

NUTRITION AS AN ASPECT OF THE
PRIVATE PRACTICE OF MEDICINE

by

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INTRODUCTION

The lack of attention given to the study of nutrition as a component of the practice of medicine has come to the forefront in the past decade. Todhunter (1) stated that the term "nutrition" is often misused. Nutrition is both a process (by which living organisms utilize food for the production of energy and for maintenance of life, growth, and normal organ and tissue function), and a subject-matter field. "Nutrition education" is the accepted term for what is more correctly education in nutrition.

Recommendations have been made by individuals and committees as to need for study of nutrition in medical school and postgraduate education. Has nutrition education in medical schools done any good--i.e., has it effected any improvements in the consideration of nutritional status in patient evaluation and care? The consideration or lack of consideration on the part of physicians regarding nutritional status in the evaluation and management of patients under their care has not been evaluated. Are physicians including a diet history in their physical examinations? What are physicians' perceived needs for patient nutrition education or needs for patient consultations with dietitians or nutritionists? Do private medical doctors (PMD) make patient referrals to dietitians (R.D.)? Data on these

topics are scant and are based on small populations that are somewhat self-selected (2, 3). Consequently selection bias confounds the results. Although selection bias could not be eliminated entirely from this study, efforts were made to limit bias as much as possible.

Purpose of This Study

The purpose of this study was to add to the body of knowledge in the area of the consideration of nutrition as an aspect of patient care in private medical practices and to form a data base for future comparisons.

The study was designed to gather information relative to the following questions:

1. Do private physicians routinely ask their patients about what they eat?
2. How many physicians have patients in need of nutrition education?
3. How many physicians provide for some form of nutrition education in their practices?
4. How many physicians have patients in need of consultation with a dietitian?
5. To what extent are dietitians utilized by PMD's to counsel patients?
6. What type of physician-dietitian consultation arrangements are most desirable to the physicians?
7. From which specialty groups do physicians seem most likely to give consideration to nutrition in the patient assessment and care?

8. Do FMD's who query patients about dietary habits have any other positive characteristics regarding their attention to the nutritional aspects of patient care?
9. Is there any relationship between the decade in which the physicians graduated from medical school and the consideration given to nutrition?

REVIEW OF LITERATURE

The nutrition education of medical students and practicing physicians has been discussed in the literature with increasing intensity during the past decade. This reflects a changed interest in nutrition over the years.

History of Interest in Clinical Nutrition

Historically, interest in clinical nutrition was divided into five overlapping periods (4). The first period, from the 18th century into the 20th century, encompasses the recognition of the essentiality of protein, the importance of carbohydrates and fats and the relationships among the nutrients. The early decades of the 20th century were called the "Vitamin Period"--vitamins were discovered and vitamin deficiency syndromes were described. During the third period (early 40's to mid 50's), the "Vitamin Period" reached its pinnacle and began to fall into disrepute. Multiple vitamin therapy had become a popular treatment of a variety of ills in the 40's. However, by the mid 50's, vitamin therapy had proven to be largely ineffective and unnecessary. In addition, the medical spotlight had shifted to other areas--to antibiotics and to the physiological studies of cardiovascular disease. During the fourth period, called "Period of Disenchantment"--(mid 50's to mid 70's) nutrition was not a popular subject and was all but

eliminated from many medical school curricula. Consequently, medical students who graduated during that period probably took with them little knowledge of nutrition fundamentals or practical applications to patient management. Nutrition enthusiasts such as Adelle Davis and Carlton Fredericks published widely and the lay press was flooded with nutritional misinformation and exaggerated claims for food supplements. Meanwhile, the slow, diligent work of a number of investigators broadened the understanding of nutrition and uncovered some fascinating clinical applications. The role of diet in the etiology of coronary heart disease had been researched, as had the importance of adequate nutritional intake during pregnancy. The presence of malnutrition in hospitalized patients was made known and parenteral nutrition was developing into a more commonplace treatment (5).

It may be postulated that currently, a fifth overlapping period exists. Previously undescribed deficiency syndromes from a lack of trace minerals were recognized when patients received long term total parenteral nutrition. Medical students began demanding to know more about these and other topics. Therefore, in the late 60's, this fifth period began--the "Renaissance" of interest in nutrition by medical personnel. Much has been written about nutrition education during medical school and many medical schools are

expanding the nutrition component of their curricula.

Problems and Principles

There are several problems associated with teaching nutrition to medical students. Long and Dudrick (6) and Murray (7) stated that 1. Nutrition has no identity of its own. It is fragmented throughout the basic sciences, e.g. biochemistry and physiology. 2. No single medical specialty is uniformly identified as the primary locus of nutritional expertise in medical centers throughout this country. 3. Presentations tend to be too didactic and rarely clinically oriented; therefore, the study of nutrition does not seem relevant to clinical practice. 4. The practice of clinical nutrition via nutritional assessment at the bedside too rarely occurs. Neither is information from a nutritional assessment a part of the routine clinical record. 5. Nutrition is often confused with dietetics, although these writers did not define nutrition or dietetics. 6. Funding is shrinking. 7. Medical school curricula are overburdened.

