months	2	0.6%
9-12 months	1	0.3%
>12 months	351	97.8%

Table 45 Demographic information - Hagadera camp, Dadaab (Oct 2012)

	Number/total
Average HH size	6.5 persons

Of 359 HH interviewed, the smallest HH was 2 persons and largest was 20 persons.

Figure 15 Household size – Hagadera Camp, Dadaab (Oct 2012)



FOOD SECURITY - HAGADERA CAMP, DADAAB (OCT 2012)

The majority of households surveyed reported that their ration lasted less than the 15 day ration distribution cycle. The least number of days the ration lasted was 2 and the highest was 17 days.

Table 46 Ration card coverage and duration of general food ration - Hagadera camp, Dadaab (Oct 2012)

	Number/total	% (95% CI)
Proportion of households with a ration card	357 / 359	99.4 % (98.7 – 100.0)
Proportion of surveyed HH who had one or more members that were not registered on the ration card	24 / 357	6.7%
Proportion of households reporting that the GFR lasted <15 days	222 / 359	61.8% (53.1 – 70.6)

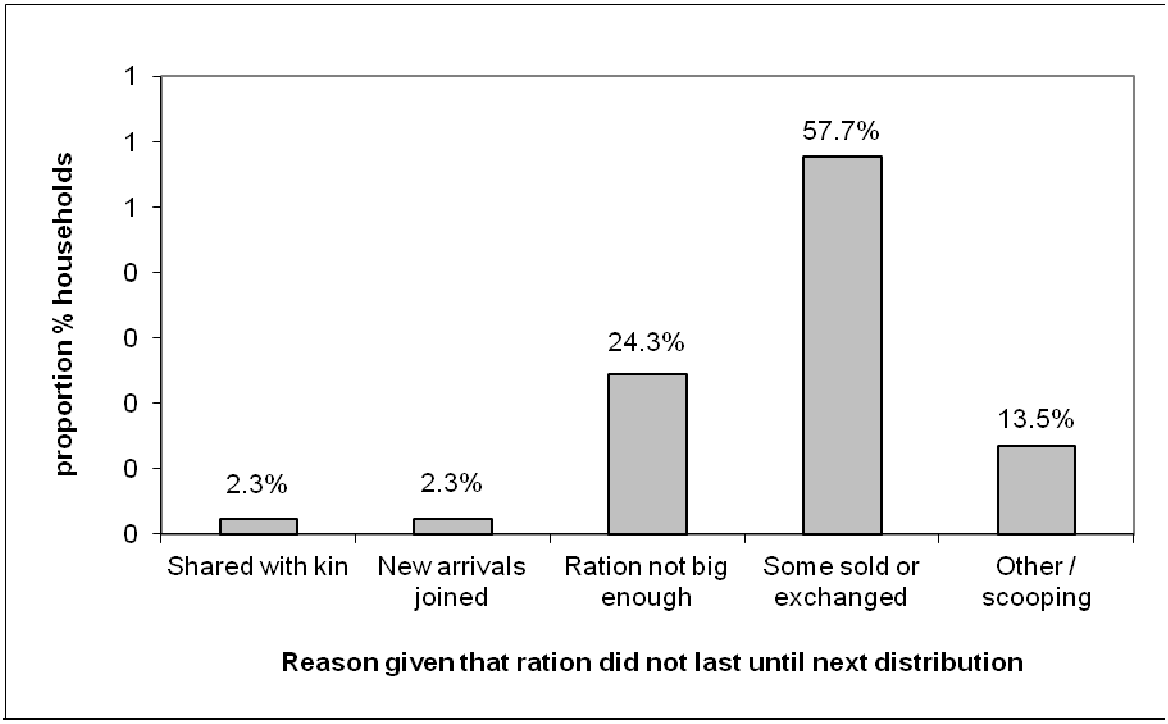
Table 47 Duration that GFR lasts in Households - Hagadera Camp, Dadaab (Oct 2012)

	Number days	95% CI
Average number of days GFR lasts	12.6	12.1 – 13.1

Two households reported not being given a ration card at registration. These two households had both arrived recently (within past 6 months), and therefore may have not been registered due to the Government of Kenya restricting the registration process.

The 222 households who reported that the GFR did not last the entire cycle were asked why this was. The main reason given was that some food was sold or exchanged (n = 128), followed by the ration not being big enough (n=54). Some reported 'scooping / other' as the reason (n=30), and only a few answered that it was shared with kin (n=5) or because new arrivals had joined (n=5).

Figure 16 Main reason given by households (n=222) for why the general food ration did not last until the next distribution - Hagadera camp, Dadaab (Oct 2012)



As shown in Figure 17 below, the most important coping strategy that was reported to fill the food gap was to borrow or receive credit from family, friends, or neighbours.

Figure 17 Coping strategies used by households (n=222) to fill the food gap when general food ration runs out - Hagadera camp, Dadaab (Oct 2012)

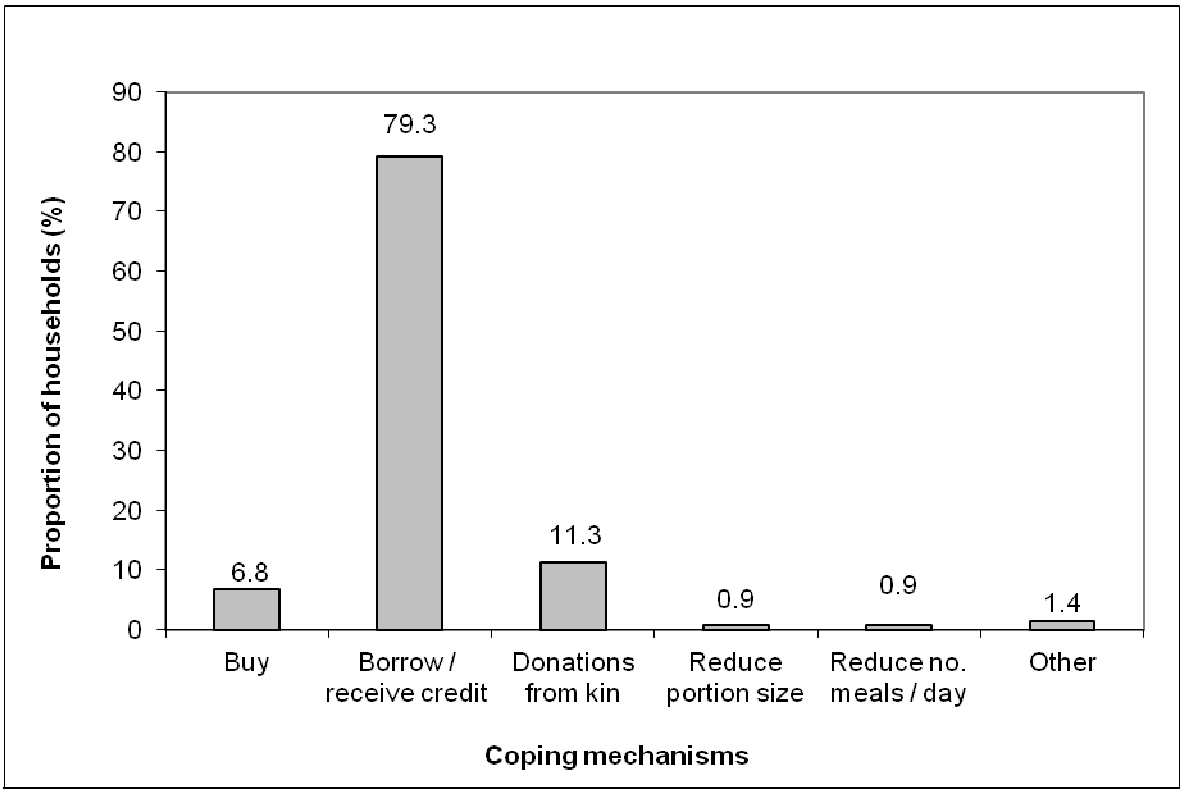
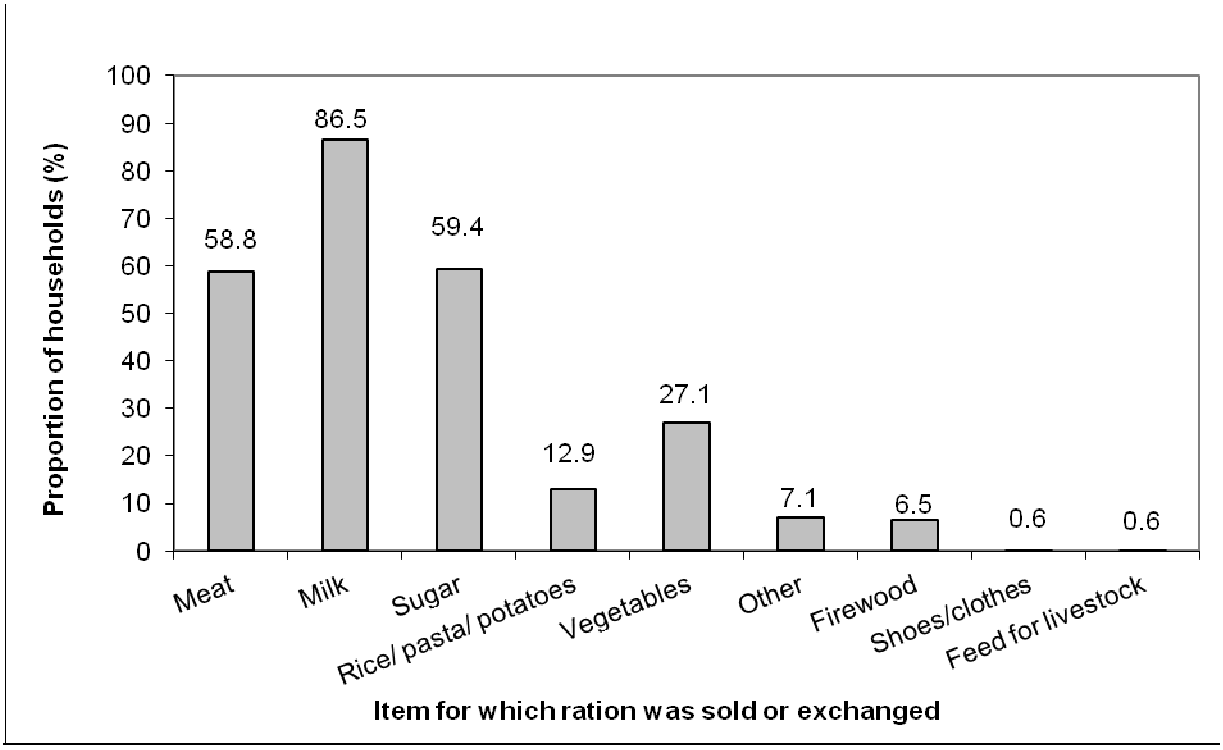


Table 48 below indicated that almost half of the households sold or exchanged part of the GFR. It was predominantly sold or exchanged for meat, sugar and milk seen by Figure 18.

Table 48 Sale or exchange of food from general ration - Hagadera camp, Dadaab (Oct 2012)

	Number/total	%
Proportion of households selling or exchanging food ration items	n = 170 / 359	47.4%

Figure 18 Most common items bought when general ration is sold or exchanged - Hagadera camp, Dadaab (Oct 2012)



Barriers relating to insecurity

Has insecurity or closure of health centres prevented anyone in your household from visiting a health centre in the last *2 months?*

- 8 / 356 households responded 'yes' (2.2%)
- 3 responded that they did not need to go

Has insecurity prevented anyone in your household from collecting the GFD in the last *2 months?*

- 8 / 359 households responded 'yes' (2.2%)

WATER, SANITATION AND HYGIENE - HAGADERA CAMP, DADAAB (OCT 2012)

Whether a household had enough water containers to collect adequate water for the household is shown in Table 49 below.

Table 49 Ownership of adequate water containers - Hagadera camp, Dadaab (Oct 2012)

	Number/total	% (95% CI)
Proportion of households that say they have enough water containers to collect water	263 / 359	73.3% (62.8 – 87.7)

All but one household surveyed collected drinking water from a public tap / standpoint. The one household that reportedly collected water from a UNHCR tanker may have been a data recording error, as it is unlikely that only one household would collect water from this source taking into consideration the geographical spread of the second stage sampling.

Table 50 Proportion of HH using an improved drinking water source – Hagadera camp, Dadaab (Oct 2012)

Source	Number / Total	% (95%CI)
Public Tap / Standpipe	358 / 359	99.7% (99.2 – 100.0)
UNHCR tanker	1 / 359	0.3% (0.0 – 0.8)

The majority of households are satisfied with the water supply in Hagadera, however some households stated they were not happy and cited the main reason below in Table 51.

Table 51 Satisfaction with water supply - Hagadera camp, Dadaab (Oct 2012)

	Number/total	% (95% CI)
Proportion of households that say they are satisfied with the drinking water supply	306 / 359	85.2% (76.6 – 93.8)

Reasons for not being satisfied with water supply;

- N = 17 (amount is not enough)
- N = 30 (long queues)
- N = 6 (water point is far)

A vast improvement in distribution of soap has been seen from 2011, when the proportion of households receiving soap was just 2.0%.

Table 52 Soap distribution - Hagadera camp, Dadaab (Oct 2012)

	Number/total	% (95% CI)
Proportion of households that received soap during the last two distribution cycles or at reception	353 / 358	98.6% (96.8 – 100.0)

With a significant population being hosted in Hagadera, the number of families sharing toilets has increased since the 2011 nutrition survey. More than one third, 36.6% (95% CI 27.4-48.4) of households used an improved excreta disposal facility that wasn't shared, and 31.6% (95% CI 18.7 – 44.4) used an unimproved toilet.

Table 53 Safe Excreta disposal - Hagadera camp, Dadaab (Oct 2012)

Excreta disposal methods	Number/total	% (95% CI)
Proportion of households using an improved excreta disposal facility	131 / 358	36.6% (27.4 – 48.4)
Proportion of households using a shared family toilet.	62 / 358	17.3% (10.3 – 24.4)
Proportion of households using a communal toilet	52 / 358	14.5% (7.4 – 21.6)
Proportion of households using an unimproved toilet	113 / 358	31.6% (18.7 – 44.4)

Having three or more households sharing a toilet may be a contributing factor to the spread of disease should such an outbreak occur in Hagadera. 18.8% of households share a toilet between three or more households.

Table 54 Sharing of Toilet Facilities - Hagadera camp, Dadaab (Oct 2012)

Sharing of Toilet Facilities	Number / Total	% (95% CI)
One HH uses facility	196 / 340	57.6% (48.0 – 67.3)
Two HHs use facility	80 / 340	23.5% (16.7 – 30.3)
Three or more HHs use facility	64 / 340	18.8% (3.7 – 11.3)

RESULTS FROM IFO-2 CAMP, DADAAB (SEPT 2012)

- **INDIVIDUAL-LEVEL INDICATORS;**
  CHILDREN 6-59 MONTHS,
  INFANTS AND YOUNG CHILDREN 0-23 MONTHS,
  WOMEN OF REPRODUCTIVE AGE 15-49 YEARS
- **HOUSEHOLD INDICATORS: WASH AND FOOD SECURITY**

Table 55 provides the planned sample size and the actual sample achieved during the survey for each target population group. Thirty clusters were sampled for all indicators, therefore the number of required records per cluster varied according to the total target sample size required.

Table 55 Target sample size and actual number sampled during the survey - Ifo-2 camp, Dadaab (Sept 2012)

Target group	Target sample size	Subjects measured/interviewed during the survey	% of the target
Children 6-59 months	600	630	105%
Children 0-23 months	300	320	106%
Women 15-49 years	300	333	111%

CHILDREN 6-59 MONTHS - IFO-2 CAMP, DADAAB (OCT 2012)

Outlined below in Table 56 is the demographic data of children surveyed: nationality, time of arrival to Dadaab and the region of origin if recently arrived (i.e. within past 12 months)

Table 56 Demographic information - Ifo-2 camp, Dadaab (Sept 2012)

	Number/total	%
Nationality		
Somali	553 / 630	87.8%
Somali Bantu	77 / 630	12.2%
Others	0 / 630	0.0
Arrival in camp		
<3 months	0 / 630	0.0
3-6 months	5 / 630	0.8%
6-9 months	3 / 630	0.5%
9-12 months	3 / 630	0.5%
>12 months	619 / 630	98.3%
Region of origin for children in camp for <12 months		
Lower Juba	5 / 11	45.5%
Middle Juba	-	-
Gedo	-	-
Bay	-	-
Bakool	3 / 11	27.3%
Lower Shabelle	-	-
Middle Shabelle	-	-
Hiraan	-	-
Mogadishu/Banadir	3 / 11	27.3%
Other	-	-

Anthropometric results (based on WHO Growth Standards 2006)

The coverage of age documentation was average with 51% of children having an exact birth date. The oldest age group (54-59) was slightly under represented, and children 30-41 month olds had slightly more children than all other age groups.

Table 57 Distribution of age and sex of sample - Ifo-2 camp, Dadaab (Sept 2012)

	Boys		Girls		Total		Ratio
AGE (mo)	**no.**	**%**	**no.**	**%**	**no.**	**%**	**Boy:girl**
6-17	65	50.0	65	50.0	130	20.6	1.0
18-29	73	51.8	68	48.2	141	22.4	1.1
30-41	76	49.7	77	50.3	153	24.3	1.0
42-53	66	50.4	65	49.6	131	20.8	1.0
54-59	45	60.0	30	40.0	75	11.9	1.5
Total	325	51.6	305	48.4	630	100.0	1.1

There was equal number of boys and girls represented in the survey in Ifo-2, shown by the sex-ratio of 1.07 (within the accepted range of 0.8 – 1.2).

Table 58 Prevalence of acute malnutrition based on weight-for-height z-scores (and/or oedema)* and by sex - Ifo-2 camp, Dadaab (Sept 2012)

	All n = 622	**Boys** n = 320	**Girls** n = 302
Prevalence of global malnutrition (<-2 z-score and/or oedema)	n = 93 15.0% (12.3 – 18.0)	n = 52 16.3% (12.8 – 20.4)	n = 41 13.6% (9.5 – 19.0)
Prevalence of moderate malnutrition (<-2 z-score and >=-3 z-score, no oedema)	n = 61 9.8% (7.8 – 12.2)	n = 37 11.6% (8.5 – 15.6)	n = 24 7.9% (5.2 – 12.0)
Prevalence of severe malnutrition (<-3 z-score and/or oedema)	n = 32 5.1% (3.7 – 7.1)	n = 15 4.7% (3.0 – 7.2)	n = 17 5.6% (3.3 – 9.5)

*The prevalence of oedema was 0.8 % (n=5)

Ifo-2 is a new camp, opened since the 2011 survey; therefore no trend comparison can be made for the prevalence of acute malnutrition.

Table 59 Prevalence of acute malnutrition by age, based on weight-for-height z-scores and/or oedema - Ifo-2 camp, Dadaab (Sept 2012)

		Severe wasting (<-3 z-score)		**Moderate wasting (>= -3 and <-2 z-score)**		**Normal (> = -2 z score)**		**Oedema**	
Age (mo)	**Total no.**	**No.**	**%**	**No.**	**%**	**No.**	**%**	**No.**	**%**
6-17	127	15	11.8	20	15.7	90	70.9	2	1.6
18-29	138	4	2.9	12	8.7	122	88.4	1	0.7
30-41	152	2	1.3	8	5.3	140	92.1	1	0.7
42-53	130	2	1.5	11	8.5	117	90.0	0	0.0
54-59	75	4	5.3	10	13.3	60	80.0	1	1.3
Total	**622**	27	4.3	61	9.8	529	85.0	5	0.8

The highest proportion of severe and moderate wasting (and total GAM) occurs in the youngest children, aged 6 – 17 months. Surprisingly the oldest, children 54 – 59 months, are the next most affected group, as in Hagadera.

Figure 19 Trends in the prevalence of wasting by age in children 6-59 months - Ifo-2 camp, Dadaab (Sept 2012)

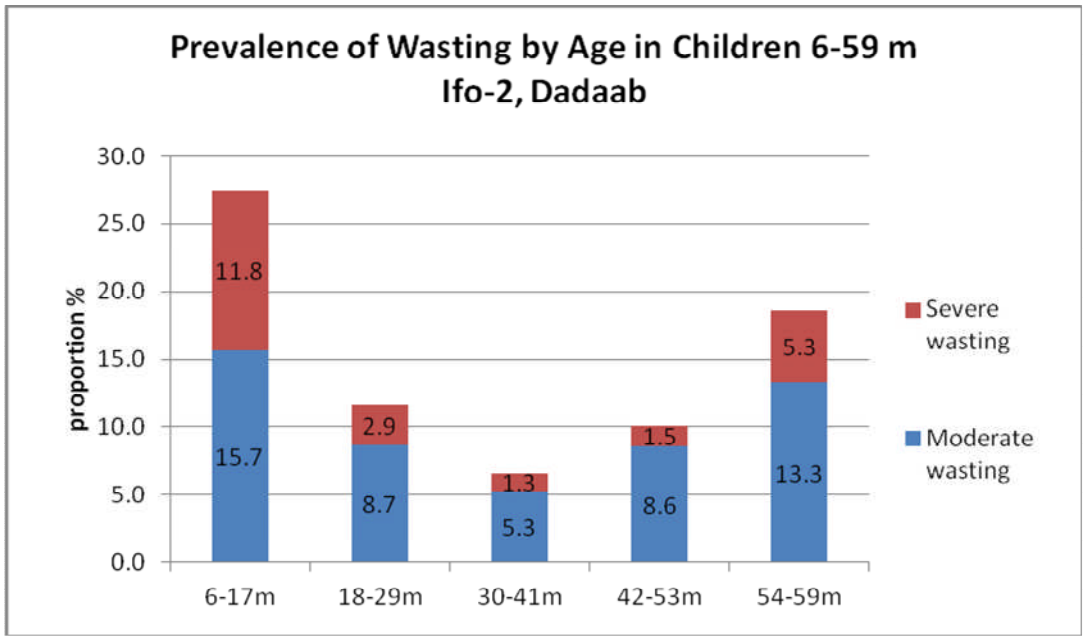


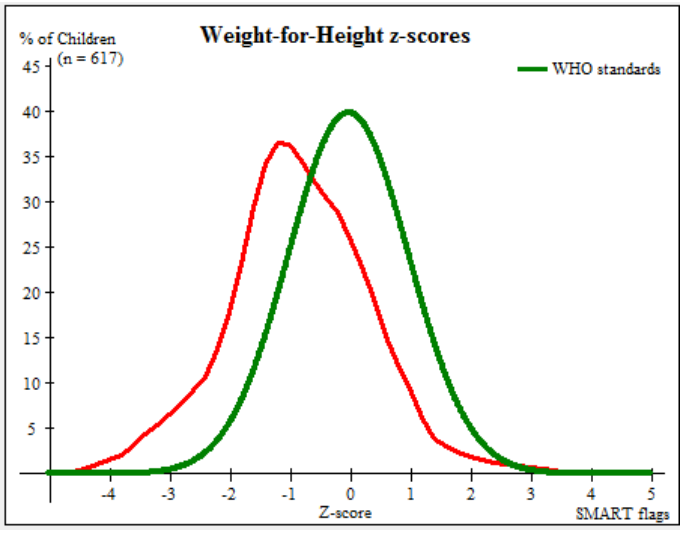
Table 60 below, shows that when children are affected by nutritional oedema they usually have a weight-for-height z-score >-3. All cases of oedema are classified as Kwashiorkor as their weight is increased by accumulating extra fluid.

Table 60 Distribution of severe acute malnutrition and oedema based on weight-for-height z-scores - Ifo-2 camp, Dadaab (Sept 2012)

	<-3 z-score	**>=-3 z-score**
Oedema present	Marasmic kwashiorkor N = 0	Kwashiorkor N = 5
Oedema absent	Marasmic N = 31	Not severely malnourished N = 593

Figure 20 shows that the weight-for-height z-score distribution is shifted to the left, illustrating a poorer nutritional status than the international WHO Standard (2006) population of children aged 6-59 months.

Figure 20 Distribution of weight-for-height z-scores (based on WHO Growth Standards; the reference population is shown in green) of survey population compared to reference population - Ifo-2 camp, Dadaab (Sept 2012)



The very high prevalence of stunting in Ifo-2 (i.e. >40% stunting) indicates the situation is critical, and suggests that children have experienced prolonged periods of malnutrition in their early years.

