Book Cover

PROCEEDINGS OF THE ADEQUATE INFANT NUTRITION CONFERENCE

(December, 2008)

Table of Contents

Table of Contents ii
Acknowledgements iii
Sponsors iv
Introductions 1
Complementary Feeding – Prospects And Challenges Of Adequate Infant Nutrition In Nigeria 3
Current Trends In Breastfeeding/Complementary Feeding 18
Feeding Of Infants And Children With Special Needs And New Challenges 24
Impact Of Policies, Laws 38
And Regulations That Guide The Nutrition Of Children 38
Lifestyle And Quick Meals: Implication For Infant Nutritional Status 56
Nutrition Education, Communication And Supports For Child Nutrition 66
Conference Communiqué 72

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viii. Friesland WAMCO
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- Nestle PLC
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INTRODUCTION

Nigeria was ranked 12th (highest) in the world's under-5 mortality rate in 2006. Writing in Unicef's 'The State of the World's Children 2008', **Ann M. Veneman,** Executive Director declared that "more needs to be done to…address the devastating (impact) of inability to diversify diets (which) leads to chronic malnutrition for children, increasing their vulnerability to ill health and, ultimately, death" . HERFON believes that Nigeria cannot achieve the Millennium Development Goals (MDGs) especially MDG4, if child malnutrition is not frontally addressed within the context of Nigeria's Health Sector Reform Programme (HSRP) and the Foundation's mandate.

As a stakeholder in Health and Nutrition issues in Nigeria, HERFON is concerned with the support, promotion and practice of good nutrition in the country, and committed to the provision of safe and adequate nutrition for infants and young children. Aware that the country is endowed with abundant human, material, financial and other natural resources which have not been adequately mobilized to deal with malnutrition and other problems militating against child survival in Nigeria, especially in the rural areas; the foundation mobilized stakeholders in infant feeding and nutrition in Nigeria, to discuss the 'Prospects and Challenges of Adequate Infant Nutrition in Nigeria', and chart a course for better contributions of nutrition to the achievement of MDG4 in the country.

The conference, held on 16 December 2008, was a collaborative effort, initiated by Health Reform Foundation of Nigeria in conjunction with Nestle PLC, Promasidor, Wyeth Nutrition and Friesland WAMCO. The theme of the conference was **'Prospects *and Challenges of Adequate Infant Nutrition in Nigeria'- Adequate infant nutrition to achieve MDG4 in Nigeria,*** with the objectives as follows***:***

1. To x-ray the problem of infant and young child malnutrition in Nigeria
2. To evaluate current approaches to the control of infant and young child nutrition in Nigeria
3. To proffer affordable and workable strategies for providing adequate infant and young child nutrition in the country
4. To provide strategies for ensuring the adoption, adaptation and studious implementation of the outcome of the conference
5. To advocate for policy changes that will eliminate infant malnutrition in-country

Participants were drawn from all over the Federation including the Presidency, National Assembly, State Governments, Local Governments, Federal Ministries of Health and Line Ministries, State Ministries of Health and Line Ministries etc.

The sub themes of the conference were:

- Complementary feeding-Prospects and Challenges of Adequate Infant Nutrition in Nigeria.
- Current Trends in Breastfeeding/Complementary Feeding
- Feeding of Infant and Children with Special Needs and News Challenges.
- Impact of policies, Laws
- And Regulations that Guide the Nutrition of Children
- Lifestyle and Quick Meals: Implication for Infant Nutritional Status
- Nutrition Education, Communication and Supports for Child Nutrition

Presentations were made on the conference theme and focus areas, by scholars, professionals, health managers, government officials etc. these presentations which essential reflect ‘where we were coming from’, where we were, and suggestions by the presenters on ‘where we should be’, while the conference communiqué additionally reflects the collective position of the participants on ‘where we should be’. All these are presented in this book for the sake and use of all stakeholders.

It is hope that this would be a useful contribution to the effort geared towards achieving ‘Adequate infant nutrition to achieve MDG4 in Nigeria’ especially amongst rural communities.

In gratitude to all persons and institution that have made it possible, we highly recommend this publication to all those to whom ‘Health Issues in Nigeria’ remain ‘Current Concerns’.

Dr. Ahmed Gana
Executive Secretary, HERFON
2010

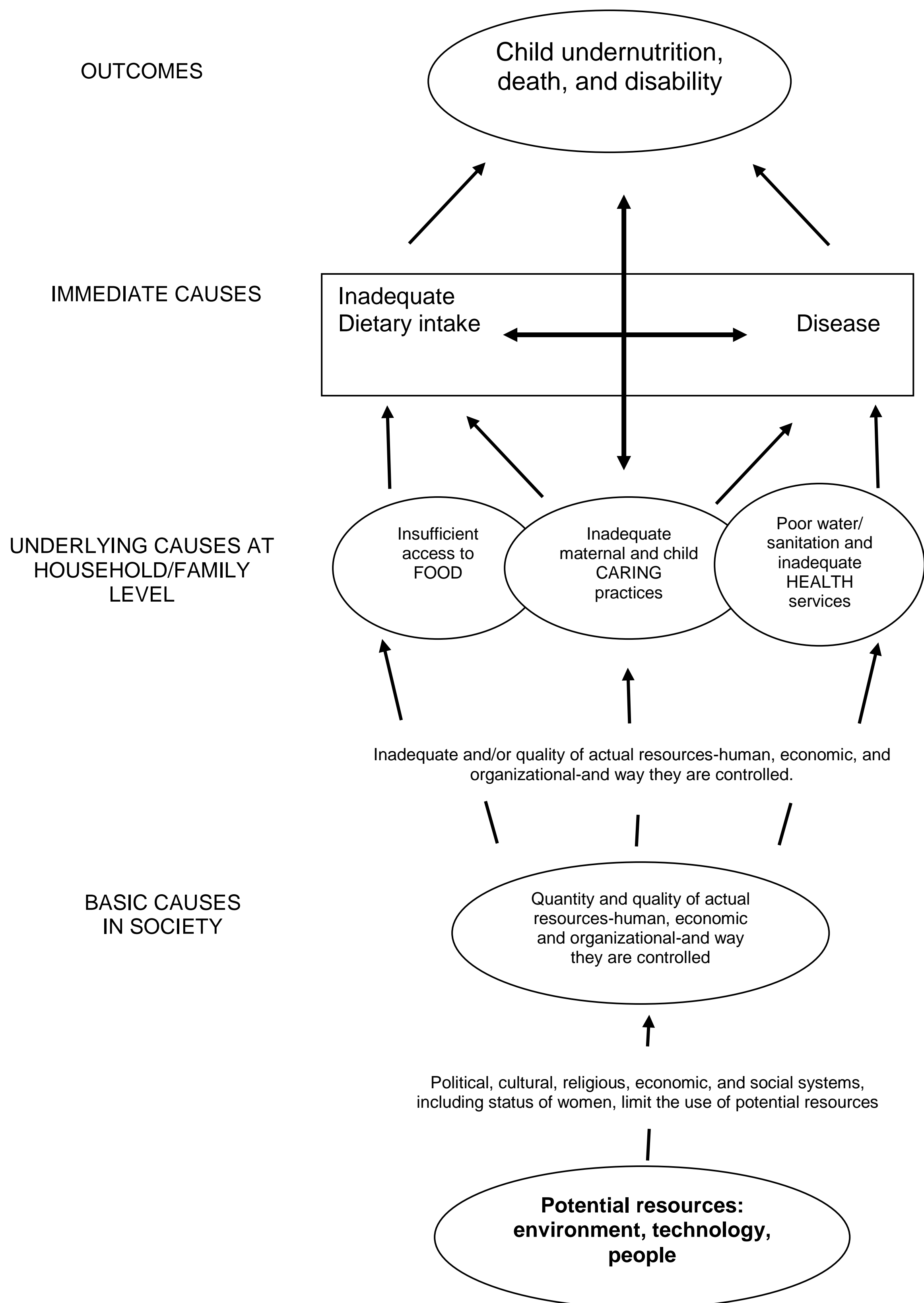
COMPLEMENTARY FEEDING – PROSPECTS AND CHALLENGES OF ADEQUATE INFANT NUTRITION IN NIGERIA

BY

PROFESSOR NGOZI NNAM

INTRODUCTION

Adequate nutrition in the early years of life is an essential condition for a child to develop to his full potential. Breastfeeding, including exclusive breastfeeding for the first six months of life remains the one single practice that provides food, health and care simultaneously for the child. It is important to promote, protect and support breastfeeding, including exclusive breastfeeding for the first six months of life. Breastfed babies have at least six times greater chance of survival in the first months because breast milk has factors that protect the mucous membranes of gastrointestinal and respiratory tracts and cells and immune factors that actively fight infections, shielding babies from diarrhoeal diseases and upper respiratory infections. Breast milk should be the main food throughout the baby's first year and an important food during the second year. It continues to provide unique anti-infective factors that other foods cannot. After six months of life infants need to be introduced to nutritionally adequate complementary foods to compliment breast milk. Often times complementary foods are inadequate and lead to malnutrition and death UNICEF's conceptual framework of the causes of malnutrition identified inadequate dietary intake as one of the immediate causes. (**Fig. I)** It is important for infants to be introduced to nutritionally adequate complementary food after six months of life to ensure optimum nutrition and good health. This will help in achieving the MDG 4.



Source: UNICEF (1998) The State of the World's Children 1998. Oxford: Oxford University

Fig. 1: Causes of child under nutrition

COMPLEMENTARY FEEDING

From birth to 6 months, breast milk alone is sufficient to meet the child's nutritional needs. After 6 months complementary foods are needed to fill the gap between the total nutritional needs of the child and the amounts provided by breast milk. This is the process of complementary feeding and it starts from 6 months. Complementary feeding means giving other foods to an infant in addition to breast milk. The other foods given to the infant to complement breast milk are called complementary foods. The child continues to receive breast milk as well as complementary foods, before eventually changing to family food alone. At the end of the complementary feeding period, which is usually at around the age of 2 years breast milk is entirely replaced by family foods, although a child may still sometimes suckles for comfort.

COMPLEMENTARY FOODS

Complementary foods are foods given to an infant from 6 months to complement breast milk. There are two types of complementary foods.

- specially prepared foods
- usual family foods that are modified to make them easy to eat and provide enough nutrients.

Specially Prepared Foods – This could be prepared locally or commercially

Modified Family Foods – The mother may modify the consistency of the family food by mashing to make it easier for the child to eat or adding something extra e.g. pulverized leaf to improve nutrient content.

QUALITIES OF A GOOD COMLEMENTARY FOOD

Good complementary foods are

- rich in energy, protein and micronutrients (particularly iron, zinc, calcium, vitamin A, vitamin C and folate.
- clean and safe:
    - no pathogens (i.e. no disease – causing bacteria or other harmful organisms)
    - no harmful chemicals or toxins
    - no bones or hard bits that may choke a child

- not boiling hot

- not too peppery or salty
- easy for the child to eat (not too watery or too thick)
- liked by the child
- locally available and affordable
- easy to prepare

WHY COMPLEMENTARY FOODS ARE NEEDED

Complementary foods are needed to fill the gap between the total nutritional needs of the child and the amounts provided by breast milk, so that the child will grow well and remain healthy. Fig. 2 gives a picture of the energy requirement of a child and the energy gap that needs to be filled with adequate complementary food. From 0 – 5 months breast milk alone is sufficient to meet the energy requirement of the infant. From 6 months onwards, there is a gap between the total energy needs and the energy provided by breast milk. The gap gets bigger as the child gets older. The child needs adequate complementary food to fill the energy gap. The quantity of food needed increases as the child becomes older.

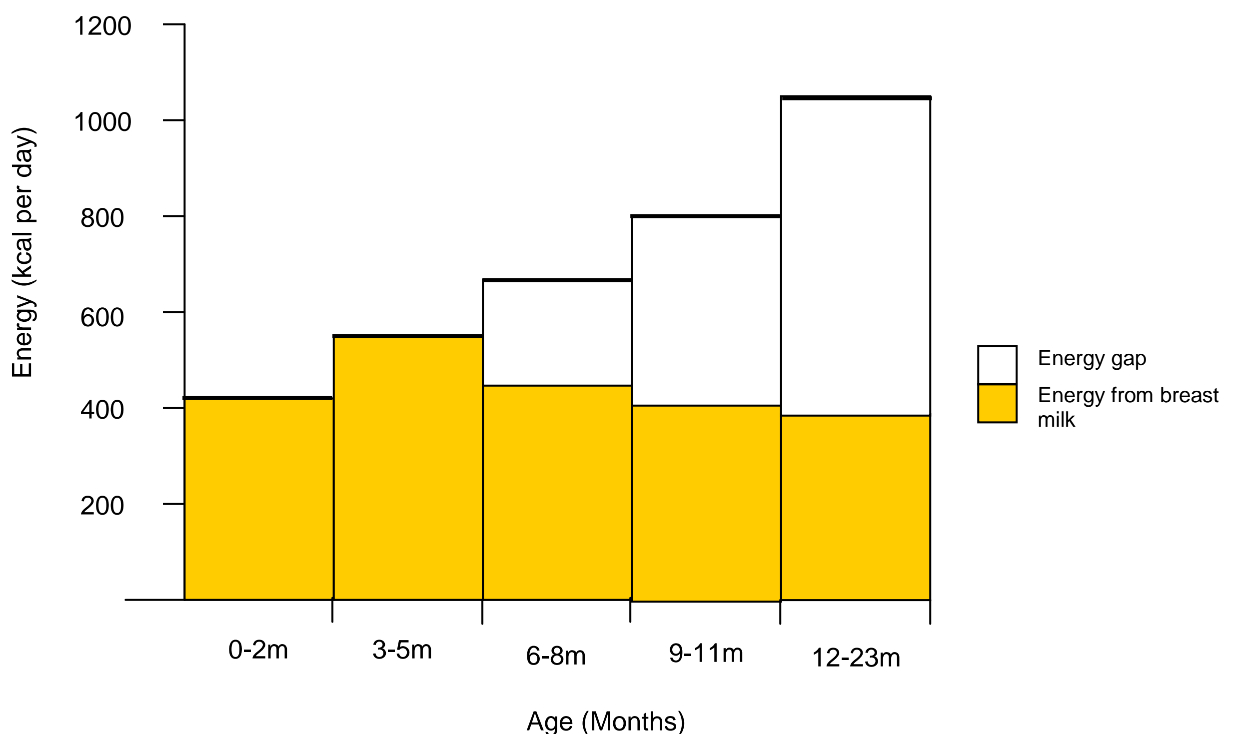


Fig. 2: Energy required (top line) and the amount from breast milk

Figure 3 presents a picture of iron requirement, the amount from breast milk and the gap that needed to be supplied by complementary food. The red line shows the daily amount of iron a child needs at different ages. The amount gradually becomes less as the child gets older because the amount of iron needed is related to how much new blood a child's body has to make. More new blood is made in the first year (when growth is faster) than in the second. From birth to 5 months, the iron requirement of the child is met by iron from birth stores and iron from breast milk. The iron from birth stores is used up by 6 months and the child needs to fill the gap between the iron needed and the iron provided by breast milk from adequate complementary foods. The amount of iron that a child receives from breast milk is small so complementary foods should be rich in iron to fill the iron gap.

