

HIV/AIDS and humanitarian action

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What are the implications of HIV/AIDS for our understanding of crisis and humanitarian aid? HIV/AIDS is both a long-term crisis in its own right, and a contributory factor in acute emergencies. The epidemic presents key challenges for both humanitarian and development assistance, and for the interface between them.

The crisis in southern Africa during 2002 and 2003 highlighted the complex connections between HIV/AIDS, food security, and famine. This briefing paper examines the implications of HIV/AIDS for our understanding of crisis and of the role of humanitarian aid therein. The disease is clearly a massive crisis in its own right: to the extent that humanitarian response is concerned with increased levels of mortality and morbidity, HIV/AIDS can clearly be described as an emergency. However, it is a long-term crisis, and its impacts will be felt for decades.

HIV/AIDS is one of many factors contributing to food insecurity. It is important to understand how the impact of HIV/AIDS relates to other factors, such as drought and conflict, to create acute humanitarian crises. HIV/AIDS acts at many different levels:

- » It undermines the ways in which people have traditionally coped with famine;
- » It may increase mortality in famines, as people with AIDS will be less able to cope with reduced food intake and additional disease burdens;
- » Issues associated with crisis may add to the risks of transmission of HIV/AIDS and contribute to the epidemic's spread.

HIV/AIDS has profound humanitarian consequences, both by directly causing illness and death and

in terms of the wider impact it is having on societies. These consequences will develop over decades, meaning that existing models of humanitarian aid may not be appropriate. Equally, existing models of development assistance are likely to prove inadequate. The challenges raised by the pandemic are only beginning to be fully appreciated.

This summary and the report on which it is based have two main aims:

- » To investigate the relationship between HIV/AIDS and humanitarian crisis;
- » To examine the role of humanitarian aid in the context of the HIV/AIDS epidemic.

Findings are based on fieldwork in southern Africa, where HIV/AIDS prevalence rates are the highest in the world. As HIV/AIDS rates are still rising in other parts of Africa and the developing world, some of the lessons from southern Africa may be applicable elsewhere as well.

HIV/AIDS and livelihoods: What are the connections?

The literature on HIV/AIDS shows that it has clear negative impacts on food security at a household level, and that these are complex, wide-ranging, and gender-specific. The amount of original research is, however, limited; there has been a tendency to focus on agriculture and neglect other aspects of livelihoods; and there is little information about the scale of the impact of HIV/AIDS on food security at national and regional levels.

There is a two-way relationship between HIV/AIDS and food security. HIV has an impact on people's livelihoods, reducing food security through illness and death, and food insecurity and poverty fuel the HIV epidemic as people are driven to adopt risky strategies in order to survive. Ultimately, HIV/AIDS damages the livelihood outcomes of households. Households affected by HIV/AIDS usually have less income and reduced food security. They are also likely to be more

vulnerable to other shocks, such as drought. If it is severe enough, the impact of HIV/AIDS could result in destitution and households becoming dependent on some form of external assistance.

BOX 1. Why is HIV/AIDS a humanitarian concern?

There are a number of reasons why HIV/AIDS must concern humanitarian actors:

- » The mortality and suffering created by HIV/AIDS is clearly a humanitarian concern in its own right. The impact of the epidemic is growing, and will be felt for decades.
- » HIV/AIDS is increasing the food insecurity of significant numbers of households, adding another burden to communities already vulnerable to other shocks, such as drought or conflict.
- » HIV/AIDS has particular characteristics that may create new types of vulnerabilities or exacerbate existing ones. HIV/AIDS kills predominantly prime-age adults, clusters in households, has a gender-specific impact, and interacts with malnutrition. These are all factors that must be understood and taken into account in providing humanitarian relief in the context of an HIV/AIDS epidemic.
- » Emergency situations may increase people's susceptibility to HIV/AIDS, further fueling the epidemic.

HIV/AIDS, humanitarian action, and emergencies

Until recently, the slim literature on HIV/AIDS and emergencies largely focused on HIV/AIDS in conflict and refugee situations, and to a lesser extent quick-onset natural disasters. The main theme was the increased risk of infection among affected populations caused by the violence, displacement, and militarization resulting from emergencies. During 2002 and 2003, however, the issue of HIV/AIDS and emergencies leapt to the top of the humanitarian policy agenda, prompted by the southern Africa crisis, the publication of Inter-Agency Standing Committee (IASC) guidelines on HIV/AIDS and emergencies, and the revision of the Sphere Handbook, where HIV/AIDS was seen as a cross-cutting issue.

HIV/AIDS and famine

HIV/AIDS is only one of a host of factors contributing to food insecurity. What is important, therefore, is to understand the ways in which HIV/AIDS interacts with these other factors, and how this might affect the possibility and trajectory of famines. This research suggests that HIV/AIDS needs to be understood as one of the underlying processes that predisposes poor people

to possible famine.

However, HIV/AIDS is not just a contributory factor to vulnerability: it also influences the outcomes of the emergency. It increases the risk of heightened mortality in emergencies due to the ways in which it interacts with malnutrition, undermines coping strategies, and leaves people less able to cope with other illness. This is the process that Alex De Waal and Alan Whiteside have called "new variant famine." This reinforces the need for adequate levels of humanitarian aid in times of crisis, as communities will be less able to rely on their own resources, and individuals less able to cope with poor nutrition. This is shown diagrammatically in figure 1.

HIV/AIDS and the southern Africa crisis

The argument that HIV/AIDS was a central component in the southern Africa crisis came about gradually. Initially defined as a food crisis caused by a combination of bad weather, bad governance, and underlying poverty, AIDS moved to the forefront of the agenda following the visit of the UN Special Envoy to southern Africa, James Morris, in 2002.

There has been a backlash against both the new variant famine hypothesis and the increased focus on HIV/AIDS. The extent to which HIV/AIDS has contributed to the current crisis has been questioned. It has been argued that its importance has been overemphasized and that other, equally or more important, factors risk being neglected. It has also been argued that the focus on HIV/AIDS as a causal factor could obscure political factors behind the crisis. There has been skepticism on the part of some donors and nongovernmental organizations about how HIV/AIDS is being used to justify a need for continued humanitarian aid in some coun-

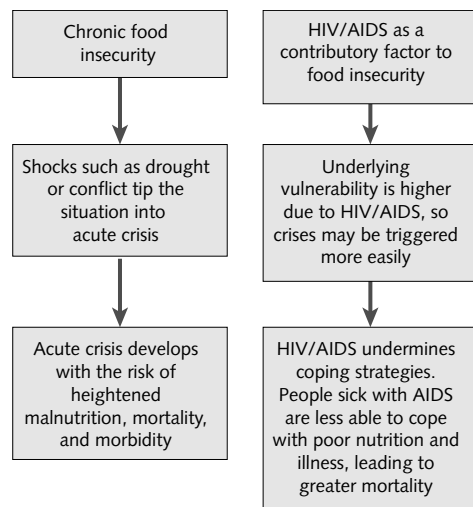


FIG. 1. Contribution of HIV/AIDS to the trajectory of crisis

tries, and about the underlying empirical evidence of the links between HIV/AIDS and food insecurity.

HIV/AIDS as an emergency

The state of the current data means that disentangling the relative importance of HIV/AIDS compared with bad governance or bad weather is, and will remain, difficult. What is clear, though, is that huge numbers of people are dying from and suffering with HIV/AIDS in Sub-Saharan Africa. To the extent that the core of the humanitarian agenda is to save lives and alleviate suffering, HIV/AIDS is clearly a humanitarian problem.

Labeling HIV/AIDS as an emergency may be useful in generating additional action. For national governments, declaring HIV/AIDS an emergency may serve particular purposes, such as demonstrating political commitment or allowing the importing of generic drugs to treat HIV/AIDS. Calling something an emergency also has important practical implications for aid agencies and donors in terms of what funding is available, from which budget lines, and with what sort of timelines and conditions attached.

Whatever label is applied to the situation—and perhaps the best term is long-term crisis—it is clear that HIV/AIDS requires both a humanitarian response to suffering and a long-term perspective. This has obvious implications for how both relief and development assistance are structured, and for the relationship between them.

HIV/AIDS and the challenge for relief and development assistance

In considering the challenge HIV/AIDS poses for both forms of aid, it is important to be clear that there are different aspects to the impact of HIV/AIDS on livelihoods. Hence, different responses will be appropriate. Three linked but to some extent distinct challenges present themselves:

- » The impact of HIV/AIDS as a health crisis in its own right, in terms of massive and increasing levels of mortality, morbidity, and suffering over a period of decades. This is perhaps best seen as a long-term emergency. This will require a long-term response to HIV/AIDS, encompassing the need for prevention, care, treatment, and mitigation.
- » HIV/AIDS as increasing underlying vulnerability, adding to the impact of other shocks and meaning that acute crises may be triggered more easily and be more difficult to recover from. HIV/AIDS will need to be taken into account as a cross-cutting issue in short-term humanitarian relief for acute suffering.
- » HIV/AIDS as one of many contributory factors to

long-term and chronic food insecurity, poverty, and destitution. HIV/AIDS therefore adds to the existing need for safety nets and long-term welfare, as part of the overall response to poverty. Welfare may need to be a particular focus, due to the likelihood that HIV/AIDS will increase levels of destitution.

Humanitarian aid is only part of a much larger international response to the impact of the HIV/AIDS pandemic, and it is important to be clear about what the relief system can and cannot do. The overall response to HIV/AIDS needs to take place over decades, and across entire countries and regions. Humanitarian aid, based as it is on short-term time horizons and funding cycles, is obviously ill-suited to meet this extensive, long-term challenge.

HIV/AIDS also raises a series of humanitarian challenges for development. The impact of HIV/AIDS on livelihoods reinforces the need for some form of social protection or welfare safety net for the poorest; by increasing underlying vulnerability, HIV/AIDS may also mean that crises are triggered more easily, which implies a need for greater investment in disaster preparedness and mitigation. Much of the current focus of HIV/AIDS response is on the need to expand access to treatment. In countries like Malawi, where a significant percentage of the population does not have access to basic primary health care, this implies a need to focus on basic health-care delivery. These are not new challenges. There is a danger in considering the broader impacts of HIV/AIDS on livelihoods as “AIDS exceptionalism”: for instance, privileging AIDS over other diseases in health systems or focusing unduly on the impact of AIDS in food-security programs.

HIV/AIDS and humanitarian programming: lessons from southern Africa

The southern Africa crisis in 2002 and 2003 raised a series of practical questions around the programming of humanitarian aid in the context of an HIV/AIDS epidemic. These range from whether and how food aid rations need to be adapted, to the question of whether AIDS-related stigma affects participation in relief programs. This study found that HIV/AIDS issues need to be “mainstreamed” by aid agencies both internally, in terms of training and organizational policies, and externally, in terms of how humanitarian aid programs are structured and delivered. These programmatic findings are summarized below:

- » Early-warning systems and assessments need to incorporate analysis of HIV/AIDS and its impact on livelihoods.
- » The emergence of new types and areas of vulnerability due to HIV/AIDS should be considered in assessment and targeting. Groups such as widows,

- the elderly, and orphans may be particularly vulnerable, and urban and periurban areas may need to be assessed.
- » The targeting and delivery of aid must be sensitive to the possibility of AIDS-related stigma and discrimination.
 - » The HIV/AIDS epidemic reinforces the existing need for humanitarian programs to be gender-sensitive.
 - » Emergency interventions must aim to ensure that they do not increase people's susceptibility to infection with HIV/AIDS.
 - » Food aid in the context of HIV/AIDS should review ration sizes and types of food and assess delivery and distribution mechanisms in the light of HIV/AIDS-related vulnerabilities, such as illness, reduced labor, and increased caring burdens.
 - » Labor-intensive public-works programs should consider the needs of labor-constrained households, the elderly, and the chronically ill.
- » HIV/AIDS reinforces the need for health issues to be considered as part of a humanitarian response.
 - » Support to agricultural production (including seed distributions) should recognize adaptations that people are making in response to HIV/AIDS.

