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CHILDHOOD MALNUTRITION IN THE CARIBBEAN[1]

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Between one-quarter and one-half of the children under 5 in the average English-speaking Caribbean community are malnourished. This article reviews what may be done in the future through national policies and what nutrition workers must do now to deal with this situation.

The Prevalence of Malnutrition in the Caribbean

The Inter-American Investigation of Mortality in Childhood showed that low birth-weight (2.5 kg or less) or malnutrition was either an underlying or associated cause of death in approximately 57 per cent of the deaths among children under 5 years of age in Latin America and the Caribbean *(1)*. In such cases, death is the final outcome in a chain of events that often begins in the mother's womb. Low birth-weight has been correlated with the mother's age, parity, and nutritional status *(2);* and the child's birth-weight affects not only its chances for survival during the first 12 months of life, but also its prospects for future physical and mental development *(2, 3)*.

Table 1 shows the prevalence of low birth-weight deliveries in the Caribbean, and also the percentages of children born with a "most favorable" birth-weight (3.5-4.0 kg) giving them a relatively high chance for survival and optimal development *(2)*. That birth-weight has considerable implications for the nutritional status of preschool children has been shown by investigations carried out in the Caribbean *(4)* and elsewhere *(5, 6)*. These studies have demonstrated that weight, as well as other anthropometric parameters in children up to the age of five years, is closely correlated with birth-weight.

After birth, however, during the first few months of life, children in the Caribbean grow at an average rate similar to that of children in highly developed countries. In fact, as the example of Saint Kitts-Nevis demonstrates (see Figures 1 and 2), the weight-for-age curve of children under six months old can be superimposed over the "Boston" or "Harvard" reference values *(7)*. It is only after the age of about six months that Caribbean children begin to put on weight at a slower average rate, and from then on the prevalence of malnutrition rises.

Table 2 shows the estimated prevalence of undernutrition, in terms of weight-for-age, among the combined young child population of eight Caribbean areas. Table 3 analyzes the magnitude of the problem in more detail, judging undernutrition in terms of weight-for-age and using the Gómez classification of nutritional status *(8)*.

The purpose of Table 3 is to present an overview of the problem. It should not be used to make comparisons between different areas, because the data presented are not strictly comparable. That is, the data from Barbados, Dominica, Guyana, Jamaica, Saint Lucia, and Trinidad and Tobago are based on nationwide surveys of representative samples of young children, while the data from the other areas were obtained from child health centers.

In the past, when it has been possible to compare such clinic and survey data, the comparison has confirmed what we knew from

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Table 1. Low-weight (less than 2.5 kg) and optimal-weight (3.5-4.0 kg) births recorded in different parts of the Caribbean.

	Low-weight births		Optimal-weight births	
	No.	% of all births recorded	No.	% of all births recorded
Antigua	46	13.2	66	19.0
Barbados	565	19.0	–	–
Cayman Islands	52	7.9	185	28.0
Dominica	32	10.1	51	16.0
Grenada	106	12.2	138	15.8
Montserrat	27	17.9	27	17.9
Saint Kitts-Nevis	120	13.4	111	12.4
Anguilla	16	10.2	31	20.0
Saint Lucia	41	9.3	92	20.8
Saint Vincent	37	10.4	49	13.7

Source: M. Gueri *(17).*

Table 2. Nutritional status, in terms of weight-for-age, of children up to 5 years of age in eight Caribbean areas,[a] by age group (17).

Age group (in months)	90% of standard[b] or more		Under 90% of standard[b]		Total	
	No.	%	No.	%	No.	%
0-11	2,572	76.0	814	24.0	3,386	100
12-23	1,011	54.4	847	45.6	1,858	100
24-59	1,441	49.6	1,465	50.4	2,906	100
Total	5,024	61.6	3,126	38.4	8,150	100

[a]Antigua, Dominica, Grenada, Montserrat, Saint Kitts-Nevis, Saint Lucia, Saint Vincent, and Trinidad and Tobago.

[b]Harvard reference values.

Figure 1. Weight-for-age-chart comparing values obtained for boys in St. Kitts-Nevis-Anguilla (1977) with Harvard reference values.

