

## STEMMING THE TIDE OF MICRO-NUTRIENT MALNUTRITION IN NIGERIA

Considered as the scourge of the 20<sup>th</sup> century and closely linked with household food poverty is the critical issue of MALNUTRITION. Paradoxically, it still remains the pervasive problem that challenges the resources and political ingenuity of world leaders even in the new millennium, affecting about 800 million people worldwide.

Simply described as the lack of, or excess intake of appropriate nutrients needed for the body's growth and development and immunity against debilitating diseases, malnutrition militates against the physical, mental and emotional well-being of individuals.

However, over-nutrition, which is intake of excess nutrients, leads to obesity or overweight children in developed countries as against under-nutrition which is prevalent in developing countries including South East Asia, Latin America and sub-Saharan Africa.

At the community level, it impairs sustainable commercial activities, reduces economic productivity and has become a threat to human development. Tackling it must therefore go beyond the cosmetic concern of policy makers.

Manifesting in low birth weight (LBW), stunting, wasting, severe deficiencies of micro-nutrients such as vitamin A, iron, iodine, folic acid, biotin and niacin, malnutrition is currently responsible for the 165 million children that are stunted, 140 million that are under weight and 47 million that are wasted worldwide, according to UNICEF (2003).

More worrisome is the Nigerian malnutrition situation. In 1997 alone, 52% of deaths among under-5 children population was traced to malnutrition. Recent studies also claimed that 49.1% children mortality is caused by malnutrition. Wasting has reportedly escalated from 9.1% (1997) to 10.9% (2003). According to Professor Adenike Addo, a renowned nutritionist/dietician, recent

nutrition and food consumption survey in Nigeria between 2001 and 2003 shows a high level of Protein-Energy Malnutrition (PEM). Only 26.6% of under-5 children met their Recommended Daily Allowance (RDA) for energy, while 18.5% were severely deficient.

Similarly, the World Health Organisation (WHO) through the Technical Report on Nigeria's Reproductive Health Resources and Services Survey (2002) indicate that as at independence in 1960, the infant mortality rate (IMR) stood at 123. But at 1999 it dropped only slightly to a dismal 112, indicating that little progress has been made in tackling the monster of malnutrition in four decades.

The imperative of urgent intervention strategy cannot therefore, be over-emphasized. Children, more so those under-5, live in a period marked by rapid cellular growth with the attendant high metabolic rate. There is rapid turnover of nutrients. The relatively large surface area permits remarkable losses of heat and water as sweat. These have to be replenished as quickly as they are lost.

Besides, though infants receive supplies of essential minerals and micro-nutrients such as iron, copper and vitamin A during foetal life which are stored in the liver, these can last only for some couple of months. After birth, the adequate supply of needed nutrients become the responsibility of parents, which underscores the reason for mothers to become not only nutrition conscious but also be financially empowered to meet their children's needs.

Beyond that however, is the more critical problem of micronutrient deficiencies, especially in under-5 children and women. Micro-nutrients are essential food components which, though required in minute quantities, are vital for important bio-chemical processes in the human body. Amongst these are vitamins and minerals. But the three micronutrients that are of great public health significance in the world today are vitamin A, iron and iodine.

Vitamin A occurs naturally as retinol in animal sources and beta-carotene in some plants. While retinol is found in animals such as fish (especially fish liver oil), meat, eggs, liver, cheese and full fat milk, in plants it is available in a family of brightly coloured fruits/vegetables and green leafy vegetables. But before the beta-carotene, which is pro-vitamin A, can be used in the body, it is converted to vitamin A. About 6 micrograms of beta-carotene provide 1 microgram of vitamin A.

Essentially, vitamin A has the functions of ensuring proper vision, maintaining strong epithelial cells, boosting the body's immunity and facilitating reproduction. Vitamin A Deficiency (VAD) results in the drying and damage of the eye causing poor night vision (night blindness), dry, scaly skin and increased skin infection. When vitamin A is obtained from beta-carotene, there is no danger of excess intake since it is formed only when it is needed.

The real worry is that VAD is regarded as one of the major causes of child mortality and blindness, which as at 2004 affected not less than one million children per year in less developed countries. Indeed, in the Nigerian context VAD has been identified as affecting 2.5 million under-5 children and 7.2% of women of childbearing age. It has become a contributory factor to high infant, child and maternal mortality.

It could get depleted in the liver when the diet contains inadequate amounts to replace that used up by the tissues or as secreted into the breast milk. In mothers, VAD, especially when combined with a deficiency of zinc, leads to what is called intra-uterine malnutrition, causing low birth weight or stillbirth.