Conclusions

HIV/AIDS is a long-term crisis. Humanitarian aid has a role to play in the response, but agencies should recognize that it is only part of a wider response and be clear about what humanitarian aid can and cannot achieve. Humanitarian agencies need to mainstream consideration of HIV/AIDS issues both internally, in organizational policies, and externally, throughout the program cycle and across the different sectors of response.

BOX 2. Key findings of the research

- » HIV/AIDS clearly has profound humanitarian consequences, both in terms of directly causing illness and death and in terms of the wider impact it is having on societies. These effects will inevitably deepen as the impact of the epidemic grows. Existing models of development and relief assistance are likely to prove inadequate to cope with the consequences of HIV/AIDS. The pandemic, therefore, raises profound challenges for the system of international assistance, which are only beginning to be fully appreciated.
- » Aid agencies should endeavor to analyze the complex ways in which HIV/AIDS is affecting peoples' livelihoods and the impacts of livelihood insecurity on HIV/AIDS.
- » The response of development assistance actors may need to draw on expertise and experience available within the humanitarian system, and vice versa.
- » Greater resources need to be invested in prevention, care, treatment, and mitigation. Urgent thought needs to be given to what this implies for public expenditure management systems within African countries, and how expanding access to treatment for HIV/AIDS can be part of expanding access to basic health care more broadly.
- » HIV/AIDS reinforces the risk of periodic crisis and may make crises more likely. This reinforces the existing need for greater investment in disaster preparedness and mitigation.
- » HIV/AIDS will also increasingly add to the burden of chronic poverty and destitution in Africa. This reinforces the need for greater investments in social protection and long-term welfare. Given the limited capacity and resources of many African governments, this implies a need for long-term commitment by donor governments.
- » Aid agencies should endeavor to link humanitarian aid programming where possible to the development of local capacity for long-term welfare provision.

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Prevalence of overweight and obesity among high-school girls in Tabriz, Iran, in 2001

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Abstract

Overweight and obesity are among the most prevalent nutritional problems in developed and developing countries. In this descriptive study, we attempted to determine the prevalence of overweight and obesity in Iranian adolescent girls attending high school in Tabriz. A sample of 1,650 (final study group, 1,518) high-school girls aged 14 to 20 years was selected by stepwise random sampling from five districts of Tabriz. Overweight and obesity were defined according to body mass index (BMI) percentiles from the First National Health and Nutrition Examination Survey (NHANES I) and the International Obesity Task Force (IOTF) BMI cutoffs. According to the NHANES I criteria, 14.6% of the study subjects were overweight or obese. Overweight and obesity was seen in 11.1% and 3.6% of the students, respectively. By the IOTF cutoffs, 14% of the subjects were overweight or obese. Overweight and obesity were seen in 10.1% and 3.9% of the students, respectively. Of the study subjects, 8% had a BMI below the 15th percentile of NHANES I, an indicator of underweight. The prevalence of overweight and obesity in Tabriz high-school girls is higher than in many, but not all, parts of Iran, but lower than in some neighboring countries such as Saudi Arabia. In this age group, in addition to overweight and obesity, underweight (BMI \leq 15th percentile) is also present.

Key words: Adolescents, body mass index, obesity, overweight, underweight

Introduction

Overweight and obesity are among the major health problems in developed and developing countries [1–4]. They are also risk factors for other health problems such as cardiovascular disease, hypertension, diabetes, some cancers, gallbladder disease, osteoarthritis, and dyslipidemia [5–10]. Many studies show that overweight and obesity in adolescence are powerful predictors of adulthood weight and disease [11, 12]. The social and economic consequences of overweight and obesity during adolescence are perhaps greater than the physical consequences [6, 13, 14].

In Iran there are few data on the prevalence of overweight and obesity, especially among adolescent girls. According to a review of the literature, the prevalence of these indices in adolescent girls was 13.3% and 4.4%, respectively [15, 16]. In other countries, different results for prevalence of overweight and obesity in adolescent girls have been shown [3, 17–23]. Some studies show prevalence of up to 40% overweight and 16% obesity in adolescent girls in parts of the United States [19, 20]. With attention to the scarcity of studies on the subject, we attempted to determine the prevalence of overweight and obesity in Iranian adolescent girls attending high school in Tabriz.

Materials and methods

In this descriptive study, a sample of 1,650 girls was selected from among high-school students in Tabriz city in 2001. The sample size of 1,417 subjects was calculated according to the following formula:

$$N = Z_{1-\alpha/2}^2 \times P(1-P)/d^2,$$

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where N is the sample size, Z is the 95% confidence interval (CI), α is $1 - CI$, P is the assumed prevalence (from other studies) of obesity and overweight (18%), and d is the percent error (2%).

A two-stage stratified random-sampling technique was used. A total of 1,650 girls were randomly selected, but the final study sample size was 1,518 because students under age 14 or over age 18 were excluded since there were too few to yield any reliable data.

Nutritionists measured weight and height and collected demographic information such as family size, mother's literacy, and family income. Weight was measured to the nearest kilogram with the subjects wearing light clothes and without shoes (Seca Medica 672, Germany). Height was measured to the nearest centimeter by a fiberglass butterfly tape attached to a smooth, straight wall, with students standing upright with both feet firmly planted on the platform and without shoes.

After collection of weight, height, and demographic information, the data were analyzed by the SPSS Version 10 statistical software package. Body mass index (BMI) was calculated as weight (kg)/height (m)².

Two standards were used for definitions of overweight and obesity: BMI percentiles from the First National Health and Nutrition Examination Survey (NHANES I), and the International Obesity Task Force (IOTF) BMI cutoffs. In NHANES I, the risks of overweight and obesity are defined as the percentages of students with BMI of 85th percentile to \leq 95th percentile and BMI \geq 95th percentile, age- and sex- specific percentiles, respectively [24]. The second set of criteria was introduced by the International Obesity Task Force (IOTF). In this set, overweight for age groups 14–14.9; 15–15.9; 16–16.9; and 17–17.9 is defined as: BMI \geq 23.66 to $<$ 28.87; BMI \geq 24.17 to $<$ 29.29; BMI \geq 24.54 to $<$ 29.56; and BMI \geq 24.85 to $<$ 29.84, respectively. Obesity for above groups defined as: BMI \geq 28.87; BMI \geq 29.29; BMI \geq 29.56; and BMI \geq 29.84, respectively. These cutoffs are based on BMI percentiles but use data pooled from six large, nationally representative surveys [25].

In addition, underweight (BMI \leq 15th percentile) and the percentage of students with BMI $>$ 5th percentile to \leq 15th percentile and BMI \leq 5th percentile (severe underweight) of NHANES I were calculated. The relation between demographic characteristics and BMI was assessed by Pearson's simple correlation analysis test.

Results

In the studied subjects, the mean \pm SD family size was 5.1 ± 1.4 , age 16.0 ± 1.4 years, weight 52.7 ± 9.0 kg, height 157.4 ± 5.4 cm, and BMI 21.3 ± 3.6 .

Table 1 shows the age distribution of the study subjects and the prevalence of overweight and obesity according to the two standards. According to the NHANES I percentiles, 14.6% (95% CI 12.8%, 16.4%) of the subjects were overweight or obese. Overweight and obesity were seen in 11.1% (95% CI 9.5%, 12.7%) and 3.6% (95% CI 2.6%, 4.5%) of students, respectively. According to the IOTF cutoffs, 14% (95% CI 12.3%, 15.7%) of the subjects were overweight or obese. Overweight and obesity were seen in 10.1% (95% CI 8.6%, 11.6%) and 3.9% (95% CI 2.9%, 4.9%) of the students, respectively. Overweight was higher and obesity was lower by NHANES I than by IOTF cutoffs. By both standards, overweight and obesity were most prevalent in 16- to 16.9-year-old girls. Eight percent of the study subjects (95% CI 6.6%, 9.4%) had a BMI below the 15th percentile of NHANES I. Table 2 shows the frequency of students with BMI $>$ 5th percentile and \leq 15th percentile and BMI \leq 5th percentile of NHANES I.

In Pearson's simple correlation analysis, there was an inverse relationship between family size and BMI ($r = -0.13$; $p < 0.01$); i.e., larger family size was related to lower BMI. There was a positive relationship between mother's literacy ($r = 0.12$; $p < 0.05$) and family income ($r = 0.11$; $p < 0.05$) and BMI; i.e., higher literacy level of mother or higher family income was related to higher BMI.

TABLE 1. Age distribution and prevalence of overweight and obesity in studied subjects according to two standards, Tabriz, 2001

Age (yr)	<i>n</i>	Overweight per NHANES I ^a (%)	Obese per NHANES I ^b (%)	Overweight per IOTF ^c (%)	Obese per IOTF ^d (%)
14–14.9	306	8.5	3.3	7.8	3.9
15–15.9	458	11.1	2.2	10.1	2.4
16–16.9	481	14.3	5.4	13.5	5.6
17–17.9	273	8.1	2.9	7.0	3.3

a. BMI \geq 85th to $<$ 95th percentiles.

b. BMI \geq 95th percentile.

c. BMI \geq 23.66 to $<$ 28.87; BMI \geq 24.17 to $<$ 29.29; BMI \geq 24.54 to $<$ 29.56; and BMI \geq 24.85 to $<$ 29.84, respectively.

d. BMI \geq 28.87; BMI \geq 29.29; BMI \geq 29.56; and BMI \geq 29.84, respectively.

TABLE 2. Prevalence of students with BMI > 5th to ≤ 15th and BMI ≤ 5th percentile per NHANES I, Tabriz, 2001

Age (yr)	BMI > 5th to ≤ 15th percentile (%)	BMI ≤ 5th percentile (%)
14–14.9	5.6	3.3
15–15.9	4.1	2.4
16–16.9	7.3	1.9
17–17.9	5.1	2.2

Discussion

We assessed the prevalence of overweight and obesity in Tabriz high-school girls by using age- and sex-specific BMI reference data from NHANES I and IOTF. Our study showed that 14% to 14.6% of study subjects were overweight or obese. The prevalences of overweight and obesity according to two standards were 10.1% to 11.1% and 3.6% to 3.9%, respectively.

One study in seven provinces of Iran showed that 6% of adolescents were overweight or obese [4]. In another study in Tehran, 13.3% and 4.4% of adolescents were overweight and obese, respectively [16]. Both of these studies used NHANES I percentiles to define overweight and obesity. In another study of high-school girls from Kerman (a province in Iran), 5.3% of subjects had various grades of overweight (BMI ≥ 25). In this study, 56.2% were underweight or very underweight (BMI < 19.9) [15].

By considering BMI > 85th percentile as overweight/obesity, Broussard et al. [17], Pawson et al. [18], and Troiano et al. [19] showed a prevalence of overweight/obesity of 10% to 25%, while Jackson [20] showed a prevalence of 39.3% overweight/obesity in American adolescent girls of varied ethnicity. By defining a BMI of 85th percentile to ≤ 95th percentile as overweight, Gauthier et al. [21] showed that 34% of adolescent girls in the US were overweight. In another study in Saudi Arabia [3], the prevalence of overweight was 16.6%. By considering BMI ≥ 95th percentile as obesity, Broussard et al. [17], Pawson et al. [18], and Troiano et al. [19] showed a prevalence of obesity of 3% to 8.8%, while Dwyer et al. [22] and Gauthier et al. [21] showed a prevalence of 14.7% to 18% obesity in American adolescent girls of varied ethnicity. The study in Saudi Arabia [3] showed a prevalence of obesity of 12% in adolescent girls.

Neumark-Sztainer et al. [23], in a study in the United

States on 14-to-18-year-old subjects, reported a 12.7% prevalence of underweight (BMI < 15th percentile) in girls. In another study in Saudi Arabia [3], the prevalence of BMI ≤ 15th percentile was 11.3%. Both studies used the NHANES I percentiles. In our study, 8% (95% CI 6.6%, 9.4%) of the subjects had BMI ≤ 15th percentiles of NHANES I.

In developed countries, the prevalence of childhood obesity is as high as 18% to 30% [26–30]. In developing countries, according to data collected by the World Health Organization (WHO) from 94 countries, the mean prevalence of childhood obesity is 3.3% [31]. Our results show a prevalence less than that seen in developed countries yet somewhat higher than the mean for developing countries.

