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NUTRITION SURVEILLANCE

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TABLE OF CONTENTS

- I. NUTRITION INDICES
- II. SPECIAL REPORT
Nutritional Status Survey
in Togo

U.S. DEPARTMENT OF
HEALTH, EDUCATION, AND WELFARE
PUBLIC HEALTH SERVICE

PREFACE

This report summarizes information, including selected indices of nutrition status, received from 14 participating states which comprise a group of contributors to a developing program of nutrition surveillance in the United States. We will consider adding other indices as their utility and availability become evident. To the extent possible, tabulations in subsequent issues will be presented in the same format unless experience indicates a change is appropriate.

The data presented in these tabulations come from a variety of sources including health department clinics, WIC screening, Head-start programs, and other health care situations. Because of the lack of uniformity of data sources, as well as methodology, direct comparisons among states should be made with caution.

Contributions to NUTRITION SURVEILLANCE are welcome. Please submit to:

Center for Disease Control
Attention: Nutrition Division, BSE
Atlanta, Georgia 30333

Center for Disease ControlWilliam H. Foege, M.D.
Director

NUTRITION INDICES

Data presented in Tables 1-3 represent children examined during the second quarter of 1977. They reflect initial visits to the health system and do not represent either the results of nutrition intervention or the nutritional status of the general population. Data from Alabama, Minnesota, and New Jersey are included for the first time.

CRITERIA FOR IDENTIFYING INDIVIDUALS WITH LOW OR HIGH VALUES

1. Low Hemoglobin and Low Hematocrit: Hemoglobin or hematocrit below the level specified in the following table for appropriate age and sex.

<u>Age</u>	<u>Hgb.</u>	<u>Hct.</u>
6-23 months	10 grams	31%
2-5 years	11 grams	34%
6-14 years	12 grams	37%
15 or more years (females)	12 grams	37%
15 or more years (males)	13 grams	40%

2. Low Height-for-Age: Height-for-age less than the 5th percentile of a person of the same sex and age in the reference population.
3. Low Weight-for-Age: Weight-for-age less than the 5th percentile of a person of the same sex and age in the reference population.
4. Low Weight-for-Height: Weight-for-height less than the 5th percentile of a person of the same sex and height in the reference population.
5. High Weight-for-Height: Weight-for-height greater than the 95th percentile of a person of the same sex and height in the reference population.

Reference Population: Smoothed distribution of percentiles of the following populations:

<u>Age</u>	<u>Reference Population Data</u>
Birth - 24 months	Fels Research Institute Growth Study
25 - 59 months	First Health and Nutrition Examination Survey (HANES)
60 - 143 months	National Health Examination Survey, Cycle II; and HANES
144 - 215 months	National Health Examination Survey, Cycle III; and HANES

Note: Growth percentiles represent heights and weights which have been standardized for sex and age, and sex and height (for weight-for-height). Therefore height and weight comparisons may be made between groups of individuals using percentiles without being concerned about the age and sex distributions of groups being compared. However, comparisons of height and weight among groups with persons of diverse ethnic origins should be made with care because of possible genetic differences in growth potential. Differences observed between groups may be due to differences in nutritional status of the individuals or in possible differences in the ethnic makeup of the groups.

