

Review

Food-based dietary guidelines for Filipinos: retrospects and prospects

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This paper reviews the formulation of positive, practical and culturally sensitive food-based dietary guidelines (FBDGs) to help Filipinos choose an adequate diet and foster wholesome food and nutrition practices to promote good health; and provide those concerned with a framework and reference for their task of educating the public on proper nutrition practices. An evidence-based approach to evaluate the scientific report used to develop the Nutritional Guidelines for Filipinos (NGF) was published summarizing the scientific bases for its formulation. It highlights the findings of controlled and epidemiological studies and review in scientific journals. The results of the nutrition surveys which depict the food and nutrition situation, data on dietary patterns and practices related to food, food availability and statistics on nutrition-related health problems serve as background for the guidelines. While the 2000 NGF may have created awareness of the link between nutrients and foods to health, the contribution of these guidelines to outcomes and impact on health and nutrition has been limited. The policy makers and stakeholders involved with FBDGs development should recognize that the process does not end when the messages are formulated. A comprehensive plan that includes implementation, assessment, monitoring and reformulation must be developed. Formulation of a strategy on how the guidelines should be implemented to improve the dietary patterns of Filipinos, combined with the development of a protocol for evaluation of implementation and impact of the guidelines will now be adopted for its revision.

Key Words: food-based, dietary, nutritional, guidelines, Philippines

I have the pleasure to present the food-based dietary guidelines: Retrospects and Prospects. The Retrospect part will be the process development, basic considerations in formulation and lessons learned. The Prospects will cover the future plans for the implementation and evaluation of the 2011 edition.

NUTRITION SITUATION

The Philippines suffers from both undernutrition and overnutrition, each one affecting specific groups in the population.

Protein-energy malnutrition

Protein-energy malnutrition or PEM continues to be prevalent among preschool and school-age children and those in the 11-19 years age group, the elderly, as well as pregnant women (Table 1).

Stunting or low height-for-age, indicative of long-term deprivation from food and frequent bouts of infections, is particularly high among children 0-10 years old, with higher levels among the 6-10 years old. As shown in Figures 1 and 2, the prevalence of underweight and stunting among children increased between 2006 and 2008. Wasting, an indication of food deprivation, among the younger 0-5 year old age group remained constant in the 5-6 percent range. The prevalence of underweight among adolescents had increased significantly, as shown in Figure 3. Furthermore, the percentage of nutritionally at-risk pregnant women decreased from 28.40 (2005) to 26.30 (2008).

Iron deficiency anemia (IDA)

Iron deficiency anemia remains the most prevalent nutritional problem among Filipinos; affecting infants, pregnant and lactating women, and children. Based on the $\geq 40\%$ epidemiological criteria for assessing severity and magnitude of anemia, the prevalence among infants and pregnant women remains a significant public health problem. Except for pregnant women, the 2008 survey showed that there was improvement from 2003 levels in terms of anemia prevalence. Prevalence of IDA is highest among infants 6-11 months old at 55.70% in 2008 (Figures 4 and 5).

Vitamin A deficiency disorders (VADD)

The overall prevalence of VAD is 5.9%. Among Filipinos, VAD is classified as a public health problem of mild significance. The highest prevalence of VAD was observed among infants with 15.2%, indicating a public health problem of moderate significance. The prevalence among school children is 11.1%, classified as a problem of moderate significance. The prevalence among the adolescents,

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Table 1. Protein-energy malnutrition by population group, Philippines, 2008

| Population Group/Indicator | Percent | Basis/Reference |
|----------------------------|---------|---------------------------|
| 0 - 5 years old | | WHO / CGS |
| - Underweight | 20.7 | |
| - Stunting | 32.3 | |
| - Wasting | 6.9 | |
| 6 - 10 years old | | IRS |
| - Underweight | 25.6 | |
| - Stunting | 33.1 | |
| 11 - 19 years old | 10.0 | Must <i>et al.</i> , 1991 |
| Pregnant Women | 26.3 | Weight-for-height, Phil. |
| Adult, 20 years and above | 11.6 | NCHS/WHO, 1978 |