Principles involved in resolving some of these problems have been described as follows: 1. Nutrition needs to be identified as a separate discipline such as "clinical nutrition in medicine" (6, 7, 8). 2. A particular medical specialty needs to be defined as the locus of nutritional

expertise (7, 9). 3. There is a need to establish the relevance of nutrition to the overall curriculum via well-defined practical applications (6, 7, 10) in order to liven up the subject (7). 4. Use positive role-modeling to highlight in the students' minds the relevance and importance of nutrition (6, 7, 10, 11). 5. Teach nutritional assessment at the bedside or in a clinic (7). 6. Require nutritional assessment information as part of routine clinical records (7).

Curriculum Content

The question of what should be taught in the medical school curriculum has been evaluated by several investigators. Gallagher and Vivian (12) presented 26 nutrition-related topics to stratified random samples of physicians and nutrition educators via mailed questionnaires. Participants were asked to rate the topics for depth of knowledge needed by the graduating medical student. Topics receiving a rating of "general" or "in-depth" knowledge were considered essential for inclusion in medical curricula. The following three concepts received an "in-depth" rating from a majority of respondents: acid-base balance, fluid and electrolyte balance, and nutrient digestion, absorption and utilization. Twenty additional concepts received a "general" rating from over 80 percent of respondents. The

remaining three concepts were rated as requiring "little or no knowledge" and were therefore deemed nonessential. These were: nutrition research techniques; additives to foods; and fad diets and other food and health claims.

Gautreau and Monsen (13) surveyed groups of medical faculty, practicing physicians, medical students, and dietitians/nutritionists in the Seattle area. Subjects were asked to rate each of 22 nutritional concepts as to importance for inclusion in the medical school curriculum on a scale from one (essential) to five (unimportant). Medical students and dietitians/nutritionists rated more concepts as being essential than did practicing physicians and medical faculty. The writer believes that perhaps the practicing MD.'s and medical faculty received their medical education during the "Period of Disenchantment" when interest in nutrition education had waned. The overall mean rank per concept showed 10 concepts rating between 1.0 and 2.0. Eight additional concepts had overall mean rankings between 2.0 and 2.5. Receiving the highest ratings were concepts consisting of biochemical and physiological aspects of nutrition; nutrition's role in growth and development; and nutritional management in disease states. The four concepts which received the lowest ratings--an overall mean rank between 3.0 and 4.0--dealt with: diet within the context of the family and cultural settings; world food-population

crisis, food economics--awareness of food availability and current food prices, and historical development of nutrition and public health. Interestingly, the concept, critiques of popular dietary regimes, was rated among the top ten concepts in this study, while Gallagher and Vivian (12) found the popularity of dietary regimes was rated as unimportant. Other investigators (14, 15, 16, 17) have specifically mentioned the important role that physicians can play in combating the nutrition misinformation which abounds in the lay press if the physicians have the knowledge and the inclination to do so. This writer believes that educational concepts concerning nutrition fads and quackery should be given high priority in the medical school curricula.

Educators in Nutrition for Medical Students

The National Nutrition Consortium (18) indicated that "the interdisciplinary feature should be present in all programs," and that nutrition teaching personnel should include clinicians, basic scientists, and dietitians. Phillips (19) stated that nutritionists and dietitians should ". . . assume a more active role in teaching nutrition to medical personnel. . . ." Weinsier (10) at the University of Alabama at Birmingham (UAB) stated that a physician specializing in nutrition, rather than a dietitian, should serve as focal point for a nutrition education program. The physician

can provide a positive role model both during basic nutrition instruction and during the clinical reinforcement period. It is hoped that by deemphasizing the role of the dietitian it will serve to "remove any reinforcement of the stereotype that nutrition falls solely under the domain of a dietitian or that clinical nutrition deals primarily with dietetics." After Weinsier's nutrition education program became established, a dietitian was included as a lecturer and as leader of a case study workshop to reinforce the multidisciplinary nature of nutrition. Stare (20) has stated that medical students should spend time "talking nutrition" with dietitians three or four times a year to increase the students' knowledge of applied nutrition and to develop an appreciation for the nature of a dietitian's expertise as a consultant and a nutrition/diet counselor. According to Barnes (21), similar communication between house staff and dietitians would be beneficial. Vitale (8) stated that nutrition needs to be given a block of time rather than fragmented coverage within a myriad of other disciplines.