Table 61 Prevalence of stunting based on height-for-age z-scores and by sex - Ifo-2 camp, Dadaab (Sept 2012)

	All n = 597	**Boys** n = 291	**Girls** n = 285
Prevalence of stunting (<-2 z-score)	n = 249 41.7% (37.3 – 46.3)	n = 132 42.7% (37.2 – 48.4)	n = 117 40.6% (34.8 – 46.7)
Prevalence of moderate stunting (<-2 z-score and >=-3 z-score)	n = 136 22.8% (19.9 – 25.9)	n = 69 22.3% (18.4 – 26.8)	n = 67 23.3% (18.6 – 28.7)
Prevalence of severe stunting (<-3 z-score)	n = 113 18.9% (15.3 – 23.2)	n = 63 20.4% (15.7 – 26.0)	n = 50 17.4% (13.0 – 22.8)

Children in the age groups 18-29 and 6-17 months in Ifo-2 are the most affected by stunting as compared to the other age groups, seen by the proportions by age group in the table below.

Table 62 Prevalence of stunting by age based on height-for-age z-scores - Ifo-2 camp, Dadaab (Sept 2012)

		Severe stunting (<-3 z-score)		**Moderate stunting (>= -3 and <-2 z-score)**		**Normal (> = -2 z score)**	
Age (mo)	**Total no.**	**No.**	**%**	**No.**	**%**	**No.**	**%**
6-17	122	17	13.9	37	30.3	69	56.6
18-29	133	33	24.8	34	25.6	66	49.6
30-41	146	36	24.7	24	16.4	86	58.9
42-53	124	21	16.9	31	25.0	72	58.1
54-59	72	7	9.7	10	13.9	55	76.4
Total	**597**	113	18.9	136	22.8	348	58.3

Figure 21 Trends in the prevalence of stunting by age in children 6-59 months - Ifo-2 camp, Dadaab (Sept 2012)

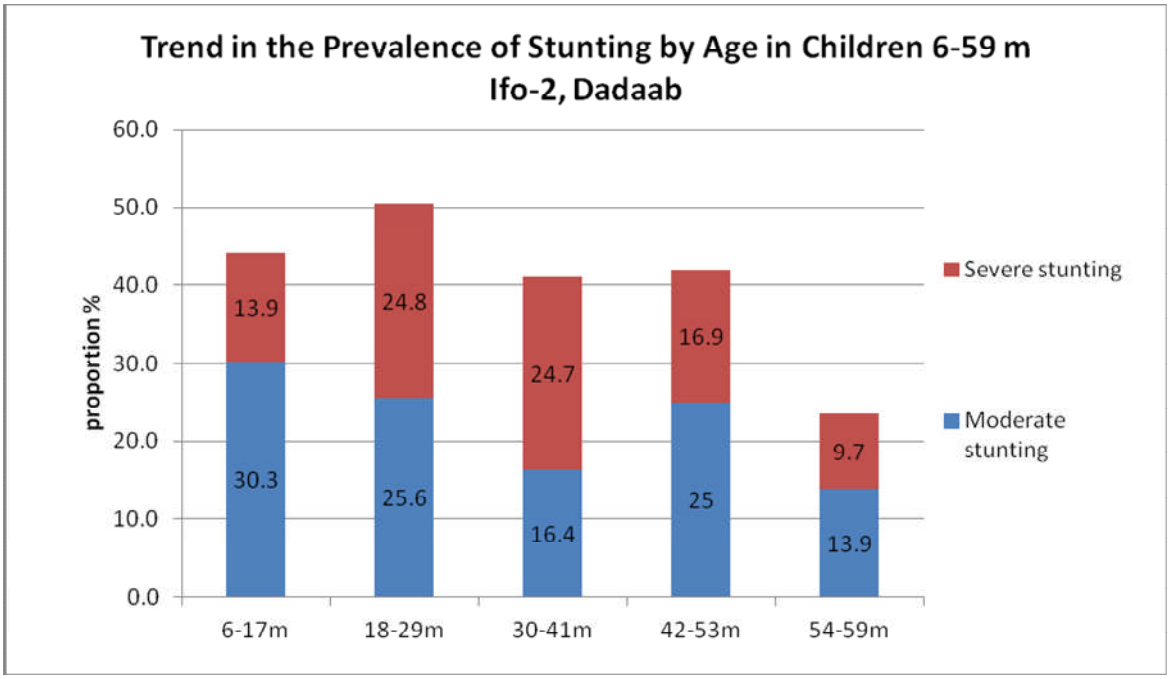


Table 63 Prevalence of underweight based on weight-for-age z-scores by sex - Ifo-2 camp, Dadaab (Sept 2012)

	All n = 615	**Boys** n = 317	**Girls** n = 298
Prevalence of underweight (<-2 z-score)	n = 200 32.5% (28.5 – 36.8)	n = 102 32.2% (25.5 – 39.7%)	n = 98 32.9% (28.1 – 38.1)
Prevalence of moderate underweight (<-2 z-score and >=-3 z-score)	n = 131 21.3% (18.3 – 24.6)	n = 69 21.8% (16.7 – 27.8)	n = 62 20.8% (16.5 – 25.8)
Prevalence of severe underweight (<-3 z-score)	n = 69 11.2% (8.7 – 14.3)	n = 33 10.4% (7.0 – 15.1)	n = 36 12.1% (8.8 – 16.3)

The mean z-scores for each nutritional index (see below) was negative, indicating that the nutritional status is poor in Ifo-2. The standard deviations for weigh-for-height and weight-for-age were acceptable; however the SD for height-for-age was a little higher.

Table 64 Mean z-scores, Design Effects and excluded subjects - Ifo-2 camp, Dadaab (Sept 2012)

Indicator	n	Mean z-scores ± SD	Design Effect (z-score < -2)	z-scores not available*	z-scores out of range
Weight-for-Height	617	-0.84±1.17	1.00	6	7
Weight-for-Age	615	-1.56±1.09	1.17	5	10
Height-for-Age	597	-1.74±1.34	1.19	0	33

* contains children with disability and height not able to be measured for WHZ and children with oedema for WHZ and WAZ.

MUAC is being used in the community for screening and admission to therapeutic and supplementary feeding programmes as it is a good indicator of risk of mortality in children under 5 and is easy to do. As seen again from the MUAC results in the table below, no useful agreement is found between MUAC-based malnutrition estimates and estimates determined using weight-for-height.

Table **65** Prevalence of malnutrition based on MUAC (N=630) - Ifo-2 camp, Dadaab (Sept 2012)

Malnutrition Category	**Number of cases, prevalence and 95% CI**
Prevalence of global malnutrition (< 125 mm and/or oedema)	n=57 9.0 % (7.0 -11.6)
Prevalence of moderate malnutrition (< 125 mm and >= 115 mm, no oedema)	n=36 5.7 % (4.0 - 8.1)
Prevalence of severe malnutrition (< 115 mm and/or oedema)	n=21 3.3 % (2.0 - 5.5)

The caseloads for the selective feeding programmes were estimated to aid in future programme planning. The total population estimate for Ifo-2 used during the survey was 69,091 (based on UNHCR ProGres data). The total population of the surveyed households and the proportion that were under 5 years of age was calculated from the household listing forms (and household questionnaires). It was found that approximately 27.7% of the surveyed population in Ifo-2 was under-5 years, which was equivalent to 19,138 infants and children in the whole of Ifo-2. It was assumed that 10% of under-fives were 0-5 months, so it could be estimated that 17,224 children were 6-59 months. This figure was then multiplied by the estimated proportion of children eligible to be enrolled in either TFP or TSFP for Ifo-2 to give the estimated caseload.

Table 66 Estimated number of malnourished children aged 6-59 months eligible to be enrolled in a selective feeding programme at the time of the survey (based on all admission criteria) - Ifo-2 camp, Dadaab (Sept 2012)

	Prevalence % (95% CI)*	**Total estimated caseload**
Eligible for Therapeutic Feeding Programme*	6.2% (4.0 – 8.3)	1,067
Eligible for Targeted Supplementary Feeding Programme*	12.1% (9.7 – 14.4)	2,084

*WHZ flags excluded from analysis

Anaemia results

The prevalence of anaemia (45.5%; 95% 40.9-50.1) (see table below) is comparable to the other camps and is quite encouraging considering the higher rate of malnutrition, stunting, underweight and also prevalence of diarrhoea of children in Ifo-2.

Table 67 Prevalence of anaemia and haemoglobin concentration in children 6-59 months of age - Ifo-2 camp, Dadaab (Sept 2012) (n = 629)

Anaemia Categories	**Number of cases Prevalence (95% CI)**
Total Anaemia (Hb<11.0 g/dL)	n = 286 45.5% (40.9 – 50.1)
Mild Anaemia (Hb 10.0-10.9 g/dL)	n = 181 28.8% (25.5 – 32.0)
Moderate Anaemia (7.0-9.9 g/dL)	n = 103 16.4% (13.2 – 19.5)

Severe Anaemia (<7.0 g/dL)	n = 2 0.3% (0.0 – 0.8)
Mean Hb (g/dL)	11.1 g/dL (Range 6.0 – 14.8)

Again, children 6-23 months showed the highest proportion of each category of anaemia (severe, moderate and mild) in Ifo-2 camp as outlined in Table 68 below.

Table 68 Prevalence of anaemia by age - Ifo-2 camp, Dadaab (Sept 2012)

		Severe Anaemia (<7.0 g/dL)		Moderate Anaemia (7.0-9.9 g/dL)		Mild Anaemia (Hb 10.0-10.9 g/dL)		Total Anaemia (Hb<11g.0 g/dL)		Normal (Hb≥11.0 g/dL)	
Age (mon)	**Total no.**	**No.**	**%** (95% CI)	**No.**	**%** (95% CI)	**No.**	**%** (95% CI)	**No.**	**%** (95% CI)	**No.**	**%** (95% CI)
6-23	183	1	0.5% (0.0 – 1.7)	50	27.3% (21.2 – 33.5)	65	35.5% (30.8 – 40.3)	116	63.4% (57.1 – 69.7)	67	36.6% (30.3 – 42.9)
24-35	126	1	0.8% (0.0 – 2.4)	25	19.8% (12.3 – 27.4)	41	32.5% (24.4 – 40.7)	67	53.2% (42.3 – 64.1)	59	46.8% (35.9 – 57.7)
36-59	320	0	0.0% -	28	8.8% (6.0 – 11.5)	75	23.4% (18.9 – 28.0)	103	32.2% (27.2 – 37.1)	217	67.8% (62.9 – 72.8)
Total	**629**	**2**	0.3% (0.0 – 0.8)	**103**	16.4% (13.2 – 19.5)	**181**	28.8% (25.5 – 32.0)	**286**	45.5% (40.9 – 50.1)	**343**	54.5% (49.9 – 59.1)

Programme coverage

Selective feeding programmes

Considering the UNHCR and globally agreed target for programme coverage for TFP and targeted SFP is >90%, the coverage in Ifo-2 by all admission criteria is very low.

Table 69 Nutrition treatment programme coverage based on all admission criteria (weight-for-height, MUAC, oedema) - Ifo-2 camp, Dadaab (Sept 2012)

	Number/total	% (95% CI)
Proportion of children aged 6-59 months with severe acute malnutrition currently enrolled in therapeutic feeding programme*	18 / 39	46.2% (32.4 – 60.0)
Proportion of children aged 6-59 months with moderate acute malnutrition currently enrolled in supplementary feeding programme*	13 / 76	17.1% (9.7 – 28.4)

*WHZ flags excluded

The coverage calculated for nutrition programmes when using MUAC and oedema criteria only for admission is also unacceptably low.

Table 70 Nutrition treatment programme coverage based on MUAC and oedema only - Ifo-2 camp, Dadaab (Sept 2012)

	Number/total	% (95% CI)
Proportion of children aged 6-59 months with severe acute malnutrition currently enrolled in therapeutic feeding programme	13 / 21	61.9% (36.0 – 82.4)
Proportion of children aged 6-59 months with moderate acute malnutrition currently enrolled in supplementary feeding programme	13 / 36	36.1% (20.9 – 54.7)

Vaccination and supplementation programmes

Measles vaccination coverage

Following the outbreak of measles in the first half of 2012, it is particularly important to know the measles vaccination coverage, as there had been no mass measles vaccination for Ifo-2 since it

has been constructed and refugees relocated there. It was therefore expected that the vaccination coverage might be lower in Ifo-2 and the data shows that this is indeed the case, with very low coverage found when card confirmation is required. When confirmation by card or recall is accepted the coverage still fails to reach the target or 95%.

Table 71 Measles vaccination coverage for children aged 9-59 months (n=596) - Ifo-2 camp, Dadaab (Sept 2012)

Measles Vaccination (with card confirmation) n= 133	**Measles Vaccination (with card or confirmation from mother)** n=497
22.3% (16.3 – 29.8)	83.4% (70.1 – 91.5)

PENTA vaccination coverage

PENTA vaccination coverage was measured during the survey in light of a potential outbreak of pertussis (whooping cough) in the camps.

Table 72 PENTA vaccination coverage for children aged 6-59 months (n=630) - Ifo-2 camp, Dadaab (Sept 2012)

	PENTA 1 (only) n= 26	**PENTA 2 n=93**	**PENTA 3 n= 365**
Vaccination (with card confirmation)	4.1% (1.7 – 9.6)	14.8% (8.2 – 25.1)	57.9% (45.3 – 69.6)

The remaining 23.2% of children 6 – 59 months (n=146) had not received any PENTA doses.

Vitamin A supplementation coverage

Vitamin A supplementation was a focus of the Malezi Bora campaign in May 2012 and it is therefore expected that even if not recorded on the child's card, that the caregiver could recall whether the child received it or not.

Table 73 Vitamin A supplementation for children aged 6-59 months within past 6 months (n=630) - Ifo-2 camp, Dadaab (Sept 2012)

Vitamin A capsule received (with card confirmation) n= 146	**Vitamin A capsule received (with card confirmation or from mother's recall) n=617**
23.2% (15.6 – 32.9)	97.9% (95.1 – 99.1)

Deworming coverage

As with Vitamin A supplementation, deworming is conducted twice each year in the Malezi Bora campaign and it is expected that caregivers could recall whether their child had received this or not. Deworming coverage was, however, much lower than the coverage reported for vitamin A supplementation.

Table 74 Deworming for children aged 24-59 months within past 6 months (n=447) - Ifo-2 camp, Dadaab (Sept 2012)

Dewormed	**% (95% CI)**
301 / 447	67.3% (52.6 – 79.3)

Blanket Supplementary Feeding Programme (BSFP)

Coverage of the blanket supplementary feeding program is low, which could indicate a problem with collection and distribution of the product, and/or registration of the younger children if they

have been born since registrations closed in September 2011. Some respondents may have been confused as to which product the question was referring to as a sample of the CSB++ was not carried by the survey teams to show them.

Table 75 CSB++ Distribution (BSFP programme) for children aged 6-23 months - Ifo-2 camp, Dadaab (Sept 2012)

	Number/total	% (95% CI)
Currently receiving CSB++	34 / 177	19.2 % (11.1 – 27.3)

The survey in Ifo-2 revealed much higher levels of diarrhoea in the past two weeks than the other camps. This may have been a factor in the high levels of malnutrition. It may be related to the poorer sanitation and hygiene situation in Ifo-2 (shown in results below).

Morbidity from diarrhoea and feeding during diarrhoea

Table 76 Prevalence of reported diarrhoea in the two weeks prior to the interview - Ifo-2 camp, Dadaab (Sept 2012)

	Number/total	% (95% CI)
Diarrhoea in past 2 weeks	195 / 630	31.0% (22.3 – 39.6)

Regarding the 195 children reported to have experienced diarrhoea in the past two weeks, the majority of these were fed less than normal during the episode of diarrhoea and a small percentage (see Table 77) were fed no food.

Table 77 Feeding during diarrhoea episodes - Ifo-2 camp, Dadaab (Sept 2012)

Feeding category	**N = 195** **% (95% CI)**
Less than normal	n = 118 60.5% (43.9 – 77.1)
Same as normal	n = 64 32.8% (18.2 – 47.5)
More than normal	n = 7 3.6% (0.6 – 6.5)
No food	n = 6 3.1% (0.0 – 7.3)

CHILDREN 0-23 MONTHS - IFO-2 CAMP, DADAAB (Sept 2012)

Table 78 Demographic information - Ifo-2 camp, Dadaab (Sept 2012)

	Number/total	%
Nationality		
Somali	156 / 183	85.2%
Somali Bantu	27 / 183	14.8%
Others	0 / 183	0.0%
Arrival in camp		
<3 months	0 / 183	0.0%
3-6 months	2 / 183	1.1%
6-9 months	1 / 183	0.5%

9-12 months	1 / 183	0.5%
Before September 2011	179 / 183	97.8%

Results of the IYCF questionnaire are summarised in the table below, which includes the responses for four of the WHO core indicators and three optional indicators for IYCF, plus the provision of other fluids to children, and also diarrhoea and feeding practices during diarrhoea in infants.

Table 79 Prevalence of Infant and Young Child Feeding Practices indicators - Ifo-2 camp, Dadaab (Sept 2012)

Indicator	Age range (months)	N/total	Prevalence (%)	95% CI
Children ever breastfed	0-23	295 / 300	98.3%	(96.7 – 100.0)
Early initiation of breastfeeding	0-23	201 / 300	68.1%	(53.1 – 83.1)
Exclusive breastfeeding under 6 months	0-5	85 / 117	72.7%	(62.2 – 83.1)
Continued breastfeeding at 1 year	12-15	40 / 51	78.4%	(66.4 – 90.5)
Continued breastfeeding at 2 years	20-23	10 / 30	33.3%	(15.1 – 51.6)
Introduction of solid, semi-solid or soft foods	6-8	17 / 34	50.0%	(30.6 – 69.4)
Children bottle fed	0-23	10 / 300	3.3%	(1.1 – 5.6)
Children given infant formula	0-23	3 / 299	1.0%	(0.0 – 2.2)
Children given milk or milk alternative	0-12	33 / 179	18.4%	(12.2 – 24.7)
Children given Tea/coffee	0-23	121 / 300	40.3%	(33.0 – 47.7)
Children given water or sugar water	0-6	31 / 119	26.1%	(16.0 – 36.1)
Reported prevalence of diarrhoea	0-23	50 / 300	16.7%	(10.2 – 23.1)
Continued feeding during diarrhoea	0-23	17 / 50	34.0%	(19.8 – 51.9)

As there are no previous results for Ifo-2 no comparison can be made for IYCF indicators. Whilst some indicators are at desirable levels, others are concerning such as; only one third continuing breastfeeding at 2 years and the prevalence of giving sugar/sugar water before 6 months and only half reporting to have introduced solid/semi-solid/soft food between 6 – 8 months.

WOMEN 15-49 YEARS - IFO-2 CAMP, DADAAB (Sept 2012)

Table 80 Demographic information - Ifo-2 camp, Dadaab (Sept 2012)

	Number/total	%
Nationality		
Somali	292 / 333	87.7%
Somali Bantu	41 / 333	12.3%
Others	0 / 333	0.0%
Arrival in camp		
<3 months	0 / 333	0.0%
3-6 months	3 / 333	0.9%
6-9 months	3 / 333	0.9%
9-12 months	2 / 333	0.6%
>12 months	325 / 333	97.6%
Physiological status		
Pregnant	70/333	21.0%
Lactating (until 6 months post-natal only)	86 / 333	25.8%
Neither lactating nor pregnant	177 / 333	53.2%
Age of Women		
Mean Age	28.6 years	

For Ifo-2, one in three women have anaemia with a haemoglobin level of <12.0 g/dL as shown in the table below. Most of these cases are mild. However there are a number of moderate cases and only two were severely anaemic.

Table 81 Prevalence of anaemia and haemoglobin concentration in non-pregnant women of reproductive age (15-49 years) - Ifo-2 camp, Dadaab (Sept 2012) (n = 261)

Anaemia – Non-pregnant women of reproductive age 15-49 years	Number of cases Prevalence (95% CI)
Total Anaemia (<12.0 g/dL)	n=87 33.3% (25.4 – 41.3)
Mild Anaemia (11.0-11.9 g/dL)	n=52 19.9% (14.8 – 25.0)
Moderate Anaemia (8.0-10.9 g/dL)	n=33 12.6% (7.5 – 17.8)
Severe Anaemia (<8.0 g/dL)	n=2 0.8% (0.0 – 1.8)
Mean Hb	12.4 g/dL (Range 7.3 - 16.2)

Slightly more than two thirds of women are enrolled in the ANC programme and all but one of the women could produce their card. Two women reported that they do not currently receive the iron-folic acid supplement, despite being enrolled in the programme.

ANC enrolment and iron-folic acid supplementation coverage

Table 82 ANC enrolment and iron-folic acid pills coverage among pregnant women (15-49 years) - Ifo-2 camp, Dadaab (Sept 2012)

	Number/total	% (95% CI)
Currently enrolled in ANC programme with card	53 / 72	73.6% (59.3 – 87.9)
Currently enrolled in ANC programme with card or recall	54 / 72	75.0% (61.0 - 89.0)
Currently receiving iron-folic acid pills	51 / 72	70.8% (56.7 – 84.9)

Less than half of the women having delivered a baby in the past six months had Vitamin A supplementation recorded on their card, with the majority being able to recall receiving the supplement after delivery.

Table 83 Post-natal vitamin A supplementation among women (15-49 years) - Ifo-2 camp, Dadaab (Sept 2012)

	Number/total	% (95% CI)
Received vitamin A supplementation since delivery with card	N = 34 / 86	39.5% (21.0 – 56.1)
Received vitamin A supplementation since delivery with card or recall	N = 73 / 86	84.9% (74.2 – 95.6)

HOUSEHOLD-LEVEL INDICATORS - WASH AND FOOD SECURITY - IFO-2 CAMP, DADAAB (SEPT 2012)

Table 84 indicates that the target sample size for household indicators was exceeded. All households were considered whether or not they had eligible individuals for the individual-level

measurements.

Table 84 Target sample size and actual number captured for HH Questionnaire during the survey - Ifo-2 camp, Dadaab (Sept 2012)

Indicator	Target sample size	Household interviewed during the study	% of the target
WASH / Food Security	360	374	104%

WATER, SANITATION AND HYGIENE – IFO-2 CAMP, DADAAB (SEPT 2012)

In Ifo-2, there were no new arrivals within the three months prior to the survey, and very few (n=7) had arrived within the past 12 months. There was therefore no need to have an additional analysis for new or recent arrivals.

Table 85 Demographic information - Ifo-2 camp, Dadaab (Sept 2012)

	Number/total	%
Date of arrival of household in camp		
<3 months	0 / 374	0.0%
3-6 months	3 / 374	0.5%
6-9 months	1 / 374	0.3%
9-12 months	4 / 374	1.1%
>12 months	367 / 374	98.1%

Most households reported not having enough containers to collect water, demonstrating a significant and urgent need in Ifo-2. Less than 4% responded that they had enough containers.

Table 86 Ownership of adequate water containers - Ifo-2 camp, Dadaab (Sept 2012)

	Number/total	% (95% CI)
Proportion of households that say they have enough water containers to collect water	14 / 374	3.7% (0.5 – 7.0)

All households surveyed collect water from the public tap or standpipe in Ifo-2, as shown below.

Table 87 Proportion of HH using an improved drinking water source - Ifo-2 camp, Dadaab (Sept 2012)

	Number / Total	% (95%CI)
Source		
Public Tap / Standpipe	374 / 374	100.0%

More than four out of every five households surveyed are satisfied with the water supply. For the 16.2% that stated they were not satisfied, the reasons are outlined below - the majority stating that the amount of water is not enough.

Table 88 Satisfaction with water supply - Ifo-2 camp, Dadaab (Sept 2012)

	Number/total	% (95% CI)
Proportion of households that say they are satisfied with the drinking water supply	317 / 374	84.8% (74.0 – 95.5)

Reasons for not being satisfied with water supply;

- N = 36 (amount is not enough)
- N = 5 (long queue)
- N = 1 (water point is far)

A high proportion of households received soap in the last two distribution cycles which is a good result. There remain about 10% of households not receiving soap, despite all of the households reporting to be registered.

