

Family physicians and patients: is effective nutrition interaction possible?^{1,2}

A Stewart Truswell

ABSTRACT This article summarizes presentations from an international workshop held in Heelsum, Netherlands, 14–16 December 1998 that was sponsored by the Dutch Dairy Foundation on Nutrition and Health, the Department of Nutrition at Wageningen Agricultural University, the Dutch College of General Practitioners, and the International Union of Nutritional Sciences. Twenty-one speakers and 12 other participants were invited from 9 countries: the Netherlands, the United States, the United Kingdom, Australia, Canada, Denmark, New Zealand, Spain, and Sweden. The workshop was chaired by GJAJ Hautvast and the scientific secretary was GJ Hiddink. Family physicians are highly trusted. Many consultations include a nutritional aspect, but physicians do not discuss nutrition with their patients as often as they could. Major barriers include short visit times, the paucity of nutrition teaching in medical schools, and poor compliance of patients with physicians' dietary prescriptions. Problems, practicalities, operational research, and some solutions were discussed at this meeting of leading family doctors with interested nutritionists. Family physicians have to distill the essentials for their patients from many different specialties ranging from ophthalmology to podiatry. They look for clarity of recommendations from nutrition researchers. Among developments discussed at the meeting that can increase nutritional work in family medicine are 1) new opportunities to teach nutrition in vocational training programs, 2) some manuals and a new journal specially written by nutritional scientists for family physicians, 3) nutritional advice being incorporated into computer software for family physicians, 4) more dietitians working with family physicians, and 5) nutrition training for practice nurses in some countries. *Am J Clin Nutr* 2000;71:6–12.

KEY WORDS Family medicine, family physician, primary care, general practice, nutritional advice, primary prevention, secondary prevention

INTRODUCTION

This was the second workshop on the use of nutritional knowledge and skills in the work of family physicians. [At the workshop and throughout this article, the terms *family physician*, *primary care physician (PCP)*, and *general (medical) practitioner (GP)* refer to essentially the same basic medical specialty.] The first workshop was held in December 1995, and papers from that meeting were published in the supplement to the June 1997 issue of *The American Journal of Clinical Nutrition* (1).

The organizers of and participants in these workshops considered the importance of converting modern nutritional knowledge, ie, the results of nutritional research, into modern medical practice. This topic is worthy of the focus of these dedicated workshops, and a third workshop is planned for 2001.

WORKSHOP SPEAKERS

Denis Pereira Gray, Royal College of General Practitioners, United Kingdom

Gray, the opening speaker, proposed that the incidence and prevalence of disease is now linked, in a variety of ways, to the way people eat and that this is true for many of the most important diseases of our time. In the United Kingdom, public medical nutrition is led by the government's Committee on Medical Aspects of Food and Nutrition Policy (COMA). COMA is traditionally chaired by England's chief medical officer and includes the chief medical officers of Scotland, Wales, and Northern Ireland as members. The committee has one member who is a GP.

"Breast is best" is the health-promotion slogan for infant feeding. In 1995, initial breast-feeding rates were 68% in England and Wales and 55% in Scotland but only 45% in Northern Ireland. Rates are higher among women with higher education and women with a south Asian background. An adequate folic acid intake in pregnancy is also encouraged. A GP in southwest England reported that anemia in children is a significant problem in his practice. In addition, COMA still advises that sugar consumption by children increases the risk of dental caries.

Obesity is an increasing problem in the United Kingdom. By 1996, 16% of men and 17% of women were obese and more than half the adult population was overweight. Although the commonest nutritional problem in the United Kingdom is overnutrition, recent surveys show serious pockets of undernutrition, especially in association with poverty and hospitalization.

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Can primary care be expected to include dietary advice? Three subsidiary questions arise: 1) Does primary care present the opportunity to provide dietary advice? 2) Do primary care staff have the motivation to provide such advice? 3) Do primary care staff have the ability to provide such advice? In the United Kingdom, primary care staff include nurses attached to general practice as well as public health nurses (health visitors) and district nurses.

From research on a range of major diseases (ischemic heart disease, diabetes mellitus, and cancer), some golden principles on diet have emerged. People are advised to eat less fat (preferably accounting for not more than 30% of their daily energy requirement), plenty of vegetables, plenty of fruit, and plenty of fiber. Eating fish has been shown to be of benefit. Alcohol, if consumed in moderation, is not considered harmful. These represent the 6 key messages we hope general practice can deliver.