Departmental Location of Nutrition Education

In a survey of medical schools by the Council of Food and Nutrition of the American Medical Association (17) 70 percent of respondents said their departments of internal

medicine or biochemistry had principal responsibility for the nutrition education program. The remaining 30 percent of respondents listed departments of pediatrics, dietetics, obstetrics, gynecology and others. Seven schools had specific departments or divisions specializing in nutrition.

At present, the consensus is that nutrition should be extracted from other disciplines, be considered a separate entity, and be taught as such (6, 8, 9). One person or one department needs to take responsibility for the program.

Teaching Methods

Several authors (7, 22, 23) indicated that a variety of methods should be utilized to teach nutrition to medical students. Lectures have their place, but should not be the only method employed. Small group discussions of case presentations complement the lecture method. An effort should be made to break away from strictly didactic presentations and to include more information regarding practical applications i.e., clinical examples. UAB has an innovative approach which encompasses these ideas (10). The required nutrition course was introduced with an area of applied nutrition rather than with the traditional basic biochemistry and physiology of nutrition. The applied nutrition block heightened the student's interest as relevance of nutrition to medical practice became apparent. The second

segment went back to the basic principles. Applied nutrition was again emphasized in the third segment, during which brief (one hour) workshops accompanied the presentations of clinical information. Actual case material, laboratory data, and photographs of patients were used often as reinforcement of the clinical relevance of nutrition. The clinical years include a nutrition clerkship elective during which the student can see first hand the practice of clinical nutrition via the Nutrition Support Service. Positive role modeling is an important ingredient of this experience.

A series of luncheon meetings during which medical students are served a therapeutic diet meal followed by discussion of the rationale for that particular diet and its place in the treatment of specific diseases has been popular at the Medical College of Virginia in Richmond (24) and at the University of Iowa (25). These programs give the student basis for empathy with his patients for whom he will eventually prescribe therapeutic diets.

The results of Gallasher and Vivian (12) and Gautreau and Monsen (13) indicate that the preclinical years are an appropriate time to teach biochemically and physiologically oriented concepts. Nutritional concepts oriented toward patient management and toward treatment of disease should be briefly introduced during preclinical years and followed up and reemphasized during the clinical phase. Long and

Dudrick (6) pointed out that conferences and seminars afford an excellent opportunity for the integration of basic nutritional principles into the overall nutrition education program for the student as well as for house officers.

Regardless of the methods used, the nutrition education program for medical students should be coordinated and made relevant and applicable to clinical practice. Applied nutrition exposure via dietitians and enlightened housestaff is a most valuable supplement (11, 18, 19, 20, 24, 26, 27).

Desired Outcome

There are some outcomes of nutrition education generally accepted as desirable for medical students (7, 17, 18, 27). A physician should:

1. Be able to adapt current nutritional research to practical applications in treatment of disease
2. Realize the influence that food intake pattern has on a person's health and well-being and the involvement of nutrition in nearly every aspect of medicine
3. Appropriately incorporate sound nutritional principles in the evaluation and management of patients
4. Be aware of dietitians, of the nature of their expertise, and of the time they can save the physician who utilizes them.

There are conflicting reports in the literature as to whether a physician's nutritional knowledge increases appreciably with years of practice. White, Johnson, and

Kibler (17) suggested that there is a relationship between physicians' level of knowledge and number of years in practice because nutrition, as a science, is more often studied postgraduate than pregraduate in medical school. Heidrich and Bergman (2) did not find any correlation between the year of graduation from medical school and the physician's knowledge of sodium content of common foods. Krause and Fox (28) found a moderately negative relationship ($r=0.188$) between years in practice and nutritional knowledge. Paris (22) stated that learning on the job had the strongest impact on him during his internship.

Nutrition Knowledge Studies

Several investigators (14, 28, 29, 30) have attempted to measure the nutritional knowledge of physicians, medical students, and other groups by giving them knowledge tests. A summary of selected data from these studies is in Table 1. All tests consisted of questions to which there were three possible responses: yes, no, and don't know or undecided. The purpose of the third alternative was to avoid forcing a guess. Perceived knowledge was defined by Dusdale, Chandler, and Bashurst (29) as number of questions marked yes or no/total number of questions. Accuracy of knowledge = number of correct responses/number of responses marked yes or no. Correct knowledge = number of correct answers/total

Table 1. Summary of studies in which three-alternative questionnaires were used to test nutritional knowledge of students and professionals

Location	AUSTRALIA ¹				NEBRASKA ²	NEBRASKA ³	TEXAS ⁴	
	PHYSICIANS	STUDENTS		theology (control)	NURSES	PHYSICIANS	Dental Hysiene	Nursing
Sample		Medical	Nursing					
(N)	(33)	(63)	(25)	(39)	(500)	(292)	(14)	(101)
Perceived Knowledge percent	96	89	94	84	91	89	97	92
Accuracy of Knowledge percent	79	67	52	35	85	74	91*	75*
(range)	(40-100)	(33-100)	(0-100)	(0-83)				
Correct or Actual Knowledge percent	76	60	49	29	77	65	88	69