Table 89 Soap distribution - Ifo-2 camp, Dadaab (Sept 2012)

	Number/total	% (95% CI)
Proportion of households that received soap during the last two distribution cycles or at reception	337 / 374	90.1% (85.2 – 95.0)

About half of surveyed households in Ifo-2 used a toilet that is not shared, however a significant number (n = 39) reported not using a toilet at all (i.e. using a plastic bag, the bush, field). In addition, about one third of household that have access to a toilet were sharing it between a total of three or more households (see tables below).

Table 90 Safe Excreta disposal - Ifo-2 camp, Dadaab (Sept 2012)

	Number/total	% (95% CI)
Proportion of households using an improved excreta disposal facility (improved toilet facility, not shared)	192 / 374	51.3% (36.5 – 66.2)
Proportion of households using an improved excreta disposal facility (improved toilet facility, shared)	142 / 374	38.0% (23.0 – 51.9)
Proportion of households using an unimproved toilet	1 / 374	0.3% (0.0 – 0.8)
Proportion of households using a plastic bag, the bush, or field	39 / 374	10.4% (3.0 – 17.9)

FOOD SECURITY- IFO-2 CAMP, DADAAB (SEPT 2012)

The majority of households in Ifo-2 had between three and seven persons. Of the 374 HH interviewed, the smallest HH contained 1 person and the largest contained 11 people, the average household size being 6.1 people (refer table below).

Figure 22 Household size – Ifo-2 Camp, Dadaab (Sept 2012)

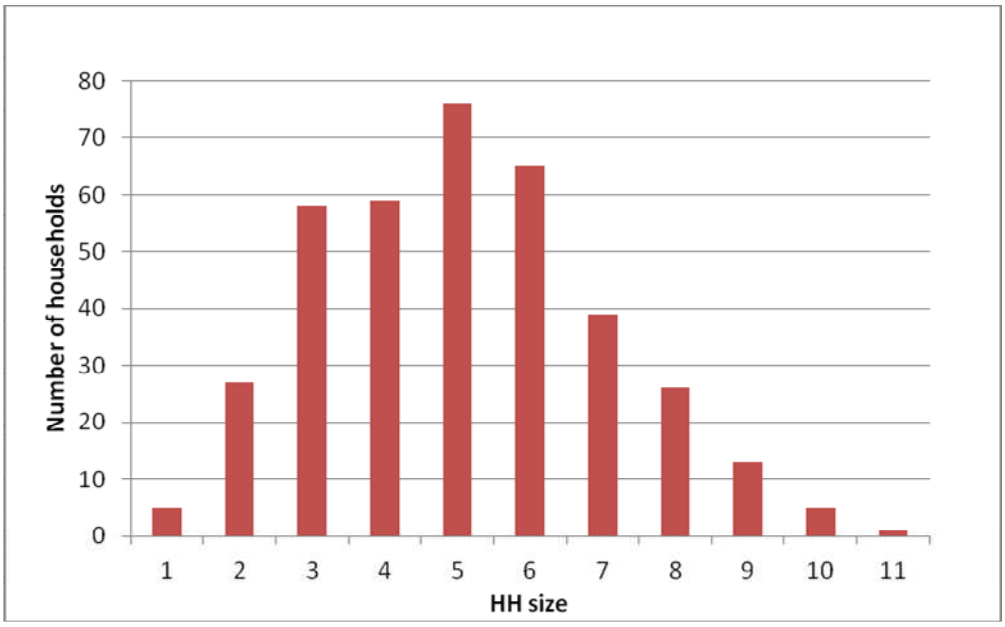


Table 91 Demographic information - Ifo-2 camp, Dadaab (Sept 2012)

	Number/total
Average HH size	6.1 persons

All households surveyed in Ifo-2 were registered and had a ration card. Most households report

that the food ration lasted less than the 15 day cycle.

Table 92 Ration card coverage and duration of general food ration - Ifo-2 camp, Dadaab (Sept 2012)

	Number/total	% (95% CI)
Proportion of households with a ration card	374 / 374	100.0% (100.0 – 100.0)
Proportion of households reporting that the GFR lasted <15 days	349 / 374	93.3% (89.7 – 97.0)

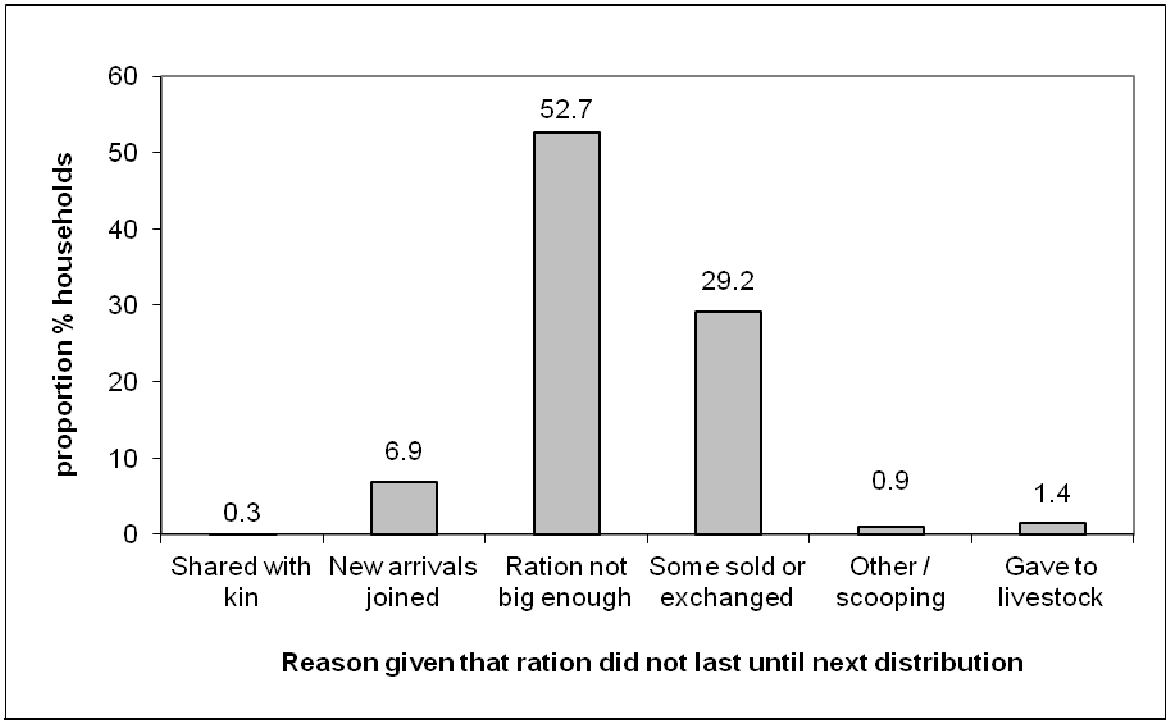
Table 93 Duration of 15 days cycle that the General Food Ration lasted – Ifo-2 camp, Dadaab (2012)

	Number days	95% CI
Average number of days GFR lasts	10.3	9.8 – 10.7

When asked why the general food ration did not last the entire cycle, the main reason given by the responding households was that some food was sold or exchanged (n = 105) followed by the ration not being big enough (n=184). Some reported scooping/other as the reason (n=33) or that it was shared with kin (n=24), and only a few answered that it was shared with livestock (n=2) or because new arrivals had joined (n=1) (see Figure below).

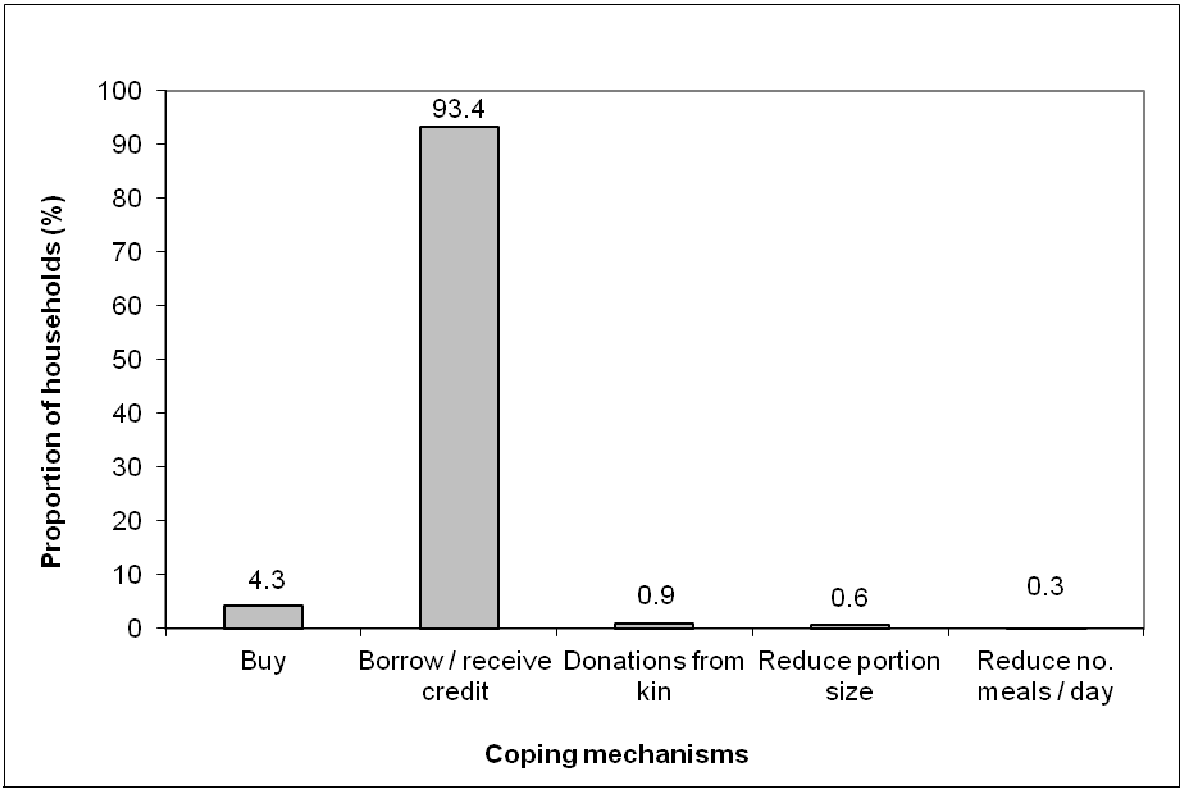
Being the first of the surveys, the teams simply recorded the response that most households stated the food ration was not enough. When this was noticed, teams were instructed to probe further to find out why the ration was not big enough or not lasting. That particular response could not be removed after the survey began, however this will be considered for the next survey as it does not provide any useful information.

Figure 23 Main reason given by each household for why the general good ration did not last until the next distribution - Ifo-2 camp, Dadaab (Sept 2012)



As shown in Figure 24 below, the most important coping strategy that was reported to be used to fill the food gap was to borrow or receive credit from family, friends or neighbours. Only a small percentage were able to buy extra food and some reported eating less (both amount and frequency).

Figure 24 Main coping strategies used to fill the food gap when general food ration runs out - Ifo-2 camp, Dadaab (Sept 2012)



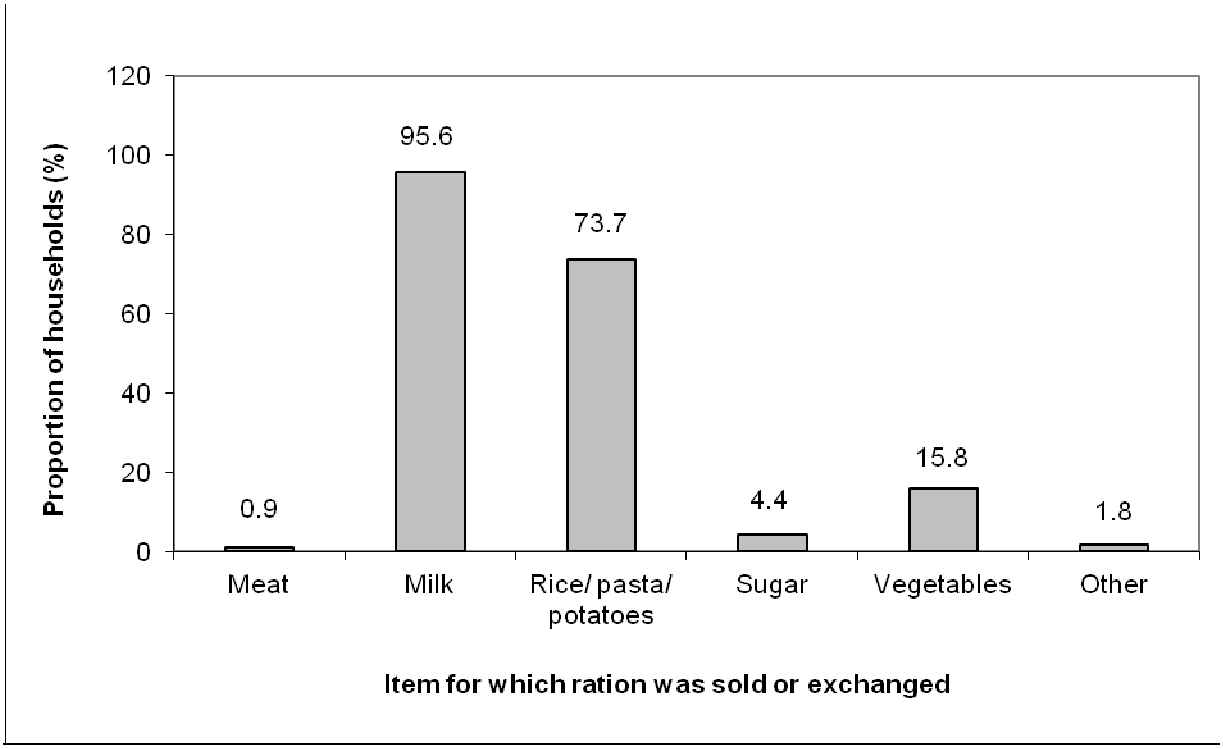
Just under one third of households reported selling or exchanging food from the ration.

Table 94 Sell or exchange of food from the general ration - Ifo-2 camp, Dadaab (Sept 2012)

	Number/total	%
Proportion of households selling or exchanging food ration items	114 / 374	30.5%

As shown in Figure 25 below, when food from the general ration was sold or exchanged, the most common items reported to be bought amongst households in Ifo-2 were rice/pasta/potatoes (n=?) and milk (n=84).

Figure 25 Most common items bought when general ration is sold or exchanged - Ifo-2 camp, Dadaab (Sept 2012)



Barriers relating to insecurity

Has insecurity or closure of health centres prevented anyone in your household from visiting a health centre in the last *2 months?*

- 8 / 374 households responded 'yes' (2.1%)

Has insecurity prevented anyone in your household from collecting the GFD in the last *2 months?*

- 2 / 374 households responded 'yes' (0.5%)

RESULTS FROM KAMBIOOS CAMP, DADAAB (SEPT 2012)

- **INDIVIDUAL-LEVEL INDICATORS;**
  CHILDREN 6-59 MONTHS,
  INFANTS AND YOUNG CHILDREN 0-23 MONTHS,
  WOMEN OF REPRODUCTIVE AGE 15-49 YEARS
- **HOUSEHOLD INDICATORS: WASH AND FOOD SECURITY**
- **MORTALITY**

Table 95 provides the planned sample size and the actual units sampled during the survey for each target population group. Thirty clusters were sampled for all indicators, therefore the number of required records per cluster varied according to the total target sample size required.

Table 95 Target sample size and actual number captured during the survey - Kambioos camp, Dadaab (Sept 2012)

Target group	Target sample size	Subjects measured/interviewed during the survey	% of the target
Children 6-59 months	600	599	99.8%
Children 0-23 months	300	325	108%
Women 15-49 years	300	316	105%

CHILDREN 6-59 MONTHS-KAMBIOOS CAMP, DADAAB (SEPT 2012)

Whilst the majority of children 6-59 months in Kambioos are Somali, about 5% arrived from the Lower Juba, Gedo and Lower Shabelle regions of Somalia in the past 12 months.

Table 96 Demographic information - Kambioos camp, Dadaab (Sept 2012)

	Number/total	%
Nationality		
Somali	559 / 599	93.3%
Somali Bantu	40 / 599	6.7%
Others	0 / 599	0.0%
Arrival in camp		
<3 months	1 / 599	0.2%
3-6 months	18 / 599	3.0%
6-9 months	4 / 599	0.7%
9-12 months	7 / 599	1.2%
>12 months	569 / 599	94.9%
Region of origin for children in camp for <12 months		
Lower Juba	21 / 30	70.0%
Middle Juba	-	-
Gedo	3 / 30	10.0%
Bay	-	-
Bakool	-	-
Lower Shabelle	6 / 30	20.0%
Middle Shabelle	-	-
Hiraan	-	-

Mogadishu/Banadir	-	-
Other	-	-

Anthropometric results (based on WHO Growth Standards 2006)

The coverage of age documentation was very low with 28% of children having an exact birth date. The age group 18 – 29 months was slightly over-represented and 30-41 months under-represented as compared to the other age groups. This is often the case in surveys where there are limited proofs of age as caregivers tend to recall best the birth date of smaller children.

Table 97 Distribution of age and sex of sample - Kambioos camp, Dadaab (Sept 2012)

	Boys		Girls		Total		Ratio
Age (mo)	**no.**	**%**	**no.**	**%**	**no.**	**%**	**Boy:girl**
6-17	68	51.9	63	48.1	131	21.8	1.1
18-29	81	54.7	67	45.3	148	24.7	1.2
30-41	62	51.2	59	48.8	121	20.2	1.1
42-53	71	54.6	59	45.4	130	21.7	1.2
54-59	42	60.0	28	40.0	70	11.7	1.5
Total	324	54.0	276	46.0	600	100.0	1.2

There were more boys than girls surveyed in Kambioos, as per the sex-ratio of 1.18, however this fell within the acceptable range of 0.8 – 1.2.

According to weight-for-height indices, Kambioos had a 17.1% (95% CI 14.4-20.3) GAM and 6.4% (95% CI 4.5-8.9) SAM, which constitute a 'critical' situation as the GAM prevalence sits above the nutrition emergency threshold of 15%. For GAM, MAM and SAM, boys appear to be affected by malnutrition more than girls, as seen in Table 98 below.

Table 98 Prevalence of acute malnutrition based on weight-for-height z-scores (and/or oedema) and by sex - Kambioos camp, Dadaab (Sept 2012)

	All n = 594	**Boys** n **=** 322	**Girls** n = 271
Prevalence of global malnutrition (<-2 z-score and/or oedema)	102 17.2% (14.4 – 20.3)	61 19.0% (15.9 – 22.5)	41 15.0% (10.8 – 20.5)
Prevalence of moderate malnutrition (<-2 z-score and >=-3 z-score, no oedema)	64 10.8% (8.2 – 14.0)	40 12.5% (9.5 – 16.1)	24 8.8% (5.5 – 13.7)
Prevalence of severe malnutrition (<-3 z-score and/or oedema)	38 6.4% (4.6 – 8.9)	21 6.5% (4.3 – 9.9)	17 6.2% (3.4 – 11.0)

The prevalence of oedema is 0.7 % (n=4)

As for Ifo-2, Kambioos is a new camp since the 2011 survey, therefore no trend or comparison can be made.

In both severe and moderate categories of malnutrition the age groups of 6 -17 months and 18-29 months have the highest prevalence. Children above 54 months also show significant rates of moderate wasting (see table below).

Table 99 Prevalence of acute malnutrition by age, based on weight-for-height z-scores and/or oedema - Kambioos camp, Dadaab (Sept 2012)

		Severe wasting (<-3 z-score)		Moderate wasting (>= -3 and <-2 z-score)		Normal (> = -2 z score)		Oedema	
Age (mo)	Total no.	No.	%	No.	%	No.	%	No.	%
6-17	130	19	14.6	18	13.8	93	71.5	0	0.0
18-29	146	8	5.5	17	11.6	120	82.2	1	0.7
30-41	120	1	0.8	8	6.7	110	91.7	1	0.8
42-53	128	4	3.1	12	9.4	110	85.9	2	1.6
54-59	70	2	2.9	9	12.9	59	84.3	0	0.0
Total	594	34	5.7	64	10.8	492	82.8	4	0.7

Proportionally, infants 6-17 months show the highest prevalence of severe malnutrition by far and also the highest rate of moderate wasting. The other age groups affected to a similar extent as each other are 18-29 months and 54-59 months.

Figure 26 Trends in the prevalence of wasting by age in children 6-59 months - Kambioos camp, Dadaab (Sept 2012)

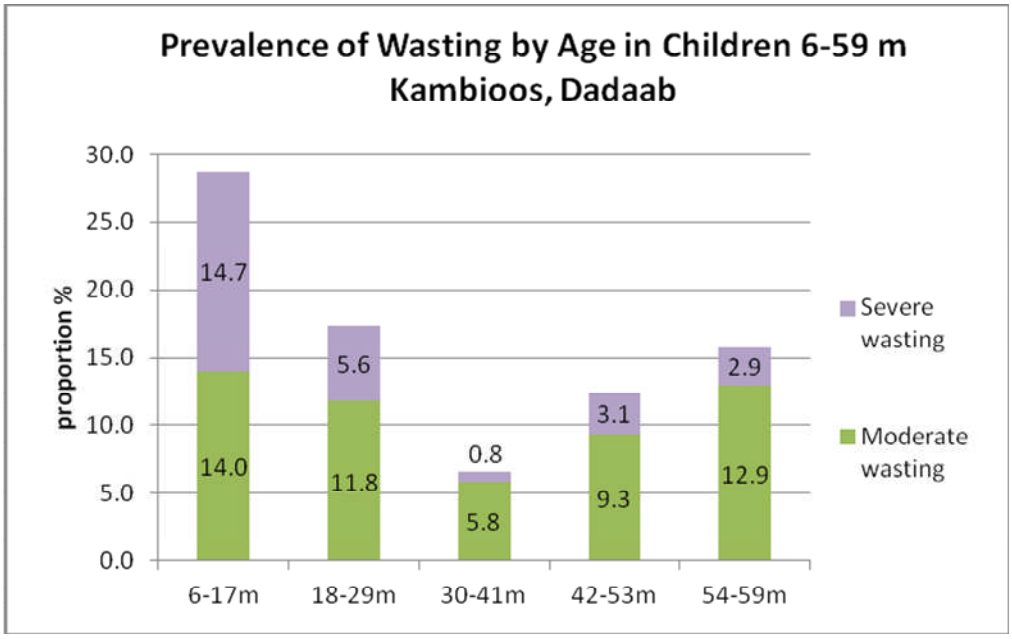


Table 100 below illustrates once more that children with nutritional oedema tend to have a weight-height z-score >-3. As with the other two camps, all cases of oedema in Kambioos are classified as kwashiorkor as their weight is increased by a significant accumulation of fluid.

