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**LET THE MILK OF HUMAN
KINDNESS FLOW THAT OUR
CHILDREN MAY LIVE!**



BY

ADENIKE O. GRANGE



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LET THE MILK OF HUMAN KINDNESS FLOW THAT OUR CHILDREN MAY LIVE

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by

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INTRODUCTION

“We shall have to repent in this generation, not so much for the evil deeds of the wicked people, but for the appalling silence of the good people.”

- Martin Luther King Jr

Children represent the country's future and they must therefore be nurtured in an environment that will enable them to develop and enhance their potential for meeting the challenges of the future. The first five years of life are the most crucial to the physical and intellectual development of children. The presence of any disease, deficiency or trauma during this period can irreversibly undermine their potential to live, thrive or learn. This age specific vulnerability is due to a variety of factors among which is the immaturity of the body's defence mechanisms in the face of early exposure to pathogens.

It is a tragic fact that more than 10 million children under five years of age still die annually¹, most of who are from poor families in the developing world. About 41% of child deaths occur in sub-Saharan Africa and 34% in Asia. Half of worldwide deaths in children less than five years of age occur in six countries, with Nigeria second to India in contributing the largest number of deaths.¹

Figure 1 shows the differences in under-five mortality in different regions of the world. In 1990, there were 181 deaths per 1000 live births in sub-Saharan Africa –a twenty fold difference when compared with only 9 per 1000 in industrialised countries. In year 2000, although there was a modest decrease in mortality rate in sub-Saharan Africa, the gap between sub-Saharan Africa and industrialised countries had increased to twenty-nine fold with mortality rates of 175 and 6 per 1000 respectively.²

Currently, the infant mortality rate (IMR) and the under-five mortality rate (U5MR) in Nigeria are 71 and 140 per 1000 live births respectively.³ Evidence that, over the past four decades,

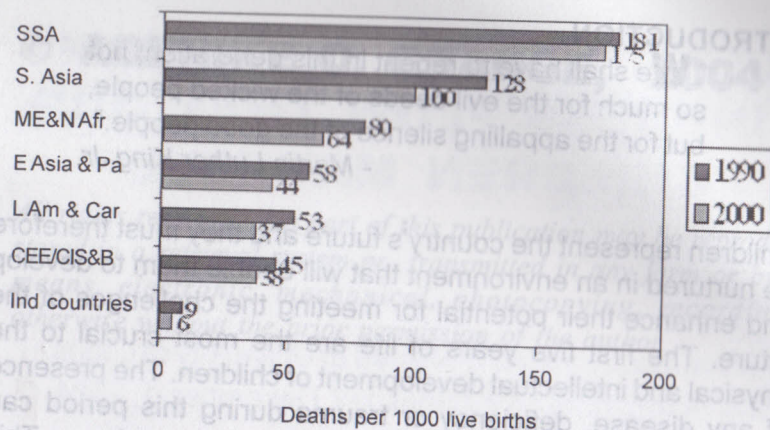


Fig. 1: Under-five Mortality Rate, Change Over Period 1990-2000

Source: WHO, 2000

infant and under-five mortality rates in Nigeria have deteriorated, is illustrated by the fact that the reduction in under-five mortality rate at 10% is considerably lower than 34% and 41% which are recorded as average for Sub-Saharan Africa and the least developed countries respectively.⁴

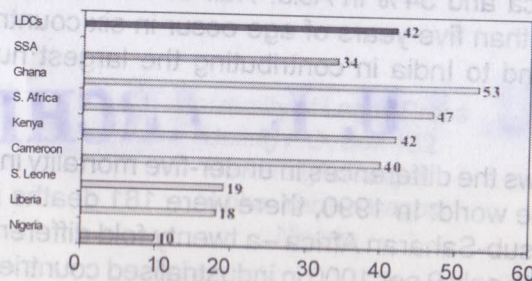


Fig 2: Comparative Performance in Reducing U5MR, 1960-99

Source: The State of the World's Children UNICEF 2000

Fig. 2 Neonatal mortality rate which estimates the probability of dying within the first month of life is estimated to be 35 per 1000 live births by the 1999 NDHS. Thus, deaths in the newborn period contribute almost a half to all infant deaths. Maternal mortality rate (MMR) is 704 per 100,000 live births. The North East is the

zone with the highest MMR at 1,549 per 100,000 live births. This is almost ten times higher than in the South West at 165 per 100,000 live births. Both neonatal and maternal deaths reflect the quality of maternal health, antenatal care, and management of labour, delivery and care in the immediate postpartum period.

Risk factors for high child mortality include unhygienic and unsafe environment, lack of safe water, inadequate access to sanitation, poor child spacing and other health-related behaviours. Lack of access to sanitation is said to be responsible for 1.5 million child deaths and around 88% of deaths from diarrhoea.

There is considerable evidence that malnutrition is a major contributory factor in more than half of the deaths among young children. The synergistic relationship between low weight-for-age and common childhood diseases has been well documented. Figure 3 below shows the proportions of the common childhood illnesses that are associated with under nutrition defined as one or more standard deviation below the weight-for-age of international reference standard.^{5,6}

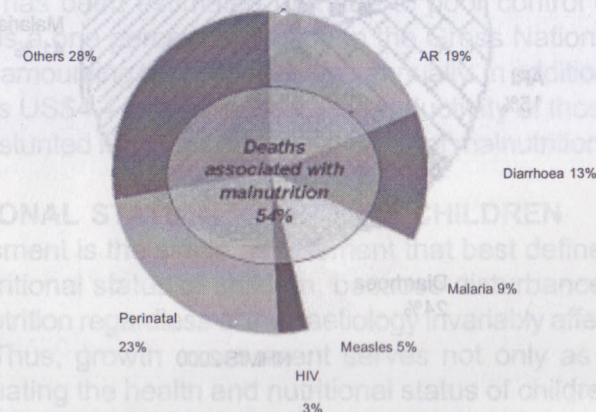


Fig. 3: Major Causes of Death Among Children Under Five, Worldwide, 2000

Source: Case-Specific Mortality EIP/WHO

For Malnutrition Pelletier DL; et al. AMJ Public Health 1993; 83: 1130-3.

For children under five years, the mortality and morbidity data collated by the health authorities at the LGA level through the National Health Management Information System indicate that in Nigeria (Figs.4 and 5), malaria is the leading cause of morbidity and mortality at 30% and 41% respectively. Although vaccine preventable diseases (VPD) and diarrhoea are responsible for 15% and 24% of cases respectively, the relative contributions made by these two conditions to mortality are almost equal at 22% and 19% respectively. Acute respiratory infections (ARI) contribute 16% and 15% to morbidity and mortality rates respectively.⁷ Protein-energy malnutrition and deficiencies in micronutrients such as iron, Vitamin A and iodine contribute to the high rates of mortality, morbidity and disability.

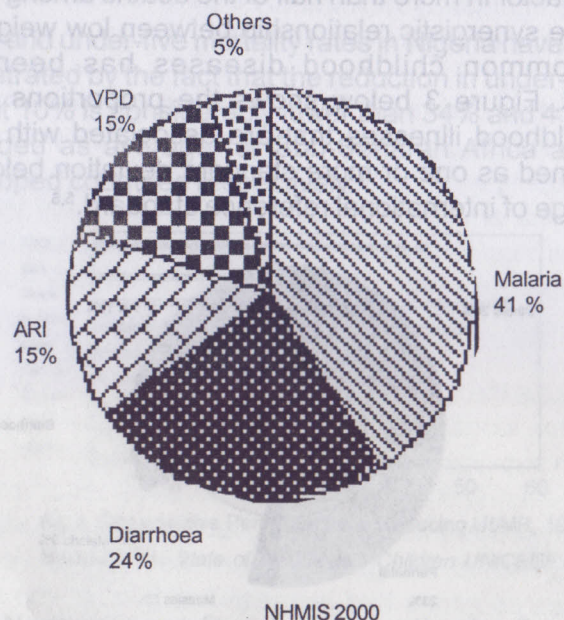


Fig. 4a: Percentage Breakdown of Under-Five-Morbidity by Reported Causes

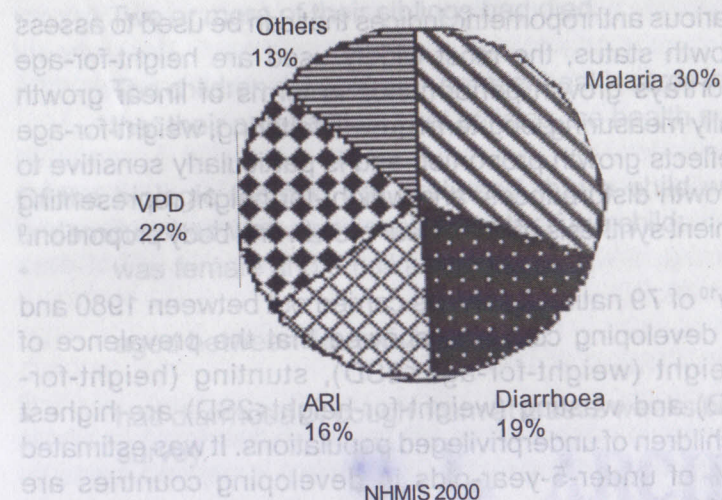


Fig. 4b: Percentage Breakdown of Under-Five-Mortality by Reported Causes

The burden of childhood illnesses on families, communities and the nation is a heavy one and has economic, social and emotional dimensions. It has been estimated that due to poor control of malaria, there is a one percent reduction in the Gross National Product (GNP) amounting to US\$348 million annually. In addition, the nation loses US\$4.4 billion from loss of productivity of those adults who are stunted from childhood as a result of malnutrition.⁸

THE NUTRITIONAL STATUS OF UNDER-5 CHILDREN

Growth assessment is the single assessment that best defines health and nutritional status of children, because disturbances in health and nutrition regardless of their aetiology invariably affect child growth. Thus, growth assessment serves not only as a means of evaluating the health and nutritional status of children but it also provides an indirect measurement of the quality of life of entire populations.

Of the various anthropometric indices that can be used to assess child growth status, the most widely used are height-for-age which portrays growth performance in terms of linear growth essentially measuring long-term growth faltering; weight-for-age which reflects growth proportion and is particularly sensitive to acute growth disturbances; and weight-for-height representing a convenient synthesis of both linear growth and body proportion.⁹

A review¹⁰ of 79 national surveys carried out between 1980 and 1992 in developing countries showed that the prevalence of underweight (weight-for-age < 2SD), stunting (height-for-age < 2SD) and wasting (weight-for-height < 2SD) are highest among children of underprivileged populations. It was estimated that 43% of under-5-year-olds in developing countries are stunted.¹⁰

The 1990 Demographic and Health Survey (1990)¹¹ presented an overall stunting prevalence of 43%, underweight prevalence of 36% whilst 10% had wasting. A further analysis¹² of the data by Atinmo, Grange, Onyezili et al. showed that under-nutrition was worse in the rural than in the urban area. Other non-biological factors that made the children significantly more likely to be undernourished were if:

- Their parents (especially their mothers) had not attended school or they dropped out before completion of mid-secondary class.
- Their mothers were adolescents.
- The socio-economic status of the parents was low as assessed by the type of flooring material, presence of piped drinking water, flush toilet and independent means of transportation.
- The number of siblings at home were many.

- Two or more of their siblings had died.
- The children did not have primary health cards indicating that their parents were not utilising the health system.

Of the biologic factors, the likelihood that a child would be undernourished was significantly greater if the child:

- was female and small at birth.
- aged between 18 and 24 months.
- had diarrhoea or cough from at least 2 weeks before the survey.