The opportunity to deliver nutritional advice is available. Ninety-eight percent of the British population is registered with a GP through the National Health Service, and access is free. On average, each person sees his or her GP 5 times/y and the average length of each consultation is 9.4 min. The GP sees the patient's spouse and each of the patient's children for the same amount of time. This translates to 47 min/y for each person (2). Contact time with practice nurses and other primary care staff is in addition to this.

British GPs have become extensively involved with personal prevention, including immunization, child health surveillance, antenatal care, blood pressure screening, cervical cytology, anti-smoking advice, geriatric screening assessment, and family planning advice. General practice also promotes a healthy lifestyle, including exercising and not smoking. But what about diet?

A few studies about dietetic knowledge and effectiveness among primary care staff have been published. In terms of effectiveness, a PhD at the University of Exeter made the rather surprising discovery that advice by a GP was as effective as that of a dietitian attached to a practice (3). The GP talked with patients he knew; used broad, simple principles; and avoided detail, taking 10 min. The dietitian gave much detailed advice in consultations that lasted half an hour.

Weight change is an objective measure of effectiveness. Some practitioners can help patients lose weight, but patient self-help groups appear to achieve this more simply and at less cost to health services. Lowering of serum cholesterol concentrations is another objective measure. One trial in general practice was disappointing (4); another achieved a 9% lowering of serum cholesterol concentrations (5).

If they are convinced of the need to do so, GPs will make big changes in their practices. Gynecologic examination is not something women like, but the evidence about cervical cytology was convincing and physicians incorporated it into their practices. The Scandinavian Simvastatin Survival Study on statins was so convincing that GPs are prescribing these very expensive drugs for secondary prevention of coronary disease in ever-increasing amounts. Physicians will not give advice unless they can understand and believe the information themselves. The challenge for this workshop is, How do we evaluate and package the research evidence about nutrition so that thoughtful family physicians will be convinced? We do not have the numerical information about the benefits of dietary change, in contrast with the clear information we have about some drugs. There are mixed and confusing messages about nutritional risk and benefits.

We have some research data on the nutritional advice of GPs from surveys and questionnaires. Research is needed that includes detailed analysis of consultations, such as video recording, to measure exactly what advice is given, how much is given, and what helps to ensure that GPs give nutritional advice. High-quality written handouts would help support physicians and primary care nurses, but these are expensive and it is not clear who will pay for them. In any research about general practice, GPs must be part of the planning and interpreting team.

Nutritional advice in primary care is probably more effective than it currently receives credit for. Some reports are encouraging. Fat consumption is declining in the United Kingdom and so is the incidence of coronary thrombosis. More needs to be done to allow us to generalize from successful models.

**Lawrence Green, Institute of Health Promotion Research,
University of British Columbia, Canada**

What suggestions for improving the effectiveness of dietary advice by family physicians can be found in the broader research literature on behavioral change after health professionals' recommendations? In the Precede-Proceed model, the first modifiable determinants of behavior are predisposing factors, which need to change before the enabling factors can change (6). A physician or a patient will not devote much effort to learning skills or pursuing resources if he or she has little motivation or commitment to the goal of the behavior. Enabling factors then need to change before the reinforcing factors change. Efforts to reward a behavior that has not yet been enabled would be wasted. It is logical to concentrate educational resources at the stage the physician or patient has reached. The 3 stages that predict adherence or relapse are wanting to do, then being able to do, and, last, being rewarded for doing. [A list of more than 750 publications on the Precede-Proceed model can be found on the World Wide Web (7)].

The recommended procedure assesses a patient's educational needs by asking a sequence of diagnostic questions as outlined for phase 1 below. Depending on the answers, the next step is either to skip ahead or to concentrate some effort on that level of the change process.

Phase 1: Does the patient believe he or she is susceptible to continuing problems if the recommended behavior is not adopted? Does the patient believe these problems will be severe? Does he or she believe the benefits of adopting the recommended behavior will outweigh the perceived discomforts? If the answers are "yes," the patient has sufficient motivation, and effort can be concentrated on training and support. If the patient is not motivated, such efforts would be premature.

Phase 2: Problems that need to be assessed include skills, resources, and barriers in the home or work environment. Skill deficiencies are most common in young children, illiterate patients, foreign-born patients, and patients with disabilities.

Phase 3: Patients face relapse in their resolve to stick with a recommended behavior if they hold unrealistic expectations about its ease of adoption or its rewards. Discouragement due to adverse effects or negative comments by family members or coworkers can lead them to discontinue the behavior. Adverse effects should be anticipated, eg, with a new diet or when stopping smoking. The physician should recruit family support, eg, by bringing family members into the room and involving them in the discussion.

