Nutrition Education in Family Practice Residency Programs

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**Background and Objectives:** Nutrition is a required part of family practice residency training. Unfortunately, little is known about the quality or effectiveness of this nutrition training. This study evaluated the current status of nutrition training in family practice residency training programs. **Methods:** We surveyed 100 randomly selected US family practice residency programs about their nutrition education curriculum. Surveys were sent by e-mail, mail, fax, or administered by phone to individuals identified as responsible for nutrition teaching. A response rate of 66% was obtained. **Results:** Programs varied greatly in their emphasis on nutrition. Identified barriers were similar across most programs. The presence of at least a part-time faculty member dedicated to nutrition was correlated with perceived effectiveness of nutrition education efforts. **Conclusions:** If family physicians are to be prepared to inform their patients regarding nutrition and to make appropriate referrals, improvements in the nutrition curriculum offered in many family practice residency programs will be required. Readers can evaluate their program's nutrition education efforts and see how they compare to our sample. Specific recommendations for potential changes are included.

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Diet contributes to 4 of the 10 leading causes of death in the United States, and obesity has reached epidemic proportions in both the adult and pediatric populations. Although the precise mechanisms of many diet and disease relationships have yet to be determined, a broad consensus of evidence-based dietary guidelines for disease prevention has been achieved.1,2

The American Academy of Family Physicians (AAFP) Web site lists the top reasons for office visits to family physicians.3 Many of those visits involve conditions with potential nutrition implications (personal communication, Ronald Kahn, MD, January 25, 2001), including hypertension, general medical exam, diabetes mellitus, degenerative joint disease, heart disease, asthma, abdominal pain, and pregnancy care. Despite the importance of nutrition to the conditions seen by family physicians, the nutrition education received by family practice trainees has been variable, partially due to the lack of consensus on the goals of nutrition education for physicians. Further, virtually every published study on the subject shows that while family physicians are supportive of nutrition interventions, they are not delivering nutrition services to patients.1 Instead, while 90% of primary care physicians report that nutrition evaluation of patients is their responsibility, and consumers identify physicians as the most trusted source of nutrition information,5,6 physicians report a lack of confidence in their nutrition assessment and counseling skills. Also, only a small percentage of physicians report that they find personal gratification in counseling about diet issues.5,7,8

Over the years, many family practice residency programs have provided training on attitudes, knowledge, and skills in nutrition. The Residency Review Committee for Family Practice of the Accreditation Council for Graduate Medical Education (ACGME) has required nutrition education since 1982,10 and the AAFP has published *Recommended Core Educational Guidelines in Nutrition* (AAFP reprint no. 275) in 1989, 1995, and 2000.11 The Society of Teachers of Family Medicine (STFM) Group on Nutrition Education has published two detailed curriculum guides12,13 to assist family medicine educators in their nutrition teaching efforts.

Despite many reports on nutrition education in undergraduate and graduate medical education,14-20 little
is known about the current situation in family practice residencies. The survey reported here was conducted to (1) determine how, and by whom, nutrition is being taught in family practice residency programs, (2) determine the goals of nutrition teaching and the methods of evaluation of the effectiveness of that teaching, (3) identify facilitators and barriers to nutrition education, and (4) determine preferred methods of curriculum dissemination and networking among residency nutrition educators. The results have been used to improve the updated STFM Physician’s Curriculum in Clinical Nutrition.\(^{21}\)

**Methods**

The study was conducted between July 2000 and March 2001. Of the 466 US family practice residencies listed in the AAFP’s ACGME-accredited Residency Programs in Family Practice, November 1999 edition, 100 were randomly selected to participate in the study. The director of each residency program was contacted to identify the faculty member(s) responsible for the program’s nutrition education efforts. If none was identified, questions were directed to the residency director or designee. Respondents were asked if they preferred to receive the survey by mail, e-mail, fax, or telephone, and the survey was provided that way. An introductory letter describing the purpose of the study accompanied the survey. A reminder letter was sent to nonrespondents 2 weeks following the first mailing. Nonrespondents were then telephoned by members of the STFM Group on Nutrition Education, who personally requested return of the survey or administered it via telephone interview.