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The trend of under-nutrition prevalence among children under 5 years of age can be captured from the NDHS surveys of 1990 and 1999 and the UNICEF study of 1993. (fig. 5)

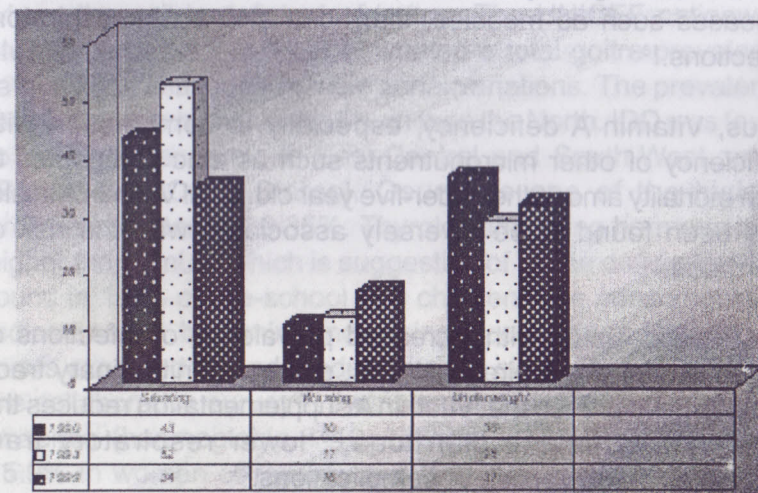


Fig. 5: Undernutrition in Under-5 Children, 1990-99
(% of Total, Moderate and Severe)

Sources: NDHS 1990, FGN/UNICEF 1994, MICS 1999

Several studies have shown that stunting is associated with poor developmental attainment in these children.¹³ Poor school performance has also been documented in older children.^{14,15}

There is evidence that growth retardation in early life is associated with significant functional impairment in adult life.¹⁶ It has also been shown that stunted children frequently experience social disadvantages which may in turn detrimentally affect their development.¹⁷

MICRONUTRIENTS' DEFICIENCY

The importance of micronutrients such as Vitamin A, iron and zinc to the maintenance of health and cognitive development is currently gaining wider recognition. Vitamin A is required to ensure proper vision, maintenance of epithelial cellular integrity, immune function and reproduction. At least 100 million children under five suffer from vitamin A deficiency (VAD), which can cause blindness and greatly increase the risk that a child may die from diseases such as measles, diarrhoea and acute respiratory infections.¹⁸

Thus, Vitamin A deficiency, especially in combination with deficiency of other micronutrients such as zinc contributes to high mortality among the under-five year old. Total Vitamin A intake has been found to be inversely associated with the risk of diarrhoea.¹⁹

VAD is associated with increased prevalence of infections of upper and lower respiratory tracts, gut and genitourinary tract. Studies have proven that Vitamin A supplementation reduces the incidence of severe diarrhoea,²⁰ lower respiratory tract infections.²⁰ and measles complications.²¹

The World Health Organisation (WHO) has classified Nigeria among the 34 countries in the world with serious problems of and xerophthalmia nutritional blindness. The national prevalence of VAD in 1993 was 9.2% in children and 7.2% in mothers with

rates of 16% in the North West and 12% among children under-six years old respectively.²² In another multi-centered National Micronutrient Survey in which we participated, with funding from the Agency for International Development (USAID), the prevalence of Vitamin A deficiency as defined by serum retinol level below 0.7 micro mol/L was 28.1%.²³ This level of deficiency represents a severe public health problem in Nigeria.²⁴ Night blindness was reported in 1% of children aged 24-71 months which is the threshold of the WHO cut-off for defining vitamin A deficiency as a public health problem. Zonal prevalence of night blindness in children was 0% in the South East, 0.7% in the South West, 0.7% for the North West and 1.5% for the North East. From this study, an estimated 10 million children were found to be at risk of vitamin A deficiency and up to 200,000 children had clinical signs of vitamin A deficiency.

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The presence of goitre is the manifestation of IDD. An estimated 25-35 million Nigerians are at risk of IDD especially in areas where the soil is deficient of iodine. The UNICEF nationwide study²² carried out in 1993 estimated a total goitre prevalence rate of 20%, with considerable zonal variations. The prevalence rate was much higher in the South than the North. IDD was found to be highly endemic in East-Central and South-West zones [Benue and Osun States]. Osun has one of the highest prevalence rates at 26-35%. Thyroid stimulating hormone level higher than 5mU/l, which is suggestive of iodine deficiency, was found in 1.5% of pre-school age children. The consumption of iodised salt is becoming increasingly common in Nigeria and this is expected to lead gradually to the elimination of IDD.²² In the collaborative survey²³, the national prevalence of moderate anaemia (haemoglobin < 10g/dl) was 53.6% in children and 15.9% in women of reproductive age. As many as 11 million children, and 6 million women of child-bearing age were found to be at risk of iron deficiency anaemia. Anaemia was most prevalent in the South West zone. Using WHO cut-off points, the national prevalence of iron-deficiency anaemia among children was 9.6%, 6.1% for the South East, 5.7% for the South West, 12.8% for

North West and 14.7% for the North East. Low serum ferritin, an indicator of iron deficiency was found in 11.3% of children and 9.5% of mothers. However, low serum ferritin alone has been found to be an unreliable indicator of iron deficiency.^{25,26}

THE CYCLE OF DIARRHOEA AND MALNUTRITION

Diarrhoeal diseases are one of the major public health problems in the developing world. They are a leading cause of dehydration and death in small children and constitute an important-contributing factor to malnutrition.^{27,28}

A considerable part of our research revolved around the issues of diarrhoeal management in order to prevent dehydration and malnutrition. Diarrhoea is defined as the passage of faeces of increased fluidity. It is a symptom of abnormal function of the gastrointestinal tract most commonly due to acute infection by pathogenic organisms such as viruses, bacteria and parasites. Diarrhoea manifests clinically in three different forms namely, acute watery diarrhoea, dysentery and persistent diarrhoea. Acute watery diarrhoea is the most common form of diarrhoea encountered among young children accounting for 65% of cases. Viruses, especially the rota virus, are the commonest organisms implicated. Dysentery is diarrhoea with blood in the stool. This is most frequently caused by the shigella organisms. It accounts for about 5-8% of diarrhoeal episodes in young children under the age of two years.

Persistent diarrhoea is defined as diarrhoea lasting more than fourteen days. It is usually a sequel to acute watery diarrhoea. Both persistent diarrhoea and dysentery are often associated with malnutrition and serious systemic illness. The most deleterious effect of acute watery diarrhoea is the rapid and excessive loss of body fluids leading to dehydration often with disastrous consequences particularly in the very young. In view of these potentially fatal outcomes, the mainstay of management of diarrhoea is effective rehydration and appropriate feeding in order to avert death from severe dehydration or from severe

malnutrition. The long-term reduction in incidence and severity of diarrhoea will continue to depend on comprehensive programmes involving efforts to improve nutritional status, water supplies, personal hygiene and environmental sanitation. However, an immediate impact on mortality due to dehydration can be achieved by treatment based on early administration of oral glucose electrolyte solution. The cornerstone of this therapeutic plan is the use of an inexpensive, easily administered, and universally available oral rehydration solution.

The use of oral rehydration solutions to provide water and electrolytes for persons with diarrhoea has long been advocated. Darrow²⁹ and Harrison³⁰ reported the successful use of oral rehydration to provide maintenance fluid and electrolyte therapy in dehydrated children and infants. A salt and glucose oral rehydration solution was successfully used to treat persons with mild cholera in India in 1953.³¹ In the late 1950s and early 1960s, studies demonstrated the glucose-enhanced uptake of sodium and water in the small intestine. In 1964, Philips^{32a} showed that persons with cholera could absorb oral glucose-electrolyte solutions, and in 1968 the first comprehensive metabolic balance studies were done, clearly demonstrating that oral infusions could maintain fluid and electrolyte balance in persons with cholera. Over the next decade a large number of hospital, treatment centres, and field-based clinical trials, in all age groups, showed that oral rehydration solutions could be used to effectively treat mild and moderate dehydration resulting from both cholera and non-cholera diarrhoea. These were carried out in many countries under widely varying conditions.

The efficacy of ORT is based on two scientific facts:

1. The absorptive mechanism of the gut is maintained during diarrhoea even in the face of considerable intestinal inflammation such as that produced by intestinal viral pathogens.
2. Sodium absorption is enhanced by coupling with organic molecules such as D-hexoses for example glucose,

neutral amino acids and dipeptides. In the presence of these organic molecules, there is increased uptake of sodium and chloride by active transport. Water follows passively.

Severely dehydrated persons (10% or greater weight loss) may require initial intravenous (IV) rehydration, but the subsequent use of oral therapy to complete rehydration and to supply maintenance fluids and electrolytes has led to an overall 80% reduction in the need for IV fluids. An implicit advantage is the virtual elimination of complications (e.g., septicaemia) associated with prolonged IV therapy. Persons with severe, protracted vomiting, other medical complications, rarely seen in glucose (or sucrose) intolerance, and those whose oral intake cannot match losses also require IV therapy.

Oral rehydration programmes mostly use a single solution containing the WHO-recommended composition (ORS) to treat all age groups with all types of diarrhoea. The electrolyte composition of the solution was initially developed to approximate the concentration of electrolyte losses in stools of persons with cholera. The concentration of glucose, the most expensive ingredient in the solution, represents the minimum amount needed to provide optimal sodium and water uptake.

The recommended sodium concentration (90mmols/l) has been amply shown to be highly effective and safe for deficit replacement and maintenance needs of individuals with either cholera or non-cholera diarrhoea; the need for additional water during maintenance of small infants is easily and safely met by providing breast milk.

There are obvious administrative and operational advantages to using a single oral solution, and the optimal concentration of each of the ingredients has been carefully determined. The standard WHO oral rehydration solution contains in grams per litre, sodium chloride 3.5, trisodium citrate dehydrate 2.9, potassium chloride

1.5 and glucose 20 (Table 1). Its composition in mmols per litre of water is shown in Table II.

Table 1:
WHO-Recommended Formulation of ORS

Ingredients	gram/litre of water
Sodium chloride	3.5
Trisodium citrate dihydrate	2.9
Potassium chloride	1.5
Glucose	20.0

Sucrose, which in many countries is less expensive and is more easily obtained than glucose, has proved a possible substitute for glucose. However, if sucrose is substituted, twice the amount of glucose is needed as sucrose i.e 40g of sucrose vs 20g of glucose.

Table II:

Composition	mmol/liter of water
Sodium	90
Potassium	20
Chloride	80
Bicarbonate	30
Glucose	111

A large number of hospital and treatment centre trials have demonstrated that oral rehydration therapy (ORT) reduces the clinical severity and mortality caused by diarrhoea. The early reports from field studies are similarly encouraging. These studies have convincingly shown that dependence on expensive IV therapy to treat dehydration can be greatly diminished. When combined with educational efforts stressing the need to continue feeding (especially breastfeeding in infants) during and after diarrhoeal episode, ORT is expected to have a favourable impact

on malnutrition by reducing the severity and duration of dehydration and acidosis associated with diarrhoea and by improving appetite and food intake. However, because of the complex interactions of social, economic, health, and environmental factors related to malnutrition, this impact has been difficult to quantify.

In spite of the proclaimed efficacy of the glucose-containing ORS to improve and maintain a satisfactory hydration status, its failure to reduce purging rates was considered a disadvantage by many users. Therefore, the search for other substances that will increase the ability of the ORS to reduce stool output became of considerable practical importance.^{32b} Thus, investigators began to focus on the feasibility of using a more stable base, citrate, in place of bicarbonate and substituting other carbohydrates for glucose or sucrose.

