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Malnourished Children in Refugee Camps and Lack of Connection with Services After US Resettlement

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Abstract

Identifying and addressing malnutrition among US-bound refugee children is an important human rights issue. Failure to address childhood malnutrition can impair cognitive development and productivity. The target population was children aged 6–59 months, originating from eight countries representing 51 % of US-resettled refugees for 2005–2011, living in 22 camps prior to potential US-resettlement. The corresponding camp-level nutritional survey data were evaluated. State Refugee Health Coordinators were surveyed on nutritional assessment, reporting and referrals for their US-refugee medical screenings. From 2004 to 2010, half of the camps (63 total surveys) had global acute malnutrition prevalence over 15 % at least once (surveys not done annually) and anemia prevalence greater than 40 %. The majority of US-refugee medical screenings included height and weight measurements but few used national or WHO standards to evaluate presence or level of malnutrition. Improve overseas camp monitoring and link these nutritional data to US-resettling refugee children to inform potential nutritional interventions. Domestically, use WHO or US growth standards for anthropometrics to determine presence of malnutrition and need for corrective action.

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Contribution to the Literature

This report is novel in its attempt to describe the continuum of nutrition assessment and indicators from camp to US-resettled refugees. The findings support the need for longitudinal cohort analyses of refugee populations, specifically children living in camps, who resettle in the US. This report also provides evidence of an existing gap in nutrition assessment and promotion at the State and local level for refugees and the need for US policy revision.

Keywords

Refugees; Malnutrition; Anemia; United States Resettlement

Background

Refugees are individuals who leave their home country because of persecution. During a June 2007, Inter-Agency Standing Committee nutrition meeting, the United Nations High Commissioner for Refugees (UNHCR) expressed concern over high rates of childhood malnutrition among refugees in protracted situations [1]. The UNHCR recognizes malnutrition as a physiological condition and a human rights issue [2]. UNHCR or the US embassy in the country of asylum identifies refugees of concern. These refugees of concern either live in perilous situation or have specific needs that cannot be addressed in the asylum country. The specific needs can be medical conditions but rarely malnutrition. Of the 10.5 million refugees of concern, about 1 % is submitted for resettlement. US-bound refugees undergo a pre-departure medical assessment to identify inadmissible communicable diseases and mental health illnesses. Intentions to refer malnourished children for treatment pre-departure have not been systematically implemented or documented (Personal communication, Tarissa Mitchell, DGMQ, CDC, 20 November 2011). After resettlement, refugees receive health assessments primarily to identify communicable diseases. For 8 months post-resettlement, the Refugee Medical Assistance provides insurance, which cover any conditions identified.

Limited studies among US-resettled refugee children suggest malnutrition persists after resettlement indicated by anemia and growth measurements. Among 1,825 resettled children in Massachusetts, 12 % overall and 28 % aged under two had anemia. Of Africa and East Asia children, 8 % had weight-for-height Z-scores ←2 (wasting) and of African, Near Eastern, and East Asian children, 13, 19, and 30 %, respectively, had height-for-age *Z*-scores ←2 (stunting). [3] In Maine, 20 % of resettled refugee children were anemic [4]. Young children experiencing macro-and micronutrient deficiencies face increased risk of adverse developmental and chronic health conditions [5]. This study aims to (1) describe the nutritional status of potential US-bound refugee children living in overseas camps and (2) evaluate US refugee health programs' nutrition assessments and referral patterns.

Methods

The target population was potential US-bound refugees aged 6–59 months living in refugee camps. According to the Office of Refugee Resettlement (ORR) new arrival data from 2005 to 2011 [6], US-resettling refugees originated from 99 countries; 98 % of arrivals originated from just 20 countries. Refugees originally from 12 of these 20 countries were excluded from the sample: those from 7 countries did not live in camps and no childhood nutritional survey data existed from 5 countries. The final sample included refugees from 8 (Burma, Somalia, Bhutan, Liberia, Burundi, Sudan, Eritrea, and the Democratic Republic of Congo) of the top 20 originating countries who fled to refugee camps with available camp-level nutritional data.