Fig. 4 shows the percentage of a day's needs at 12 – 23 months that can be met by breast milk and the gap that needed to be filed by an adequate complementary food. The biggest gaps are for energy and iron and the smallest is for vitamin A because breast milk is poor in iron and very rich in vitamin A.

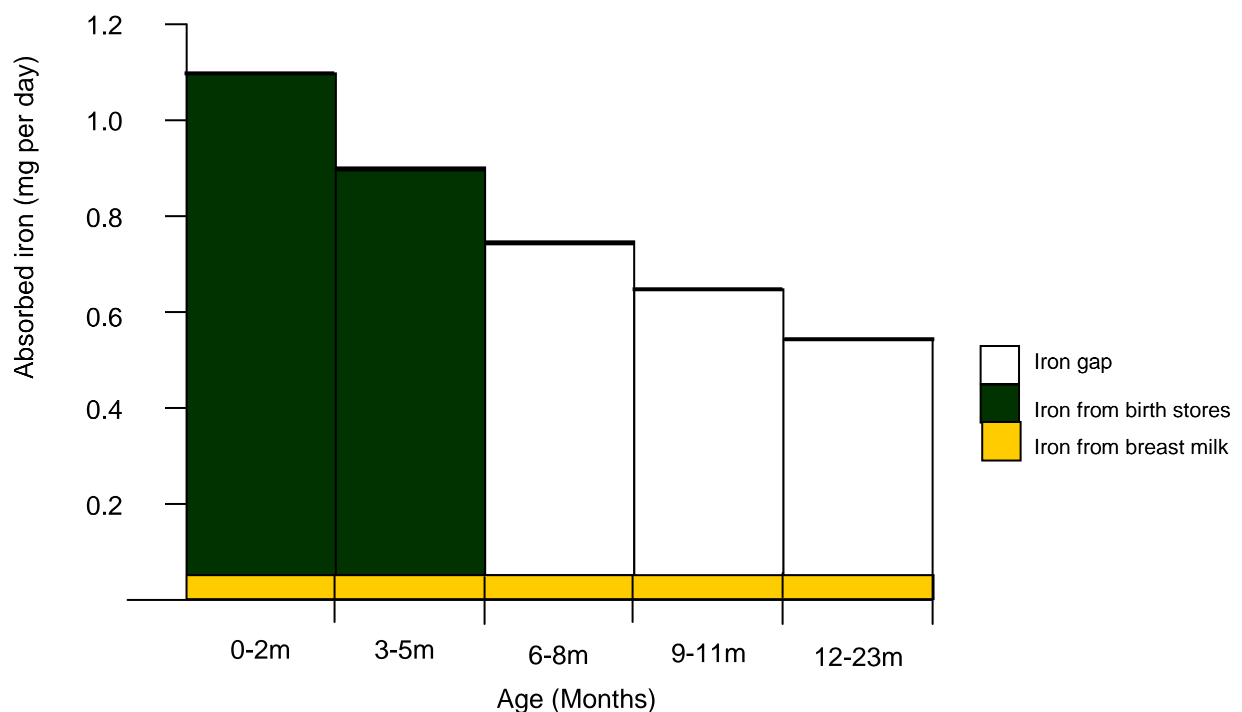


Fig. 3: Absorbed iron needed (top line) and the amount from breast milk and body stores at birth

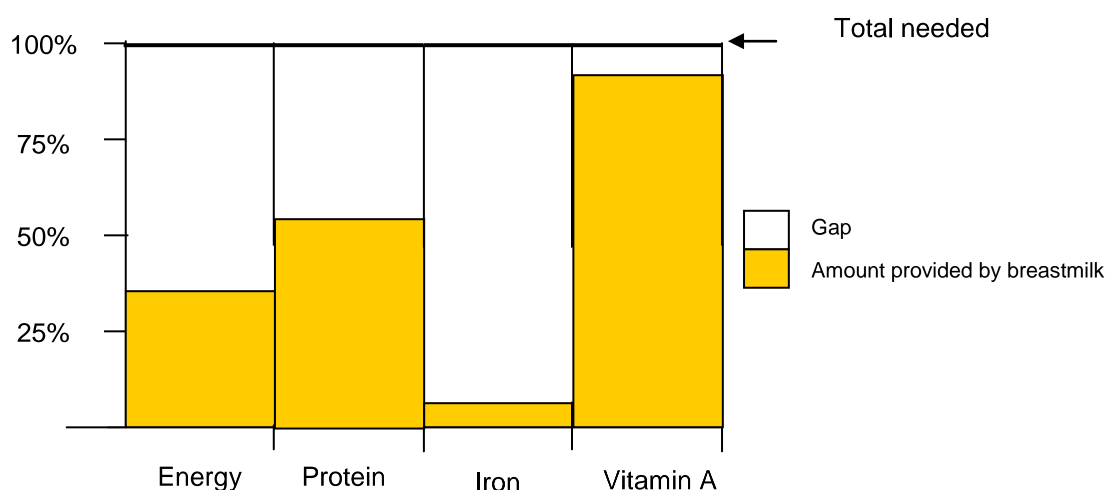


Fig. 4: Percentage of day's needs at 12-23 months that can be met by breast milk

ADEQUATE COMPLEMENTARY FOOD

Adequate complementary food should be rich in energy, protein and micronutrients particularly iron, zinc, calcium, vitamin A, vitamin C and folate. To ensure adequate amount of nutrients to fill the energy and nutrient gap, complementary food should be made from judicious combination of foods and other foods, which include:

- legumes, which consists of pulses (cowpea, pigeon pea, black eyed bean etc) and oil seeds (soybean, sesame, groundnuts etc.)
- animal foods (fish, meat, organ meats, milk etc.)
- dark-green leaves and orange – coloured fruits and vegetables
- oils and fats

The use of the food guide pyramid could be very helpful in formulating complementary foods (fig.5). The staple foods are the main foods eaten example cereals (maize, millet, wheat, rice), roots and tuber (cassava, yam, cocoyam, potato) and starchy fruits (plantain and banana). The major function of these foods is to provide energy, however, cereals can provide some amount of proteins, minerals and vitamins.

Pulses and oil seeds are good sources of protein, but they lack vitamin A and when dried they also lack vitamin C. Oil seeds are rich in fat and so are high in energy. Animal foods are rich sources of many nutrients. Their flesh (meat) and organs/offal

(such as liver and heart) are good sources of protein, iron and zinc. Liver and egg yolk are rich sources of vitamin A. Milk also contains vitamin A. Foods containing bones that are eaten (e.g. small fish, canned fish or pounded dried fish) are good sources of calcium as well as milk and its products.

Dark-green leaves and orange-coloured vegetable and fruits are major sources of minerals and vitamins particularly vitamin A. the darker the leaf or stronger the orange colour, the more vitamin A they contain. Dark-green leaves are rich in folate and iron, but the iron is poorly absorbed. Most fresh vegetables and fruits provide vitamin C. Citrus fruits e.g. oranges are particularly rich in vitamin C, which helps non-heam iron to be absorbed from plant foods in the meals. Complementary foods should be rich in iron and iron enhancers to provide adequate amount of iron to the child. This is because breast milk is poor in iron and by 6 months, the iron stores of the infant are depleted.

Oil (palm oil, soy oil, groundnut oil) and fats (margarine, butter) are concentrated sources of energy. Red palm oil is very rich in vitamin A. fats and oils should be used in moderation.

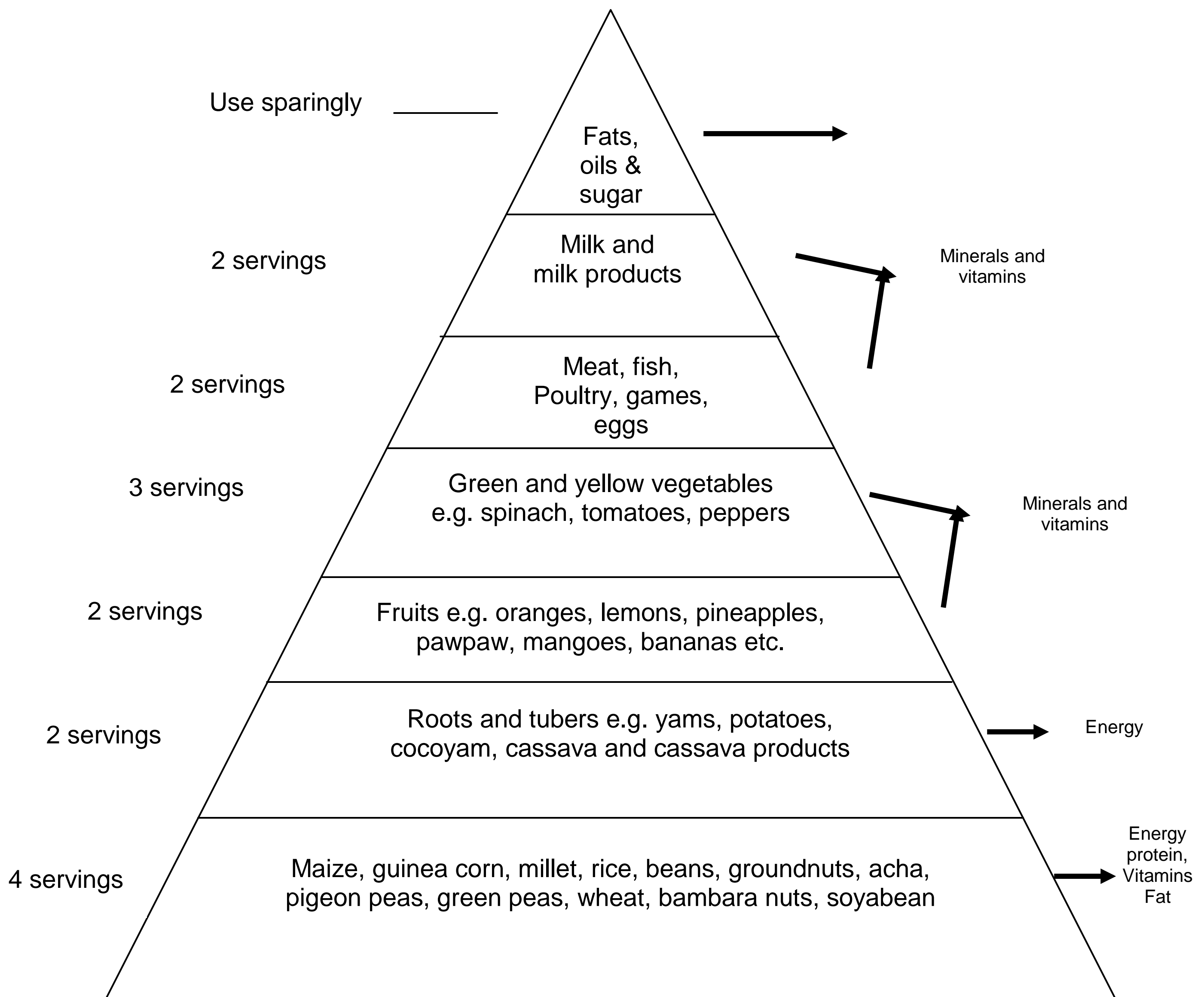


Fig. 5: Food guide pyramid for adequate child nutrition

Key

1 serving of grain group = 1 slice of bread or ½ cup cooked cereal, or ½ cup beans

1 serving of fruit group = ½ cup juice or 1 medium fruit

1 serving roots and tubers = ½ cup cooked root or tuber

1 serving vegetable = ½ cup cooked vegetable

1 serving meat/fish group = 2 – 3 ounces cooked meat, poultry or fish, 1 egg

1 serving milk group = 1 cup milk or yoghurt or 1 ½ ounces of cheese

NUTRIENT COMPOSITION OF AN ADEQUATE COMPLEMENTARY FOOD

The nutrient and energy content of an adequate complementary food per 100g on dry matter basis is as follows:

Protein	15%
Fat	10 – 25%
Dietary fiber	5%
Energy	1680KJ
Calcium	534.00mg
Iron	8.00mg
Zinc	6.70mg
Ascorbic acid	13.34mg

Source: Codex Alimentarius Commission Guideline 08 – 1991

GUIDELINE FOR COMPLEMENTARY FEEDING OF INFANTS

1. Start complementary feeding at 6 months of age.

This is the period when the baby can no longer get enough energy and nutrients from breast milk alone. This is also the age when nerves and muscles in the mouth develop sufficiently to let the baby munch, bite and chew. At 6 months, the babies' digestive system is mature enough to digest a range of foods. Before this age babies' push food out of their mouths because they cannot fully control the movement of their tongues.

Starting complementary feeding too early or too late are both undesirable. Breast milk alone is given for 6 months to provide all the energy and nutrients needed for healthy growth. It contains anti-infective substances which protect the child from diarrhea and other illness. A child is ready to start complementary feeding when he receives frequent breastfeeds but appears hungry soon after. Giving an infant complementary foods too early is not desirable because

- the child does not need the food yet, and it may displace breast milk causing the mother to produce less, so later, it may be move difficult to meet the child's nutritional needs.

- the child receives less of the protective factors in breast milk, so the risk of illness increases.
- the risk of diarrhea also increases because complementary foods may not be as clean as breast milk.
- the foods given instead of breast milk are often thin, watery porridges, which are easy for babies to eat. They fill the small stomach capacity of the infant (200ml) with their poor nutrient density, which can not meet the child's nutrient requirements.

Starting complementary feeding too late is dangerous because;

- the child does not get the extra food needed to fill the energy and nutrient gaps
- the child stops growing or grow slowly
- the risk of malnutrition increases.

2. When starting complementary foods, continue breastfeeding as often as before – that is as often as the child wants. Keep the length of each breastfeed the same as before.

3. Give complementary food after breastfeeding, so that the infant will continue to suckle strongly at the breast but if infant is reluctant to eat after breastfeeding, give the food when he is hungry.

4. Start complementary feeding at 6 months with semi-solid foods made from corn, millet or sorghum flour. Gradually add the following to the staple for variety and adequacy. Legume flour (dehulled and soft boiled) animal foods e.g. fish and crayfish powder, fruits e.g. mashed banana, paw paw or strained and diluted orange juice, vegetables (cooked and mashed) and palm oil. Gradually increase the quantity of porridge as the child gets older. By 9 months, a child should be eating a variety of family foods. He must have been introduced to most adult flavours and can tolerate multi-mixes at this age. Fruits should be given in tiny cubes, meat and fish should be cut into tiny pieces, vegetable should also be finely chopped.