In the Department of Paediatrics at the College of Medicine, UNILAG, we conducted two clinical trials substituting for glucose other substrates such as glycine,³³ and malto-dextrin/glycine³⁴. The conclusion was that glycine was not an effective substrate, whereas, the efficacy of malto-dextrin/glycine was comparable to that of the WHO-recommended ORS. The scientific basis for substituting complex carbohydrates for monosaccharides is the fact that the intraluminal digestion of complex carbohydrates results in the slow release of monosaccharides which enhance the absorption of sodium without imposing any additional osmotic load.

Pre-packaged preparation of ORS distributed through ORT units and primary health care workers have proven effective, but as knowledge and acceptance of oral rehydration grew, home-prepared solutions using locally available household sugar and salt became more practical and inexpensive. While numerous recent studies have shown that such "simple salt/sugar (SSS)" solutions are efficacious³⁵ they have also determined that correct home measurement and administration of SSS solutions depend

on careful calibration of local measures, repeated face-to-face instruction³⁶ and some form of supervision at the point of first contact. For the national ORT programme we established home measures using level teaspoons for the salt and sugar and sorft drinks bottle for the water³⁶. Therefore, in search of suitable, inexpensive and safe substrate for home fluids, we carried out a controlled clinical trial of cassava-salt (*gari*-salt) suspension (CSS)³⁷ with the objective of determining its efficacy and safety for the maintenance of hydration in mild dehydration. Table III shows the composition of the CSS:

Table III: Composition of Solutions³⁷

Ingredients	Solutions	
	CSS	WHO-ORS for Control
Substrate	50g <i>gari</i>	12g glucose
Sodium chloride (g)	3.5	3.5
Sodium citrate dehydrate (g)	-	2.9
Potassium chloride (g)	-	1.5
Water (m)	1000	1000

The outcome measures were clinical signs of hydration, serum electrolyte status, stool outputs vomitus, urine output, ORS intake, water intake, dietary intake, weight gain, serum electrolyte status and duration of diarrhoea.

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Table IV . Characteristics of study (CSS) and control ³⁷

(WHO-ORS) groups during therapy.

Characteristics	CSS	WHO-ORS	P value
Stool output (g/kg)			
Day 1	45.3 (+_37.3)	69.7 (+_64.9)	0.006
Day 3	23.7 (+_20.5)	43.5 (+_38.0)	0.09
Total	60.8 (+_58.9)	88.2 (+_100.4)	<0.05
Vomit output (g/kg)			
Day 1	2.0 (+_5.9)	2.6 (+_8.8)	NS
Urinary output (ml/kg)			
Day 1	35.1 (+_25.7)	44.3 (+_38.9)	NS
Day 3	45.4 (+_33.9)	34.7 (+_30.2)	NS
ORS intake (ml/kg)			
Day 1	85.9 (+_45.0)	102.1 (+_73.2)	NS
Day 3	13.9 (+_40.6)	40.6 (+_19.0)	NS
Total	102.9 (+_72.9)	128.9 (+_127.1)	NS
Water intake (ml/kg)			
Day 1	38.4(+_20.3)	39.2 (+_20.7)	NS
Day 3	34.3 (+_21.6)	38.0 (+_25.6)	NS
Dietary intake (cal/kg)			
Day 1	65.3 (+_32.2)	68.2 (+_35.3)	NS
Day 3	85.7 (+_32.4)	93.9 (+_35.6)	NS
Weight gain in 1 st 24 (g)	64.7 (93.8)	44.1 (212.3)	NS
Diarrhoeal Duration (h)	18.9 (22.4)	28.4 (27.0)	<0.05

The results (Table IV) showed that cassava-salt solution (CSS) was as effective as the WHO-ORS in the rehydration of children with mild to moderate dehydration. In addition, there was a significant reduction in stool output by the children who were rehydrated with the CSS. This is in keeping with the findings of other researchers who evaluated ORS containing rice powder as substrate.³⁸ CSS is a food-based ORS that meets most of the criteria required for a suitable fluid for home management of diarrhoea with mild dehydration in Nigeria. For example, it is

affordable, easy to prepare, and culturally acceptable as food by adults and it is even used as a folk remedy for diarrhoea by adults. A previous field trial of CSS did not report any rejection or adverse effects of the solution in the community.³⁹

National efforts to implement oral rehydration therapy must be part of the general programme for delivery of all basic health services. Use of oral rehydration therapy in the treatment of diarrhoea in infants and children has saved many lives and it should act as a highly effective entry point for appropriate health education measures, particularly for the promotion of breastfeeding, appropriate dietary practices including the introduction of complementary foods from the age of six months and personal hygiene. The practice of oral rehydration therapy should be implemented through the primary health care system by integrating it into other primary health care activities, such as immunizations, family planning, nutrition and maternal and child health.

PROTEIN-ENERGY MALNUTRITION

Protein-energy malnutrition is the ultimate manifestation of the malnutrition-infection cycle. This form of malnutrition is more popularly known because it manifests with obvious clinical signs such as oedema of the feet, skin desquamation and mental apathy – the typical picture of Kwashiorkor (the displaced child) or marasmic Kwashiorkor. These children are severely ill and they are at risk of several life-threatening problems such as hypothermia, hypoglycaemia, anaemia, electrolyte disturbances and serious infections which could include tuberculosis. They need intensive care and management in hospital at an exorbitant cost which is unaffordable by the parents who themselves are underfed and have more mouths to feed at home.

Although severe malnutrition is usually associated with multiple micronutrient deficiencies such as iron and Vitamin A deficiency, our study of Kwashiorkor reveal folate deficiency with megaloblastic changes in the bone marrow in four out of thirteen patients.⁴⁰ In another study of twenty-six Nigerian infants and pre-

school children with protein energy malnutrition, leucocyte ascorbic acid was found to be comparable with those of healthy 26 age-matched controls.⁴¹

BREAKING INFECTION/MALNUTRITION CYCLE THROUGH DIETARY MANAGEMENT OF DIARRHOEA

Breast milk is an ideal balanced food for babies up to the sixth month of life, because it contains all the nutrients that promote growth and protect against infections. As the baby grows and becomes more active, more energy is needed for her sustenance. At this stage, it becomes necessary to introduce complementary foods to the baby. Table V shows the average energy shortfalls that are likely to occur if babies are exclusively breastfed beyond the age of six months. Some babies however may continue to get all their energy and nutrient requirements from breast milk alone for much longer. Whatever be the case, all babies should be introduced to soft and smooth family foods from the age of six months. The food given should gradually become firmer and rougher over the subsequent four to six months. By the age of ten months to a year the baby should be taking adequate amounts of practically all types of family foods.

In practice, the most commonly offered first complementary food is a maize gruel (*ogi*) which is usually made too thin and energy poor with an average caloric content of 25kcal/100mls. It is important to increase this energy density to facilitate meeting the energy needs of the infants with small quantities, in view of their small gastric capacities. Table VI shows the gastric capacities of infants at various ages.

Table V: Energy Requirements by Age Group

	6 months	12 months	16 months
Weight (Kg)	7.5	10	11
Energy kcal/Kg	95	100	105
Energy kcal/day	713	1000	1155
Breast milk g/day	700	600	500
(Kcal/day)	(469)	(402)	(335)
Shortfall Kcal	244	598	820

Source: Brown et al. 1988

The energy requirements by age group from six months to sixteen months are shown in Table V. The average weight of a six month old infant is 7.5 Kg whilst his energy requirement is 95 Kcal per day making it a total of 712 Kcal per day. The energy content of breast milk is 67 Kcal per 100 ml. It is estimated that the amount of breast milk received by this infant is 700mls per day which is equivalent to 469 Kcals. In order to make up the shortfall of the 244 Kcals, using the thin maize gruel, the baby must consume about a litre of the gruel in addition to the 700 mls of the breast milk making a total of 1,700 mls per day. With a gastric capacity of about 250 mls, the infant must be fed about seven times a day on both breast milk and the gruel. If the baby is receiving only the gruel, the amount of gruel to be fed in a day to meet the energy needs will be 2,852 mls i.e. baby must be fed about 12 times in a day with this gruel! On this dietary regime, the baby will in addition have shortfalls of other nutrients such as protein, vitamins and minerals which are essential for his growth and development.

The reality of the situation is that this thin gruel is fed several times a day with some token amount of infant formula leading to chronic underfeeding and under nutrition. This situation often begins with an episode of diarrhoea due to gastroenteritis. In considering nutrient density, an important principle to remember is that infants below 2 years of age should receive more fat or oil in their food. Between 25% to 40 % of the energy of complementary food should come from fat because it helps to increase the energy intake without increasing the bulk.

Table VI: Gastric Capacities of Infants by Age

Age (months)	Gastric Capacity (mls)
3-5	200
6-8	250
9-11	290
12-13	340

Source: Macmillan J.A. and Stockman J.A. 1962

In a bid to improve the nutrient content of the traditional maize gruel that is fed during diarrhoeal episodes, we fortified the gruel with bean flour, palm oil and sugar to taste bringing up the energy content to 85 Kcals per 100 ml. (Table VII).⁴³ This was fed to a group of children aged 6 months to 24 months, following their rehydration during an episode of diarrhoea in order to prevent the onset of under-nutrition. This improved gruel was called "Eko llera" meaning pap for improved health by the mothers.

Table VII: Energy Content of 'Eko llera'

	Amount	Local Measure	Calories
Maize Ogi (raw)	200g	1 level 'peak' milk tin	344
Bean Flour	50g	4 heaped tablespoons	171
Palm oil	14-28g	2-4 tablespoons	123-246
Sugar	35g	2 heaped table spoons	140
Water to mix			
Total			778-901 (=85 cal/g)

When this recipe was tested in the community, the mothers wanted the gruel to be made thinner, so malt flour made from germinated maize was added. The amylase in the malt flour produced thinning of the gruel through in vitro digestion of the carbohydrate without altering the energy content. Although, the mothers made all effort to prepare the recipe according to the recommended procedure, the energy content of the mother's preparation was slightly less than that recommended at 77cals per 100gm and 85 cal per 100 gm respectively (Table VII). The protein contents were 2 gm per 100 gm and 1.8 gm per 100 gm respectively. These preparations were considerably more nutritious than the traditional maize gruel which contained energy value of 25 to 38 Kcal per 100gm and protein of 0.8 gm per 100 gm. This shows that they achieved 90 percent of the suggested energy and protein density. The shortfall in energy is reflected

mostly in sugar, which some mothers did not add to the recipe. The protein shortfall is due to less "ogi" and cowpea than was recommended.

Table VIII

Recommended versus Actual Preparation of "Eko llera"

Ingredient	Intervention Recipe	Mothers Preparation	Mothers Percent of Intervention	Traditional Eko recipe
	g	g (SD)	%	g (sd)
Ogi paste	200	180 (40)	90%	227 (135)
Cowpea flour	50	47 (10)	94%	-
Red palm oil	14	16 (4)	114%	-
Sugar	35	22 (11)	63%	3 (7)
Malt flour	5	6 (3)	120%	-
Water	620	697 (168)	112%	788 (364)
(kcal/ 100g)	85	77 (22)	91%	38 (14)
(g protein/ 100g)	2.0	1.8 (0.5)	90%	0.8 (0.3)

The clinical trial of this diet on children aged between six months and two years who had diarrhoea without dehydration demonstrated its efficacy in preventing weight loss during episodes of acute watery diarrhoea, after correction of their dehydration with suitable fluids. Table VIII shows the content of the study diet. The control group was fed with a soya-based infant formula. The outcome variables were weight gain, stool output and duration of diarrhoea. The mean stool output and duration diarrhoea of children who received the test diet were significantly reduced ($P < 0.05$).

By giving appropriate energy and nutrient-dense complementary foods after the period of exclusive breastfeeding and during illness, it was hoped that the infection-malnutrition cycle would be broken for children who already have the gastrointestinal infection.