The publicly available UN Nutrition Information in Crisis Situations (NICS) database compiles nutritional and mortality survey data on emergency-affected populations since 2004 using cluster sampling [7]. This database was used to compile all 63 nutritional surveys from 2004 to 2010, for 22 refugee camps with refugees from the 8 selected countries to examine the prevalence of global acute malnutrition (GAM), anemia, and vitamin A distribution coverage for children aged under 5 years. Results were classified using WHO growth and hemoglobin level standards with GAM defined as a weight-for-height Z-scores ← 2 or the presence of edema and anemia defined as hemoglobin levels<11 g/dL [8]. This method was used because no data exist specifically on those refugee children selected for US-resettlement.

The State-level Refugee Health Coordinators (RHCs) were made aware of the study in a conference call and asked to participate. State-level RHCs manage the health assessments delivered by local health departments or private clinics. States differ in the scope and organization of their health assessments, in part a reflection of their public health capacities. A standardized survey was sent by e-mail with telephone follow-up for further discussion of answers to the 16 RHCs who received 70 % of US-arriving refugees for 2005–2011. Survey questions covered domestic nutritional assessments, reporting, and referral services.

The Emory University Investigation Review Board determined the analysis and survey to not be research of human subjects.

Results

During 2005–2011, 407,649 refugees resettled in the US. Of these, 206,702 (51 %) were from the selected eight originating countries (Table 1), represented in the 63 surveys of 22 camps in Bangladesh, Nepal, Kenya, Ghana, Tanzania, Kenya, and eastern Sudan. Among these camps between 2004 and 2010, 95 % had ≥1 survey with GAM prevalence ≥5 %; 45 % (10 camps; 16 surveys of Burmese, Somali, Bhutanese, Liberian, Sudanese, and Eritrean children) had GAM of 10–14 % (serious malnutrition emergency levels); and 50 % (11 camps; 21 surveys of Burmese, Somali, Sudanese, and Eritrean children) had GAM ≥15 % (severe emergency levels) for ≥1 survey (Table 2). Vitamin A distribution coverage among children aged under 5 years, assessed in eight camps, ranged from 55.2 to 97.8 % (15 surveys of Burmese, Bhutanese, Somali, Liberian, Sudanese and Eritrean children) and exceeded 90 % in three (38 %). Ten camps (12 surveys after 2008 of Burmese, Bhutanese, Sudanese and Eritrean children) reported childhood anemia prevalence; each had anemia prevalence of ≥40 % in at least one survey.

Fourteen (88 %, 13 State and 1 municipality) of 16 RHCs completed the survey, representing 65 % of US-resettled refugees from 2005 to 2011 (Table 3). Among these, 10 (71 %) reported ≥90 % of refugees received domestic medical screening; 2 (14 %) RHCs estimated 70–90 % was screened; 2 could not estimate the rate because private providers screened refugees without reporting.

Twelve (86 %) RHCs reported medical screenings included weight and 11 (79 %) height measurements for children under 5 years old; 1 RHC assumed measurements were taken (no

documentation received). Ten (71 %) indicated weight-for-height, height-for-age, and weight-for-age were assessed; however, after personal communication 80 % (8) of the 10, stated anthropometrics were not recorded. Four (29 %) reported using National Center for Health Statistics (NCHS) or WHO standards to assess anthropometrics; six stated anthropometrics were obtained without standards for assessing. Twelve (86 %) stated screenings included hemoglobin levels. Two (14 %) RHCs provided children multivitamins; 11 (79 %) said WIC (Women, Infants and Children Nutritional Program) was offered at the screening.

Referral practices varied (Table 3); answering the question, "*Please describe your referral process for additional nutritional follow-up or services?,"* 3 of 13 responding RHCs said screening staff referred all children to either a (2) pediatrician or (1) nutritionist; 2 (15 %) each said provider, county health clinic, or resettlement agency determined follow-up needs; 1 (8 %) reported children under 16 years old with height-for-age or weight-for-age<5th percentile were referred for nutritional evaluation and 3 (23 %) assumed providers referred children with "abnormal" anthropometric measurements for further care, but referrals were not documented on State forms.