5. Give a mixture of foods (multi-mixes) as complementary foods e.g. porridge made from local staples (maize, millet, sorgum, flours) + legume flour (cowpea, soybeans, groundnuts, bambara nuts, sesame seeds, flours) + pureed green leaves or orange vegetables (spinach, pumpkin, carrot, amaranthus, pumpkin leaves) or orange coloured fruits (mango, pawpaw etc.) served with orange juice. The legume flour could be substituted with animal food for variety and adequacy. A small amount of fat or oil e.g. palm oil is added to give extra energy and vitamin A.

6. Start complementary feeding by giving one or two teaspoons of cereal gruel twice a day as a new food may surprise a child. The consistency should be gradually modified until the baby can tolerate a thicker gruel. Then gradually increase the number of meals to three times daily at 6 – 8 months and to at least five times (3 meals and 2 snacks) by 12 months.

7. New foods should be introduced one at a time so that it will be possible to detect foods that the child is allergic to.

8. Allow the child to get accustomed to one food before introducing another one

9. and to gradually get use to new textures and flavours.

10. Avoid foods that may cause choking e.g. whole groundnuts.

11. Encourage the child to eat, but do not force him. If he refuses to eat, try different food combinations tastes, textures and methods. The child indicates a desire for food by opening his or her mouth when a spoon of food is presented. Turning the head, closing the mouth and pushing food away are signs that the infant is satisfied.

12. Minimize distractions during meals as children loose interest easily.

13. Be patient with the child and show love and encouragement to enable him get enough food.

14. Serve food on separate plates for each child use clean cups and bowls. Spoon feed the child. Avoid use of feeding bottles as they are difficult to clean and could be source of food contamination.

15. If complementary foods are not kept in a refrigerator, feed them within 2 hours of preparation.

16. During and after illness, breastfeed more frequently than usual and give extra meals.

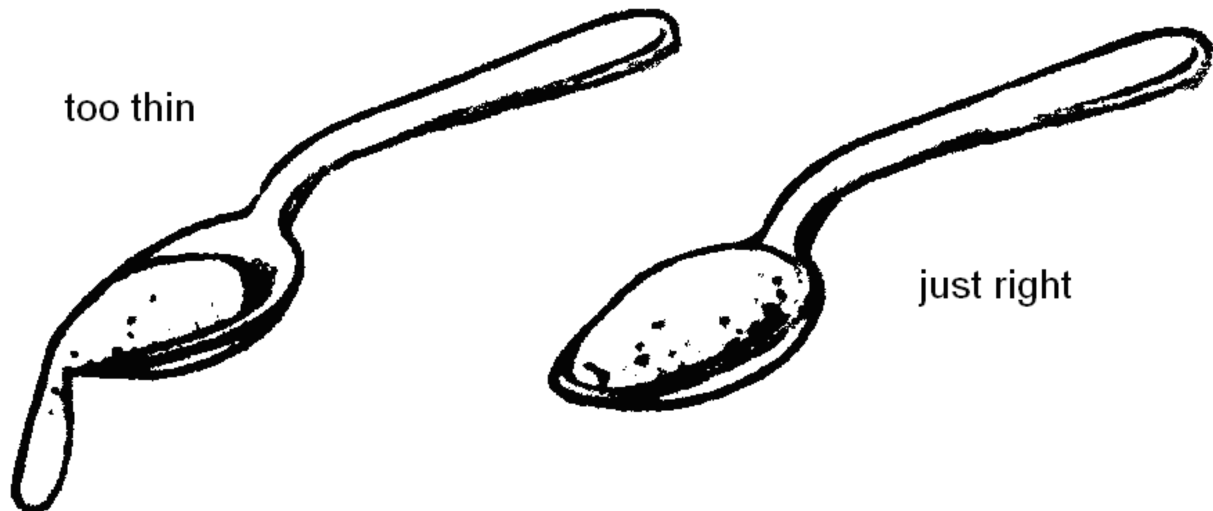
17. After illness, encourage a child to eat as much as possible at each meal. Continue this until the child regains any lost weight and is growing well again.

18. Keep a chart of a young child's weight. Monitoring growth is a useful way to know if a child is eating enough and is healthy.

STRATEGIES TO IMPROVE COMPLEMENTARY FOODS IN NIGERIA

1. Traditional complementary foods could be improved by adding other foods to the staple to make a multi-mix and increase nutrient composition e.g. the traditional corn pap could be improved by adding. legumes, animal products, vegetable and fruits.

2. Porridges should be cooked with less water to make a thick porridge that should stay easily on the spoon. Thin porridges that could be fed from a feeding bottle, or drunk from a cup should be discouraged.



Porridge should be thick enough to stay easily on the spoon

3. Toast cereal grains before milling into flour to reduce viscosity and water absorption.

4. Germinate (sprout) cereal grains, dry and mill into flour for use in porridges. Amylase activity increases during germination. The enzyme hydrolyses starch granules to breakdown the amylase chains which will otherwise form a gel network.

5. Add oil e.g. red palm oil to porridge. Oil will make the thick porridge softer and easier to eat. The oil improves nutrient content particularly vitamin A and energy density. The oil would help gel not to get thicker when it cools.

COMPLEMENTARY FEEDING AND MILLENIUM DEVELOPMENT GOAL 4

- UNICEF identified inadequate dietary intake as one of the immediate causes of child undernutrition, death and disability.
- Inadequate complementary food leads to malnutrition, repeated infections and diarrhea. Child suffers from anemia, protein energy malnutrition and other nutrient deficiencies that could lead to child mortality.

- Adequate complementary food would reduce malnutrition, which is the main contributor to the burden of diseases that leads to child mortality.

WAY FORWARD

- Wholistic approach should be given to infant feeding.
- Promotion of exclusive breastfeeding should be carried out alongside with that of adequate complementary feeding.
- The Health sector should ensure that provision is made for trained Nutritionists to give talks to mothers attending the mother and child health clinic on complementary feeding.
- Nutrition education is imperative for all family members.
- Nutrition Education should be part of the school curriculum and made compulsory for everybody at some point in the school system from primary, through secondary to tertiary institution.

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CURRENT TRENDS IN BREASTFEEDING/COMPLEMENTARY FEEDING

By
Professor Kike Osinusi

INTRODUCTION

Infancy is a period of rapid growth and development and as such nutrient intake must be adequate in quality and quantity to avoid malnutrition which contributes to over 50% of deaths in under-five children.

Breastfeeding is the process by which a woman feeds an infant or young child with milk from her breast, usually directly from the nipple. It is an important strategy for child survival, up to half of infant deaths from diarrhoea disease and acute respiratory infections may result from inappropriate feeding practices. Optimal breastfeeding practices could save an estimated 1.5 million infant lives annually. Babies in the first six months of life can obtain all their nutritional needs from breast milk, during the second half of infancy however, additional energy is needed in the complementary diet. Feeding practices generally are based on culture, religion and economic factors as well as food availability.

COMPOSITION OF BREAST MILK

The composition of breast milk varies from species to species, human milk is the most appropriate of all available milk for the human infant, it is uniquely formulated for the need of the infant and it contains the various constituents in proportions that make digestion by the infant easy. The composition varies slightly from one time of the day to another and also from early to late period of suckling. Cow's milk from which most infant formula are manufactured is distinctly different from human milk.

Table 1: Composition of Human milk and cow's milk

Human milk		Cow's milk
Protein	1-1.5% (More Whey)	3.3% (higher casein)
Carbohydrate	6.5-7%	4.5
Fat	3.5% (contain more of the absorbable Olein)	3.2- 4%

Human milk contains less protein than cow's milk but the protein is in a more easily digested form and contains anti-infective agents such a lactoferrin, lactalbumin, IgA, peroxidases and lysozome. The fat content of the human and cow's milk are almost the same but human milk contains more essential unsaturated fatty acids. The mineral and vitamin contents of human milk are adequate for the human baby except for Vit K which is low and needs to be given at birth. Iron supplements may also be required in preterm low birth weight infants who are breastfeeding

Colostrum is milk secreted in the latter part of pregnancy and the first 3-6 days after delivery. It is thick and deep yellow in colour, the protein and mineral content are higher but it contains less carbohydrate and fat than mature milk. Colostrum also has unique immunoglobin, lymphocytes and macrophages which protect the young infant from infection. It changes to transitional milk between the first and 3rd week after delivery and thereafter mature milk is secreted.

BREASTFEEDING PRACTICE

Optimal feeding for sustained growth and development includes adequate preparation for breastfeeding, initiation within the first hour of life, exclusive breastfeeding for 6 months, timely introduction of complementary feeding with appropriate foods and continued breastfeeding for at least two years. Preparation for breastfeeding should start during pregnancy at antenatal clinic where breast examination should be carried to detect flat or retracted nipples. These can be pulled out manually at frequent intervals. It has been found that breast examination and preparation for breastfeeding are not given adequate attention during antenatal care.

INITIATION OF BREASTFEEDING

It has been shown that early initiation of breastfeeding can save 22% of all deaths among babies less than one month old in developing countries. Surveys in Nigeria have shown that only about 32% of mothers start breastfeeding within one hour of delivery and about 63% within 24hours, this indicate a delay in initiation of breastfeeding. Initiation within one hour of delivery is possible in most case, the exceptions are mothers who are delivered by caesarian section and babies who are severely asphyxiated at birth. Every newborn, when placed on the mother's abdomen, has the ability to find its mother's breast on its own and decide when to take the first breastfeed. Early initiation discourages prelacteal feeds which in turn may delay the establishment of breastfeeding. Prelacteal feeds such as "glucose water", herbal tea are given in a high percentage of Nigerian newborns

EXCLUSIVE BREASTFEEDING FOR SIX MONTHS

Exclusive breastfeeding (EBF) is the practice of feeding the infant solely on breast milk without supplements, not even water. This is recommended for a period of 6 months. Although 97% of babies born in Nigeria are breastfed at one time or the other, the exclusive breastfeeding rate is only 17%. Some of the reasons given by mothers for not practicing exclusive breastfeeding include perceived thirst in the infant as well as the belief that breast milk can not give enough calories for the needs of the infant. It has been shown however that infants aged less than 6 months can obtain all their nutritional and fluid need from breast milk. Exclusively breastfed babies are less likely to develop diarrhoea or die from it than babies who are not breastfed or those who are partially breastfed. Exclusively breastfed babies should be fed at least 8 times in 24 hours, some can feed up to 12 times, feeding however is best done on demand.

COMPLEMENTARY FEEDING

Complementary feeds should normally be commenced when an infant is 6 months old, it was found however that about 36% of Nigerian infants 4-5 months old had already commenced complementary feeding. Time of introduction of complementary feeds is a critical, infants are at greater risk of diarrhoea because they are being exposed to food-borne pathogens for the first time and they are loosing the protection of breast milk which has anti-infective properties. High level of

contamination are often found in infant formula and traditional complementary feeds especially cereal gruels like pap. Feeding bottles which are particularly difficult to clean are often breeding ground for pathogens. Bottle feeding is common in Nigeria, 23% of children less than 2 months are bottlefed resulting in high incidence of diarrhoea. Good complementary feeding practice involve selecting nutritious foods and preparing them hygienically. The choice of complementary foods depends on locally available foods and existing beliefs and practices. Good complementary foods consists of soft mashed foods to which vegetable oil should be added, examples are rice, yam, potatoes enriched with animal protein, green leafy vegetables and oil.

The number of complementary meals per day should be increased gradually and breast milk continued until the age of 24 months or more.. Median duration of breastfeeding in Nigeria is 18.6 months. This is fairly good but may mean that low exclusive breastfeeding rate and faulty complementary feeding practices may be contributory factors to the high prevalence of malnutrition in children less than 2 years.

BENEFITS OF BREASTFEEDING

Extensive research has documented numerous benefits to infants, mothers, families and society from breast feeding.

Benefits for The Infants

- Contains the right balance of nutrient tailored to the need of the infant. Easily digested and efficiently used.
- Breast fed babies have lower risk of various diseases
  - Diarrhoea
  - Chest infection
  - Ear infection
  - Urinary tract infection
  - Asthma
  - Allergies
  - Diabetes
  - Obesity

- Emotional bonding, close loving relationship between mother and baby, baby cries less
- Child likely to perform better on intelligence tests later in childhood

Benefits for The Mothers

- Breast feeding releases hormones that have been found to relax the mother and cause her to experience nurturing feeling towards her infant.
- Breast feeding as soon as possible after delivery increases levels of oxytocin which encourage the uterus to contract more quickly. This helps to decrease bleeding after delivery.
- Breast feeding can also help the mother to return to her previous weight as the fat accumulated during pregnancy is used in milk production
- Frequent and exclusive breast feeding delays the return of menstruation and fertility, this is known as lactational amenorrhoea – this serves as natural child spacing method.
- Breast feeding mothers have reduced risk for ovarian and breast cancer
- Maternal bond is strengthened through breast feeding. The father can support the mother in a variety of ways, this support can also help to establish bonding between father and baby

Benefit for The Household/Nation

- Breastfeeding is among the most cost- effective child survival strategies, the household saves money, the nation saves foreign exchange
- Breastfeeding is environmentally friendly, it is a naturally renewable resource, requires no packaging or disposal

CONTRAINDICATIONS TO BREASTFEEDING

There are very few absolute contraindications to breastfeeding. Infectious diseases such as tuberculosis and HIV in the mother are not absolute contraindications. Infants of mothers who have open tuberculosis can be breastfed under the protection of isoniazid chemoprophylaxis while the mother is being treated for the disease. With regards to infants of HIV-positive mothers, WHO recommends exclusive breastfeeding except when replacement feeding is acceptable, feasible, affordable, sustainable and safe (AFASS), hence HIV infection in the mother is not an absolute

contraindication to breastfeeding. Low transmission rate have been reported in some cohorts of babies who were exclusively breastfed. Some diseases in the mother are contraindications to breastfeeding, these include breast cancer, acute renal failure and congestive cardiac failure. Galactsaemia is an absolute contraindication to breastfeeding. Breast engorgement, sore/cracked nipples and breast abscess are some of the problem that can occur in a breastfeeding mother, these are not indication to stop breastfeeding, the process could be discontinued briefly and recommenced after treatment.

CONCLUSION

Inappropriate breastfeeding and complementary feeding practices continue to contribute to the high prevalence of malnutrition in children in Nigeria. Preparation for breast feeding should be made an important part of antenatal care. There is need to give more health education to mothers on the importance of early initiation of breastfeeding, exclusive breastfeeding for six months, timely introduction of complementary feeding using appropriate locally available foods and continued breastfeeding until the age of 2 years. These will reduce malnutrition which in turn will improve child survival increase the chance of attaining Millennium Development Goal 4.

In addition enabling environment should be provided by Government and all stakeholders to encourage optimal breastfeeding and complementary feeding practices.

RESOURCES

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3. National Health Demographic Survey (2003)

FEEDING OF INFANTS AND CHILDREN WITH SPECIAL NEEDS AND NEW CHALLENGES

By

Professor Bede C. Ibe.