Table 100 Distribution of severe acute malnutrition and oedema based on weight-for-height z-scores - Kambioos camp, Dadaab (Sept 2012)

	<-3 z-score	>=-3 z-score
Oedema present	Marasmic kwashiorkor N = 0	Kwashiorkor N = 4
Oedema absent	Marasmic N = 38	Not severely malnourished N = 558

Figure 27 Distribution of weight-for-height z-scores (based on WHO Growth Standards; the reference population is shown in green) of survey population compared to reference population - Kambioos camp, Dadaab (Sept 2012)

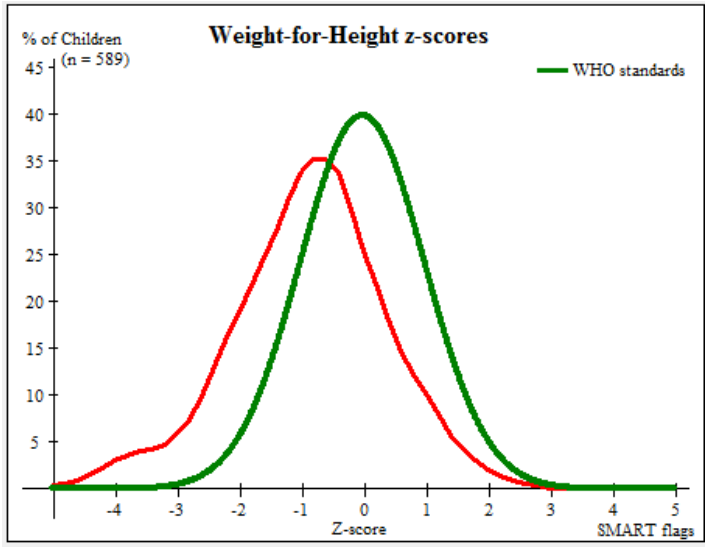


Table 101 Prevalence of stunting based on height-for-age z-scores and by sex - Kambioos camp, Dadaab (Sept 2012)

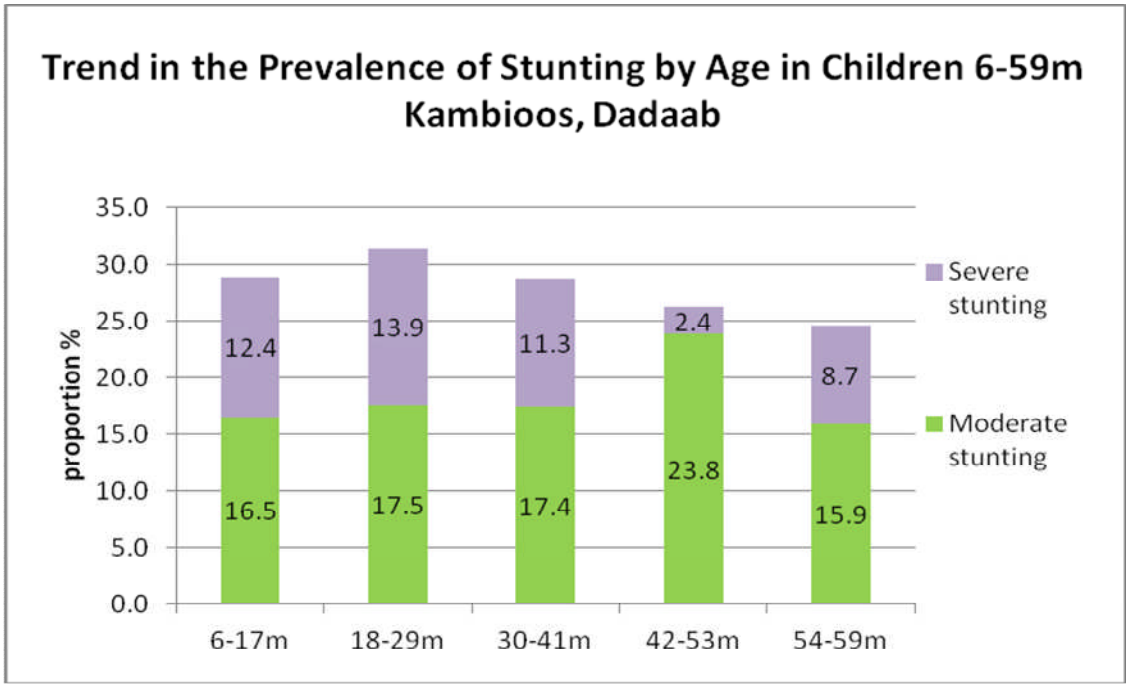
	All n = 569	**Boys** n = 305	**Girls** n = 264
Prevalence of stunting (<-2 z-score)	n = 161 28.3% (23.1 – 34.3)	n = 94 30.8% (25.4 – 37.4)	n = 67 25.4% (18.4 – 33.9)
Prevalence of moderate stunting (<-2 z-score and >=-3 z-score)	n= 108 18.5% (14.7 – 23.0)	n = 64 21.0% (16.6 – 26.7)	n = 41 15.5% (10.6 – 22.1)
Prevalence of severe stunting (<-3 z-score)	n = 56 9.8% (7.4 – 13.1)	n = 30 9.8% (7.2 – 13.3)	n = 26 9.8% (6.2 – 15.2)

Children in the age groups 6-17 months, 18-29 month and 30-41 months are the most affected by stunting in Kambioos suggesting that the malnutrition is setting in very early on for these children. Some of the older children under 5 years may have also experienced malnutrition prior to arriving in Dadaab as seen by the 24.6% of 54 – 59 months and 26.3% of 42-53 months children being stunted. This can also be seen in Figure 28 below.

Table 102 Prevalence of stunting by age based on height-for-age z-scores - Kambioos camp, Dadaab (Sept 2012)

		Severe stunting (<-3 z-score)		Moderate stunting (>= -3 and <-2 z-score)		Normal (> = -2 z score)	
Age (mo)	**Total no.**	**No.**	**%**	**No.**	**%**	**No.**	**%**
6-17	122	15	12.3	21	17.2	86	70.5
18-29	137	19	13.9	23	16.8	95	69.3
30-41	115	13	11.3	20	17.4	82	71.3
42-53	126	3	2.4	30	23.8	93	73.8
54-59	69	6	8.7	11	15.9	52	75.4
Total	569	56	9.8	105	18.5	408	71.7

Figure 28 Prevalence of stunting (including severity) by age in children 6-59 months - Kambioos camp, Dadaab (Sept 2012)



The prevalence of underweight, indicated by the weight-for-age z scores of surveyed children, is also high in Kambioos suggesting it is a 'serious' public health concern. Total and also moderate underweight is seen to be slightly higher in boys than in girls.

Table 103 Prevalence of underweight based on weight-for-age z-scores by sex - Kambioos camp, Dadaab (Sept 2012)

	All n = 585	**Boys** n = 317	**Girls** n = 268
Prevalence of underweight (<-2 z-score)	n = 168 28.7% (25.1 – 32.7)	n = 96 30.3% (25.5 – 35.6)	n = 72 26.9% (21.8 – 32.6)
Prevalence of moderate underweight (<-2 z-score and >=-3 z-score)	n = 117 19.7% (16.7 – 23.7)	n = 65 20.5% (16.2 – 25.6)	n = 52 19.4% (15.4 – 24.2)
Prevalence of severe underweight (<-3 z-score)	n = 51 8.7% (6.9 – 11.0)	n = 31 9.8% (7.2 – 13.2)	n = 20 7.5% (4.8 – 11.5)

The statistical measures of each nutritional index for the surveyed children in Kambioos are shown below. The four z-scores unavailable represent four cases of oedema. The design affect for height-for-age suggests the children in Kambioos are more heterogeneous regarding height. All three mean z-scores are <0 (i.e. negative) confirming the concerning malnutrition situation in Kambioos.

Table 104 Mean z-scores, Design Effects and excluded subjects - Kambioos camp, Dadaab (Sept 2012)

Indicator	N	Mean z-scores ± SD	Design Effect (z-score < -2)	z-scores not available*	z-scores out of range
Weight-for-Height	590	-0.88±1.23	1.00	4	6
Weight-for-Age	585	-1.41±1.12	1.00	4	11
Height-for-Age	569	-1.43±1.15	2.16	0	31

The current screening tool in the camps is MUAC measurement and it is a good indicator of risk of mortality in children under 5. Table 105 below, shows little correlation between MUAC results and GAM and SAM based on weight-for-height.

Table 105 Prevalence of malnutrition based on MUAC (N=599) - Kambioos camp, Dadaab (Sept 2012)

Malnutrition Category	**Number of cases, prevalence and 95% CI**
Prevalence of MUAC < 12.5 cm and/or oedema	n=56 9.3 % (7.2 - 12.1)
Prevalence of MUAC < 12.5 cm and >= 11.5 cm, no oedema	n=39 6.5 % (4.7 - 8.9)
Prevalence MUAC < 11.5 cm and/or oedema	n=17 2.8 % (1.6 - 4.8)

The caseloads for the selective feeding programmes were estimated to aid in future programme planning. The total population estimate for Kambioos used during the survey was 14,205 (based on UNHCR ProGres data). The total population of the surveyed households and the proportion that were under 5 years of age was calculated from the household listing forms (and household questionnaires). It was found that approximately 30.7% of the surveyed population in Kambioos was under-5 years, which was equivalent to 4,360 infants and children in the whole of Kambioos. It was assumed that 10% of under-fives were 0-5 months, so it could be estimated that 3,924 children were 6-59 months. This figure was then multiplied by the estimated proportion of children eligible to be enrolled in either TFP or TSFP for Kambioos to give the estimated caseload.

Table 106 Estimated number of malnourished children aged 6-59 months eligible to be enrolled in a selective feeding programme at the time of the survey (based on all admission criteria) - Kambioos camp, Dadaab (Sept 2012)

	Prevalence % (95% CI)*	**Total estimated caseload**
Eligible for Therapeutic Feeding Programme**	7.2% (5.1 – 9.2)	283
Eligible for Targeted Supplementary Feeding Programme**	12.7% (9.5 – 15.8)	498

*WHZ flags excluded from analysis

Anaemia results

Half of the children surveyed in Kambioos have anaemia (Hb < 11.0g/dL) indicating that the prevalence of anaemia in Kambioos is high according to WHO classifications (<40%). See Table 107 below for the prevalence of anaemia by severity.

Table 107 Prevalence of anaemia and haemoglobin concentration in children 6-59 months of age - Kambioos camp, Dadaab (Sept 2012) (n = 599)

Anaemia – Children 6-59 months	**Number of cases Prevalence (95% CI)**
Total Anaemia (Hb<11.0 g/dL)	n = 304 50.8% (45.3 – 56.2)
Mild Anaemia (Hb 10.0-10.9 g/dL)	n = 176 29.4% (25.4 – 33.4)
Moderate Anaemia (7.0-9.9 g/dL)	n = 126 21.0% (17.0 – 25.0)
Severe Anaemia (<7.0 g/dL)	n = 2 0.3% (0.0 – 0.8)
Mean Hb	10.8 g/dL (Range 6.0 - 16.7)

Table 108 illustrates that also in Kambioos, the younger children aged 6-23 months have the highest prevalence of anaemia. Also, the two cases of severe anaemia were in these younger age groups. The level of moderate anaemia in infants was more than double that of children 36-59 months, as seen below.

Table 108 Prevalence of anaemia by age - Kambioos camp, Dadaab (Sept 2012)

		Severe Anaemia (<7.0 g/dL)		**Moderate Anaemia (7.0-9.9 g/dL)**		**Mild Anaemia (Hb 10.0-10.9 g/dL)**		**Total Anaemia (Hb<11g.0 g/dL)**		**Normal (Hb≥11.0 g/dL)**	
Age (mo)	**Total no.**	**No.**	**%** (95% CI)	**No.**	**%** (95% CI)	**No.**	**%** (95% CI)	**No.**	**%** (95% CI)	**No.**	**%** (95% CI)
6-23	206	1	0.5% (0.0 – 1.5)	65	31.6% (23.8 – 39.3)	71	34.5% (27.4 – 1.5)	137	66.5% (58.3 – 74.8)	69	33.5% (25.2 – 41.7)
24-35	126	1	0.8% (0.0 – 2.4)	30	23.8% (17.1 – 30.5)	36	28.6% (21.7 – 35.4)	67	53.2% (43.5 – 62.8)	59	46.8% (37.2 – 56.5)
36-59	267	0	0.0%	31	11.6% (7.9 – 15.4)	69	25.8% (20.4 – 31.3)	100	37.5% (29.7 – 45.3)	167	62.5% (54.8 – 70.3)
Total	**304**	**2**	0.3% (0.0 – 0.8)	**126**	21.0% (17.0 – 25.0)	**176**	29.4% (25.4 – 33.4)	**304**	50.8% (45.3 – 56.2)	**295**	49.2% (43.8 – 54.7)

Programme coverage

Selective feeding programmes

Coverage rates in Kambioos of both the TFP and targeted SFP are very low as seen by Table 109 below, with reference to the target coverage of >90%.

Table 109 Acute malnutrition treatment programme coverage based on all admission criteria (weight-for-height, MUAC, oedema) – Kambioos camp, Dadaab (Sept 2012)

	Number/total	% (95% CI)
Proportion of children aged 6-59 months with Severe Acute Malnutrition currently enrolled in Therapeutic Feeding Programme*	7 / 43	16.3% (5.6 – 38.7)
Proportion of children aged 6-59 months with Moderate Acute Malnutrition currently enrolled in Supplementary Feeding Programme*	12 / 76	15.8% (9.4 – 25.3)

*WHZ flags excluded

Similar to the other two surveys in Dadaab there are many more (almost double) children eligible for therapeutic nutrition programmes when using weight-for-height, oedema and MUAC than if using MUAC only, as seen by comparing the table below with the table above.

Table 110 Acute malnutrition treatment programme coverage based on MUAC and oedema only - Kambioos camp, Dadaab (Sept 2012)

	Number/total	% (95% CI)
Proportion of children aged 6-59 months with Severe Acute Malnutrition currently enrolled in Therapeutic Feeding Programme	6 / 17	35.3% (10.3 – 70.2)
Proportion of children aged 6-59 months with Moderate Acute Malnutrition currently enrolled in Supplementary Feeding Programme	13 / 39	33.3% (20.5 – 49.2)

The coverage when using MUAC alone is also low, considering the coverage should be >90%. This means many children are not being screened and referred into programmes when needed.

Blanket Supplementary Feeding Programme (BSFP)

Coverage of the blanket supplementary feeding program is low, which may indicate a problem with collection and distribution of the product, and/or registration of the younger children if they have been born since registrations closed in October 2011. The latter theory, however, does not account for the 90.7% of children that reported not receiving the supplementary food, CSB++. Some respondents may have been confused as to which product the question was referring to without a sample to show them.

Table 111 CSB++ Distribution (BSFP programme) for children aged 6-23 months- Kambioos camp, Dadaab (Sept 2012)

	Number/total	% (95% CI)
Currently receiving CSB++	19 / 204	9.3% (2.9 – 15.7)

Vaccination and supplementation programmes

Measles vaccination coverage

Following the outbreak of measles in the first half of 2012 in Dadaab, it is important to know the measles vaccination coverage, as there had been no mass measles vaccination for Kambioos as it is a new camp since the last mass measles vaccination campaign early in 2011. It is therefore expected that the vaccination coverage may be lower in Kambioos, as seen by the proportion having cards to confirm measles vaccination. There was a significant difference between those caregivers recalling the vaccination of their child compared to the proportion having cards, which

could mean either the use of EPI cards is not adequate in Kambioos or the respondent was confused about which vaccination the question referred to.

Table 112 Measles vaccination coverage for children aged 9-59 months (n=584) – Kambioos camp, Dadaab (Sept 2012)

Measles Vaccination (with card confirmation)	Measles Vaccination (with card or confirmation from mother)
n=61 **10.4%** (3.4 – 17.4)	n=564 **96.6%** (93.9 – 99.2)

PENTA vaccination coverage

PENTA vaccination coverage was measured in light of a potential outbreak of pertussis (whooping cough), and is a routine vaccination for children under 5 years.

Table 113 PENTA vaccination coverage for children aged 6-59 months (n=599) - Kambioos camp, Dadaab (Sept 2012)

	PENTA 1 (only) n = 12	PENTA 2 n = 97	PENTA 3 n = 313
Vaccination (with card confirmation)	2.0% (0.1 – 3.9)	16.2% (9.0 – 23.4)	52.3% (39.9 – 64.6)

The remaining 29.5% of children 6 – 59 months (n = 177) had not received any PENTA doses.

Vitamin A supplementation was a focus of the Malezi Bora campaign in May 2012 and it is therefore expected that even if not recorded on the child's card, that the caregiver could recall whether the child received it or not. The coverage in Kambioos for Vitamin A supplementation by card or recall was high.

Vitamin A supplementation coverage

Table 114 Vitamin A supplementation for children aged 6-59 months within past 6 months (n=599) – Kambioos camp, Dadaab (Sept 2012)

Vitamin A capsule received (with card confirmation) n= 35	Vitamin A capsule (with card or confirmation from mother) n= 569
5.8% (2.9 – 8.7)	94.8% (90.9 – 98.8)

Deworming coverage

Deworming of children aged 24 – 59 months was measured by recall only as it is not routinely recorded on the cards. As with Vitamin A supplementation, deworming is conducted twice each year in the Malezi Bora campaign, and it was expected that caregivers could recall whether their child had received this or not. Deworming coverage is, however, lower than the reported vitamin A supplementation coverage.

Table 115 Deworming for children aged 24-59 months within past 6 months (n=599) – Kambioos camp, Dadaab (Sept 2012)

Dewormed	%
502 / 599	83.8% (77.8 – 89.8)

Morbidity from diarrhoea and feeding during diarrhoea

The survey in Kambioos revealed relatively high levels of diarrhoea in the past two weeks in

children 6-59 months. This may be a contributing factor in the higher levels of malnutrition and may also be related to the poorer sanitation and hygiene situation in Kambioos (seen by results further below).

Table 116 Prevalence of reported diarrhoea in the two weeks prior to the interview - Kambioos camp, Dadaab (Sept 2012)

	Number/total	% (95% CI)
Diarrhoea in past 2 weeks	75 / 599	12.5% (7.8 – 17.3)

Of those children reportedly having diarrhoea in the past two weeks, more than three quarters were fed less than normal, compromising their nutritional status, and less than 15% were fed the same as normal. The current recommendations are to continue feeding normally during episodes of diarrhoea.

Table 117 Feeding during diarrhoea episodes - Kambioos camp, Dadaab (Sept 2012)

Feeding practices	n = 75 % (95% CI)
Less than normal	n = 64 85.3% (66.4 – 100.0)
Same as normal	n = 11 14.7% (0.0 – 33.6)
More than normal	n = 0
No food	n = 0

CHILDREN 0-23 MONTHS - KAMBIOOS CAMP, DADAAB (Sept 2012)

There were very few children 0-23 months arriving in the camp since the last survey (only 3.7%). The remaining 313 infants were either born in Kambioos of arrived prior to October 2011.

Table 118 Demographic information - Kambioos camp, Dadaab (Sept 2012)

	Number/total	%
Nationality		
Somali	192 / 325	93.2%
Somali Bantu	14 / 325	6.8%
Others	0 / 325	0.0%
Date of arrival in camp		
<3 months	0 / 325	0.0%
3-6 months	8 / 325	2.5%
6-9 months	2 / 325	0.6%
9-12 months	2 / 325	0.6%
Before October 2011	313 / 325	96.3%

The IYCF questionnaire results are given in the table below, which includes the responses for four of the WHO core Indicators and three optional indicators for IYCF, plus the provision of other fluids to children, and also diarrhoea and feeding practices during diarrhoea in infants.

Table 119 Prevalence of Infant and Young Child Feeding Practices indicators - Kambioos camp, Dadaab (Sept 2012)

Indicator	Age range	Number/total	Prevalence (%)	95% CI
Children ever breastfed	0-23 months	315 / 324	97.2%	(95.0 – 99.5)
Early initiation of breastfeeding	0-23 months	275 / 314	87.6%	(78.6 – 96.6)
Exclusive breastfeeding under 6 months	0-5 months	101 / 120	84.3%	(77.1 – 91.3)
Continued breastfeeding at 1 year	12-15 months	28 / 49	57.1%	(40.2 – 74.0)
Continued breastfeeding at 2 years	20-23 months	18 / 55	32.7%	(18.2 – 47.2)
Introduction of solid, semi-solid or soft foods	6-8 months	3 / 15	20.0%	(0.0 – 46.1)
Children bottle fed	0-23 months	14 / 314	4.3%	(1.7 – 6.9)
Children given infant formula	0-23 months	20 / 323	6.2%	(1.0 – 11.4)
Children given milk or milk alternative	0-12 months	24 / 173	13.9%	(7.9 – 19.9)
Children given Tea/coffee	0-23 months	104 / 324	32.1%	(21.7 – 42.5)
Children given water or sugar water	0-5 months	2 / 120	1.7%	(0.0 – 4.0)
Reported prevalence of diarrhoea	0-23 months	35 / 324	10.8%	(5.7 – 15.9)
Continued feeding during diarrhoea	0-23 months	0 / 35	0.0%	-

No comparison can be made for these IYCF indicators as it is the first survey in Kambioos since it has been occupied by relocated refugees. Whilst some indicators are at desirable levels, others are very concerning such as; less than one third continuing breastfeeding at 2 years, 6.2% (95% CI 1.0-11.4) giving infant formula and only 20% (95% CI 0-46.1) having introduced solid/semi-solid/soft food between 6 – 8 months. Also the percentage of infants given tea/coffee is of concern.

WOMEN 15-49 YEARS - KAMBIOOS CAMP, DADAAB (Sept 2012)

Table 120 Demographic information - Kambioos camp, Dadaab (Sept 2012)

	Number/total	%
Nationality		
Somali	295 / 316	93.4%
Somali Bantu	21 / 316	6.6%
Others	0 / 316	0.0%
Arrival in camp		
<3 months	2 / 316	0.6%
3-6 months	7 / 316	2.2%
6-9 months	2 / 316	0.6%
9-12 months	3 / 316	0.9%
>12 months	302 / 316	95.6%
Physiological status		
Pregnant	58 / 316	18.4%
Lactating (until 6 months post-natal only)	68 / 316	21.5%
Neither lactating nor pregnant	190 / 316	60.1%
Age of Women		
Mean Age	29.2	

Almost one third of non-pregnant women 15-49 years are anaemic (Hb <12.0g/dL) and more than half of the women in this group are moderately anaemic.

Table 121 Prevalence of anaemia and haemoglobin concentration in non-pregnant women of reproductive age (15-49 years) - Kambioos camp, Dadaab (Sept 2012) (n = 256)

Anaemia categories	Number of cases Prevalence (95% CI)
Total Anaemia (<12.0 g/dL)	n = 82 32.0% (23.7 – 40.3)
Mild Anaemia (11.0-11.9 g/dL)	n = 32 12.5% (8.5 – 16.5)
Moderate Anaemia (8.0-10.9 g/dL)	n = 49 19.1% (11.4 – 26.8)
Severe Anaemia (<8.0 g/dL)	n = 1 0.4% (0.0 – 1.2)
Mean Hb	12.3 g/dL (Range 7.7 – 15.2)

ANC enrolment and iron-folic acid supplementation coverage

Table 122 indicates that coverage of ANC programme in Kambioos is good with almost all of the pregnant women enrolled and confirmed with their card. However there were six women who are enrolled and stating that they are not currently receiving iron-folic acid pills.

Table 122 ANC enrolment and iron-folic acid pills coverage among pregnant women (15-49 years) - Kambioos camp, Dadaab (Sept 2012)

	Number/total	% (95% CI)
Currently enrolled in ANC programme with card	56 / 58	96.6% (91.3 – 100.0)
Currently enrolled in ANC programme with card or recall	56 / 58	96.6% (91.3 – 100.0)
Currently receiving iron-folic acid pills	50 / 58	86.2% (72.4 – 100.0)

Table 123 Post-natal vitamin A supplementation among women (15-49 years) - Kambioos camp, Dadaab (Sept 2012)

	Number/total	% (95% CI)
Received vitamin A supplementation since delivery with card	33 / 68	48.5% (30.8 – 66.2)
Received vitamin A supplementation since delivery with card or recall	64 / 68	94.1% (88.3 – 99.9)

HOUSEHOLD-LEVEL INDICATORS - WASH AND FOOD SECURITY-KAMBIOOS CAMP, DADAAB (SEPT 2012)

Table 124 shows the different indicators and the total number of households who were sampled for each household-level indicator. All households were considered whether or not they had eligible individuals for the individual-level measurements.

Table 124 Target sample size and actual number captured for HH Questionnaire during the survey - Kambioos camp, Dadaab (Sept 2012)

Indicator	Target sample size	Household interviewed during the study	% of the target
WASH / Food Security	360	447	124%

WATER, SANITATION AND HYGIENE - KAMBIOOS CAMP, DADAAB (SEPT 2012)

In Kambioos, three households arrived within the last 3 months, and 17 in total had arrived within the 11 months prior to September 2012. There was therefore no need to carry out an additional analysis for new or recent arrivals.

Table 125 Demographic information - Kambioos camp, Dadaab (Sept 2012)

	Number/total	%
Date of arrival of household in camp		
<3 months	3 / 447	0.7%
3-6 months	10 / 447	2.2%
6-9 months	1 / 447	0.2%
9-11 months	4 / 447	0.9%
>11 months	429 / 447	96.0%

Table 126 indicates that less than one quarter of households surveyed have enough containers to collect sufficient water. This highlights an important need as water and sanitation are closely linked to health and malnutrition.