Seven (50 %) of the RHCs had online refugee medical screening forms. Six (43 %) included height and weight measurement with "normal" or "abnormal" checkboxes; none had checkboxes for stunting, wasting, or underweight. All forms had WIC as a referral option; three (21 %) had a "nutrition" referral option.

Discussion

All 22 camps evaluated from 2004 to 2010, at least once had ≥5 % GAM prevalence; half experienced severe emergency levels (≥15 %). For 2009–2010, all 10 reporting camps had at least one survey with anemia prevalence ≥40 %. These data indicate that malnutrition and anemia are public health problems among refugee children in camps and those potentially US-bound. These high prevalence rates mirror findings of a convenience sample of about 200 pediatric refugee medical screenings from DeKalb County Board of Health's Refugee Pediatric Clinic, Decatur, Georgia (personal communication, Dr. Oladele, February 14, 2012). Among their African refugee children (6–59 months old), the prevalence of GAM and anemia were 16% and 36%, respectively (NOTE: height and weight measurements were not verified for accuracy).

Although 80 % of the RHCs surveyed required both height and weight measurements, less than 30 % required NCHS or WHO standards to assess and report anthropometrics, but used subjective judgments of "abnormal". The majority of RHCs (79 %) reported their clinics referred refugee children to WIC, but 69 % did not oversee any established pediatric nutrition referrals. Childhood nutritional deficiencies contribute to poor outcomes in cognitive and physical development, and chronic diseases, such as diabetes, cardio-vascular disease and obesity [9]., Iron deficiency anemia, common among refugees, is associated with delayed cognitive development in infants, pre-term birth for deficient mothers and impaired productivity and memory function among adults. Nutritional and pediatric referrals must be assured among this population with high rates of GAM and anemia.

This study has several limitations. While UNHCR wants nutrition surveys conducted annually in stable locations [10], NICS surveys were missing for several years, which may indicate selection bias; at times of disease outbreaks, nutrition surveys may be neglected. Some survey data did not include confidence intervals, making assessment of validity or precision impossible. The RHC survey was designed to provide an overview of activities and may not capture local or clinic-specific activities addressing refugee nutrition. For example, one RHC stated an ORR-funded nutritionist conducted home visits of all new arrivals in one metropolitan area of that State; however, this area only covers 60 % of its State-resettled refugees. In some cases, the questions assumed clinical dialogue between clinicians and RHCs.

Since 2011, the International Organization for Migration (IOM) *Nutrition Surveillance Reports* provides nutritional indicators of children under 5 years old assessed in seven key countries: Ethiopia, Iraq, Jordan, Kenya, Malaysia, Nepal and Thailand and intended for use by UNHCR and resettlement countries to plan nutritional interventions [11]. Overseas health assessment and nutritional surveys should inform receiving State's programs on needs. Domestic refugee health screenings present an opportunity to find malnourished children and prevent further nutritional degradation. Many RHCs surveyed cited the 1995 ORR medical screening protocol as their statewide assessment standards [12]. ORR should promote the use of standard growth charts to determine a child's nutritional status, as suggested by the Centers for Disease Control and Prevention's April 2012 *Nutrition Assessment Guidelines* [13]. Adoption of standard protocols and reporting across States would provide valuable data and ensure clinician accountability and attention to the nutritional status of incoming refugees. A referral to culturally sensitive pediatricians/nutritionists who receive nutritional information from the screening clinics will address nutritional needs and help build patient-physician rapport while providing a continuum of care during a critical period of child growth and family acculturation.

Malnutrition and micronutrient deficiencies require detection, immediate and long-term follow-up to minimize impact on refugee children's future. Healthcare providers and resettlement workers should not assume that macro-and micronutrient deficiencies will self-correct after resettlement; refugees may require specific medical and dietary treatment. The US State Department commits the US to protect the well being of refugees through the entire resettlement process. Given the optimal timing and nearly complete coverage of the domestic medical screening, RHCs must establish protocols, comply with ORR protocol updates, stay informed of overseas trends, and collaborate with designated providers to ensure proper nutrition and follow-up for nutritional deficiencies among refugee children. Refugee children malnourished in camps will arrive in the US malnourished. With impending acculturation and economic hardship in the US, it is critical to monitor and assess these children's nutritional status. It is time for US policy to specifically state the need to reverse the malnutrition of US-bound child refugees today to promote the productivity of them tomorrow.