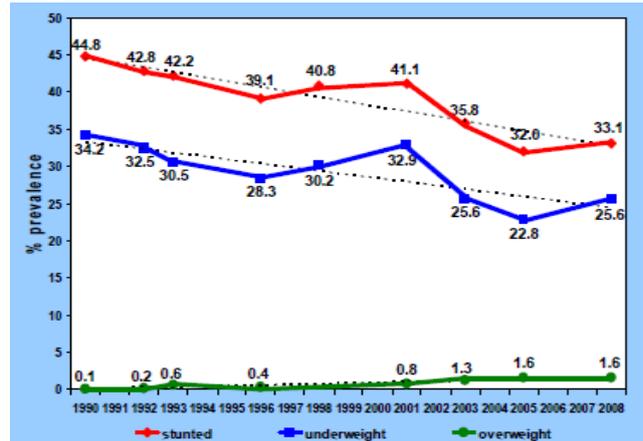
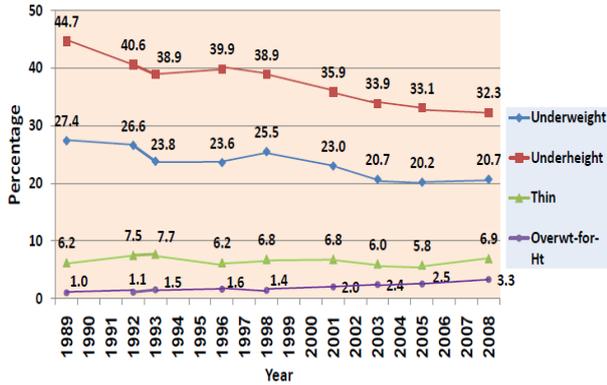


Figure 1. Trends in PEM among 0-5 year olds: Philippines, 1989-2008.

Figure 2. Trends in PEM among 6-10 year olds: Philippines, 1990-2008

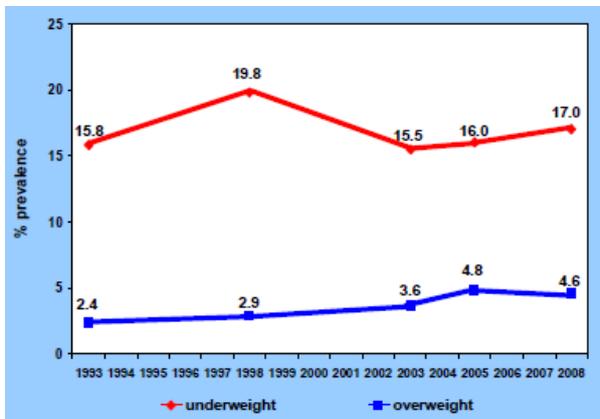


Figure 3. Trends in under- and overnutrition by BMI-for-age classification among 11-19 years old, Philippines, 1993-2008

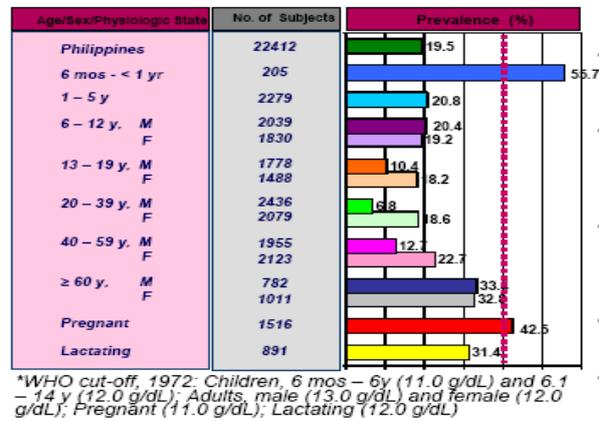


Figure 4. Prevalence of iron deficiency anemia among selected population groups: Philippines, 2008

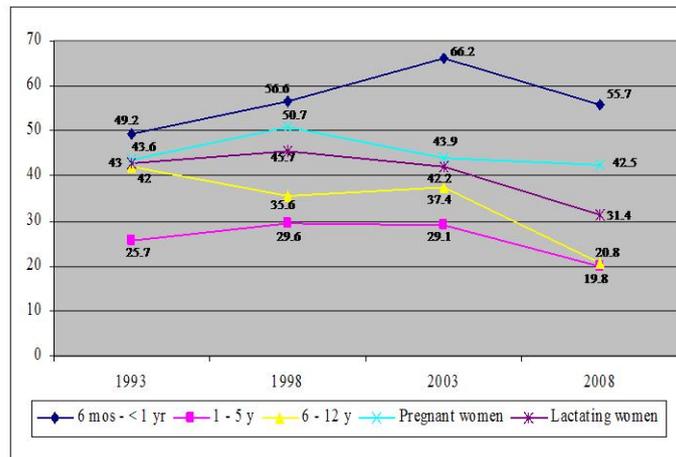


Figure 5. Trends in the prevalence of anemia among children, pregnant and lactating women: Philippines, 1993, 1998, 2003 and 2008.

adults and the elderly was 4.6%, 3.4% and 3.6% respectively. Among pregnant women and lactating mothers, prevalence of VAD was 9.5% and 6.4% respectively, which is a public health problem of mild significance. (Figure 6)

The percentage of children, pregnant and lactating mothers with deficient to low vitamin A were lower in 2008 than in 2003.