INTRODUCTION:

Feeding the growing infant and young child has always proved a challenge to parents and health care providers. The requirements for calories (energy) and nutrients for growth and development are greatest during this period. Any deficiencies suffered during this period may have severe consequences for the child's future. It is said that nutrition losses incurred in childhood represent losses children will carry throughout life. The importance of adequate infant and early childhood nutrition cannot be over-emphasized.

Childhood undernutrition is a public health problem worldwide. It is the form of malnutrition very prevalent in developing countries, especially in countries of sub-Saharan Africa (SSA) of which our country, Nigeria is one of them. The World Health Organization (WHO) estimates that about a third of children under-5 in SSA and South Asia are chronically undernourished. Undernutrition manifests in several ways and they include: low birthweight, stunting (low height-for-age), wasting (low weight-for-height) and less visible micronutrient deficiencies. Affected children often have impaired cognitive function and are at higher risk for diseases especially infections because of their impaired immune functions. These children, if they survive, will grow into adulthood disadvantaged, with low intelligence and low productivity.

Childhood undernutrition (malnutrition) contributes significantly to under-5 morbidity and mortality. It is estimated that over 50% of under-5 deaths in SSA are related directly or indirectly to malnutrition. With our very high infant and under-5 mortality rates, it is not difficult to infer that childhood malnutrition is a problem in Nigeria. Studies have also shown that as much as 19% of child deaths in low-income countries can be prevented if breastfeeding and complementary feeding can be

adequately promoted and practiced. HERFON must, therefore be highly commended for bringing the subject of infant nutrition to the public domain. The theme addresses the millennium development goal-4 (MDG-4) whose achievement is very doubtful for Nigeria and also MDG-1 that focuses on eradication of extreme poverty and hunger. Undernutrition, we know, is both a symptom and a cause of poverty.

WHO IS THE CHILD WITH SPECIAL NEED?

The child with special need with respect to feeding will be defined in its broadest sense. It will refer to that "child whose feeding poses such a severe challenge to the primary care-giver (mother) that some assistance is necessary for optimal nutrition of the child"

The special need may arise from problems (or situations) relating to the child, the care-giver (mother or family) or the community the child lives in.

The problems relating to the child include (but not limited to) prematurity, severe illness and handicaps (congenital malformations, neuro-developmental disorders, etc).

On the part of the care-giver (mother), situations will include: maternal death, severe maternal illness (eg HIV infection, open tuberculosis, puerperal psychosis, severe post-partum haemorrhage leading to lactation failure) and family disruption.

The community may suffer civil strife or other disasters, natural or otherwise that may lead to displacement of families and thereby create some food crises.

FEEDING THE INFANT AND YOUNG CHILD.

There are three principal feeding modalities in infant and young child nutrition: breastfeeding, infant formula feeding (use of breast milk substitutes) and complementary feeding. Complementary feeding is actually a follow-on for the older infant on beast milk and/or breast milk substitute. A brief discussion of each of these feeding modalities will help appreciate the feeding of the infant and young child with special needs.

BREASTFEEDING

Nutritionally, breastfeeding is the best start for infants. Breastfeeding has numerous advantages to the infant, the mother and the community and by extension, the nation. It is an important child survival strategy. Breastfed babies grow better both physically and intellectually and have less risk for diseases especially diarrheal diseases and acute respiratory infections. Good breastfeeding practices require that mothers breastfeed exclusively for the first 6 months of life and thereafter introduce complementary feeding while continuing to breastfeed.

Exclusive breastfeeding maximizes all the benefits of breastfeeding. Breast milk provides all the fluids and nutrients a young baby needs in the first few months of life including water but it is often difficult to convince mothers about this. Promoting exclusive breastfeeding is not easy because in many cultures, giving water, herbal teas or other fluids may be the norm and people may not readily appreciate the potential harm the babies may be exposed to by such practices.

Adequate breastfeeding requires commitment on the part of a nursing mother and a baby-friendly environment. Breastfeeding received a boost in the 90s in Nigeria through the Baby Friendly Hospital Initiative (BFHI) programme that was promoted by the WHO, UNICEF and other agencies. There is evidence that breastfeeding practices have improved in Nigeria and exclusive breastfeeding rate increased from about 2% in the 80s to about 20% now. Quite unfortunately, the BFHI programme has not been sustained because the donor agencies that provided the funds initially have moved on to other programmes and our Ministries of Health at both Federal and State levels obviously do not consider breastfeeding promotion a priority.

Although breastfeeding is a natural physiological activity, it does not come naturally to every woman. Also not every baby can breastfeed nor is breast milk available to every baby. What is important is that every woman who can and who wants to breastfeed should be assisted through education and necessary support to breastfeed effectively. There are strategies to assist women to breastfeed when special needs or circumstances arise. It is importantly to state clearly that breastfeeding is not an all-or-none affair. In any situation, the more breast milk a baby gets the better.

INFANT FORMULA FEEDING (USE OF BREAST MILK SUBSTITUTES)

The breast milk substitutes (BMS) being discussed here are the so-called infant milk formulae. These are milk products specially formulated such that, on reconstitution (according to the manufacturers' instructions), will resemble human milk in terms of nutrient composition. The principal nutrients are proteins, carbohydrates and lipids.

Mention of BMS often generates emotions and is construed as an endorsement and/or promotion of the products. It should not be so. The normal and only proper use of BMS for infant feeding is when breast milk is unavailable to the baby for whatever reason. There are three primary concerns with the use of BMS:

- Contamination at the point of manufacture. The recent melamine tragedy in China is a sad reminder that anything is possible in our troubled world and the regulatory agencies in every country must remain eternally vigilant. Some milk formula is shops have been found to be contaminated with dangerous bacteria.
- Contamination at the point of use. Contamination at point of use poses the greatest danger. Contaminants include microbial agents (bacteria, protozoal agents etc) and noxious chemicals. Availability of potable water, fuel for boiling and sterilization of utensils, the general sanitary condition of the home and the knowledge and skill of the user to properly prepare and feed the baby determine the degree of risk of contamination. Most of the bad name that the use of BMS has stem from events at the point of use.
- Cost of the products. Cost determines availability of sufficient amount of milk products for optimal feeding of the infant.

In order to protect breastfeeding the marketing of all BMS is regulated by the Code of Marketing of Breast Milk Substitutes.

All BMS certified by the Codex Alimentarius Committee is nutritionally safe for a baby and proper use of infant formula is compatible with healthy growth and

development of a child. As a Paediatrician and Neonatologist, I feel reassured that there are fall-backs when breast milk is unavailable for a baby.

COMPLEMENTARY FEEDING

Complementary feeding is the introduction of "soft" semi-solid foods usually from about the 2nd six months of life. Complementary feeding is important for two reasons.

1. Nutritionally, from about 6 months of life, breast milk (or infant formula for non-breastfed infants) alone will not meet the energy and nutrient needs of the growing infant. A more energy dense food becomes necessary.
2. Developmentally, there is a critical period when a child learns to chew and appreciate other food tastes and textures. This period starts from about the age of 6 months. If the necessary stimuli are not provided, feeding problems may develop.

Complementary feeding period normally from about 6 to 18 – 24 months is a very vulnerable period for infants and young children. It is the peak period for growth faltering due to under nutrition, high prevalence of certain micro-nutrient deficiencies (iron, zinc, etc) and some diseases like diarrhea and acute respiratory infections.

The importance of complementary feeding was underscored by the 2002 World Health Assembly Resolution 55.25 on "Global Strategy for Infant and Young Child Feeding" which re-emphasized the importance of exclusive breastfeeding for six months and the timely introduction of adequate, safe and appropriate complementary feeding from six together with continued breastfeeding to 2 years and beyond.

There are controversies as to the optimum time for introduction of complementary feeding. The WHO recommended time is 6 months but it is known that in some cultures complementary feeding is begun as early as 3 months and in some after 6 months. Studies done in Europe show that too early introduction (from 3 months or earlier) or too late (from 7 months) are associated with increased risks of diseases like allergies, insulin dependent diabetes and celiac disease.

The WHO Expert Consultation on the Optimal Duration of Exclusive Breastfeeding while recommending exclusive breastfeeding for 6 months stated that "Exclusive breastfeeding for 6 months can lead to iron deficiency anaemia in susceptible infants" and that available data are "insufficient to exclude some other potential risks associated with exclusive breastfeeding including growth faltering and other micronutrient deficiencies…" From practical point of view, time for commencing complementary feeding should be a range and some experts are advocating that we revert to the earlier recommendation of exclusive breastfeeding for 4 – 6 months.

In most cultures in Nigeria, the first line complementary food is the cereal gruel made from guinea corn, maize or millet grains. It is usually deficient in energy and is of poor nutrient quality. Addition of red palm oil (rich source of Vit. A), ground cray-fish and/or soya-bean powder are some of the strategies to improve the energy and nutrient value of the gruel. Micro-nutrient deficiencies are common and these can be given as supplements in form of sprinkles or spreads. Fortification of food items (eg iodized salt) is also a strategy that can be implemented.

Commercial, ready-to-use complementary foods are available in the markets. Good quality ones are fortified with micronutrients, but they are relatively expensive. With increasing percentage of women in the workforce, these foods will become popular. Some of the commercial ready-to-use complementary foods are regulated as breast milk substitutes. Complementary foods are, when correctly used, not breast milk substitutes. They are necessary complements to breast milk.

The safety concerns associated with infant formula feeding also pertain to complementary feeding. As a result of more extensive handling, microbial contamination is a serious risk.

Appropriate complementary feeding should be responsive, with the care-giver responding to the child's hunger cues. As the child approaches the 2nd birthday, complementary foods should be prepared in a variety of ways to offer the child different tastes and textures. At this period also, family foods should be part of the child's menu.

FEEDING THE INFANT WITH SPECIAL NEEDS

In a forum of this nature, it will be impossible to capture all situations of special needs in the feeding of infants and young children. We shall limit our discussion to those situations with high public health impact. These will include: the orphaned child; preterm/low birth weight infant; the HIV-exposed infant and infants and children in especially difficult circumstances. Other situations may be mentioned briefly.

The Orphaned Infant

Maternal death is the most tragic event in maternal and child care. Nigeria has a very high maternal mortality rate – about 800 per 100,000 births. Maternal death creates an immediate special need for the feeding of the newborn infant. The mother's breast milk is not available. The feeding options available are; surrogate (wet nurse) breastfeeding, breast milk from a breast milk bank or formula (BMS) feeding.

It is extremely difficult to get a surrogate mother. Occasionally, a woman may be available to breastfeed her grand child and the best that can be achieved in such situation is partial breastfeeding. Because of our unstable power supply, breast milk banking is not practiced in Nigeria. Thus, the only practical option for feeding the orphaned infant is formula feeding.

The challenge in the feeding of this infant with special need is ensuring adequate preparation and administration of the milk formula to sustain optimal growth and development while at the same time minimizing the risks associated with formula feeding. Unfortunately however, health workers, including doctors seldom teach care-givers on proper use of infant formula either due to ignorance or fear of contravening the code of marketing of breast milk substitutes.

The "NAFDAC – Marketing of Infant and Young Children Food and other Designated Products (Registration, Sales, etc.) Regulations 2005" is omnibus and can be confusing. There is real and definite need not only to promote breastfeeding but also to protect and support it. The NAFDAC regulation is directed towards these objectives. We also owe an obligation to the "unfortunate" babies who need infant formula for sustenance to ensure that they are adequately and appropriately fed. The International Code of Marketing of Breast Milk Substitutes provides in Article 6.5 the

“Feeding with infant formula … should be demonstrated only by health workers, or other community workers if necessary; and only to mothers or family members who need to use it…” Health care providers must have the capacity to teach care-givers (mothers, family members) how to prepare the food properly and emphasize good hygiene, sterile utensils and correct dilution of the milk powder.

It is not an uncommon observation in many motherless homes to find orphaned babies on infant formula feeding who are thriving poorly due to inappropriate feeding.

As stated earlier, infant formula (BMS) feeding is compatible with healthy growth and development of children. Children who are unfortunate not to have breast milk available to them have a right to good nutrition which is possible if the care-givers are adequately trained and supported on the proper use of infant formula.

Preterm Low-birth Weight Infants

The normal duration of pregnancy before delivery is 40 weeks. Most deliveries occur within two weeks of 40 weeks and are described as term deliveries. Deliveries before 37 completed weeks of gestation are described as preterm delivery. Such babies are said to be premature. The normal birth weight of term babies is around 3500gm (3200 -3700gm). Birth weight <2500gm is described as low-birth weight. Preterm (premature) babies are usually low-birth weight. Where the gestational age at delivery is 32 weeks or less, it is described as extreme prematurity. The birth weight may be 1500gm or less and it is described as very low-birth weight.

Very low-birth weight infants present very severe challenges with respect to feeding. All their organ systems are immature. With particular reference to the gastro-intestinal system, the gastric capacity is very small, the absorptive capacity of the intestines are grossly limited while digestive enzymes are deficient both in quality and quantity. With careful feeding, these infants do well.

All studies show that these tiny babies do best on their mothers’ breast milk. The breast milk of mothers who delivered preterm (Preterm breast milk) is different in terms of nutrient and mineral composition from breast milk of mothers who delivered at term (Term breast milk). In addition, preterm breast milk contains abundant

polyunsaturated fatty acids that promote neuro-developmental growth. Mothers who deliver preterm are therefore encouraged and supported to produce expressed breast milk (EBM) for their babies. However, because of lack of stimulation form suckling (the tiny babies are unable to suck the breast) and the stress associated with preterm birth, these mothers do not often lactate effectively with the result that their milk production of milk is low and insufficient for their babies. For optimal feeding of the very low birth weight infants, the mothers EBM need supplementation.

Where available, pasteurized donor breast milk is the preferred supplement. In the alternative, infant formula is the next best choice. In some countries in Europe, regional breast milk banks are in existence and serve as sources of donor breast milk for babies in need. Concerns about power supply and transmission of infection are impediments to establishment of breast milk banks in Nigeria.

In Nigeria therefore, very low birth weight infants are fed with their mothers' EBM and any deficits are made up with infant milk formula.

The HIV Exposed Infant.

Infants of HIV-infected women are described as HIV-exposed because their HIV statuses as at the time of birth are unknown.

Ever since it was conclusively shown that the human immunodeficiency virus (HIV) is secreted in the breast milk of HIV-infected mothers, breast milk transmission of HIV has continued to pose serious challenges for prevention of vertical transmission of HIV from mother to child. Rates of mother-to-child-transmission of HIV through breastfeeding range from 10% to 33%.

In the developed countries, the message is unambiguous: HIV-infected mothers should not breast milk. Those who attempt to breastfeed may be accused of child abuse and the babies taken into protective custody.