Phase 4: Some of the signs and symptoms the physician looks for during monitoring can be transferred to the patient, increasing



the patient's responsibility for self-care (eg, the patient can be provided with blood pressure or blood sugar monitoring devices). Health care workers miss a powerful educational tool when they do not share patients' data with them.

There are also obstacles to the success of physicians or other health professionals. The influences again can be classified as predisposing, enabling, and reinforcing factors. Physicians vary in their attitudes toward the importance of behavioral risk factors. Reducing smoking is generally seen as more important than dietary change. Physicians who believe the patient does not want to quit or is unable to do so are less likely to provide advice. Negative enabling factors that make physicians less likely to practice preventive care are perceived lack of time, inadequate reimbursement, and unclear recommendations. Positive enabling factors include actual skills in patient counseling, available materials, and reminders. Reinforcing factors include reimbursement received, visible results, support from colleagues, and feedback from patients. Curative treatment is much more likely to yield gratifying short-term results than are preventive measures. Health maintenance organizations are now providing enabling and reinforcing factors for preventive care. However, health maintenance organizations can also cause frustration as a result of increased bureaucracy and constraints on costs.

Cees MJ van Woerkum, Department of Communication and Innovation Studies, Wageningen Agricultural University, Netherlands

We have been teaching for centuries, but there is no such thing as an ideal teaching model. Conscious reflection on the assumptions behind our own (often implicit) model is the cornerstone of a more effective strategy. There are 3 distinct teaching models. In the *prescription model*, medical information is sent to a receiver to create an effect that can be evaluated by using feedback. This approach has a strong cognitive element. The result of the communication is what is left from the decoding process at the receiver's end. The *persuasion model* presupposes blockades or intervening factors at the client's end, so that a clear-cut message will not do the job. Under this model, the approach is no longer cognitive. Emotions and other nonrational aspects are taken into account. This model aims for attitudinal change as a result of messages adapted for the client. The third model is the *interaction model*. This is a joint, 2-sided learning and deciding activity. Information is shared. The PCP learns from the patient his or her views about the causes of a disease and the acceptability of proposed behavioral change. Both parties have to learn.

In a single contact in the physician's consulting room, all 3 types of communication may take place at different times. In the first model, knowledge is handled as a commodity that can be transferred from the physician to the patient; this knowledge is based on medical research or experience and, in its ideal form, is undebatable. The second model accounts for the fact that there are subjective aspects in the transfer of knowledge. Knowledge is linked to trustworthiness, emotions, and social acceptance. In the interaction model, lay knowledge is getting a more prominent place: what the average person thinks about healthy food, how he or she discusses food issues, and how the person copes with information from different sources. We might look at lay knowledge as the realm of all kinds of nonsense and biased information, but people are experimenting with health and food. Some read journals, some use the Internet, and some watch experts on television.

Their thinking and reasoning processes probably should be taken more seriously than they are by most PCPs.

Health is only one of the values attached to food. People eat for taste and variety. Food habits have strong cultural ties. The multiple and conflicting sources of information about food (eg, social sources, the media, and medical sources) can lead some people to stop trying to learn what is best. However, having all this information may also mean that a patient has more knowledge and questions to raise with the family physician. This situation calls for the interaction model, but, because of time restrictions, the average physician is not prepared to function in this model. Pompous dismissal of food crazes by experts or physicians may not be the best answer.

Jaap J van Binsbergen and Anton JM Drenthen, Dutch College of General Practitioners, Netherlands

The Dutch College of General Practitioners is developing a computerized consultative support system on nutrition that will be integrated into the widely used GP information system that 80% of Dutch GPs now use. The electronic medical record has 4 parts: the patient's symptoms (in his or her own words), the findings on examination, the evaluation (ie, diagnosis made by the GP using the International Code of Primary Care), and the plan (ie, management).

Modules on nutrition are being developed for the plan, which will have 2 levels. The first involves short items that give the nutritional advice in simple, practical terms. The second level contains background information and justification of the nutritional prescription. Drug-food interactions are included. Recent surveys in the Netherlands found that a substantial proportion of patients with a diagnosis that has nutritional implications are not given nutritional advice (8). The aim is to have the first nutritional advice software ready for use in the Netherlands by the end of 2000.

Elizabeth Ross, Jean Mayer US Department of Agriculture Human Nutrition Research Center on Aging at Tufts University, Boston

There is a need for information on the potential efficacies, costs, and adverse effects of possible nutritional strategies. An example was given of construction of a decision model to examine various strategies for vitamin D and calcium screening and supplementation to help prevent hip fracture in postmenopausal women.

