Nutrition Teaching for Family Practice Residents

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A nutrition curriculum based on principles of adult education has been developed and implemented. Through use of joint counseling as the main educational process, patient education remains the resident's responsibility with the faculty dietitian acting as consultant. At any point the resident has the opportunity to apply nutrition knowledge and to give independent nutritional counseling. Videotapes of independent counseling sessions allow self-evaluation and also permit assessment of each resident's nutrition teaching competencies. Pre-testing of each resident entering the program, followed by post-testing one month prior to graduation, permits curricular evaluation.

Nutrition education for physicians has been of growing interest and concern for health professionals and the general public since the 1960s. The importance of nutrition education in medical training now seems to be widely accepted. Historically, nutrition in medical training has been considered a medical school responsibility, but the problem of finding a place for nutrition in the crowded curriculum has caused many educators to look at placing the responsibility for nutrition education at some other point in the physician's training.

Guthrie and Toply[1] conducted an opinion survey of students in two medical schools to determine whether basic nutrition principles might be satisfactorily taught in undergraduate programs rather than in medical school. Premedical nutrition training was viewed as useful by a majority of respondents, but only 3 percent felt that undergraduate nutrition training alone would be adequate for a physician's nutrition education. In addition, if one supports Frandson's assertion[2] that the final component in the education of a professional is the need for interdisciplinary and multidisciplinary study, nutrition should be taught at the postgraduate or residency level. Agreement with this position has been widespread.[3-8] Indeed, nutrition has become an integral part of various family practice residency programs.[6,9]

It is apparent that a trend has developed to provide family physicians with nutrition education in their residency training. Nevertheless, an extensive literature review has indicated that there are no well-established curricular guidelines for nutrition education in family practice residency programs. This paper describes the nutrition curriculum that was developed for the Family Practice Residency Program at Cheyenne.

Curriculum Development

The nutrition curriculum for the Family Practice Residency Program at Cheyenne was developed according to the theories and principles of

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Table 1. Residents' (n=17) Preferred Nutrition Topics

Topic	Points
Prenatal care	51
Diabetes mellitus	59
Obesity	68
General health maintenance (includes well-child care)	71
Hypertension	75
Heart disease	98
Alcoholism	124
Irritable bowel syndrome	127
Liver disease	131
Contraception	153
Dental disease	164

adult education.[10] The family practice residents, as adult learners, were expected to play responsible parts in the educational process. Three areas of educational needs were identified: (1) nutrition care and counseling for outpatients, (2) the ability to provide inpatient nutritional care and counseling, and (3) the initiation of nutrition education programs for the residents' patients and communities when they establish their own practices.

With the nature and requirements of nutrition learning of each area in mind, nutrition curriculum goals were formulated. The first goal was to give residents basic nutrition facts, an appreciation of nutritional science, and experience in applied clinical nutrition so that as practicing physicians they could apply nutrition knowledge in health promotion, disease prevention, and treatment of illness. The second goal was to teach the residents to assume responsibility for the nutrition education of their patients.

Before instructional objectives were defined, an attempt was made to narrow the broad subject of nutrition to a few selected topics of particular relevance to family medicine. Three approaches were used: (1) residents were asked to identify subject areas most important to their own learning, (2) morbidity data for the Cheyenne Family Practice Center and related centers were reviewed, and (3) consideration was given to subjects suggested by other medical nutrition educators in the professional literature.

Residents were involved in selecting subject areas through use of a questionnaire that listed 11 nutrition-related problems most commonly seen at the Cheyenne Family Practice Center from July 1, 1980, through June 30, 1981. Residents were then asked to rank the problems in order of importance to their own learning, and each problem was assigned points according to the rank given it. If the problem was given top priority by a resident, it received one point; if the problem ranked seventh, it was given seven points. Consequently, nutrition-related problems receiving the fewest points were considered the most important to residents. Of 19 residents, 17 responded, and the results are shown in Table 1.

Table 2. Nutrition-Related Problems

Cheyenne Family Practice Center	Family Medicine Information System
1. General health maintenance	1. General health maintenance
2. Prenatal care	2. Prenatal care
3. Obesity	3. Hypertension
4. Hypertension	4. Diabetes mellitus
5. Irritable bowel syndrome	5. Obesity
6. Diabetes mellitus	6. Heart disease

Morbidity data for both the Cheyenne Family Practice Center and the Family Medicine Information System, a 14-center system comprising seven residency programs and seven private family medicine practices, were reviewed for the period from July 1, 1980, through June 30, 1981. The six most prevalent nutrition-related problems according to each set of data are shown in Table 2.