(To be continued)



For more information on child nutrition

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In under-5 children however, the high mortality rate among children with night blindness (xerophthalmia) is related to Protein Energy Malnutrition (PEM), respiratory infections and diarrhoea. Vitamin A Deficiency (VAD) has been found to follow a similar trend in Nigeria, with greater prevalence in under-5 children in the North than in the South. A 1993 PIC survey shows that the prevalence of VAD in children and mothers stand at 9.2% and 7.2% respectively, with 19% rate in the North West compared to 12% in the North-East for children.

The study also reveals that food consumption patterns affect the spatial variation, with people in the South taking diets richer in green leafy vegetable, fruits and palm oil.

Of the three strategies to control VAD, the first focuses on large-scale vitamin A supplementation during the National Immunization Days (NIDs) as imported by UNICEF through the Micronutrient Initiative aimed at achieving reduction in child mortality in developing countries.

According to the UNICEF sponsored situation Assessment and Analysis of Nigeria (2001), the fortification of processed foods, including flour, sugar and vegetable oil with vitamin A has been far-reaching. Since 1996 the collaboration between the National Planning Committee (NPC), NAFDAC and SON which translated into a law in August 2000 has impacted positively in mitigating the scourge of VAD.

As a long-term measure, efforts are now geared towards dietary diversification for under-5 children and their mothers to obtain adequate micro-nutrients including vitamin A from natural sources.

Also considered as one of the world's most common preventable nutritional disorders is Iron Deficiency Anaemia (IDA). Having less than 11mg of haemoglobin per dl of blood does result from inadequate dietary intake, or poor absorption of iron, or even excess

loss of iron due to severe hookworm infection, malaria or loss of blood.

Deficiencies of iron manifest in under-5 children because of poor source of iron from food, or even from their mothers during pregnancy. They are fatal because they lead to morbidity, mortality and disability in under-5 children. More worrisome is the revelation by researchers that IDA is one of the major contributors to under-5 mortality, infant and maternal mortality. Consequently, it has serious implications for mental functioning in children, reducing productivity among adults.

According to UNICEF, IDA in under-5 children leads to potentially irreversible impaired mental development, slow cognitive functioning during the years of exposure to learning stimuli and increased risk of mortality during malaria because of the destruction of red blood cells by *Plasmodium*.

As an intervention strategy, the International Conference on Nutrition (ICN) focused on reducing IDA in view of its impediment to children's survival in the critical years of 1 to 5. According to a 1993 Participatory Information Collection study, the prevalence rate in Nigerian children was highest in the South East at 49.7% and lowest in the North East at 11.1%. So far, the best known treatment of IDA is prevention by eating foods rich in iron, such as vegetables, fruits, milk and meat.

However, once IDA manifests in children and women, supplementation with iron and folic acid is the recommended treatment but it is expensive. The focus should shift to fortification of salt with iron similar to iodization, and ensuring that this gets to most households.

Similarly, Iodine Deficiency Disorders (IDD) has been recognized as a major threat to under-5 children's health with some 2.5 to 3.5 million Nigerians at risk. Prevalence is in regions removed from the coastal and riverine areas. According to **Bleichardt et al** (1980 and 1987) and **Banarasi et al** (1996) severely iodine deficient children

(SID) are found to be slower learners than mildly iodine deficient children (MID) because IDD affects cognitive and intellectual functions.

On the physical plane, the direct evident manifestation of IDD is goitre, which is the enlargement of the thyroid glands. A 1993 estimate showed that Nigeria has the highest goitre rates in Africa with a prevalence rate of 20%. Endemic states include Sokoto, Cross River, Benue, Oyo, Ondo, Enugu, Abia, Kogi and Anambra.

As a preventive pragmatic measure, the Federal Government established a legal framework requiring the iodization of all salt produced in the country while banning imports, with effect from 1990. Complementing this effort is the partnership between UNICEF, SON and USI. What is needed is the sensitization of the local populace to desist from consuming poorly fermented cassava, which contains goitrogens that hamper the proper utilization of absorbed iodine by thyroid glands. Nigerians, especially the home-makers, should be taught about the correct usage of iodized salt.

Beyond that is the critical need for the enforcement of fortification policy of flour, sugar, salt and vegetable oil with the aforementioned micronutrients.

Above all, since the deficiency of micronutrients impact negatively on the health status of under-5 children and their poor, illiterate mothers, all hands must be on deck to solve the problem. To prevent stunted growth, low intelligence quotient (IQ), weakness and physical deformity of under-5 children, the Federal Government through SON and NAFDAC must ensure standardization and full compliance of fortification of flour, sugar, salt and vegetable oil with vitamin A, iron and iodine. This would ensure that Nigeria produces a future generation that is more intelligent, physically stronger and healthier, to face the challenges of the future.



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