**Survey Instrument**

The members of the STFM Group on Nutrition Education developed the 16-item survey. The survey used open-ended questions to gather information on the goals of and the perceived facilitators of and barriers to nutrition teaching in the program. Responses to the open-ended questions were grouped independently by a research assistant and by one of the authors and reviewed for agreement in classification. Additional questions used a 4-point Likert scale (4=strongly agree, 3=agree, 2=disagree, 1=strongly disagree) to measure respondents’ level of agreement with the eight statements listed in Table 1. The survey also asked respondents to indicate where and how nutrition is taught (eg, seminars, hospital rounds, etc), the number of hours taught per year, and their own participation in activities related to attending STFM conferences and willingness to share/present nutrition ideas and resources. The survey was pilot tested by members of the STFM Group on Nutrition and reviewed by the STFM Research Committee.

**Data Analysis**

Survey answers were entered into an Access\(^{®}\) database file and analyzed using SAS\(^{®}\) software. Pearson correlations were calculated where appropriate. Responses to open-ended questions were listed and grouped into similar categories.

**Results**

Data were obtained from 66 of the 100 residency programs surveyed. Forty percent of the responses were from residency program directors and 24% from nutritionists. Other responses were received from other faculty members or administrative personnel. At many of

| Table 1 | Responses to Survey Statements |
|---|---|---|---|---|
| Percentage of Respondents Indicating Likert Response Options |
| 1 | 2 | 3 | 4 |
| 1. Nutrition is an important component of the residents’ curriculum at our program. | 8.8 | 19.3 | 54.4 | 17.5 |
| 2. We have effective evaluation of our nutrition teaching. | 16.1 | 58.9 | 23.2 | 1.8 |
| 3. Lack of time is a significant barrier to effective nutrition education at our program. | 3.7 | 29.6 | 55.6 | 11.1 |
| 4. Lack of qualified personnel is a significant barrier to effective nutrition education at our program. | 7.3 | 41.8 | 36.4 | 14.5 |
| 5. We use the current (1995) AAFP Recommended Core Educational Guidelines to guide our nutrition teaching efforts. | 7.4 | 46.3 | 37.0 | 9.3 |
| 6. We use the Physician’s Curriculum in Clinical Nutrition: A Competency-based Approach to Primary Care (red book published by STFM in 1995) to guide our teaching. | 18.5 | 61.1 | 14.8 | 5.6 |
| 7. We have specific learning objectives for the nutrition education of our residents. | 9.4 | 37.7 | 43.4 | 9.4 |
| 8. The goal of our nutrition education is to ensure that residents consider nutrition with each patient (but not necessarily at each visit). | 3.8 | 17.3 | 57.7 | 21.2 |

Data is reported as percent responding to the following choices: 1=strongly disagree, 2=disagree, 3=agree, 4=strongly agree.
the residency programs contacted (including all of those
that failed to complete surveys), a person with respon-
sibility for nutrition education was not identified, or
the person contacted said, “We do not have a nutrition
curriculum.” The residencies that did respond had from
12 to 50 residents per program; about half of the re-
spondents had more than 18 residents in their program.
Membership in STFM was held by 32% of the respon-
dents and by 7% in the American Dietetic Association.

Perceived Importance of Nutrition Curriculum
and Faculty Responsible for Nutrition

More than 70% of the respondents reported that nu-
trition was an important component of their residency
program curriculum, with 17% strongly agreeing and
54% agreeing. Fewer than 30% somewhat or strongly
disagreed that nutrition was an important part of their
curriculum.

