THE DEVELOPMENT OF GOALS AND OBJECTIVES FOR A NUTRITION TEACHING PROGRAM*

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Nutrition education within the curricula of American medical schools has a history of suffering from benign neglect. In 1976 Easton noted that while 10 highly reputed schools of medicine in different sections of the country had established nutrition education programs within their curricula, the content of the programs differed markedly.[1] In 1978 106 schools claimed to integrate nutrition information into other courses. Elective nutrition courses were offered at 84 medical schools, and 43 provided opportunities for clinical clerkships in nutrition. However, only 30 medical schools required their students to take courses in nutrition.[2,3]

The current status of nutrition education in American medical schools is related to at least three basic problems. First, the explosion of knowledge in many medical disciplines has created fierce competition for curricular time. Reality dictates the impracticality of significant additions to the curriculum without equally significant reductions. Second, competition for funds to hire faculty, develop programs, acquire appropriate resources, etc. is a major source of conflict on most campuses. Third, it is difficult to convince faculty members of the value of a nutrition

*Presented as part of a *Conference on Nutrition Teaching in Medical Schools* held by the New York-New Jersey Regional Center for Clinical Nutrition Education at the New York Academy of Medicine March 21-22, 1983. The Regional Nutrition Center is supported by PHS Grant CA32241, awarded by the National Cancer Institute, NIH, DHHS.

program if it is not clearly evident what sorts of skills or knowledge such a program would provide. Our purpose is to address the third and most easily solved problem. We propose that clear goals and objectives will provide a statement of educational intent and greatly enhance not only the "marketability" of nutrition content, but assist in the organization, operation, and evaluation of nutrition curricula.

Better to understand the importance of goals and objectives and the reason why their development must take priority in curricular planning, let us examine six fundamental questions that must be posed before developing any organized curricular program or plan of instruction: What educational goals should the educators seek? What objectives must students accomplish so that the goals can be attained? What educational activities will enable students to achieve the objectives? What resources (faculty, space, finances, equipment, etc.), both existing and new, will be needed to provide those educational activities? How can one most effectively organize educational activities for student learning experiences? How can one best determine whether or not the goals and objectives of the program are being achieved?

If one is to develop a nutrition education program that is appropriate, comprehensive, and thorough, it is essential that goals and objectives be formulated first. Goals and objectives are not the same nor are the terms interchangeable. Goals are broad general statements that reflect the direction a program will take. Objectives are specific measurable performance expectations (i.e., student outcome behaviors) derived directly from goals.

Most faculty members have had experience in developing goals and objectives in the context of grant writing. Indeed, well stated goals and objectives are generally critical both to funding success and to the conduct of a project of excellence. To achieve *educational* excellence, those same grant writing skills should be utilized for curriculum development in the area of nutrition.

In the development of goals and objectives for nutrition education, it is useful to start by considering the needs of the finished product—the physician. Two questions should be addressed in developing a curricular shopping list. What background information do physicians need about nutrition, and how can this information be applied to the welfare of their patients? What specific, nutrition-related skills should physicians have in order to practice medicine competently?

Responses to these questions should produce a list of nutrition goals and objectives that a particular medical faculty can agree upon as important for the education of physicians. The next step is to examine curricular offerings, using a three part delineation process. First, determine whether or not the goals and objectives that faculty members have agreed upon as important are covered in the curriculum. If any goals or objectives are not adequately emphasized, steps should be taken to include them. Second, identify any nutrition education goals and objectives that are being duplicated unnecessarily in the curriculum, and eliminate the repetition. Third, identify any nutrition information presently in the curriculum that is unrelated to agreed upon goals and objectives and either remove it from the curriculum (thereby improving the efficiency of the program) or add additional goals and objectives to legitimize it. These procedures can provide an excellent safeguard to ensure elimination of gaps in nutrition knowledge and skills, excessive duplication of nutrition information, and unnecessary or useless curricular content.