Iodine deficiency disorder (IDD)

Iodine deficiency disorder has significantly improved. IDD among children 6-12 years old is no longer of public

health significance based on the WHO/UNICEF/ICCIDD criteria, i.e. IDD is a public health problem if median UIE is $\leq 100 \mu\text{g}/\text{dL}$ and more than 20% of UIE are $< 50 \mu\text{g}/\text{L}$ (Table 2). This improvement could be attributed to the salt iodization program resulting in 81% household utilization of iodized salt.

The median UIE among pregnant women was $105 \mu\text{g}/\text{L}$, corresponding to insufficient iodine intake. Likewise, the median of $81 \mu\text{g}/\text{L}$ for lactating women was found to be insufficient. Thus, iodine deficiency is a concern for both pregnant and lactating women.

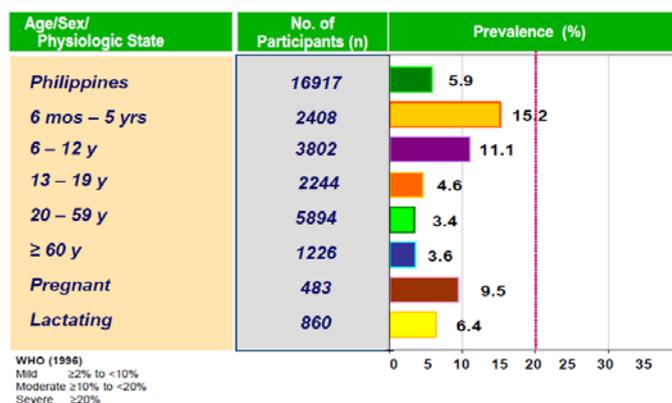


Figure 6. Prevalence of vitamin A deficiency disorders among selected population group: Philippines, 2008

Table 2. Median and Percent distribution of UIE levels by age and physiologic groups: Philippines, 2008

| Age/ Physiologic Group | UIE, ug/L | | | | | |
|------------------------|-----------|------|-------|-------|-------|-------|
| | Median | <20 | 20-49 | 50-99 | > 100 | > 150 |
| Philippines | 133 | 7.5 | 12.6 | 20.8 | 59.1 | |
| Children , 6-12 yrs | 132 | 7.7 | 12 | 20 | 60.2 | |
| 13- 19 yrs | 154 | 5.5 | 9.9 | 18.4 | 66.1 | |
| Adults, 20- 59 yrs | 137 | 6.4 | 11.8 | 20.1 | 61.6 | |
| Elderly > 60 yrs | 107 | 7.5 | 15.6 | 25.3 | 51.7 | |
| Lactating Women | 81 | 14.7 | 19.3 | 25.5 | 40.4 | |
| Pregnant Women | 105 | 10.5 | 15.4 | 23.2 | 18.3 | 32.9 |

WHO (2001)- (For children 6-12 yrs old and Lactating women)

- <20 Severe
- 20- 49 Moderate
- 50- 99 Mild
- 100- 199 Adequate
- 200- 299 More than Adequate
- ≥ 300 Excessive

WHO (2001)- (For Pregnant women)

- < 150 Insufficient
- 150- 249 Adequate
- 250- 499 More than adequate
- ≥ 500 Excessive

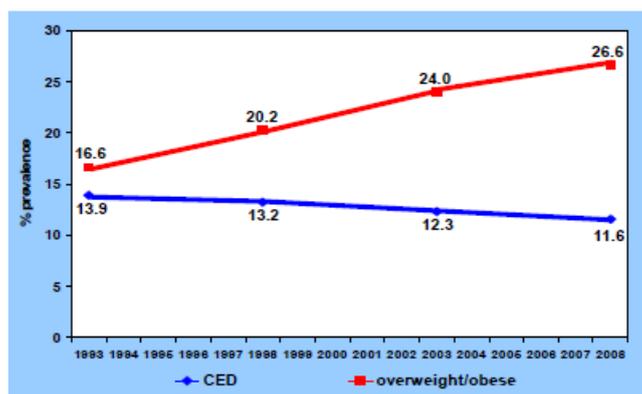


Figure 7. Trend in the prevalence of Chronic Energy Deficiency (CED) and overweight among adults, 20 years and over: Philippines, 1993

Overweight and obesity

Overweight and obesity are more serious problems among adults, especially those in the 40-59 years age group (Figure 7). Obesity is among the risk factors for non-communicable diseases. These diseases, on the other hand, have become major causes of morbidity and mortality.

While the prevalence of overweight and obesity among children and adolescents has remained relatively low, the prevalence increased among adults.

Over the years, Overweight has been climbing at the average rate of 0.67 percentage points per year.

HEALTH SITUATION

Hypertension

Overall, the prevalence of hypertension increased significantly from 22.5% to 25.3% between 2003 and 2008. By sex, more males were hypertensive than females (Figure 8)

High fasting blood sugar (FBS)

The overall prevalence of diabetes based on high FBS (≥ 126 mg/dL) increased from 2003 to 2008; however, the increase was not significant (p -value = 0.4494). Hyperglycemia or high FBS level increased from 2003 (3.4%) to 2008 (4.8%), but the increase was not significant (Figure 9).