Of the respondents that reported on nutrition educa-
tor hours (% full time equivalent [FTE]), the mean (±
standard deviation [SD]) percent effort of nutrition edu-
cator time was 22% (± 27). Only 10% had a full-time
nutrition educator. Fifty-five percent reported from
10%--50% of effort for a nutrition educator. Almost 20% of
programs had no nutrition educator. There was a sig-
ificant correlation between the percent of FTE nutrition
educator and the number of hours of nutrition in-
struction provided: \( r = .6 \) \((P=.004)\). There was no sig-
nificant correlation between hours of nutrition educa-
tor time and number of residents.

Self Evaluation of Effectiveness

When asked if the residency program had an effec-
tive means for evaluating the nutrition curriculum, only
25% of the respondents felt that they did. There was a
significant positive correlation, \( r = .15 \) \((P=.018)\), between
the percent of effort of nutrition educator and impres-
son of effective evaluation of nutrition teaching. Re-
spondents who strongly disagreed that they had an ef-
fective evaluation averaged 6% FTE devoted to a nu-
trition educator, while respondents who disagreed av-
eraged 15% FTE. Respondents who agreed that they
had effective evaluation had an average of 47% FTE
nutrition educator.

Teaching Objectives and Methods

More than half (53%) of the programs reported hav-
ing specific learning objectives for their nutrition edu-
cation efforts. Less than half (45%) of the respondents
reported using the current AAFP nutrition education
objectives to guide their nutrition teaching efforts. Less
than 20% use STFM’s Physician’s Curriculum in Clini-
cal Nutrition. There was no significant relationship
between the availability of a nutrition educator and the
use of learning objectives.

Almost half of programs report teaching nutrition
during hospital rounds and more than half (59%) in the
ambulatory site. Most programs teach nutrition during
scheduled conferences (75%) and more than half (57%)
during resident precepting. Nutrition is also taught dur-
ing specific electives, through participation in weight
loss groups and as part of other block rotations (eg,
diabetes clinic, sports medicine, geriatrics, pediatrics,
obstetrics, wellness center).

The estimated number of hours devoted to nutrition
varied from 0–40 hours per year for all 3 years of resi-
dency training. The mean (± SD) number of hours was
7.3 (± 7.7) with a bimodal distribution. The most com-
mon number of hours reported was between 3 and 6
hours. Twenty-six percent of the programs reported
more than 10 hours per year. Sixty-seven percent of
the programs reported less than 10 hours per year, and
7% of the programs reported no formal hours of nutri-
tion teaching during any of the 3 years. There was no
relationship between number of hours taught and resi-
dency size.

Goals of the Nutrition Education Efforts

Seventy-nine percent of programs agreed that an
important goal of nutrition education is to ensure that
residents consider nutrition for each patient (though not
necessarily at each visit). Thirty-two programs listed a
total of 55 goals. These varied from the general: “in-
corporate nutrition into patient care” to the specific:
“to meet 50% of recommended competencies in 1995
Physician’s Curriculum.” These educational goals (and
number of programs listing them) are shown in Table 2.

Facilitators of Nutrition Education

The respondents reported a variety of factors that
facilitated the teaching of nutrition. Thirty-eight pro-
grams suggested 15 different types of facilitators (with
many programs naming specific individuals). These fa-
cilitators (and the number of programs reporting them)
are included in Table 3.

Obstacles to Teaching Nutrition

Sixty-six percent of all reporting programs agreed
that lack of time is a significant barrier to their nutri-
tion education efforts. Half of respondents agreed that
lack of personnel is a significant barrier (Table 1). Forty-
one programs listed 15 barriers that were grouped into
three categories: resources, attitudes, and educational.
Lack of time, competing priorities, and lack of faculty
with nutrition expertise were the barriers identified by
more programs than any others. These barriers (and the
number of programs reporting them) are listed in
Table 4.
Table 2