Table 1

Nutrition Indices by State, April-June 1977
Persons Less than 18 Years of Age

State	Hemoglobin		Hematocrit		Height-For-Age		Weight-For-Age		Weight-For-Height		
	No. Exam.	% Low	No. Exam.	% Low	No. Exam.	% Low	No. Exam.	% Low	No. Exam.	% Low	% High
Alabama			92	6.5	147	6.1	149	6.7	86	11.6	3.5
Arizona	1,464	7.9	2,165	16.9	3,936	15.1	3,898	9.0	2,586	6.0	12.7
California (Los Angeles County)	37	2.7	85	36.5	127	6.3	127	2.4	112	0.9	17.0
Florida	291	19.2	232	22.4	820	17.1	826	8.4	568	5.8	16.0
Illinois	621	16.3	1,090	20.3	1,393	13.4	1,396	7.2	1,380	3.6	13.0
Kentucky	2,307	18.4	2,252	22.8	6,677	11.6	6,689	6.7	5,233	5.7	11.2
Louisiana	2,775	21.9	1,751	26.1	5,536	11.7	5,592	7.0	3,712	5.1	10.6
Minnesota	190	13.2	114	18.4	279	9.7	316	5.1	260	3.8	9.6
Montana	1	0.0	406	20.4	748	11.9	744	5.9	614	2.6	6.4
New Jersey	13	15.4	6	33.3	45	24.4	45	15.6	28	3.6	14.3
Ohio	560	5.4	999	18.2	2,297	8.4	2,305	5.2	1,828	4.8	8.1
Oregon	255	16.9	937	11.8	1,763	9.3	1,767	4.9	1,557	2.3	9.9
Tennessee	86	4.7	5,785	20.7	7,651	10.9	7,732	5.3	6,110	4.3	13.3
Washington	128	14.8	1,339	12.2	2,003	13.7	2,006	7.6	1,676	4.1	12.5
Total	8,728	16.4	17,253	19.7	33,422	11.8	33,592	6.6	25,750	4.7	11.6

Table 2

Nutrition Indices by Sex and Ethnic Group, April-June 1977
Persons Less than 18 Years of Age

Sex and Ethnic Group	Hemoglobin		Hematocrit		Height-For-Age		Weight-For-Age		Weight-For-Height		
	No. Exam.	% Low	No. Exam.	% Low	No. Exam.	% Low	No. Exam.	% Low	No. Exam.	% Low	% High
Male											
Black	1,737	19.7	2,300	23.5	4,956	13.4	4,996	7.3	3,720	4.9	11.5
White	2,128	15.0	5,267	18.8	9,730	11.1	9,776	6.2	8,222	4.7	10.9
Sp. American	413	11.9	615	20.5	1,077	11.8	1,074	6.0	839	4.3	13.5
Am. Indian	41	14.6	345	18.8	761	19.1	757	10.0	557	5.4	15.3
Oriental	15	6.7	18	5.6	42	19.0	42	11.9	37	18.9	8.1
Other	18	22.2	41	26.8	62	19.4	61	18.0	47	4.3	14.9
Unknown	14	21.4	72	18.1	122	9.8	122	5.7	101	4.0	11.9
Total	4,366	16.6	8,658	20.2	16,750	12.2	16,828	6.8	13,523	4.8	11.4
Female											
Black	1,717	21.1	2,220	21.9	4,894	11.5	4,942	6.3	3,287	5.4	12.4
White	2,107	13.7	5,174	17.9	9,646	10.6	9,707	6.2	7,504	4.4	10.7
Sp. American	457	9.4	679	18.4	1,156	15.6	1,148	8.0	767	4.0	16.7
Am. Indian	44	11.4	410	24.1	780	14.4	771	6.1	514	5.3	18.5
Oriental	13	7.7	18	22.2	40	22.5	40	15.0	32	0.0	0.0
Other	12	8.3	31	25.8	56	14.3	56	8.9	46	2.2	17.4
Unknown	12	25.0	61	18.0	100	10.0	100	5.0	77	3.9	7.8
Total	4,362	16.1	8,593	19.3	16,672	11.4	16,764	6.4	12,227	4.7	11.8

Table 3

Nutrition Indices by Sex and Age, April-June 1977
Persons Less than 18 Years of Age