Ross told the workshop about a unique new journal, *Nutrition in Clinical Care*, of which she is Associate Editor. The journal gives practical, topical nutritional information to general internists, pediatricians, family physicians, and medical specialists who use some nutrition in their practices (eg, cardiologists, gastroenterologists, and endocrinologists) and to dietitians. Features in the journal include practical reviews, "In the Literature: A Guide to Evidence-Based Nutrition Practice," a pharmacy column, a resources column, and patient counseling materials.

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Charles H Halsted, Division of Clinical Nutrition and Metabolism, University of California, Davis

Clinical nutrition is concerned with the diagnosis and treatment of diseases that affect the intake, absorption, and metabolism of dietary constituents and with promotion of health



through the prevention of diet-related diseases. Adult diseases in clinical nutrition encompass the most common causes of mortality in the developed world and include obesity, with its comorbidities of hypertension, diabetes, dyslipidemia, and increased risk of cardiovascular disease; some cancers; intestinal disorders related to inadequate nutrient absorption; malnutrition associated with chronic illness; trauma and surgery; and eating disorders. Despite revolutionary 20th-century advances in medical science and accumulating scientific evidence on the significance of dietary modification to disease prevention, there is a vast dichotomy between the perceptions of the public and the understanding of medical practitioners on the role of proper nutrition in maintaining health and preventing disease. Potential results of medical ignorance and neglect of dietary counseling include the growing epidemic of obesity and the increasing popular use of alternative medical approaches, including herbal supplements and megadoses of vitamins.

In undergraduate medical courses, the identity and definition of clinical nutrition has been inhibited by the development of this discipline as a component of biochemistry and multiple clinical specialties. The US National Research Council recommends that every US medical school provide a 25–30-h required undergraduate course in nutrition (9). However, only a quarter of medical schools in the United States require a course in clinical nutrition. Two-thirds offer elective courses, but only a minority of students take these courses.

In academic medicine, the advent of methods to provide nutritional support stimulated the development of focused postgraduate clinical nutrition training programs. However, the number of these programs is small and not growing. The American Board of Nutrition has provided rigorous examinations and certification since 1950, but clinical nutrition is still excluded by the established American Board of Medical Specialties (10).

There is an urgent need for standardization of curricula for medical undergraduates and postgraduate trainees. Provision of specialist educators and role models in medical institutions is increasingly relevant to the cost-effective integration of nutritional concepts into medical practice. New initiatives are under way in the United States to address this: 1) the Intersociety Professional Nutrition Education Consortium (11) and 2) the American Society for Clinical Nutrition's initiative to find and fund a physician nutrition specialist in every US medical school (12). Our major challenges are to achieve progress in the management of obesity, to show rigorously the efficacy of clinical nutrition support, and to adapt clinical nutrition to managed care.

Gerrit-Jan Hiddink, Dairy Foundation of Nutrition and Health, Netherlands

In 14–28% of PCPs' consultations, diet comes up for discussion; initiation of such discussions is evenly divided between the PCP and the patient. Because of their high referral scores, high perceived expertise, and access to nearly all segments of the population, PCPs are in the best potential position to provide nutritional information in the Netherlands (13). Rates of nutritional counseling by individual PCPs vary considerably. The factors determining whether and how PCPs give nutritional advice are poorly understood.

Questionnaires about noticing patients' overweight and guiding its treatment were sent to a large, representative sample of PCPs, most of whom had answered a similar questionnaire 5 y earlier. Replies were obtained from 372 physicians (55% response

rate). The data were analyzed both cross-sectionally and longitudinally by linear structural relation analysis. Four predisposing factors were identified: 1) perception of the physician's own ability to influence the lifestyles and eating habits of patients with eating problems (general self-efficacy), 2) the physician's interest in the effect of nutrition in health and disease (nutritional interest), 3) Perception of the physician's own ability to give dietary advice in treatment and prevention of coronary heart disease (self-efficacy in coronary heart disease), and 4) perception of the role of behavior in health.

These predisposing factors were found, in general, to act on the dependent variable (noticing and treating overweight) through 3 driving forces and 2 barriers. The driving forces were task perception, attitude regarding treatment of overweight, and attitude toward the relation between weight and health. The 2 barriers were lack of skills and lack of time to treat overweight.

When the results of the 1992 survey were compared with those of the 1997 survey, "noticing patients overweight and guidance of treatment" decreased significantly. There appears, therefore, to be an urgent need for theory-based planned nutritional education of PCPs to counteract this trend. PCPs have a unique potential to prevent and treat overweight as part of a multifaceted approach (14). It will be necessary to assemble and present data showing that PCPs can effectively help patients to change their eating habits and lifestyle.

