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Food-based dietary guidelines and implementation: lessons from four countries - Chile, Germany, New Zealand and South Africa

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Abstract

Objective:

Food-based dietary guidelines (FBDG) are globally promoted as an important part of national food and nutrition policies. They are presented within policy as key features of the strategy to educate the public and guide policy-makers and other stakeholders about a healthy diet. This article examines the implementation of FBDG in four countries: Chile, Germany, New Zealand and South Africa, diverse countries chosen to explore the realities of FBDGs within policy on public health nutrition.

Design:

A literature review was carried out, followed by interviews with representatives from the governmental, academic and private sector in all four countries.

Results:

In all four countries the FBDG are mainly implemented via written/electronic information provided to the public through the health and/or education sector. Data about the impact of FBDG on policy and consumer's food choice or dietary habits are incomplete; nutrition surveys do not enable assessment of how effective FBDGs are as a factor in dietary or behavioural change. Despite limitations, FBDGs are seen as being valuable by key stakeholders.

Conclusion:

FBDGs are being implemented and there is experience which should be built upon. The policy focus needs to move beyond merely disseminating FBDGs. They should be part of a wider public health nutrition strategy involving multiple sectors and policy levels. Improvements in the implementation of FBDGs are crucial given the present epidemic of chronic, noncommunicable diseases.

Introduction

Chronic, noncommunicable diseases (NCD), especially cardiovascular diseases, cancers, obesity and type 2 diabetes mellitus, kill more people every year than any other cause of death[1]. Four factors in the epidemiology of these diseases – poor diet, physical inactivity, tobacco and alcohol use – are of overwhelming importance to public health.

To educate the public and inform policy makers about a healthy diet, for many years food-based dietary guidelines (FBDGs) have been globally promoted as an important part of national food and nutrition policies. The Plan of Action endorsed at the 1992 International Conference on Nutrition called on governments to provide to the public *"qualitative and/or quantitative dietary guidelines relevant for different age groups and lifestyles and appropriate for the country's population"*[2]. Based on this call, many countries have developed FBDGs for the population and/or sub-groups of the population. More recently, the 2004 WHO Global Strategy on Diet, Physical Activity and Health[3] encouraged governments to provide FBDGs in order to advise national nutrition policy, nutrition education, intersectoral interventions and collaborations. Effective implementation of FBDGs at population level and in policies is needed in order to contribute to halting the current NCD epidemic.

Method

The information in this paper is based on a systematized literature review of FBDGs which shaped questions to be asked of key-informants responsible for their implementation in different countries.[I] Research questions were: What is the role of FBDGs? How are they implemented and monitored? What are their successes and barriers to success in promoting diet-related health? Interviews were conducted by email or telephone with key stakeholders

[I] The study draws upon work conducted for a thesis on the role of Food-Based Dietary Guideline implementation within fruit and vegetable promotion programmes, conducted at City University.

and representatives from public and private institutions in four countries, chosen as case studies: Germany, Chile, New Zealand and South Africa. These were chosen to be diverse by level of development (national income) as well as geographical location. For the literature review, electronic health, education and social science databases were searched. The review primarily considered studies published after 1995 and available in English, German or Spanish. The search terms used were: food based dietary guidelines, dietary guidelines (+ country name), nutrition guidelines, food pyramid. The search was also performed for the German and Spanish translation of "dietary guidelines". Literature on how to develop FBDGs was not considered. "Grey" literature, e.g. national reports on FBDG implementation and evaluation, was also sought. Unpublished documents received from the interviewees were also reviewed.

Interviews were conducted with one person from four key institutions in each country. The informants came from: the Ministry of Health (nutrition unit), the 5 A Day fruit and vegetable programme, the academic sector and the fruit and vegetable production and trading sector, included as key 5 A Day participants.

Since in Germany the governmental responsibility for nutrition does not lie with the Ministry of Health (BMGS – Bundesministerium für Gesundheit und Soziales), but with the Ministry of Consumer Affairs, Nutrition and Agriculture (BMELV – Bundesministerium für Ernährung, Landwirtschaft und Verbraucherschutz), exceptionally a representative of both Ministries was interviewed.