NUTRITION THROUGHOUT THE LIFE CYCLE

A more permanent solution to the infection-malnutrition cycle in childhood is to ensure good nutrition from conception throughout the life cycle. Good nutrition is the foundation for survival, health and development of mankind. Nutrition is a basic human need that remains unmet for vast numbers of children who are thus unable to meet their full genetic developmental potential. From the earliest stages of foetal development, at birth, through infancy, childhood, adolescence into adulthood and old age, proper food and good nutrition are essential for survival, physical growth, mental development, health, performance and productivity. Nutrition in infants and young children is not only a vital health issue, but it is also central to poverty reduction and sustainable development.

Health and nutrition problems during childhood are due to a variety of factors most of which relate to unsatisfactory food intake, severe and repeated infections, or a combination of the two. Inappropriate feeding is responsible for at least a third of the malnutrition which is associated with more than half of the 10 million deaths of under-five year old children each year. In some instances, some of these children were born with low birth weight as a result of their mothers' poor nutritional status. These conditions are linked to the general standard of living, food security, housing, employment, availability of potable water, sanitation facilities, fuel and health care. During pregnancy, inadequate intake of micronutrients such as vitamin A, iodine, iron, folate and zinc – also has a profound impact on both the mother and the foetus. Vitamin A deficiency is linked to maternal death. Inadequate folate during the first months of pregnancy can cause neural tube birth defects, such as spinal bifida. Iodine deficiency increases the risk of stillbirth and miscarriage and can cause mental retardation in the children. Zinc deficiency can result in prolonged labour, which increases the risk of the mother dying and can impair foetal development.

Food taboos in different regions of the country contribute to the underlying under nutrition and malnutrition seen in mothers and children. Information on nutritional status on women in Nigeria is very limited, but the 1999 NDHS provides information on nutritional status of mothers of children under 3 years based on the body mass index [BMI]. On the whole 16.1% of mothers had poor nutritional status. Young mothers 15-19 years had the highest prevalence of 18.6%, underscoring the special need to target Basic clinical care and nutritional services to this population subgroup. The inter-generational cycle of nutritional deficiencies is shown in Fig.5

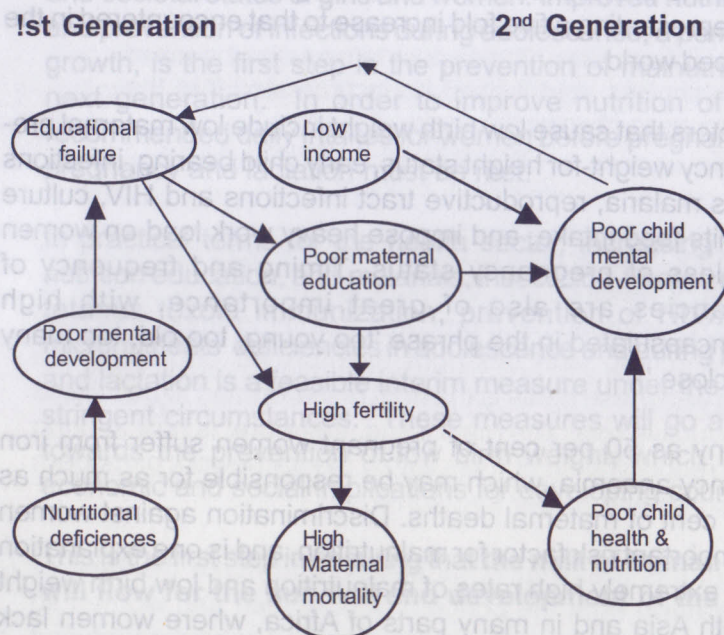


Fig.5 Intergenerational Effect of Nutritional Deficiencies

Female children who are nutritionally deficient have poor intellectual development resulting in low earning capacity and high fertility with increased obstetric risks. A stunted girl is likely

to become a stunted adolescent and subsequently a stunted woman. Besides posing a threat to her health and productivity, poor nutrition increases the chance that her children will be born malnourished thus perpetuating the inter-generational cycle of growth failure (Fig 5), mental impairment and low productivity in subsequent generations. In order to break this cycle, attention must shift to the prevention of poor foetal nutrition which results in low birth weight babies that are babies born with weight less than 2.5 kg. The latest estimates suggest that 18 million low birth-weight babies are born in the world every year, accounting for about 14 per cent of all live births. The vast majority—11 million—are born in South Asia with 3.6 million in sub-Saharan Africa. In Nigeria, the prevalence of low birth weight babies is 17% of all births representing a five fold increase to that encountered in the developed world.

The factors that cause low birth weight include low maternal pre-pregnancy weight-for height status, early child bearing, infections such as malaria, reproductive tract infections and HIV, culture that limits food intake, and impose heavy work load on women regardless of pregnancy status. Timing and frequency of pregnancies are also of great importance, with high risks encapsulated in the phrase 'too young, too old, too many or too close.'

As many as 50 per cent of pregnant women suffer from iron deficiency anaemia, which may be responsible for as much as 20 per cent of maternal deaths. Discrimination against women is an important risk factor for malnutrition, and is one explanation for the extremely high rates of malnutrition and low birth weight in South Asia and in many parts of Africa, where women lack access to education and adequate means of livelihood.

The major causes of infant deaths during the perinatal and neonatal period are low birth weight, birth asphyxia, sepsis, neonatal jaundice, neonatal tetanus and congenital anomalies. Low birth weight babies have a four fold higher risk of dying in

the neonatal period and 50% greater risk of impaired physical development and learning disabilities.⁴³ The risk of coronary heart disease, stroke, and non-insulin dependent diabetes in adult life are associated with wasting and stunting at birth. Low birth weight babies remain shorter and lighter in adulthood and may therefore have limited capacity for physical activity. There is also evidence that long-term effects on cognitive development and learning capacity have their origins in foetal and infant nutrition.¹⁰

Eliminating malnutrition in mothers can reduce disabilities in their infants by almost one third. The key to reducing low birth weight as well as reducing maternal mortality is improved nutritional and societal status of girls and women. Improved nutrition of girls and prevention of infections during adolescence, a period of rapid growth, is the first step in the prevention of malnutrition in the next generation. In order to improve nutrition of girls, the recommended daily intakes for women before pregnancy, during pregnancy and lactation must be met.

In practical terms for the health sector, increasing access to nutrition education, anti-malarials, insecticide-treated nets (ITN), tetanus toxoid immunization, prevention of HIV/AIDS and micronutrients' deficiencies in adolescence and during pregnancy and lactation is a feasible interim measure under the prevailing stringent circumstances. These measures will go a long way towards the prevention of low birth weight, which has major economic and social implications for developing countries.

This is the first step in ensuring that **the milk of human kindness will flow for the survival and development of the infant.**

WHAT IS THIS MILK OF HUMAN KINDNESS?

Physiologically speaking, the milk of human kindness is none other than human (woman's) breast milk. Metaphorically speaking, it is multifaceted relating to governance, the economy, culture and human rights. The following quotation therefore

articulates the ambivalence that exists deep within the hearts of all men concerning the flow of this biologic milk of human kindness.

"We recognise that women live in a biological environment today than during the prior development of the human species. In the past, most of a woman's life was spent in procreation. Today, largely because of technological advances, many women can choose options other than a continuous cycle of pregnancy and lactation. This biological shift has contributed to confusion as to the appropriate functions and perceptions concerning human breast and to redefinitions of women's reproductive and productive roles. Many women can and want to make choices about these roles. The decision to breastfeed is one of the choices, and it must be incorporated into the discussion of women's reproductive rights."

*(Breastfeeding is a Women's Issue
Statement, February 1995.)*

Every mother has the right to breastfeed, the right to support for optimal infant feeding, and the right of the working mother to continue to breastfeed her infant after resuming work. This right can be exercised with the right to informed choice. Often conflicting with these rights is the right of the woman to be fulfilled in her productive role. The main issue, therefore, is how to bring about the reconciliation of roles within the framework of modern day pressures and power structures.

The aim of this presentation is therefore to make the **flow of this life-saving milk** the concern of both men and women so that the producer of the milk can receive kind consideration and support from her spouse, her family, her employer and the community at large so that our children will given optimal chance of survival and development.

THE BIOLOGIC MILK OF HUMAN KINDNESS

Breast milk provides complete nourishment for an infant from birth up to about six months of age. Breastfed babies suffer fewer incidences of diarrhoea, respiratory and middle ear infections and are less likely to develop allergies. Apart from its immunological benefits, it is always at the right temperature, needs no sterilization, costs nothing and almost every mother and baby pair can breastfeed successfully. Breastfeeding promotes emotional bonding between mother and child.

COMPOSITION OF HUMAN MILK

In order to understand the advantages of breast feeding, it is pertinent first to estamine the composition of breastmilk.

The mean energy content of human milk is 0.67 kcal/g⁴⁴ as indicated in Table IX: Carbohydrate, lipids and protein are the major contributor to the energy content of human milk. While protein and carbohydrate concentrations change with duration of lactation, they are relatively constant between women at any given stage of lactation. In contrast, lipid concentrations vary significantly between both individual women and populations, which accounts for the variation observed in the energy content of human milk. Lipid concentrations also vary during feeds starting at a low concentration at the beginning of a feed and increasing to its maximum at the end of the feed. Thus, if the baby is given only the foremilk, which is more watery during a feed, he is being denied the hind milk which contains more fat and therefore more energy.

Non-nutritional Factors in Breast Milk

Human milk contains many non-nutritional substances such as hormones and growth factors. Hormones in human milk include

Table IX: Composition of Human Milk

Age	Energy	Protein (ng/l)	Vitamin A	Vitamin D (g/l)	Vitamin B6 (mg/l)	Calcium (mg/l)	Iron (mg/l)	Zinc (mg/l)
1	0.67	11	1.7	645	013	266	0.5	2.1
2	0.67	9	1.7	645	013	259	0.4	2
3	0.67	9	1.7	645	013	253	0.4	1.5
4	0.67	8	1.7	645	013	247	0.35	1.2
5	0.67	8	1.7	645	013	241	0.35	1
6	0.67	8	1.7	645	013	234	0.3	1
7	0.67	8	1.7	645	013	228	0.3	0.75
8	0.67	8	1.7	645	013	222	0.3	0.75
9	0.67	8	1.7	645	013	215	0.3	0.75
10	0.67	8	1.7	645	013	209	0.3	0.5
11	0.67	8	1.7	645	013	203	0.3	0.5
12	0.67	8	1.7	645	013	197	0.3	0.5

Source: FAO (1972) Milk and Milk Products in Nutrition. S.K. Kon. FAO Nutritional Studies No. 27, Rome

Energy intakes based on the mean milk intakes of exclusively breastfed infants appear to meet mean energy requirements during the first 6 months of life. Infant size and growth potential have been found to drive energy intake, leading to a positive relationship between energy intake and energy requirements. Positive correlations between energy intake and infant weight gain have been reported.⁴⁵ Thus, energy needs can be met for 6 months, and possibly longer, by women wishing to breastfeed exclusively this long. The major shortcoming appears to be the lack of a supportive environment for women to do this.

Dietary proteins

Dietary proteins provide approximately 8% of the exclusively breastfed infant's energy requirements and the essential amino acids necessary for protein synthesis. Thus, the quantity and quality of protein are both important. In view of the fact that protein may serve as a source of energy, failure to meet energy needs decreases the efficiency of protein utilization for tissue and other metabolic functions. Protein under-nutrition produces long-term negative effect on growth and neurodevelopment.

Protein Composition of Human Milk

The protein content of mature human milk is approximately 8-10 g/l. The concentration of protein changes as lactation progresses. By the second week postpartum, when the transition from colostrum to mature milk is nearly complete, the concentration of protein is approximately 12.7g/l⁴⁶. This value drops to 9g/l by the second month, and to 8g/l by the fourth month where it appears to remain until well into the weaning process when milk volumes fall substantially. At this point protein concentrations increase as involution of the mammary gland progresses. The inter-individual variation of the protein content of human milk, whose basis is unknown⁴⁷ is approximately 15%.