Conclusions

Comparison of our results with similar studies shows that the prevalence of overweight and obesity in Tabriz high-school girls is higher than in other parts of Iran, except Tehran, where the prevalence is about the same. The prevalence of overweight and obesity in Tabriz high-school girls is less than that seen in studies in developed and some neighboring countries, such as Saudi Arabia. In Tabriz high-school girls, in addition to overweight and obesity, underweight (BMI ≤ 15th percentile, age- and sex-specific BMI percentiles from NHANES I) is present.

The reasons for these results are uncertain. One reason may be a high intake of energy. One study in Iran showed that the mean intake of energy was 2,672 kcal/day, while the mean energy requirement was 2,228 kcal/day [32]. In our study we used only BMI; therefore, larger studies on the subject are needed at the national level using different indices.

Acknowledgments

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WHO Global Strategy on Diet, Physical Activity and Health*

Introduction

On May 22, 2004, the 57th World Health Assembly (WHA) adopted a Global Strategy on Diet, Physical Activity and Health [1]. The Director-General of the World Health Organization (WHO) described the adoption of the strategy as a landmark achievement in global public health [2]. The Global Strategy addresses two of the major risk factors responsible for the heavy and growing burden of noncommunicable diseases, namely, unhealthy diet and physical inactivity, which now account for some 60% of global deaths and almost half (47%) of the global burden of diseases [3]. The 2002 World Health Report revealed how only a few risk factors were responsible for the leading causes of death and disability worldwide. Dietary and activity risks scored high, and among the 10 leading causes of death are high blood pressure, elevated blood cholesterol, low intake of fruits and vegetables, high body mass index, undernutrition, and physical inactivity [4].

WHO developed the strategy over the past two years through an inclusive and wide-ranging consultation process that involved Member States, United Nations agencies, civil society organizations, and the private sector.

The adoption of the strategy comes at a critical time in which countries have a relatively short period to intervene and act before the disease burden and human and economic costs of diseases, such as cardiovascular diseases, will be out of control. This is particularly true for developing countries [5].

Key policy recommendations outlined by the strategy include the following:

Policies concerning the environment

1. Formulation of multisectoral and multistakeholder policies and strategies
2. Formulation of national dietary and physical activity guidelines
3. Promotion of food products consistent with a healthy diet, including the provision of market incentives, to promote the development, production, and marketing of food products that contribute to a healthy diet
4. Introduction of fiscal policies to influence food choices
5. Consideration of agriculture policies and their effect on national diets
6. Introduction of transport and environmental policies that promote physical activity
7. School policies that improve health literacy, promote healthy diet, and provide physical education and facilities
8. Address current marketing practices, especially to children, in particular with regard to the promotion of foods high in fat, salt, and sugar
9. Utilization of international tools, such as the Codex Alimentarius, to strengthen public health efforts

Policies aimed at individual change

1. Provision of accurate information through education and public awareness campaigns and adult literacy programs
2. Provision of accurate nutrition labeling and monitoring nutrition and health claims on foods
3. Practical advice by health professionals to patients and families on the benefits of healthy diets and increased levels of physical activity, combined with support to help patients initiate and maintain healthy behaviors
4. Provision of clear, simplified messages with regard to healthy diet and physical activity (reduce salt, sugar, and fat; increase fruit and vegetables, etc.)

* Endorsed by resolution WHA57.17 at the Fifty-seventh World Health Assembly, 22 May 2004.

Policies that address foods, drinks, and modes of transport

1. Modify foods to limit fat, especially saturated fat and trans-fatty acids, salt, and sugar
2. Introduction and provision of incentives for new products with better nutritional value
3. Modify marketing practices of foods that contribute to an unhealthy diet
4. Encourage environmental planning that allows increased walking, cycling, and other physical activities

The policies in the box above require the involvement of sectors and stakeholders beyond the health domain. Proven effective interventions are those that cover the following three levels: the host (individual), the agent (the food and drink consumed, for example), and the environment (changes in national policies, legislation, and the creation of an enabling environment for healthy diet and physical activity) [6, 7]. Further,

several recommendations involve sectors such as finance, trade, agriculture, and transport. These recommendations offer countries a blueprint for action, and it is hoped that national governments, together with all relevant sectors, will develop national action plans and implement the recommendations as appropriate for their national reality. High-level advocacy by non-governmental organizations will continue to be key to ensuring public awareness and political commitment, without which such plans are unlikely to be effective in yielding positive public health outcomes.

The strategy is a powerful instrument, which, together with effective implementation of the Framework Convention on Tobacco Control, will allow countries to develop integrated effective approaches to the prevention of noncommunicable diseases.

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Global Strategy on Diet, Physical Activity and Health
World Health Organization

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WHO global strategy

1. Recognizing the heavy and growing burden of non-communicable diseases, Member States requested the Director-General to develop a global strategy on diet, physical activity and health through a broad consultation process.* To establish the content of the draft global strategy, six regional consultations were held with Member States, and organizations of the United Nations system, other intergovernmental bodies, and representatives of civil society and the private sector were consulted. A reference group of independent international experts on diet and physical activity from WHO's six regions also provided advice.

2. The strategy addresses two of the main risk factors for noncommunicable diseases, namely, diet and physical activity, while complementing the long-established and ongoing work carried out by WHO and nationally on other nutrition-related areas, including undernutrition, micronutrient deficiencies and infant- and young-child feeding.

The challenge

3. A profound shift in the balance of the major causes of death and disease has already occurred in developed countries and is under way in many developing countries. Globally, the burden of noncommunicable diseases has rapidly increased. In 2001 noncommunicable diseases accounted for

* Resolution WHA55.23.

- almost 60% of the 56 million deaths annually and 47% of the global burden of disease. In view of these figures and the predicted future growth in this disease burden, the prevention of noncommunicable diseases presents a major challenge to global public health.
4. *The World Health Report 2002** describes in detail how, in most countries, a few major risk factors account for much of the morbidity and mortality. For noncommunicable diseases, the most important risks included high blood pressure, high concentrations of cholesterol in the blood, inadequate intake of fruit and vegetables, overweight or obesity, physical inactivity and tobacco use. Five of these risk factors are closely related to diet and physical activity.
 5. Unhealthy diets and physical inactivity are thus among the leading causes of the major noncommunicable diseases, including cardiovascular disease, type 2 diabetes and certain types of cancer, and contribute substantially to the global burden of disease, death and disability. Other diseases related to diet and physical inactivity, such as dental caries and osteoporosis, are widespread causes of morbidity.
 6. The burden of mortality, morbidity and disability attributable to noncommunicable diseases is currently greatest and continuing to grow in the developing countries, where those affected are on average younger than in developed countries, and where 66% of these deaths occur. Rapid changes in diets and patterns of physical activity are further causing rates to rise. Smoking also increases the risk for these diseases, although largely through independent mechanisms.
 7. In some developed countries where noncommunicable diseases have dominated the national burden of disease, age-specific death and disease rates have been slowly declining. Progress is being made in reducing premature death rates from coronary artery disease, cerebrovascular disease and some tobacco-related cancers. However, the overall burden and number of patients remain high, and the numbers of overweight and obese adults and children, and of cases, closely linked, of type 2 diabetes are growing in many developed countries.
 8. Noncommunicable diseases and their risk factors are initially mostly limited to economically successful groups in low- and middle-income countries. However, recent evidence shows that, over time, patterns of unhealthy behaviour and the noncommunicable diseases associated with them cluster among poor communities and contribute to social and economic inequalities.
 9. In the poorest countries, even though infectious diseases and undernutrition dominate their current disease burden, the major risk factors for chronic diseases are spreading. The prevalence of overweight and obesity is increasing in developing countries, and even in low-income groups in richer countries. An integrated approach to the causes of unhealthy diet and decreasing levels of physical activity would contribute to reducing the future burden of noncommunicable diseases.
 10. For all countries for which data are available, the underlying determinants of noncommunicable diseases are largely the same. Factors that increase the risks of noncommunicable disease include elevated consumption of energy-dense, nutrient-poor foods that are high in fat, sugar and salt; reduced levels of physical activity at home, at school, at work and for recreation and transport; and use of tobacco. Variations in risk levels and related health outcomes among the population are attributed, in part, to the variability in timing and intensity of economic, demographic and social changes at national and global levels. Of particular concern are unhealthy diets, inadequate physical activity and energy imbalances in children and adolescents.
 11. Maternal health and nutrition before and during pregnancy, and early infant nutrition may be important in the prevention of noncommunicable diseases throughout the life course. Exclusive breastfeeding for six months and appropriate complementary feeding contribute to optimal physical growth and mental development. Infants who suffer prenatal and possibly, postnatal growth restrictions appear to be at higher risk for noncommunicable diseases in adulthood.
 12. Most elderly people live in developing countries, and the ageing of populations has a strong impact on morbidity and mortality patterns. Many developing countries will therefore be faced with an increased burden of noncommunicable diseases at the same time as a persisting burden of infectious diseases. In addition to the human dimension, maintaining the health and functional capacity of the increasing elderly population will be a crucial factor in reducing the demand for, and cost of, health services.
 13. Diet and physical activity influence health both together and separately. Although the effects of diet and physical activity on health often interact, particularly in relation to obesity, there are additional health benefits to be gained from physical activity that are independent of nutrition and diet, and there are significant nutritional risks that are unrelated to obesity. Physical activity is a fundamental means of improving the physical and mental health of individuals.
 14. Governments have a central role, in cooperation

* *The world health report 2002. Reducing risks, promoting healthy life.* Geneva, World Health Organization, 2002.

with other stakeholders, to create an environment that empowers and encourages behaviour changes by individuals, families and communities, to make positive, life-enhancing decisions on healthy diets and patterns of physical activity.

15. Noncommunicable diseases impose a significant economic burden on already strained health systems, and inflict great costs on society. Health is a key determinant of development and a precursor of economic growth. The WHO Commission on Macroeconomics and Health has demonstrated the disruptive effect of disease on development, and the importance for economic development of investments in health.* Programmes aimed at promoting healthy diets and physical activity for the prevention of diseases are key instruments in policies to achieve development goals.

The opportunity

16. A unique opportunity exists to formulate and implement an effective strategy for substantially reducing deaths and disease worldwide by improving diet and promoting physical activity. Evidence for the links between these health behaviours and later disease and ill-health is strong. Effective interventions to enable people to live longer and healthier lives, reduce inequalities, and enhance development can be designed and implemented. By mobilizing the full potential of the major stakeholders, this vision could become a reality for all populations in all countries.

Goal and objectives

17. The overall goal of the global strategy on diet, physical activity and health is to promote and protect health by guiding the development of an enabling environment for sustainable actions at individual, community, national and global levels that, when taken together, will lead to reduced disease and death rates related to unhealthy diet and physical inactivity. These actions support the United Nations Millennium Development Goals and have immense potential for public health gains worldwide.
18. The global strategy has four main objectives:
- (1) to reduce the risk factors for noncommunicable diseases that stem from unhealthy diets and physical inactivity by means of essential public health action and health-promoting and disease-preventive measures;
 - (2) to increase the overall awareness and under-

standing of the influences of diet and physical activity on health and of the positive impact of preventive interventions;

- (3) to encourage the development, strengthening and implementation of global, regional, national and community policies and action plans to improve diets and increase physical activity that are sustainable, comprehensive, and actively engage all sectors, including civil society, the private sector and the media;
- (4) to monitor scientific data and key influences on diet and physical activity; to support research in a broad spectrum of relevant areas, including evaluation of interventions; and to strengthen the human resources needed in this domain to enhance and sustain health.