The methodology was approved by the Ethics Committee of City University. Interviews were carried out in August and September 2005. Each interview partner received the invitation to the interview. Choice as to whether information was elicited by phone or by e-mail was left to the interviewee's decision. Questions were prepared for posing by voice or e-mail in English, German or Spanish. Potential interviewees were contacted and followed-up by e-mails, if they

did not respond to the initial inquiry within a week. None of the designated interviewees declined to participate. Most chose to answer the research questions via e-mail. Telephone interviews were carried out with three interviewees and answers were recorded by the researcher (IK). All interviews were held in the mother tongue of the interviewee and, where necessary, translated into English.

Results

The role of FBDG

FBDGs emerged for the first time in the late 1960s in Scandinavia.[4] FBDGs are defined by WHO/FAO as *"the expression of principles of nutrition education mostly as foods"*. [2] The purpose of the guidelines is to educate the population and to guide national food and nutrition policies as well as the food industry. Dietary guidelines are advocated as a practical manner to reach nutrition goals set for the population, while considering the setting, social, economic and cultural factors as well as the physical and the biological environment.

Following the call of the International Conference on Nutrition WHO and FAO organize (sub-) regional training workshops for national government representatives from the health, nutrition and agricultural sectors, in order to support especially medium- and low-income countries in the development of FBDGs (and of national food and nutrition action plans). The WHO nutrition policy database[5] monitors the development and implementation of national food and nutrition action plans and if countries have FBDG. Presently, 27 out of 52 countries in the WHO European Region have FBDGs[6] and 22 out of 37 countries in the WHO Western Pacific Region.[7]

When formulating FBDG at national levels it is often difficult to separate the scientific from the political process and therefore some countries opt to open the process for a stakeholder discussion or involve all stakeholders from the beginning in the formulation. The government

may not be the leader in the dietary guidelines development, but it is important that it oversees the process and publicly endorses the dietary guidelines. Dwyer[8] argues that an endorsement from the private sector is also valuable for successful implementation. The development and revision processes of FBDGs have been subject to fierce debates and lobbying from the side of food producers and processors.[4,8,9]

Implementation of FBDGs

To implement a FBDG, the WHO and FAO[2] recommend that each country shall formulate a qualitative version for the public and a quantitative version and background material aimed at health professionals and policy makers. To reach the general public, WHO and FAO suggest the use of a variety of media, so that all age groups can be reached and various levels of literacy are taken into account. In addition, all (government sponsored) food distribution, food services and nutrition programmes should receive the information about the FBDG, should adopt them and apply them as pioneers. WHO/FAO[2] also proposed that process and outcome evaluation should accompany the implementation of FBDGs. The EURODIET report also makes recommendations for the implementation of dietary guidelines: firstly, dietary guidelines can serve as communication tool and secondly as a "springboard" for other, broader health strategies. Hence, the EURODIET authors make a distinction whether dietary guidelines are promoted *per se* (e.g. via a leaflet or other material) or if they form part of a wider health promotion / disease prevention strategy at population level. The latter is judged to more likely lead to behavioural changes, while aiming either at a specific target group, a setting or focusing on specific approaches (advocacy, local project etc.).

In general, not much literature could be identified that documents the implementation of FBDGs at national levels. Schneeman[11] outlines some general challenges to FBDG implementation. These are to:

- increase awareness and motivate behavioural change;
- move from the provision of information to messages targeting behaviour changes;
- address all socio-economic segments in the population;
- maintain integrity of all messages developed;
- translate FBDG into other languages or dialects.