Sex and Age Group	Hemoglobin		Hematocrit		Height-For-Age		Weight-For-Age		Weight-For-Height		
	No. Exam.	% Low	No. Exam.	% Low	No. Exam.	% Low	No. Exam.	% Low	No. Exam.	% Low	% High
Male											
<1	608	9.7	1,198	10.0	6,105	14.1	6,138	7.2	4,269	5.9	11.8
1	815	12.9	1,743	11.6	2,353	16.0	2,367	7.5	2,326	5.5	16.6
2-5	1,839	17.5	3,848	22.6	5,363	10.4	5,388	5.7	5,348	3.8	10.2
6-9	499	25.3	887	36.1	1,346	7.0	1,351	5.3	1,296	4.2	7.2
10-12	284	20.1	499	28.5	750	9.5	748	8.2	284	3.9	6.0
13-17	321	17.8	483	18.8	833	11.0	836	9.7	-	-	-
Total	4,366	16.6	8,658	20.2	16,750	12.2	16,828	6.8	13,523	4.8	11.4
Female											
<1	582	8.6	1,166	9.9	6,015	13.1	6,055	6.5	3,932	5.5	12.2
1	804	12.6	1,595	10.2	2,237	14.1	2,249	6.6	2,197	4.3	15.6
2-5	1,714	16.2	3,659	21.9	5,074	10.8	5,092	6.9	5,044	4.2	10.8
6-9	455	24.4	828	33.9	1,217	5.9	1,218	4.6	1,049	4.5	7.4
10-12	278	23.4	457	24.3	723	8.0	725	6.1	5	20.0	40.0
13-17	529	18.7	888	20.8	1,406	8.3	1,425	5.5	-	-	-
Total	4,362	16.1	8,593	19.3	16,672	11.4	16,764	6.4	12,227	4.7	11.8

NUTRITIONAL STATUS SURVEY IN TOGO

Togo is located in West Africa on the Gulf of Guinea between Ghana and the Republic of Benin. It is 93 miles across at its widest point and stretches 360 miles northward from the Gulf of Guinea to the border of Upper Volta. Its population of 2 million, comprised of 18 major ethnic groups, relies chiefly on subsistence farming for its food supply. Cereals in the north and tubers in the south are the main crops. In the fall and spring of 1976-77, the Center for Disease Control (CDC) and the United States Agency for International Development (AID) assisted the Government of Togo in a countrywide assessment of the nutritional status of preschool-age children.

Data were collected to evaluate the magnitude and location of both protein/calorie undernutrition and anemia in the 6-71 month age group. The results will be used by the Government of Togo in assigning nutrition priorities and in targeting remedial programs.

Methodology

The survey methodology¹ was based upon adequate sampling; careful and accurate age, height, weight, and hemoglobin determinations; and rigorous training and standardization of field personnel in regard to measurement techniques. A minimum of 30 sample sites were identified by population proportionate sampling for each of the 5 rural regions and the single urban "region" (Figure 1). The examined children, 30 from each sample site, were randomly selected on arrival at the sample site. Six 2-man teams were thoroughly trained, and during 3 months of field work they visited all but one of the 205 sample sites and collected data on 6,150 preschool-age children. Height and weight measurements were performed on all survey children and the age of each child was determined. Blood was collected on every fifth child by using a micro-pipette collection method, and analyzed with a portable spectrophotometer to determine hemoglobin concentration. The teams also completed anthropometric and age determinations on 450 "special group" preschool-age children from families of higher socio-economic level in Lomé, the capital city of Togo.

Results

Figure 1 shows the boundaries of the five rural regions in Togo. The urban "region" is the sum of the urban centers shown.

Table 1 shows for preschool-age children by region the prevalences of wasting (<80 percent of NCHS/CDC reference median weight-for-height), stunting (<90 percent of NCHS/CDC reference median height-for-age), concurrent wasting and stunting, underweight (<75 percent of NCHS/CDC reference median weight-for-age), and anemia (hemoglobin <10.0 g/100 ml if under 2 years of age and <11.0 g/100 ml if 2 years of age or older).

Table 2 shows the countrywide prevalences by age group for the same categories.

Table 3 compares the preschool-age children in the survey with the "special group" of nutritionally advantaged Lomé preschool-age children and the reference population.

Conclusions

Wasting, an indicator of acute undernutrition, is not a major problem in Togo. The savanna region in the north, however, has a significantly higher prevalence of wasting than the countrywide average. Wasting is most prevalent during the second year of life, which is the weaning period.