Table 126 Ownership of adequate water containers - Kambioos camp, Dadaab (Sept 2012)

	Number/total	% (95% CI)
Proportion of households that say they have enough water containers to collect water	99 / 440	22.5% (13.3 – 31.7)

Most households in Kambioos collect water from a public tap or standpipe, with a small percentage receiving water from a UNHCR tanker. Six households that were not registered were not asked this question.

Table 127 Main source of drinking water for HH - Kambioos camp, Dadaab (Sept 2012)

Source	Number / Total	% (95%CI)
Public Tap / Standpipe	427 / 441	96.8% (90.3 – 100.0)
UNHCR Tanker	14 / 441	3.2% (0.0 – 9.7)

Despite many households not having enough water containers, almost all households surveyed reported being happy with the water supply. The five households that stated they were not happy cited the reasons given below in Table 128.

Table 128 Satisfaction with water supply - Kambioos camp, Dadaab (Sept 2012)

	Number/total	% (95% CI)
Proportion of households that say they are satisfied with the drinking water supply	436 / 441	98.9% (97.0 – 100.0)

Reasons for not being satisfied with water supply

- N= 3 (amount not enough)
- N= 1 (long queue)
- N= 1 (water point is far)

Coverage of soap distribution was excellent with only 5 households not receiving soap in the last

2 distribution cycles (1.2%).

Table 129 Soap distribution - Kambioos camp, Dadaab (Sept 2012)

	Number/total	% (95% CI)
Proportion of households that received soap during the last two distribution cycles or at reception	429 / 434	98.8% (97.6 – 100.0)

Table 130 indicates the types of toilets used by the households in Kambioos camp. Fifteen households (3.4%) do not use a toilet (i.e. they use a plastic bag, the bush, or field).

Table 130 Safe Excreta disposal - Kambioos camp, Dadaab (Sept 2012)

Excreta disposal methods	Number/total	% (95% CI)
Proportion of households using an improved excreta disposal facility	18 / 441	4.1% (1.7 – 6.4%)
Proportion of households using a shared family toilet	121 / 441	27.4% (18.5 – 36.4)
Proportion of households using a communal toilet	286 / 441	64.9% (54.3 – 75.4)
Proportion of households using an unimproved toilet	16 / 441	3.6% (0.1 – 7.1)

FOOD SECURITY - KAMBIOOS CAMP, DADAAB (SEPT 2012)

The majority of households in Kambioos had between four and nine persons. Of 447 HH interviewed, the smallest HH contained 1 person and the largest, 14 people and the average household size was 6.5 people (refer to the table below).

Figure 29 Household size – Kambioos Camp, Dadaab (Sept 2012)

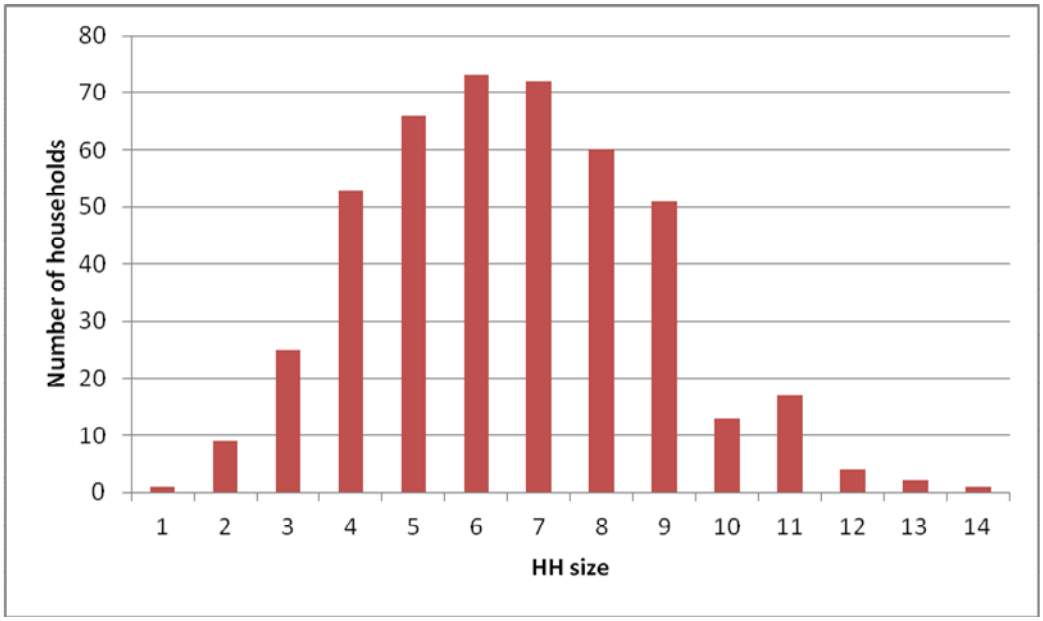


Table 131 Demographic information - Kambioos camp, Dadaab (Sept 2012)

Average HH size	6.5 persons

A total of eight households (of 447) were unregistered and did not have a ration card. The majority of those registered reported that the food ration lasted less than 15 days, as shown in the table below. The denominator for these two estimates is different because on two of the survey days, one particular team included the twelve households for the HH questionnaire but did not complete the HH questionnaire for the additional three households required for the mortality

questionnaire (15 in per cluster) for Kambioos. Therefore six household who were registered did not have the HH questionnaire administered to them.

Table 132 Ration card coverage and duration of general food ration - Kambioos camp, Dadaab (Sept 2012)

	Number/total	% (95% CI)
Proportion of households with a ration card	439 / 447	98.2% (94.6 – 100.0)
Proportion of surveyed HH who had one or more members that were not registered on the ration card	79 / 439	18.0%
Proportion of households reporting that the GFR lasted <15 days	414 / 433	95.6% (92.8 – 98.4)

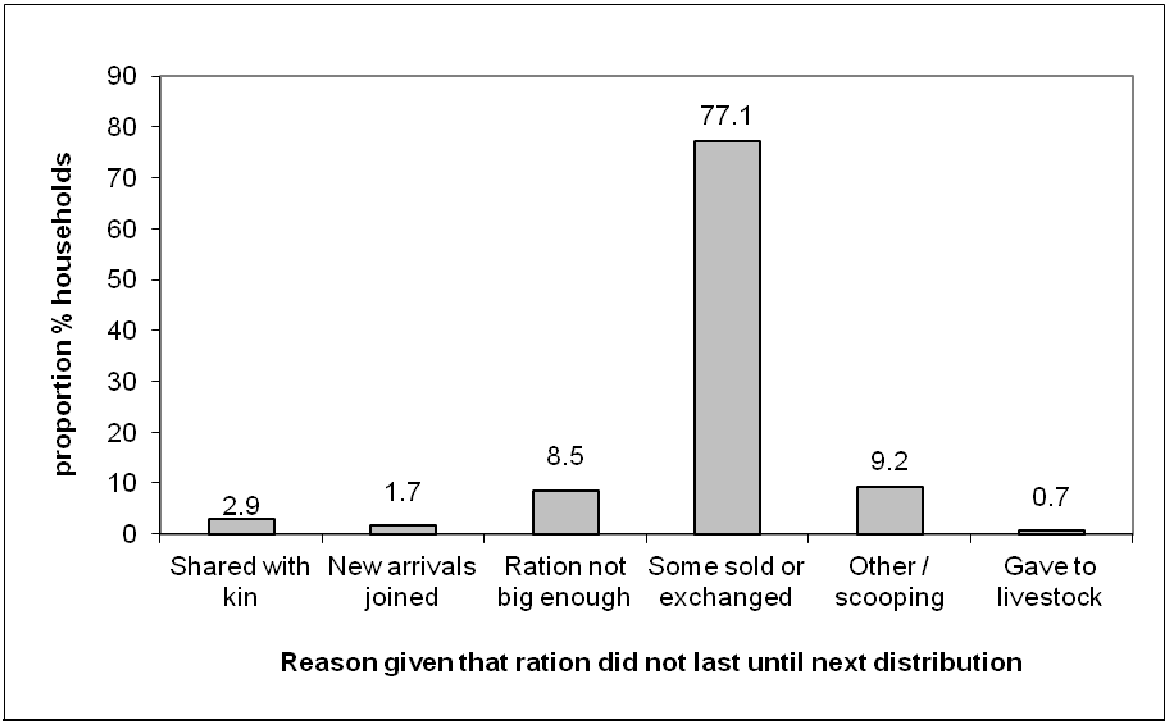
For those reporting that the food ration lasted less than the 15 days of the cycle, the average duration is shown in the table below.

Table 133 Duration that GFR lasts – Kambioos camp, Dadaab (Sept 2012)

	Number days	95% CI
Average number of days GFR lasts	9.7	(9.1 – 10.3)

When asked why the general food ration did not last the entire cycle, the main reason given by the 414 responding households was that some food was sold or exchanged (n=319) followed by the ration not being big enough (n=35). Some reported 'scooping/other' as the reason (n=38) or that it was shared with kin (n=12), and only a few answered that it was shared with livestock (n=3) or because new arrivals had joined (n=7).

Figure 30 Main reason given by each household for why general good ration did not last 15 days - Kambioos camp, Dadaab (Sept 2012)



As shown in Figure 31 below, the most important coping strategy that was reported to be used to fill the food gap was to borrow or receive credit from family, friends or neighbours. Although in Kambioos there were more households reportedly reducing their food intake to cope (i.e. by reducing portion size or meal frequency per day) which is a concern particularly for young children.

Figure 31 Coping strategies used to fill the food gap when general food ration runs out - Kambioos camp, Dadaab (Sept 2012)

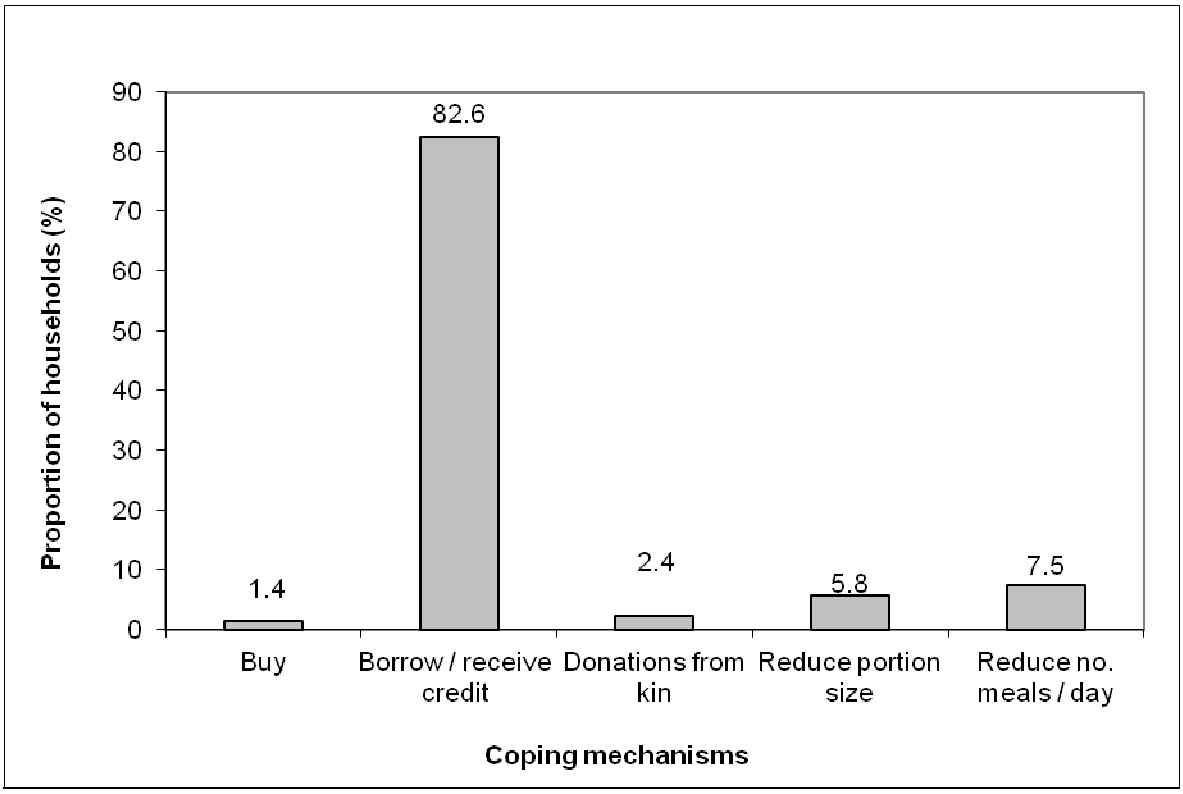
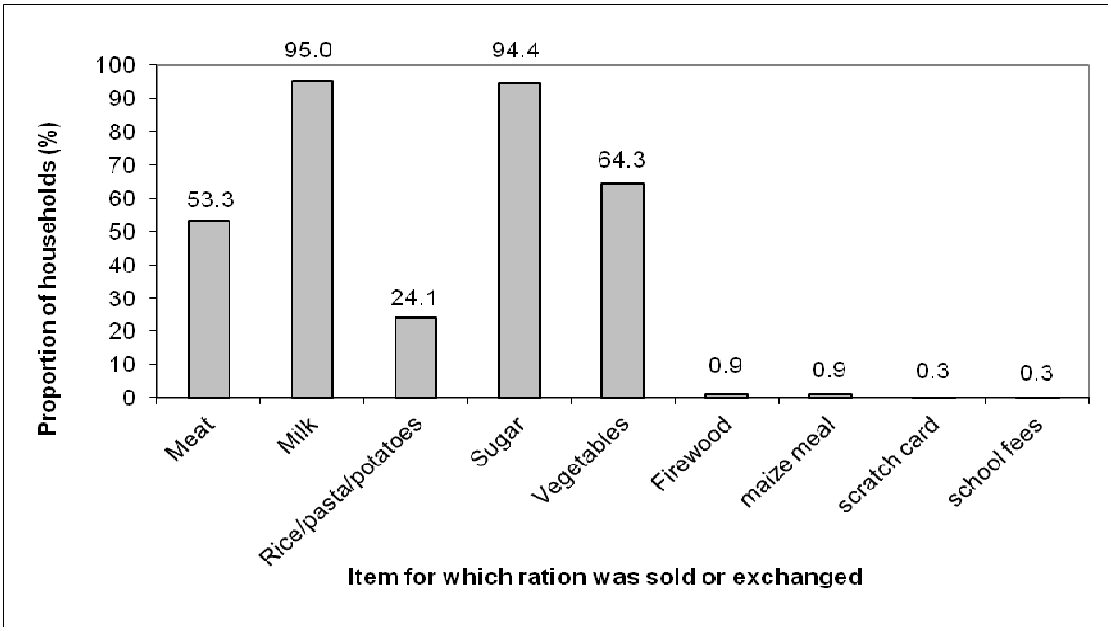


Table 134 Selling or exchange of food from the general ration - Kambioos camp, Dadaab (Sept 2012)

	Number/total	%
Proportion of households selling or exchanging food ration items	319 / 439	77.1% (69.3 – 84.8)

As shown in Figure 32 below, when food from the general ration was sold or exchanged, the most common items bought were sugar (n=301) and milk (n=303) with meat and vegetables also quite commonly replacing the ration.

Figure 32 Most common items bought when general ration is sold or exchanged - Kambioos camp, Dadaab (Sept 2012)



Barriers relating to insecurity

Has insecurity or closure of health centres prevented anyone in your household from visiting a health centre in the last *2 months?*

- 1 / 441 households responded 'yes' (0.2%)

Has insecurity prevented anyone in your household from collecting the GFD in the last *2 months?*

- 2 / 440 households responded 'yes' (0.5%) - one HH did not respond.

MORTALITY- KAMBIOOS CAMP, DADAAB (SEPT 2012)

Retrospective mortality data was collected over the past three months. The exact recall period was 98 days as the local event used was World Refugee Day (June 20th 2012) which is marked by UNHCR in all camps and considered to be memorable to the refugee population. Demographic data was also derived from the mortality data as presented below.

Table 135 Demographic and retrospective mortality - Kambioos, Dadaab (Sept 2012)

Demographic data	
Number of HH surveyed	450
Average HH size	6.5
% U5	30.7%
Retrospective mortality	
Number of current HH residents	2912.5
Total number U5	893
Number of people who joined HH / camp	20
Total number U5 who joined HH / camp	5
Number of people who left HH / camp	42
Total number U5 who left HH / camp	10
Number of births during recall	86
Number of deaths during recall	6

Total number U5 deaths during recall	5
Crude Death Rate (total deaths/10,000 people / day)	0.21 (0.10 - 0.45)
U5 Death Rate (deaths in children under five/10,000 children under five / day)**	0.56 (0.24 - 1.31)

**One household had a death recorded with no gender or age documented. It was known by the name that he was male and it was assumed for analysis that he was less than 5 years old.

LIMITATIONS

- This survey in 2012 is the first time for Dadaab that the annual nutrition survey was remotely supervised due to the issue of insecurity. Contextual changes and a number of serious security incidents throughout 2012 led to higher security risk and limited movement around the camps. For Kenyan and expat staff, a police escort was required at the time of the survey. It was decided that the survey consultants should not be exposed to such high risk and they were therefore based at the UNHCR Dadaab SO (formerly Dadaab Main Office).

- Time constraints – due to administrative / contractual delays the 2012 survey was delayed and undertaken in late September and early October. Despite this delay, there was also pressure to complete the survey as quickly as possible so that results could be available for the upcoming UNHCR Joint Assessment Mission (JAM) in late October. This put the survey on a tight schedule with little room for movement when extra time may have been useful (for example – additional training on anthropometric techniques following the standardisation test for some teams in each camp could have further minimised error and improved quality of the data collected.

- Difficulties in consistent and timely communication with some stakeholders left some decisions delayed or requiring amendment which led to inefficiencies. Some partners were much more dedicated and it was also noticed that those staying within the compound or nearby were able to meet more regularly with the survey co-ordination team for discussions, to receive support and for other trouble-shooting throughout data collection.

- Despite the promise of support and commitment to the survey, this was unreliable and inconsistent during the actual survey. The full involvement of all agencies was paramount to ensure adequate supervision in the field during data collection, however this was not provided consistently by all. Even though they were invited and requested, some meetings during the data collection were not attended and communication was lacking.

- Problems in leadership by the Nutrition Co-ordinators of some IPs was observed and this led to a shift in power with the data collection teams, which were already recruited prior to survey planning. Those who had difficulty in leading and motivating their teams had poorer quality of data. It was noted that varying levels of commitment and support for the survey coming from management within IPs and lack of survey experience of some nutrition co-ordinators meant the importance of the survey and the commitment required was underestimated.

- Data collection started as early in the day as possible, however due to movement restrictions teams could not start data collection each day until later than planned. This meant teams were spending longer in the blocks during the hotter part of the day causing discomfort. This may have impacted on data collection in some surveys. In addition, then length of the survey each day and for six consecutive days in such heat is very demanding and would have led to fatigue, also possibly affecting the results. However, the physical demands were lower during the 2012 survey than in previous surveys.

- Whilst intensive training was given to supervisors, varying levels of experience and interest meant that not all would have been capable to pick up technical errors and provide detailed and tailored guidance to their teams to the same extent as if the survey management team could have been present.

- There was one survey manager to manage all the aspects of the survey in five camps. Despite the plan and best efforts to recruit an assistant survey manager this was not done by UCL within the available time and experience demonstrated that the management team was insufficient to cope with all aspects of the survey within the compressed time-frame.

Undertaking five surveys is a considerable task and with the added component of utilising smartphones for data collection, there were simply not enough personnel to manage the process. Higher levels of external inputs along with greater commitment from the IPs will be required in future surveys to ensure success.

DISCUSSION

The 12 months leading up to the survey saw many changes to the Dadaab context including a poor security environment, withdrawal of many international and technical staff, and a likely impact on service delivery. Perhaps the most noteworthy change since the previous survey is that two extra camps are now in operation, which increased the number of surveys conducted in 2012 from three to five. In contrast to 2011, the lead technical advisors for the survey were also not able to directly supervise field work in the camps due to insecurity. As previously stated, only three surveys are reported here. UNHCR took the decision not to release the results from Dagahaley and Ifo camp surveys due to concerns about data quality. This does, however, mean that estimates for malnutrition prevalence and programme performance indicators are not currently available for these camps. There is an urgent need to conduct new surveys in these 2 camps to enable this data to be obtained.

Another important limitation with the surveys reported here is that in Hagadera the 'outskirt areas' were not included. Outskirt areas are areas of informal settlement on the edges of the formal camp blocks. They developed in all 3 of the pre-existing camps and expanded rapidly during the emergency influx of refugees during 2011. While it was possible to map and survey the outskirts areas in Dagahaley during the 2011 survey, this was impossible during 2012 in any of the camps due to insecurity. The decision of the GOK to stop registration of refugees for periods during 2012 also meant that there was greater uncertainty regarding the actual population size within the camps. It is therefore very likely that the nutritional status reported here for Hagadera camp is better than would have been found if the sampling frame for the survey had included the whole of the main camp and outskirts combined.

Nutritional status of young children and mortality

Results from these three surveys indicates that the nutritional status of young children in Dadaab remains far from ideal, despite the improvement in malnutrition levels since the previous survey which was conducted at the height of the influx in 2011.

Levels of GAM dropped from 17.2% (13.2 – 22.1) to 10.3% (8.0 – 13.0) ($p<0.05$) in Hagadera, which is the only camp with a 2011 survey to make the comparison with. It also denotes that the level of malnutrition has shifted from 'critical' back to 'serious'. On-going efforts are required to sustain and continue the improvements in GAM and SAM in Hagadera.

Being the first survey for both Ifo-2 and Kambioos, it provides an assessment to facilitate future program planning and a benchmark for future surveys, but no trends are available. GAM in Ifo-2 was 15.0% (12.3 – 18.0) whilst the survey in Kambioos revealed the highest of the three camps with a GAM of 17.1% (14.4 – 20.1). Both of these camps are classified as having a 'critical' nutrition situation according to WHO thresholds.

Three oedema cases were identified in Hagadera (0.5%), 5 were detected in Ifo-2 (0.8%) and in Kambioos 4 cases were found (0.7%). The finding of these cases in the population suggests that the screening and outreach components of nutrition programmes are not effectively identifying and referring these cases, and/or that caregivers are not equipped to notice the oedema and children are becoming more malnourished before help is sought.

The mortality questionnaire was only administered in Kambioos. This camp was selected as it was considered to have the most fragile population, since it is the most recent camp to be populated and have services introduced. Some services still remain to be set-up in Kambioos;

there is no hospital and food distributions occur in neighbouring Hagadera. It was therefore considered likely that the other camps would have a lower mortality rate than Kambioos. Both the crude mortality and the under-five mortality rates fell below the emergency thresholds; CDR 0.21 deaths/10,000/day (0.10 – 0.45) and U5DR 0.56 deaths/10,000/day (0,24 – 1.31). These levels are comparable to those in Hagadera camp during the 2011 survey.

It is difficult to compare this rate to the mortality recorded in the HIS as the HIS mortality rate has been erratic since the beginning of 2012 and problems with mortality surveillance were noted during a CDC field investigation during 2011. According to the HIS, mortality seemed to be stabilising mid-year, however, the average U5DR across July – September (i.e. the same recall period) was 0.29/10,000/day a mortality rate which is an underestimate in comparison to this survey. Moreover, it is thought that the accuracy of the survey results may have been affected and that mortality may be slightly higher than this if some deaths went unreported, despite efforts to dissociate the survey from official UNHCR registrations and distributions.

The prevalence of stunting from these surveys ranged from 25.7% (20.4 – 31.8) to 41.7% (37.3 – 46.3) which are higher than in 2011 (range was 20.7% to 27.7%) and can be defined as a 'poor' situation in Hagadera and Kambioos and 'critical' in Ifo-2 according to the WHO classifications. Results for Kambioos should be interpreted with caution as age documentation was low at 28%, however Ifo-2 and Hagadera had good coverage of age documentation. Ifo-2 had a very high rate of severe stunting in particular, 18.9% (15.3 – 23.2) indicating that the population of young children in Ifo-2 are more vulnerable as this suggests they have been experiencing malnutrition over a longer period of time (i.e. chronic malnutrition) - possibly due to poor child feeding and care practices and poor health seeking behaviour. In all three camps, the age group 18-29 months experienced the highest stunting rates, followed by 6-17 months and 30-41 months about the same level, which follows a similar pattern to previous years.