In the developing countries the message is neither clear nor straight forward. Because of the risks associated with infant formula feeding (infections, diarrheas and malnutrition) breastfeeding is a recommended option for HIV-infected mothers. The

current recommendation is that HIV-infected mothers should breastfeed exclusively for 6 months and stop unless replacement feeding (infant formula feeding) is Acceptable, Feasible, Affordable, Sustainable and Safe (AFASS) for them and their infants.

A joint statement by FAO/WHO/UNICEF in 1984, declared, inter alia, that “the most effective way of preventing breast milk transmission of HIV is breast milk avoidance” In developed countries, with voluntary counseling and testing (VCT), zidovudine prophylaxis, elective caesarean section, safe use of infant formula and avoidance of breastfeeding, vertical transmission of HIV from mother to child has reduced to <2% among HIV-infected mothers. In sub-Saharan Africa, where such interventions are not available and prolonged breastfeeding is encouraged, mother-to-child-transmission has remained high, about 25% to 35%. It is important for us to note that more 90% of about 2 million children with HIV/AIDS worldwide are from sub-Saharan Africa and most were infected through direct mother-to-child transmission. Transmission through breastfeeding is estimated to account for about 70% of this number, the balance occurring in utero or during delivery.

We must ask ourselves this question: Is this policy (applicable only in developing countries) of exclusive breastfeeding for 6 months unless the use of formula fulfils the AFASS criteria fair to HIV-infected mothers and their infants?

Presently, HIV/AIDS has no cure; available treatment is largely palliative and expensive. For HIV-infected infants, 5-year survival rate is low and quality of life poor.

The HIV-infected mother is already severely stressed by her HIV status. Is she in the frame of mind to lactate effectively even if she is asymptomatic? Motherhood inherently entails care and vigilance for children. Which HIV-infected mother will voluntarily choose to breastfeed her baby if she is well informed that her baby may be infected by HIV through her breast milk?

Who determines AFASS? Is it the HIV-infected woman and/or family? Is it the health-care provider? Do the issues of feasibility, affordability and sustainability not depend

on national policy? If the woman and her family are properly counseled, will they reject BMS when they know it is in their child's interest? It is my considered opinion that AFASS is an unnecessary burden imposed on HIV-infected mothers and their families. Some mothers, who out poverty elect to breastfeed most often breastfeed only partially because they are unable to produce enough breast milk. They effectively end up giving both breast and formula milk (mixed feeding) a practice that increases the risk of HIV transmission.

The discriminatory policy on HIV and infant feeding in developed and developing countries is based primarily on the assumption that risks associated with formula feeding in developing countries far outweigh the risks if HIV transmission. Is this a fair assumption? The risks of formula feeding stem largely from lack of potable water and unhygienic environment. Are these insurmountable? It is basically unfair accept that people of the developing world and particularly of sub-Saharan Africa cannot use infant formula appropriately

In the past decade, several agencies including the WHO have sponsored researches on several aspects of HIV and infant feeding in sub-Saharan Africa. It is doubtful if such studies will be allowed in developed countries. Published data from these studies have not justified willful exposure of babies to increased risks of HIV infection.

As in the developed countries, our HIV-infected mothers should be advised not to breastfeed. Those who cannot on their own afford replacement feeding should be assisted by the State to do so. The other interventions which have helped to drastically reduce the direct mother-to-child transmission should be put in place as well. We should, as a people aim always for the highest standard of care.

Children in Especially Difficult Circumstances

This category of children with special needs for feeding has been included because often in this country events have led to displacement of people from their normal habitat. The events could be natural disasters (flooding, etc) or conflicts (community strives, wars, etc). In these situations, women and children (especially breastfeeding mothers and their infants) are hardest hit.

National relief agencies, non-governmental organizations (NGOs) and voluntary groups like the Red Cross and Red Crescent play vital roles. The priorities are provision of secure shelter for the women and children, provision of water (for drinking and other purposes) and food. When the right actions are taken, suffering is minimized; malnutrition and other diseases associated with refugee situations are prevented.

Other Situations

Other situations that may create special needs for infant feeding include:

1. Mothers with open tuberculosis. The babies need protection and may be temporally removed from their mothers.
2. Mothers on treatment in which the drugs secreted in breast milk may be harmful to baby (cancer treatment)
3. Babies with malformations like cleft lip and palate who may require special devices for feedings.

These situations do not, except for open TB, have public health impact and are handled on case by case basis.

THE CHALLENGES

The challenges that confront Nigeria in the Health sector include having **Insight** for us to fully appreciate that the health sector is not working. That **New Thinking** and **New Strategies** are needed to move our health care delivery forward and that **Courage** and **Political Will** must be in good supply. These will be illustrated with our child health indicators.

Child Health Indicators in Nigeria

Nigeria has one the highest neonatal mortality rates in the world (48 per 1000 live births), one of the highest infant mortality and under-5 mortality rates – 101 per 1000 live births and 193 per 1000 live births respectively. We are one of 42 countries that contribute over 90% of all under-5 deaths worldwide. These are dismal statistics.

In the ranking of countries in descending order of their estimated 2004 U-5MR, Nigeria is ranked 13. Sierra Leone has the highest U-5MR of 283 and is ranked

number one while Singapore and Iceland have the lowest U-5MR of 3 each and are ranked equally 192.

	1990	2001	2002	2003	2004
Nigeria	230	183	183	198	197
Ghana	122	100	100	95	112
Senegal	148	138	138	137	137
Kenya	97	122	122	123	120
S. Africa	60	71	65	66	67
Egypt	104	41	41	39	36
Brazil	60	36	36	35	34
Indonesia	91	45	45	41	38
Canada	8	7	7	6	6

U-5MR for Nigeria and selected countries

Sources: UNICEF: State of the World's Children; 2003, 2004, 2005 & 2006

The table above shows the under-5 mortality rates for the years 2001 to 2004 compared to the 1990 figures for Nigeria and a few countries selected from Africa, Asia, North and South America. (Note that the 2008 State of the World's Children put Nigeria's U-5 MR at 193 per 1000 live births).

What is obvious from this table is that countries of sub-Saharan Africa (SSA) have not made significant improvement on their 1990 figures. Others from North Africa (Egypt), Asia and South America have shown remarkable improvement. The countries, like Canada, with single digit rates may have reached their irreducible minimum.

Why have Nigeria and the countries of SSA done poorly? We must ponder on this. One common denominator for these countries is that over the past three or more decades, they have adopted and implemented child health interventions sponsored and promoted by the WHO, UNICEF, USAID and other agencies. These interventions include: Control of Diarrheal Diseases (CDD), Acute Respiratory

Infections (ARI), Oral Rehydration Therapy (ORT), Baby Friendly Hospital Initiative (BFHI), Integrated Management of Childhood Illness (IMCI) and others.

There is no doubt that these interventions had many benefits but the fact on ground is that they made no significant improvement in our child health indicators. Why?
I have three observations.

1. The programmes were donor-driven and therefore unsustainable
2. The interventions addressed symptoms rather than the cause of the problems and therefore their long-term effects were minimal
3. The programmes came with lots of money which caused serious distraction at the Ministries of Health and among the health professionals recruited to implement the interventions.

The MDG-4 requires that Nigeria's under-5 mortality be reduced to about 71 per 1000 live births by 2015. Are we going to achieve it?

If we want to, we must re-appraise our strategies. The infants and young children with special needs which we discussed contribute significantly to the mortality statistics. We cannot achieve MDG-4 without addressing their nutritional needs.

IMPACT OF POLICIES, LAWS AND REGULATIONS THAT GUIDE THE NUTRITION OF CHILDREN

By:

PHARM. F. A. ASEMOTA KSP

PREAMBLE

I am highly delighted to be considered as an appropriate person to deliver this paper on a topic I believe very germain as a part of administering good health to the Nigerian child.

It is a well known fact that governments all over the world make laws appropriate to its citizenry in ensuring good health practices for its people especially to the growing child. In this regard, the WHO, UNICEF and other relevant UNO bodies take the lead in drawing up guidelines to achieve set goals and objectives towards good health practices for the growing child. Member nations of the UN in the same vein make laws fashioned under the WHO Guidelines adequately to ensure compliance. Nigeria, a member of the UN body has made laws, regulations, and policies to ensure Good health of the Nigerian Child. NAFDAC, a parastatal of the Federal ministry of health is the statutory organ of the government, they make laws and regulations in this regard. To address the topic of this discuss, it is necessary to reflect on some very important interventions of the UN bodies in addressing measures that have focused on the remedy for better health of children.

1. INTERNATIONAL NUTRITION AND WORLD FOOD PROBLEM – WHA ASSEMBLY

"We the ministers and plenipotentiaries representing 159 nations… declare our determination to eliminate hunger and to reduce all forms of malnutrition. Hunger and malnutrition are unacceptable in a world that has both the knowledge and resources to end this human catastrophe." These are the opening sentences of the

world declaration on Nutrition, produced by the FAO and WHO International Conference on Nutrition [ICN] held in Rome in December 1992.

That important conference reviewed the current nutrition situation in the world and set the stage for markedly reducing unacceptable conditions of mankind. Reaching the ICN goal is possible and with political will of Government, this task is achievable.

WHAT ARE THE LAWS, POLICIES, REGULATIONS ARISING FROM THE PLENARIES AND THE NIGERIAN COMPLIANCE/EXPERIENCE?

THE FOUNDATION

THE WORLD HEALTH ASSEMBLY RESOLUTION 34:22 OF 1981

Gives full and unanimous support to the implementation of the recommendations made by the joint WHO/UNICEF, meeting on Infant and Young Child Feeding and of the International Code in its entirety as an expression of the collective will of the membership of the World Health Organization. To translate the International Code into National Legislation, regulations or other suitable code to monitor compliance with the code.

THE CODE

i. ARTICLE 1 – AIM OF THE CODE
ii. ARTICLE 2 – SCOPE OF THE CODE
iii. ARTICLE 3 – DEFINITIONS
iv. ARTICLE 4 –INFORMATION AND EDUCATION
v. ARTICLE 5 – THE GENERAL PUBLIC AND MOTHERS
vi. ARTICLE 6 – HEALTH CARE SYSTEM
vii. ARTICLE 7 – HEALTH WORKERS
viii. ARTICLE 8 – PERSONS EMPLOYED BY MANUFACTURERS AND DISTRIBUTORS
ix. ARTICLE 9 – LABELLING
x. ARTICLE 10 – QUALITY
xi. ARTICLE 11 – IMPLEMENTATION AND MONITORING

NIGERIAN EXPERIENCE

- The enactment of the marketing (breast milk substitutes) act no 41 of 1990 (as amended) divided into 14 sections
  - i. Prohibition of importation sale, promotion of the sale, distribution of BMS or infant formula without registration by NAFDAC.
  - ii. Prohibition of the promotion of the sale of BMS or infant formula or any promotional device thereof
  - iii. Particulars to be inscribed on container of BMS or infant formula
  - English language and 3 main Nigerian languages – to include direction for use and such adequate warnings against the health hazards or inappropriate preparation or use true statement of:

    - Composition

    - Required storage condition

    - Batch number

    - Expiry date

  The inscription statement on the label affixed to the container

  - To be clearly legible and shall appear conspicuously and in a permanent position on the label;
  - To specify the name of either the manufacturer, distributor, packer or labeller of BMS or Infant formula
  - To bear an address at which such person carries on business which shall be clearly shown in all notices, advertisements and other publications used by such person in connection with his business as dealer in BMS or infant formula
  - prohibition against using any label which bears any word or pictorial device whatsoever suggestive of the superiority of BMS or infant formula over breast milk
  - prohibition of the publication of advertisement for BMS and infant formula which makes any claim or suggestion that bottle feeding is equivalent to breast feeding
  - duty of every government, non-government or private institution or organization engaged directly or indirectly in health care delivery to encourage promote and protect breast feeding

- prohibition against use of facility of health care delivery system for promotion, displaying placards, posters or materials concerning BMS or infant formula or other products of like nature

VIII. prohibition of manufacture for sale of any BMS or infant formula unless it complies with the standard and quality under the food and drugs act and the applicable standards recommended by the codex alimentarius hygienic practice for foods for infants and children

IX. BMS or infant formula to be subjected to a satisfactory laboratory and clinical analysis by the manufacturer or distributor

X. power of a person authorized in writing by the honourable minister at all reasonable times and on production of that authority to:

- Enter any building or place in which person has reason to believe there are BMS or Infant formula manufactured or kept for commercial purposes;
- Search and/or examine any books, documents or papers in such building or place and also count BMS or Infant formula thereof

xi. Penalties;

- A fine of N1,000.00 or imprisonment for a term not exceeding 2 years or both for the contravention of any provisions of the Act
- A body corporate and Top Officers involved in the commission of the crime can be proceeded against

xii. Forfeiture of the violative BMS, Infant formula, label or container to the Federal Government of Nigeria and the disposal thereof by the Honourable Minister

xiii. Powers of the Minister to make regulations

xiv. Interprets some words used e.g.

"Advertisement" includes any notice, circular, label, wrappers, invoice or other document, and any public announcement made orally or by means of producing or transmitting light or sound and "advertise" shall be construed accordingly

"Infant" means a person under 12 months old

"Infant formula" means a breast milk substitute formulated and adapted to satisfy the normal nutritional requirements of an infant not exceeding 12 months old in accordance with applicable regulations under the Food and Drugs Act.

THE NEW AWARENESS

INFANTS AND YOUNG CHILDREN FOOD AND OTHER DESIGNATED PRODUCTS (REGISTRATION, SALE ETC) REGULATIONS 200722

Regulations are listed in this Subsidiary Legislation

REGULATIONS 1 & 2:

To give effect to the code and subsequent relevant WHA Resolution by making the registration of Designated products mandatory. The process and various requirement for registration are listed

REGULATION 3

It list grounds for the invalidation of certificate of registration which includes promotion and advertisement of designated Products.

REGULATION 4

In line with Article 4 of the code, it vests the Agency with the powers to control the production, provision, planning, design and designation of information and educational materials on infant and young child feeding. Sub-regulation 2 of Regulation 4 lists the information to be listed in Information and Educational materials

REGULATION 5

It is consistent with Article 7 (2) of the code requiring that information provided by manufacturers and distributors to health professional regarding products within the scope should be scientific and factual.

It incorporates provisions of section 3 (1) (a) of Act No 41 of 1990 by prescribing the use of the 3 indigenous languages in addition to English for information and Educational materials

It indicates health hazards.

Donations of educational and information materials or equipment with the approval of NAFDAC

REGULATION 6

It captures Article 6 and prohibits the promotion of designated products in health care facilities, display of such products, placards or posters or for the distribution of materials concerning the items provided by manufacturer or distributor.

The head of a health care facility is under obligation to present to NAFDAC in writing, a full disclosure of any contribution by a distributor or manufacturer to the health care system or health care workers.

The head of a health care facility should prohibit acceptance into the Health care facility of gifts in the form of samples designated products or supplies of the same or gift of any article which may idealize or promote the use of designated product.

REGULATION 7

A substantial compliance with Article 6 (6) and (7) as modified by WHA 47:5 (1994).