Blood Lipid Profile

Overall, the prevalence of high total cholesterol, high LDL-c, low HDL-c and high triglyceride increased among males and females between 2003 and 2008 (Table 3).

LIFESTYLE PRACTICES

Physical Activity

Table 3. Comparison in the prevalence of high total cholesterol, high LDL-cholesterol, low HDL-cholesterol and high triglyceride levels among adults: Philippines, 2003 and 2008

| | Prevalence | |
|------------------------|------------|------|
| | 2003 | 2008 |
| High total cholesterol | 8.5 | 10.2 |
| High LDL-cholesterol | 11.7 | 11.8 |
| Low HDL-cholesterol | 54.2 | 64.1 |
| High triglyceride | 6.7 | 14.6 |

Overall, significant increase was noted in the prevalence of low physical activity in work and travel-related physical activities, p -value= 0.0115 and p -value= 0.0000, respectively (Figure 10).

Smoking

From 1998 to 2008, the overall prevalence of current smoking was highest in 2003 at 35.2%. There was an increase prevalence of current smoking from 1998 to 2003, however, the increase was not statistically significant (p -value = 0.1430). A significant reduction, on the other hand, was noted between 2003 and 2008 (p -value = 0.0061).

By sex, male smokers were far greater in number than their female counterparts between 1998 and 2008 (Figure 11).

Alcohol Drinking Status

The prevalence of current alcohol drinking peaked in 2003 with significant difference noted between 1998 and 2008 (p -value = 0.0005) (Figure 12).

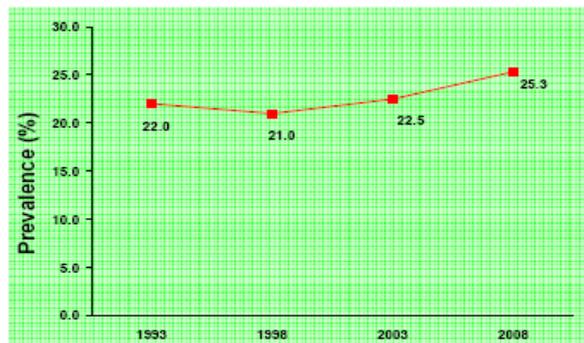


Figure 8. Trends in the prevalence of hypertension among adults based on a single visit Blood Pressure: Philippines, 1993, 1998, 2003 and 2008

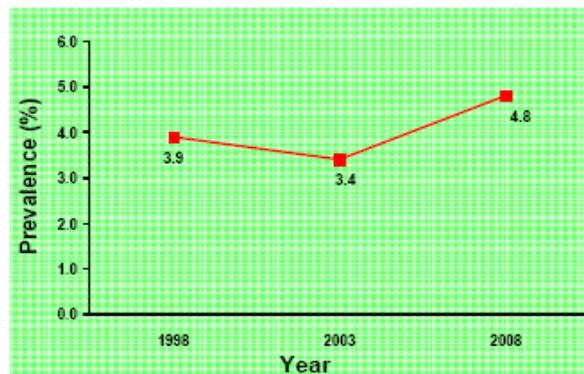


Figure 9. Trends in the prevalence of high FBS among adults: Philippines, 1998, 2003 and 2008

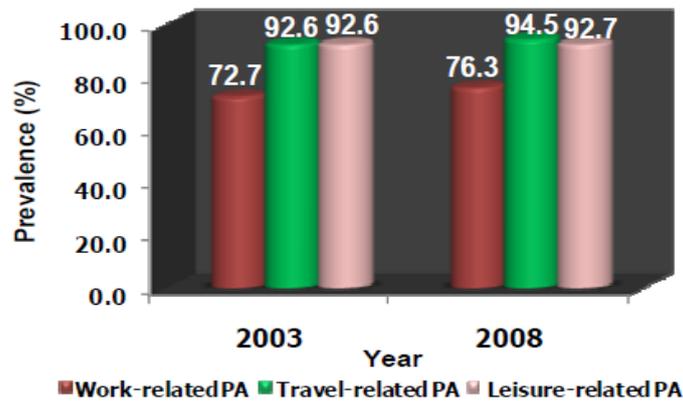


Figure 10. Comparison of low physical activity among adults by domain: Philippines, 2003 and 2008