Prevalence of diarrhoea in the two weeks leading up to the survey ranged from 0.8% (0.1 – 1.5) in Hagadera to 31.0% (22.3 – 39.6) in Ifo-2, which is extremely high. Kambioos reported 12.7%. As diarrhoea is closely linked to nutritional status, the high prevalence of diarrhoea in Ifo-2 may suggest that the malnutrition status could have declined further after the survey. In all three surveys, feeding practices during diarrhoea were found to be very poor and worse than the previous survey; between 60 – 85% of children were fed less food than usual when experiencing diarrhoea. This lack of appropriate care further compounds the children's risk of becoming malnourished and/or failing to recover well from pre-existing malnutrition.

Poor sanitation, poor hygiene and poor water quality are contributing factors to the spread of diarrhoea, all of which are problems identified in areas of Kambioos and Ifo-2 camps (discussed later in this section).

In general, it can be said that despite efforts to maintain nutrition programmes and other services in the Dadaab camps, reasons for continued high levels of malnutrition include:

- Previous or on-going exposure to malnutrition for the under 5 population leaving them with an on-going risk of relapse. Many of the households in Ifo-2 and Kambioos were relocated from other camps where they had been hosted by established refugee households and sharing their resources. In addition, the health and nutrition services during the time of influx were overwhelmed and struggling to cope with the increased need during 2011. In addition poor health seeking behaviours and lack of knowledge have been cited as reasons why the households in Kambioos and Ifo-2 are facing higher levels of health problems and malnutrition than the more established Hagadera camp.

- Poor hygiene and sanitation are likely to have contributed to higher levels of diarrhoea in young children in both Ifo-2 and Kambioos. The inadequate feeding practices during episodes of diarrhoea place these children at greater risk of deteriorating quicker into severe acute malnutrition.

As a result of the on-going threat of attacks and abductions of humanitarian aid workers and police throughout the camps in 2012, IPs have faced significant difficulty in maintaining and effectively scaling up nutrition programmes. When programmes are not completely operational or are operated by staff that are not fully qualified, the effectiveness of treatment programmes falls.

Programme coverage in young children, 6-59 months

Selective feeding programmes

Generally, coverage results from a standard nutrition survey should be used with caution due to the small sample size obtained. Coverage results for the selective feeding programmes (OTP and TSFP) ranged from 5.3% to 46.2% for OTP and 9.8% - 17.1% for TSFP, based on all admission criteria. With a target of >90% for coverage these results are poor. Coverage was also calculated based on MUAC and oedema only, as this is the current screening tool used across all camps in Dadaab. Whilst the coverage based on MUAC/oedema was higher and ranged from 0.0% to 61.9% for OTP and 26.1% to 36.1% for TSFP, they also fall well below the >90% target.

Vaccination, vitamin A supplementation and deworming coverage

The coverage of measles vaccination may have improved slightly compared to last year in Hagadera, both with card (42.7% (2011) to 50.9% (2012)) and by card or recall (89.2% (2011) to 97.9% (2012)). Ifo-2 and Kambioos had much lower confirmation by card, 22.3% and 10.4% respectively. Coverage based on either card or recall was much higher at 83.4% in Ifo-2 and 96.6% in Kambioos. With a target of >95% it is clear that more needs to be done to ensure adequate vaccination coverage across all camps. The significant gap between confirmation by card, and card or recall, can be interpreted as either the children have not received the vaccination and the caregiver is possibly recalling something different, the card was not taken for the vaccination to be recorded, or many children do not have a card.

A similar difference was seen for Vitamin A supplementation confirmed by card versus card or recall; 5.8% in Kambioos (94.8% by card or recall) and 18.1% in Ifo-2 (97.9% with card or recall). Again, Hagadera showed a higher coverage which had also increased from the previous nutrition survey – from 20.9% to 40.3% this year with confirmation by card, and increased from 86.8% to 96.3% by card or recall.

Coverage of deworming was only asked by recall, as it was understood that there was no consistent documenting of the deworming during the recent Malezi Bora campaign. Deworming coverage was high in Hagadera (95.9%) and Kambioos (83.7%) but lower in Ifo-2 (62.4%). This low result for Ifo-2 leads us to question the accuracy of recall because it contrasts strongly with the coverage of deworming during Malezi Bora in May 2012.

Good coverage of the full PENTA vaccination was seen in Hagadera – 81.9% (increase from 39.0% in 2011), yet it was much lower in Ifo-2 – 57.9% and Kambioos – 52.3%. This was confirmed by card only and as Ifo-2 and Kambioos are new camps since the last survey, it is somewhat encouraging that at least half of the children in Ifo-2 and Kambioos have EPI / health cards.

These results demonstrate that there needs to be an improved supply of EPI/Road to Health cards and emphasis placed on the importance of recording information on the card. Moreover, all IPs should work to record vitamin A supplementation and administration of deworming treatment on the card, so the children are not placed at risk of over-supplementation for example, particularly if they are or have recently been enrolled in a selective feeding programme. All staff, incentive staff, volunteers and community leaders should be given a consistent and strong message to encourage all families and caregivers to keep the card safe and to take it when attending any health-related service or campaign.

Anaemia in young children and women

Levels of anaemia amongst children 6-59 months remain high (i.e. >40%) in all three camps; Kambioos - 50.7% (45.3 – 56.0), Ifo-2 - 45.5% and Hagadera - 44.5% (39.2 – 50.0), the latter not seeing any significant improvement since the previous survey, when anaemia was at 45.3% (40.4 – 50.2). This is surprising considering that the blanket supplementary feeding programme was operated uninterrupted by WFP since the last survey and that ACF-Spain has also been conducting Phase 1 of their IYCF intervention in all camps. Such results do, however, suggest a possible problem with the effectiveness of these programmes, a possibility that is supported by the low coverage measured for the BSFP. Additionally, non-nutritional causes may be a contributing factor to these high levels of anaemia, for example, intestinal worms and haemoglobinopathies.

There was a suggestion of a decrease in anaemia levels among non-pregnant women between 15 - 49 years in Hagadera, from 43.3% in 2011 to 38.8% in this survey; however this was not statistically significant. Anaemia levels amongst non-pregnant women (15-49 years) in Ifo-2 and Kambioos were lower at 33.3% and 32.0% respectively. All three camps are classified as suffering from a medium level of anaemia for this population group.

Programme coverage in women

Coverage of ANC programmes were high in Hagadera - 96.0% (95% CI 87.5 – 100.0) and Kambioos - 96.6% (95% CI 91.3 – 100.0) shown by confirmation with card whereas Ifo-2 was lower at 72.6% (95% CI 59.3 – 87.9). The only results for which a trend could be seen over time was Hagadera, where coverage more than doubled (to 96.0%) from 42.4% (95% CI 19.9-64.9) in 2011. The proportion of women enrolled in the ANC programme that stated they are currently receiving iron-folic acid pills followed suit in Hagadera; 96.0% (95% CI 87.5 – 100). However the proportion of women receiving iron-folic acid pills in Kambioos was more than 10% lower than enrolments at 86.2% (95% CI 72.4 – 100.0) and in Ifo-2 only slightly lower at 70.8% (95% CI 56.7 – 84.9). This may be due to women receiving the supplement, but not actually taking it, lack of supplies in the health posts or lack of attendance to receive the pills even if the woman is enrolled. Distribution of the supplement is not enough to ensure levels of anaemia improve; there needs to be health education and two way dialogue utilising behaviour change communication strategies with the women to ensure the programme is effective.

When confirmed by card only, the proportion of women who received Vitamin A supplementation was low in all three camps, ranging from 39.5% to 48.5%. However, when assessed using card or recall it was much higher; between 84.9% and 94.1%. This probably means that not all women take their card when visiting health posts and hospitals or they don't have a card because it is likely that a woman would remember if she herself received a supplement within the past 6 months since giving birth.

IYCF indicators

Levels of anaemia in children 6 – 23 months are very high; higher than in children 6-59 months old and they have not changed since the survey in 2011. The prevalence of anaemia in Ifo-2 is at the same level as Hagadera, and in Kambioos it is a little higher at 66.5%. Severe anaemia has increased since the last survey and was three times higher in Hagadera (1.5%) than both Kambioos and Ifo-2 (0.5%). Ifo-2 revealed higher levels of mild anaemia (35.5%) than moderate anaemia (27.3%). These very high levels of anaemia in infants less than 23 months may be due to infants not receiving the blanket supplementary food that is intended and reportedly distributed, and/or Infant and Young child feeding and care practises compromising their ability to absorb iron (and of course other nutrients), poor dietary diversity and non-nutritional factors such as intestinal worms and haemoglobinopathies.

Although there have been some improvements in infant feeding practices, some indicators remain poor. Whilst the proportion of children ever breastfed was above 90% in all three camps, surprisingly, Hagadera saw similar levels between 2011 (99.3%) and 2012 (93.4%). This is difficult to interpret as the rate of infants being given formula dropped from 22.0% (95% CI 15.2 - 28.7) in 2011 to 1.9% (0.0 – 3.8) in this survey, which is statistically significant. Continued

breastfeeding at one year of age has remained stable at around 63% and at two years may have improved from 13.3% in 2011 to 22.9% (95% CI 5.7 – 40.0). Exclusive breast feeding of infants under 6 months in Hagadera improved substantially, from 47.1% (95% CI 35.9-58.4) to 83.0% (95% CI 73.4 – 92.6) ($p<0.05$), as did the early initiation of breastfeeding from 83.3% (77.3-89.3) to 96.0% (91.9 – 100.0). In contrast, Ifo-2 saw lower levels of exclusive breastfeeding under-6 months (72.7%) and also early initiation of breastfeeding (68.1%), which is of concern. However, had the highest prevalence of continued breastfeeding at 1 year (78.4%), while Kambioos had the lowest level (57.1%).

It is alarming that only 20.0% (95% CI 0.0 – 46.1) of infants in Kambioos and 50.0% (95% CI 30.6 – 69.4) in Ifo-2 had had solid/semi-solid/soft food introduced by 9 months of age, as it becomes impossible to meet their nutrition needs from breastmilk or fluids alone and places these children at increased risk of malnutrition from an early age. In Hagadera, the introduction of solids changed from 83.3% (95% CI 72.6-94.1) in 2011 to 66.7% (95% CI 45.7 – 87.6) in 2012, however, this was not statistically significant. Besides needing to meet nutritional requirements, it is an important developmental milestone to begin eating solid/semi-solid/soft foods at around 6 months.

Between 3.1% (95% CI 0.2 – 6.0) in Hagadera (which is down from 8.1% last survey) and 4.3% of children in Kambioos are bottle fed, placing them at risk of illness due to the ease of contamination in such settings. Worrying levels of other liquids being given to children were revealed; between 32.1% of children 0-23 months in Kambioos and 40.3% in Ifo-2 are being given tea or coffee, both of which inhibit the absorption of iron, thus increasing their risk of iron deficiency and anaemia. Whilst this may be culturally acceptable, it is not appropriate for infants to receive these other fluids; as milk and milk alternatives, as another example, given before 12 months of age increases the risk of colitis (bloody diarrhoea), and the survey indicated that between 13.9% (in Kambioos) and 21.5% (in Hagadera) of children less than 12 months are consuming animal and other milks.

The proportion of children given water or sugar water before 6 months of age when they should not receive any fluids other than breastmilk ranged from 1.7% in Kambioos to 26.1% in Ifo-2, another contributing factor to diarrhoeal illness in infants less than 6 months.

Whilst the reported prevalence of diarrhoea in infants less than 24 months varied between the three camps, from 4.7% in Hagadera to 16.7% in Ifo-2, the most disconcerting behaviour related to this were the low levels of continued feeding during episodes of diarrhoea; ranging from an alarming 0.0% in Kambioos to only 46.6% in Hagadera, which saw no improvement since the previous survey in 2011 (47.6% (95% CI 33.3 - 61.9)). Not continuing to feed any person during a diarrhoeal illness usually results in some weight loss, but to feed an infant inadequately means they are more likely to become malnourished or further malnourished much quicker. Feeding during diarrhoea also helps to shorten the episode and promotes recovery.

It is clear that significant and continued effort on awareness raising and capacity building for infant and young child feeding and care practises is needed in all the camps.

Food security indicators

The majority of households surveyed had a ration card from 98.2% (95% CI 94.6 – 100.0) in Kambioos to 100.0% in Ifo-2, yet Kambioos (18.0%) and Hagadera (6.7%) camps report to be hosting unregistered household members. This question regarding hosting unregistered household members was not asked in Ifo-2 as it was the first survey and was the prompt for incorporating this question for the following surveys.

Despite receiving the general food ration, the average length it lasted ranged from 9.7 days in Kambioos to 12.6 days in Hagadera, with more than nine out of ten households in both Kambioos and Ifo-2 stating that the ration did not last for the 15 days until the next distribution. In Hagadera less than 40% of households surveyed are food secure as 61.8% reported that the ration did not

last 15 days.

In Hagadera and Kambioos, 57.7% and 77.1% of households respectively sold or exchanged some of their food ration, whereas in Ifo-2 this was lower at 29.0%. Although households in Ifo-2, where the first survey was conducted, may have reported selling part of their ration had the teams probed the respondents further. Teams were instructed in the following two surveys to probe more extensively as it was suspected that this response option was being underreported.

The main items purchased or exchanged were milk and sugar in Kambioos (>90% each); milk (86.5%) followed by sugar (59.4%) in Hagadera. Across all camps, the majority of households coped with this shortfall by borrowing or receiving credit from friends/family/neighbours, with results ranging from 79.3% to 93.4% across the three camps which is by far the most significant coping mechanism. It is concerning to see that 'eating less food' and 'eating less often' were also reported in Kambioos as very few had the means to buy more food.

WASH indicators

Despite the relocation of many refugees to both Ifo-2 and Kambioos since the 2011 survey, the WASH situation remains problematic in all three camps, hence a significant scale up of WASH facilities in these two new camps is required during the on-going relocation of refugees from Hagadera to Kambioos

It is worrying that in Hagadera 31.0% (95% CI 18.7 – 44.4) and in Ifo-2 11.8% (95% CI 4.4 – 19.1) of households are using an unimproved toilet, increasing the risk of communicable diseases. Last year in Hagadera the proportion of families using an unimproved toilet was 1.7% (95% CI 0.2-3.3), so the 2012 results indicate a significant increase. Furthermore, 30.0% of households in Ifo-2 and 64.9% of households in Kambioos reported sharing their toilet with at least two other households (three households sharing in total). With the average household size of 6.5 persons, this suggests the SPHERE and UNHCR standard of 1 toilet per 20 persons is not being met for many refugees across the camps. As communal toilets are much more difficult to keep clean, particularly with increasing numbers of people using them, this is likely to have contributed to the spread of the recent Hepatitis E outbreak in Ifo-2 and also the higher prevalence of diarrhoea amongst both children 6 – 59 months and infants 0-23 months reported in Ifo-2 and Kambioos camps.

According to the responses regarding the availability of enough water containers to collect water, there is an urgent need to procure and distribute appropriate water containers to households in both Ifo-2 and Kambioos. Again, the outbreak of Hepatitis E appeared to be localised to Ifo-2 where only 3.7% of households reported have enough water containers to collect water. In Kambioos the response rate of 22.5% having sufficient water containers, demonstrates the need to provide more containers. Both Ifo-2 and Kambioos surveys revealed much higher levels of diarrhoea amongst children, which is often associated with poor hygiene practices, inadequate sanitation and insufficient water.

When asked if they were satisfied with the drinking water supply, in these three camps, between 84.8% (in Ifo-2) - 98.9% (in Kambioos) of households responded positively. The reasons given for dis-satisfaction in Ifo-2 was predominately that the 'amount is not enough', which may be related more to the ability to collect enough water (i.e. without enough water containers), rather than the quantity and continuity of water supply there. For Hagadera, the main reason was the 'long queues' at the water taps which indicates the camp remains over-crowded and either more water distribution point are needed and/or the relocation of refugees from Hagadera needs to be expedited.

The provision of soap has improved since the survey in 2011. In all three surveys this year, more than 90% of households answered 'yes' to receiving soap in the two distribution cycles leading up to the survey. Kambioos and Hagadera reached 98.8% and 98.6% respectively, a very significant improvement from the 2.0% found in the 2011 survey in Hagadera.

Despite this, a major barrier to utilising the soap distributed to households is the availability of adequate water to be able to wash hands before eating and after using the toilet. With more water containers available and sensitisation messages regarding the importance of hand-washing, particularly in young children, it is likely that the spread of disease and incidence of diarrhoea could be decreased.

CONCLUSION

Despite Dadaab being a difficult environment in which to conduct the nutrition surveys in 2012, quality data was successfully collected for Ifo-2, Hagadera, and Kambioos camps, of which two are newly opened since the last survey. A drop was seen in the number of refugees arriving from early in 2012, but despite this the health and nutrition status remains fragile and sub-standard, the reasons for which include; the weakened state and poor condition in which the new refugees arrived, having fled from a serious drought; the large scale of the influx and the time taken to scale up programmes to meet the increased needs across the Dadaab complex as a whole; and additional barriers and interruption to service delivery resulting from on-going insecurity since late in 2011.

While the under-five mortality and crude mortality rates in Kambioos were within the acceptable range, improved awareness regarding services and supports is needed, particularly within Kambioos and Ifo-2, which are worse off than Hagadera. Although malnutrition rates have improved somewhat since the previous survey, the most significant contributing factors to on-going high levels of malnutrition are poor infant and young child care practices.

Further measures are needed to improve the detection of malnutrition cases early, as the higher rates of oedema in each camp and significant rates of SAM and GAM in two camps remain above the emergency levels for malnutrition increasing the mortality risk. Growth monitoring for all children less than 36 months may be one approach to more effective screening, while capacity building of all health and nutrition staff should be an on-going approach.

Education and sensitisation for both mothers and fathers of young children should be conducted to improve infant and young child feeding and care practices; focusing on exclusive breast-feeding until 6 months, timely introduction of solids and complementary foods. Family planning should continue to be addressed in a culturally appropriate manner to increase the gap between children which will help to improve maternal nutrition status.

In Ifo-2 and Kambioos particularly, hygiene promotion activities must be scaled up and the construction of latrines needs to be continued, so that less households are sharing facilities or using no latrine at all.

Above all capacity building amongst the refugee population (incorporating behaviour change communication strategies) should be prioritised with consideration of the sustained insecurity in the region, and to help equip the population for the future.

It is worth remembering that despite some improvement in malnutrition, the target for acceptable levels of GAM is <5% according to WHO (using Weight-for-Height z-scores). Time, resources and an on-going commitment are required from all sectors and agencies to achieve this in the future.

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Appendix 1 - Names of contributors

Data collection teams

Ifo 2 Camp		Hagadera Camp		Kambioos camp		Technical assistance from GIZ and IRC	
Team members		**Team members**		**Team Members**			
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20	Ahmed Weli Abdi Muhamed	20	Rashid Abdi Omar	20	Dubow Abdullahi		
21	Abshir Hassan Abdirahman	21	Mohammed Ali Mohamed	21	Ismail Mohamed Salah		
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Additional thanks to the following people who provided information / assistance / feedback:

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Appendix 2

HAGADERA

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

Overall data quality

Criteria	Flags*	Unit	Excel.	Good	Accept	Problematic	**Score**
Missing/Flagged data	Incl	%	0-2.5	>2.5-5.0	>5.0-10	>10	
(% of in-range subjects)			0	5	10	20	**0** (0.5 %)
Overall Sex ratio	Incl	p	>0.1	>0.05	>0.001	<0.000	
(Significant chi square)			0	2	4	10	**0** (p=0.806)
Overall Age distrib	Incl	p	>0.1	>0.05	>0.001	<0.000	
(Significant chi square)			0	2	4	10	**0** (p=0.227)
Dig pref score - weight	Incl	#	0-5	5-10	10-20	> 20	
			0	2	4	10	**0** (3)
Dig pref score - height	Incl	#	0-5	5-10	10-20	> 20	
			0	2	4	10	**4** (11)
Standard Dev WHZ	Excl	SD	<1.1	<1.15	<1.20	>1.20	
			0	2	6	20	**2** (1.13)
Skewness WHZ	Excl	#	<±1.0	<±2.0	<±3.0	>±3.0	
			0	1	3	5	**0** (0.01)
Kurtosis WHZ	Excl	#	<±1.0	<±2.0	<±3.0	>±3.0	
			0	1	3	5	**0** (0.94)
Poisson dist WHZ-2	Excl	p	>0.05	>0.01	>0.001	<0.000	
			0	1	3	5	**0** (p=0.637)
Timing	Excl	Not determined yet					
			0	1	3	5	
OVERALL SCORE WHZ =			0-5	5-10	10-15	>15	**6** %

At the moment the overall score of this survey is 6 %, this is good.

Missing data:
HEIGHT: Line=280/ID=2, Line=367/ID=1, Line=448/ID=1

- There were no duplicate entries detected.
- Percentage of children with no exact birthday: 37 %
- Percentage of values flagged with SMART flags: WHZ: 0.5 %, HAZ: 3.5 %, WAZ: 1.0 %
- Age ratio of 6-29 months to 30-59 months: 0.95 (The value should be around 1.0).

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

Age cat.	mo.	boys	girls	total	ratio boys/girls
6 to 17	12	64/70.3 (0.9)	72/68.9 (1.0)	136/139.2 (1.0)	0.89
18 to 29	12	74/68.5 (1.1)	82/67.2 (1.2)	156/135.7 (1.1)	0.90
30 to 41	12	64/66.4 (1.0)	65/65.1 (1.0)	129/131.6 (1.0)	0.98
42 to 53	12	65/65.4 (1.0)	47/64.1 (0.7)	112/129.5 (0.9)	1.38
54 to 59	6	36/32.3 (1.1)	31/31.7 (1.0)	67/64.0 (1.0)	1.16
6 to 59	54	303/300.0 (1.0)	297/300.0 (1.0)		1.02

Overall sex ratio: p-value = 0.806 (boys and girls equally represented)
Overall age distribution: p-value = 0.227 (as expected)

Overall sex/age distribution: p-value = 0.050 (as expected)

IFO-2

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

Overall data quality

Criteria	Flags*	Unit	Excel.	Good	Accept	Problematic	Score
Missing/Flagged data	Incl	%	0-2.5	>2.5-5.0	>5.0-10	>10	
(% of in-range subjects)			0	5	10	20	**0** (1.1 %)
Overall Sex ratio	Incl	p	>0.1	>0.05	>0.001	<0.000	
(Significant chi square)			0	2	4	10	**0** (p=0.426)
Overall Age distrib	Incl	p	>0.1	>0.05	>0.001	<0.000	
(Significant chi square)			0	2	4	10	**0** (p=0.345)
Dig pref score - weight	Incl	#	0-5	5-10	10-20	> 20	
			0	2	4	10	**0** (5)
Dig pref score - height	Incl	#	0-5	5-10	10-20	> 20	
			0	2	4	10	**4** (13)
Standard Dev WHZ	Excl	SD	<1.1	<1.15	<1.20	>1.20	
			0	2	6	20	**6** (1.17)
Skewness WHZ	Excl	#	<±1.0	<±2.0	<±3.0	>±3.0	
			0	1	3	5	**0** (0.06)
Kurtosis WHZ	Excl	#	<±1.0	<±2.0	<±3.0	>±3.0	
			0	1	3	5	**0** (0.58)
Poisson dist WHZ-2	Excl	p	>0.05	>0.01	>0.001	<0.000	
			0	1	3	5	**0** (p=0.856)
Timing	Excl	Not determined yet					
			0	1	3	5	
OVERALL SCORE WHZ =			0-5	5-10	10-15	>15	**10** %

At the moment the overall score of this survey is 10 %, this is good.

There were no duplicate entries detected.
Percentage of children with no exact birthday: 51 %
Percentage of values flagged with SMART flags:WHZ: 1.1 %, HAZ: 5.2 %, WAZ: 1.6 %
Age ratio of 6-29 months to 30-59 months: 0.75 (The value should be around 1.0).

