

# **IMPORTANCE OF FORTIFIED FOOD IN PROMOTING GOOD HEALTH**



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**PRESENTED AT CHILD NUTRITION SEMINAR TITLED "MICRONUTRIENT  
DEFICIENCIES CONTROL AND CHILD SURVIVAL IN NIGERIA  
FRIESLAND FOODS WAMCO NIGERIA PLC LAGOS,  
OCTOBER 30,  
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# THRUST OF THIS PRESENTATION IS TO EXAMINE THE FOLLOWING

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- The trends in infants, under 5 and maternal mortality rates in Nigeria, prevalence of PEM, nutritional status among our women.
- Differentiate between Enrichment and Fortification.
- Prevalence of deficiencies, underweight, (VAD, IDD, and IDA) among preschool children, pregnant and nonpregnant women in comparison to other neighbouring countries.
- Progress made in food fortification in the past two decades ( Previous & Recent Surveys).



## **THRUST OF THIS PRESENTATION IS TO EXAMINE THE FOLLOWING cont'd**

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- Conditions for food fortification.
- Benefit of food fortification.
- Comparison of the Nutrients added to 8 MDGs.
- Deliberation on future challenges to solve perennial malnutrition problems through food fortification in Nigeria.



# INTRODUCTION

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“WHOSOEVER WAS  
THE FATHER OF A  
DISEASE AN ILL DIET  
WAS THE MOTHER”



# INTRODUCTION

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- The four major nutrition at problems in Nigeria
- PEM
- VAD
- IDD
- IDA
- Zn deficiency
- Definition of terms.
- Food fortification and enrichment.
- Condition for food fortifications.

## TABLE 1. NIGERIA HIGHLIGHTS OF SOME SELECTED HEALTH STATISTICS

TABLE 1. Trend In Stunting and wasting In Children, In Nigeria (1990-2003).

Survey	Age	stunting (%)			Wasting (%)		
		Total	Urban	Rural	Total	Urban	Rural
1990	< 5 years	43	35	46	9	7	10
1993	6month-6years	40	35	45	21		
1994	<5years	52	-	-	11		
1999	<5years	32	23	38	16	14	16
1999	<3years	46	42	47	12	11	13
2003	< 5years	42	36	44	9	8	10

Source: Olayiwola, k, Soyinbo, A and Atinmo, T (2005)

TABLE 2

**Trend of Infant and Under five Mortality Rates, and Life Expectancy in Selected Countries, As Compared to some Selected Oil Producing and where Primary Health Care Services has been Reported Successful. (1990- 2005)**

Country	UMR		IMR		Life Expectancy		MMR	
	1990	2005	1990	2005	1998	2005	1990- 1998	1998
Benin	185	152	111	90	53	54	990	
Cameroon	139	149	85	87	55	46	550	
Ghana	122	112	75	68	60	57	740	
Nigeria	230	197	120	101	50	53	1000	
Togo	153	140	88	78	49	55	640	
<b>OIL PRODUCING COUNTRIES</b>								
Kuwait	16	12	14	10	73	77	29	
Libya	41	20	35	18	70	74		
Saudi Arabia	44	27	35	21	72	72	130	
United Arab Emirates	14	8	12	7	75	78	26	
<b>WHERE PHC HAS WORKED</b>								
Cuba	13	7	11	6	76	78	795	
Nicaragua	68	38	52	31	68	70	160	160
Mozambique	235	152	158	104	44	42		


Adapted from State of Children's Fund New York, UNICEF, 2000, 2006; UNDP, 1997.

**Table 3 Women Nutritional Status**

	Height <145cm (%) NPC et al, 2000	Body mass index < 18.5% NPC, et al 2000	FGN et al, 2003
Total	7	16	12
Urban	6	15	12
Rural	7	17	13
<b>Mothers' education</b>			
None	9	20	
Primary	5	14	
Secondary	4	12	

**Source: Olayiwola, k, Soyinbo, A and Atinmo, T (2005)**

**Table 4: Estimates of Prevalence of deficiencies and underweight for each country for 2000 (best guesses)\***



Country	Underweight	Vitamin A deficiency		Anemia		Pregnant women	Iodine deficiency
		Xerophthalmalmai	Serum retinol <0.1umol/L	Preschool children	Non pregnant women		
Benin	21.6	1.5	43.3	81.9	64.6	72.7	12.7
Cameroon	22.5	1.1	36.0	57.7	31.7	45.4	11.7
Ghana	24.3	1.0	45.8	64.8	39.7	50.6	18.1
Nigeria	21.0	1.6	38.2	69.2	47.1	51.7	7.7
Togo	18.8	1.8	34.7	71.7	45.4	50.8	13.5
	<b>OIL PRODUCING COUNTRIES</b>						
Kuwait	5.4	0.3	15.8	4.7	12.3	34.4	
Libya	5.1	0.5	19.3	20.3	23.5	5.5	10.1
Saudi Arabia	7.4	0.5	20.9	18.5	18.6	23.1	
United Arab Emirates	5.0	0.1	13.7	1.4	10.5	34.4	