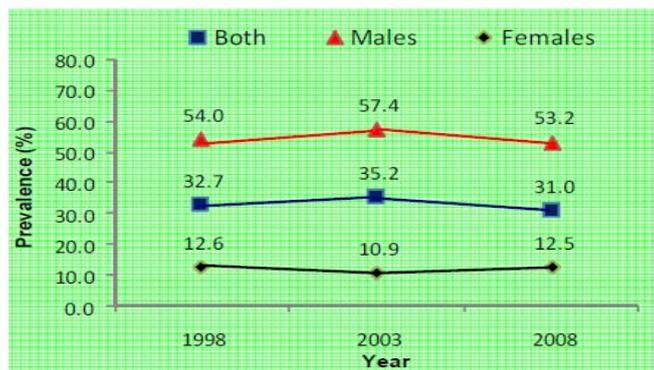


Figure 11. Prevalence trend of current smoking adults by sex, Philippines: 1998, 2003 and 2008

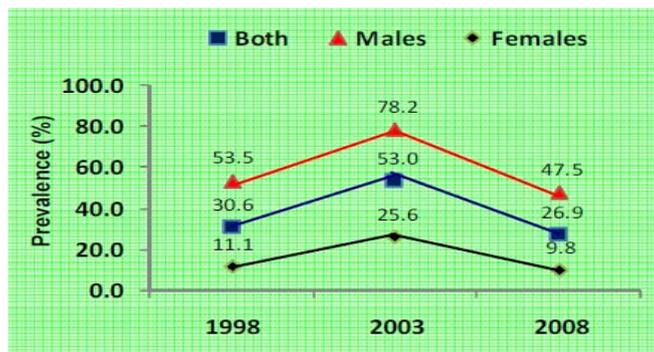


Figure 12. Prevalence trend of current alcohol drinking among adults by sex, Philippines: 1998, 2003 and 2008

REVIEW OF CULTURAL PRACTICES RELATED TO FOOD

The existence of various ethnic and regional groups in the Philippines somehow gives rise to variations to the general diet pattern, each having its own special tastes, food preferences and preparation techniques. Nevertheless, there are some practices that have been observed to be common across regions. These include the use of rice as the major staple (replaced by corn in some areas in the Visayas and Mindanao), the use of *bagoong* (fermented fish or shrimps), *patis* and soy sauce in cooking or dipping sauce, and the preference for boiling and stir-frying (*sautéing* in a small amount of fat) as cooking methods.

The use of dried fish is also quite common, especially among low income families (which constitute a significant sector of the population), those in inland areas where fresh fish may be rarely available, and even those in coastal areas during the monsoon season when fishing is not possible.

Although vegetables are widely used, the amounts incorporated in the meals are usually small, often as secondary ingredients.

Fruits and milk are rarely part of the customary diet of Filipinos, most probably due to their high cost.

The above observations find support in the findings of the periodic nutrition surveys of the FNRI, which showed the average daily per capita of fats and oils to range from 12 to 15 grams, that of vegetables from 106 to 110 grams, of fruits from 77 to 54 grams and milk from 44 to 42 grams. The 7th National Nutrition Survey (NNS) reported that salt and soy sauce were among the top 10 most widely used miscellaneous food items in Filipino households.

WHAT CAN EXPLAIN THE NUTRITIONAL SITUATION AND ITS TRENDS?

Malnutrition among children can be explained by poor breastfeeding and complementary feeding practices (Fig-

ure 13). Only 35.9% of infants 0-5 months old were exclusively breastfed. Among those less than 6 months old, 36.8% were given complementary food, much earlier than the recommended age of introduction of complementary foods. Of the 6-11 and 12-23 months old, 40% and 22.2% were still breastfed, respectively.

Furthermore, Filipino household are not eating enough in terms of both quantity and quality. Based on the food composition survey of the FNRI, the Filipino diet although noted with some improvements, generally fell

below recommended levels (Figures 14 and 15). Except for niacin, which showed higher levels of adequacy due to the relatively high intake of rice, all nutrient and energy were below 100% adequacy. The inadequate levels of food consumption may be due more to access to food supply due to extreme poverty rather than food supply by itself.

The proportion of households meeting energy adequacy in 2008 decreased as compared with 2003. A decline in the proportion of households meeting 80% of the

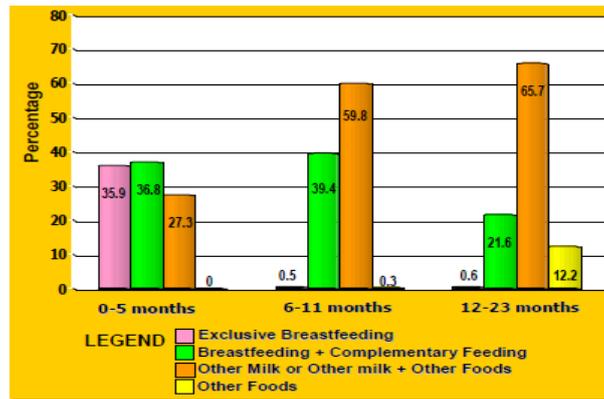


Figure 13. Distribution of children by current feeding practice by age group: Philippines, 2008