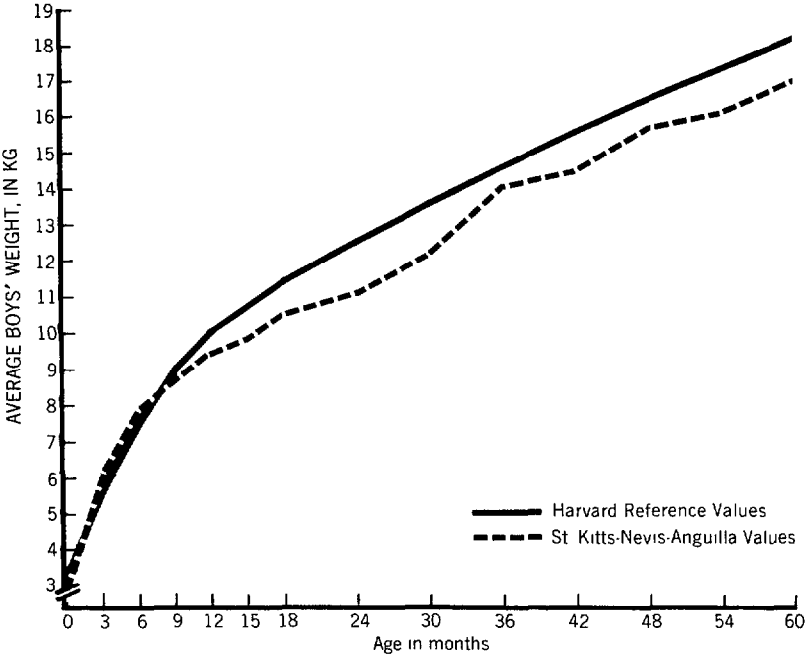

Figure 2. Weight-for-age chart comparing values obtained for girls in St. Kitts-Nevis-Anguilla (1977) with Harvard reference values.

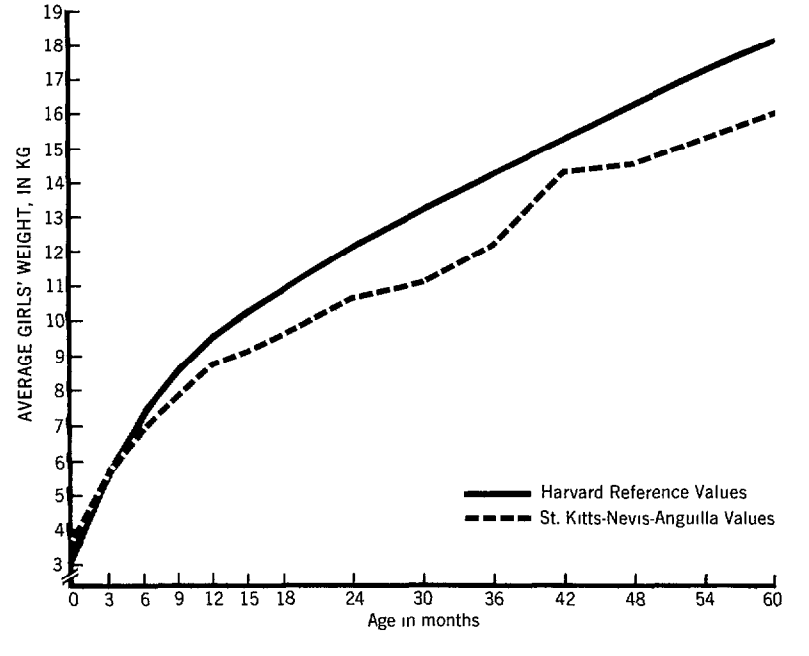

Table 3. Nutritional status of children under 5 years of age in different parts of the Caribbean, as determined by the Gómez weight-for-age classification.

	Normal children		Children with mild malnutrition (grade I)		Children with moderate malnutrition (grade II)		Children with severe malnutrition (grade III)		Total
	No.	%	No.	%	No.	%	No.	%	
Antigua	303	56.9	189	35.5	36	6.8	4	0.8	532
Barbados	2,208	60.5	1,317	36.1	115	3.1	10	0.3	3,650
Cayman Islands	450	83.8	76	14.1	11	2.0	–	–	537
Dominica	196	49.4	153	38.5	41	10.3	7	1.8	397
Grenada	664	60.3	321	29.1	99	9.0	18	1.6	1,102
Guyana	379	39.3	415	43.0	154	16.0	16	1.7	964
Jamaica	246	50.2	191	39.0	46	9.4	7	1.4	490
Montserrat	999	77.7	255	19.8	28	2.3	3	0.2	1,285
Saint Kitts	394	59.3	222	33.4	46	6.9	2	0.3	664
Nevis	155	64.0	72	29.8	14	5.9	1	0.4	242
Anguilla	410	72.4	131	23.1	25	4.4	–	–	566
Saint Lucia	210	56.5	122	32.8	33	8.9	7	1.9	372
Saint Vincent	1,591	69.5	519	22.7	143	6.2	37	1.6	2,290
Trinidad and Tobago	804	50.7	583	36.8	176	11.1	22	1.4	1,585

Source: M. Gueri *(17)*.