**Source: Mason, J; Rivers, J; and Helwig, C (2005)**

Recent trends in malnutrition in developing regions. Vitamin A deficiency, anemia, iodine deficiency, and child underweight Food and Nutrition Bulletin 26: 161-162



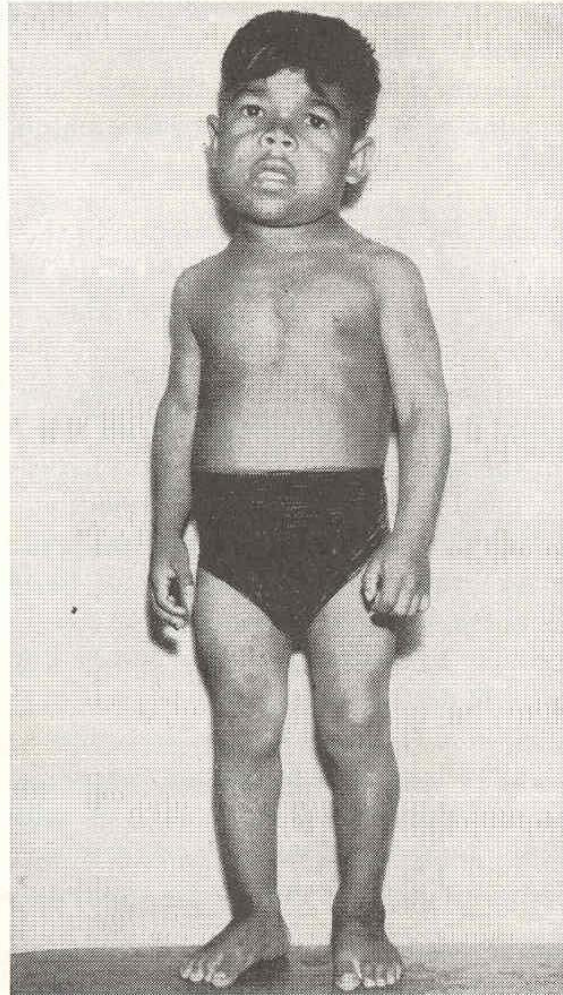
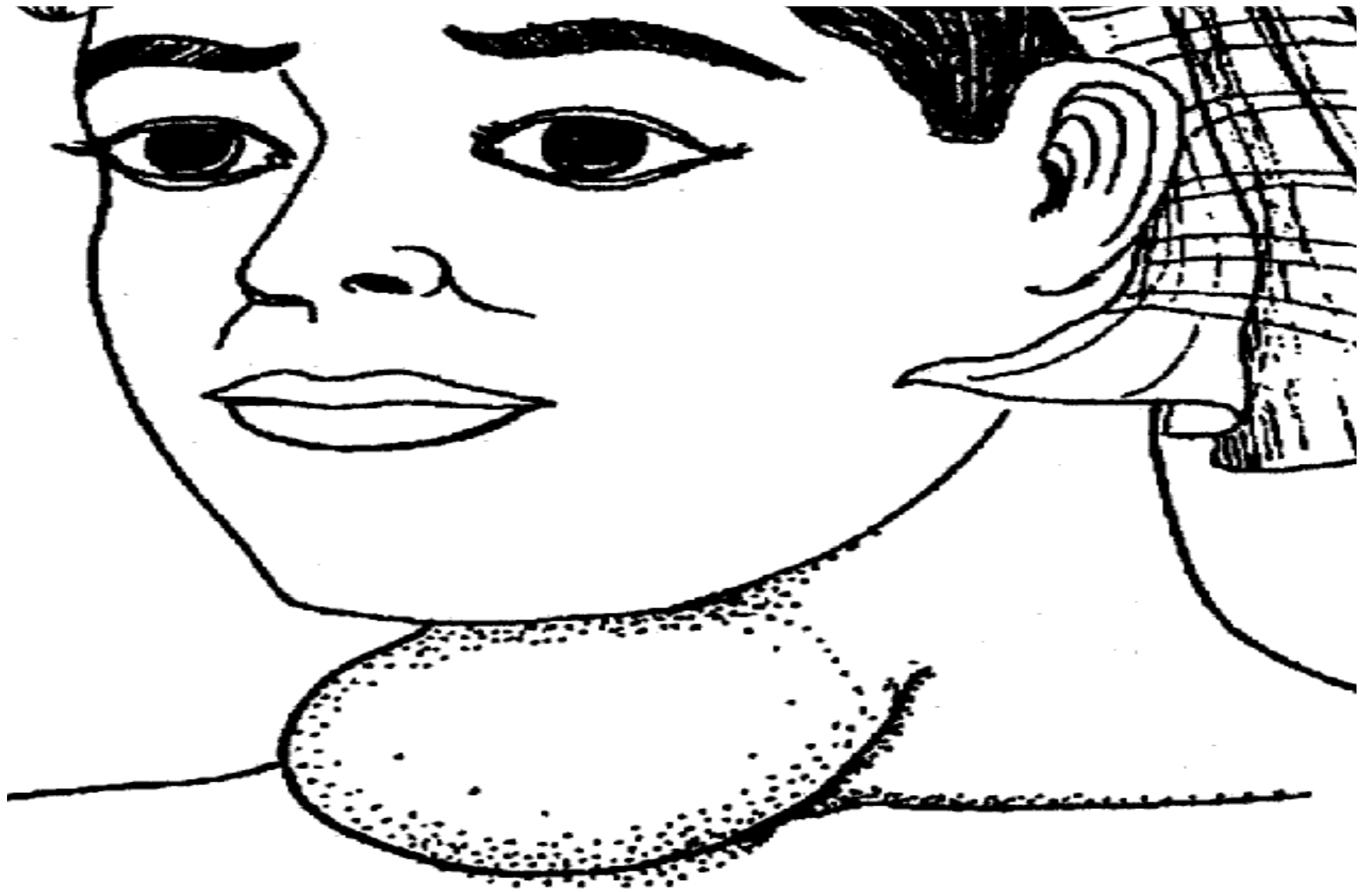