Susan Eley, Department of Human Nutrition, University of Glasgow, United Kingdom

A postal questionnaire about management of obesity was sent to a representative sample of 39% of the GPs working in Scotland. A total of 741 replies were received in writing or by telephone. The questionnaire included 2 case stories of obese women, one with uncomplicated obesity, the other with obesity associated with hypertension. Almost half of these GPs said they had read the 1996 Scottish clinical guidelines on obesity that integrate prevention with weight management (15). Some 83% agreed they could offer healthy eating advice to patients. However, only 35% of the GPs believed they had been successful in treating overweight patients, ie, 65% thought they could not effectively help people with obesity. Most responded that they would refer the uncomplicated obesity case to a commercial weight-control clinic. Most GPs reported that they would treat the hypertensive obese patient and that they would concentrate on the hypertension.

Sandra Ulmi, British Columbia Dairy Foundation, Canada

Nutritional education materials are often designed without the use of theories or models. An interactive brochure, *Calcium Calculator*, was designed by using the motivation-generating model (16). A total of 216 women at 5 fitness centers were given either this brochure or a traditional information-based brochure. When the subjects were contacted by telephone, significantly more of the subjects who received the interactive brochure were conducting self-assessments and could assess their calcium intake accurately compared with the women who received the traditional brochure. The results of this study support those of other studies that showed that active participation by users of nutritional education and personalized self-assessment enhance behavioral change. More research is needed on the factors that influence people to read and use brochures.



Ulla Høland, National Board of Health, Denmark

Any food industry is likely to have some products that are considered healthy in light of modern research and some whose consumption should be reduced or modified in light of the consensus of public health nutritionists. In 1991 the Danish Dairy Industry Board initiated a strategy of cooperating with those who form health opinions. The board concentrated on the positive health messages of use of reduced-fat milk and dairy products as sources of calcium to help prevent osteoporosis. Highly qualified nutrition staff are needed in a food industry for such a strategy to be successful. A food industry that tries to create a second opinion in a well-informed society will lose credibility and support for its message to the public.

Scientists provide documentation supporting the relation between nutrition and health, the authorities translate these results into recommendations, and the food industry contributes a range of products and information about the role of these products in a balanced diet. Public health can improve only if these 3 parties work together. A prerequisite for collaboration is mutual respect and a high ethical standard throughout the industry.

Jose R Calvo and Lluís Serra-Majem, Community Nutrition Research Group, University of Las Palmas, Grand Canary Island, Spain

During 1997, a nutrition survey was carried out on a random sample of people in the Canary Islands by 19 trained dietitians. The survey included an 80-item food-frequency questionnaire, two 24-h recalls, and some physical measurements. A total of 1747 people aged 6–74 y responded, for a 67% response rate. Only data on attitudes and opinions are reported here.

Seventy-nine percent of the respondents considered GPs to be reliable sources of information, 51% thought pharmacists and nurses were reliable sources, and 38% thought television was a reliable source. The press, governments, and the food industry were thought reliable by only 26% of people. Low confidence in government nutritional information reflects a lack of government interest. The paradox in these results is that the amount of nutritional training included in the medical undergraduate curriculum in Spain is very low, as has been reported for other southern Mediterranean countries. Spain also lacked university-trained dietitians until 1996. Postgraduate training will provide the opportunity to undertake nutrition interventions in primary health care.

A Stewart Truswell, Human Nutrition Unit, University of Sydney, Australia

Nutrition prescriptions differ from drug prescriptions. For drugs, information is authoritative, evidence-based, and available generally. Drug prescriptions, if incorrect, can be subject to litigation. Dietary prescriptions have less serious implications and are more the patient's responsibility. Nutritional information comes in a plethora of different forms, some unscientific, some out-of-date, and some commercially biased.

In relating foods and food components to disease, most of the reliable evidence is about the effect of food on measurable risk factors, eg, plasma cholesterol concentration, blood glucose concentration, blood pressure, and body weight. A smaller amount of evidence relates food intake data from large cohort studies to incidence of disease. Very few randomized, controlled trials (the ultimate evidence-based medicine) have been performed for nutrition, and most of these have used nutrients in the form of a

pharmaceutical product (eg, β -carotene, α -tocopherol, or calcium carbonate). Foods are, of course, not standardized in total composition and are prepared in many different ways.

Until there is some authoritative or electronic system that can help GPs organize nutritional information, useful information can be found in 4 modern books that have been written by nutrition specialists for GPs (17–20) and another written for British general practice nurses (21). As well as general books such as these, expert reports on some nutritional topics by government committees in some of the large developed countries have earned authoritative status.