Table 4. Comparison[a] of the nutritional status of children attending clinics and children in the general population of Saint Lucia, 1974. The children in both groups were 0-5 years of age. Nutritional status was determined in accord with the Gómez weight-for-age classification.

Gómez classification	Children attending clinics		Children in a representative population sample	
	No.	%	No.	%
Normal	3,735	70.7	210	56.6
Malnutrition I	1,238	23.4	122	32.8
Malnutrition II	272	5.1	33	9.8
Malnutrition III	41	0.8	7	1.9
Total	5,285	100.1	372	100.1

[a] $p < 0.0005$.

experience—that the highest prevalence of malnutrition is found among children who do not attend clinics. (By way of illustration, Table 4 presents the results of one such comparison on Saint Lucia.) In addition, clinic attendance varies considerably between islands, between different geographic regions on the same island, and between different age groups.

Keeping these limitations in mind, we can estimate that between 25 and 50 per cent of the children in different areas of the English-speaking Caribbean show a weight-for-age deficit and can thus be classified as "malnourished" according to this parameter. On the average, about 10 per cent of the children under 5 years of age suffer from severe or moderate malnutrition. This means there are approximately 75,000 children in the English-speaking Caribbean who, unless they receive adequate attention, may not be able to achieve their full growth potential; many of them will not reach their fifth birthday.

The Causes of Malnutrition

Childhood malnutrition has many causes. Food availability in the home is, of course, an important factor; but it is not the only factor, and probably (at least in the English-speaking Caribbean) not the most important one. The national food and nutrition surveys of Barbados *(9)* and Saint Lucia *(10)* showed maldistribution of food within the household in a considerable number of cases. Many of the children who failed to take in their recommended daily allowances of energy and protein belonged to households where the family, as a unit, met its requirements. In other words, enough food was available in the home, but for some reason the young child did not eat all that he or she needed.

The opposite was true in other households. That is, there were households where food was scarce or inadequate for the family as a whole, but where the child got enough to eat. Giving the young child this type of preferred treatment may not be possible in homes where the amount of food available is too inadequate, and stark conditions of this kind can indeed prevail in homes of severely malnourished children. Nevertheless, we feel that in a great majority of cases the problem results from lack of knowledge about child feeding; from an unsanitary physical environment conducive to infectious diseases (particularly gastroenteritis) that increase the child's energy requirements while decreasing its appetite; from early replacement of breast-feeding with highly diluted and contaminated milk formulas; in some cases from sheer neglect; and in most cases from the fact that the child was born with a less than optimal birth-weight.

The Cost of Malnutrition

The cost of malnutrition in the English-speaking Caribbean is considerable. Apart from the deaths and suboptimal development involved, Cook *(11)* estimated in 1968 that in-hospital treatment of malnutrition cases absorbed somewhere between 1 and 6 per cent of the annual health budgets of seven Caribbean territories. The total cost in those territories was then estimated at US$865,500. Today, 13 years later, it would probably be conservative to assume a cost of at least US $2,000,000.

In 1973 Alderman et al. *(12)* estimated that inpatient treatment of malnutrition at a rural Jamaican hospital cost about US$357 per child per month. Considering that the length of time a malnourished child remains in the hospital varies from about 18 days to 5 months, the cost of treating a child in the hospital would be between US$214 and US $1,785 or (disregarding treatment by specialized units) an average of US$460 per case.

Taking this somewhat outdated figure, to hospitalize just the severely malnourished children in the English-speaking Caribbean would require an expenditure of US$5,175,000. The children would occupy 111 per cent of all the general and pediatric beds in the Caribbean

Area—or 57 per cent of all existing hospital beds if those in leprosaria, maternity units, psychiatric hospitals, and tuberculosis wards were included *(13)*.

Moreover, mere supplementary food for both moderately and severely malnourished children would cost an estimated US$35,250 per day *(14)*. Assuming that it would take about 4 months for those children to reach 75 per cent of standard weight-for-age, the total cost of food supplementation would be US $4,130,000.

Some Questionable Solutions

It must be recognized, of course, that the foregoing measures (hospitalization and supplementary feeding) are only short-term palliatives. While they would help children who are malnourished at present, they would not prevent other children from becoming malnourished, nor would they reduce the incidence of low birth-weight. On the other hand, increasing the availability of food in the home, either by increasing food production or by increasing the family's purchasing power, may not be immediately feasible. However, the amount of food that a young child requires to meet its daily recommended allowances of nutrients is very small compared to the family's total needs. For instance, consider an average family of five composed of two adults, one adolescent, a child between 5 and 10 years old, and a "target" child between 2 and 3 years old. The family's total recommended daily energy requirement would be approximately 11,500 kcal; but the requirement of the "target" child represents only about 11 per cent of that figure. Hence, if all the other family members reduced their intakes by about 25 kcal per day (a reduction of about 1 per cent of their recommended intakes) and gave that amount to the target child, the child would receive an additional 100 kcal amounting to 9 per cent of its daily requirement—enough in many cases to spell the difference between an adequate diet and malnutrition.