Evidence for action

19. Evidence shows that, when other threats to health are addressed, people can remain healthy into their seventh, eighth and ninth decades, through a range of health-promoting behaviours, including healthy diets, regular and adequate physical activity, and avoidance of tobacco use. Recent research has contributed to understanding of the benefits of healthy diets, physical activity, individual action and population-based public health interventions. Although more research is needed, current knowledge warrants urgent public health action.
20. Risk factors for noncommunicable disease frequently coexist and interact. As the general level of risk factors rises, more people are put at risk. Preventive strategies should therefore aim at reducing risk throughout the population. Such risk reduction, even if modest, cumulatively yields sustainable benefits, which exceeds the impact of interventions restricted to high-risk individuals. Healthy diets and physical activity, together with tobacco control, constitute an effective strategy to contain the mounting threat of noncommunicable diseases.
21. Reports of international and national experts and reviews of the current scientific evidence recommend goals for nutrient intake and physical activity in order to prevent major noncommunicable diseases. These recommendations need to be considered when preparing national policies and dietary guidelines, taking into account the local situation.
22. **For diet**, recommendations for populations and individuals should include the following:
- » achieve energy balance and a healthy weight
 - » limit energy intake from total fats and shift fat consumption away from saturated fats to unsaturated fats and towards the elimination of *trans*-fatty acids

* *Macroeconomics and health: investing in health for economic development*. Geneva, World Health Organization, 2001.

- » increase consumption of fruits and vegetables, and legumes, whole grains and nuts
 - » limit the intake of free sugars
 - » limit salt (sodium) consumption from all sources and ensure that salt is iodized.
23. Physical activity is a key determinant of energy expenditure, and thus is fundamental to energy balance and weight control. Physical activity reduces risk for cardiovascular diseases and diabetes and has substantial benefits for many conditions, not only those associated with obesity. The beneficial effects of physical activity on the metabolic syndrome are mediated by mechanisms beyond controlling excess body weight. For example, physical activity reduces blood pressure, improves the level of high density lipoprotein cholesterol, improves control of blood glucose in overweight people, even without significant weight loss, and reduces the risk for colon cancer and breast cancer among women.
 24. For physical activity, it is recommended that individuals engage in adequate levels throughout their lives. Different types and amounts of physical activity are required for different health outcomes: at least 30 minutes of regular, moderate-intensity physical activity on most days reduces the risk of cardiovascular disease and diabetes, colon cancer and breast cancer. Muscle strengthening and balance training can reduce falls and increase functional status among older adults. More activity may be required for weight control.
 25. The translation of these recommendations, together with effective measures to prevent and control tobacco use, into a global strategy that leads to regional and national action plans, will require sustained political commitment and the collaboration of many stakeholders. This strategy will contribute to the effective prevention of noncommunicable diseases.

Principles for action

26. *The World Health Report 2002* highlights the potential for improving public health through measures that reduce the prevalence of risk factors (most notably the combination of unhealthy diets and physical inactivity) of noncommunicable diseases. The principles set out below guided the drafting of WHO's global strategy on diet, physical activity and health and are recommended for the development of national and regional strategies and action plans.
27. Strategies need to be based on the best available scientific research and evidence; comprehensive, incorporating both policies and action and addressing all major causes of noncommunicable diseases together; multisectoral, taking a long-term perspective and involving all sectors of society; and multidisciplinary and participatory, consistent with the principles contained in the Ottawa Charter for Health Promotion and confirmed in subsequent conferences on health promotion,* and recognizing the complex interactions between personal choices, social norms and economic and environmental factors.
28. A life-course perspective is essential for the prevention and control of noncommunicable diseases. This approach starts with maternal health and prenatal nutrition, pregnancy outcomes, exclusive breastfeeding for six months, and child and adolescent health; reaches children at schools, adults at worksites and other settings, and the elderly; and encourages a healthy diet and regular physical activity from youth into old age.
29. Strategies to reduce noncommunicable diseases should be part of broader, comprehensive and coordinated public health efforts. All partners, especially governments, need to address simultaneously a number of issues. In relation to diet, these include all aspects of nutrition (for example, both overnutrition and undernutrition, micronutrient deficiency and excess consumption of certain nutrients); food security (accessibility, availability and affordability of healthy food); food safety; and support for and promotion of six months of exclusive breastfeeding. Regarding physical activity, issues include requirements for physical activity in working, home and school life, increasing urbanization, and various aspects of city planning, transportation, safety and access to physical activity during leisure.
30. Priority should be given to activities that have a positive impact on the poorest population groups and communities. Such activities will generally require community-based action with strong government intervention and oversight.
31. All partners need to be accountable for framing policies and implementing programmes that will effectively reduce preventable risks to health. Evaluation, monitoring and surveillance are essential components of such actions.
32. The prevalence of noncommunicable diseases related to diet and physical activity may vary greatly between men and women. Patterns of physical activity and diets differ according to sex, culture and age. Decisions about food and nutrition are often made by women and are based on culture and traditional diets. National strategies and action plans should therefore be sensitive to such differences.
33. Dietary habits and patterns of physical activity are often rooted in local and regional traditions.

* See resolution WHA51.12 (1998).

National strategies should therefore be culturally appropriate and able to challenge cultural influences and to respond to changes over time.

Responsibilities for action

34. Bringing about changes in dietary habits and patterns of physical activity will require the combined efforts of many stakeholders, public and private, over several decades. A combination of sound and effective actions is needed at global, regional, national and local levels, with close monitoring and evaluation of their impact. The following paragraphs describe the responsibilities of those involved and provide recommendations deriving from the consultation process.

Member states

35. The global strategy should foster the formulation and promotion of national policies, strategies and action plans to improve diet and encourage physical activity. National circumstances will determine priorities in the development of such instruments. Because of the great variations in and between different countries, regional bodies should collaborate in formulating regional strategies, which can provide considerable support to countries in implementing their national plans. For maximum effectiveness, countries should adopt the most comprehensive action plans possible.

36. **The role of government is crucial in achieving lasting change in public health.** Governments have a primary steering and stewardship role in initiating and developing the strategy, ensuring that it is implemented and monitoring its impact in the long term.

37. **Governments are encouraged to build on existing structures and processes that already address aspects of diet, nutrition and physical activity.** In many countries, existing national strategies and action plans can be used in implementing this strategy; in others they can form the basis for advancing control of noncommunicable diseases. Governments are encouraged to set up a national coordinating mechanism that addresses diet and physical activity within the context of a comprehensive plan for noncommunicable-disease prevention and health promotion. Local authorities should be closely involved. Multisectoral and multidisciplinary expert advisory boards should also be established. They should include technical experts and representatives of government agencies, and have an independent chair to ensure that sci-

entific evidence is interpreted without any conflict of interest.

38. **Health ministries have an essential responsibility for coordinating and facilitating the contributions of other ministries and government agencies.** Bodies whose contributions should be coordinated include ministries and government institutions responsible for policies on food, agriculture, youth, recreation, sports, education, commerce and industry, finance, transportation, media and communication, social affairs and environmental and urban planning.

39. **National strategies, policies and action plans need broad support.** Support should be provided by effective legislation, appropriate infrastructure, implementation programmes, adequate funding, monitoring and evaluation, and continuing research.

(1) **National strategies on diet and physical activity.** National strategies describe the measures to promote healthy diets and physical activity that are essential to prevent disease and promote health, including those that tackle all aspects of unbalanced diets, including undernutrition and overnutrition. National strategies should include specific goals, objectives, and actions, similar to those outlined in the global strategy. Of particular importance are the elements needed to implement the plan of action, including identification of necessary resources and national focal points (key national institutes); collaboration between the health sector and other key sectors such as agriculture, education, urban planning, transportation and communication; and monitoring and follow-up.

(2) **National dietary guidelines.** Governments are encouraged to draw up national dietary guidelines, taking account of evidence from national and international sources. Such guidelines advise national nutrition policy, nutrition education, other public health interventions and intersectoral collaboration. They may be updated periodically in the light of changes in dietary and disease patterns and evolving scientific knowledge.

(3) **National physical activity guidelines.** National guidelines for health-enhancing physical activity should be prepared in accordance with the goals and objectives of the global strategy and expert recommendations.

40. **Governments should provide accurate and balanced information.** Governments need to consider actions that will result in provision of balanced information for consumers to enable them easily to make healthy choices, and to ensure the availability of appropriate health promotion and edu-

cation programmes. In particular, information for consumers should be sensitive to literacy levels, communication barriers and local culture, and understood by all segments of the population. In some countries, health-promoting programmes have been designed as a function of such considerations and should be used for disseminating information about diet and physical activity. Some governments already have a legal obligation to ensure that factual information available to consumers enables them to make fully informed choices on matters that may affect their health. In other cases, actions may be specific to government policies. Governments should select the optimal mix of actions in accordance with their national capabilities and epidemiological profile, which will vary from one country to another.

41. National food and agricultural policies should be consistent with the protection and promotion of public health. Where needed, governments should consider policies that facilitate the adoption of healthy diet. Food and nutrition policy should also cover food safety and sustainable food security. Governments should be encouraged to examine food and agricultural policies for potential health effects on the food supply.

(1) Promotion of food products consistent with a healthy diet. As a result of consumers' increasing interest in health and governments' awareness of the benefits of healthy nutrition, some governments have taken measures, including market incentives, to promote the development, production and marketing of food products that contribute to a healthy diet and are consistent with national or international dietary recommendations. Governments could consider additional measures to encourage the reduction of the salt content of processed foods, the use of hydrogenated oils, and the sugar content of beverages and snacks.

(2) Fiscal policies. Prices influence consumption choices. Public policies can influence prices through taxation, subsidies or direct pricing in ways that encourage healthy eating and lifelong physical activity. Several countries use fiscal measures, including taxes, to influence availability of, access to, and consumption of, various foods; and some use public funds and subsidies to promote access among poor communities to recreational and sporting facilities. Evaluation of such measures should include the risk of unintentional effects on vulnerable populations.

(3) Food programmes. Many countries have programmes to provide food to population groups with special needs or cash transfers to families for them to improve their food purchases. Such

programmes often concern children, families with children, poor people, and people with HIV/AIDS and other diseases. Special attention should be given to the quality of the food items and to nutrition education as a main component of these programmes, so that food distributed to, or purchased by, the families not only provides energy, but also contributes to a healthy diet. Food and cash distribution programmes should emphasize empowerment and development, local production and sustainability.

(4) Agricultural policies. Agricultural policy and production often have a great effect on national diets. Governments can influence agricultural production through many policy measures. As emphasis on health increases and consumption patterns change, Member States need to take healthy nutrition into account in their agricultural policies.

42. Multisectoral policies are needed to promote physical activity. National policies to promote physical activity should be framed, targeting change in a number of sectors. Governments should review existing policies to ensure that they are consistent with best practice in population-wide approaches to increasing physical activity.

(1) Framing and review of public policies. National and local governments should frame policies and provide incentives to ensure that walking, cycling and other forms of physical activity are accessible and safe; transport policies include nonmotorized modes of transportation; labour and workplace policies encourage physical activity; and sport and recreation facilities embody the concept of sports for all. Public policies and legislation have an impact on opportunities for physical activity, such as those concerning transport, urban planning, education, labour, social inclusion, and health-care funding related to physical activity.

(2) Community involvement and enabling environments. Strategies should be geared to changing social norms and improving community understanding and acceptance of the need to integrate physical activity into everyday life. Environments should be promoted that facilitate physical activity, and supportive infrastructure should be set up to increase access to, and use of, suitable facilities.

(3) Partnerships. Ministries of health should take the lead in forming partnerships with key agencies, and public and private stakeholders in order to draw up jointly a common agenda and workplan aimed at promoting physical activity.