Fig. 11.4. A child suffering from cretinism. (Courtesy of Scrimshaw, Institute of Nutrition of Central America and Panama, Guatemala, C.A.)





**Knock knee deformity (genu valgum)**

**Table 5: Common Foodstuffs available in the Supermarkets**

<b>S/n</b>	<b>Brand</b>	<b>Comments on Ingredients</b>
1.	Yam flour	No Fortification and Composition of ingredient not listed
2.	Pure Egusi	No Fortification and Composition of ingredient not listed
3.	Elubo Oyo	No Fortification and Composition of ingredient not listed
4.	Lafun food	No Fortification and Composition of ingredient not listed
5.	Afro food Yam Flour	No Fortification and Composition of ingredient not listed
6.	Pure Yam Flour	No Fortification and Composition of ingredient not listed
7.	Beans Flour	No Fortification and Composition of ingredient not listed
8.	Poundo Yam Instant	No Fortification and Composition of ingredient not listed
9.	Flour	No Fortification and Composition of ingredient not listed
10.	Gari	No Fortification and Composition of ingredient not listed
11	Soy-Ogi	Protein 12%, Fat 6.5%, Carbohydrate 70.5%, Moisture 7%, Ash 2.5%
		Calcium 493.61mg, Phosphorus 308.61mg, Iron 11.75ug, Vit. A 2145I.U and Vit. B complex 1.27mg.

**Table 6**



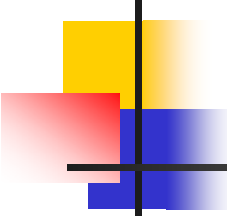
## **Conditions for Food Fortification/Enrichment Programmes**

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- (i) Carrier must be staple food for the target population
- (ii) Centralized processing is necessary and frequent as well as reasonably consistent consumption is desirable.
- (iii) Fortifying agent must have adequate physicochemical, organoleptic, and bioavailability characteristics.
- (iv) Fortification process should not significantly increase the total cost of the final product.
- (v) There must be a monitoring and control that ensures both adequate nutrient concentration and programme compliance by food manufacturers.
- (vi) Verification of adequate addition of nutrients to avoid possible toxicity which may put the population at risk.

Sources JADA (2001); Omar D (2007) FFA (2004 Allen, L. H. (2006).

**Table 7 Suggested Foods and Fortifying Agent\***



<b>Food Vehicle</b>	<b>Fortifying agent</b>
Salt	Iodine, iron
Flours, bread, rice	Vitamin B1, B2, niacin, Iron
Milk, margarine	Vitamin A, and D
Sugar, tea	Vitamin A
Complementary foods, cookies	Iron
Vegetable mixtures amino acids, protein	Vitamins, mineral
Soy milk, orange juice	Calcium
Ready to – eat cereals	Vitamins, minerals
Diet beverages	Vitamins, minerals
Enteral and parenteral solutions	Vitamins
Palm oil	Vitamin A
Water	Iron

\*Source: Mejia, L. A (2007) and Asian Development bank, Manila, the keystone center, U.S.A. Jakarta 2003.