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Table 1

Sample population: countries of origin and arrival statistics from 2005 to 2011

Country of origin	Country of camp	# Arrivals from country of origin, 2005–2011	% of Total [a]
Burma	Bangladesh	77,239	18.9
Somalia	Kenya (Dadaab camp)	42,095	10.3
Bhutan	Nepal	45,755	11.2
Liberia	Ghana	9,857	2.4
Burundi	Tanzania	9,582	2.4
Eritrea	Eastern Sudan	8,005	2.0
Democratic Republic of Congo	Ghana	7,509	1.8
Sudan	Kenya (Kakuma camp)	6,670	1.6
TOTAL SAMPLE		2,06,712	50.7

The other countries of origin were: Afghanistan, Congo, Cuba, Ethiopia, Former Soviet Union, Iran, Iraq, Laos, Rwanda, Sierra Leone, Thailand, Vietnam

Source http://www.acf.hhs.gov/programs/orr/data/refugee_arrival_data.htm

[a]Total US arrivals from 2005 to 2011 = 407,649

Table 2

Camp-Level global acute malnutrition (GAM) and anemia prevalence rates among children aged 6–59 months from eight countries of origin in 22 camps, 2004–2010

Country of origin	2005–2011 US resettled numbers (%)	Refugee camp	Survey years	GAM (WHO) 95 % CI	Anemia (%)	Vitamin A distribution (%)
Burma	77,239 (18.9 %)	(Bangladesh) Nayapara and Kutupalong camps	2005	18.9 % (11.5, 28.7)		
			2008	7.80 %		
			2009	18.7 % (16.2, 21.2)	28.90	88.20
			2010	14.6 % (12.4, 20.1)	52.60	
Somalia	42,095 (10.3 %)	(Kenya) Dadaab camps	2005	28.3 % (20.1, 39.0)		55.20
			2006	24.3 % (16.7, 34.1)		
			2007	12.4 % (10.4, 14.7)		87.00
			2009	12.6 % (9.4, 15.9)		91.90
Bhutan	45,755 (11.2 %)	Nepal camps	5-Jul	10.50 %		97.80
			6-Dec	12.7 % (12.3,16.1)		98.80
			6-Mar	13.9 % (10.9,16.9)		86.40
			7-Jan	4.20 %		97.50
			8-Dec	10.5 % (7.9, 12.8)		
			9-May	7.3 % (5.4, 9.6)	35.90	98.90
			10-May	8.1 % (6.4, 10.6)	40.20	
Liberia	9,857 (2.4 %)	(Ghana) Bududuram camp	2005	9.3 % (5.5, 15.2)		95.50
			2006	13.2 % (8.2, 20.6)		72.50
Burundi	9,582 (2.4 %)	(Tanzania)	2004	6.8 % (3.8, 11.7)		
		Lukole A	2005	5.6 % (2.6, 11.4)		
		Lukole B	2004	7.1 % (3.9, 12.1)		
			2005	7.1 % (3.5, 13.6)		
		Mukugwa	2004	4.9 % (1.8, 12.1)		
			2005	3.9 (0.7, 14.6)		
		Mtabila II	2004	6.6 % (3.6, 11.4)		
			2005	2.8 % (1.1,7.2)		
		Mtendeli	2004	6.9 % (3.9, 12.0)		