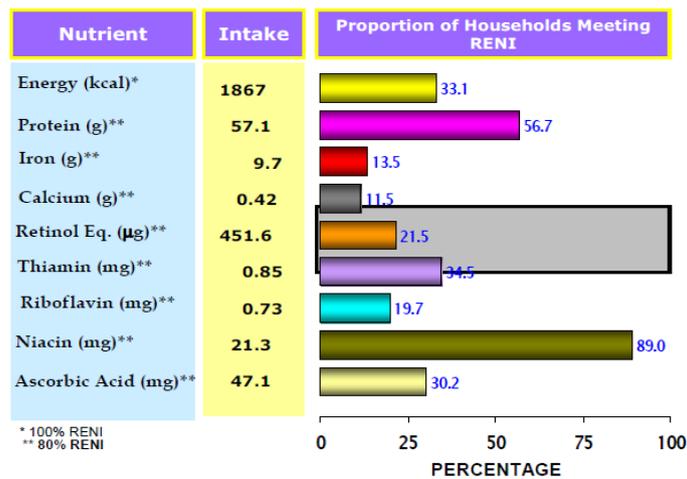


Figure 14. Proportion of households meeting Recommended Energy and Nutrients Intake (RENI): Philippines, 2008

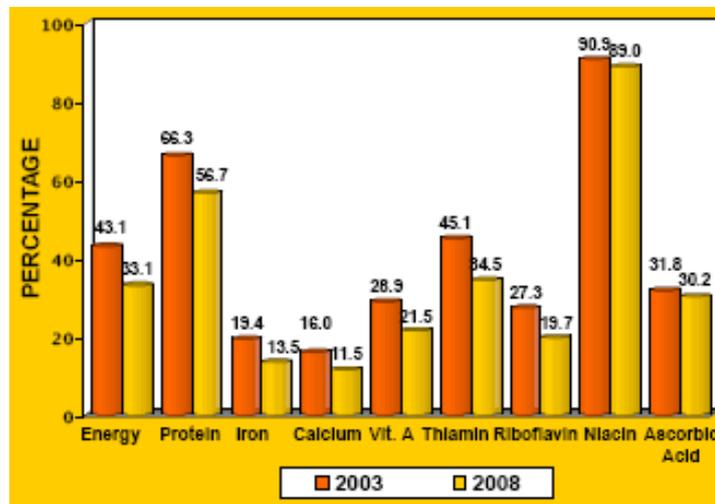


Figure 15. Comparison on the proportion of households meeting Recommended Energy and Nutrient Intake (RENI) : Philippines, 2003-2008

respective requirements for all the nutrients was also noted. Notably, the decrease in Iron was statistically significant.

REVIEW OF HEALTH PROBLEMS AND STATISTICS

Side by side with the continued prevalence of nutritional deficiencies, there apparently is an increasing prevalence of cardiovascular diseases, obesity, diabetes, and cancer; presumably due to changing lifestyles, food habits and environmental factors.

In 2005, diseases of the heart ranked first among the first ten leading causes of death, followed by diseases of the vascular system. In the case of diabetes, which has been clinically recognized to be associated with the development of coronary heart diseases, it had a rate of 21.6 per 100,000 population, established by the 2005 survey of the Department of Health. The prevalence of malignant neoplasms ranked 3rd in 2005.

Nine out of 10 Filipino children are suffering from tooth decay. Only 82% of households have access to safe water supply while only 77% have sanitary toilet facilities.

RETROSPECT

Nutritional Guidelines

The first set of Food-based Dietary Guidelines (FBDGs) which are referred to as Nutritional Guidelines for Filipinos (NGF) was formulated in 1990 and consisted of five main messages. Later, in 1997, a national seminar-workshop was held where participants recommended that while the 1990 NGF appear to be technically appropriate in its major messages, they need to be reviewed in terms of their sub-messages. Following this recommendation, the second edition of the NGF was formulated in the year 2000. At the start of the review and revision of the guidelines, it was made clear and there was strong conviction among members of the TWG that the development process follows a scientific research process, that is, it must be fully documented and open for peer review. The documentation must include a statement on the philosophical and nutritional goals of the guidelines, references to food consumption, food production, nutrition and health situation, cultural practices and data to show that the goals specified can be reliably achieved. Based on the above considerations, the Technical Working Group decided that the Nutritional goal of the guidelines is improvement of nutritional status through adoption of desirable dietary practices and healthy lifestyle.

Process of Development

As a first step, the FNRI convened a secretariat, to formulate an overall plan for the review and revision of the guidelines. The secretariat proposed the following steps to be undertaken for the review and revision:

- Forming a technical working group. The members were selected on the basis of their expertise, and consisted of medical specialists, nutritionists, food and nutritional program planners and nutrition educators.
- Agreeing on the terms of reference (TOR) of the TWG. The TWG again adopted the theme Nutritional Guidelines rather than Dietary Guidelines because the committee envisioned the guidelines to include mes-

sages that are not only dietary in nature but also are closely related to nutrition and are essential for nutritional health.