Michael Sjöström, Unit for Preventive Nutrition, Karolinska Institute, Sweden

The county of Västerbotten in northern Sweden, which contains the university town of Umeå, contains what may be a unique resource for primary care medicine. The Vindeln Patient Education Residential Centre is run by the local primary health care organization. GPs and hospital physicians can refer their patients without any costs to the center. The center receives 30 patients at a time for a 4-wk residential program with lectures, group discussions, and practical sessions in smaller groups (eg, meal preparations and physical exercise). Patients referred are overweight or obese, have at least one other risk factor for cardiovascular disease (eg, hypertension or diabetes), and have not responded well to pharmacologic treatment. Some 2500 people have been through the program since it started in 1984. A sample of 100 patients was observed during and after the residential program. There were impressive reductions in weight and blood pressure, and even after 5 y, patients with an initial body mass index (BMI; in kg/m^2) >30 had kept 5 kg off and patients who had come to the center with hypertension had blood pressures 20/15 mm Hg less than when they attended. The center is a good example of the effective application of the Precede-Proceed model of lifestyle change.

Johannes Brug, Department of Social Sciences, Netherlands Open University, Netherlands

Computer tailoring enables personal feedback to be provided to relatively large numbers of people and can thus reach more people than can face-to-face nutrition counseling: "The dietitian is in the computer." People are surveyed with a baseline questionnaire. Computer software then links the data entered with feedback in the form of a nutritional education message from an archive that contains >200 appropriate messages for each survey response.

The effect of computer-tailored nutrition was studied in 3 randomized trials to test the effect on fat intake with groups of apparently healthy people at their workplaces. Fat intake was significantly lower posttest (ie, with tailored nutritional education) than pretest (nontailored nutritional education) (22).

Bas Maiburg, Department of General Practice/Family Medicine, Maastricht University, Netherlands

Nutrition education by computerized training and research (NECTAR) for GP trainees was started at Maastricht University in 1997. Before the computer-based instruction program was developed, a questionnaire was distributed to all Dutch GP trainees by the 8 university departments of vocational GP training. A total of 575 trainees responded (59%); of these, 72% claimed to have an interest in the contribution of diet to health, 76% saw provision of nutritional information as part of their task (mostly for secondary prevention), 75% scored general nutrition topics as



being important for their curriculum, and 89% scored disease-related nutrition topics as being important. The respondents saw 1–2 patients with a complaint related to nutrition per day, but they gave nutritional information to fewer than 1 patient per day, and 76% regularly referred patients to dietitians.

The frequency of patients with nutrition-related complaints was lower than what experienced GPs have reported. Even when GPs do identify nutritional issues, they seem unable or unwilling to handle all of the cases. Linear structural relation analysis showed that lack of nutritional training and lack of the GPs' own ability to give dietary advice were major limiting factors. There is clearly a need for more nutritional training of these GP trainees. NECTAR is being developed to help with this.

Kathy Kolasa, Department of Family Medicine, East Carolina University, Greenville, NC

Residency programs in family medicine in the United States vary greatly in the amount and type of nutritional education they provide, not only in terms of imparting nutritional knowledge but, more importantly, in developing counseling skills with a role model. This review suggests printed materials, CD-ROMs, and Web sites that can supplement or perhaps replace nutritional education in a residency program. Leading the printed resources are the Society for Teachers of Family Medicine's *Physicians Curriculum in Clinical Nutrition* (23) and the American Academy of Family Physicians' monograph on nutrition (24). Nutrition questions are also appearing on the American Board of Family Practice Examination (25). Patient education materials are obtainable from the American Dietetic Association (26). Zeisel et al (27) produced a series of CD-ROMs on Nutrition in Medicine. On the World Wide Web, Kolasa et al (28) are cataloging successful office-based nutritional interventions. In addition, the Tufts University Navigator (29) rates nutrition sites, including some directed at health professionals, and Hardin (30) lists nutrition, diet, and food sites.

John H Wasson, Department of Community and Family Medicine, Dartmouth Medical School, Hanover, NH

Nutritional needs are likely to be overlooked and undermanaged in primary care practice because they are often hidden in the complex contexts of other clinical and social problems. Furthermore, in the United States, social and financial barriers adversely select the greatest risk groups away from physician visits. Finally, a clinician may not be prepared to manage nutritional issues when they are discovered.