Donation, low price sales or supplies of designated product to be made to social welfare institutions subject to the written approval of NAFDAC.

The supply or donation:

- to be used or distributed for infants for whom it has been prescribed
- to be continued for as long as the infant needs them
- It is the duty of Health workers to encourage and protect breast feeding.
- It is mandatory for health workers to make a disclosure to their employers in writing of any contribution made by a distributor or manufacturer on behalf of the health worker, for fellowship, study tour, research grant, and attendance at professional conference or for other similar purposes.

REGULATION 8

Request for answers to technical questions by health professionals to distributors or manufacturers regarding the use of a product should be in writing and should not

include general promotional literature unless it answers directly to the questions asked.

REGULATION 9

Absolute prohibition of the advertisement or promotion of designated products. It captures Article 5.

REGULATION 10

Manufacturers or distributors shall, subject to the approval of NAFDAC, disclose to the institution to which a recipient health worker is affiliated to any contribution made to or on his behalf for fellowship, study tour, research grant, attendance at professional conference, or the like and similar disclosure shall be made by the recipient to his employers.

REGULATION 11

The promotion of designated products by a distributor or manufacturer within a Health care facility is prohibited.

Captures article 8 by prohibiting the use of sales volume to calculate bonuses – by manufacturer, distributor or retailer as a system of incentive for the marketing personnel.

No set quotas and special display of designated products is allowed as well.

REGULATION 12

It captures Article 8 (2) persons employed by manufacturers or distributors should not perform educational functions in relation to mothers and infants.

REGULATIONS 13 AND 14

The Regulations captures Article 10 of the code by prohibiting the sale of unwholesome designated products while adopting standards prescribed by NAFDAC and when such standards don't exist to adhere to Codex Alimentarius Commissions directive.

REGULATION 15

In line with Article 9 of the code and same as section 3 of the Act No 41 of 1990.

REGULATION 16

Manufacturers and distributor under obligation are to monitor their practices according to the provisions of the Regulations and to ensure that their conduct at every level conforms to the Regulations.

REGULATIONS 17, 18, AND 19

It prescribes offences for individual violators, body corporate violators and their key officials involved in the commission of any offence.

Individual - term of imprisonment not exceeding 2 years or a fine of N50, 000.00 or both.

Body Corporate – fine not exceeding N100, 000.00. Forfeiture of the
violative items on conviction to the Federal Government of Nigeria.

REGULATION 20

Any designated product seized by the Agency shall be forfeited to the Federal Government of Nigeria and shall be dealt with in such manner as the Honourable Minister may from time to time determine.

REGULATION 21

Some of the key words or terms defined are
"Designated product" means –

a. Infant formula; or
b. Follow-up formula; or
c. Any product marketed otherwise represented or commonly used for feeding of infants; or
d. Product to be fed by use of a feeding bottle; or
e. Beverages, milk, cereals, and other food intended for use by infant and young children whether industrially made or occurring naturally; or
f. Feeding bottles, teats, and pacifiers; or

g. Products stated to promote breast feeding; and
h. Such other products as may be specified by the Agency.

"Marketing" means any method of introducing or selling a designated product, including promotion, distribution, advertising, display on shelves, production, distribution of samples, product public relations and product informational Services.

Prohibited promotional practice" includes

a. Special displays of designated products
b. Discount coupons
c. The selling of designated products at a reduced price, unless such reduction in price is intended to be permanent;
d. The distribution of gifts or items of little or no cost bearing the name or logo of a manufacturer or distributor;
e. The use of printed materials including books, pamphlets or posters bearing the name, logo, graphic or other representation of a proprietary product or the name or logo of a manufacturer or distributor.

   "Promote" includes advertising, giving of samples or gifts of designated products, or materials or information or decorations related thereto.

"Promotion" means any method of introducing, familiarizing or encouraging a person to purchase a designated product.

"Advertisement" includes advertising in publication by television, internet, radio, film, video or telephone, Traditional communication media, by display or signs, bills boards, notices or goods, by exhibition of pictures or models and in any other manner.

WHY USE DESIGNATED PRODUCT INSTEAD OF BMS

To make a legislation that is devoid of any legal entanglement and that will give effect to the aims and principles of the code and the subsequent relevant resolutions of WHA.

POINTS TO NOTE

It is instructive to note that the new regulations are not a replacement of the 1990 Act. It fills the loopholes in the 1990 Act and brings it more in conformity with the code and the subsequent relevant Resolutions of the World Health Assembly.

1. The code of marketing of breast milk substitutes

Advocacy for code implementation as a human rights issue. Human rights instruments in support of women and children's breastfeeding rights include:

- The Innocenti Declaration [1990].
- The International Labour Organization [ILO] Convention.
- The UN Convention on the rights of the Child [CRC] Article 24.
- The Convention on the Elimination of all Forms of Discrimination against Women [CEDAW].

Highlights of the Innocenti Declaration;

- On August 1, 1990, high level government decision makers from thirty countries and ten UN Agencies adopted the Innocenti Declaration at a meeting in Florence in Italy.
- The declaration is on the protection, promotion and support of breastfeeding.
- Recognises the importance of breastfeeding to infants and maternal health, as well as the social, economic b and ecological benefits it provides to the family and the society.
- All women should be enabled to practice exclusive breastfeeding and all infants should be fed exclusively on breast milk from birth to 4-6 months of age.
- Efforts should be made to increase women's confidence in their ability to breastfeed. Such empowerment involves the removal of constraints and influences that manipulate perceptions and behaviour towards breastfeeding, often by subtle and indirect means.

The Innocenti Declaration provided four operational targets to be met by 1995:

- Appointment of national Breastfeeding Coordinator.

- Implementation of Baby Friendly Hospital Initiative
- Implementation of the Code
- Adoption of imaginative maternity protection [ILO Convention].

The ILO Convention

- Gives key elements of maternity protection at work with special reference to ILO Convention 183 and recommendation 191
- The ILO Maternity Protection 183 contains specific recommendations:- maternity leave, salary during leave, length of leave period, crèches, closing time, breastfeeding breaks, job protection etc.

The UN Convention on the Rights of the Child [CRC]

- Recognises the importance of breastfeeding to child health
- Good nutrition is a right guaranteed for the child in the CRC
- The determinants of food nutrition,- safe and nutritious food, care, and health, are all covered in Article 24's provision guaranteeing children the right to "the highest attainable standard of health"
- Women, in turn, have the right to proper nutrition, to decide how to feed their children, and to full information and enabling conditions to carry out their decision. They need to be empowered.
- CRC is nearly universally ratified, and this ratification has been the most rapid in the history of international human rights instrument. Only two nations have not ratified it.
- Governments, Nigeria inclusive, are committed to implement it [article 24].

CEDAW [1979]

- The Convention on the Elimination of all forms of Discrimination Against Women [CEDAW] contains many provisions with respect to the health, nutrition, and maternity protection of women.
- Nigeria ratified CEDAW since 1985

POINTS TO NOTE

- Breastfeeding is a human rights issues
- Governments have a legal responsibility to protect, promote and support breastfeeding.
- The BMS Code protects breastfeeding rights and governments are obliged to adopt it under Article 24 of the CRC.
- The CRC reporting process can be used to remind governments of their obligations.
- Code violations are human rights violations
- Breastfeeding is convenient; the food is readily available for the infant and no special preparation or equipment is needed.
- Breast milk provides a proper balance and quantity of nutrients ideal for the human infant.
- Both colostrums and breast milk have anti-infective constituents that help limit infection.
- Bottle-feeding enhances the risk of infections from contaminations with pathogenic organisms in the milk, the formula and the water used in preparation, as well as in bottles, teats and other items used for infant feeding.
- Breastfeeding is more economical than bottle-feeding which involves costs for infant's formula or cows milk the bottles and teats and the fuel necessary for sterilization.
- Breastfeeding prolongs the duration of post-partum anovulation, helping mothers to space their children
- Breastfeeding fosters enhanced bonding and relationship between mother and infant.
- An apparent lowered risk of allergies, obesity and certain other health problems is seen in breastfed infants compared with those who are artificially fed.
- Breastfeeding does not only fulfill the human rights to food and health for children, but also for mothers, and it is a fact that health is fundamental human rights indispensable for the exercise of other human rights- i.e. the Breastfeeding Dyad.

- Prevent obstacles which interfere with Breastfeeding rights:
  - Improper marketing of BMS.
  - -non-baby friendly hospitals
  - -non-mother friendly work places.

Benefits to the mother

- Quickens the third stage of labour thereby preventing postpartum haemorrage.
- Encourages bonding
- Helps delay new pregnancies
- Prevents systematic disease conditions such as cancers [breast and ovarian] osteoporosis.

Benefits to the family

- More economical
- Baby cries less at night therefore better sleep for mother and father.

Benefits to the community

- More healthy babies, teenagers and adults.
- Less delinquent teenagers and adults
- Clean environment

Benefits to the nation

- Saves foreign exchange
- Decreased perinatal and infant morbidity and mortality rates

IRON DEFICIENCY DISORDERS [IDD]

Iodine deficiency is responsible not only for very widespread endemic goiter and cretinism, but also for retarded physical growth and intellectual development and a variety of other conditions. These conditions are now termed Iodine Deficiency Disorders [IDD]. They are particularly important because:

- Perhaps ¼ of the world's people consume inadequate amounts of iodine.

- The disorders have a major impact on the individual and society.
- Of the four major deficiency diseases, IDD is the easiest to control.

REGULATIONS ON IODIZATION

The Nigerian experience today with 100% compliance to salt iodization is praiseworthy. Thanks to NAFDAC and UNICEF. Edible salt in distribution in Nigeria are iodized. The method employed by NAFDAC as a study to established the amount of iodized salt in circulation tremendously created awareness in the minds of parents of the need to iodize the salts. The study also brought out the inadequacies inherent in the local producers of salt through the crude method especially in the geographical areas where edible salts are produced and utilized. NAFDAC and SON closely monitored all the manufacturers of salt in Nigeria. Since the total compliance of iodization is in place, there is an obvious drop in the treatment of Goitre.

PREVENTING MICRO NUTRIENT DEFICIENCIES - NATIONAL CONTROL PLAN

Micronutrient deficiencies that are most prevalent in the world are those of Vitamin A, Iodine and Iron. Together with protein-energy malnutrition [PEM], these deficiencies constitute the big four nutritional problems. It must be noted that there are wide geographical variations in their prevalence. What is important is for countries to make their strategies and actions to address these micronutrient deficiencies. It is also very vital that the strategies and actions are properly coordinated.

Four basic micronutrient strategies:

- Improving diets, especially dietary diversity;
- Public health actions;
- Fortification or nutrification of foods;
- Providing medicinal supplements.
- The four strategies are listed in order of sustainability; clearly, improved diet contributes to controlling a micronutrient deficiency in a much more sustainable way than medicinal supplements.

In Nigeria, I am happy to inform you all that these coordinated actions have been captured in the relevant regulations on micro nutrient and are very elaborate and

very successful with the assistance of UNICEF. There exists the free supply of Vitamin A to children which is incorporated on EPI days.

Micronutrients are also compulsorily added to fortified foods that are commonly eaten by Nigerians. The food industries that produce flour and vegetable oils must comply with the food fortification regulations.

Again, the method NAFDAC and SON engaged in the drive towards ensuring fortification of food must be recognized as it is making necessary impact. First, was the advocacy to the manufacturers of products.

- Several meetings, workshops/seminars were conducted to draw attention to the food fortification exercise.
- Conclusions reached at these meetings made major impact on the implementation of the micronutrient initiative operating in the country today.
- The approval to introduce registered pre-mixes at the factory level of food production – flour, maize, semovita, vegetable oils etc. can be described as a monumental success as children are now better nourished.

ADVOCACY TO STAKEHOLDERS

Having ensured that the industry has complied to fortification procedures, UNICEF sponsored workshops, seminars organized by NAFDAC to draw the attention of Stakeholders – notably, Healthcare Providers, Heads of Teaching and Specialist Hospitals across the country, the Federal and States Ministries of Health Executives, the PHCDA, the Health Personnel of the Local Government Establishments, Traditional Rulers drawn from all the six geo-political zones of Nigeria, the press media and students to embrace the food fortification concept for better health. Results achieved form these seminars and workshop may be measured as very successful because the messages and benefit obviously gotten to the grassroots.

MEASUREMENTOF THE IMPACT OF POLICIES, LAWS AND REGULATIONS THAT GUIDE CHILDREN NUTRITION

A glossary look at the various policies, laws and regulations on children nutrition, clearly indicates some measure of successes recorded globally with special focus on Nigeria.

THE INNOCENTI DECLEARATION PROCEEDS	IMPACT ON NIGERIAN CHILD
1. Protection, promotion and support of breastfeeding	**Massively embraced. Promotion has spread nationwide. Health workers used as Advocators and Agents of Change.**
2. OPERATIONAL TARGETS	
• **Appointment of National breastfeeding Coordinator.**	**Breastfeeding week in a particular month of the year is in place. Baby shows are now common features.**
• **Implementation of baby friendly Hospital Initiative.**	**Establishment of baby friendly Hospital Initiative all over Nigeria is a success story since its inception in 1990s.**
• **Implementation of the code**	**Remains a major campaign of Health Workers to pregnant and nursing mothers. Absolute breastfeeding is acceptable to mothers. NAFDAC, FMOH have taken great strides in implementation of the code. Today, no form of advertisement in the media is allowed.**

ADOPTION OF IMAGINATIVE MATERNITY PROTECTION

[ILO Convention]

- Gives key elements of maternity protection at work with special reference to ILO Convention 183 and Recommendation 191.
- The ILO Maternity protection 183 provides specific recommendation:- Maternity laws, salary during leave, length of leave period, crèches, closing time, breastfeeding breaks. Happily, there exists today in Nigeria, this measure of compliance. In some Federal Government establishments, creches are being installed to assist nursing mother in breast feeding their babies. I read in the newspaper that NAFDAC recently commissioned a baby crèche facility at its Corporate Headquarters – Abuja. The concept of early close of working hours for nursing mothers is very much obeyed in most government offices. I am aware that concept also applies in the private sector. The bill before the National Assembly will finally put to test, these recommendations when passed into law.

CEDAN [1979]

Nigeria ratified CEDAN IN 1985.

The convention on the elimination of all forms of discrimination against women [CEDAN] contains many provisions with respect to the health, nutrition and maternity protection of women.

CONCLUSION

I have tried in these submissions to impress on the Impacts and Benefits of this subject on the nation in general, to mother and families. The UN Agencies and NAFDAC are active in their operations results have been widely publicized on the success story of iodization policy in Nigeria. However, the impact on compliance to breast feeding, BMS and complimentary foods have not yet been statistically realized. In the same vein, the impact on compliance to regulation and guidelines on food fortification is not yet released.

I hope studies on this issue are being taken care of especially as UNICEF remains ever alive to its commitment. To me, the future is bright in the fight towards providing good nutrition to our children.