Goals of the Nutrition Education Efforts*

<table>
<thead>
<tr>
<th>Activity</th>
<th># of Programs**</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diet as part of weight loss programs</td>
<td>8</td>
</tr>
<tr>
<td>Non-diet approach to obesity</td>
<td>—</td>
</tr>
<tr>
<td>Appropriate diet counseling for:</td>
<td></td>
</tr>
<tr>
<td>Diabetes</td>
<td>8</td>
</tr>
<tr>
<td>Hypertension</td>
<td>2</td>
</tr>
<tr>
<td>Heart disease</td>
<td>5</td>
</tr>
<tr>
<td>Hypertension</td>
<td>—</td>
</tr>
<tr>
<td>Disease specific</td>
<td>2</td>
</tr>
<tr>
<td>Knowing when to refer patients to nutrition counselor</td>
<td>7</td>
</tr>
<tr>
<td>How to work with registered dietitian</td>
<td>—</td>
</tr>
<tr>
<td>When/how to intervene with nutrition</td>
<td>—</td>
</tr>
<tr>
<td>Utilizing resources effectively</td>
<td>3</td>
</tr>
<tr>
<td>Alternative medicine/quackery</td>
<td>3</td>
</tr>
<tr>
<td>Recognizing fad diets</td>
<td>—</td>
</tr>
<tr>
<td>Educating patients about nutrition</td>
<td>3</td>
</tr>
<tr>
<td>Proper documentation</td>
<td>2</td>
</tr>
<tr>
<td>Food marketing</td>
<td>—</td>
</tr>
<tr>
<td>Incorporate nutrition into patient care:</td>
<td></td>
</tr>
<tr>
<td>Healthy patients/age specific</td>
<td>2</td>
</tr>
<tr>
<td>Disease prevention</td>
<td>3</td>
</tr>
<tr>
<td>Pregnancy/lactation</td>
<td>3</td>
</tr>
<tr>
<td>Infant feeding</td>
<td>2</td>
</tr>
<tr>
<td>Low birth weight</td>
<td>—</td>
</tr>
<tr>
<td>Genetics</td>
<td>3</td>
</tr>
<tr>
<td>Include nutrition problems in differential</td>
<td>2</td>
</tr>
<tr>
<td>Food/drug interactions</td>
<td>2</td>
</tr>
<tr>
<td>Hyperalimentation (TPN and PPN) orders</td>
<td>2</td>
</tr>
<tr>
<td>Understand the process of nutrition counseling</td>
<td></td>
</tr>
<tr>
<td>Patient-centered counseling</td>
<td>2</td>
</tr>
<tr>
<td>What can be done in an office visit</td>
<td>—</td>
</tr>
<tr>
<td>Motivational interviewing</td>
<td>—</td>
</tr>
<tr>
<td>Assessment of nutritional status</td>
<td></td>
</tr>
<tr>
<td>Dietary balance</td>
<td>—</td>
</tr>
<tr>
<td>Fat intake</td>
<td>—</td>
</tr>
<tr>
<td>Calories compared to requirements</td>
<td>—</td>
</tr>
<tr>
<td>Discussing disordered eating habits</td>
<td>—</td>
</tr>
<tr>
<td>Meet 50% of recommended competence in 1995 Physician’s Curriculum in Clinical Nutrition</td>
<td>—</td>
</tr>
<tr>
<td>Apply nutrition research finding to practice</td>
<td>—</td>
</tr>
</tbody>
</table>

* Goals ranked by frequency of mention and number of different programs reporting them
** When not listed, frequency = 1