Much of the literature found in this area comes from the USA, where the responsibility to implement the FBDG lies with the government and a public-private-partnership that was especially founded to implement them.[12] Implementation occurs mainly via educational materials and the government sponsored food programmes for schools and low-income families. All school lunches and breakfasts need to meet the FBDG and the US Department of Agriculture supports schools to implement them, including nutrition education to motivate school children to make healthy choices.[13]

If FBDGs are not put into practice, one could assume that they are not understood. Constraints to put FBDGs into practice are, however, many more than lack of knowledge or misunderstanding of FBDGs. FBDGs are mainly developed taking nutrition and epidemiological evidence into account,[14] while consumer perceptions and attitudes may not be reflected. FBDGs are rather a "top-down" than a "bottom-up" approach. Consumers are not directly involved in the development and dietary guidelines may figure fairly low on the public agenda.[10]

Also, food choice is guided by price, taste, convenience and other factors[12]. Additional influences are varying messages given by health professionals, the media, and others and the food preferences of family members, which in particular women may take into account as well as (family) income. Last but not least, "healthy foods" - such as fruit and vegetables - may be perceived as unattractive, not tasty, time consuming or simply boring (especially for children).[15]

All barriers and particular challenges have important implications for the FBDG implementation. Consequently, it is equally or even more important to focus on removing the barriers to follow the FBDG than to inform and educate the public about FBDG.
Also agricultural policies can be seen as a barrier to the implementation of FBDGs.[16] The WHO European Office emphasizes that *"food policies in many countries have a production bias in contrast to a health bias"*.[17] It recommends that agriculture policies should be re-oriented to focus more on consumer health, while consumers need to be made more aware about how they can meet the FBDG with regional products, in particular locally produced fruit and vegetables. This, however, means running against powerful interests, ready to defend long-established subsidies for certain foods, as in Europe, where the Common Agricultural Policy financially supports the destruction of fruits and vegetables and the removal of orchards in order to maintain a high price.

Four country case studies: implementation, monitoring, successes and barriers

Table 1 gives an overview of the implementation, monitoring, success factors, barriers and the relevance of FBDG for the national food and nutrition policies in the four case-study countries.

Chile

Chile was the first Latin American country where experts from the National Institute of Food Technology and Nutrition (INTA) and the Ministry of Health (MINSALUD) developed a set of FBDGs in 1997. Health professionals, in particular the nutritionists of the provincial public health services, were trained in using and communicating the FBDG. Pamphlets and other written information were given to health and education professionals, which then passed

the information to the public or patients. In addition, health and other community associations received training in using the FBDG. The FBDG is also found on some food products.
In 2004 a review of the dietary guidelines was initiated and many of them reformulated. The new FBDGs are published together with recommendations for physical activity and tobacco control and stress prevention messages.[18] In 2002 the INTA formally evaluated the dissemination of the FBDG through a survey among the responsible nutritionists of the provincial health services. The number of persons which had participated by then in educational sessions about the FBDG were 36 120. In addition, 10 different manuals for various population groups had been developed at regional levels and more than 500 000 leaflets, posters and flyers distributed.[19] Monitoring also takes place through small-scale studies evaluating consumer education programmes[20] and a survey on knowledge about FBDG among primary health care professionals. This survey showed that knowledge of FBDG by health professionals is low, except for nutritionists. Regarding improvements in FBDG implementation the private sector and the mass media should be more included in FBDG dissemination. Further, changes are desired in the motivation of the professionals, especially of the nutritionists, as they have a key role to promote FBDGs.

Germany

In Germany the first set of FBDG was issued in 1985 (for the Federal Republic of Germany at that time); revised sets were published in 1991 and in 2000. In the 2005 set the FBDG were reviewed but not changed, while the accompanying food pyramid was re-shaped. The German Nutrition Society (DGE) issues the FBDG. The BMELV endorses, promotes and implements the FBDG, also via DGE and the "AID info-service consumer protection, food, agriculture" (AID - Infodienst Verbraucherschutz, Ernährung, Landwirtschaft), both co-financed by the BMELV. The FBDG implementation is seen as a success from a qualitative point of view,

since some changes in the dietary behaviour can be seen. However, dietary habits differ according to socio-economic strata: low socio-economic groups have a worse profile. In addition, a high percentage of the adult population is overweight, which indicates that they are not following the FBDG, which could be seen as a failure of these. To improve FBDG promotion, it would be important that all institutions and communicators in the area of nutrition adopt the FBDG, communicate them together and this way the target groups would be better reached.