Country of origin	2005–2011 US resettled numbers (%)	Refugee camp	Survey years	GAM (WHO) 95 % CI	Anemia (%)	Vitamin A distribution (%)
			2005	4.9 % (2.2, 10.2)		
		Nduta	2004	6.3 % (3.4, 11.0)		
			2005	3.1 % (1.2, 7.5)		
Sudan	6,670 (1.6 %)	(Kenya) Kakuma	2004	20.5 % (12.7, 31)		
			2005	21.7 % (14.6, 31.1)		
			2006	13.2 % (11.2, 15.4)		
			2010	7.9 % (6.1, 10.1)	73.70	76.70
Eritrea	8,805 (2.0 %)	(eastern Sudan) Um Gargour	2006	18.1 *%*		
			2009	25.5 % (22, 29)	65.90	
			2010	17 % (13.8, 20.8)		
		Kilo26	2006	17.30 %		84.10
			2009	15 % (11.1, 18.9)	60.00	
			2010	13.1 % (10.5, 15.5)		
		Suki	2006	20.30 %		
			2009	7.50 %	70.00	
			2010	14.3 % (7.6, 25.3)		
		Abuda	2006	13.60 %		
			2009	13.70 %	49.00	
			2010	18.2 % (14.2, 23.2)		
		Wad Sherifey	2006	23.70 %		
			2009	15.2 % (11.3, 20.1)	59.60	84.60
			2010	15.5 % (12.4, 19.2)		
		Shagrab	2006	15.60 %		
			2009	21.2 % (17.3, 25.2)	50.30	73.30
			2010	14.9 % (12.3,17.9)		
		Girba	2006	17.40 %		
			2009	17.2 % (12.8, 21.6)	56.20	
			2010	16.0 % (12.6, 22.4)		
		Fau5	2006	19.70 %		
			2009	7.10 %		

Country of origin	2005–2011 US resettled numbers (%)	Refugee camp	Survey years	GAM (WHO) 95 % CI	Anemia (%)	Vitamin A distribution (%)
Democratic Republic of Congo 7509 (1.8 %)		(Tanzania) Nyragusu	2010	12 % (9.2, 15.5)		
			2004	6.6 % (3.7, 11.6)		
			2005	2.2 % (0.7, 5.9)		
		Lugufu I	2004	5.2 % (2.7, 9.5)		
			2005	1.6 % (0.4, 4.8)		
		Lugufu II	2004	6.5 % (3.6, 11.4)		
			2005	1.6 % (0.4, 4.9)		

Source NICS http://www.unscn.org/en/publications/nics/database.php

CI confidence interval

WHO crisis classification for GAM prevalence: WHO classification for anemia prevalence (public health concern)

Acceptable <5 % acceptable <5 %

Poor 5–9 % mild 5 –19.99 %

Serious 10–14 % moderate 20–39.99 %

Severe ≥15 % severe ≥40 %

Table 3

Results from survey of selected refugee health coordinators (RHCs)

	n	%
Measurements at Medical Screening (*N* = 14)		
Heights of children under 5 years of age	11	78.6
Weights of children under 5 years of age	12	85.7
Hemoglobin levels	12	85.7
Categories of Responses to: "Please describe your referral process for additional nutritional follow-up or services? (please include whether services are provided for all children or based on referral; referral criteria; any numbers or percentages receiving care that you are able to attain)" (N = 13)		
Refer children to pediatrician	2	15.4
Refer child with height-weight ≤5th percentile to pediatrician	1	7.7
Refer child with "abnormal" height/weight to pediatrician	3	23.1
Refer children in metro area to nutritionist	1	7.7
Vary by provider	2	15.4
Vary by county health clinic	2	15.4
Responsibility of resettlement agency	2	15.4
Categories for: "What types of services are offered?" (*N* = 14)[a]		
Refer children to WIC[b]	11	78.6
Refer children to SNAP[c]	4	28.6
Refer children to pediatrician	3	21.4
Refer child with "abnormal" height/weight to pediatrician	5	35.7
Refer children to nutritionist	4	28.6
Provide parents nutrition classes	2	14.3
Distribute nutritional supplements	1	7.1
Distribute multivitamins	2	14.3
No services	1	7.1

[a] Types of services referred based on above referral processes

[b] WIC, Women, Infant and Child Nutrition Program, 2 RHCs said referral by resettlement agency

[c] SNAP, Supplemental Nutrition Assistance Program, 2 RHCs said referral by resettlement agency