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

Age cat.	mo.	boys	girls	total	ratio boys/girls
6 to 17	12	65/75.4 (0.9)	65/70.8 (0.9)	130/146.2 (0.9)	1.00
18 to 29	12	73/73.5 (1.0)	68/69.0 (1.0)	141/142.5 (1.0)	1.07
30 to 41	12	76/71.3 (1.1)	77/66.9 (1.2)	153/138.1 (1.1)	0.99
42 to 53	12	66/70.1 (0.9)	65/65.8 (1.0)	131/135.9 (1.0)	1.02
54 to 59	6	45/34.7 (1.3)	30/32.6 (0.9)	75/67.2 (1.1)	1.50
6 to 59	54	325/315.0 (1.0)	305/315.0 (1.0)		1.07

Overall sex ratio: p-value = 0.426 (boys and girls equally represented)
Overall age distribution: p-value = 0.345 (as expected)
Overall sex/age distribution: p-value = 0.091 (as expected)

Digit preference Height:

Digit .0 : ####################
Digit .1 : ##
Digit .2 : ##
Digit .3 : ##
Digit .4 : ##
Digit .5 : ##########################
Digit .6 : ################################
Digit .7 : ############################
Digit .8 : ##############
Digit .9 : ################

Digit Preference Score: **13**

KAMBIOOS

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

Overall data quality

Criteria	Flags*	Unit	Excel.	Good	Accept	Problematic	**Score**
Missing/Flagged data	Incl	%	0-2.5	>2.5-5.0	>5.0-10	>10	
(% of in-range subjects)			0	5	10	20	**0** (1.0 %)
Overall Sex ratio	Incl	p	>0.1	>0.05	>0.001	<0.000	
(Significant chi square)			0	2	4	10	**4** (p=0.037)
Overall Age distrib	Incl	p	>0.1	>0.05	>0.001	<0.000	
(Significant chi square)			0	2	4	10	**0** (p=0.537)
Dig pref score - weight	Incl	#	0-5	5-10	10-20	> 20	
			0	2	4	10	**0** (4)
Dig pref score - height	Incl	#	0-5	5-10	10-20	> 20	
			0	2	4	10	**4** (12)
Standard Dev WHZ	Excl	SD	<1.1	<1.15	<1.20	>1.20	
			0	2	6	20	**20** (1.23)
Skewness WHZ	Excl	#	<±1.0	<±2.0	<±3.0	>±3.0	
			0	1	3	5	**0** (-0.29)
Kurtosis WHZ	Excl	#	<±1.0	<±2.0	<±3.0	>±3.0	
			0	1	3	5	**0** (0.37)
Poisson dist WHZ-2	Excl	p	>0.05	>0.01	>0.001	<0.000	
			0	1	3	5	**0** (p=0.865)
Timing	Excl	Not determined yet					
			0	1	3	5	
OVERALL SCORE WHZ =			0-5	5-10	10-15	>15	**28** %

At the moment the overall score of this survey is 28 %, this is problematic.

- There were no duplicate entries detected.
- Percentage of children with no exact birthday: 81 %
- Percentage of values flagged with SMART flags:WHZ: 1.0 %, HAZ: 5.2 %, WAZ: 1.8 %
- Age ratio of 6-29 months to 30-59 months: 0.87 (The value should be around 1.0).

.	**no exclusion**	**exclusion from reference mean (WHO flags)**	**exclusion from observed mean (SMART flags)**
WHZ			
Standard Deviation SD:	1.34	1.26	1.23
(The SD should be between 0.8 and 1.2)			
Prevalence (< -2)			
observed:	17.0%	16.4%	16.5%
calculated with current SD:	20.7%	18.4%	18.2%
calculated with a SD of 1:	13.7%	12.9%	13.2%

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

Age cat.	mo.	boys	girls	total	ratio boys/girls
6 to 17	12	68/75.4 (0.9)	62/63.6 (1.0)	130/139.0 (0.9)	1.10
18 to 29	12	82/73.5 (1.1)	66/62.0 (1.1)	148/135.5 (1.1)	1.24
30 to 41	12	62/71.3 (0.9)	59/60.1 (1.0)	121/131.3 (0.9)	1.05
42 to 53	12	71/70.1 (1.0)	59/59.1 (1.0)	130/129.3 (1.0)	1.20
54 to 59	6	42/34.7 (1.2)	28/29.2 (1.0)	70/63.9 (1.1)	1.50
6 to 59	54	325/299.5 (1.1)	274/299.5 (0.9)		1.19

Overall sex ratio: p-value = 0.037 (significant excess of boys)
Overall age distribution: p-value = 0.537 (as expected)
Overall sex/age distribution: p-value = 0.049 (significant difference)

Appendix 3 - Interpretation of the key quality criteria from the SMART plausibility reports on anthropometric data from Hagadera, Ifo-2, and Kambioos

The Plausibility reports are generated by ENA for SMART software after entering a data set and provide a variety of statistical checks to indicate the quality of the weight-for-height z-scores anthropometric data. A 'problematic' score should lead to a careful examination of the anthropometric data but, by itself, does not necessarily mean that the data is of poor quality. A summary of the results from the Plausibility Reports is given below with recommendations for future surveys where appropriate.

- SMART specifies that missing or flagged values should not exceed 5-10%. Missing or Flagged weight-for-height data from all camps, ranged from 0.5 – 1.1%, whilst two camps contained 5.2% of height-for-age scores flagged.
- The sex ratio in two of three camps data sets was acceptable; however Kambioos revealed an excess of boys selected. Although the boys/girls ratio sat at 1.19 for Kambioos, which falls within the acceptable range of 0.8-1.2, the p value of 0.037 indicates there was a significant difference.
- No duplicate entries were detected in any data set, which is attributed to effective data cleaning techniques.
- In one set of results only (Hagadera), three height measurements were missing and listed in the Plausibility reports. These were children with disabilities who were unable to have their height accurately measured. This was confirmed by the supervisor and checked with the survey manager at the time of visiting each of those three children.
- Different age groups should usually be equally represented. The overall age distribution was unbalanced in the two of the camps, (Ifo-2: 0.75 age-ratio and Kambioos: 0.81 age-ratio), with the older children 30 – 59 months being over-represented. Hagadera showed an age-ratio of 0.95 indicating that the younger children 6 – 29m were as equally represented as the older children 30-59 m. These differences correlate with the percentage of records with proof of age documentation; Kambioos - 81%, Ifo-2 - 51%, Hagadera - 27% had birth certificates. This is a relatively common bias created when the events calendar is used to determine age due to the difficulty in precision; for example caregivers tend to recall best the birth date of smaller children more accurately than older children. Despite the provision of training, additional efforts should be made in future surveys to better estimate the age of the children using the local event calendar.
- In all surveys, there was less digit preference for weight measurements as compared to height measurements due to the use of the electronic scales. All three surveys were penalised for digit preference of height measurements, but remained acceptable. Additional efforts should be made in future surveys to limit digit preference for the height measurements.
- The standard deviation (SD) of weight-for-height z-scores should be less than 1.2 according to SMART recommendations. As shown in the Tables below, in all four surveys, the SD ranged from the lowest of 1.13 in Hagadera to the highest of 1.23 in Kambioos when using the WHO Standards 2006 and hence Kambioos was the only survey to receive the maximum penalty of 20 points, which pushed the overall plausibility above 20%. When applying the NCHS 1977 Reference, none received the penalty as seen by the SD all being closer to 1.0.
- The 'problematic scores' reported here for the SDs can most likely be attributed to the following: 1) the SD tends to be wider when using WHO Standards 2006 as compared to NCHS 1977 Reference; 2) some imprecision in height measurements – all surveys were penalised for this; 3)

Table 136 Summary table of mean z-score, design effect, and excluded subjects for the weight-for-height index using both reference populations - Ifo-2 camp (Oct 2012)

Reference population	n	Mean z-scores ± SD	Design Effect (z-score < -2)	z-scores not available*	z-scores out of range
WHO Standards 2006	617	-0.84 ± 1.17	1.00	6	7
NCHS Reference 1977	619	-1.00 ± 0.97	1.04	5	6

*contains for WHZ and WAZ the children with oedema.

Table 137 Summary table of mean z-score, design effect and excluded subjects for the weight-for-height index using both reference populations - Hagadera camp (Sept 2012)

Indicator	n	Mean z-scores ± SD	Design Effect (z-score < -2)	z-scores not available*	z-scores out of range
WHO Standards 2006	591	-0.66 ± 1.13	1.00	6	3
NCHS Reference 1977	590	-0.86 ± 0.96	1.58	6	4

* contains for WHZ and WAZ the children with oedema.

Table 138 Summary table of mean z-score, design effect and excluded subjects for the weight-for-height index using both reference populations - Kambioos camp (Sept 2012)

Indicator	n	Mean z-scores ± SD	Design Effect (z-score < -2)	z-scores not available*	z-scores out of range
WHO Standards 2006	589	-0.88 ± 1.23	1.00	4	6
NCHS Reference 1977	592	-1.05 ± 1.05	1.11	4	3

* contains for WHZ and WAZ the children with oedema.

Appendix 4 - Assignment of clusters

HAGADERA

Block	Cluster	Day
HAG N-4	1	1
HAG K-10	7	1
HAG K-9	17	1
HAG M-1	23	1
HAG K-7	26	1
HAG L-8	2	2
HAG A-10	15	2
HAG A-4	16	2
HAG J-10	25	2
HAG A-1	30	2
HAG H-5	3	3
HAG G-9	5	3
HAG L-5	8	3
HAG L-7	14	3
HAG M-6	21	3
HAG F-5	10	4
HAG C-4	20	4
HAG B-5	22	4
HAG B-2	24	4
HAG F-1	27	4
HAG C-10	4	5
HAG B-9	9	5
HAG I-1	11	5
HAG C-7	12	5
HAG H-1	18	5
HAG E-7	6	6
HAG E-4	13	6
HAG D-3	19	6
HAG C-1	28	6
HAG D-1	29	6
HAG J-2	RC	
HAG F-3	RC	
HAG I-11	RC	
HAG O-1	RC	

Total population used: 138,942

KAMBIOOS

Block	Cluster	Day
Kam 09-E	3	1
Kam 09-G	8	1
Kam 09-G	9	1
Kam 09-F	10	1
Kam 09-B	24	1
Kam 09-D	5	2
Kam 09-C	16	2
Kam 09-C	17	2
Kam 09-A	22	2
Kam 09-A	23	2
Kam 08-C	4	3
Kam 08-A	29	3
Kam 08-A	30	3
Kam 10-E	11	3
Kam 10-E	12	3
Kam 10-B	6	4
Kam 10-B	7	4
Kam 10-C	13	4
Kam 10-D	25	4
Kam 10-D	26	4
Kam 10-F	14	5
Kam 10-F	15	5
Kam 10-G	18	5
Kam 10-G	19	5
Kam 08-G	1	5
Kam 08-F	2	6
Kam 10-A	20	6
Kam 10-A	21	6
Kam 08-B	27	6
Kam 08-B	28	6
Kam 09-F	RC	-
Kam 09-B	RC	-
Kam 10-C	RC	-
Kam 08-B	RC	-

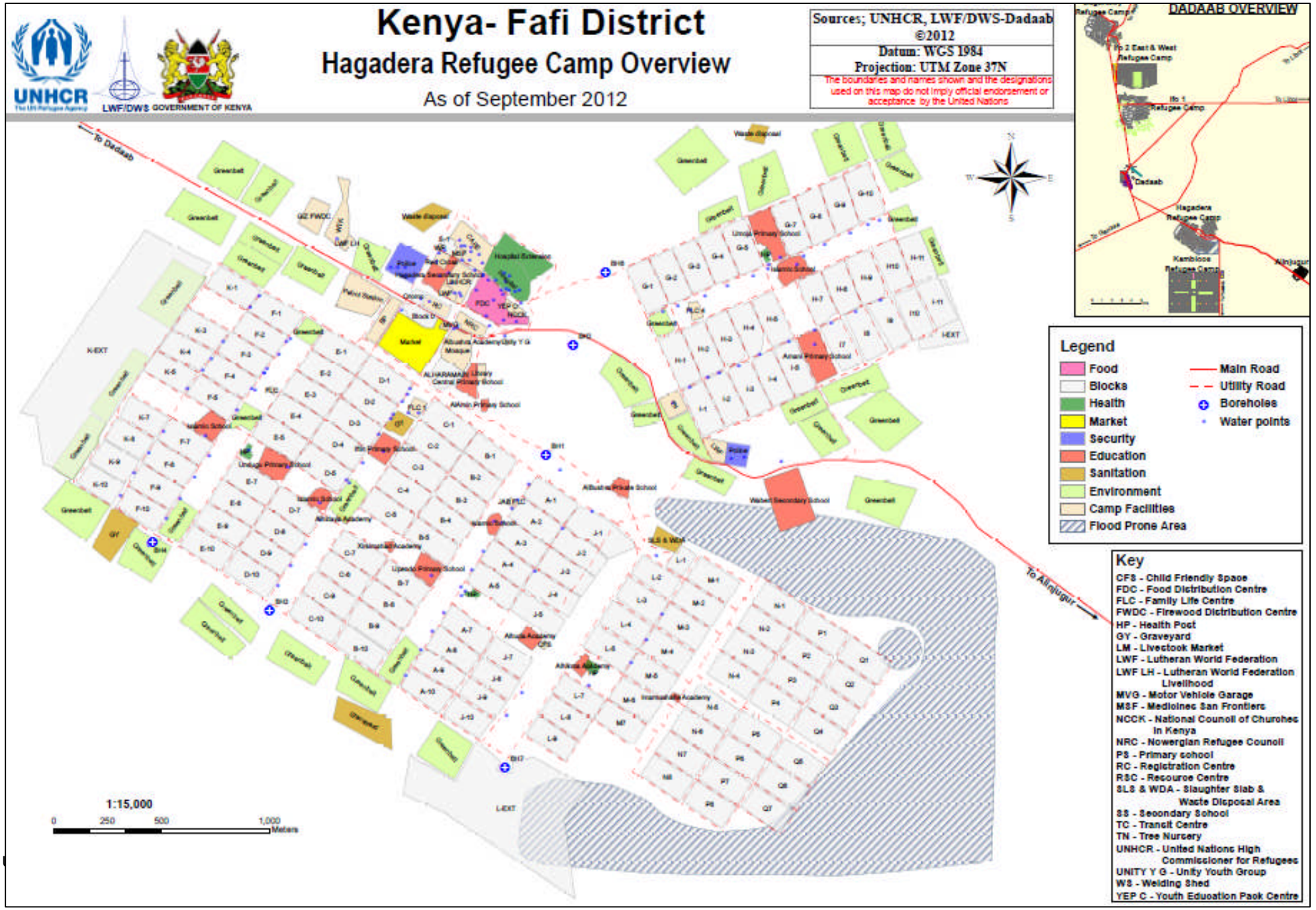
Total population used: 14,205

IFO-2

Block	Cluster	Day #
IFO3 M-01	14	1
IFO3 R-05	23	1
IFO3 R-03	24	1
IFO3 T-06	28	1
IFO3 U-01	29	1
IFO3 N-02	18	2
IFO3 N-05	19	2
IFO3 S-01	25	2
IFO3 S-03	26	2
IFO3 T-02	27	2
IFO2 I-03	8	3
IFO2 I-04	9	3
IFO3 Q-02	20	3
IFO3 Q-01	21	3
IFO3 Q-03	22	3
IFO2 D-01	1	4
IFO2 D-07	2	4
IFO2 H-06	7	4
IFO2 J-05	10	4
IFO2 L-04	13	4
IFO2 K-01	11	5
IFO2 K-02	12	5
IFO3 M-03	15	5
IFO3 M-06	16	5
IFO3 M-05	17	5
IFO2 E-02	3	6
IFO2 F-06	4	6
IFO2 G-03	5	6
IFO2 G-04	6	6
IFO3 U-06	30	6
IFO2 H-01	RC	-
IFO2 I-06	RC	-
IFO3 S-02	RC	-
IFO3 U-03	RC	-

Total population used: 69, 091

Appendix 5 - Maps of Dadaab camps



Kenya- Dadaab District

Ifo 2 Refugee Camp Overview

As of September 2012

Sources; UNHCR, LWF/DWS-Dadaab ©2012

Datum: WGS 1984
Projection: UTM Zone 37N

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

Key

ADEO - African Development and Emergency Organisation
A. POLICE - Administration Police
BS & PT - Bus Station & Public Toilets
CC - Community Centre
CFS - Child Friendly Space
CS - Community Space
CVT - Centre for Victims of Torture
DC - Disability Centre
DRA - Department of Refugee Affairs
DRC - Danish Refugee Council
FAI - Film Aid International
FDS - Firewood Distribution Space
FLC - Family Life Centre
GCS - Garbage Collection Site
GIZ - Deutsche Gesellschaft Internationale
HC - Health Centre
HI - Handicap International
IFRC - International Federation of Red Cross
IOM - International Organisation for Migration
MD - Mathenge Sticks Distribution Site
MSF - Medecins Sans Frontiers
NCCK - National Council of Churches in Kenya
NRC - Norwegian Refugee Council
PGM - Prayer Grounds & Mosque
PS - Primary school
RA - Recreation Area
RC - Resource Centre
RRDO - Relief Reconstruction and Development Organisation
RS - Religious Space
SC UK - Save the Children UK
SP - Section Post
SPU - Stove Production Unit
SS - Secondary School
TBA - To Be Allocated
TC - Transit Centre
TN - Tree Nursery
UNHCR - United Nations High Commissioner for Refugees
VC - Vocational Centre

UN

Kenya- Fafi District

Kambioos Refugee Camp Overview

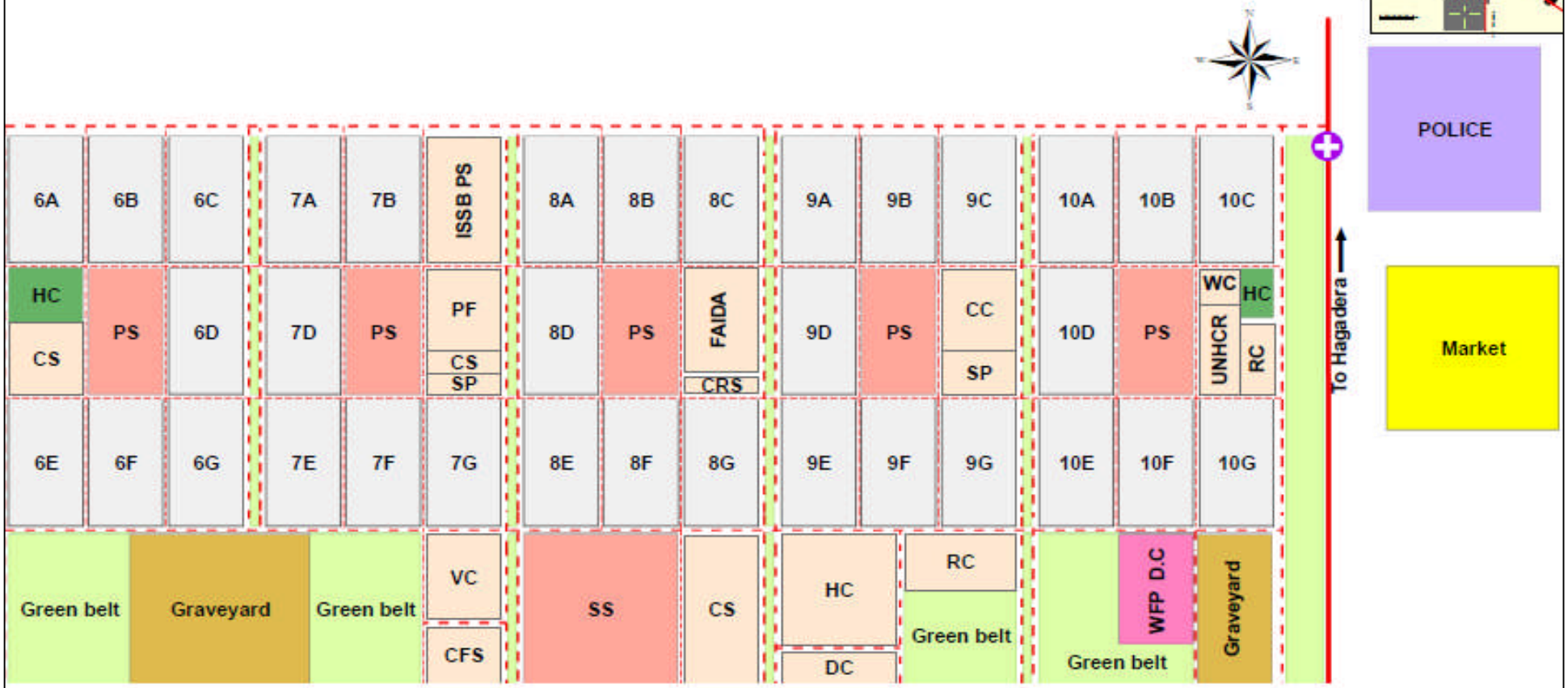
As of September 2012

UNHCR The UN Refugee Agency | LWF/DWS | GOVERNMENT OF KENYA

Planning & Information units
LWF/DWS-Dadaab
©2012
Sources; UNHCR, LWF/DWS-Dadaab

Datum: WGS 1984
Projection: UTM Zone 37S

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



1:5,000
0 125 250 500 Meters

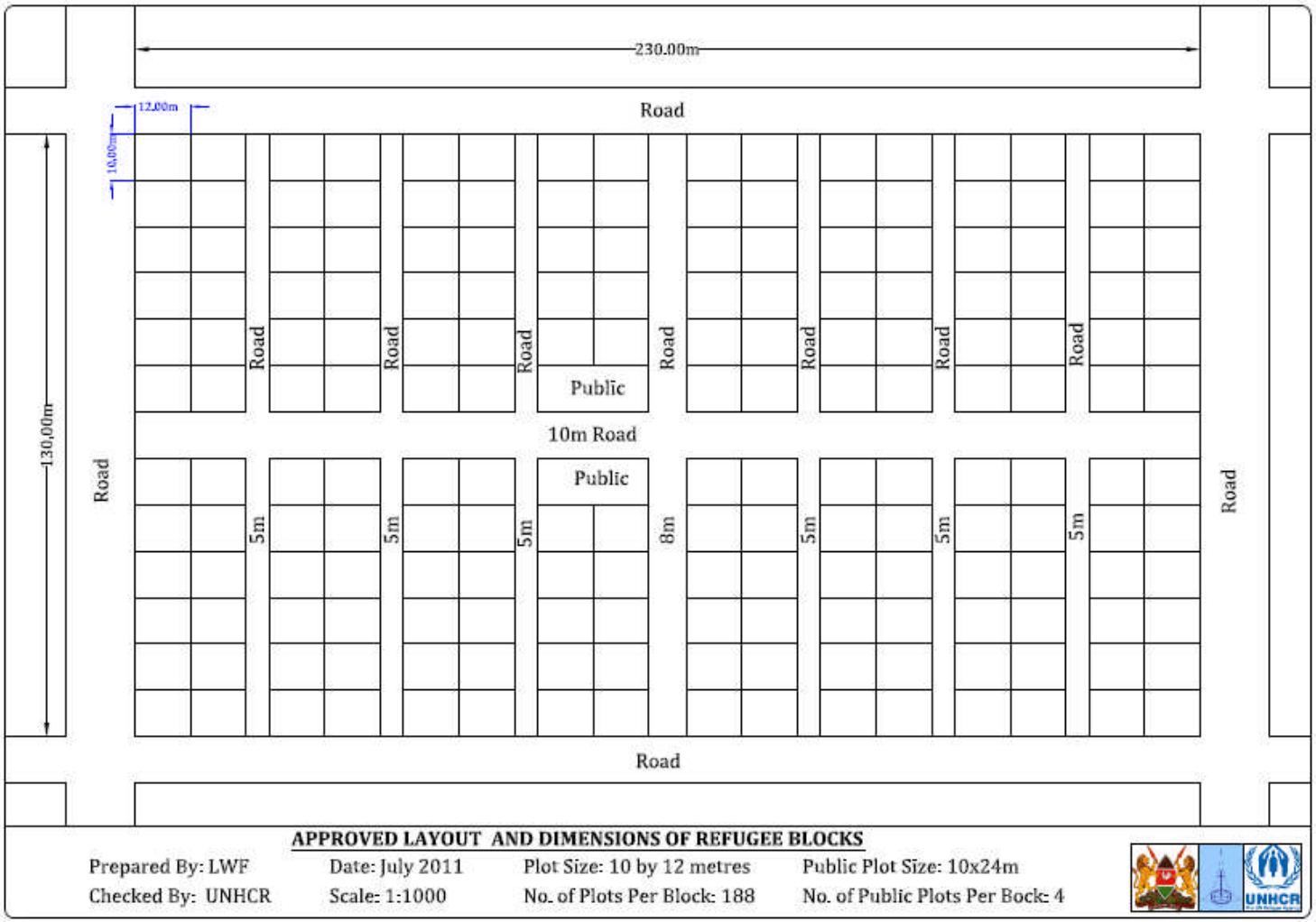
Key

CC - Community Centre
CS - Community Space
CFS - Child Friendly Space
CRS Catholic Relief Services
DC - Disability Centre
HC - Health Centre
IMC - International Medical Corps
IRC - International Rescue Committee
ISSB PS - Interlocking Stabilised Soil Bricks Production Site
PS - Primary school
RC - Reception Centre
WC - Women's Centre
SP - Section Post
SS - Secondary School
TBA - To Be Allocated
VC - Vocational Centre
WFP DC - World Food Programme Distribution Centre