Essential elements for a productive physician-patient interaction include a physician (or a clinical team) prepared to assess and help with the broad range of issues that are important to the patient. In screening for nutritional problems, measuring weight, height, and BMI is not enough because obesity does not guarantee adequate intake of protein and micronutrients. A better approach is to ask patients whether they have difficulty obtaining meals, have difficulty eating well, or have concerns about their diet and nutrition. The clinical practice must have adequate educational information to answer these questions and an office process that monitors the adequacy of this approach and corrects deficiencies when they are identified.

Anthony Worsley, Department of Public Health, University of Adelaide, Australia

Family physicians today work in a very different social environment from that of 40 y ago, when family physicians held a

very authoritative position. Science, on which modern medicine is based, has been seriously challenged by alternative areas of knowledge (eg, spiritual, religious, feminist, tribal, and ecologic). In this postmodern society, resorting to the authority of science will work with some groups, but science will be seriously questioned by others. So, for some people, dietary habits have more to do with ideologies such as environmentalism (eg, vegetarianism) or with an emphasis on personal appearance. People hold quite different views on health depending on whether they are men or women and whether they are parents.

Even nutritional science itself is in a state of flux. There is more interest in micronutrient deficiency than in protein-energy malnutrition. Bioactive substances such as polyphenols and phytoestrogens are receiving as much attention as the classic nutrients. Complex, incompletely understood social factors appear to be important in the etiology of obesity. Recent research indicates that powerlessness in the workplace may be a more important determinant of heart disease than elevated serum cholesterol concentrations (31). Barker's (32) hypothesis of prenatal nutritional programming is covered in the serious biomedical literature.


Patients are not all the same. The pursuit of health and a favorable nutritional status may not be shared by all, or even most, patients. Patients may be more interested, for example, in the pursuit of interpersonal relationships or in animal welfare. We need better ways to find out whether patients are amenable to dietary change and to identify, however crudely, the main influences on their behaviors, particularly dietary behavior. Perhaps the physician's job is about synthesizing and interpreting nutritional information for his or her patients according to their needs, beliefs, values, and lifestyles. Sometimes this will involve helping them change their food habits; at other times, it will involve just explaining things we can be reasonably certain about and distinguishing this provisional knowledge from some of the rampant quackery that abounds in many countries.

Chris van Weel, Department of General Practice and Social Medicine, University of Nijmegen, Netherlands

The GP is essentially a personal physician and is in the best position to give individual advice. He or she also has the unique opportunity of continuity of care as a result of being involved with the patient over a long period. This is especially true in countries such as the Netherlands and the United Kingdom where patients have to register with one GP and their GP is the gatekeeper for referral to all specialists in the health system. In this context, a GP's nutritional advice is not a single event but can occur on suitable occasions over the long term. A health incident for which the patient visits his or her GP can be an opportunity to motivate the patient to change to a healthier diet. Guidance of planned change of nutrition over time can follow the stages-of-change model (33). An individual patient may be 1) not considering change, 2) considering a change in behavior, 3) putting change into effect, or 4) maintaining changed behavior.

In ≈16% of presented episodes of illness, nutritional guidance must be considered an essential part of treatment (34). Three main factors make up the complexity of nutritional guidance: the disease (or disease risk) for which guidance is part of the management plan, the person who is to be guided, and the sociocultural environment in which guidance is to take place. Nutritional guidance in general practice is first and foremost concerned with promoting healthy eating rather than with



exotic dietary regulations. Within this framework, different components—fat, salt, fiber, and sugar—are then emphasized for individual patients. 