Table 3

Facilitators of Nutrition Education*

<table>
<thead>
<tr>
<th>Activity</th>
<th># of Programs**</th>
</tr>
</thead>
<tbody>
<tr>
<td>Registered dietician (RD) or certified diabetes educator</td>
<td>17</td>
</tr>
<tr>
<td>RD gives lecture</td>
<td>7</td>
</tr>
<tr>
<td>RD does informal teaching and inpatient consults/rounds/nutrition screening</td>
<td>8</td>
</tr>
<tr>
<td>RD does outpatient consults and referrals</td>
<td>6</td>
</tr>
<tr>
<td>Non-RD with nutrition expertise</td>
<td>—</td>
</tr>
<tr>
<td>MD faculty/residency director support/enthusiasm/knowledge</td>
<td>10</td>
</tr>
<tr>
<td>Nutrition content in specialty rotations (e.g., diabetes, endocrine, obstetrics, pediatrics, critical care, community health)</td>
<td>4</td>
</tr>
<tr>
<td>Specific nutrition assignment (resident diet recall and analysis, residents adopt a therapeutic diet, health talks in the community)</td>
<td>4</td>
</tr>
<tr>
<td>Guest faculty</td>
<td>3</td>
</tr>
<tr>
<td>MD/RD co-cepting</td>
<td>3</td>
</tr>
<tr>
<td>Resident interest prompted by patient questions/prior training</td>
<td>3</td>
</tr>
<tr>
<td>Quality patient education material</td>
<td>2</td>
</tr>
<tr>
<td>Presence of dietetic interns</td>
<td>2</td>
</tr>
<tr>
<td>Collaboration with a university nutrition department</td>
<td>—</td>
</tr>
<tr>
<td>State/regional family practice group support</td>
<td>—</td>
</tr>
</tbody>
</table>

* Goals ranked by frequency of mention and number of different programs reporting them
** When not listed, frequency = 1

Discussion

This survey was intended to provide a “snapshot” view of the current state of nutrition education in family practice residencies. Most residency programs agree that nutrition education is considered an important aspect of family practice residency training. As recommended by existing family medicine nutrition curriculum guidelines,12,13 many programs have an identified nutrition education coordinator. In some programs, this is a physician with a special interest in nutrition, in other programs, a dietitian, nurse educator, or other individual with advanced nutrition training. The ACGME Program Requirements for Resident Education in Family Practice10 state “Additional teaching staff will be needed to provide areas in training such as behavioral science, nutrition, and use of drugs and their interactions.” Unfortunately, many programs were unable to identify a faculty member responsible for nutrition education or any formal curriculum. Thus, while much has been
accomplished in residency nutrition education, significant work remains to be done.

Effectiveness and Goals of Nutrition Education

Evaluation of the effectiveness of existing nutrition education is often lacking. The presence of a nutrition educator correlated with perceived effectiveness of nutrition education and with hours of nutrition teaching, independent of residency size. Approximately 50% of nutrition educator time was the amount necessary for perceived evaluation effectiveness in this survey. The specific objectives and methods of nutrition education, facilitators, and barriers were also identified. As expected, many programs have similar goals, and most share common facilitators and barriers. The overwhelming majority of programs agree that having residents address nutritional issues with every patient (though not at every visit) is an important objective. This requires that residents be trained in nutritional needs throughout the life cycle, as well as diet and disease relationships. Diets for weight loss and for diabetes were the next most frequently mentioned topics. Knowing when and how to refer patients to an appropriate nutrition professional was listed by 20% of programs. These data do not allow for the prioritization of nutrition objectives for family practice residencies. Setting priorities represents an important next step.

Barriers

Finding time for nutrition teaching in a crowded curriculum remains the most important barrier. Of interest is the lack of correlation between residency size and hours of nutrition education. This indicates that even smaller programs are able to overcome the identified barriers if they feel that this is an important part of their teaching program.

Only two of the 41 programs that listed barriers reported the lack of an accepted curriculum as a barrier. For those programs that seek consensus objectives for their teaching efforts, the STFM Physician’s Curriculum in Clinical Nutrition, accessible via the STFM Web site, and the AAFP nutrition core curriculum guidelines could resolve this problem. The Group on Nutrition Education used the data collected by this survey to provide objectives and teaching strategies for the updated Physician’s Curriculum in Clinical Nutrition. As expected in a specialty that requires teaching in the ambulatory environment, most programs teach nutrition in this setting. Most also use scheduled conferences and precepting time to teach nutrition. Many programs also report teaching nutrition during hospital rounds.