(4) Clear public messages. Simple, direct messages

- need to be communicated on the quantity and quality of physical activity sufficient to provide substantial health benefits.
43. **School policies and programmes should support the adoption of healthy diets and physical activity.** Schools influence the lives of most children in all countries. They should protect their health by providing health information, improving health literacy, and promoting healthy diets, physical activity, and other healthy behaviours. Schools are encouraged to provide students with daily physical education and should be equipped with appropriate facilities and equipment. Governments are encouraged to adopt policies that support healthy diets at school and limit the availability of products high in salt, sugar and fats. Schools should consider, together with parents and responsible authorities, issuing contracts for school lunches to local food growers in order to ensure a local market for healthy foods.
 44. **Governments are encouraged to consult with stakeholders on policy.** Broad public discussion and involvement in the framing of policy can facilitate its acceptance and effectiveness. Member States should establish mechanisms to promote participation of nongovernmental organizations, civil society, communities, the private sector and the media in activities related to diet, physical activity and health. Ministries of health should be responsible, in collaboration with other related ministries and agencies, for establishing these mechanisms, which should aim at strengthening intersectoral cooperation at the national, provincial and local levels. They should encourage community participation, and should be part of planning processes at community level.
 45. **Prevention is a critical element of health services.** Routine contacts with health-service staff should include practical advice to patients and families on the benefits of healthy diets and increased levels of physical activity, combined with support to help patients initiate and maintain healthy behaviours. Governments should consider incentives to encourage such preventive services and identify opportunities for prevention within existing clinical services, including an improved financing structure to encourage and enable health professionals to dedicate more time to prevention.
 46. **Governments should invest in surveillance, research and evaluation.** Long-term and continuous monitoring of major risk factors is essential. Over time, such data also provide the basis for analyses of changes in risk factors, which could be attributable to changes in policies and strategies. Governments may be able to build on systems already in place, at either national or regional levels. Emphasis should initially be given to stand-ard indicators recognized by the general scientific community as valid measures of physical activity, to selected dietary components, and to body weight in order to compile comparative data at global level. Data that provide insight into within-country patterns and variations are useful in guiding community action. Where possible, other sources of data should be used, for example, from the education, transport, agriculture, and other sectors.
 - (1) **Monitoring and surveillance.** Monitoring and surveillance are essential tools in the implementation of national strategies for healthy diet and physical activity. Monitoring of dietary habits, patterns of physical activity and interactions between them; nutrition-related biological risk factors and contents of food products; and communication to the public of the information obtained, are important components of implementation. Of particular importance is the development of methods and procedures using standardized data-collection procedures and a common minimum set of valid, measurable and usable indicators.
 - (2) **Research and evaluation.** Applied research, especially in community-based demonstration projects and in evaluating different policies and interventions, should be promoted. Such research (e.g., into the reasons for physical inactivity and poor diet, and on key determinants of effective intervention programmes), combined with the increased involvement of behavioural scientists, will lead to better informed policies and ensure that a cadre of expertise is created at national and local levels. Equally important is the need to put in place effective mechanisms for evaluating the efficacy and cost-effectiveness of national disease-prevention programmes, and the health impact of policies in other sectors. More information is needed, especially on the situation in developing countries, where programmes to promote healthy diets and physical activity need to be evaluated and integrated into broader development and poverty-alleviation programmes.
 47. **Institutional capacity.** Under the ministry of health, national institutions for public health, nutrition and physical activity play an important role in the implementation of national diet and physical activity programmes. They can provide the necessary expertise, monitor developments, help to coordinate activities, participate in collaboration at international level, and provide advice to decision-makers.
 48. **Financing national programmes.** Various sources of funding, in addition to the national budget, should be identified to assist in implementation of the strategy. The United Nations Millennium

Declaration (September 2000) recognizes that economic growth is limited unless people are healthy. The most cost-effective interventions to contain the epidemic of noncommunicable diseases are prevention and a focus on the risk factors associated with these diseases. Programmes aimed at promoting healthy diets and physical activity should therefore be viewed as a developmental need and should draw policy and financial support from national development plans.

WHO

49. WHO, in cooperation with other organizations of the United Nations system, will provide the leadership, evidence-based recommendations and advocacy for international action to improve dietary practices and increase physical activity, in keeping with the guiding principles and specific recommendations contained in this strategy.
50. It will hold discussions with the transnational food industry and other parts of the private sector in support of the aims of this global strategy, and of implementing the recommendations in countries.
51. WHO will provide support for implementation of programmes as requested by Member States, and will focus on the following broad, interrelated areas:
 - » **facilitating the framing, strengthening and updating of regional and national policies** on diet and physical activity for integrated noncommunicable disease prevention
 - » **facilitating the drafting, updating and implementation of national food-based dietary and physical activity guidelines**, in collaboration with national agencies and drawing upon global knowledge and experience
 - » **providing guidance to Member States on the formulation of guidelines, norms, standards and other policy-related measures** that are consistent with the objectives of the global strategy
 - » **identifying and disseminating information on evidence-based interventions, policies and structures** that are effective in promoting healthy diets and optimizing the level of physical activity in countries and communities
 - » **providing appropriate technical support** to build national capacity in planning and implementing a national strategy and in tailoring it to local circumstances
 - » **providing models and methods** so that interventions on diet and physical activity constitute an integral component of health care
 - » **promoting and providing support for training of health professionals in healthy diets and an active life**, either within existing programmes or

in special workshops, as an essential part of their curricula

- » **providing advice and support to Member States, using standardized surveillance methods and rapid assessment tools** (such as WHO's STEP-wise approach to surveillance of risk factors for noncommunicable diseases), in order to measure changes in distribution of risk—including patterns in diet, nutrition and physical activity—and to assess the current situation, trends, and the impact of interventions. WHO, in collaboration with FAO, will provide support to Member States in establishing national nutrition surveillance systems, linked with data on the content of food items
 - » **advising Member States on ways of engaging constructively with appropriate industries.**
52. WHO, in close collaboration with organizations of the United Nations system and other inter-governmental bodies (FAO, UNESCO, UNICEF, United Nations University and others), research institutes and other partners, will promote and support research in priority areas to facilitate programme implementation and evaluation. This could include commissioning scientific papers, conducting analyses, and holding technical meetings on practical research topics that are essential for effective country action. The decision-making process should be informed by better use of evidence, including health-impact assessment, cost-benefit analysis, national burden-of-disease studies, evidence-based intervention models, scientific advice and dissemination of good practices.
 53. It will work with FAO and other organizations of the United Nations system, the World Bank, and research institutes on their evaluation of implications of the strategy for other sectors.
 54. The Organization will continue to work with WHO collaborating centres to establish networks for building up capacity in research and training, mobilizing contributions from nongovernmental organizations and civil society, and facilitating coordinated, collaborative research as it pertains to the needs of developing countries in the implementation of this strategy.

International partners

55. The role of international partners is of paramount importance in achieving the goals and objectives of the global strategy, particularly with regard to issues of a transnational nature, or where the actions of a single country are insufficient. Coordinated work is needed among the organizations of the United Nations system, intergovernmental bodies, nongovernmental organizations, professional asso-

- ciations, research institutions and private sector entities.
56. The process of preparing the strategy has led to closer interaction with other organizations of the United Nations system, such as FAO and UNICEF, and other partners, including the World Bank. WHO will build on its long-standing collaboration with FAO in implementing the strategy. The contribution of FAO in the framing of agricultural policies can play a crucial part in this regard. More research into appropriate agriculture policies, and the supply, availability, processing and consumption of food will be necessary.
 57. Cooperation is also planned with bodies such as the United Nations Economic and Social Council, ILO, UNESCO, WTO, the regional development banks and the United Nations University. Consistent with the goal and objectives of the strategy, WHO will develop and strengthen partnerships, including through the establishment and coordination of global and regional networks, in order to disseminate information, exchange experiences, and provide support to regional and national initiatives. WHO proposes to set up an ad hoc committee of partners within the United Nations system in order to ensure continuing policy coherence and to draw upon each organization's unique strengths. Partners can play an important role in a global network that targets such areas as advocacy, resource mobilization, capacity building and collaborative research.
 58. International partners could be involved in implementing the global strategy by:
 - » contributing to comprehensive intersectoral strategies to improve diet and physical activity, including, for instance, the promotion of healthy diets in poverty-alleviation programmes
 - » drawing up guidelines for prevention of nutritional deficiencies in order to harmonize future dietary and policy recommendations designed to prevent and control noncommunicable diseases
 - » facilitating the drafting of national guidelines on diet and physical activity, in collaboration with national agencies
 - » cooperating in the development, testing and dissemination of models for community involvement, including local food production, nutrition and physical activity education, and raising of consumer awareness
 - » promoting the inclusion of noncommunicable disease prevention and health promotion policies relating to diet and physical activity in development policies and programmes
 - » promoting incentive-based approaches to encourage prevention and control of chronic diseases.
 59. **International standards.** Public health efforts may be strengthened by the use of international norms

and standards, particularly those drawn up by the Codex Alimentarius Commission.* Areas for further development could include: labelling to allow consumers to be better informed about the benefits and content of foods; measures to minimize the impact of marketing on unhealthy dietary patterns; fuller information about healthy consumption patterns, including steps to increase the consumption of fruit and vegetables; and production and processing standards regarding the nutritional quality and safety of products. Involvement of governments and nongovernmental organizations as provided for in the Codex should be encouraged.

Civil society and nongovernmental organizations

60. Civil society and nongovernmental organizations have an important role to play in influencing individual behaviour and the organizations and institutions that are involved in healthy diet and physical activity. They can help to ensure that consumers ask governments to provide support for healthy lifestyles, and the food industry to provide healthy products. Nongovernmental organizations can support the strategy effectively if they collaborate with national and international partners. Civil society and nongovernmental organizations can particularly:
 - » lead grass-roots mobilization and advocate that healthy diets and physical activity should be placed on the public agenda
 - » support the wide dissemination of information on prevention of noncommunicable diseases through balanced, healthy diets and physical activity
 - » form networks and action groups to promote the availability of healthy foods and possibilities for physical activity, and advocate and support health-promoting programmes and health education campaigns
 - » organize campaigns and events that will stimulate action
 - » emphasize the role of governments in promoting public health, healthy diets and physical activity; monitor progress in achieving objectives; and monitor and work with other stakeholders such as private sector entities
 - » play an active role in fostering implementation of the global strategy
 - » contribute to putting knowledge and evidence into practice.

* See resolution WHA56.23

Private sector

61. The private sector can be a significant player in promoting healthy diets and physical activity. The food industry, retailers, catering companies, sporting-goods manufacturers, advertising and recreation businesses, insurance and banking groups, pharmaceutical companies and the media all have important parts to play as responsible employers and as advocates for healthy lifestyles. All could become partners with governments and nongovernmental organizations in implementing measures aimed at sending positive and consistent messages to facilitate and enable integrated efforts to encourage healthy eating and physical activity. Because many companies operate globally, international collaboration is crucial. Cooperative relationships with industry have already led to many favourable outcomes related to diet and physical activity. Initiatives by the food industry to reduce the fat, sugar and salt content of processed foods and portion sizes, to increase introduction of innovative, healthy, and nutritious choices; and review of current marketing practices, could accelerate health gains worldwide. Specific recommendations to the food industry and sporting-goods manufacturers include the following:
- » promote healthy diets and physical activity in accordance with national guidelines and international standards and the overall aims of the global strategy
 - » limit the levels of saturated fats, *trans*-fatty acids, free sugars and salt in existing products
 - » continue to develop and provide affordable, healthy and nutritious choices to consumers
 - » consider introducing new products with better nutritional value
 - » provide consumers with adequate and understandable product and nutrition information
 - » practise responsible marketing that supports the strategy, particularly with regard to the promotion and marketing of foods high in saturated fats, *trans*-fatty acids, free sugars, or salt, especially to children
 - » issue simple, clear and consistent food labels and evidence-based health claims that will help consumers to make informed and healthy choices with respect to the nutritional value of foods
 - » provide information on food composition to national authorities
 - » assist in developing and implementing physical activity programmes.
62. Workplaces are important settings for health pro-

motion and disease prevention. People need to be given the opportunity to make healthy choices in the workplace in order to reduce their exposure to risk. Further, the cost to employers of morbidity attributed to noncommunicable diseases is increasing rapidly. Workplaces should make possible healthy food choices and support and encourage physical activity.

Follow-up and future developments

63. WHO will report on progress made in implementing the global strategy and in implementing national strategies, including the following aspects:
- » patterns and trends of dietary habits and physical activity and related risk factors for major non-communicable diseases
 - » evaluation of the effectiveness of policies and programmes to improve diet and increase physical activity
 - » constraints or barriers encountered in implementation of the strategy and the measures taken to overcome them
 - » legislative, executive, administrative, financial or other measures taken within the context of this strategy.
64. WHO will work at global and regional levels to set up a monitoring system and to design indicators for dietary habits and patterns of physical activity.