Non-nutritional Factors in Breast Milk

Human milk contains many non-nutritional substances such as hormones and growth factors. Hormones in human milk include

cortisol, somatostatin thyroid hormones, oxytocin, and prolactin.^{48,49,50} Growth factors include epidermal growth factor, insulin, and lactoferrin.⁴⁸ Other substances such as long-chain polyunsaturated fatty acids may relate to growth.⁵¹ In addition, human milk contains others factors that are inducers of certain biological processes.⁴⁸ The Significance of these hormones and factors for growth patterns, however, is not understood.⁵⁰ Breast-fed infants have lower plasma concentrations of insulin than formula-fed infants, which might result in less fat deposition and fewer adipocytes developing. The other bioactive factors that are present in breast milk might modulate growth factors that are known to inhabit adipocyte differentiation. The lower protein intake associated with breastfeeding may decrease the risk of later obesity. These possible explanations have not been investigated.⁵²

The composition of breast milk is not always the same. It varies according to the age of the baby and from the beginning to the end of a feed. It also varies between feeds and may be different at different times of day. Colostrum which may be thick and yellow or even clear in colour is the first milk produced in the first few days after which it changes into mature milk. Colostrum is rich in anti-infective factors, growth factors and vitamins. It is therefore important to allow the baby to take colostrum as it is his first immunisation. Mature milk is of large volume and consists of foremilk which is produced early in a feed and hind milk which contains more fat. This is why it is important to keep the baby on the breast until he has had plenty of the energy-dense hind milk. The amount of water in breast milk will meet the daily requirements for water (Table X), making the additional intake of water unnecessary and hazardous.

Table X: Average Water Requirements for infants⁵³

Age	Weight (kg)	Water (ml/kg)
3 days	3.0	80—100
10 days	3.2	125—150
3 months	5.4	140—160

ANTI-INFECTIVE PROPERTIES OF BREAST MILK

Some antibodies against various micro organisms are transferred from the mother to the foetus via the placenta and help to protect the new infant against certain diseases, the most important of which is measles, during the first four to six months of life. It has long been recognized that the breast-fed infant is better protected against infections and particularly diarrhoeal diseases, and has a better chance of survival than a bottle-fed baby. Only fairly recently have reasons for this difference been established. These are:

Breast milk is clean—it is never strictly sterile, as there will be some contamination from the nipple.⁵⁴ However, these bacteria have no time to multiply as the milk is drunk immediately.

Immunoglobulins, mainly IgA, are present in large amounts in colostrum and to a lesser extent in mature human milk. IgA is not absorbed but acts in the intestines against certain bacteria (e.g. *E. coli*) and viruses.

Lactoferrin, a protein, which binds iron to itself, is found in human milk. The bound iron is then not available to certain harmful intestinal bacteria, which need it for their growth. For this reason supplemental oral iron should not be given to breast-fed infants, as it is likely to interfere with the protection offered by lactoferrin.⁵⁵

Lysozyme, an enzyme, is present in a concentration several thousand times higher than that found in cows' milk. This breaks down certain bacteria and also protects against various viruses.

White blood cells appear to secrete IgA, lactoferrin, lysozyme, and interferon. Interferon is a substance, which may inhabit the activities of certain viruses.⁵⁶

The **bifidus factor**, a nitrogen-containing carbohydrate, is necessary for the growth of specific bacteria called *Lactobacillus bifidus*. In breastfed infants these bacteria dominate the bacterial flora in the intestines and produce lactic acid from some of the milk lactose. This acid discourages the growth of harmful bacteria and parasites and makes the stools acid. The presence of the bifidus factor is one reason why the stools of breastfed infants are different from those of babies who are bottlefed.

The protection from infections that is effected by all these immune substances have been verified clinically through documentation of reduction of the following infections in exclusively and predominantly breastfed babies:

Diarrhoea - In Southern Brazilian cities, babies who receive no breast milk are 14.2 times more likely to die from diarrhoea than breastfed babies.

Ear infection - Infants aged from birth to 12 months who are exclusively breastfed have one half the number of ear infections than infants who are not breastfed.

Acute Respiratory Infection (ARI)- Bottlefed infants have increased prevalence of ARI.

Urinary Tract Infection - From birth to six months bottlefed infants are five times more likely than breastfed infants to contract urinary tract infections.

Sudden Infant Death Syndrome-Non-breastfed infants are almost three times more likely to be victims of sudden death than breastfed infants.

GROWTH OF THE BREASTFED CHILD

Breast-feeding confers significant health, nutritional, immunologic, developmental, psychological, social, economic, and environmental benefits to infants, mothers, families, and society. Human milk is uniquely superior for infant feeding and is species-specific; all substitute feeding options differ markedly from it. The breastfed infant is the reference or normative model against which all alternative feeding methods must be measured with regard to growth, health, development, and all other short and long term outcomes.⁶²

The old adage that if babies are fed on cow's milk, they develop some characteristics of a cow is partly based on differences in growth patterns between breastfed and formula-fed children. Many studies have shown that breastfed infants grow differently during the first year of life than do formula-fed infants.^{63,64} This difference in growth patterns has been seen in relation to the current international growth reference standard that was created using data from infants fed on formulas that are no longer available and in relation to infants fed on currently available formulas.⁶⁵ Typically, infants who have been breastfed grow as rapidly as or more rapidly than formula-fed infants during the first 2-3 months. Then, during the rest of the first year, breastfed infants grow less rapidly than formula-fed infants. The results of this investigation are consistent with those of other studies.⁶⁶⁻⁶⁸ On the whole, as documented in the comprehensive review by Dewey⁶⁵, these studies have found that the growth patterns of breastfed infants differ substantially from those of infants fed with modern as well as older formulas. Most studies have reported that breastfed infants gain less weight in the first year. For infants breastfed through 12 months, this difference in weight gain is particularly apparent in the second half of the first year, resulting in a difference in attained weight at 12 months of 600-650g. In contrast, fewer than half of the studies showed a significant difference in length by feeding mode. Even when a difference in length has been observed, the difference in length has been proportionally much less than in weight. Consequently, the weight

relative to length of breastfed infants is less at the end of the first year. Measures of adiposity such as skin fold thickness are consistent with the explanation that the weight difference reflects differences in fat decomposition. Growth in head circumference is not related to feeding mode.⁶⁶ A recent study with a large sample has raised interest in the possibility that breast-feeding may have an impact on later attained weight and obesity.⁷⁰ Their earlier studies had used much smaller sample and found no effect. A large study of 1,320 adolescents in Canada born in the 1960s found that obesity was less among children who had been breastfed.⁷¹ In this case-control study, the odds of being obese were 2.25 times lower for breastfed infants than for non breastfed infants after controlling for potential confounding factors.

Two other reports suggest that breastfeeding is protective against childhood and adolescent obesity. Additional research on the role and impact of breastfeeding on long-term growth status will be important to further document and understand this protective effect, especially given the rapid increase in the prevalence of obesity, even among children, in many countries, and the ill health and costs associated with obesity.^{71,72} These findings have not been fully explained. It is thought that breastfeeding may have a programming effect.

OTHER BENEFITS OF BREASTFEEDING TO THE CHILD

Dental Caries: Children who have been breastfed show fewer decayed deciduous teeth than children not breastfed.⁷³

Malocclusion (crooked teeth): Among breastfed children, the longer the duration of breastfeeding, the lower the incidence of malocclusion.⁷⁴

Breastfeeding and Intelligence: Children who are breastfed for longer periods showed higher scores on mental ability test.^{75,76}

Breastfeeding and Maternal Health

Immediate Benefits: Post-partum loss of blood is minimal thus reducing the risk of development of anaemia.

Post-partum restoration to normal health is faster

Long-term Benefits

Breast Cancer: Breastfeeding for at least 3 months can reduce the risk of pre-menopausal breast cancer by one half.⁷⁷

Ovarian Cancer: Breastfeeding for at least 2 months per child reduces the risk of epithelial ovarian cancer by 25%.⁷⁸

Osteoporosis: The risk of hip fracture in women over 65 is reduced by half by having breastfed. Breastfeeding each child for 9 months reduces the risk to a quarter.⁷⁹

BREASTFEEDING AND BIRTH SPACING

The full importance of lactation as the world's most significant contraceptive⁸⁰ can only be mentioned briefly in this review of lactation. A consensus statement⁸¹ adopted recently summarized what is now known about the conditions under which breastfeeding can be used as a safe and effective contraceptive. The maximum birth-spacing effect is achieved when an infant is fully or nearly fully breastfed and a mother consequently remains amenorrhoeic. When these two conditions are fulfilled breastfeeding provides more than 98% protection in the first six months postpartum. After six months, or when breast milk is supplemented, or menses return, the risk of pregnancy increases, although it remains low while breastfeeding continues at much the same level.

In any discussion on infant feeding, it is important to understand the impact of breastfeeding on the time interval between births and the consequences where providing optimal nutrition for the mother, her infant and any subsequent children are concerned. It is significant that the period of full breastfeeding required to maximize the mother's protection against a subsequent pregnancy, without need for artificial means of contraception, is identical to the period of full breastfeeding required to maximize the infant's protection against allergic and infectious disease. Prolonged amenorrhoea also permits the mother to recover her

iron stores, which enhances her immune and nutritional status as well as the prospects for providing adequate nutrition for any future foetus.

PHYSIOLOGIC MECHANISM OF BREAST MILK PRODUCTION

Breast milk is produced as a result of the action of hormones and reflexes. During pregnancy, hormonal changes in the gland tissue enlarge the breasts. The pituitary gland at the base of the brain produces a hormone called prolactin, which makes the gland cells in the breast secrete milk. The baby's suckling stimulates the nerve endings in the nipple. These nerves carry the message to the anterior part of the pituitary gland which makes prolactin which in turn produces the milk. Prolactin works after the baby suckles, producing more milk for the next feed. The action involving nipple stimulation and production and secretion of breast milk is known as the prolactin reflex or milk secreting reflex. When the baby suckles and stimulates the sensory nerves in the nipple the hormone oxytocin is produced. Oxytocin is secreted by the posterior part of the pituitary gland and sent to the breasts through the blood. It works while the baby suckles and makes the milk flow for this feed. This action is called the milk ejection, let-down or oxytocin reflex. This reflex causes the milk to eject thus making it easier for the baby to feed.

Stress and lack of confidence affect milk secretion and supply because prolactin and oxytocin are both influenced by the hypothalamus. This is an area of the brain just below the pituitary gland and the seat of human emotions, anxiety and tension will inhibit the hypothalamus—the pituitary function and thus influence the milk ejection. The let-down reflex is a very sensitive reflex, and easily inhibited by psychological factors, and can be turned on and off by how a woman feels. The reflex can be triggered off by thinking fondly of the baby or hearing the baby cry. Similarly it can be suppressed by stress, or anxiety. Hence, any form of stress emanating from the lack of ability of women to cope

simultaneously with their roles in various capacities **does reduce the flow of milk of human kindness.**

THE COST OF FEEDING WITH FORMULA

One study estimated that the cost to the family of feeding with infant formula and paying medical bills for the infant's recurrent episodes of illness could be up to US \$2000 a year. This is equivalent to ₦270,000 - obviously beyond the means of the majority of workers with a minimum wage of about ₦120,000 a year. The cost to the nation is also estimated to be in millions of dollars. This is spent on providing infant health care and treatment of maternal ill health such as anaemia from post-partum blood loss.⁸²

BREASTFEEDING AND THE LAW

In recognition of the need to promote, protect and support breastfeeding all over the world, attempts are constantly made to put a stop to unrestrained and irresponsible advertisement of breast-milk substitutes. This has led to the adoption of several resolutions by the World Health Assembly starting from 1981 when the Code of Marketing of Breast Milk Substitutes was formulated. The code was endorsed by most countries. In Nigeria, the code was further domesticated by the Marketing (Breast-Milk Substitutes) Decree, No 41 in 1990. Although, national monitoring has been somewhat weak permitting violations to occur, international mechanisms have become better applied.