* Accuracy of knowledge was not given in the reference, but was calculated as follows:
Accuracy = Actual/Perceived

- 1 Reference number 29 in Literature Cited
- 2 Reference number 30 in Literature Cited, mailed questionnaire
- 3 Reference number 28 in Literature Cited, mailed questionnaire
- 4 Reference number 14 in Literature Cited

number of questions. The three terms are related as follows: correct knowledge = perceived knowledge X accuracy of knowledge. Poplin (14) used the term actual knowledge interchangeably with correct knowledge. High percentages of perceived knowledge indicated that all groups thought they knew a lot about nutrition. However, all the information they thought they knew was not correct as evidenced by considerably lower percentage of accuracy scores. In the case of physicians, the questions missed most frequently were related to applied nutrition rather than basic principles. Dusdale (29) wondered how many well-meaning, but misinformed health professionals may be giving incorrect nutritional information to their patients. Two studies (2, 3) showed that large percentages of physicians give some nutrition information to their patients. Unfortunately, the extent and quality of this information could not be evaluated.

Heidrich and Bergman (2) gave a different kind of knowledge test to physicians attending a family practice review course in the Seattle area (N=49). The same test was given to a small group (N=6) of dietitians and to a group of people (control group) attending a health sciences open house (N=91). The questionnaire consisted of 14 questions dealing with the sodium content of common foods. The mean score for physicians was 6.4 and was comparable to the mean

score of the control group (6.0). As expected, the mean score for dietitians was higher (10.3). The authors noted with interest that 6.0 is also the score that one might achieve by guessing.

Dwyer, Feldman, and Mayer (31) in 1970 gave a nutrition knowledge test to high school students and to groups having had nutrition training (dietitians, dietetic interns, physicians, and third and fourth year medical students). As expected, the groups which had had nutrition training scored much higher than the high school students to whom they were compared. However, there were no significant differences among these trained groups. The purpose of testing these groups of professionals and students was to validate the test being used to evaluate the nutrition knowledge of high school students; therefore, it is likely that the questions were not of sufficient difficulty for differentiations to be made among these professional groups. It is interesting that the mean percent of correct answers for these professionals was in the mid to upper 80's. The dietetic interns and medical students, whose mean scores were not significantly different from those of the corresponding practitioners, had standard deviations of approximately half that of the practitioners, indicating a narrower range of scores.

Physicians' Assessment of Their Own Nutrition Education

Gallagher and Vivian (12), surveyed physicians and reported that 82% of respondents believed that medical students do not receive nutrition education adequate for medical practice. Modrow, Miles, Koerin, Dobek, Book, and Honaker (3) surveyed physicians in the Richmond, Virginia, area by mail and reported that 78 percent of the respondents rated their nutrition education as fair, poor, or nonexistent. Forty-nine percent felt "moderately knowledgeable and able to meet most patient education needs." Approximately 21 percent said their medical school nutrition education was good or excellent, while 51 percent said they had been taught no nutrition in medical school. In another mailed survey (28), 12 percent of the respondent physicians said they had no formal nutrition education in medical school. Nine percent had specific nutrition and/or diet therapy course work, 62 percent had nutrition education integrated with other courses and 17 percent had a combination of specific and integrated nutrition education course work. The impetus for "A Statement on Physicians in Private Practice and Referrals to Consultant Dietitians" by the Committee on Public Health of the New York Academy of Medicine, in 1979 (32) was that physicians are becoming increasingly aware that nutritional considerations were being given insufficient attention in medical practice. The committee

suggested consultant dietitians as an alternative to the dilemma caused by inadequate physician training, lack of time for in-depth nutritional counseling and the increasing numbers of self-styled "nutritionists." In this statement the Committee defined consultant dietitian, stated desirable credentials of dietitians and outlined responsibilities and procedures for both the dietitian and physician in the consulting situation, and also encouraged the use of a consultant dietitian.

Stare and Mayer (20, 33) suggested that there are shortcomings in medical practices in regard to nutrition. The cause, they believe, is not so much lack of knowledge about nutrition as lack of attention to nutrition. To remedy the situation, Stare (20) and Mayer (33) recommended that physicians: 1. ask their patients about what they eat and 2. increase their utilization of dietitians and nutritionists. There is little evidence in the literature to help evaluate whether recommendations of Stare and Mayer are being carried out in current medical practice.