Conclusions

65. Actions, based on the best available scientific evidence and the cultural context, need to be designed, implemented and monitored with WHO's support and leadership. Nonetheless, a truly multisectoral approach that mobilizes the combined energy, resources and expertise of all global stakeholders is essential for sustained progress.
66. Changes in patterns of diet and physical activity will be gradual, and national strategies will need a clear plan for long-term and sustained disease-preventive measures. However, changes in risk factors and in incidence of noncommunicable diseases can occur quite quickly when effective interventions are made. National plans should therefore also have achievable short-term and intermediate goals.
67. The implementation of this strategy by all those involved will contribute to major and sustained improvements in people's health.

Letter to the Editor

In response to Piwoz et al. "Promotion and advocacy for improved complementary feeding: Can we apply the lessons learned from breastfeeding?"

To the Editor:

Piwoz and colleagues [1] describe the lessons learned from breastfeeding promotion in relation to the need for improvement in complementary infant-feeding practices worldwide. They note that a major obstacle is the complexity of complementary feeding; not only are the messages regarding optimal complementary feeding difficult to articulate, but measurement of these feeding behaviors is also problematic.

The authors point out that indicators of breastfeeding developed by the World Health Organization (WHO) [2] have served to focus attention on optimal breastfeeding for both education and assessment purposes. They then describe several aspects of complementary feeding (dietary diversity, diet quality, and feeding frequency) that should be included in any comprehensive set of infant-feeding indicators.

We propose that the data which are now routinely collected for computation of breastfeeding indicators could also be used to obtain basic indicators of complementary feeding. Although they are no substitute for indicators that capture the complexity of complementary feeding, these indicators are readily available and simple to understand. As we have previously demonstrated for the 1989 Demographic and Health Survey (DHS) in Bolivia [3], current-status data on infant feeding can be presented in a grid that categorizes infants by age group and type of feeding, based on the same classifications and definitions as for the breastfeeding indicators. Infants' ages (in months) are grouped as follows: <4, 4–5, 6–9, 10–11, 12–15, 16–19, and 20–23. Infant-feeding categories are breastmilk only, breastmilk plus nonmilk solids (no milk or

solids), breastmilk plus other milk (no solids), breastmilk plus solids, and no breastmilk.

From this distribution of the entire spectrum of infant feeding, the types of foods being given to infants who are not being fed according to the recommendations become readily apparent. For example, among infants less than 4 months of age in the Bolivian DHS analysis [3], 57.6% were breastfeeding only (the "exclusive breastfeeding rate"), and 14.8% were receiving breastmilk plus nonmilk solids, without any other milks or solids (the "predominant breastfeeding rate"); the remainder were receiving breastmilk plus other milk, without solids (17.6%); breastmilk plus solids (2.5%); or no breastmilk (7.5%). The message for a mother who is not exclusively breastfeeding, as recommended, would be very different depending on which of the other four categories her infant fell into.

This array of infant-feeding categories by age presents a snapshot of infant-feeding patterns, providing very basic indicators of both complementary feeding and breastfeeding. It is not necessary to wait until more detailed indicators of complementary feeding are developed and data for these additional indicators can be collected. The simple descriptive data are available now. They should be used to inform health-care workers and policy makers throughout the world about the particular challenges of appropriate complementary infant feeding in their populations.

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Authors' response

To the Editor:

McCann and Bender draw attention to the wealth of data that are collected and can be analyzed to provide information on complementary feeding practices. The authors provide concrete examples of indicators that can be calculated to distinguish feeding patterns in children 6 months of age and older, and hence to better understand the program actions needed to address problems. Demographic and health surveys in particular are an important source of data that have potential for further analysis. We point to work by Ruel and Arimond [1], who used demographic and health survey (DHS) data to propose new indicators for complementary feeding and to create a composite index of infant and child-feeding practices [2].

The availability of a small set of universal indicators to assess breastfeeding practices has contributed greatly to advancing programs to improve breastfeeding practices, in particular exclusive breastfeeding. The challenge now is to identify and agree on key indicators for complementary feeding. This will help not only in program assessment, monitoring, and evaluation, but also to facilitate global reporting and international comparisons. Because complementary feeding involves multiple caregiving practices that must be carried out carefully in order to ensure adequate nutrition for the young child, it is of particular importance to identify valid and reliable measures to assess the quality of complementary feeding.

At present, timely complementary feeding is the only indicator that is widely and consistently assessed and reported globally. As a composite measure of continued breastfeeding and complementary feeding in children 6 to 9 months of age, the indicator provides limited information on the quality of feeding practices, and hence provides only limited program guidance. To address this gap, WHO, in collaboration with the International Food Policy Research Institute (IFPRI) and other partners, has initiated a process to identify a small number of universal indicators for assessing complementary feeding, as well as supplementary indicators to guide programs. In the first phase, we are

analyzing existing data sets from various sites and geographic areas to identify proxy indicators for assessing the adequacy of children's diets to meet their energy and nutrient needs. Work has also been initiated with UNICEF to develop indicators for assessing responsive feeding. In the second phase, promising indicators will be validated in the field. It is hoped that in the course of 2005, sufficient new information will be available to allow for consensus building on a small set of universal indicators for assessing complementary feeding within the international public health community.

In the meantime, it will be important to gather and report data of the kind that Bender and McCann are referring to. Based on an extensive review and consultation process, Ruel and Arimond developed a set of simple indicators and a standard methodology to gather, analyze, and report data on breastfeeding and complementary feeding practices. These recommendations have been accepted by the consortium of USAID-supported private voluntary organizations (PVOs) engaged in child survival and health interventions, and will be used in baseline and final project surveys [3]. While the analytical work is ongoing to identify the indicators that perform best as proxy measures of the quality of complementary feeding, it is hoped that this will already facilitate collection of consistent, comparable, and quality data. These and other initiatives are also very useful to provide the evidence for increased investment in infant and young child feeding, as a critical area in public health toward achieving improved child-health outcomes.

For more information, consult the following websites: <http://www.who.int/child-adolescent-health/NUTRITION/complementary.htm> and <http://www.ifpri.org/divs/fcnd/dp.htm>

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Caring for severely malnourished children. Ann Ashworth and Ann Burgess. Macmillan Education, Oxford, UK, 2003. (ISBN 0-333-95945-0) 88 pages, paperback. US\$5.50.

Many severely malnourished children still die unnecessarily due to inadequate inpatient care. The *Food and Nutrition Bulletin* previously reviewed a WHO publication for physicians, *Management of the Child with a Serious Infection or Severe Malnutrition: Guidelines for Care at the First-Referral Level in Developing Countries* (Food Nutr Bull 2001;22(3):344). This small paperback is intended for nurses and other health workers who care for severely malnourished children in developing countries. It describes in simple and clear terms the 10 treatment steps needed to manage these children successfully. It is based on the WHO/IDECG (International Dietary Energy Consultancy Group) Manual and on training modules prepared for the trainers of nurses in Africa. It takes into account the limited resources in many hospitals and health centers, and the fact that many malnourished children are also HIV-positive. It will be useful not only for nurses but also for their trainers and supervisors in developing countries.

Diet, nutrition and the prevention of chronic diseases. Report of a joint WHO/FAO Expert Consultation. WHO Technical Report Series 916. World Health Organization, Geneva, 2003. (ISBN 92-4-120916-X) 149 pages, paperback. US\$20.70. Annual subscription, Technical Report Series, US\$106.00 (ISSN 0512-3054).

This is the long-awaited publication of the report of an important Joint FAO/WHO Expert Consultation on Diet, Nutrition and Prevention of Chronic Diseases, convened in January 2002. Because of the report's implications for the food industry and agriculture, as well as the health importance of the conclusions of the Consultation, the review process was lengthy. In view of the spread of an obesity epidemic from industrial-

ized countries to the more affluent population groups in developing countries, all countries and sectors have a stake in this report.

During the past two decades, there has been a rapid increase in population-based epidemiological evidence that has helped to clarify the role of diet in preventing and controlling morbidity and premature mortality from noncommunicable diseases (NCDs). Rapid changes in diet and lifestyle have been occurring as the result of urbanization, globalization, economic and industrial development, and changes in the production and marketing of food and food products. Many of these changes have had an adverse impact on the nutritional appropriateness of diets. This has been compounded by undesirable lifestyle changes. Decreasing physical activity is already a global health hazard, and tobacco use is a major health problem in most countries.

For these reasons, chronic NCDs—including obesity, diabetes, cardiovascular disease, hypertension, stroke, and many types of cancer—are emerging as increasingly significant health burdens and straining the already inadequate health budgets of both industrialized and developing countries. For many of the latter, malnutrition and undernutrition also persist. While policy makers are becoming increasingly aware of these unfavorable developments, there is an urgent need to draw on the latest scientific evidence in order to update recommendations for action to governments, international agencies, and concerned public and private organizations working at the national level.

The discussions at the Consultation went beyond the dietary factors of causation to include the ecological, sociological, and behavioral aspects of the problem. The main book sections include diet, nutrition and chronic diseases in context, population nutrient intake goals for preventing diet-related chronic disease, and strategic directions and recommendations for policy and research. The distinguished participants in the Consultation and the sponsoring agencies are to be congratulated on the success of this difficult task. Each section is well referenced.

The commercial and regulatory implications of the Consultation's findings caused controversy and delays in finalizing the report, but the final conclusions and recommendations deserve to be generally accepted and incorporated into policy and implementation. This compact and inexpensive paperback should be available to, and consulted by, all nutrition and health workers.

Food composition data: Production, management and use. 2nd ed. Edited by H. Greenfield and D. A. T. Southgate. Food and Agriculture Organization, Rome, 2003. (ISBN 92-5-104949-1) 288 pages, paperback. US\$32.

A knowledge of the chemical composition of foods is the first essential to understanding the nutritional value of human diets, determining nutrient requirements, identifying relationships between diet and disease, nutritional labeling of foods, and consumer education. A conference in Bellagio, Italy, in 1983 recognized this and emphasized the lack of reliable current information on the composition of foods. The outcome of this conference was the establishment of International Food Data System (INFOODS), and one of its first tasks was to develop updated guidelines for the production, management, and use of food-composition data. The response by two world authorities was the first edition of *Food Composition Data*, which has been widely praised and used in a series of United Nations University/INFOODS training courses for food-composition analysts and compilers.

Experience with use of that book in those courses has led to a second edition that updates the text and figures and makes the book more user-friendly for an international readership. In addition, in part due to the stimulus of INFOODS, there has been an explosion in analytical procedures that needed to be included. This new edition discusses the vast amount of food-composition data available electronically through the INFOODS global network and other sources, and how to evaluate and select data appropriate for a given purpose. Sections of the guidelines deal with the analysis of foods and the compilation, use, and dissemination of data. Overall, the text of these guidelines follows the stages in an idealized program for creating a comprehensive food-composition database: selecting food and food components for analysis, sampling foods, analytical methods, data compilation and documentation, data use, and maintenance of every aspect of quality.

FAO is printing this second edition as a paperback at a much more affordable price than the commercial first edition and is overseeing its translation into the

main languages of the United Nations. It is also being placed on the FAO website for worldwide access. This book is an essential reference for professionals in health and agriculture research, policy, and program implementation in which knowledge of the nutritional value of foods is required.

Fundamental food microbiology. 3rd ed. Bibek Ray. CRC Press, Boca Raton Fla., USA, 2004. (ISBN 0-8493-1610-3) 624 pages, hardcover. US\$89.95.

This is the third edition of a standard food microbiology text. Now retired from the University of Wyoming, the author has an impressive academic, research, and teaching record and has produced a very comprehensive and well-integrated treatise on the subject. It is recommended not only for courses in food microbiology but as a reference for food scientists and technologists as well as nutritionists and regulators.

Household decisions, gender, and development: A synthesis of recent research. Edited by Agnes R. Quisumbing. International Food Policy Research Institute (IFPRI) and Johns Hopkins University Press, Washington, DC, 2003. (ISBN 0-89629-717-9) 274 pages, paperback. US\$17.95.