A second aspect of legislation is the international labour law (International Labour Organisation) which is designed to protect the maternity period or working women. This law has actually failed to protect the entire period of exclusive for six months because it recommend the maternity leave of only eight-four days. This is therefore the commonest cause of failure to adhere to the guidelines on breastfeeding. These guidelines are designed to ensure that breastfeeding is successful from within the first hour of birth well into the second year of life of the baby. Obviously, this law must be revisited sometime in order to accommodate these new concepts for the benefit of subsequent generations.

NATIONAL RESPONSE TO THE NEED FOR THE FLOW OF MILK OF HUMAN KINDNESS

Over the past two decades, several strategies for ensuring child survival have been put in place in Nigeria. These strategies include immunisation against common vaccine preventable diseases; access to information on how to prevent disease in childhood; prompt and effective management of common childhood illnesses in the household as well as at all levels of both informal and formal delivery of health services. The performance has however been constrained by grossly inadequate coverage with affordable quality maternal and child health services, food security and nutrition, safe water, environmental sanitation, and the persistence of factors that limit access to such services. These factors include a low level of female education, gender disparity, and poverty, and political marginalisation, perpetual threat of internal conflict and negative cultural attitudes to the use of modern services.

The Breastfeeding Feeding Initiative (BFI) was commenced in 1992 with the assessment of tertiary hospitals and the designation of six of them as Baby Friendly. Subsequently, Training of Trainers workshops were conducted resulting in the certification of "master trainers", "trainers", "supervisors" and "assessors." At first operations were mainly based within hospital premises and their "outreaches". Gradually, the focus has become expanded to include health centres and the community at large. The media has played a major role in the promotion of the programme to the community especially during the "Breastfeeding week" during the first week of August every year. The main sponsoring agency has been UNICEF. However, international partners have included the WHO through its training programme on Breastfeeding Counselling and the USAID through its operational research programme on Breastfeeding implemented in Osun State. Various local non-governmental organisations have also played a significant role in promoting, protecting and supporting breastfeeding. By 1999, a total of 1,052 health facilities had been designated.

The appropriate feeding of infants and young children is central to efforts taken to reduce infant and child morbidity and mortality. It is therefore important to integrate this intervention into existing child health programmes and initiatives.

In view of the fact that most of the children present with multiple problems, an effective strategy must offer a set of interventions that promote rapid recognition and effective treatment of these major diseases concurrently. Therefore, in 1997, the Integrated Management of Childhood Illness (IMCI) was adopted as the main strategy for child survival implementation. IMCI offers help to anchor child health in a broader setting of primary health care that provides opportunities for implementing preventive, promotive, curative and developmental interventions. For example, it promotes the prevention of infections and malnutrition through improved nutrition (including breastfeeding), vaccination, use of micronutrients such as Vitamin A and iron therapy, deworming of the most susceptible and promotion of insecticide-treated materials for the prevention of malarial. The IMCI strategy consists of three components aimed at strengthening the health system, improving the skills of health workers and community-based providers and improving community and family key health practices. This approach will contribute to the health sector reform effort that is aimed at improving equity, effectiveness and efficiency of the health care delivery system.

The reform effort however calls for reorientation and retraining of both facility and community-based health personnel and systems at the selected LGA and State and Federal levels in order to address adequately the issues of health care human resource development, health care financing, health care information system and health care research.

SOCIO-CULTURAL CHALLENGES TO THE FLOW OF MILK OF HUMAN KINDNESS

Preventive interventions include starting with exclusive breastfeeding from birth to six months thereafter reinforcing with appropriate complementary foods.

Inappropriate feeding contributes significantly to infant morbidity and mortality. The relationship between breastfeeding, diarrhoea and other infections has been well documented. The major problems with infant feeding include delay in initiation of breastfeeding, bottle feeding, untimely introduction of complementary feeds including solids, use of energy- and nutrient-poor feeds, and early cessation of breastfeeding. The determinants of inappropriate patterns of infant feeding are multiple. They include established cultural practices, food taboos, poverty, mother's disempowerment, and lack of access to accurate information and effective services. These factors are also operational with respect to the mother's reproductive health outcomes, which in turn influence the health status of the child. For example, failure to plan the family has a profound negative effect on the nutritional status of the child.

In addition to feeding, the responsibility for the total care of the baby may lie entirely with the mother or it could be a shared responsibility with other members of the household. The care of the cord in the perinatal period is often faulty leading to sepsis in the newborn, neonatal jaundice or neonatal tetanus. Other harmful traditional practices such as uvulectomy, dermal scarifications and female genital mutilation contribute significantly to the risk factors controlling infant mortality in the community. The inappropriate use of drugs and herbal concoctions also result in complications such as diarrhoea, aspiration pneumonia, convulsions, hepatic or renal damage. Negative child care practices are directly related to the relatively high female illiteracy rate.

Education has an influence on child care practices first as a direct determinant of behaviour, and indirectly as it affects attitudes and gender relations. Women's education has been found to be a key factor in reducing infant and child mortality. The level of female illiteracy correlates closely with under-five mortality rates recorded for various parts of the country. The proportion of care-takers using ORS to treat dehydration caused

by diarrhoea rises progressively with higher education. Mothers with higher education are also more likely to use immunisation services and to complete the courses. (Fig.6)

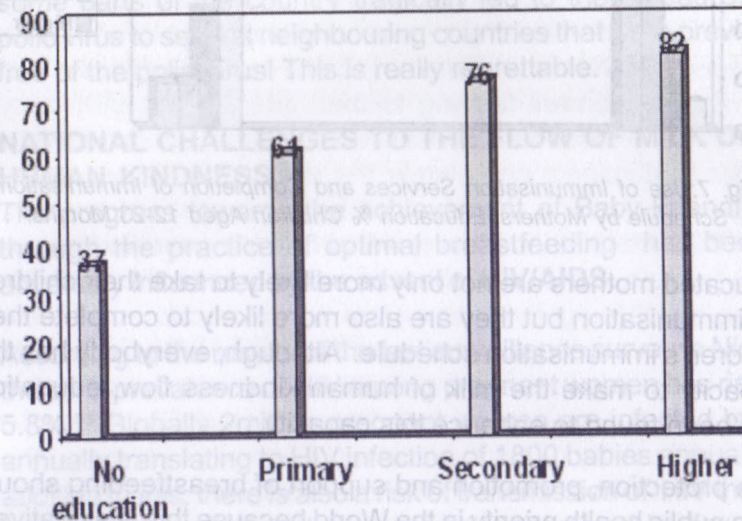


Fig. 6: Percentage of Care-takers Treating Diarrhoea With ORS, by Educational Level

Source: NDHS 1999

U. L. ARCHIVE

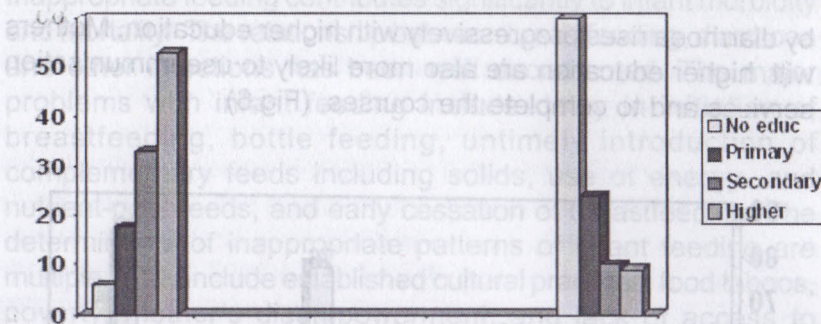


Fig. 7: Use of Immunisation Services and Completion of Immunisation Schedule by Mothers' Education % Children Aged 12-23 Months

Educated mothers are not only more likely to take their children for immunisation but they are also more likely to complete their children's immunisation schedule. Although, everybody has the capacity to make the milk of human kindness flow, education has been found to enhance this capacity.

The protection, promotion and support of breastfeeding should be a public health priority in the World because this is a relatively humane and inexpensive means of achieving national goals are set below:

- To reduce enormously the suffering of children.
- To promote the full development of their human potential.
- To make them aware of their needs, rights and opportunities.
- To find their identity and realize their worth in a safe and supportive environment through families and other caregivers committed to their care.
- To prepare them for responsible life in a free society.
- To encourage them to participate in the cultural life of their societies.

Every effort must be made to mobilise and enlighten people at the grass root level prior to the delivery of any health programme, in order to prevent misinterpretation of the motive of health care providers. An example of this type of problem led to the Polio immunisation controversy. The refusal of the polio vaccine in some parts of the country tragically led to the spread of wild polio virus to several neighbouring countries that were previously free of the polio virus! This is really regrettable.

NATIONAL CHALLENGES TO THE FLOW OF MILK OF HUMAN KINDNESS

The progress towards the achievement of Baby-Friendliness through the practice of optimal breastfeeding has become adversely influenced by the advent of **HIV/AIDS**.

According to the results of the last surveillance survey in Nigeria, the sero-prevalence of HIV among pregnant women has risen to 5.8%.⁸³ Globally 2million pregnant women are infected by HIV annually translating to HIV infection of 1800 babies annually. In addition to this, there is also a risk of transmission of HIV through breastfeeding which is being currently promoted in view of its tremendous benefits to the survival and wellbeing of children and mothers. Thus, a panicky reversal of the breastfeeding policy for babies who are born to HIV-positive mothers may result in the development of a negative attitude towards breastfeeding with loss of the gains made so far in this area. This therefore calls for a cautious approach in tackling the problem, taking cognisance of all possible outcomes medically, socially and economically.

The risk of postnatal transmission of HIV through breastfeeding has been estimated to vary between 25% and 45% in developing countries with the highest rates found among women in Africa.⁸⁴ The increased rate of transmission among women in Sub-Saharan Africa has been associated with several factors including prolonged breastfeeding.⁸⁵ Although there is insufficient information to estimate the exact association between the duration of breastfeeding and the risk of transmission, there is

strong evidence that as long as the child is being breastfed, there is a gradual and continued risk. The risk of late postnatal transmission through breastfeeding is estimated to be 4-12% possibly accounting for about half of the transmission through breastfeeding.⁸⁵ Thus, it has been suggested that early cessation of breastfeeding reduces the risk of HIV transmission by limiting the period of the infants' exposure to HIV through breast milk. Consequently, women who are not able to provide adequate and hygienic replacement feeding to their infants from birth may consider early cessation of breastfeeding as an option. Clearly, in order to eliminate completely the risk of HIV transmission through breastfeeding, the infant must not be breastfed from birth. Under this circumstance, commercial formula, modified home-made formula, heat-treated expressed breast milk and wet-nursing by HIV-negative women are considered to be suitable replacements nutritionally.⁸⁵ However, the feasibility and safety of these feeding options on health outcomes in developing countries have not been fully investigated. Therefore, a comprehensive study on the feeding of babies of mothers who are HIV-positive will provide the necessary information that will enable appropriate modification to be made to the current infant feeding policy in Nigeria. The results could have wider application within the West African sub-region.

Thus, the impact of the AIDS epidemic is especially pronounced among children, threatening to reverse the gains of past efforts made in reducing infant and under-five mortality through immunisation, oral rehydration therapy, breastfeeding and other child survival strategies. There is every indication that the situation can be improved by using a three-pronged approach which includes voluntary counselling and testing (VCCT), timely use of anti-retroviral drugs and replacement feeding options for infants.