Physicians' Recognition and Utilization of Dietitians

Various scientists (16, 19, 20, 21, 33, 34, 35) have encouraged the increased cooperation between dietitians by physicians in counseling patients about dietary practices. How do physicians feel about this idea? Schiller and Vivian

(36) found that physicians in 1974 agreed that a dietitian should make a definite contribution to the health team, but did not agree on the activities to accomplish this. There was a tendency for the physician to resist increases of autonomy and responsibility by the dietitian. The physicians did not agree as to whether dietitians should be involved in such activities as attending or participating in medical rounds, initiating dietary prescriptions, and recommending diets.

Phillips (19) stated that ". . . perhaps the average practicing physician should not be expected to do nutrition counseling but instead should have the basic appreciation and knowledge of how to utilize the nutritionist for that purpose"

White and Mondeika (34) recommended that physicians, without the time and perhaps without the inclination to give the dietary counseling that patients need, refer the patient to a dietitian in independent practice. The Statement by the Committee on Public Health of the N.Y. Academy of Medicine in 1979 (32) further encourages the use of consultant dietitians and outlines guidelines for so doing. What do physicians actually do in regard to making patient referrals to dietitians? The results of a physician survey (28) in Nebraska revealed that 88 percent of the physicians had access to the services of a clinical dietitian but only 40

percent made frequent use of that service. An analysis (37) of 200 outpatient medical records in a Cleveland metropolitan hospital indicated that 43 percent of the patients should have been referred to a dietitian at the time of discharge. No referrals had been made to the dietitian for outpatients. In Seattle (2), only 35 percent of physicians referred patients who needed sodium restrictions to a dietitian.

There are many gaps in the literature regarding current PMD practices regarding assessment of patient nutritional status, provision of nutrition education and referral of patients to dietitians for counseling. This study was undertaken to provide data in regard to the aforementioned areas.

METHODS

The study was originally planned to complete a telephone survey of all private physicians listed in the Yellow Pages of the Maryland Suburban Telephone Directory. A pilot study to verify the questionnaire was made to survey 12 physicians whose names were randomly selected from the physician listings in the Yellow Pages. The writer called these offices and asked to speak to the physician. Generally, the response was that the physician was either "not in the office at that time," or was "with a patient." After the nature of the call was explained, the receptionist took a message and identified a time to call back. During the entire two week pilot project, only one physician, a dermatologist, responded to the survey. This physician's responses were not included in the final results.

The failure of the pilot project to provide contact with the physicians led to the exploration of the possibility of mailing the questionnaires. A spokesperson for the Medical Society of Montgomery County, Maryland, said the Society would address and mail prestuffed envelopes to their membership (assuming the materials to be mailed were approved by their committee) for the price of postage plus labor costs. Unfortunately there was no way to send mailings only to private M.D.'s.

Cover Letter

A cover letter was written as a request for help in completing a survey for a master's thesis. The importance of both negative and positive information was stated and underlined in red ink. The physician was urged to complete the questionnaire even if the answers were negative. The letter did not mention that the master's degree was in nutrition to try to avoid biasing the respondents. (See Appendix 1.)

Questionnaire

The questionnaire consisted of eight questions. Questions one and two dealt with the physician's specialty and year of graduation from medical school to allow formation of comparison groups in the analysis of data. Question three was based on recommendations by Mayer and Stare (20, 33) that physicians should ask their patients what they eat. Questions four through eight were taken from the study by Modrow et al. (3) for comparison purposes. The alternative choices in question eight were not exactly the same as those in the Modrow et al. (3) study. These two choices--"refer to dietitian in private practice" and "obtain a dietitian as a consultant to my practice with fees paid by patients"--were replaced by "refer patient to a registered dietitian in private practice who would serve as a consultant with fee

paid by patient." An additional choice was added as a result of a response from the one physician respondent in the pilot project: "refer patient back to the M.D. who referred patient to you." The format of the questionnaire was designed for ease of completion. The first question, which dealt with specialty group was filled in by the writer prior to delivery if that information was known (from the telephone directory). This question asked the physician to make changes so that the statement was correct. The second question required the last two digits of year of graduation to be filled in, and the remainder of the questions required only that the physician mark the appropriate blank(s). The questionnaire was double spaced for ease of reading, and was kept to one page in length to make it seem as brief as possible. See Appendix 2.

Distribution of Survey

The decision was made to personally distribute the questionnaires with cover letters to private physicians at their offices in medical complexes in the Bethesda, Maryland area. The next step was to use the physician listings in the Yellow Pages of the telephone directory and to prepare "master lists" of physicians by address in Bethesda and adjacent suburban areas. Questionnaire distribution at addresses which had at least 15 physicians' offices, was

started in Bethesda because of convenience.