# RESULTS OF RECENT SURVEY

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- Most foodstuffs commonly produced in Nigeria were still not yet fortified.
- In Nigeria, salt iodization, vitamin A fortification in cereals and cooking oil.
- More than ½ of the milk food products in the market were not fortified or labeled.



## Table 8

### Benefits of Food fortification Programmes\*

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- Reduce Health Care cost.
- Reduced child and maternal mortality and morbidity rates.
- Prevent birth defects such as neural tube defects (NTD).
- Fortification of commonly consumed foods appears to be a reliable and effective way to attain health benefits by increasing the nutrient intake of the population without relying on individual supplementation practices.
- Food fortification helps to eliminate specific health conditions such as goiter with iodized salt.
- Food fortification is one intervention that can provide the necessary micronutrients for the mass population who may be experiencing deficiencies.
- Productivity gains from improve cognitive of children and work performance of adults.

■ **\*Sources: JADA (2001) Omar D (2007): FFA (2004)**

**Table 9: Contribution of improved nutritional status (micronutrients) to Millennium Development Goals (MDGs).**

Goal 1: Eradicate extreme poverty and hunger	Iron and iodine deficiencies are related to mental and physical incapacity and this has implications for learning and productivity; zinc deficiency is associated with stunting that is related to low earnings, vitamin and mineral deficiencies (VMD) are interrelated with poverty and hunger.
Goal 2: Achieve universal primary education	Iron and iodine are closely related to cognitive function. Anemia is related to low school attendance independent of cognition.
Goal 3: Promote gender equity and empower women	The demand for child bearing, menstruation, pregnancy, and lactation create high demands on micro nutrients stores in women, which results in a higher level of deficiencies for them; reducing VMDs improves maternal health and productivity and reduces disabilities such as night blindness.
Goal 4: Reduce child mortality	Iodine supplements, vitamin A and zinc are proven to reduce childhood deaths and or severe illness, improving foliate status around the time of conception reduces the risk of mortality related to neural tube defects (NTDs)
Goal 5: Improve maternal health	Anemia is an important cause of maternal deaths; several VMDs (vitamin A, Iron, iodine, foliate and calcium) are associated with complications of pregnancy.
Goal 6: Combat HIV/AIDS, malaria and other diseases.	Adequate micronutrients status may reduce progression of HIV/AIDS and improve the quality of life of survivors.
Goal 7: Ensure environmental sustainability	Fortification and supplementation support environmental sustainability compared with consumption of animal foods, micronutrient status in turn is dependent upon a safe environment; e.g. soils and iodine-deficiency disorders (IODs).
Goal 8: Develop a global partnership for development	The micronutrient sector has facilitated a broad range of partnership that raise the awareness and functioning of public and private sector development initiatives.



# FUTURE CHALLENGES

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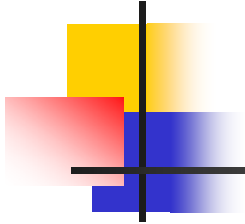
- Extension of technology used to produce Extra Fortified Peak milk to cookies, and popular staple foods in Nigeria.
- Increase community awareness on the importance of consumption of new fortified food products to health and productivity.
- Intensive drive towards food fortification as means of achieving MDGs.
- Government to energize food fortification working experts and technical groups.
- Private sectors, government and international agencies commitment on resource allocation for food fortification.



# FUTURE CHALLENGES cont'd

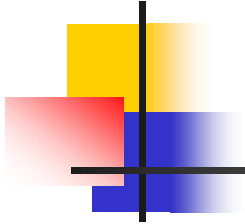
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- Increased availability and quality fortified food for vulnerable groups (middle and low income groups).
- NAFDAC should continue her good work on effective monitoring and evaluation food manufacturers for compliance.
- Enabling environment to facilitate food manufacturers interest in food fortification.
- Team work.
- Research activities to include development of condiments, sugar and sprinkles that can be to foods just before serving impact of food fortification on health and productivity of the target population.



**“LET NUTRITION BE YOUR  
MEDICINE”**

**- HIPPOCRATES**



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**BELIEVE YOU CAN**

MAKE A DIFFERENCE AND

**YOU WILL**

WAMCO CONTINUE TO BE  
SIGNIFICANTLY DIFFERENT IN  
PROMOTING GOOD HEALTH IN  
NIGERIA.