At this point, thoughts of goal achievement or evaluation should enter one's thinking by asking, "How will we know whether or not the stated goals of the nutrition program have been achieved?" This question can be answered by taking all of the objectives for nutrition education and listing a series of specific outcome behaviors that the students will have to demonstrate successfully as evidence that they have achieved these objectives. These behaviors and the criteria that indicate effective accomplishment become the desired outcomes of the program.

For example, if a goal of the program is "an instructional program such that all students will be able to complete a nutritional assessment on any patient at an acceptable level of performance one hundred percent of the time," appropriate objectives might include the following: Students will be able to take a nutritional history which includes a review of relevant systems. Students will be able to take a patient's diet history which includes a one day, three day, prospective, and recall history. Students will be able to perform a physical examination which includes the head, neck, eyes, ears, tongue, liver, skin, vital signs, and cardiovascular status. Students will be able to take a patient's anthropometric measurements including height, weight, skinfold thickness, and arm circumference. Students will be able to order and interpret appropriate laboratory studies, including blood chemistries, serum proteins, lipids, vitamins, minerals, skin testing results, nitrogen balance, and creatinine levels. Students will

be able to make a nutrition diagnosis on a patient, including calculation of the patient's nutritional status through the use of the Recommended Dietary Allowance. A comparison of anthropometric measurements to published norms will determine if a deficiency exists and its degree of severity. Laboratory studies will assist in the determination of problems. Students will be able to formulate a problem list which should include all abnormal findings. Students will be able to develop a plan of investigation to enhance the data base relating to each individual problem.

A very simple checklist could be used to measure achievement of all of the objectives with one column titled Acceptable and a second Unacceptable. A space should be left for comments with a requirement that all unacceptable ratings be explained. In this way students can endeavor to improve their performance, knowing exactly what their mistakes were and, hopefully, how to remedy them.

Objectives should always focus on the behavior of the learner, thus greatly simplifying the evaluation process. If the objectives are stated in such a way that they are understandable, realistic, relevant, and achievable, then they will serve as an excellent communications link between students and faculty. If objectives are constructed with these four criteria in mind, they can also serve as planning guides to help curriculum planners to create a logically ordered sequence of curricular activities. In other words, objectives serve as organizers for the development of educational activities, thereby ensuring continuity of content within nutrition education programs. This type of curriculum planning greatly simplifies decisions as to the order in which information should be presented. The overall coordination of the nutrition program will be considerably easier.

The important concept of reinforcement should also be briefly addressed. Reinforcement, defined as the deliberate repeating of significant ideas, concepts, facts, etc., strengthens learning and emphasizes importance. Reinforcement differs from unnecessary duplication in that it is of significant value to the learner. Reinforcement of major concepts can greatly enhance the achievement of goals and objectives.

All of the medical student's nutrition educational activities (lectures, reading assignments, clinical experience, etc.) should derive from the goals and objectives of the program. In the same way that objectives should be eliminated if they do not relate to goals, educational activities should either be eliminated or modified if they do not relate to objectives. Applying the same parallel thinking, all examinations, both written and

oral, should not only be derived from curricular learning activities but should also relate to defined goals and objectives. The result will be a well developed curriculum in nutrition in which medical students and faculty members work together to achieve a planned level of excellence.

In summary, goals and objectives should be an integral part of the curriculum development process in nutrition education. Written properly, they can help to ensure that all important nutrition information and skills are not only taught, but also learned. Goals and objectives also facilitate the communication of faculty expectations for student performance.

Questions and Answers

HENRY HOCHBERGER (Student, Albert Einstein College of Medicine): I have three points that I would like to make to give the student perspective. One is that the best-laid plans of mice and medical curriculum committees are all for naught if you don't have somebody good to teach. In some cases it may, perhaps, be very good to have an actor or comedian teach the course himself if he has a good fund of knowledge, or to have one person in New York City who is great go among all the schools! The word gets around among medical students very easily; "Stay away from this course, or, if it's required, sleep through this course," so that it's important to have a good reputation.

The second point I would like to make is that students do come from different backgrounds, and they need to be shown that if nutrition is important, why it is important and exactly how it is important in the daily life of a physician.