Because many factors are known to be involved in malnutrition, and because previous nutrition intervention programs have failed to achieve measurable success, a multisectoral approach has been attempted through food and nutrition policies. In this vein, a food and nutrition policy has been defined as "a coherent set of principles, objectives, priorities, and decisions adopted by the Government and applied by its institutions as an integral part of the national development plan in order to provide to all the population, within a specified time, the food and other social, cultural, and economic conditions essential to satisfactory nutrition and dietary well-being" *(15)*. Considerable time and effort have been applied to formulating food and nutrition policies in some countries.

While public health workers, nutritionists, and health educators should support these food and nutrition policies, we must be extremely careful not to "pass the buck" to planners and politicians. We must not become complacent in the belief that it is "up to them" to solve the problem. Nor should we forget that policy-making and planning often become ends in themselves, that governments change and policies change, that something as arbitrary as an overnight 1 per cent increase in the price of petroleum can upset carefully laid national plans, and that national development targets are sometimes unrealistic. We should also recall the experience of the "green revolution" and the assorted "miracle beans" that were going to end world hunger, but that in fact failed to have any beneficial impact on malnutrition. For the fact remains that while we wait for those policies to produce palpable effects, most health workers are dealing every day with community residents to whom they have to "sell" good nutrition using the means available right now.

The Nutritionist's Role

The nutritionist must work at two levels, one of which should be the highest level within his or her sphere of activity. In most Carib-

bean countries and territories this latter is the ministry level. There the nutritionist should try to influence those in a position to make decisions and those in a position to teach others. We have enough strategies and guidelines in the Caribbean right now to wipe out childhood malnutrition in less than a decade, if we could just implement those strategies. Therefore, to my mind, the role of the nutritionist is to teach, lobby, and cajole others so that strategies and guidelines be implemented—particularly the almost all-embracing Strategy and Plan of Action to Combat Gastroenteritis and Malnutrition in Children under Two Years of Age *(16)*.

But the nutritionist must also work at another level and must maintain a "feel for the community." Very often nutritionists work in isolation, either at offices in the Ministry of Health or at a hospital. For this reason all nutrition workers, regardless of position, should go into the community and act hand in hand with the field staff to identify who in a particular community will be best able to transmit the very basic nutrition messages that can maximize children's chances to survive. The nutritionist should then work with this person, visit homes, work with the mothers, show them what to do and how best to do it, and show the field workers how to identify other people who can in time transmit the messages directed at encouraging breast-feeding, reducing gastroenteritis, preventing dehydration, and promoting the best use of available foods.

SUMMARY

Between 25 and 50 per cent of the children under 5 years of age in the various parts of the English-speaking Caribbean are underweight for their age. In a great majority of cases, such undernutrition begins with inadequate maternal food intake during pregnancy, resulting in a newborn with less than optimal birth-weight. Breast milk is often replaced early with highly diluted and contaminated milk formulas. Other contributing factors include inadequate parental knowledge of child nutrition, an unsanitary home environment, repeated episodes of gastroenteritis, and maldistribution of food within the home.

The Caribbean territories are highly dependent on imported foods. Partly for this reason, the final solution to the malnutrition problem will undoubtedly depend upon implementation of food and nutrition plans and, indeed, of national development plans. In the meantime, however, the nutrition worker must continue to work with the community, mainly by educating others about the very basic principles of how to promote breast-feeding, encourage better utilization of available foods, and prevent gastroenteritis and dehydration.

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MESSAGE FROM THE PRESIDENT OF THE UNITED STATES OF AMERICA, MR. RONALD REAGAN, ON THE OCCASION OF WORLD HEALTH DAY 1981

The theme for World Health Day 1981 is "Health for All by the Year 2000," and it serves to remind us that many in the world today do not enjoy the benefits of modern medical science.

The World Health Organization has made noticeable progress in advancing its efforts to promote the "Health for All" concept, stressing a level of health for all citizens of the world that will permit them to lead socially and economically productive lives.

But the burden of good health does not rest on health professionals alone. The goal of the World Health Organization is one each of us can work to achieve. On an individual basis, we need to improve our health by being careful about the foods we eat, participating in physical fitness programs, and avoiding habits and practices which contribute to disease and shorten our lifespan. The importance of responsible action by every individual for his or her own health cannot be overemphasized.

On this World Health Day, the United States joins with the other members of the World Health Organization in support of its goal.