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LIFESTYLE AND QUICK MEALS: IMPLICATION FOR INFANT NUTRITIONAL STATUS

By
PROFESSOR E.O. OJOFEITIMI FNSN

INTRODUCTION

Every parents want to raise their children not only to be healthy but also to be endowed with cognitive development and achieve high academic performance. The corner stone to achieving these lofty wishes is adequate intake of nutrition right from conception. Indeed, cognitive development begins from the womb. Inadequate nutrition during pregnancy, stimulants such as alcohol or other drug may negatively affect brain development during foetus development. [1-3]

Unhealthy lifestyle behaviours around physical inactivities, poor nutrition (quick meals) substance abuse, smoking and tobacco use have significant impact on the health of an individual. The unhealthy lifestyle exposures have been ascertained to contribute to the aetiology of non communicable chronic diseases (NCCDs) including type 2 diabetes mellitus, hypertension, heart diseases, stroke, obesity and some forms of cancer. [4-8]Unfortunately, some of these NCCD such as obesity and types 2 diabetes mellitus have been reported to also manifest in children and adolescents.

More importantly, recent studies have also shown that quick meals or snacks in the forms of “nutrition” bars, carbonated drinks, fresh fries, ice creams, cake, high carbohydrate and fatty foods have been reported to lead to premature loss of both enamel, increased cavities, weakening of overall teeth structure and obesity among children and young adolescents. [9-11]In fact, most of the unhealthful dietary habits of our children and young adolescents are actually adopted from their parents or from their peers. After all, children learn what they live.

"If a child lives with unhealthful dietary habits.
He/She learns to eat junk foods.
If a child lives with skipping breakfast.
He/ She learns to eat unhealthful snacks.
If a child lives with watching television.
He/She learns to maintain sedentary life style.
If a child lives with having varieties of foods stuffs.
He/She learns to appreciate the importance of adequate nutrition to promote and sustain quality and productive life."

The onset of type 2 diabetes mellitus and obesity in children have been attributed to early introduction of infant formula due to lack of adherence to exclusive breast feeding for the first six months of life.

According to WHO's projection, deaths from NCCDs will increase by 24% and deaths from diabetes will increase by 52% in Nigeria by 2015 [12-14]. The prevalence of overweight among men will be increased from 29 to 39% while that of women will increase from 39 to 49% by year 2015.[12-14] The aim of this presentation is to discuss the health implication of parents' lifestyle and quick meals as they relate to the nutritional status of the children.

The thrust of this presentation.

- What is the future that every parent wants for their children?
- What is the current nutritional status of children and adults in Nigeria?
- What are the bases for the difference between the future to be created and the present situation?
- What do we need to change?
- What strategies can we use to reduce the unhealthful lifestyle, and decrease high prevalence of childhood malnutrition and NCCDs in Nigeria?

FUTURE TO BE CREATED FOR OUR CHILDREN.

Every parent wants to create a future that includes:

i. A healthy active and a happy child

ii. High intelligent child that grows to be a productive and supportive adult
iii. A successful professional adult that towers above his/her peers
iv. A non obese child that does not suffer from any form of protein energy malnutrition.
v. A child that grows to be an adult that contributes to the welfare of his/her community and the country and
vi. A child endowed with long healthy life span.

But the question to be posed at this juncture is what is the current nutritional and health status of our children, our future asset and that of adults?

CURRENT NUTRITIONAL AND HEALTH STATUS IN NIGERIA

The current nutritional and health status of Nigeria today are:

i. Decreased life expectancy from 51 to 43 years within a span of a decade
ii. Infant mortality rate of ${}^{120}/_{1000}$ live births in 2005 compared to 85/1000 live birth in 1980
iii. Under 5 mortality rate of ${}^{217}/_{1000}$ live birth in 2003 compared to 178/1000 livebirths in 1999
iv. Stuntingness among under 12 months infants is 68%
v. Malaria among under 5 mortality rate ${}^{729}/_{100,000}$ live births (1 out of 5 deaths)
vi. Infant with low birth weight is 36%
vii. Aneamia among U5 is 69% and 30% were Vit. A deficient
viii. Child survival ranking is ${}^{188}/_{191}$
ix. Deaths from NCCDS will increase by 24% and deaths from diabetes will increase by 52% by 2015.
x. Prevalence of overweight among men will be increased from 29 to 39%, while that of female will increase from 39% to 49% by year 2015.
xi. In 2005, the burden of NCCDs in Nigeria was 400 million dollars in natural income from premature deaths due to heart disease, stroke, and diabetes, and
xii. By 2015, if no care is taken, the economic cost will rise to 8 billion dollars from premature deaths due to NCCDs

It is apparent from the above that each and every one of us has a great job to do in terms of improving the health status of our families, and the community and the nation. But we may ask ourselves why is there a wide difference between the future we want to create for our children and the current situation in Nigeria?

DIFFERENCES BETWEEN THE FUTURE AND CURRENT SITUATION

The bases for the difference between the future to be created and present situation in Nigeria:

i. Unhealthy lifestyle that includes unhealthy dietary habit that have displaced healthy foods such as whole grains, legumes, fruits and vegetables. In fact quick meals that are similar to that of western world have been rapidly eroding quality foods habits in Nigeria. The quick meals are mostly either from refined carbohydrate, fried fatty foods lazed with salt and other food additives that may be hazardous to human health. [4,5,8]

ii. Cultural food practices and perception on “healthy” food and “healthy” person.[8] Those foods that are nutritious are prohibited by some culture, for example, certain animals and insects are forbidden and these are good sources of protein and other nutrients.[1,3] The idea that a grossly obese person is a wealthy and healthy person is being held by certain culture in Nigeria. These ideas have to be changed through behaviour change communication. This should start from the family level.

iii. Low premium on health: Nigerians pay very little premium on health. It is when somebody dies of an apparent disease such as heart attack, stroke or type 2 diabetes, it is then, they pay few days attention to their health. High premium is paid to material things.

iv. Poor dissemination of healthful living information. There is a dire need for constant information on health matters through the mass media and through the religious avenues.

v. Enabling environment for recreation and physical exercise

vi. Poor food preparation. The typical Nigerian way of preparing the most popular complementary feeds has to be changed in order to prevent nutrients losses. The sieving of cornpap needs to be stopped in attempt to prevent losses of essential nutrients in the grain.

vii. Attitudes of mothers to varieties of foodstuffs consumption during pregnancy should be carefully modified positively. After all, children learn by what they live and the learning begins from the womb. The health workers also need to change their attitudes toward healthful eating by example, especially during pregnancy [1-3]

Based on the above, what do we need change to restore and sustain good health?

WHAT DO WE NEED TO CHANGE?

In an attempt to restore and maintain good health, emphasis on curative medicine, ill-health as a major obstacle to human capacity development and productivity, adoption of westernized diets, cultural food habits and hypoactivity activities have to be changed. If we are to change the above among our children and friends, we have to change ourselves first. Hence the steps towards maintaining good health become essential ambition to all concerned citizen.

STRATEGIES TO REDUCE UNHEALTHFUL LIFESTYLE AND HIGH PREVALENCE OF CHILDHOOD MALNUTRITION AND NCCDs IN NIGERIA

The strategies include, information on nutritional values on some of commonly consumed foodstuff (Table 1),

TABLE 1:

ESSENTIAL NUTRIETS IN SOME COMMON NIGERIAN FOODSTUFFS PER 100 GRAM PORTION FOOD1

FOOD STUFF	Protein (g)	Fat (g)	CHO (g)	Fibre (g)	Ca (mg)	Iron (mg)	Carotene or Vit A (iu)	Vit C (mg)	Vit B complex (mg)
ROOT & TUBER									
Cassava	0.7	0.1	27	1.1	10	0.50	7.800	35.0	0.66
Cocoyam (Taro)	5.1	0.5	24	1.4	24	0.72	1.200	14.0	0.94
Cocoyam (Tanja)	5.7	0.4	24	1.1	6.0	0.70	0.05	10	0.13
Sweet potato	1.5	0.1	23	0.3	16.60	0.83	0.01	26.20	0.70
Yam	1.5	0.1	23	0.6	22	1.0	00.00	18.0	0.21
GRAINS									
Acha	7.14	1.3	88.0	0.4	0	-	-	11.40	0.51
Maize (dry)	10.2	3.9	79	1.3	60	0.02	0.02	20.10	2.0
Guinea corn	14.0	2.6	73	0.71	23	-	-	-	0.35
Millet	9.1	4.6	78	2.0	50	-	-	-	1.80
Maize (Eko)	1.9	1.2	30	1.5	-	-	-	-	-
Sieved corn pap	0.3	0	-	-	-	-	-	-	-
Unsieved corn pap	7.4	1.8	28	1.1	-	-	-	-	-
Guinea corn pup	11.3	2.7	84	1.1	-	-	-	-	-
Wheat	10.7	2.2	73	2.1	49	4.0	0	-	6.0
Rice	7.3	0.3	81	1.5	5.0	0.80	-	-	3.53
Fura	6.25	2.14	29.4	0.39	7.95	6.09	-	-	-
NUTS, LEGUMES, OILSEED									
Cashew	19.6	44.8	26.4	1.6	51.0	5.1	140	-	1.21
Groundnut cooked	23	48	23	3.8	75	2.0	30	98	18.44
Cowpea	22	1.8	61	3.2	90	4.0	50	-	2.33
Soybean	30.4	18.0	29	5.0	220.0	7.0	110	47	3.54
Cotton seed	59.1	1.1	23.5	-	180.0	-	-	14	1.83
Locust bean	36.8	4.5	41.5	11.6	310.0	-	-	-	-
Mellon seed	24.5	30.4		25.2	109.95	8.75	-	-	-

Adapted from Scientific. Ojofeitimi E.O (2007).

1 It should be noted that the most popularly consumed grain, "RICE" in Nigeria is not as nutritious as unpopular grains such as guinea corn, millet and wheat[16]

adequate dietary habits during pregnancy, exclusive breastfeeding during the first six months of life and continuation of breastfeeding up to 24 months; adequate complementary feeds from seven months upwards (Table 2);

TABLE 2: Example of Complementary Feeds According to region in Nigeria

Region	Complementary foods
NORTHERN	Milled maize or milled with crafish powder and palm oil. Milled maize with fermented milk (wara). Milled millet or maize with groundnut powder Milled millet with fresh cow milk. Fura (millet paste), Dankwe (millet and legume, koko (millet pap).
SOUTHERN	Milled and sieved maize with crayfish and palm oil. Milled and sieved maize with groundnut, milled and sieved maize with soybeans powder (cooked together), boiled cassava flour (koro) with crafish powder and milled and sieved maize with groundnut paste (cooked together), milled and unseived maize with cowpea cooked together, corn unseived with crayfish, palm oil cooked together. Milled maize or millet with palm oil. Fruit juice (orange, mashed, banana).

Adapted from Ojofeiotimi, E.O 16

adequate nutrition during the growth “spurt” period, healthful dietary during adolescence using food pyramid chart to plan adequate meal; maintaining normal weight by regular exercise at least 35 minutes daily, subscribe to varieties of fruits and vegetables at each meal, increase of dietary fiber to 30gm daily (Table 3)

TABLE 3: FIBRE AND CHOLESTEROL CONTENTS IN COMMONLY CONSUMED FOODSTUFFS IN NIGERIA

FOODSTUFF FOOD	Fibre (Per 100GRAM PORTION	FOODSTUFF	Cholesterol (Mg/100gram)
PawPaw (Green)	12.5	Cow’s brain	2,360
Pawpaw (ripe)	6.0	Egg yolk	1,600
Dates (5av)	8.7	Cow’s kidney	410
Grape fruit (with the pulp)	11.5	Cow’s Lungs	350
Cassava young leaves	15.6	Cow’s Liver	320
Talinum leaves (water leaves)	10.3	Oysters	110-330
Amaranthus	9.8	Butter	280
Sweet Potato (young leaves)	9.0	Cow’s beef heart	1.50
Peeled white yam	1.5	Cow’s tripe	150
Cassava grit (gari)	1.2	Shrinps	140
Locust beans	17.0	Beef	120
Groundunt roasted with skin	8.3	Chicken (fryer)	90
		Mackerd fish	80
		Lamb (chop)	70
		Salmon	70
		Flounder fish	60
		Cod fish	50
		Turkey	50

Adapted from Ojofeitimi, E.O and Fawole, J.O (2004)[17]

1. It should be noted that some of the foodstuffs we commonly cherished are very high in cholesterol, one of those bad fats that causes hypertension, stroke or cancers. But we seldom consume foodstuffs that are rich in dietary fiber[17].
avoid sedentary lifestyle, fattyfoods, refined foods, sugary drinks should be avoided; smoking, alcohol and stimulants should be eliminated; drinking of plenty water and think positively.

CONCLUSION

As parents, health care providers, scientists, food manufacturers, health planners, policy makers, social scientists, economists, teachers, advocators, legislators, farmer, health consumers, food manufacturers, media, expertise, civil society, and politicians we can no longer justify the loss of life of innocent children due to malnutrition or permanent disabilities and premature deaths of productive young and middle adults men and women due to NCCDs. We know what to do and so we must do it. If not now? Then when? If not me, then who? Believe you can make a difference and you will.

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NUTRITION EDUCATION, COMMUNICATION AND SUPPORTS FOR CHILD NUTRITION

By
Professor Tola Atinmo

Nutrition education is one of the most important means of promoting good nutritional status and subsequently supporting better health. However, little emphasis has been laid on this vital aspect of preventive medicine. In fact, the efficacy of nutrition education in improving the nutritional situation of communities was very much questioned during the 1970s and early 1980s. The review by Whitehead (1) found that nutrition education was directed to disseminate nutrition information in order to improve food habits. This approach was effective in increasing knowledge but did not have any effect in changing dietary behaviour or practices. Hornik's review (2) was critical of nutrition education activities performed by health services, indicating that health workers perform their tasks as a routine activity, which is not evaluated, and could be assumed to be ineffective.

Nutrition education goes beyond provision of information on nutrition but includes consideration for human behaviour modification in such a way that will make people adopt changes in behaviour to improve their consumption pattern. Nutrition information is communicated in a two-way mechanism, whereby both the communicator and recipient of the nutrition message interact to clarify issues and based their interactions on common examples available in that environment. Nutrition education focuses on all factors that may influence adequate food intake. In most instances, some of these factors may not bear a direct relationship with provision of food but other socio-cultural, political, geographical and economic factors. Issues of paramount importance in traditional nutrition education include the environmental (social, cultural, economic, physical, etc.) conditions that prevail in the community or the household, which influence and/or determine a given dietary behaviour or food pattern. The interpersonal interaction and the social context are

important for promoting nutrition education; group norms and reference groups exert influence on individuals' attitudes, values and actions, which may determine what people consume and provided for their infants as foods.