This book arose from studies in the 1980s and early 1990s organized by the International Food Policy Research Institute (IFPRI) of how the commercialization of agriculture has affected the nutritional status of individuals within households. This initiative was one of the first to quantify the effects of women in control of income on household food security and nutrition. This was followed in the 1990s by a more extensive program of research on gender and household decision-making affecting family food use. In its final phase, this research tested household models over a range of conditions and cultures. It offers an up-to-date and timely description of how household decision-making affects the welfare of individuals within the household. The book contains 33 chapters by various authors. The first six chapters deal with power and resources within the household; nine chapters with agriculture and natural resources; four with health and nutrition; five with social, capital, legal institutions, and property rights; and the last nine with policies and interventions. Ten of the chapters are written or cowritten by the editor, Agnes Quisumbing. The main use of the book will be as a reference text for undergraduate and graduate courses and for seminars that focus on the role of gender in national development, food supply, and family food security.

Nutrition and heart disease: Causation and prevention. Edited by Ronald R. Watson and Victor R. Preedy. CRC Press, Boca Raton, Fla., USA, 2004. (ISBN 0-8493-1674-X) 360 pages, hardcover. US\$139.95.

Most of the 18 chapters in this book are directly concerned with various aspects of nutrition as a means of preventing heart disease or as factors in its causation. The book is "intended as a desk reference for physicians and dietitians." Of the 35 authors, 10 are physicians. The first chapter, "The role of the dietitian in reducing cardiovascular risk," is unusually well referenced, as are all other chapters. Although the content of this book varies in depth, it is appropriate to its purpose. This book can be useful as a reference for hospital dietitians and other health workers.

The *trans* fats dilemma and natural palm oil. Gene A. Spiller. Pascoe Publishing, Rocklin, Calif., USA, 2004. (ISBN 1-929862-40-7) 143 pages, paperback. US\$15.95.

It has only recently been acknowledged that *trans*-fatty acids, generated when cooking oils are hydrogenated to harden them for use in margarines and shortenings, can have adverse health consequences. For most of the past century, the use of *trans*-fatty acids steadily increased, and only of late have they been recognized to be at least as atherogenic as the saturated fats of animal origin. They are believed to have been one of the causative factors of the steady increase in the prevalence of cardiovascular diseases in the twentieth century. The US Food and Drug Administration is requiring that the *trans*-fatty acid content of foods be indicated on the Nutrition Facts label beginning in 2006. The food industry is gradually phasing out the hydrogenation that produces *trans*-fatty acids, and one of the most suitable replacements is African palm oil. This is because it has a higher melting point and does not require hydrogenation to be used in margarine. Extensive research in experimental animals, including nonhuman primates, and in clinical trials, confirms that its effect on cholesterol levels is not different from that of canola, soybean, and other unsaturated vegetable oils. This story is simply and authoritatively told and has references "for the science-minded reader." It is written for the educated lay person and for decision makers in the food industry as well as professional nutritionists and will serve this purpose admirably.

The UV advantage. Michael F. Holick and Mark Jenkins. New York: iBooks, 2003. (ISBN 0-743-48647-1) 224 pages, hardcover. US\$19.95.

It has long been known that exposure to sunlight is important for the prevention of rickets in young children. In northern latitudes during the winter, where weaker sunlight and heavy clothing reduced child exposure to the ultraviolet rays of sunshine, a weekly dose of cod-liver oil was the preventative until it was replaced by concentrated drops of vitamins A and D and vitamin D-fortified complementary foods. Vitamin D-fortified dairy products and margarine have been assumed to provide sufficient vitamin D activity for older children and adults to supplement that derived from exposure to sunlight. However, quite independently, a parallel movement has emerged to minimize exposure of skin to ultraviolet rays in order to reduce the risk of skin cancer. The author of this book, a leading expert in the field of vitamin D metabolism, concludes that avoidance of sunlight, the use of strong sunscreens, and other lifestyle changes are responsible for an epidemic of vitamin D deficiency in the United States and much of the Western world.

This is serious, because vitamin D is important for much more than bone development and ossification. It enhances mental health, prevents certain cancers, improves heart health, alleviates some skin disorders, and decreases the risk of autoimmune diseases, including diabetes and rheumatoid arthritis. This book strongly opposes frightening people out of sunlight and advocates common sense in the amount of sun exposure. It puts tanning and skin cancer in perspective and provides guidelines for obtaining sufficient exposure to the sun while minimizing the risks of skin cancer. Because it runs counter to powerful marketing forces for sunscreens and a strong conviction among dermatologists that exposure to sunlight must be minimized, this book will be controversial. However, it provides a sound rationale for its recommendations. The author pleads for sensible exposure to sunlight and defines in detail what this means for persons of various skin types and occupations.

The text provides authoritative information on both vitamin D metabolism and the origins and types of skin cancer. The chapters are not specifically referenced, but there is a useful selective bibliography at the end of the book. The extensive glossary is required because the author does explain, in simple terms, the technical background for his conclusions and recommendations. This small and very readable book is written for the layperson and is deceptively easy to read. However, it is of equal interest and importance for health professionals in all fields.

—Nevin S. Scrimshaw

From WHO: New HIV and infant-feeding tools

Breastfeeding is normally the best way to feed an infant. A woman infected with HIV, however, can transmit the virus to her child during pregnancy, labor, or delivery, or through breastfeeding. It is a public health responsibility to prevent HIV infection in infants and young children—especially in countries with high rates of HIV infection among pregnant women. It is also a public health responsibility to support optimal breastfeeding to prevent mortality and illness due to diarrhea and respiratory infections. Given the need to reduce the risk of HIV transmission to infants while minimizing the risk of other causes of morbidity and mortality, United Nations guidance states that “when replacement feeding is acceptable, feasible, affordable, sustainable and safe, avoidance of all breastfeeding by HIV-infected mothers is recommended. Otherwise, exclusive breastfeeding is recommended during the first months of life.”

This guidance was issued at a technical consultation on new data on the prevention of MTCT (mother-to-child transmission) and their policy implications that was convened in October 2000. In order to put this guidance into practice in countries, WHO and UN partners have recently developed or revised the following documents.

The HIV and infant-feeding framework for priority action. This document was developed within the context of the Global Strategy for Infant and Young Child Feeding and endorsed by nine UN agencies. The purpose is to recommend to governments key priority actions related to infant and young child feeding that cover the special circumstances associated with HIV/AIDS. The aim should be to create and sustain an environment that encourages appropriate feeding practices for all infants, while scaling-up interventions to reduce HIV transmission. (This document is also available in French.)

HIV transmission through breastfeeding: Review of

available evidence presents a summary of the available scientific evidence on the transmission of HIV infection through breastfeeding. It briefly describes the benefits of breastfeeding for both mothers and infants; and summarizes evidence on the relative risk of mother-to-child transmission of HIV-1 infection during pregnancy, delivery, and breastfeeding. The review then focuses on HIV transmission through breastfeeding; rates, mechanisms, timing, risk factors, and approaches for its prevention. The publication provides the evidence base and rationale for other documents in the revised HIV and infant feeding series.

HIV and infant feeding: Guidelines for decision-makers. In order to assist in putting general guidance on HIV and infant feeding into practice in countries, in 2003 WHO and UN partners (with valuable inputs from nongovernmental organizations, researchers, and government officials) revised *HIV and infant feeding: Guidelines for decision-makers*. The purpose of this publication is to provide information on issues that need to be considered in relation to infant and young child feeding in the context of HIV, and to highlight areas of special concern on which policy decisions need to be made. The guidelines contain an overview of international policy, goals, and guidelines; background on HIV and infant feeding; current recommendations for HIV-positive women and considerations relating to different feeding options; an overview of the process of developing or revising a national policy on infant and young child feeding, incorporating HIV concerns; considerations for countries considering the provision of free or low-cost infant formula; suggestions for protecting, promoting, and supporting appropriate infant feeding in the general population; key issues in supporting HIV-positive women in their infant-feeding decisions; and considerations on monitoring and evaluation.

HIV and infant feeding: A guide for health-care managers and supervisors. This publication is aimed at helping mid-level managers understand issues and organize services to support all women, and especially HIV-

infected women, in infant feeding. The document contains a list of key steps, background information, key resources and references, and extensive annexes.

What are the options? Using formative research to adapt global recommendations on HIV and infant feeding to the local context. The purpose of this manual is to provide program managers, researchers, and policy makers with basic guidance on how to conduct local assessments to establish the range of replacement feeding options and breast-milk feeding options that may be acceptable, feasible, affordable, sustainable, and safe (AFASS) in different contexts. Findings from local assessments may also be used to develop national policies, guidelines for health workers, materials for training of counselors, and behavior-change communications strategies to support safe infant feeding in programs to prevent HIV infection in infants and young children.

Another document will soon be released: *HIV and infant-feeding counselling tools*.

For further details, consult the WHO Child and Adolescent Health and Development Department website: <http://www.who.int/child-adolescent-health/NUTRITION/infant.htm>; write to the Department of Child and Adolescent Health and Development, 20 Avenue Appia, 1211 Geneva 27, Switzerland; or send e-mail inquiries to cah@who.int.

Standing Committee on Nutrition (SCN): The Ninth Dr. Abraham Horwitz Lecture

Announcement and call for proposals

The SCN Secretariat announces the Ninth Dr. Abraham Horwitz Lecture, scheduled to take place in Brasilia, Brazil, on Monday, March 14, 2005. Proposals are invited from young professionals studying or working in the field of international nutrition.

Dr. Abraham Horwitz served as the Chair of the SCN between 1986 and 1995. He died on July 10, 2000, at the age of 89. In an interview published in *SCN News* in late 1995, just after his retirement, Dr. Horwitz sent a message to those working in nutrition:

Keep the faith that you are committed to a most noble cause, the well-being of people whom you do not know but whose needs you feel intensely. Redouble your efforts in whatever you do in nutrition while being bold and imaginative.

The aim of the Horwitz Lecture Series, established by Sir Richard Jolly in 1996, is to continue Dr. Horwitz's heartfelt, highly valued, and extremely generous tradition of mentoring young people working in nutrition and nurturing their ideas for nutrition programs. Each year a young guest lecturer who possesses the knowledge and commitment to prepare an exceptional paper

is invited to make a presentation at the SCN Annual Session.

The Ninth Lecture will take place in the context of a one-day symposium with the theme of *resolving hunger and malnutrition through national and regionally driven strategies, policies, and programs*. A suggested lecture title is "National Anti-Hunger Strategies: What can we learn from country ownership of the fight against hunger and malnutrition?" The symposium will be opened by a high-level official of the Brazilian Government, and will include a keynote address and other focused presentations.

The lecture is not meant to be merely a theoretical discussion, but should build on practical evaluation experience to the extent that it exists. It should consider the knowledge and information needs to meet this challenge; the human, institutional, and organizational requirements for its realization; and the political obligations and commitments necessary to enable effective programs and political and policy-level agendas. It should reflect an analytical evaluation of options and experience, and avoid conclusions based on anecdotal experiences other than to illustrate specific challenges. The lecture will be published as part of the symposium proceedings in one of the SCN's publications.

Young nutrition professionals are invited to submit a three-page (double-spaced) concept paper to the SCN Secretariat in Geneva by Friday, December 10, 2004. All proposals should relate directly to the symposium's theme. Proposals will be evaluated against three criteria: clarity, innovation, and demonstrated knowledge of the field. All proposals meeting these criteria will be considered; however, preference will be given to those describing newer strategic, program, or policy approaches.

Proposals will be accepted by e-mail, regular mail, or fax. The proposal should contain the following:

- » A cover letter with the applicant's full name and contact details.
- » A one-page personal résumé.
- » A three-page concept paper (double-spaced) explaining the scope of the proposed lecture and clearly detailing the key issues proposed for presentation.
- » Two supporting letters from professionals from two of the three SCN member groups, i.e., UN agencies, bilateral partners, and civil society. The two supporting letters must address the writer's willingness and commitment to provide the applicant with guidance in preparing the proposed lecture and paper.

The SCN Secretariat will select the best proposal. The successful candidate will be notified by December 20, 2004. Travel to and from Brazil and hotel and living expenses while attending the meeting will be covered by the SCN. The lecturer will also receive an honorarium of \$500.

Further information is available from the SCN Secretariat in Geneva: Phone: +41-22-791 04 56, fax:

+41-22-798 88 91; e-mail: scn@who.int; website: www.unsystem.org/scn.

Our mailing address is SCN Secretariat, c/o World Health Organization, 20 Avenue Appia, CH-1211 Geneva 27, Switzerland.