New Zealand

In 1985 the New Zealand Ministry of Health issued dietary guidelines for the first time.[4] These were then revised and reissued in 1991 as food and nutrition guidelines (FNG) for adults (i.e. the term "food-based dietary guidelines" is not used in New Zealand). In addition, the Ministry of Health (MoH) also published FNG for all main groups along the life course, namely: toddlers, children, adolescents, pregnant women, breastfeeding women and older people.[21] A background paper for health professionals and a pamphlet for lay persons are issued for all FNG. The FNG for adults were revised in 2000, which for the first time included a public consultation. In 2003 the current set was published. The FNG are implemented and all cost for it born by the MoH through their publication on the internet and in hard copies. The food industry also reproduces the FNG.[22]

In 1998 the MoH commissioned a formal evaluation of the written health education materials (booklets) for children, adolescents and older persons from the mid-1990 through focus groups discussions and key informant interviews. Neither among the older people nor among the parents and children/adolescents had many seen the booklets. Some of the adolescents found the materials unappealing and outdated. Parents found explications too complicated. Older people, however, found the booklets informative. Many participants made concrete

suggestions how to improve the materials.[23, 24] Today the development of health education materials always includes focus group discussions with consumers.

The following success factors were highlighted:

- The MoH has a good system of disseminating the FNG widely through mailings, newsletters and conference presentations;
- All material is free of charge, available online and in hard copy;
- The education sector uses the FNG and familiarizes children and the community with the guidelines.

Important barriers mentioned were the following:

- The FNG materials are not much distributed beyond the health sector e.g. they are not available in public meeting or community places;
- Consumer awareness is limited since the FNG are not disseminated through mass media;
- Knowledge does not equal behaviour change –even if people know the FNG, they do not change their behaviour;
- Cost and availability of healthy foods limits adherence for certain population groups;
- Cultural issues.

South Africa

Until the recent development of FBDGs in South Africa nutrition education was carried out "ad hoc".[25] Between 1997 and 2001 a multidisciplinary group developed the current FBDG intended for all persons over the age of seven, without special dietary needs. The implementation lies with the national and provincial Departments of Health (DoH), which developed explanatory teaching and education materials.[26] Dieticians and other health professionals were trained to communicate the FBDG. Despite this, there seems to be a

lack of trained personnel, especially at community level. For example, the strategic plan of the integrated nutrition policy of the Kwazulu-Natal Province[27] includes nutrition education as a focus area, but points out, that nutrition advisers are lacking. The plan does not mention the FBDG as a tool or a benchmark for knowledge, while it aims to measure changes in knowledge and attitudes. This suggests that the communication of the FBDG even within the governmental structure could be improved. While FBDGs are seen as an important part of nutrition policy, food insecurity is still a main problem, thus FBDGs can only be part of a larger strategy focused on combating hunger and deficiencies, but also encouraging self-sufficiency and economic sustainability. Therefore it would be important that e.g. the national Integrated Nutrition Programme, the Agricultural Policies for Household Food Security and the Poverty Alleviation Programme are consistent with the FBDG.

Discussion

FBDGs are mainly implemented via written/electronic information provided through the health and/or education sector but a broader approach to include them into wider health promotion strategies, as recommended by EURODIET,[10] is not seen. This "traditional" mode of FBDG dissemination *per se*, lack of funds, the challenge to reach low-income population and to overcome poverty are the main barriers identified to successful implementation. When suggesting changes, the informants coincided that more stakeholders should be involved to better reach consumers. Notably, environmental or policy changes to compliment FBDG implementation were not listed. Positive changes towards a wider approach are the "Healthy Eating - Healthy Action" Strategy in New Zealand,[28] which includes the promotion of environmental changes and calls on a variety of stakeholders to participate, or the new Chilean publication[18] which combines FBDGs with advice on physical activity, tobacco and

mental well-being. However, while nutrition education and information is important, a pamphlet alone cannot work.[29] Focusing on nutrition information only, may increase health inequity, if only certain parts of the population are reached.[10] Thus, important lessons learnt are to emphasize "reaching the hard to reach", work with many stakeholders and add complimentary environmental changes.