Lack of reimbursement has been cited by many as a barrier to the provision of medical nutrition therapy to patients. The American Dietetic Association is leading ongoing efforts to improve reimbursement for the delivery of medical nutrition therapy. Anecdotally, some practices are reporting increased reimbursement for nutrition as third-party payers acknowledge the importance of medical nutrition therapy in the management of chronic conditions like diabetes, metabolic syndrome, and dyslipidemias. Managed care companies are feeling pressure from patients to expand coverage in this area. Real progress was achieved with the announcement that beginning in the year 2002, Medicare is reimbursing for medical nutrition therapy for diabetes and renal disease. New CPT codes have been created. Methods of improving reimbursement for medical nutrition therapy can be incorporated into a practice management curriculum. The issue of coding and billing for nutritional counseling is evolving. Sanford recently detailed how a physician can code for routine physicals that include nutrition counseling, visits for nutrition counseling alone, visits where nutrition counseling is a small part of a problem-oriented evaluation and management (E/M) service, and visits where nutrition counseling is the bulk of the E/M service. As physicians and dietitians become more sophisticated at billing for nutrition services provided, more resources will be generated to support nutrition education faculty.

Limitations

This survey has some significant limitations. First, in attempting to describe nutrition teaching efforts for family practice residency programs generally, data was
collected from a sample of programs, with respondents representing only 14% of existing programs. While there is no “typical” program, it is possible that our randomly selected group of programs is not representative of all the programs in the country.

Second, almost one third of the residency programs in our selected sample did not respond, and not all questionnaires were completed using the same methodology (phone call, e-mail, or print). These factors raise the possibility of selection bias and poor reliability, respectively. Other surveys directed to family practice residency programs show response rates between 35% and 66%.22-25

Third, many programs were unable to identify an individual responsible for nutrition education. This raises the possibility that responses may not always have come from the most knowledgeable individual.

In spite of these limitations, this survey provides information potentially useful to residency program administrators and faculty. Our results help to identify problems with the current state of nutrition education in family practice residency training and points to some specific solutions. Residency program faculty may use our results to compare their nutrition education efforts to those at other programs. Residency program directors must decide how important nutrition is for their residents’ future practice and then be creative in their efforts to provide the required resources.

Recommendations

We are hopeful that the Physician’s Curriculum in Clinical Nutrition’s presence on the STFM Web site,22 combined with new nutrition education efforts, will contribute to a broader consensus among family medicine educators of what family medicine learners should know about nutrition. These education efforts include greater collaboration among nutrition educators at different residency programs, new educational resources developed as part of the National Institutes of Health-sponsored Nutrition Academic Award program,26 nutrition educator “chats” on the Nutrition Blackboard course,27 and continued efforts of nutrition educators at national STFM conferences.

Residency programs need to find ways to employ a dietician as (at least) a part-time faculty member (preferably 40%-50% of effort). Mentors are available at programs across the country and are prepared to share existing funding strategies that can be exported to assist other programs. These mentors are listed in the updated Physician’s Curriculum. Dietitians need to partner with residency programs to help fund these positions and to organize the nutrition curriculum.

Programs with nutrition faculty already in place need to adopt specific learning objectives for their nutrition curriculum and establish evaluation strategies to ensure that these objectives are met. Physician faculty must serve as role models for residents by (1) acknowledging the importance of nutrition in the care of patients and (2) following the current guidelines for including nutrition as part of patient care. Physician and dietitian faculty members should use existing resources to improve nutrition education at their residency programs and would benefit by networking with other interested faculty (within and outside of family medicine) regionally and nationally to continue to improve the quality of nutrition education at the graduate level. The STFM membership at large needs to be more aware of the resources available to them to assist in their nutrition teaching efforts, to be active in determining what specific nutrition objectives are appropriate for family practice residents, and to find ways to help residency program faculty document the achievement of those educational objectives.

The obstacles to nutrition education identified in this survey are similar to those documented in the late 1980s and are as yet unresolved.22 The STFM Group on Nutrition Education has attempted to provide possible solutions to these obstacles in the STFM Physician’s Curriculum in Clinical Nutrition.21

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References