- Reviewing current nutrition problems, the food availability and supply situation, customary dietary patterns, morbidity and mortality statistics, and nutrition-related health problems.
- Formulating nutrition goals and objectives and the desirable dietary pattern, identifying gaps in the customary dietary pattern that need to be addressed. Translating these into main advisory messages.
- Formulating the draft “Nutritional Guidelines” from the advisory messages; developing explanatory text under each guideline to form the “Reference Handbook”.
- Assessing appropriateness of the draft “Nutritional Guidelines” through a consultative meeting and workshop among representative users.
- Pre-testing the revised draft among various users.
- Finalizing the “Nutritional Guidelines” and explanatory notes.
- Submission of the “Nutritional Guidelines” to the National Nutrition Council (NNC), the nutrition coordinating body, for approval and adoption.

The Nutritional Guidelines consist of ten messages:

- Eat a variety of foods everyday
- Breast-feed infants exclusively from birth to 6 months, and then, give appropriate foods while continuing breast-feeding
- Maintain children’s normal growth through proper diet and monitor their growth regularly
- Consume fish, lean meat, poultry or dried beans
- Eat more vegetables, fruits and root crops
- Eat foods cooked in edible/cooking oil in your daily meals
- Consume milk, milk products and other calcium-rich foods such as small fish and dark leafy vegetables
- Use iodized salt, but avoid excessive intake of salty food
- Eat clean and safe food
- For a healthy lifestyle and good nutrition, exercise regularly, do not smoke and avoid drinking alcoholic beverages

The development process was published in a local journal. The messages come in the form of posters and in addition; a handbook providing the rationale for each message.

Lessons Learned

Development of FBDG does not end when the messages are formulated. A comprehensive plan that includes implementation, assessment, monitoring and reformulation must be developed.

A main difficulty in implementing the dietary guidelines is the lack of concerted effort and well-balanced system from all the key players involved in food economics or food chain for its promotion. Therefore involvement of significant sectors of food economics from one end and the consumer from the other is essential.

A feedback system approach, aimed at high and healthier nutritive value of produced and consumed foods

and optimal nutritional patterns, is a prerequisite. This should be converted into food and nutrition policy where dietary guidelines should find their place.

Development of a comprehensive research programs maybe developed parallel with the implementation phase. Research outputs become crucial elements for implementing the dietary guidelines such as nutrition behaviors, safety, and nutrition promotional methodologies.

FBDG cannot be static and therefore should be reviewed or revised periodically because of the progress in nutritional sciences, changes in agricultural or food technologies, habits, health and socioeconomic situations.

It may be useful to maintain dialogue with the food industries to inform, educate and gather feedback. Joint activities could be organized to develop messages to industry. The industry and public understanding that, with a balance between variety and moderation, all foods can fit into a healthful diet.

PROSPECTS

The present set of guidelines is being reviewed. Its reformulation follows the processes used when it was developed. The next step should be the formulation of a strategy on how the guidelines should be implemented to improve dietary patterns of Filipinos, combined with the development of a protocol for evaluation of implementation and impact of the FBDG's.

Process evaluation

The members of TWG agreed to initiate a conduct of NGF survey with the objective of gathering information regarding the awareness of primary and end-users of the NGF. For the primary users, a total of 510 Nutritionists Dietitians (ND), 131 physicians (MD), 17 Barangay Nutrition Scholars (BNS) and 51 teachers were surveyed, For the end users, 82 and 200 housewives and household members of urban and rural areas respectively were covered. A researcher administered questionnaire was employed only among the housewives of urban and rural area while a self administered questionnaire was employed on the rest of the respondents. The result of the survey showed that the majority of the respondents were aware of the NGF (ND, MD, Teachers, BNS and urban housewives with 98.8%, 63.2%, 92.7%, 100% and 92.7% were aware respectively) with the exception of the urban housewives wherein only 4% of the respondents were aware. Most of the respondents, except for the urban housewives were using the NGF and has a copy of it. The responses of the physicians were not considered on this item due to an attachment of the NGF on their questionnaire thus may lead to a bias answer. Majority of the respondents thought that the NGF has a positive effect on one's overall health (ND, MD, Teachers, BNS and Urban housewives with 90.7%, 77.4%, 94.5%, 100% and 80.5% respectively) and with regards on the improvement of the NGF messages; Less than half of the respondents had suggestions for the improvement (ND, MD, Teachers, BNS and Urban housewives with 27.7%, 49.6%, 61.8%, 29.4% and 37.8% respectively are those with suggestions). In summary of the respondents' feedbacks on the NGF, message # 6 "*Eat foods cooked in edible/cooking oil daily*", has the least favorable feedback, followed by mes-

sage # 8 "*Use iodized salt, but avoid excessive intake of salty foods.*" and message # 10 "*For a healthy lifestyle and good nutrition, exercise regularly, do not smoke and avoid drinking*". On the other hand, the messages with the most favorable feedbacks were message # 1 "*eat a variety of foods*", message # 2 "*Breast-feed infants exclusively from birth to 6 months and then, give appropriate foods while continuing breast-feeding*" and message # 5 "*Eat more vegetables, fruits and root crops*". The results would be considered by the Technical Working Group on the current "review and revision of the Nutritional Guidelines for Filipinos 2000".