Evaluation of FBDG implementation is a weakness in all four countries. Chile is the only country that performed a survey to estimate the population reached. Chile[30] and New Zealand[23,24] conducted focus group discussions to evaluate their understandings of their FBDGs, but there seems to be no coherent evaluation plan in any of the four countries examined. This finding is confirmed by Lachat et al.[31] who found that while nutrition monitoring and surveillance is carried out in several countries, food and nutrition policies are not evaluated. An open question here is what indicators would be needed. Through national dietary surveys or sales data the dietary intake is measured, but it may take a long time to see changes and a direct relationship to FBDG promotion would be hard to establish. Hence, intermediate indicators, such as understanding the message or increased availability and accessibility of "eat more" foods, should be used as well.

FBDGs give positive and negative messages regarding a total diet. The "bad news" needs to be part of the nutrition information given to the population as well as at the policy level. Policy makers should support e.g. fruit and vegetable promotion, but they should also focus on the "eat less" / "instead of" messages e.g. through controlling the marketing of foods high in sugars, salt and/or fats to children.

Another issue that requires some reflection is conflict of interest, which may be present within the government (agriculture vs. health) or between FBGD promoters and parts of the food industry. Since consumer research showed[20,32] that the pyramid is known because it is on the packages of foods, it is important to ensure that the food processing industry uses the official

FBDGs. Thus, to ensure "buy-in" to the FBDG from all sectors is important, while it will be a challenge to overcome conflict of interest and avoid undue influences on FBDG formulation. All in all, rapid improvements in FBDG implementation are needed in order to make a contribution to halting the global obesity and other nutrition-related NCD epidemic. At the same time, it is clear that FBDGs have a foot-hold in the policy and public health nutrition world. From the present study, a number of recommendations can be suggested to consolidate and improve on that status.

Emerging Recommendations

The following recommendations correspond to the issues concerning FBDG implementation discussed in the four case studies and are derived from the interviews or inspired by the literature review[3, 10, 33] and addressed to specific stakeholders.

Monitoring of FBDG implementation

National governments should evaluate FBDG implementation regularly, using intermediate indicators and identifying barriers to success. At regional and global level the WHO and FAO could co-ordinate a common mode of monitoring to help assess the contribution of all stakeholders to FBDG implementation. Food and health NGOs could provide a valuable 'watch-dog' function to ensure that government conduct such monitoring regularly.

Successes and factors in FBDG implementation

Multi-stakeholder involvement in promoting and implementing FBDGs at national level is important but national governments should endorse the FBDG and lead its implementation, highlighting their value in training, not just for health professionals but also non-health professionals who influence food availability and dietary habits, such as kindergarten and school teachers, caterers and administrators of health and social services. The food and catering industry should use the official, national FBDG and make those foods recommended as "eat more" readily available in worksite, school and hospital cafeterias, restaurants and fast food chains and improve the nutritional quality of processed foods to fit with the FBDG through product reformulation. NGOs should form inter-sectoral alliances to promote and endorse the official / national guidelines. At global level WHO/FAO should continue to

support FBDG development where not existing and subsequent implementation and monitoring, while identifying best practices.

Changes in FBDG implementation

FBDGs need to be promoted through the various mass media, often the most important source of information for the public, especially in lower socio-economic groups. The multi-stakeholder approach could also be used when developing or revising FBDGs at national level and when implementing the FBDG to ensure consistency of message. This focus on information should be accompanied by (and not be used as a substitute for) continued environmental interventions and other sustainable changes.