The third point is that we should examine our own attitudes toward nutrition, in other words, how many of us had more than two cups of coffee today or how many of us are within five pounds of our ideal weight. I bring this up not to criticize anybody, but just to point out that we are training students to train their patients what to do. Attitude gets transmitted in many ways. If we expect to train the student well, we should lead by example.

DR. LEVY: Thank you. I think that was very helpful. I would like to make a quick response to your first point, that no program is any better than the faculty that teaches it, and that it might be helpful to go so far as to hire actors, or to give faculty experience in acting skills so that they can project content better.

I do not know if any of you are familiar with a series of studies relating to this subject done during the 1970s at the University of Southern

California. These experiments, called the "Dr. Fox Studies," used a hired actor to present a session entitled "Games Theory and Medical Education." The actor had been portrayed as a serious scholar who had a 25-or-so-page vita, and who had published many articles and books in the field. The script that he used was written by a group of very bright people, using all kinds of contradictory statements, humor, and non sequiturs, so that what he presented was totally unintelligible. He presented that session to several groups at different times. The first group, made up of psychiatrists and social workers, evaluated the presentation he made and gave him very high scores in knowledge and content. They said that his knowledge of the subject was excellent. These people who reviewed him *actually* said that what he presented was a very difficult subject, and "There probably is nobody in the world that could do a better job than this man—we really want him to return in the future." And, what was *really* interesting was that in the video tape of this particular presentation, one can see the individuals who wrote the presentation—who knew that it had absolutely no value—sitting there actually trying to make sense out of it as if it weren't really just a charade. Even they got caught up in it! So here we had a presentor with no credentials, no content, but tons of personality and enthusiasm. Just think what a reaction he could have created if he had had something to say. So, never underestimate the power of a contrived but entertaining presentation. Are there any other comments?

DR. HAROLD LUBIN (Ohio State University): I think that one of the things we probably should stress is the mechanics of how, politically, one goes about effecting many of the things that we will be discussing. I think, in reality, if you know what you should do, but you aren't sure what resources exist to bring that to bear, or you are the only one or one of a few individuals in a rather large setting, you pointed out very correctly that all of this takes a lot of time, and time is money. If no one is willing to pay for it, but someone wants to do it anyway, how can they effect a change like that? Perhaps you have some suggestions.

DR. LEVY: In different institutions there are different power structures and different values. I might suggest a couple of books that would be very helpful. One is *The Art of Getting Your Own Sweet Way,* by Phillip Crosby. This man bumbled his way from a technician's position up to "corporate vice president of IT & T," and is now able to do everything and anything that he so desires, and I think that, politically, that book really gets into a lot of the things that one can do politically, if one can extrapolate from his experiences. Another book that could be very helpful

is *Positioning to Win,* by Jim Beveridge. I think it is really important to sell an idea to the individuals that control the resources. Of course, if they are on your side, it is a lot easier. At the Medical College of Georgia it was possible for us really to get nutrition under way because the dean of medicine came to me, asking if I would work with Dr. Feldman on a program in nutrition, and, right off the bat, I knew there was a tremendous amount of administrative support. This support had also been indicated in other ways such as the type of offices the administration made available to the program and the willingness to hire extra faculty members. If one finds this kind of support, then one must grab the opportunity to make as much of a program as one can while that support exists.

But I think it also important to keep those people that are on your side on your side. I know that Dr. Steven Abrahamson at the University of Southern California classifies all faculty members into three categories. One, the "friendlies," will always help. It is very important to identify who the friendlies are, in both the administration and faculty. Then there are the "neutrals," the people that you can sell and are open-minded enough potentially to buy your essential ideas. Last, there are the "hostiles," the ones to stay away from because they will make your life miserable if you try to sell them on an idea.

DR. ROY E. BROWN: I agree with Mr. Hochberger's first comment, and add a caveat. In addition to a well trained and enthusiastic faculty, and perhaps people with acting ability, one also must have a faculty trained as faculty. Unfortunately, medical schools are classified as successful schools, since they graduate 95% of all entering students. I take exception to a classification of "successful" because, in a sense, we program people to go through a four year training course, but this will not necessarily guarantee a good product at the end. This actually is related much more to who is accepted and how the students are oriented.