General comments about the dietary guidelines are that they are vague, ambiguous, are not user-friendly. Some suggested that specific guidelines for targeted group such as children, pregnant mothers should be included in the guidelines. Some felt that there is a need for more publicity and education to increase awareness and usage of the guidelines for those working in the school and the community. It was also pointed out that there would be difficulties in translating the guidelines into practices and that there is a need for the authorities to formulate a plan on strategies to improve common usage and practice.

The FBDGs has minimal reach of the end-users. This underscores the need to commit resources to disseminate FBDG overtime. The policy makers and stakeholders involved in FBDGs development should recognize that the process does not end when the messages and food guides are launched. This may necessitate involvement of the private sector organizations, academia, consumer rights groups, and other interested parties who can assist in obtaining logistic support as well as endorsement of the FBDG. Strategies for dissemination and education should be developed and funds should be committed to ensure that the implementation of the FBDG will be sustainable.

Education materials

To facilitate communication and implementation, FBDGs messages should be visually illustrative or presented in a form of a food guide. This food guide should be supported by education material explaining and motivating the rationale and application of each message. The information will differ for different target groups and should be focused for specific purposes. There is a need to tap experts and professional groups who can give valuable suggestions on context, format and presentation. Collateral materials are food guides and other focused education and promotion materials in the form of technical papers, booklets, brochures, advertisements, posters that support, motivate and explain the food guide.

Implementation plan

An implementation plan should be developed which may be integrated with other health promotion programs in order to be successful.

An important way for the implementation of FBDG is its integration in formal education. The guide should be applied firstly, in the various levels of formal education. Key concepts and practices on nutrition and a healthy lifestyle should be integrated in the grade and high school curricula to lay the foundation for good dietary habits through adulthood. In addition, references and guides

should be distributed especially in depressed and under-served areas.

Consider social marketing strategies in the implementation. To reach the general public, key messages on correct eating habits and practices and on adopting a healthful lifestyle can be broadcast through radio and TV. The design of the messages will require the collaboration of nutritionist and media specialists. Ideally, these should be broadcast at prime time with adequate frequency and over an effective period of time. The limitation of the government public information agencies must be considered and support of private advertising specialists would be important.

Monitoring and evaluation

Monitoring and evaluation will measure programs implementation, outcomes and efficiency. Evaluation may be done through process evaluation, outcomes and impact evaluation and efficiency evaluation.

CONCLUSION

To be relevant, the FBDGs will need periodic review and revision as decided. The development of the FBDGs' has

led to a greater understanding of the role of nutrition and foods in achieving optimal nutrition. However, this knowledge may not necessarily be translated into practice nor, eventually, significant improvement of health and well being. It is therefore necessary to consider changes taking place in demography, epidemiology, nutrition and social institutions.

AUTHOR DISCLOSURE

Celeste C. Tanchoco, DrPH has nothing to disclose.

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菲律賓的食物基礎飲食指南：回溯和前瞻

這篇文章回顧以食物基礎的飲食指南(FBDGs)協助菲律賓人選擇適當的飲食和培養有益健康的飲食和營養規範以促進良好健康的確實性、實際性和文化的敏感性；並提供那些關於教育公眾對於適當營養規範作業之架構和參考文獻。將評估科學性報告的一種實證方法應用在菲律賓國家指南(NGF)的發表，它的構想是整合這些科學性依據。著重在控制和流行病學研究及科學性期刊審查的結果。營養調查的結果描述出食品與營養現況、食品相關的飲食模式和實際實行數據、食物可利用性及營養相關問題的嚴重性統計，以此當作指南的背景資料。儘管 2000 NCF 可能可以得知營養素與食品跟健康的連結，但這些指南對於健康與營養的結果及影響貢獻是有限的。這些資訊被制訂後，政策制訂者及利害關係者參與 FBDGs 的發展，認知到這個過程沒有終點。一個完整計畫的發展必須包含執行、評估、監測和再規劃。一個策略的制訂使指南應用於改善菲律賓人的飲食模式，結合計畫書的形成以評估指南的執行及影響將是現在的修訂。

關鍵字：食物基礎、飲食、營養的、指南、菲律賓