Prior to distribution, the cover letters were addressed to the individual physicians on the master list and were stapled to questionnaires. It was hoped that a personalized letter would increase the likelihood of a response. Before delivering questionnaires to each address, the master list of physicians' names was compared to the building directory. Room or suite numbers were recorded on the master list and on the cover letter. Any physicians' names which did not appear on the master list were added and a previously unaddressed cover letter was addressed by hand. The cover letters and questionnaires were placed in order of suite number and hand-delivered to the appropriate suite. All physician specialties were included in the survey except pathology, radiology, and anesthesiology. During the delivery of the questionnaires, the writer introduced herself to the receptionist, explained that she was doing a survey for a masters thesis, and asked if copies of the questionnaire might be left for the physician's consideration. In a few instances, the physician was at the receptionist's desk and heard the explanation and request, but most of the time, the physician was not encountered. A slightly different procedure was used when offices without a receptionist (psychiatrists' offices) were encountered. The questionnaire, cover letter, and a stamped, addressed envelope

lope were enclosed in an envelope addressed to the physician and left in a conspicuous place in the waiting room. The last sentence of the cover letter was revised to request that the completed questionnaire be returned by mail in the accompanying envelope. In the first few medical complexes in which an office without a receptionist was encountered, the writer returned to the office on the hour or half hour, hoping to see the psychiatrist between appointments; this was unsuccessful and no questionnaires were distributed to those offices. Once begun, the method of leaving envelopes for the psychiatrist in the waiting room worked well.

All questionnaires left in waiting rooms of offices not having a receptionist were counted as a delivery. If a receptionist refused to accept a questionnaire for any reason (physician does not do them, too busy, etc.) it was counted as a delivered questionnaire. If the receptionist said the doctor was on vacation or to be out of the office, it was not counted as a delivery.

At the time of delivery, a pick-up time for the completed questionnaire was discussed with the receptionist. Usually pick-up was arranged to allow the physician two or three days to respond. Sometimes it was necessary to arrange a second pick-up date if the questionnaire was not ready the first time. The writer was careful to return to

Pick up the questionnaires on the date that had been agreed upon, or to call the office if she needed to modify the pick-up schedule.

If, after one or two unsuccessful attempts to pick up the questionnaires, stamped, addressed envelopes were left with the receptionist if it was felt that the doctor was likely to complete the questionnaire within a reasonable length of time.

Analysis of Data

The data were tabulated according to physicians' specialties and according to year of graduation from medical school, and then examined for differences among specialty groups and for trends relative to the year of graduation from medical school. The data from physicians who stated that they routinely query patients about dietary habits were examined for other similarities. Comparisons were made to the study by Modrow et al. (3).

RESULTS AND DISCUSSION

A total of 337 questionnaires were delivered to physicians' offices in the Bethesda, Maryland, area. Of these, 207 were returned, yielding a response rate for the survey of 61.4 percent. Stamped, addressed envelopes were left with receptionists for the return of 75 questionnaires. Thirty-seven of them were returned. An additional nine questionnaires were returned by mail from offices where envelopes had not been left. All together, 53 questionnaires were returned by mail. This included seven of the questionnaires left in psychiatrists' offices as well as the aforementioned 37 + 9.

Eleven questionnaires were known to have been filled out by non-physician office personnel who knew the doctor's general pattern of patient management. These were counted as if the doctor had filled them out.

In the reporting and discussion of data, in this study, physicians were divided into two broad categories, primary care and referral care. Primary care physicians include family practitioners, internists, pediatricians, and obstetrician-gynecologists (OB/GYN). Referral care physicians include all the specialists who usually get most of their patients via referrals from other physicians. This survey encompassed 17 referral specialties (Table 2). It can be

Table 2. Numbers of various referral care specialists who responded to the survey

Number	Specialty
1	Allergy
1	Endocrinology
10	Cardiology
2	Gastroenterology
8	Dermatology
8	Surgery, general
9	Otorhinolaryngology
7	Neurology
5	Neurosurgery
12	Ophthalmology
11	Orthopedic Surgery
4	Physical Medicine and Rehabilitation
11	Plastic Surgery
6	Proctology
13	Psychiatry
3	Rheumatology
8	Urology

119	Total Referral Care Specialists

argued that OB/GYN is either a referral or a primary care specialty. According to the American College of Obstetricians and Gynecologists (ACOG) (38), OB/GYN can be either or both, depending on the manner in which the individual practices are handled. Burkons and Willson (39) stated that "an increasing number of women have no family doctors and rely upon their obstetrician-gynecologists for periodic examinations and for general health evaluation." In a 1975 position paper (40), ACOG stated that "the discipline of obstetrics and gynecology must be recognized . . . as a primary care specialty in every sense of the word. . . ." OB/GYN is considered also in this study to be a primary care specialty.

Demographic Data

The first two questions on the survey concerned the physician's specialty and year of graduation from medical school (See Appendix 2 for list of survey questions).