An equally important dimension of the impact of AIDS on children is the increasing number of AIDS orphans. By 1999, Nigeria already had a cumulative total of 1.4 million AIDS orphans.⁸⁵ Of

these, about 700,000 children below the age of ten years are currently alive. Based on the projections derived from the AIDS Impact Model, the cumulative total of AIDS orphans would have reached 2.5 million by the year 2010. Without effective measures of support and care, these children are likely to become victims of homelessness, child trafficking and other forms of child labour, sexual exploitation and prostitution which expose them to greater risks of HIV infection and limit their access to education. Mortality among AIDS orphans is likely to increase dramatically as a result of multiple factors including malnutrition, ill health and diminished access to health services.

The consequences are increased poverty, child abandonment, neglect, prostitution etc.

HEALTH OF ADOLESCENTS

Another opportunity for making wise investment in order to reap maximum benefit for longer term development is in adolescents and the youths. The adolescent years are a period of very rapid development for young people in every way: physical, emotional, psychological, social and spiritual. This is in fact the most rapid phase of human development apart from the period just before and after birth. Yet it is also a time of great danger. It is these older children who are most vulnerable to some of the major threats to child rights to reproductive health problems including HIV/AIDS, sexual exploitation, and exploitative child labour, accidents, being caught up in conflict or used as soldiers.

Adolescents are forced to enter these arenas of risk often without the information, skills and access to support services that they need. Adolescence is also a critical gateway to improving women's situation. The well-being of adolescent girls is pivotal in breaking down the cycles of gender discrimination that relegate far too many girls to the same disadvantaged position as their mothers. It is in these years, for example that the gender gap in education yawns widest: While 6 percent more boys than girls in developing countries enrol in primary schools, the gap opens

up to 16 percent in the secondary years and in South Asia reaches an alarming 36 percent. It is teenage girls who are most likely to be threatened by sexual abuse, trafficking or exploitative forms of child labour just as it is they who are compelled by cultural insistence or overt command towards early marriage and child bearing.

Adolescents make up a very large proportion of the population in developing countries, yet, as a group, they are too often ignored. They tend to be treated as a potentially delinquent, problem group instead of being valued for their energy and resourcefulness. Specific provision for the needs of young people is often not taken cognisance of by adults who can exert political pressure. Governments that have ratified the Convention on the Rights of the Child must accept that adolescents have inalienable rights that are obviously ignored at present. Adolescents have the right to relevant and reliable information from a variety of sources, including parents, teachers, and the media and peer educators. They have the right to be taught the life skills they need for the teenage years when they are exploring their own identity and independence—skills in negotiation, conflict resolution, critical thinking, decision making, and communication and earning a livelihood. Adolescents depend for their well-being on a safe and supportive environment that includes adults who care about them. They also have the right to participate in decisions that affect family life.

Securing and guaranteeing these rights would not only help young people, it would help human society as a whole. When adolescents' rights are fulfilled, their strength, confidence, creativity and passion can engender hope and solutions even in the most desperate situations. Providing adolescents with skills, information and services increases their capabilities to avoid or overcome many of the problems they are likely to encounter, such as violence, accidents, substance abuse and unwanted or unsafe sex. They can grow up into responsible adults realising life goals that should include appropriate planning of their families

and good parenting. In this way, ***the milk of human kindness can begin to flow to the next generation.***

POLICY CHALLENGES

At the national level, various policies that are of great relevance to the enhancement of health status have been developed and ratified. These include the National Health Policy, the Population Policy, Maternal and Child Health Policy, Nutrition Policy and Reproductive Health Policy. All the policies are designed to provide a framework for medical practice and the holistic delivery of health care taking cognisance of the *new* philosophy of health as an integral part of social and economic development. The national health policy being the foundation of all the other health-related policies is designed to achieve health for all Nigerians based on the national philosophy of social justice and equity as enshrined in the Constitution of Nigeria. Thus, the goal of the National Health Policy came to be established on "primary care that is promotive, protective, preventive, restorative and rehabilitative to every citizen within the available resources so that individuals and communities are assured of productivity, social well being and enjoyment of living". In line with the principles of primary care, it is expected that health care delivery will be a multidisciplinary, inter-institutional and inter-sectoral responsibility. However, the mechanisms and structures for translating this critical concept into action are fragile and have been difficult to sustain. One important reason for this is because many health care initiatives are donor-driven with dwindling financial inputs from government and other stakeholders especially for recurrent expenditure which is required for maintenance of health infrastructure.

The implementation of these policies should focus on:

- Improving partnerships between health facilities and communities they serve including the private sector.
- Increasing appropriate and accessible health care and information from community-based providers and the media.

- Integrating the promotion of key family practices critical for child health and nutrition into the overall national information and education strategy.

Recently, the ubiquitous peddling of fake pharmaceutical drugs has introduced other problems, which are beyond the control of consumers. Policy makers are currently applying stringent measures which if sustained should go along way towards the eradication of this menace.

On paper, all areas appear to have been covered. However, in the implementation of these policies over the years, it seems that the policies did not take into consideration the possibility of diminution in governmental resource control of health care delivery to the people. Relevant policies outside the health sector that impact on the health of individuals and communities have rendered almost useless the efforts of the health sector. Such policies include those that should control the pricing and marketing of essential goods and services. Lack of control in this area is a major factor that is impeding **the flow of the milk of human kindness**. It is obviously closely linked to the prevailing economic challenges, poverty, debt servicing, globalisation etc.

ECONOMIC CHALLENGES TO THE FLOW OF MILK OF HUMAN KINDNESS

The proportion of Nigerians living below poverty line has been increasing steadily since 1980. By 1996, the proportion had reached the alarming rate of 66% (Fig.8). Then came the issue of globalization which can be viewed in economic, political, social, cultural and technological terms. It can have a direct impact on infant feeding practices through such aspect as the liberalization of trade, e.g. under the World Trade Organisation, the increasing powers of transnational corporations, the loss of responsibility for decision-making by sovereign states, increasing inequalities, the "feminization" of poverty, and a cutback on caring activities.

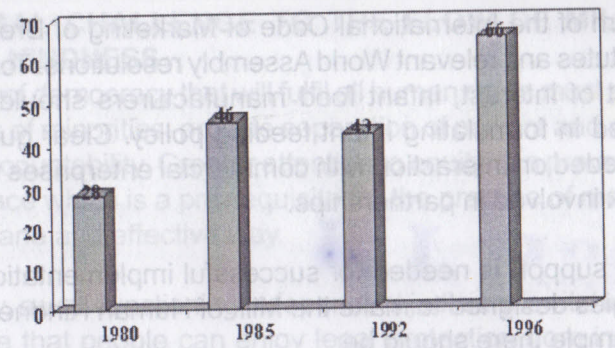


Fig: 8: Population Below Poverty Line in Nigeria
(Poverty Line N11,293; Annual Per Capital Expenditure at 1996 Prices)

Source⁸⁶

The cultural impact of globalisation on infant feeding practices includes the spread of a bottle-and jar-feeding culture with negative impact on breast-is-best culture. On the other hand, if modern technology is appropriately utilised, the result will be a faster spread of knowledge about health, faster communications generally, and increased use of ethically approved marketing practices and public relations within a supportive environment for women.

Among the reasons why optimal feeding practices have not been achieved are the lack of appropriate information or the spread of misinformation; the promotion and marketing of breast-milk substitutes; an environment which undermines breastfeeding; and poverty, which disproportionately affects women and children.

The public should insist that informal and local regulation of marketing practices and voluntary agreements should not be allowed to replace global binding regulations in this area. The processed food industry should deliver good quality, reasonably priced products in a manner that is consistent with the principles

and aim of the International Code of Marketing of Breast Milk Substitutes and relevant World Assembly resolutions. To prevent conflict of interest, infant food manufacturers should not be involved in formulating infant feeding policy. Clear guidelines are needed on interaction with commercial enterprises to avoid the risk involved in partnerships.

Global support is needed for successful implementation of all strategies designed to make the Milk of Human Kindness flow, for example there should be:

- Reversal in the decline of official development assistance (ODA). Donors should increase their expenditures on social priorities to over 20 per cent of official development assistance (ODA)
- A clearer focus of ODA on basic social services
- Wider market access for Africa's goods
- Implementation of national policies that will improve access of genuine entrepreneurs to credit in order to create jobs and market for local produce.
- Reduced global inequality and marginalisation
- Prevention of deadly conflicts through early warning systems
- Strengthening the international system for promoting human rights

Any consideration short of the above total package is unlikely to yield the desired result in the long run.

POLITICAL CHALLENGE TO THE FLOW OF MILK OF HUMAN KINDNESS

The type of democracy that will fulfil all human rights must protect the rights of minorities, provide separation of powers and ensure public accountability. Greater attention to equity can prevent and build peace which is a pre-requisite for the practice of medicine in a humane and effective way.

Secondly, a well-functioning independent judiciary is vital in order to ensure that people can enjoy legal protection from injustice and abuses of their rights including the right to health.

Public scrutiny through free and independent media promotes state accountability. Transparent policy formulation and implementation especially reduces susceptibility to corrupting influences of political power and financial impropriety. The achievement of this type of democracy is the ideal situation that will permit an optimal level of human development without which progress in other areas of development remains an illusion.

The challenge of ensuring that the voices of the people are heard above that of the lobbying power of corporations and special interests has become indistinguishable from the challenge of practising humane medicine under a nascent democracy.

GLOBAL RESPONSE TO THE CHALLENGES IMPEDING THE FLOW OF HUMAN KINDNESS

The Convention on the Rights of the Child⁸⁷ - In recognition of the fact that the well-being of children requires political action at the highest level, the United Nations General Assembly on the 20th of November 1989 adopted the Convention on the Rights of the Child (CRC) on the Survival, Protection and Development of Children. The Declaration came into force on the 2nd of September 1990. On 29-30 September 1990 the world leaders including the Nigerian Head of State strongly endorsed the CRC

and the Plan of Action at the World Summit for Children. Nine goals were set for the following decade in order:

- To establish the principle of a First Call for Children
- To ensure that the essential needs of children should be given high priority in the allocation of resources in bad times as well as in good times at national, international as well as at family levels and
- To give every child a better future.

They signed on to ambitious goals to reduce child and maternal mortality, increase immunization coverage, and deliver basic education among other measures by the year 2000. There was hope that the combination of a special legal frame work together with an action plan with time-bound concrete goals would transform children's lives worldwide over the decade to come. Children's survival, development, protection and education were no longer matters of charitable concern but of legal obligation. The cause of children, for perhaps the first time in human history, was at the top of the world's agenda. The World Summit reflected the world hopes for children.

The World Summit for Children (WSC) goals are set in order to address the issues of child survival and development.

The world leaders promised to design and implement a plan of action towards the achievement of the following between 1990 & 2000:

- Reduction of infant and under-5 mortality rate by one third or to 50 & 70 per 1000 respectively, whichever is less.
- Reduction of Maternal Mortality Rate by 50%.
- Reduction of moderate and severe malnutrition among U5 children by half.

- Universal access to safe water and
- Universal access to sanitary means of excreta disposal.
- Universal access to basic education and completion of primary education by at least 80% of primary school age children.
- Improvement of protection of children in especially difficult circumstances.

By the end of the decade, very little progress had been made. The first goal of the World Summit was to reduce the rates of infant and under-five mortality by one third between 1990 and 2000. Overall, the reduction was 14 percent, which means that 3 million more children a year are now surviving beyond their fifth birthday than was the case a decade ago. The global picture, however, conceals a massive disparity in achievements between regions and nations. The tragedy of the HIV/AIDS epidemic in Africa in particular not only sent some countries' child-mortality rates soaring after decades of improvement but also acted as a drag upon the global figure. Nigeria's performance was one of the lowest. Only in one of the major causes of child mortality, diarrhoea, did the world actually achieve its goal of slashing death rates in half.