The review of the literature on nutrition medical education revealed a consistent call for physicians to learn how to conduct a nutritional assessment[11-15]; therefore, that topic was the first to be addressed in the nutrition curriculum. Also, because the six topics ranked most important to the residents were the same six topics most frequently seen in the 14-center information system, these topics were selected to round out the initial nutrition curriculum. As a result, the following seven subject areas make up the initial areas emphasized in the nutrition curriculum for the Family Practice Residency Program at Cheyenne: (1) nutritional assessment, (2) prenatal care, (3) general health

maintenance with emphasis on well-child care, (4) diabetes mellitus, (5) obesity, (6) hypertension, and (7) heart disease.

Once subject areas were identified, the nutritionist and the medical director assumed the responsibility of defining precise educational objectives that carefully stated what the nutrition skills of residents who had successfully completed the curriculum would be. At least one educational objective was formulated for each subject area in the nutrition curriculum (Appendix).

Table 3. Residents' Preferred Learning Methods

Method	Points
Joint counseling sessions	37
Individual sessions	51
Noon conferences	58
Small groups	63
Hospital teaching rounds	66
Audiovisual aides	82

Educational Process

With subject areas selected, it was also necessary to choose the appropriate educational processes by which the materials in these areas would be covered. Verner[16] defined adult education processes as the ways in which the relationship for learning between an educational agent and a learner are established. He identified three basic processes: (1) method, the way people are organized for learning; (2) technique, the relationship between the learner and the learning task and the way to facilitate successful achievement of the objective; and (3) device, such as mechanical instrument, audiovisual equipment, physician arrangement, or materials.

To match the educational processes with the learners, residents were again asked to assist in planning their nutrition education by responding to a questionnaire asking them to rank their preference for various teaching methods and techniques. As with the nutrition topic questionnaire, each process was assigned points according to the rank given it. Processes receiving the fewest points were the ones most preferred by residents. Seventeen out of 19 responded, and the results are shown in Table 3.

Since using a variety of processes is more apt to ensure learning, the decision was made to use joint counseling sessions as the principal educational process for the nutrition curriculum, with noon conferences, individual sessions, and small groups also planned. Since residents did not like the idea of viewing a film or videotape on their own, it was decided to use audiovisual materials only as devices to strengthen the other educational processes.

The clear choice of joint counseling sessions as a preferred technique shows that the residents feel that acquiring nutrition counseling skills is important. Joint counseling requires the resident to schedule a nutrition consultation for a patient in which the resident is obligated to participate. With the guidance of carefully established counseling protocols, the nutritionist demonstrates the art and science of nutrition counseling to the resident. Then, after repeated joint counseling sessions in each subject area, the nutritionist gradually transfers responsibility for patient education to the resident.

The frequency of the joint counseling sessions was arbitrarily designated. First-year residents have a minimum of one joint nutrition counseling session per month; second- and third-year residents have a minimum of two per month. Experience with joint counseling at the Cheyenne Family Practice Center has indicated most residents will need six or fewer sessions in each subject area before they are ready to provide that area's nutrition counseling independently. By accepting independent counseling, the resident switches from skill acquisition to knowledge application. Thus, the joint counseling technique allows a continual broadening of education experience.

Another educational process rated highly by the residents is the noon conference, a small-group method. Noon nutrition conferences provide for 30 minutes of lecture followed by or interspaced with 30 minutes of group discussion. Frequently patient problems pertinent to the subject area are voiced by one resident, with other residents then offering information and suggestions. If the resident group is unable to provide an answer to the resident's questions, the nutritionist asks the group to research the question, unless there is an urgent need for the information any resident is seeking. In this way the nutrition subject being

discussed is not dismissed at the close of the conference but is instead reinforced by the residents' independent learning.

Other educational processes used include individual or small-group nutrition consultations regarding specific patient care concerns in response to resident requests. Since the nutritionist maintains staff privileges at the major hospitals used by the program, these consultations are for either hospitalized or clinic patients.

Finally, two approaches were developed to meet the goals of teaching residents how to establish nutrition education programs: residents are exposed to selection and use of appropriate patient nutrition education materials, and graduating residents are given a nutrition resource notebook to take with them for use in their individual practices. The nutrition resource notebook was compiled by the nutritionist with a selection of professional and patient education materials.