FBDG as part of wider food and health policies

FBDGs should be a bedrock for governmental health strategies and in particular be used to align wider agriculture, food and nutrition policies. In turn, these should support FBDG implementation. Bodies such as national food and nutrition councils should be a source of advice on health-centred policy change and implementation.[34] School food policies, for example, should require meals and snacks offered to comply with the FBDG, including local supply networks. Thus the FBDG could become a policy and organising tool as well as a scientific tool.

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Table 1 - Comparison of the main characteristics of Food-based Dietary Guidelines development, implementation and monitoring

	Chile	Germany	New Zealand	South Africa
Year of latest FBDG	2005	2005	2003	2003
Visual aid complementing FBDG	Previously a pyramid, but not for last version	3-dimentional pyramid with food circle at the bottom	No	No
Institutions developing FBDG	INTA MINSALUD	DGE	Ministry of Health, public consultation carried out	Multi-disciplinary, public-private group, coordinated by the Nutrition Society of South Africa
Main institutions implementing FBDG	INTA MINSALUD	DGE, BMELV, AID, BMGS, BzgA	MoH, PHO, DHB, NHF	National and provincial DoH
Main paths of implementation (*)	Train nutrition and education professionals and community associations in FBDG use and promotion. Material distribution to public and patients.	FBDG available on BMVEL web. Materials for nutritionists and school teachers available from DGE and consumer material from AID.	Dietary guidelines available in hard copies and on MoH web-site, also from NHF and distribution at PHO and DHB to public and patients.	Dieticians trained at provincial level to teach FBDG to public and patients. Educational materials developed.
Monitoring of FBDG implementation	Official monitoring survey in 2002. Smaller studies on consumers' and health professionals' knowledge of FBDG.	Via the population consumption profile compiled through national nutrition surveys (every 5 years) and agricultural statistics.	Materials for children, adolescents and older people evaluated in 1998. MoH suggests national nutrition surveys to monitor compliance (every 10 years).	It is too early to evaluate the implementation and impact of the FBDG.
Successes and factors in FBDG implementation (*)	Wide dissemination of FBDG and much material is available. Leadership of the health sector. Training for primary health care professionals. Primary health care is well established and functioning	Some positive, qualitative changes in consumption profile visible. Many contributing activities through policies and research, in consumer protection and health promotion.	Good level of awareness and/or usage of the FNG by public health nurses and physicians, midwives, nutritionists and the food industry. Teachers in schools and pre-schools use the FNG.	All stakeholders promote the same messages.

	throughout the country.			
Barriers to FBDG implementation (*)	Low financial support for the dissemination of the FBDG. Little participation and support from the mass media.	Lack of education and/or low income in part of the population. Activities to date do not reach low-income groups.	Materials not distributed much beyond the health sector. FNG knowledge does not mean behavioural change. No distribution through mass media. General practitioners and practice nurses have a low level of familiarity.	Overall poverty and food insecurity. DoH funds devoted to other priorities such as HIV/AIDS. No visual tool accompanies FBDG. DoH lacks communication skills.
Suggested changes in FBDG implementation (*)	Involve more the mass media and the private sector. Start teaching the FBDG in early ages. Other sectors should join implementation	Better target specific groups e.g. older people and parents. More promotion of physical activity needed. Use all communication channels fully.	More funding needed.	FBDG to be complimented by visual aid. DoH needs to involve NGOs in FBDG implementation. Other sectors and policies need to consider the FBDG, including education, social welfare and agriculture.
FBDG as policy part (*)	FBDG are an essential part. Policy link to other health promotion initiatives needed.	FBDG are an essential part. FBDG are an important consumers' guidance.	FNG are the MoH's position with respect to healthy diet. Nutritionists, regulatory agencies and the food industry use them as an authoritative opinion.	FBDG are core to the nutrition policy and other policy initiatives should fit with them.

(*) based on information from the key-informants

Abbreviations (unless specified in the text):
DHB – District Health Board NHF – National Heart Foundation PHO – Primary Health Care Organization
BzgA – Bundeszentrale für gesundheitliche Aufklärung