Stunting, a sign of chronic undernutrition, has a significant prevalence in all regions, but is also higher in the northern regions. Stunting begins during the first year of life and increases progressively with a leveling off after 3 years of age at a prevalence of about 24 percent.

Children with concurrent wasting and stunting require a priority remedial response. Therefore, 0.7 percent of Togo's 493,000 children 6-71 months of age, or approximately 3,450 children have need for early nutritional intervention.

Low weight-for-age has been the most commonly used anthropometric index of undernutrition in previous nutrition surveys, but this index fails to separate wasting and stunting. A child who is classified as low-for-age could have a low weight-for-age either on the basis of excessive thinness with normal height (wasting) or on the basis of extreme shortness with a normal weight-for-height (stunting). In Togo, where there is relatively little wasting; the prevalence of underweight by the index of weight-for-age, parallels the prevalence of stunting.

Anemia has a high prevalence in preschool-age children throughout Togo, but is highest in the northern regions. Regional differences in anemia prevalence, which parallel regional differences in protein-calorie nutritional status, suggest regional disparities in the dietary intake of iron. There is also a decrease in anemia prevalence with age after age 3.

The rural regions, particularly in the north, present a much more severe picture of undernutrition than the urban "region." The nutritionally-related anthropometric parameters of the Togo special group are in all instances superior to those of the Togo survey children and approach those of the U.S. reference population.

¹Miller, D.C., et al: Simplified field assessment of nutritional status in early childhood: practical suggestions for developing countries. Bull. WHO Vol. 55, 1977.