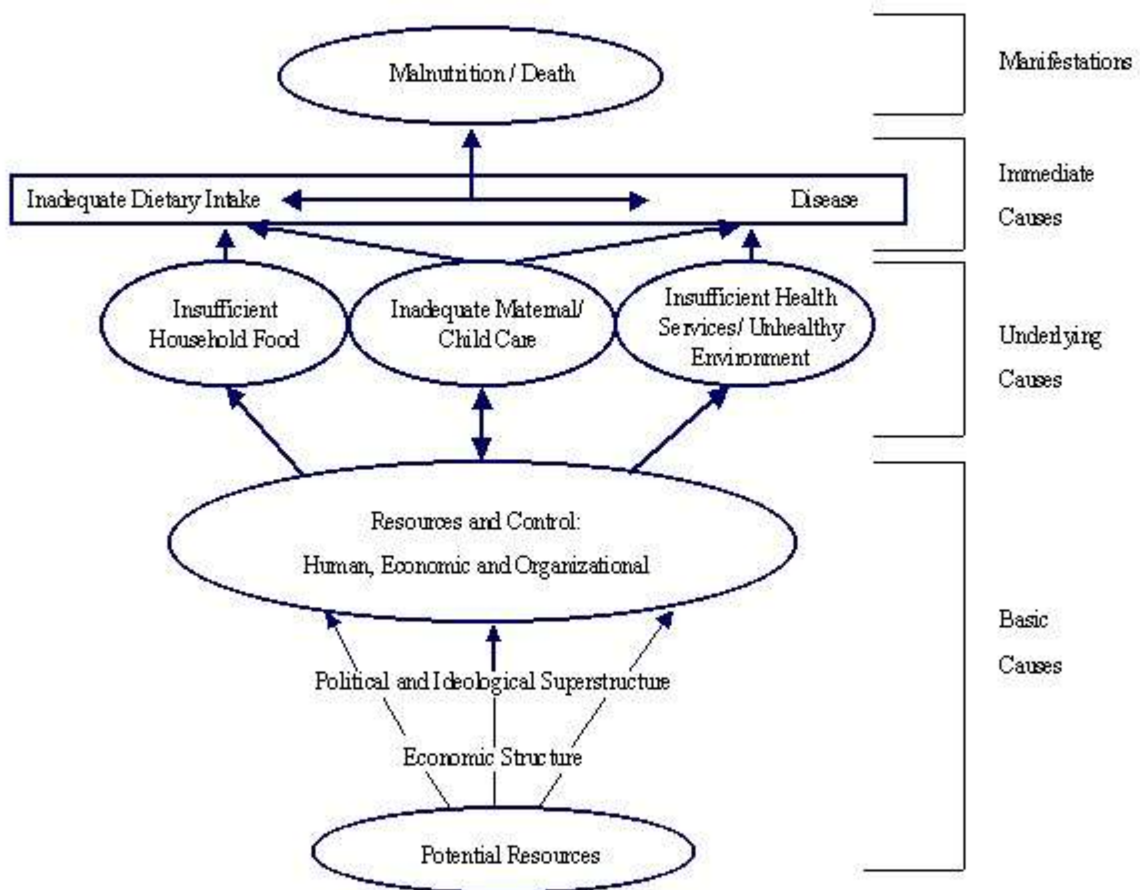
In order to provide a holistic approach to improving nutrition, a comprehensive nutrition education package should consider the following causes of malnutrition:

- **Basics**: Potential resources, Political ideology, geographical, economic policies, etc
- **Underlying**: Household food insecurity, poor environmental sanitation, poor maternal and childcare, etc
- **Immediate**: Inadequate food intake and diseases

The UNICEF conceptual framework on the causes of malnutrition was developed in 1990 as part of UNICEF's nutrition strategy. The framework below shows that causes of malnutrition are multisectoral, taking into account food, health and caring practices. Causes are also categorized as immediate, underlying, and basic, whereby factors at one

level influence other levels. The framework serves as a guide for those making health policy decisions in assessing and analyzing the causes of the nutrition problem and also for proper and in-depth nutrition education strategy.

UNICEF Conceptual Framework on the Causes of Malnutrition



Nutrition education has not received the level of attention it deserves, even among health care providers. Some people providing nutrition education do not have basic knowledge in the field

The "conventional" approach of providing nutrition education is limited because it excludes analysis of the causes of malnutrition, it makes use of only one isolated channel of communication (directive and not interpretive) and ineffective educational methods of intervention without considering intervening variables peculiar to the target population

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The “conventional” approach of providing nutrition education is limited because it excludes analysis of the causes of malnutrition, it makes use of only one isolated channel of communication (directive and not interpretive) and ineffective educational methods of intervention without considering intervening variables peculiar to the target population. Nutrition education becomes very effective when it addresses all issues surrounding food intake. However, nutrition education from non-professional communicator usually focuses on the **IMMEDIATE** causes of malnutrition with little or no consideration for the basic and underlying causes, which may be the main issues in attaining good and sustainable nutritional status

Nutrition education provides a practical solution to nutritional problems that are associated with **ignorance**, which is one of the numerous problems plaguing Africans. It concerns with attitude changing and life style modification towards foods that can be easily acquired by individuals. It is important to add that nutrition education helps impact nutrition knowledge, which enables better use of present potential food resources and help to eliminate the misguided customs, prejudice, conservatism, and series of food fads, which are often as serious obstacles to the improvement of nutrition as poverty itself.

There are some special cases where nutrition education support is needed to assist in reducing the incidence of child malnutrition. Nutrition in pregnancy and infant feeding practices including exclusive breastfeeding practice and complementary feeding are very vital aspects in nutrition education.

Pregnant women and nursing mothers are sometimes ill-equipped with relevance nutrition information that will benefit the health of their infants mainly because nutritionists are not employed to provide nutrition education in most of our health care centres. Salient but important nutrition education on weight gain in pregnancy, preparation towards exclusive breastfeeding and complementary feeding methods can only be effectively handled by professionals trained in the field.

Special nutrition education counseling is therefore important for pregnant and nursing mothers, to ensure intake of proper diets and adequate skill towards infant

feeding. There is also the need for consideration of other factors that may influence the nutritional status

Some of the methods presently in use to provide nutrition education include:

- Direct communication
- Use of Information, Education and Communication Materials (IEC)e.g. nutrition education journal publications
- Faith-based approach
- Mass media (Print and electronic)
- Community mobilization

Steps in providing Nutrition Education

- Assessment of the nutritional problems
- Identify the basic causes of the problem
- Discuss with the target population
- Analyze the problems
- Design intervention strategies with the target population
- Provide relevant and practicable solutions to the identified problems
- Identify indicators to monitor and evaluate intervention
- Plan sustainability mechanism using the structure available in the target community

Nutrition as a discipline is however facing a lot of challenges in Nigeria, owing to the fact that it has not got a stable “home”, where it can be properly coordinated to make its relevance in national development. However, a respite is on the way because the immediate past regime recognized the importance of nutrition and called for the establishment of **National Nutrition Council**, a body that will coordinate and facilitate all issues bordering on improvement of nutritional status of the people, especially the under-5s.

The present regime is already constituting the council and it is believed that this step will bring nutrition to limelight, hence promoting nutrition education. One of the prospects to achieving adequate infant nutrition in Nigeria is the availability of good nutrition education.

Although, the challenges of instituting National Nutrition Council are enormous, the potential benefit this will have on child health is much and every support should be provided to ensuring its success.

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NATIONAL CONFERENCE ON ADEQUATE INFANT NUTRITION IN NIGERIA
Held on 16 December 2008
At the Sheraton Hotel and Towers, Abuja

COMMUNIQUE

On 16 December 2008, stakeholders in Infant nutrition in Nigeria met at the Sheraton Hotel and Towers, Abuja, under the auspices of the 'National Conference on Adequate Infant Nutrition in Nigeria'.

The conference was organized by Health Reform Foundation of Nigeria (HERFON) and attended by participants from the National Assembly, Federal Ministry of Health (FMoH), State governments, National Council of Women's Society (NCWS), Nutrition Society of Nigeria (NSN), Pediatric Association of Nigeria, Nigeria Dietetic Association (NDA), Pharmaceutical Society of Nigeria (PSN), National Primary Health Care Development Agency (NPHCDA), Association of Infant Food Marketers, National Agency for Foods and Drugs Administration and Control (NAFDAC), National Health Insurance Scheme(NHIS), Nigeria Medical Association (NMA), Civil Society and other stakeholders; as an all-embracing fast-tracking effort to focus on Infant and Child Health in the country, with the goal of 'adequate infant nutrition to achieve MDG4 in Nigeria'.

The conference has the following objectives:

6. To x-ray the problem of infant and young child malnutrition in Nigeria
7. To evaluate current approaches to the control of infant and young child nutrition in Nigeria
8. To proffer affordable and workable strategies for providing adequate infant and young child nutrition in Nigeria.
9. To provide strategies for ensuring the adoption, adaptation and studious implementation of the outcome of the conference
10. To advocate for policy changes that will eliminate infant malnutrition in-country

The Conference received seven papers from seasoned and experienced infant and child nutrition practitioners, trainers and care givers. These papers were discussed in three breakout sessions and three plenary with the opening plenary .chaired by **Distinguished Senator (Dr.) Iyabo Obasanjo-Bello,** Chairperson, Senate Health Committee of the Federal Republic of Nigeria.

The Conference observed that:

i. Adequate infant nutrition is an essential condition for a child to develop to her/his full potentials.

ii. Exclusive breastfeeding for the first six months of life remains the one single practice that provides food, health and care for the child during this period

iii. Complementary feeding i.e. giving other foods to an infant in addition to breast milk is necessary to be given to the infant to complement breast milk after 6 months and till 2 years of age, unless otherwise clinically indicated

iv. Complementary feeding is needed after 6 months, to fill the gap between the total nutritional needs of the child and the amounts provided by breast milk so that the child will continue to grow well and remain healthy (and the gap gets bigger as the child gets older so more food is needed)

v. Vertical transmissions of HIV remain high at 25% to 35%; with prolonged breastfeeding and absence of other interventions in HIV-exposed infants.

vi. Complementary feeding is the best way of introducing the infant to eating a variety of family foods.

vii. Preparation for breastfeeding should be an important part of antenatal care.

viii. Giving infant complementary foods before 6 months of age is undesirable, while starting complementary feeding too late is dangerous.

ix. Government and all stakeholders should provide enabling environment to encourage optimal complementary feeding practices.

x. All Infant formula and complementary foods prepared in accordance with provisions of adopted/certified by the Codex Alimentarius Committee are nutritionally safe.

xi. Code of marketing of breast milk substitutes in Nigeria does not provide opportunity for health Professionals to be well informed on BMS.

xii. Orphaned Children, Preterm/Low Birth weight Infant, HIV-exposed infant, and Infants and Children in especially difficult circumstances require complementary feeding to meet their nutritional requirements.

xiii. The feeding of infants of mothers with TB, severe illnesses and those on cancer treatment, and infants with malformations of the mouth and pharynx (cleft lip and palate) is particularly problematic.

xiv. Improved diet contributes to controlling a micronutrient deficiency in a much more sustainable way than medicinal supplements.

xv. Nutrition education is imperative for all family members, should be taught by qualified persons/nutritionist, and be part of the school curriculum and be made compulsory for everybody at some point in the school system from primary, through secondary to tertiary institutions.

The Conference notes with concern that:

i. Feeding of infants and young children- always a challenge to parents and health care providers, and deficiencies has long term consequences.

ii. The current (NAFDAC) regulation regarding the researches on, and marketing of infant and young children food and other designated products, is not promoting effective public private partnership (PPP) in dealing with the challenges that face child nutrition and survival in Nigeria.

iii. The high cost of complementary foods pushes mothers living with HIV to breastfeed their babies, even when they are aware of the possibility of passing on the virus to the infants through breastfeeding.

iv. Inadequate dietary intake is one of the immediate causes of child under-nutrition, death and disability in Nigeria

v. Inadequate complementary food leads to malnutrition, repeated infections and diarrhea; which are the main contributors to the burden of diseases that leads to child mortality; and that appropriate complementary feeding will help to prevent this

vi. Although 97% mothers breastfeed at one time or the other, Exclusive Breastfeeding (EBF) for 6 months rate in Nigeria is only 17%, and

vii. Inappropriate complementary practices continue to contribute to high prevalence of infant malnutrition in Nigeria.

The Conference hereby recommends that:

i. Adequate resources should be mobilized and equitably distributed at all levels of governance especially in the rural and underserved populations, in order to improve infant nutrition

ii. All stakeholders should engage in widespread activities that would impart positively on the health of the Nigerian child such as infrastructural development, capacity building, provision of supplies, etc.

iii. Complementary feeding should be explored for infants with or exposed to chronic conditions such as TB and Sickle Cell Disorders in the provision of care

iv. All formula feeding must be Acceptable, Feasible, Affordable, Sustainable and Safe (AFASS)

v. Infants living with or affected by HIV and AIDS should be supported with BMS that is AFASS

vi. There should be an urgent review of the NAFDAC and other laws regulating the marketing of infant and young children food and other designated products with all stakeholders, in order to improve research, improve infant feeding and promote public private partnership (PPP) for the sake of infants and children

vii. Stakeholders, including pediatricians, nutritionists, dieticians and public health practitioners at all levels should be involved in the planning and distribution of resources for infant feeding

viii. Infant nutrition in Nigeria should be improved through a combination of improving diets, especially dietary diversity; public health actions; fortification or nutrification of foods; and or providing medicinal supplements.

ix. More emphasis should be placed on nutrition education across the board, while appropriate agencies should be utilized to disseminate information

x. Nigeria should de-emphasis dependence on donor agencies for infant nutrition approaches in-country

xi. Government is requested to ensure that laws made to regulate infant feeding in Nigeria take into consideration the prevailing local situations, and avoid wholesome adoption of international standards that are not in consonance with our peculiar circumstances of poverty and poor health systems

xii. Nigeria should promote complementary foods that are rich in energy, protein and micronutrients particularly iron, zinc, calcium, vitamin A, vitamin C and folate.

xiii. The Health sector should ensure that provision is made for trained Nutritionists to give talks on infant nutrition to mothers attending the mother and child health clinics

xiv. Complementary foods should be made from judicious combination of staple and other foods including base ingredients such as cereals, roots and tubers, and starchy fruits

xv. Community approaches to infant nutrition should be encouraged and institutionalized

xvi. Government is requested to expedite effort to provide safe water for the citizens, in order to reduce infant diarrhea

xvii. His Excellency **President Umaru Yar'Adua,** GCFR, is hereby urged to inaugurate the Nutrition Council of Nigeria without further delay

xviii. HERFON is commended for facilitating this conference; and is hereby urged to advocate the issues raised here, on behalf of the stakeholders, participants in this conference, and the Nigerian child

Long live the Nigerian child
Long live the Federal Republic of Nigeria

Sgd:

Representatives of Partners mentioned in paragraph 2 above, who participated in the conference on 16 December 2008