I do not believe that many medical school faculty members are trained as faculty members. Others share this observation. In each faculty there are many medical people who are trained very well to function in the laboratory, and there are many others who are excellent clinicians. However, I think there are very few who have been trained to function as faculty members and teachers. It is appropriate that we discuss educational objectives and goals, and it is extremely important to keep these goals realistic and appropriate. However, it is not what we, as medical faculty members, have been oriented toward, and I consider such

educational factors generally absent. That an untrained faculty without educational orientation gives classes to students, 95% of whom will graduate, does not necessarily indicate that the graduates are trained as physicians.

DR. LEVY: Just one quick response to that. Part of the problem is in the reward system. All faculty members are interested in promotion and tenure. The quickest road to promotion and tenure is through the grant process and through publication—and in many places people assume that anyone with a doctor's degree is a teacher, and often that assumption can make fools out of us. So I agree with what you are saying.

DR. XAVIER PI-SUNYER: I appreciate your talk, but I think that you have oversimplified somewhat. If we are talking about clinical nutrition, we are talking about educating students, really, in the clinical years, the third and fourth years of medical school, in most medical schools, goal delineation, although helpful to set up, doesn't work too well in a clinically oriented program.

What I mean is that a great deal of clinical nutrition teaching is very ad hoc. In other words, a certain attending is on the wards for a particular month with a certain group of house staff. They may or may not be interested in clinical nutrition. There are often no specific, formalized lectures in the third and fourth year, so it is a much more difficult educational program to establish than would be the case in the first or second year. A clinical nutrition program will not be a formal six, eight, or 12 hour lecture course; it will be going on all the time on the wards in pediatrics, medicine, surgery, obstetrics, etc. And it will be very ad hoc, unless one is very careful.

DR. LEVY: I agree with you. I think that you are talking about the status of current clinical nutrition teaching in many places and what I was really trying to discuss was how it could be improved. And, from my perception, if you have no goals and objectives, anything that goes on is appropriate. But if you are able to determine what really is essential for all medical students to know, and you communicate that to all faculty members and all students, then the chances are that learning will take place whether on the ward or in the classroom.

DR. MAURICE SHILS: How much money is available for education in clinical nutrition? Are there foundations that make grants devoted specifically to this area?

DR. LEVY: As you all know, the federal government really has cut

down tremendously, but a number of foundations that deal with foods might be receptive to a well written grant application in which you endeavor to set up something that will also benefit them. I think that often, in terms of their particular perspectives, if a grant is sent to any funding agency, one must be familiar with their exact goals and objectives. Also, if you can put together something that will help to make them look good as well as to achieve things you want to do, they will be much more receptive in terms of funding.

DR. SHILS: Dr. Simopoulos, are there any special granting areas specifically identified for curriculum development in nutrition at the NIH?

DR. ARTEMIS SIMOPOULOS (Nutrition Coordinating Committee, NIH): There is not a specific program for curriculum development in nutrition education as such, but this does not prevent anyone from submitting a grant application and emphasizing its importance. We have a number of projects, but we have no specific program announcement that says that NIH is eager to receive applications for curriculum development in nutrition education in medical schools. We do not have such a program. However, the clinical nutrition research unit program has been instrumental in developing and expanding curricula in nutrition education in the medical schools associated with them.

DR. LEVY: Which agencies fund those programs that you are talking about?

DR. SIMOPOULOS: At the NIH, which is an agency within the Department of Health and Human Services, nutrition education for professionals is supported by the following institutions: National Cancer Institute; National Heart, Lung, and Blood Institute; National Institute of Allergy and Infectious Diseases; National Institute of Arthritis, Diabetes, and Digestive and Kidney Diseases; National Institute of Child Health and Human Development; National Institute on Aging; National Institute of Dental Research; National Institute of Environmental Health Sciences; and National Institute of General Medical Sciences. These grants cover nutrition education for normal growth and development throughout the life cycle, as well as for specific diseases and conditions.

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