Over a quarter of the world's children, 33 million infants are still not reached by routine immunization. In sub-Saharan Africa only 47% of children are immunized against diphtheria, whooping cough and tetanus. Polio was slated for complete eradication by 2000. More than 175 countries have been certified polio-free, and the world now looks to be on target provided the commitment is sustained to eradicate polio by 2005 at the latest. It would appear that the recent imbroglio concerning the lack of acceptability of polio vaccine in some parts of Nigeria is rapidly becoming a thing of the past as a result of mobilisation of all stakeholders including community and religious leaders and the

media in order to effect the dissemination of accurate and unbiased information.

In the field of nutrition, the primary goal was to cut malnutrition rates among children under five by half. Although this was more than achieved in South America, the decline in developing countries was only 17%. In Asia, where more than two thirds of the world's malnourished children live, the drop in child malnutrition rates was relatively small, from 36% to 29%, while in sub-Saharan Africa the absolute number of malnourished children has actually increased.

There were some success stories, though these were largely overshadowed by the collapse in immunization and lack of action on malaria. The improvement in the treatment of diarrhoea through social marketing of ORS shows strategic lessons that can be learned for the application of other child survival strategies, particularly in the prevention and management of malaria. There was also a marked increase in the number of mothers breastfeeding their children although introduction of other foods still occur too early in the baby's life. This was achieved through a well-focused Baby Friendly Hospital Initiative, but the improvement is only relative considering the low basal levels that existed prior to the initiative. Another example of a success story in nutrition is the promulgation of legislation that resulted in the universal iodisation of salt. With respect to Protein Energy Malnutrition, there is no clear improvement with stunting still at 34% [MICS 1999].

In addition, two of the micronutrients identified at the World Summit for Children as key to preventing 'hidden hunger'—vitamin A and iodine—have been success stories of the 1990s. Between 1996 and 1999 the number of countries with 70% higher coverage in vitamin A rose from 11 to 43. Iodine deficiency, which is the main cause of preventable mental retardation, is most easily addressed through the simple process of iodizing salt. Although, the goal of virtually eliminating iodine deficiency disorder has not

been met, the percentage of people in developing countries consuming iodized salt has gone up from 20% to around 72%.

The World Summit goals of universal access to safe drinking water and sanitary means of excreta disposal by 2000 are far from being achieved in some parts of the world. The percentage of people with access has gone up in both cases from 79% to 82% for water, and 55% to 60% for sanitation. However, this still leaves around 1.1 billion people without safe water and 2.4 billion people without adequate sanitation, the vast majority of the group being in Asia and Sub-Sahara Africa including Nigeria.

The goal of universal access to basic education is also still far from being achieved. The net primary enrolment ratios increased in every region but there are still more than 100 million children out of school and many more than that who received an education of poor quality. The gender gap—the difference between the school enrolment and completion rates of boys and girls—had closed only fractionally overall but remains wide in many countries of the developing world. There was a modest decline in adult illiteracy which fell well short of the 50% reduction that was expected.

AFRICA FIT FOR CHILDREN⁸⁸

Reinforcing the CRC is the declaration of African leaders contained in Africa Fit for Children. At the 36th Ordinary session of the Assembly of Heads of State and Government of African Unity (OAU) mandated the OAU Secretariat to develop an African Common Position, in consultation with Member States, as well as the civil society organisations. This was tabled at the UN General Assembly Special Session on Children in September 2001. The product of this process was the Cairo Declaration and Plan of Action known as "Africa Fit for Children". In this document, it was acknowledged and affirmed that it is the responsibility of African governments, citizens, families, civil society, regional and Sub-regional organisations and the international community to ensure that children in Africa realise

their full range of rights. It was also affirmed that responding to the needs of Africa's children is an imperative. Children should be at the core of priorities for policy makers. Africa's children are indispensable actors for the present and future of our continent.

CONCLUSION AND RECOMMENDATIONS

It is a tragic fact that, in Nigeria, one in five children dies before reaching the age of five years and over 50% of the causes of this high mortality are of infective origin with malnutrition, faulty child care practices and poor environmental conditions as the underlying causes. A major reason for this is that ***the milk of human kindness has not been allowed to flow*** both biologically and metaphorically to the child as a result of lack of parental empowerment educationally, politically and financially. All efforts to reverse this state of affairs have so far yielded little progress especially in sub-Saharan Africa despite the declaration of Africa's leaders on the need to make **Africa Fit for Children**. This calls for a change in strategy, which will ensure the participation of all sectors in achieving the desired goal of reducing infant mortality by 50% by the end of this decade. Thus, the **Millennium Development Goals (MDGs)**⁸⁹ have been set to address by 2015 the devastating problems of the world's poor, especially in the developing countries, where hunger, malnutrition and poverty abound. In recognition of this, the first of the MDGs which were set for the world is the "Eradication of Poverty and Hunger" All the goals are listed as follows, they are set to:

- G1. Eradicate extreme poverty and hunger.
- G2. Achieve universal primary education
- G3. Promote gender equality and empowerment of women
- G4. Reduce child mortality
- G5. Improve maternal health
- G6. Combat HIV/AIDS, malaria and other diseases
- G7. Ensure environmental sustainability.

Practically all the MDGs are reinforcing the World Summit Goals which were specifically targeted to children all over the world.

At the same time that these laudable social goals are being agreed upon globally, many actions of governments which should not really be high on the hierarchy of priorities begin to retard progress towards the achievement of the goals. Thus, to the question: "What will it take to achieve the Millennium Development Goals and the World Summit Goals?" We could answer that it would take a lot. Economies need to grow to provide jobs and more incomes for poor people. Health and education systems must deliver services to everyone, men and women, rich and poor. Infrastructure has to work and be accessible to all. And policies need to empower people to participate in the development process. While success depends on the actions of developing countries, which must direct their own development, there is also much that rich countries must do to help.

According to Jeffrey D. Sachs, a professor of Economics and Director of the Earth Institute at Columbia University, (Financial Standard Nov. 1, 2004): "Thirty-five years ago, the rich countries promised to give 0.7% of their GNP to poor countries as development aid. Instead, they gave 0.25%—a shortfall that amounts to 120 billion dollars. This does not make sense to global security or even for the financial interest of the donor countries." He ended by stating that building a more peaceful and prosperous world is in everyone's best interest.

The Convention on the Rights of the Child addresses the following:

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- **Social Rights:** The right to life and optimum survival and development, to the best possible health and access to health care, to education, to play, to family life unless not in the child's best interest.
- **Economic Rights:** The right to an adequate standard of living for proper development, to benefit from social security, the right to protection from economic exploitation.

- **Cultural Rights:** The right to respect for language, culture and religion, to abolition of anti-traditional practices likely to be prejudicial to the child's health.

- **Protective Rights:** The right to promotion of the child's best interests, to protection from sexual exploitation from armed conflict, from harmful drugs, from abuse and neglect, to rehabilitative care following neglect, exploitation or abuse.

- **Civil and Political Rights:** The right to be heard and taken seriously, to freedom of expression, to privacy, to information, to respect for physical and personal integrity and freedom from all forms of violence, or cruel, inhuman or degrading treatment.

The Requirements from Governments are:

- To implement the Convention's rights without discrimination for all children.
- To make the Convention and the adopted Bill of Child Rights widely known to both children and adults.
- To report regularly to the UN Committee on the Rights of the Child.

Specifically, Article 24 of the CRC states that children must be guaranteed **the right to the best possible health and access to health care**. This article stresses that governments have a responsibility to ensure that no child is deprived of their right to access health care services. It states that governments should take measures to:

- Diminish infant and child mortality,
- Provide medical assistance to all children with an emphasis on primary care,

- Combat disease and malnutrition,
- Ensure pre and post-natal health care,
- Include children in HIV/AIDS national programme in order to facilitate in clinical management with anti-retroviral drugs and supportive medicines.
- Provide public health education, and
- Develop preventive health care through guidance for parents and family planning education,
- Take action to end traditional practices that are prejudicial to the health of children and to enhance those that are in the best interest of the child.
- Review the issue of increasing maternity leave to six months in order to give the desired support to the recommended practice of exclusive breast feeding for a period of six months
- Provide insurance schemes to enable all children and pregnant women access ultimate health care at all levels of health care delivery.
- Insure that women who are breastfeeding are respected in choice and are given the requisite supportive environment at their working and other public places.

Advocacy for child survival and development must be intensified so as to ensure total commitment to the effective and sustained implementation of the relevant policies and programmes.

A significant percentage of children in all societies are denied the right to optimal health and development, either as a result of public policies that impact directly or indirectly on their day-to-

day lives, or as a failure to take the action necessary to provide healthy and safe environments for children. If children's rights are to be respected and realized, **paediatricians** must become skilled in and active in child advocacy. The following key points provide a framework to empower **paediatricians** and other potential professional child health advocates to assume critical roles in child advocacy.

- Children's rights to the best possible health cannot be fulfilled simply through the efforts to provide some health care services. The social, economic and physical environments where they live can and do have powerful influences on their well being. Therefore the type of health care services provided must be comprehensive and made accessible and affordable.
- Children lack the democratic rights that adults can use to protect their rights. Accordingly, they need adults willing to act as advocates on their behalf.
- **Paediatricians** and other health professionals have insight and experience with children's lives and how their right to the best possible health is affected by their environments, as well as how the actions and inactions of governments contribute to the failure to protect children's rights to health.
- When they advocate together as a body and collaborate with communities, health professionals can tackle the barriers to children's rights to the best possible health, rather than simply treating the consequences on a daily basis in their clinics, health centres and hospitals.
- Children can contribute to their own protection along with adult advocates.
- Changes in the protection of children's rights need to occur in paediatric clinical practice, the delivery systems for health care services and in public policy, if the optimal

health and development of all children is to be protected and promoted effectively.

Unquestionably, countries with the most power in the global economy need to show leadership in the pursuit of child rights. But developing countries' disadvantages do not exempt our governments from the need to demonstrate leadership on behalf of children. The rights of children are indivisible and paramount. No society should be satisfied until the rights of all are guaranteed and respected.

Africa's leadership role is needed in the consistent and committed pursuit of the following ten steps similar to the ten steps to successful breastfeeding!

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- It should:
- Domesticate, Disseminate and Promote the Bill on the Rights of the Child
 - Increase domestic expenditures on social priorities
 - Take measures to improve aid effectiveness and programme delivery
 - Provide safe water, prevent the degradation of the environment and improve environmental sanitation
 - Promote the values of peace, tolerance, understanding and dialogue
 - Reform public institutions
 - Ensure accountability in government
 - Sustain attention to disparities, gender issues and the youth
 - Address the double jeopardy of debt and poverty.
 - Provide access to health insurance scheme for all children and pregnant women and review the issue of increasing maternity leave to six months.

- Enact appropriate legislation to protect breastfeeding rights of working women.
- Effect monitoring of International Code of Marketing of Breastmilk Substitute and Decree No. 41 on the same issue.

Investing in children is, quite simply, the best investment a government can make. No country has made a leap into meaningful and sustained development without investing significantly in its children, adolescents and the youth.

At the World Summit for Children, the Promise of the World Leaders was to put the best interest of children first—in good times and in bad times, whether in peace or in war, in prosperity or economic distress.

They declared ***“We do this not only for the present generation, but for all generations to come.”***

I end this presentation with a famous quote from Gabriela Mistral's poem - “His name is Today”:⁹⁰

We are guilty of many errors and many faults, but our worst crime is abandoning the children, neglecting the fountain of life.
Many of the things we need can wait.
The Child cannot.
Right now is the time his bones are being formed, his blood is being made and his senses are being developed.
To him we cannot answer “Tomorrow”
His name is “Today”

Gabriela Mistral

Nobel Prize-winning poet from Chile

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U. L. ARCHIVE