Standing Committee on Nutrition (SCN): Integrating nutrition in development strategies

The 32nd United Nations System Standing Committee on Nutrition (SCN) Session will be held in Brasilia, Brazil, March 14–18, 2005. The 32nd Session will focus on the advantages and challenges of integrating nutrition in development strategies, in the context of achieving the millennium development goals and the right to food and nutrition. Registration details will be available on the SCN website (<http://www.unsystem.org/scn/>) beginning in December 2004. For more information, please send e-mail to the SCN Secretariat in Geneva at scn@who.int.

New SCN Secretary

Dr. Roger Shrimpton assumed the role of SCN Secretary in Geneva on July 1, 2004. Dr. Shrimpton brings to the SCN vast experience in international nutrition and development, with considerable time working in Brazil and Indonesia. He was most recently an independent consultant in nutrition and development. Prior to this he was Chief of the Nutrition Section at UNICEF Headquarters in New York. Dr. Shrimpton can be contacted at scn@who.int.

Call for information from former UNU Fellows

The United Nations University (UNU) is updating its information on former UNU fellows. If you are a

former UNU fellow, we urgently request you to forward your current postal and e-mail addresses, a description of your current responsibilities, and any other relevant information, including publications, honors, and awards, to UNUfellows@inffoundation.org. Also indicate whether you are currently receiving the *Food and Nutrition Bulletin*. The resulting database will serve as a resource for fellows to reestablish contact with former colleagues, for the UNU and training institutions to compile information on the long-term outcomes of their training efforts, and for both the UNU and the International Nutrition Foundation (INF) to obtain additional support for fellowships. Please also ask any other UNU fellows whom you know to send their information to the above address. This information will be placed on the INF website as it becomes available, and the *Bulletin* will publish periodic reports based on it. A similar INF database and website will be maintained for holders of the current Ellison Medical Foundation–International Nutrition Foundation Fellowships in Nutrition and Infection.

Former UNU Fellows and Trained Leaders from Latin American countries are invited to visit <http://latinut.net> for professional information and to facilitate regional contact. This website is in Spanish and offers professional profiles and e-mail addresses of former Latin American fellows. The website is still a work in progress, so if you are a former UNU Fellow and have not yet been contacted, or if you have any questions, please send e-mail to: mtoyarzun@inta.cl.

Symposium for Vernon R. Young

A memorial symposium in honor of the late Dr. Vernon R. Young will be held at the Massachusetts Institute of Technology (MIT), in Cambridge, Mass., USA, on November 12, 2004. For details, send e-mail to vryoungmemorial@inffoundation.org.

Please see page 312 this issue for Dr. Young's obituary.

Vernon R. Young 1937–2004



Vernon R. Young, the world's leading expert on protein and amino acid requirements and metabolism, died of complications of renal cancer on March 30, 2004, at the age of 66. His innovative use of stable isotopes showed that the estimated essential amino acid

requirement levels universally accepted since the 1940s were much too low. These erroneous values had been endorsed by a series of FAO/WHO committees, including one that met in 1985. With confirmation from collaboration with Anura Kurpad in Bangalore, Dr. Young proposed a new "MIT pattern" that was adopted, with minor changes, by the 2003 FAO/WHO/UNU Expert Consultation. This new pattern recognized that adult essential amino acid requirements per gram of protein needed to be increased by a factor of 2 to 3. This work, and a great deal of other ground-breaking research by Dr. Young, has been reported in more than 600 scientific publications.

Vernon Young was born in Rhyl, North Wales, in 1937. He obtained his B.Sc. from the University of Reading in 1959 and a Post-Graduate Diploma from Cambridge University in 1960. He moved to the University of California, Davis, in 1960 and received his Ph.D. in 1965 for a thesis on calcium and phosphorus homeostasis. He came to the Department of Nutrition and Food Science at the Massachusetts Institute of Technology as a postdoctoral fellow in the same year and rose rapidly to become a full professor in 1977. Since its founding in 1982, Dr. Young served as a Board member of the International Nutrition Foundation, which publishes the *Food and Nutrition Bulletin* on behalf of the United Nations University.

Brilliance and exceptional scientific intuition characterize Dr. Young's research career. Basing his work on Hamish Munro's studies in rats, Dr. Young was the first

to demonstrate in humans that urinary 3-methyl-histidine is a direct indicator of muscle mass. A long series of papers with Nevin Scrimshaw and many graduate students described the nature of and variations in obligatory nitrogen losses and nitrogen utilization that established the basis for accurately determining protein requirements.

The Ph.D. research of Cutberto Garza with Drs. Young and Scrimshaw confirmed that in long-term nitrogen-balance studies, consumption by MIT students of the recommended protein allowance proposed by an ad hoc FAO/WHO Expert Committee in 1973 resulted in a loss of lean body mass, negative nitrogen balance, and other adverse metabolic changes. The multilevel, short-term and single-level, long-term nitrogen balance approaches were adopted for the United Nations University-sponsored uniform field trials in 15 countries. The results indicated that the existing FAO/WHO/UNU recommended allowance for dietary protein needed to be increased by one-third. These higher values were adopted by the 1985 FAO/WHO/UNU Joint Expert Consultation on protein-energy requirements, with a profound effect on estimates of protein deficiency in developing countries and on agricultural and health policy.

Another extended series of studies explored protein absorption and quality of protein and yielded improved procedures for the assessment of the quality of proteins of both vegetable and animal origin. In this period, his research group completed more studies of soy protein quality than all other laboratories combined and participated in the evaluation of the quality for humans of single-cell proteins from yeast, bacteria, and filamentous microfungi.

The qualitative importance of both protein synthesis and breakdown in premature infants was first demonstrated in Dr. Young's studies with ^{15}N as a tracer. Using this tracer in adults, he demonstrated a redistribution in the pattern of whole protein metabolism with advancing age. He extended this to show enhanced rates of protein synthesis and breakdown in children suffering from burns. This provided a metabolic expla-

nation for the greatly increased protein requirement of a burn patient.

In a very productive collaboration with Denis Bier, Dr. Young showed that whole-body amino acid flux, protein synthesis, breakdown, and amino acid oxidation in humans respond to the content of meals and that these responses are modulated by the protein, amino acid, and energy component of the diet. These studies led to new approaches, based on amino acid kinetics using stable isotope probes for determining the quantitative need for the specific indispensable amino acids. Using stable isotopes, he also explored the metabolism of dispensable amino acids, such as glycine, and developed an approach for quantifying the whole-body synthesis rate of dispensable amino acids, particularly alanine, glycine, proline, and arginine. The novel method involved a simultaneous administration of two amino acid tracers labeled with stable isotopes, using a nutritionally indispensable amino acid. This was the first time this approach had been used, and it enabled him to demonstrate the sensitivity of whole-body alanine synthesis to changes in carbon, hydrogen, and nitrogen moieties.

More recently, in a series of elegant multitracer studies with arginine, ornithine, and citrulline as probes, Dr. Young suggested that arginine homeostasis is achieved by a balance between intake and breakdown, with synthesis playing only a minor role. Using a novel approach, Dr. Young also developed a stable isotope method using ^{15}N glycine tracers to explore changes in albumin synthesis with advancing age. His findings indicated that albumin synthesis was regulated by amino acid intake at a lower set-point in the elderly than in young adults. He also played a major role in developing and applying new stable isotope techniques for studying the metabolism of calcium and trace min-

erals, such as zinc, copper, iron, and selenium in human subjects. This involved their analyses in blood, urine, and feces during metabolic studies.

Dr. Young was elected to the National Academy of Sciences in 1990 and to the Institute of Medicine in 1993. Among the more important of his many honors are the Rank Prize in Nutrition (United Kingdom), the Bristol-Myers Squibb Award (United States), the Danone International Prize for Nutrition (France), the W.O. Atwater Award (United States), the Gopalan Gold Medal (India), the International Award for Modern Nutrition (Switzerland), and degree of Doctor of Medicine *honoris causa* from Uppsala University, Sweden. He served as president of the American Institute of Nutrition from 1991 to 1992. From 1996 to 1998 he served as the first chairman of the Food and Nutrition Board Committee responsible for the new and greatly expanded recommended dietary allowances (RDAs) and guided the group to a consensus.

Words can capture his scientific achievements and his international reputation, but not his ebullient personality, humor, and unusual charisma. He would tease outrageously anyone at any level of society, and they loved it. He met his wife, Janice, at MIT soon after his arrival there. They were married in the same year and settled in Wellesley, Massachusetts. Vernon Young's life was dedicated to his research at MIT and with many collaborators in other institutions and countries, but he was devoted to his wife, his four sons Christopher, Andrew, Richard, and Michael, and his daughter Patricia. A twin sister, Sylvia Young Price, lives in Council Bluffs, Iowa. There are few persons who have been so universally liked throughout the world or who have contributed as much to the science of nutrition.

—Nevin S. Scrimshaw

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Note for contributors to the *Food and Nutrition Bulletin*

The editors of the *Food and Nutrition Bulletin* welcome contributions of relevance to its concerns (see the statement of editorial policy). Submission of an article does not guarantee publication; acceptance depends on the judgment of the editors and reviewers as to its relevance and quality. All potentially acceptable manuscripts are peer-reviewed. Contributors should examine recent issues of the *Bulletin* for content and style.

Language. Contributions should be submitted in English.

Format. Manuscripts should be prepared on a computer, double-spaced, and with ample margins. **Authors are encouraged to submit manuscripts electronically.**

Abstract. An abstract of not more than 250 words should be included at the beginning of the manuscript, stating the purposes of the study or investigation, basic procedures (study subjects or experimental animals and observational and analytical methods), main findings (give specific data and their statistical significance, if possible), and the principal conclusions. Emphasize new and important aspects of the study or observations. Do not include any information that is not given in the body of the article. Do not cite references or use abbreviations or acronyms in the abstract.

Key words. Authors should provide a minimum of four key words for the article.

Tables and figures. Tables and figures should be placed on separate pages. Tables should be typed with data clearly organized. Footnotes should be keyed to the relevant data points by letters or symbols. For mailed manuscripts, submit only original figures or glossy photographs. Labels on the figures should be typed or professionally lettered or printed, not handwritten. Please double-check your data for accuracy and consistency with the text.

Photographs. Ideally, photographic materials should be submitted in the form of black and white negatives or white glossy prints. Photographs will not be returned unless specifically requested.

Units of measure. All measurements should be expressed in metric units. If other units are used, their metric equivalent should be indicated.

Abbreviations. Please spell out all abbreviations used on the first reference.

References. References should be listed at the end of the article, also double-spaced. Unpublished papers should not be listed as references, nor should papers submitted for publication but not yet accepted. Please double-check that reference numbers correspond to the correct numbers in the text.

Number references consecutively in the order in which they are first mentioned in the text. Identify references in the text and tables and figure legends by arabic numerals enclosed in square brackets. References cited only in tables or figure legends should be numbered in accordance with the first mention of the relevant table or figure in the text. **Be sure references are complete and current.**

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—standard journal article (list all authors):

1. Alvarez MI, Mikasic D, Ottenberger A, Salazar ME. Características de familias urbanas con lactante desnutrido: un análisis crítico. *Arch Latinoam Nutr* 1979;29:220–30.

—corporate author:

2. Committee on Enzymes of the Scandinavian Society for Clinical Chemistry and Clinical Physiology. Recommended method for the determination of gamma-glutamyltransferase in blood. *Scand J Clin Lab Invest* 1976;36:119–25.

Book or other monograph reference

—personal author(s):

3. Brozek J. Malnutrition and human behavior: experimental, clinical and community studies. New York: Van Nostrand Reinhold, 1985.

—corporate author:

4. American Medical Association, Department of Drugs. AMA drug evaluations, 3rd ed. Littleton, Mass, USA: Publishing Sciences Group, 1977.

—editor, compiler, chairman as author:

5. Medioni J, Boesinger E, eds. Mécanismes éthologiques de l'évolution. Paris: Masson, 1977.

—chapter in book:

6. Barnett HG. Compatibility and compartmentalization in cultural change. In: Desai AR, ed. Essays on modernization of underdeveloped societies. Bombay: Thacker, 1971:20–35.

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