M.D. Questioning of Patients About Dietary Habits

The third question asked whether the physician routinely asks patients about what they eat. An affirmative response was given by 72 physicians (34.8%). The data are summarized by specialty group in Table 3. Of the primary care physicians, more pediatricians (90.9%) asked about diet than did internists (58.3%) or family practitioners

Table 3. Percent of Physicians of various specialties who routinely ask patients what they eat

N	SPECIALTY	PERCENT
	PRIMARY CARE	
11	Pediatrics	90.9
36	Internal Medicine	58.3
7	Family Practice	57.1
34	Obstetrics/Gynecology	38.2
88	Total Primary Care	54.5
	REFERRAL CARE	
3	Gastroenterology and Endocrinology	100.0
6	Proctology	83.3
10	Cardiology	60.0
8	Urology	37.5
3	Rheumatology	33.3
7	Neurology	28.6
9	Otorhinolaryngology	11.1
11	Orthopedic Surgery	9.1
11	Plastic Surgery	9.1
13	Psychiatry	7.7
38	Other*	0.0
119	Total Referral Care	20.2
207	TOTAL OF ALL SPECIALTIES	34.8

* "Other" includes: 8 Dermatology
12 Ophthalmology
8 General Surgery
1 Allergy
5 Neurosurgery
4 Physical Medicine and Rehabilitation

(57.1%). It is of interest that only 38.2 percent of OB/GYN practitioners routinely asked. This is consistent with Mayer's statement (33) that "obstetricians have been among the last group of specialists to recognize diet as an important health factor." Although the percentage of affirmative responses for the total group of referral specialties was low (20.2%), physicians classified in certain nutrition related specialty groups had higher percentages when considered individually: gastroenterology and endocrinology 100.0%, cardiology 60.0%, proctology 83.3%. Some of the other referral specialty groups had percentages of zero: dermatology, ophthalmology, neurosurgery, general and thoracic surgery, and physical medicine and rehabilitation.

M.D. Assessment of Patient Nutrition Education Needs

Questions four through six on the questionnaire dealt with the physician's assessment of patient need for nutrition education in his practice and what, if anything, is done to meet that need. The results (Table 4) are summarized and are compared to results from a similar study done in Richmond, Virginia (3). Large percentages of patients with nutrition education needs were seen by physicians in all specialties in both studies. In Bethesda, 54.1 percent of all physicians said that nutrition education was provided in their practice, while in Richmond, 82.5 percent

Table 4. Patient need for nutrition education and the provision for nutrition education by Physicians of various specialties in Richmond, Va. (3) and in Bethesda, Md.

SPECIALTY	NO. IN SAMPLE		PHYSICIANS HAVING PATIENTS WITH NUTRITION EDUCATION NEEDS				PHYSICIANS PROVIDING FOR NUTRITION EDUCATION IN THEIR PRACTICE				NUTRITION EDUCATION INDEX (NEI) *	
	Richmond	Bethesda	Richmond		Bethesda		Richmond		Bethesda		Richmond	Bethesda
			No.	%	No.	%	No.	%	No.	%	%	%
Family Practice	11	7	10	90.9	7	100.0	9	81.2	7	100.0	90.0	100.0
Obstetrics/ Gynecology	12	34	11	91.7	33	97.1	7	58.3	23	67.6	63.6	69.7
Pediatrics	10	11	10	100.0	10	90.9	10	100.0	10	90.9	100.0	100.0
Internal Medicine	9	36	9	100.0	36	100.0	9	100.0	29	80.6	100.0	80.6
Total Primary Care	42	88	40	95.2	86	97.7	35	83.3	69	78.4	87.5	80.2
Referral Care	21	119	21	100.0	88	73.9	17	81.0	43	36.1	81.0	48.9
TOTAL PHYSICIANS	63	207	61	96.8	174	84.1	52	82.5**	112	54.1	85.2	64.4

* Nutrition Education Index (NEI) is the ratio of number of physicians providing for patient nutrition education in their practice to number of physicians having patients in need of nutrition education. NEI is a rough estimate of the degree to which patient nutrition education needs are being met. Note: NEI is a measure of quantity, and not quality of nutrition education.

** The authors reported 79.4%, which was erroneous. The corrected percentage is 82.5.

(3)
(3)

of physicians reported provision of nutrition education. The larger percentage (57.5%) of referral specialists responding in Bethesda vs. 33.3 percent in Richmond may account for this difference.