Evaluation

Resident growth and development is first evaluated when the resident has progressed to readiness to provide independent patient counseling in a given nutrition subject area. The resident is asked to schedule a patient for nutrition counseling in that area and to secure the patient's permission to have the counseling session videotaped. Immediately following the session, the nutritionist and resident review the videotape and share insights on strengths and weaknesses in the resident's counseling. If the nutritionist finds no major faults in the resident's counseling of that subject area, the resident is expected to provide that type of counseling in future patient encounters unaccompanied by the nutritionist. To allow for continual program improvement and to help the nutritionist improve her skills as an education agent, residents are also asked to evaluate the videotape debriefing session.

Perhaps the most valuable evaluation method of resident growth and the nutrition program as a whole is provided through results of pre-testing and post-testing. During orientation to the Cheyenne Family Practice Center, new residents are given a "true-false" examination covering the major nutrition subject areas included in the nutrition curriculum. In the last month of their residency, residents take a multiple-choice examination covering the same topics as the pre-test. These tests will be part of a nonequivalent control group research design that will test the nutrition curriculum's effectiveness.

Comment

The curriculum described was implemented in steps over a 12-month period. Experience with residents has reinforced the observation by Flynn et al[6] that the residents are aware of deficiencies in their nutrition training. Further, the majority of the family practice residents have been enthusiastic about participation in the curriculum. This enthusiasm might be attributed to the adult education approach to the residents' learning, which assumes the residents are adult learners who enter an educational activity with experience they can contribute. Residents have responded positively to recognition of the value of their previous learning by quickly relating to new experiences and by making immediate plans to apply newly acquired knowledge.

The curricular design of joint counseling sessions, designed in response to the assertion by Flynn et al[6] that the nutritionist as a consultant offers more educational value to a resident, requires the residents to assume responsibility for providing patient nutrition services. The residents who participate in joint counseling sessions discover that nutrition is clinically relevant and can fit easily into everyday medical care.

It will take at least three years to gather enough objective data from scoring on nutrition pre-tests and post-tests to evaluate the effectiveness of the nutrition curriculum at the Family Practice Residency Program at Cheyenne. Preliminary indications suggest that the curriculum is effective. Even though each family practice residency program is somewhat different, steps followed in the Cheyenne program's nutrition curriculum could be used anywhere by tailoring those chosen goals and objectives to each unique center and by selecting appropriate educational processes and evaluation tools.

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Appendix. Educational Objectives

The physician will, to the satisfaction of the nutritionist:

1. In two or more videotaped independent counseling sessions, conduct a routine nutritional assessment
2. In two or more joint counseling sessions, instruct the patient or the patient's family or both in the principles of correct nutrition within the framework of that patient's social, psychological, economic, and cultural experience
3. In all joint counseling sessions and videotaped independent counseling sessions for prenatal patients, explain the role of nutrition and weight gain in pregnancy
4. In at least one joint counseling session for a well infant, teach the parent or caretaker the principles of infant feeding as outlined by the American Academy of Pediatrics
5. In at least one joint counseling session for an infant of a nursing mother, counsel the mother on how to manage problems that might arise with breast-feeding
6. Plot length/height and weight of every pediatric patient seen on appropriate growth charts at each clinic visit, and use individual growth curves as a basis for teaching the role of nutrition in growth in at least one joint nutrition counseling session
7. In at least one joint counseling session or videotaped independent counseling session for kindergarten or grade school patients, teach the parent or caretaker the role of nutrition in facilitation of learning and the importance of establishing good food habits early in school years
8. In at least one joint counseling session or videotaped independent counseling session for each sex for adolescents seeking sports physicals, counsel the adolescent on the role of nutrition in physical maturation and physical activity
9. Schedule joint nutrition counseling sessions for all diabetic patients and emphasize to each diabetic patient the role of diet as a cornerstone in treatment of diabetes mellitus
10. For all patients requiring weight-control management, determine patient motivation by having the patient keep a diet diary to present to the physician as a prerequisite to dietary prescription
11. In at least one joint counseling session or videotaped independent counseling session, establish a weight-control program for those patients who have proven motivation
12. Verbally identify areas of controversy surrounding the role of diet in atherosclerotic disease
13. In all videotaped independent counseling sessions, involve patients in designing their own nutritional care through use of the counseling techniques of reflection and feedback
14. At least once in the three-year curriculum, review and critique an item being considered for patient nutrition education