REFERENCES

1. Truswell AS, ed. International workshop on nutritional attitudes and practices of primary care physicians. Heelsum, Netherlands, December 11–13, 1995. *Proceedings. Am J Clin Nutr* 1997;65(suppl):1927S–2022S.
2. Pereira Gray D. Forty-seven minutes a year for the patient. *Br J Gen Pract* 1998;48:1816–7.
3. Simons K. Food preferences and compliance with dietary advice among patients in a general practice. PhD thesis. University of Exeter, United Kingdom, 1990.
4. Mant D. Effectiveness of dietary intervention in general practice. *Am J Clin Nutr* 1997;65(suppl):1933S–8S.
5. Evans PH. Hyperlipidaemia in general practice. MPH dissertation. University of Exeter, United Kingdom, 1995.
6. Green LW, Kreuter MW. Health promotion planning: an educational and ecological approach. Mountain View, CA: Mayfield Publishing, 1999.
7. University of British Columbia Faculty of Graduate Studies, Institute of Health Promotion Research. Institute of Health Promotion Home Page. Version current 7 September 1999. World Wide Web: <http://www.ihpr.ubc.ca/> (accessed 22 September 1999).
8. Van Binsbergen JJ, Drenthen AJ. ICPC-code approach of nutritional questions in general practice: a look at the future. *Eur J Clin Nutr* 1999;53(suppl):S22–4.
9. National Research Council. Nutrition education in US medical schools. Washington, DC: National Academy Press, 1985.
10. Halsted CH. Certification of clinical nutritionists. *Am J Clin Nutr* 1995;62:10–2.
11. Intersociety Professional Nutrition Education Consortium. Bringing physician nutrition specialists into the mainstream: rationale for the Intersociety Professional Nutrition Education Consortium. *Am J Clin Nutr* 1998;68:894–8.
12. Jensen GL, Lee P, Bothe A Jr, Blackburn GL, Hambridge KM, Klein S. Clinical nutrition: opportunity in a changing health care environment. *Am J Clin Nutr* 1998;68:983–90.
13. Hiddink GJ, Hautvast JG, van Woerkum CM, Fieren CJ, van't Hof MA. Consumers' expectations about nutrition guidance: the importance of primary care physicians. *Am J Clin Nutr* 1997;65(suppl):1974S–9S.
14. World Health Organization. Report of a WHO consultation. Obesity: preventing and managing the global epidemic. Geneva: WHO, 1998.
15. Scottish Intercollegiate Guidelines Network. SIGN guidelines. Obesity in Scotland: integrating prevention with weight management. Edinburgh: Scottish Intercollegiate Guidelines Network, 1996.
16. Shortridge R. A motivation generating model: a means for new levels of success in nutrition education and counseling. Dairy Council of California, 1985.
17. Truswell AS. ABC of nutrition. 3rd ed. London: BMJ Books, 1999.
18. Thomas B. Nutrition in primary care. A handbook for GPs, nurses and primary health care professionals. Oxford, United Kingdom: Blackwell Science, 1996.
19. Buttriss J. Nutrition in general practice. 1. Basic principles. London: Royal College of General Practitioners, 1994.
20. Buttriss J. Nutrition in general practice. 2. Promoting health and preventing disease. London: Royal College of General Practitioners, 1995.
21. Leeds A, Judd P, Lewis B. Nutrition matters for practice nurses. London: John Libbey, 1990.
22. Brug J, Glanz K, van Assema P, Kok G, van Breukelen GJP. The impact of computer-tailored and iterative feedback on fat, fruit and vegetable intake. *Health Educ Behav* 1998;25:337–71.
23. Society for Teachers of Family Medicine Working Group on Nutrition Education. Physicians' curriculum in clinical nutrition. Kansas City, MO: Society for Teachers of Family Medicine, 1995.
24. American Academy of Family Physicians. Recommended core educational guidelines on nutrition for family practice residents. Kansas City, MO: American Academy of Family Physicians, 1995.
25. Bope ET, Cass AR, Hagen MD. Saunders review of family practice. Philadelphia: WB Saunders, 1997.
26. American Dietetic Association. Physician nutrition education project. Chicago: American Dietetic Association, 1994–1998 (3 modules).
27. Ziesel SH, Lasswell AB, Cooksey KA, Kohlmeier M. Nutrition in medicine. Chapel Hill, NC: University of North Carolina, 1997–1998 (CD-ROM series).
28. East Carolina School of Medicine and Interactive Design and Development, Inc. Images of health: the nutrition link. Version current 29 September 1999. World Wide Web: <http://www.preventivenutrition.com/> (accessed 29 September 1999).
29. Tufts University School of Nutrition Science and Policy, Center on Nutrition Communication. Tufts University nutrition navigator. Version current 29 September 1999. World Wide Web: <http://www.navigator.tufts.edu/> (accessed 29 September 1999).
30. The University of Iowa Hardin Library for the Health Sciences. Hardin MD: nutrition, diet and food. Version current 29 September 1999. World Wide Web: <http://www.lib.uiowa.edu/hardin/md/nutr/html/> (accessed 29 September 1999).
31. Marmot M, Bosma H, Hemingway H, Brunner E, Standfield S. Contribution of job control and other risk factors to social variations in coronary heart disease incidence. *Lancet* 1997;350:235–9.
32. Barker DJP. Mothers, babies and diseases in later life. London: BMJ Publishing Group, 1994.
33. McConaughy EA, DiClemente CC, Prochaska JO, Velicer WF. Stages of change in psychotherapy: a follow-up report. *Psychotherapy* 1989;26:494–503.
34. Van Weel C. Morbidity in family medicine: the potential for individual nutritional counseling, an analysis from the Nijmegen Continuous Morbidity Registration. *Am J Clin Nutr* 1997;65(suppl):1928S–32S.