UPPER VOLTA

FIGURE 1

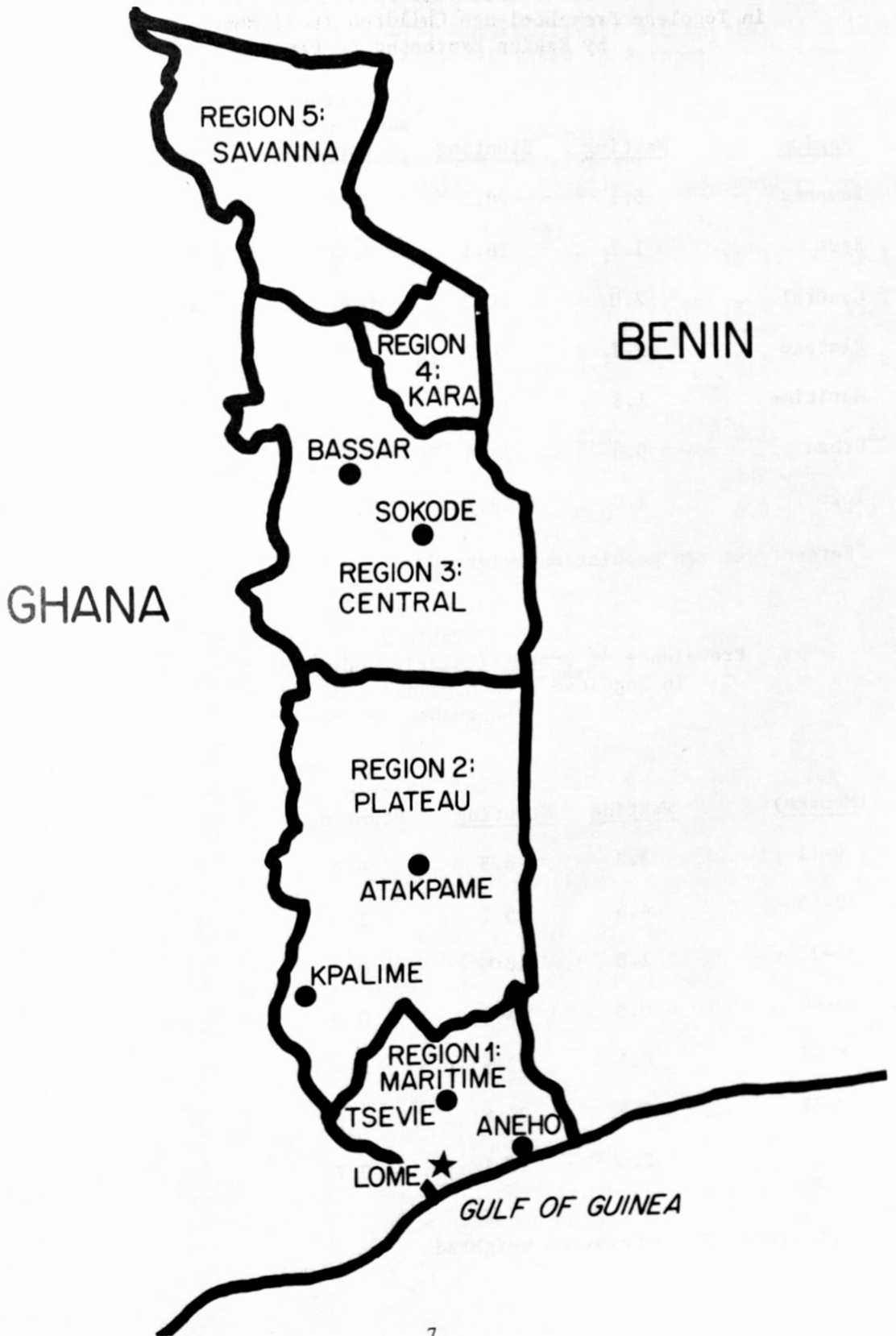


Table 1
Prevalence of Protein/Calorie Undernutrition and Anemia
in Togolese Preschool-age Children (6-71 Months of Age)
by Region Expressed in Percent*

<u>Region</u>	<u>Wasting</u>	<u>Stunting</u>	<u>Concurrent Wasting and Stunting</u>	<u>Underweight</u>	<u>Anemia</u>
Savanna	5.1	28.2	2.6	27.2	68.9
Kara	1.7	26.1	0.4	18.8	65.6
Central	2.0	20.3	0.2	15.5	65.0
Plateau	1.7	16.2	0.3	13.7	50.3
Maritime	1.8	17.8	0.6	13.1	56.0
Urban	0.8	11.4	0.3	8.9	55.7
Togo	2.0	19.1	0.7	15.3	58.6

*Percentages are population weighted.

Table 2
Prevalence of Protein/Calorie Undernutrition and Anemia
in Togolese Preschool-age Children by Age Group
Expressed in Percent*

<u>Age (Months)</u>	<u>Wasting</u>	<u>Stunting</u>	<u>Concurrent Wasting and Stunting</u>	<u>Underweight</u>	<u>Anemia</u>
6-11	3.2	6.5	0.4	15.2	61.2
12-23	4.5	15.1	1.8	19.4	49.3
24-35	1.8	18.6	0.6	15.1	70.7
36-47	0.8	24.4	0.4	12.5	65.7
48-59	0.5	23.9	0.1	13.7	53.4
60-71	0.7	24.8	0.1	14.6	49.2
Togo	2.0	19.1	0.7	15.3	58.6

*Percentages are population weighted.

Table 3
Prevalence of Protein/Calorie Undernutrition and Anemia
in Togo Population Groups Expressed in Percent*

<u>Population Group</u>	<u>Normal</u>	<u>Wasting Only</u>	<u>Stunting Only</u>	<u>Concurrent Wasting and Stunting</u>	<u>Underweight</u>	<u>Anemia</u>
Rural Togo	78.1	1.5	19.7	0.7	16.5	59.1
Urban Togo	88.1	0.5	11.1	0.3	8.9	55.7
Total Togo	79.6	1.3	18.4	0.7	15.3	58.6
Lomé Special Group	98.3	0.4	1.3	0.0	2.7	N.A.
NCHS/CDC Reference Population	98.7	0.8	0.5	0.0	0.8	N.A.

N.A. - Not available

*Percentages are population weighted. Lomé excluded.