Legend

Food
Blocks
Health
Market
Security
Sanitation
Education
Environment
Camp Facility
Major road
Utility road
Trails
Boreholes
Operating
Not in Use

Appendix 6 - Plan of Kambioos Block



Appendix 7 - Survey questionnaires

1. Dadaab Nutrition Survey, September 2012, Household Questionnaire

Date (dd/mm): |____|____|/|____|____|/2012	Cluster Number: |____|____|	Team Number: |____|
Block Code / Number: |____|____|____|	Camp/Survey Number: 1=IFO-2, 2=DAG, 3=KAM, 4=HAG, 5=IFO |____|	

	HH1	HH2	HH3	HH4	HH5	HH6	HH7	HH8	HH9	HH10	HH11
HH Number	**Consent** 1=yes 2=no 3=absent	**When did your household arrive in the camps?**	**How many people live in this household?**	**Has your household been registered?** 1 = yes 2 = no 99 = Don't Know	**Does your household have a ration card?** 1= yes GO TO HH7 2 = no GO TO HH6	**Why do you not have a ration card?** USE CODES BELOW NOW GO TO HH11	**IF HH5 IS YES: How many days did the food from the last cycle of the general ration last?** (number of days) IF ANSWER IS 15 DAYS OR MORE GO TO HH11	**IF HH7 IS <15 DAYS: What is the *main* reason the general ration did not last until the next distribution?** SELECT *ONE* USE CODES BELOW	**If food is sold or exchanged, what do you exchange it for?** RECORD *ALL* RESPONSES USE CODES BELOW	**IF HH7 IS <15 DAYS: What was the most important thing you did to fill the gap?** SELECT *ONE* USE CODES BELOW	**Has insecurity or closure of health centres prevented anyone in your household from visiting a health centre in the last *2 months?*** 1 = yes 2 = no 3 = didn't need to go
01											
02											
03											
04											
05											
06											
07											
08											
09											
10											
11											
12											

CODES:
HH2: 1=July-September 2012, 2=April-June 2012, 3=January-March 2012, 4=October-December 2011, 5=Arrived before October 2011 or born in camps.
HH6: 1=Not given one at registration, 2=Lost card, 3=traded, 98=Other.
HH8: 1=New arrivals joined, 2=Shared with kin, 3=Ration not big enough, 4=Some sold or exchanged, 5=Gave to livestock, 6=Lost due to theft, 7=Lost due to poor storage, 98=Other.
HH9: 1=Food not sold/exchanged, 2=Meat, 3=Sugar, 4=Milk, 5=Rice/pasta/potatoes, 6=Vegetables, 7=Maize meal, 8=Firewood, 9=Shoes /clothing, 10=Scratch cards, 11=School fees, 12=Food for livestock, 13=Bus fare / transport, 98=Other.
H10: 1=Buy, 2=Borrow from neighbours or relatives / credit, 3=Donations from kin, 4=Reduce portion size, 5=Reduce number of meals per day, 98=Other.

Date (dd/mm):	_____	_____	/	_____	_____	/2012	Cluster Number:	_____	_____		Team Number:	_____	
Block Code / Number:	_____	_____	_____			Camp/Survey Number: 1=IFO-2, 2=DAG, 3=KAM, 4=HAG, 5=IFO	_____			

	HH12	HH13	HH14	H15	HH16	HH17	HH18	HH19
HH Number	**Has insecurity prevented anyone in your household from collecting the general food ration in the last *2 months?*** 1 = yes 2 = no	**Do you have enough water containers to collect water for all the household?** 1 = yes 2 = no	**What is the main source of drinking water for members of your household?** DO NOT READ THE ANSWERS TO THE PARTICIPANT. SELECT ONE ONLY.	**Are you satisfied with the drinking water supply?** THIS RELATES ONLY TO DRINKING WATER SUPPLY. 1 = yes GO TO HH17 2 = no	**Why are you not satisfied with the water supply?** 1 = amount is not enough 2 = long queue at the tap 4 = water point is far 5 = water tastes bad 98 = other	**What kind of toilet facility does this household use?** DO NOT READ THE ANSWERS TO THE PARTICIPANT SELECT ONE ONLY.	**How many ***households*** in total share this toilet?** SELECT ONE ONLY. 1 = 1 2 = 2 3 = 3 or more 4 = Pubic toilet (e.g. in market or clinic)	**Did you receive soap within the last two distribution cycles?** 1 = yes 2 = no 3 = not registered
01								
02								
03								
04								
05								
06								
07								
08								
09								
10								
11								
12								

CODES:
HH14: 1=Public tap/standpipe, 2=UNHCR Tanker, 3=Small water vendor, 4=Surface water (e.g. river, pond), 98=Other, 99=Don't know.
HH17: 1=Pour-flush to pit, 2=Simple pit latrine with floor/slab, 3=Pit latrine without floor/slab, 4=No facility, field, bush, plastic bag.

2. Dadaab Nutrition Survey, September 2012, Questionnaire for Women Aged 15-49 years

Date (dd/mm): |____|____|/|____|____|/2012	**Cluster Number:** |____|____|	**Team Number:** |____|
Block Code / Number: |____|____|____|	**Camp/Survey Number:** 1=IFO-2, 2=DAG, 3=KAM, 4=HAG, 5=IFO |____|	

		W1	W2	W3	W4	W5	W6	W7	W8	W9	W10	W11
Woman No.	**HH No.**	**Consent** 1=yes 2=no 3=absent	**Age** (years)	**When did you arrive in the camps?** IF ANSWER IS 5 GO TO W5 USE CODES BELOW	**Region of origin** USE CODES BELOW	**Ethnic group** 1=Somali 2=Somali Bantu 98=Other	**Did you deliver a baby in the last 6 months?** 1=yes alive 2=yes dead GO TO W9 3=no GO TO W9	**Did you receive vitamin A supplementation since delivery? (SHOW CAPSULE)** 1=yes card 2=yes recall 3=no or don't know	**Are you breast-feeding?** 1 = yes 2 = no	**In the past 3 months, since World Refugee Day (June 20th), did you have jaundice (Cagaarshow)?** 1=yes 2=no 99=don't know	**Are you pregnant?** 1 = yes GO TO W13 2 = no 99=don't know	**Hb** (g/dL)
1												
2												
3												
4												
5												
6												
7												
8												
9												
10												
11												
12												

CODES:
W3: 1=July-September 2012, 2=April-June 2012, 3=January-March 2012, 4=October-December 2011, 5=Arrived before October 2011 or born in camps.
W4: 1 = Lower Juba, 2 = Middle Juba, 3 = Gedo, 4 = Bay, 5 = Bakool, 6 = Lower Shabelle, 7 = Middle Shabelle, 8 = Hiraan, 9 = Mogadishu / Banadir, 98= Other.

3. Dadaab Nutrition Survey, September 2012, Questionnaire for Children Aged 6-59 months

Date (dd/mm): |____|____||____|____| 2012	**Cluster Number:** |____|____|	**Team Number:** |____|
Block Code / Number: |____|____|____|	**Camp/Survey Number:** 1=IFO-2, 2=DAG, 3=KAM, 4=HAG, 5=IFO |____|	

		C1	C2	C3	C4	C5	C6	C7	C8	C9	C10
Child No.	**HH No.**	**Consent** 1=yes 2=no 3=absent	**Sex** (m/f)	**Birthdate** (dd/mm/yyyy)	**Age** (months) USE EVENTS CALENDAR	**Weight** (kg)	**Height** (cm)	**Bilateral oedema** (y/n)	**MUAC** (cm)	**Weight taken with clothes** 1=yes 2=no	**IS CHILD ENROLED IN NUTRITION PROGRAMME?** 1 = OTP; 2 = TSFP; 3 = Referred; 4 = Not needed
1											
2											
3											
4											
5											
6											
7											
8											
9											
10											
11											
12											
13											
14											
15											
16											
17											
18											
19											
20											
21											
22											

IF NO VALID AGE DOCUMENTATION IS AVAILABLE: DO NOT FILL IN C3, INSTEAD ESTIMATE AGE USING LOCAL EVENTS CALENDAR.
C7 and C8: REFER TO HEALTH POST FOR MALNUTRITION IF NOT ALREADY ENROLED IN SFP /OTP: REFER IF OEDEMA OR IF MUAC<12.5 cm

		C11	C12	C13	C14	C15	C16	C17	C18	C19	C20	C21	C22
Child No.	**HH No.**	**When did [name] arrive in the camps?** USE CODES BELOW IF 5 GO TO C13	**Region of origin** USE CODES BELOW	**Ethnic group** 1=Somali 2=Somali Bantu 98=Other	**Measles Vaccination** 1=Yes with card 2=Yes by recall 3=No or don't know	**PENTA1 or PENTA2 or PENTA3 with card only** 1=1 dose 2=2 doses 3=3 doses 4=No PENTA or no card	**Vit. A in past 6 months** (SHOW CAPSULE) 1=Yes card 2=Yes recall 3=No or don't know	**Dewormed in past 6 months** (SHOW PILL) 1=Yes recall 2=No or don't know	**Diarrhoea in last 2 weeks (3 or more loose or liquid stools/24hrs)** 1 = yes 2 = no 99 = don't know	**When [name] had diarrhoea did you feed [name]:** 1=less 2= the same 3=more 4=no food	**Hb** (g/dL)	**Child referred for severe anaemia** 1=yes 2=no	**IS THIS CHILD AGED 6-23 MONTHS?** 1=yes 2=no IF NO STOP NOW
1													
2													
3													
4													
5													
6													
7													
8													
9													
10													
11													
12													
13													
14													
15													
16													
17													
18													
19													
20													
21													
22													

C11: 1=July-September 2012, 2=April-June 2012, 3=January-March 2012, 4=October-December 2011, 5=Arrived before October 2011 or born in camps.
C12: 1 = Lower Juba, 2 = Middle Juba, 3 = Gedo, 4 = Bay, 5 = Bakool, 6 = Lower Shabelle, 7 = Middle Shabelle, 8 = Hiraan, 9 = Mogadishu / Banadir, 98= Other
REFERAL TO HEALTH POST FOR SEVERE ANAEMIA - C20: REFER IF Hb < 7.0 g/dL

4. Dadaab Nutrition Survey, September 2012, Questionnaire for Infants Aged 0-5 months

Date (dd/mm): |____|____|/|____|____|/2012	**Cluster Number:** |____|____|	**Team Number:** |____|
Block Code / Number: |____|____|____|	**Camp/Survey Number:** 1=IFO-2, 2=DAG, 3=KAM, 4=HAG, 5=IFO |____|	**Inclusion date:**_____/____04____/ 2012___

		IN1	IN2	IN3	IN4	IN5	IN6	IN7	IN8	IN9	IN10
Child No.	**HH No.**	**Consent** 1=yes 2=no 3=absent	**Birthdate** (dd/mm/yyyy)	**Age** (months)	**Sex** 1=male 2=female	**When did [name] arrive in the camps?** IF ANSWER IS 5 GO TO IN7 USE CODES BELOW	**Region of origin** USE CODES BELOW	**Ethnic group** 1=Somali 2=Somali Bantu 98=Other	**Did you ever breastfeed [name]?** 1=yes 2=no GO TO IN11 99= don't know GO TO IN11	**How long after birth did you first put [name] to the breast?** 1 = within 1 hr 2 = >1hr-<24 hrs 3 = ≥24 hrs 99 = don't know	**Was [name] breastfed yesterday during the day or at night?** 1 = yes 2 = no 99 = don't know
1											
2											
3											
4											
5											

		IN11	IN12	IN13	IN14	IN15	IN16	IN17	IN18	IN19	IN20	IN21	IN22	IN23	~~IN25~~
Child No.	**HH No.**	Now I will ask you about what [name] drank or eat during the day and the night. Yesterday, during the day and night, has [name] received (INSERT ITEM HERE)? 1= yes, 2 = no, 99 = don't know											**Did [name] drink anything from a bottle with a nipple yesterday during the day or night?** 1 = yes 2 = no 99 = don't know	**Diarrhoea in last 2 weeks** 1 = yes 2 = no STOP NOW 99 = don't know STOP NOW	**When [name] had diarrhoea did you feed [name]:** 1=less 2= the same 3=more 4=no food
		Plain water	Sugar water	Fresh fruit juice	Sweetened flavoured juices (Zeitun, Altuza, Mushakil, vimto, soda, afya, tamu, yahoo, savannah)	Tea or coffee white or black	Infant formula: for example Mamex, Sahar, Nan, S26	Fresh animal milk or any tinned or powdered milk.	Porridge made from CSB+ or ++	Porridge not made from CSB+ or ++	Medicines: for example ORS, gripe water	Foods other than liquids (semi-solid and solid foods)			
1															
2															
3															
4															
5															

CODES:

IN5: 1=July-September 2012, 2=April-June 2012, 3=January-March 2012, 4=October-December 2011, 5=Arrived before October 2011 or born in camps. **IN6**: 1 = Lower Juba, 2 = Middle Juba, 3 = Gedo, 4 = Bay, 5 = Bakool, 6 = Lower Shabelle, 7 = Middle Shabelle, 8 = Hiraan, 9 = Mogadishu / Banadir, 98= Other; **IN22**: For example: pasta, rice, anjera, ugali, potatoes, maize, beans, mango, banana, other fruits and vegetables, meat.

Dadaab Nutrition Survey 2012, Household Listing Form

Date ___ / ___ / 2012	**Block** |____|____|____|	**Camp:** 1 = Ifo-2 2=Dagahaley 3=Kambios 4=Ifo 5=Hagadera
Cluster no. |____|____|	**Team number** |____|	**HH Number** |____|____|
Please fill in using the following order: HH head, adult males, adult females, children, infants, other relatives		

#	First Name only	M/F	Age 0-59: age in months Women: specify if 15-49	Weight (kg) Children 6-59m	Height (cm) Children 6-59m	MUAC (cm) Children 6-59m	Hb (g/dL) Non-pregnant women and children 6-59m only
1							
2							
3							
4							
5							
6							
7							
8							
9							
10							
11							
12							
13							
14							
15							
16							
17							

5. Dadaab Nutrition Survey, September 2012, Kambioos Mortality Questionnaire

Date ___ / ___ / 2012	**Block** |____|____|____|	**Camp:** 1 = Ifo-2 2=Dagahaley 3=Kambios 4=Ifo 5=Hagadera
Cluster no. |____|____|	**Team number** |____|	**HH Number** |____|____|

Please fill in using the following order: HH head, adult males, adult females, children, infants, other relatives

#	First Name only	M/F	Age 0-59: age in months Women: specify if 15-49	Weight (kg) Children 6-59m	Height (cm) Children 6-59m	MUAC (cm) Children 6-59m	Hb (g/dL) Non-pregnant women and children 6-59m only	Joined/ / left / born / died since June 20th 2012 (World Refugee Day) CIRCLE IF APPLIES
1								Joined / Born
2								Joined / Born
3								Joined / Born
4								Joined / Born
5								Joined / Born
6								Joined / Born
7								Joined / Born
8								Joined / Born
9								Joined / Born
10								Joined / Born
11								Joined / Born
12								Joined / Born
13								Joined / Born
List names of persons who LEFT or DIED								Left / Died
								Left / Died
								Left / Died
								Left / Died

Cluster Control Sheet – Ifo-2 and Hagadera

Cluster Control Sheet – Dadaab Nutrition Survey 2012																						
Camp:				Cluster Number:					Date:						Team:							
Household Questionnaires	1	2	3	4	5	6	7	8	9	10	11	12										
Children 6-59 months	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20		
Women 15 - 49	1	2	3	4	5	6	7	8	9	10												
Infants 0-5 months	1	2	3	4																		

Cluster Control Sheet – Kambioos

Cluster Control Sheet for Kambioos – Dadaab Nutrition Survey 2012																						
Camp: KAMBIOOS (Code 3)				Cluster Number:					Date:						Team:							
Household Questionnaire	1	2	3	4	5	6	7	8	9	10	11	12										
Children 6-59 months	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20		
Women 15 - 49	1	2	3	4	5	6	7	8	9	10												
Infants 0-5 months	1	2	3	4																		
Mortality Questionnaire	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15							

Appendix 8 - Local events calendar: Children 0 - 59 months of age

Seasons	Religious Holidays	Local Event (in camp of surrounding villages)	Arabic Calendar	Somali Calendar	Month / year	Age (m)	Height Range
Mid of Xagaa	Ramadan ended	Fire in Dagahaley market & Fire in Ifo market Arrival of GSU World breastfeeding week	Bisha Sideedaad	Soon / Ramadhan	August 2012	1	
Beginning of Xagaa	Ramadan began	Explosion in Dagahaley CARE area. Start of July – abduction of 4 NRC staff	Bisha Todobaad	Shaba'an	July 2012	2	
End of Gu'		World Refugee Day – 20th June IED explosion in Dagahaley	Bisha Luulyo	Rajab	June 2012	3	
Mid of Gu'		Bombing of Chairlady in Ifo Vit A & deworming campaign(malezi bora) Explosion 15th May at Naseria market	Bisha Shanaad	Jamadul akhir	May 2012	4	<65cm
Beginning of Gu'		Mosquito nets being distributed	Abriil	Jamadul awal	April 2012	5	
End of Jiilal		Start of GFD distribution by NRC Ifo 2	Maarso	Malmadone	March 2012	6	
Mid of Jiilal		KRCS began SFP in Ifo2 Bomb-blast in Ifo (IED)	Febrayo	Mowlid	February 2012	7	65-70 cm
Beginning of Jililal		Closure of MSF Health post 8 in Dagahaley Start of wet-feeding program Ifo2 (by Turkey)	Janaayo	Safar	January 2012	8	
End of Deyr		Killing of Security Chairman in Hagadera IMC took over from IRC in Kambioos	Bisha diseenbar	Zako	December 2011	9	
Mid of Deyr		Opening of tented hospital in Ifo 2 West	Bisha kow iyo Tobnad	Arafa	November 2011	10	71-76 cm
Beginning of Deyr		KRCS began operating. Abduction of MSF-Spain staff	Bisha Tobnad	Sidital	October 2011	11	
End of Xagaa	End of Ramadan	Kambioos opened Relocation of Dagahaley to Ifo 2	Bisha Sagaalad	Soon fur	September 2011	12	
Mid of Xagaa	Start of Ramadan	Strike (MSF staff), outbreak of measles in Ifo2	Bisha Sideedaad	Soon / Ramadhan	August 2011	13	
Beginning of Xagaa		Fight between police and Dagahaley camp	Bisha Todobaad	Shaba'an	July 2011	14	
End of Gu'		Refugee Day / Reception centre opened / Moon eclipse Business men killed in Hagadera	Bisha Luuly	Rajab	June 2011	15	
Mid of Gu'		IRC religious strike in Hagadera	Bisha Shanaad	Jamadul akhir	May 2011	16	77-80 cm
Beginning of Gu'			Abriil	Jamadul awal	April 2011	17	
End of Jiilal		Health post 8 opened in outskirts (cluster 2)	Maarso	Malmadone	March 2011	18	
Mid of Jiilal			Febrayo	Mowlid	February 2011	19	
Beginning of Jililal			Janaayo	Safar	January 2011	20	
End of Deyr			Bisha diseenbar	Zako	December 2010	21	
Mid of Deyr			Bisha kow iyo Tobnad	Arafa	November 2010	22	
Beginning of Deyr			Bisha Tob	Sigalal	October 2010	23	
End of Xagaa	End Ramadan (09/09/2010)		Bisha Sagaalad	Soon fur	September 2010	24	81-86cm
Mid of Xagaa	Beginning Ramadan		Bisha Sideedaad	Soon /Ramadhan	August 2010	25	
Beginning of Xagaa		Sudan Somali flight	Bisha Todobaad	Shaba'an	July 2010	26	
End of Gu'		Refugee Day	Bisha Luuly	Rajab	June 2010	27	
Mid of Gu'			Bisha Shanaad	Jamadul akhir	May 2010	28	
Beginning ogf Gu'		Conflict between polic and Dagahaley	Abriil	Jamadul awal	April 2010	29	
End of Jiilal			Maarso	Malmadone	March 2010	30	
Mid of Jiilal		IRC strike. Qarax Madoio	Febrayo	Mowlid	February 2010	31	
Beginning of Jililal		Banamnar Shakhoolo IRC/GTZ	Janaayo	Safar	January 2010	32	
End of Deyr			Bisha diseenbar	Zako	December 2009	33	87-90cm
Mid of Deyr			Bisha kow iyo Tobnad	Arafa	November 2009	34	
Beginning of Deyr		Mental health day	Bisha Tob	Sigalal	October 2009	35	
End of Xagaa	End Ramadan	Ciidul fidri. Ciid alfidri Dagahaley health post 6 burnt down	Bisha Sagaalad	Soon fur	September 2009	36	
Mid of Xagaa	Beginning Ramadan	MSF begin operations in Dagahaley	Bisha Sideedaad	Soon /Ramadhan	August 2009	37	
Beginning of Xagaa			Bisha Todobaad	Shaba'an	July 2009	38	
End of Gu'		Refugee day	Bisha Luuly	Rajab	June 2009	39	
Mid of Gu'		Tirakobka Hagadera	Bisha Shanaad	Jamadul akhir	May 2009	40	
Beginning ogf Gu'		Madobadki Bisha moon eclipse	Abriil	Jamadul awal	April 2009	41	
End of Jiilal			Maarso	Malmadone	March 2009	42	
Mid of Jiilal			Febrayo	Mowlid	February 2009	43	
Beginning of Jililal		IRC arrival	Janaayo	Safar	January 2009	44	91-99cm
End of Deyr		MSF arrival	Bisha diseenbar	Zako	December 2008	45	
Mid of Deyr		Dorasho Election gudamiyal	Bisha kow iyo Tobnad	Arafa	November 2008	46	
Beginning of Deyr			Bisha Tob	Sigalal	October 2008	47	
End of Xagaa	End Ramadan (30/09/08)	Daadki Biyana Floods	Bisha Sagaalad	Soon fur	September 2008	48	
Mid of Xagaa	Beginning Ramadan		Bisha Sideedaad	Soon /Ramadhan	August 2008	49	
Beginning of Xagaa			Bisha Todobaad	Shaba'an	July 2008	50	
End of Gu'		Refugee day	Bisha Luuly	Rajab	June 2008	51	
Mid of Gu'			Bisha Shanaad	Jamadul akhir	May 2008	52	
Beginning ogf Gu'			Abriil	Jamadul awal	April 2008	53	
End of Jiilal		Dabki Firebann block 131	Maarso	Malmadone	March 2008	54	
Mid of Jiilal			Febrayo	Mowlid	February 2008	55	
Beginning of Jililal			Janaayo	Safar	January 2008	56	100 – 110cm
End of Deyr		Kenya Dorasho	Bisha diseenbar	Zako	December 2007	57	
Mid of Deyr			Bisha kow iyo Tobnad	Arafa	November 2007	58	
Beginning of Deyr	End Ramadan		Bisha Tob	Sigalal	October 2007	59	
End of Xagaa	Beginning Ramadan (12/09/07)		Bisha Sagaalad	Soon fur	September 2007	60	