Nutrition Education Index

The ratio of physicians providing nutrition education to physicians with patients who have nutrition education needs, which this writer shall call nutrition education index (NEI), is summarized in the last two columns of Table 4. The NEI describes the degree to which patient nutrition education needs are being met. Consistent with Mayer's statement (33) cited previously, OB/GYN practitioners had the lowest NEI in both localities--43.6 in Richmond and 69.7 in Bethesda. The NEI for Bethesda internists and referral specialists were approximately 19 and 32 percentage points lower respectively than the corresponding data reported in the Richmond study (3). The NEI's for the total groups of physicians were 85.2 in Richmond and 64.4 in Bethesda, indicating that a smaller proportion of patient nutrition needs were being met in Bethesda than in Richmond. This writer believes the differences between the groups of referral specialists may be due to a different referral specialty make up of the two populations studied. The differences in NEI's for the total group may be because a larger percentage

of total respondents in the Bethesda study were referral specialists.

Providers of Nutrition Education

Who gives the nutrition education information for the 54.1 percent of the physicians providing it? Physicians were asked to identify as many sources as applied to their practices. These data are summarized in Table 5. The physician was the most frequently marked source of nutrition education (47.8%), followed by hospital/clinic dietitian (16.9%), nurse (13.0%), dietitian in private practice (7.7%), and other (3.9%). One OB/GYN practitioner reported having a dietitian on the staff. The physician was most frequently a source of nutrition information in a family practice (100.0%), followed by specialists in pediatrics (81.8%) and internal medicine (66.7%). A nurse was identified as a source for nutrition education most often in a family practice, second internal medicine, and third pediatrics. Dietitians in private practice were most often utilized for patient consultations by internists (19.4%) and pediatricians (18.2%), while hospital/clinic dietitians were most often utilized by family practitioners (28.6%) and internists (27.8%). If the same data are expressed in terms of a percentage of practices in which nutrition education is provided rather than in terms of total practices, it becomes

Table 5. Providers of nutrition education to patients of private physicians (M.D.'s) *

SPECIALTY	(N)	PHYSICIAN	NURSE	DIETITIAN			OTHER
				Private Practice	Hospital/Clinic	on M.D.'s Staff	
		Percent	Percent	Percent	Percent	Percent	Percent
Family Practice	(7)	100.0	42.9	---	28.6	---	---
Obstetrics/ Gynecology	(34)	58.8	17.6	11.8	11.8	2.9	2.9
Pediatrics	(11)	81.8	27.3	18.2	9.1	---	---
Internal Medicine	(36)	66.7	33.3	19.4	27.8	---	11.1
Referral Care	(119)	32.8	2.5	2.5	15.1	---	2.5
TOTAL	(207)	47.8	13.0	7.7	16.9	0.5	3.9

* Respondents were to answer this question only if the answer to the previous question was yes. Six respondents did not follow directions, therefore their responses were not counted.

more meaningful (Table 6). The physician gave nutrition information in 90.7 percent of referral practices which provided nutrition education. The hospital dietitian was relied upon for nutrition education by 41.9 percent of referral care practices. Ninety-nine (88.4%) of the 112 physicians responding who provide nutrition education, supplied some nutrition information themselves. Twenty-seven (24.1%) of the physicians used nurses as nutrition educators, 16 (14.3%) used dietitians in private practice, 35 (31.3%) used hospital/clinic dietitians, while 8 (7.1%) used other methods. The sum of these percentages is greater than 100 because many physicians checked more than one method of providing nutrition education.

Physicians' Perceived Need for Dietitians

The last two questions on the survey dealt with FMD's perceived need for dietitians as patient consultants. The physicians were asked if they had patients who would benefit from consultation with a dietitian or nutritionist. The percentages of physicians who answered affirmatively are summarized in Table 7. The need for the services of a dietitian was apparent--158 of 207 practices (76.3%) have patients who would benefit from a consultation with a dietitian. Unfortunately, the percentage of physicians who make such referrals does not match the percentage of need. Only

Table 6. Providers of nutrition education to patients of private physicians, expressed as percentages of practices in which nutrition education is provided *

SPECIALTY	(N)	PRACTICES IN WHICH NUTRITION EDUCATION IS PROVIDED	PHYSICIAN Percent	NURSE Percent	DIETITIAN			OTHER Percent
					Private Practice Percent	Hospital/ Clinic Percent	on M.D.'s Staff Percent	
Family Practice	(7)	7	100.0	42.9	---	28.6	---	---
Obstetrics/ Gynecology	(34)	23	87.0	26.1	17.4	17.4	4.3	4.3
Pediatrics	(11)	10	90.0	30.0	20.0	10.0	---	---
Internal Medicine	(36)	29	82.8	41.4	24.1	34.5	---	13.8
Referral Care	(119)	43	90.7	7.0	7.0	41.9	---	7.0
TOTAL	(207)	112	89.4	24.1	14.3	31.3	0.1	7.1

* Respondents were to answer this question only if the answer to the previous question was yes. Six respondents did not follow directions, therefore their responses were not counted.

Table 7. Physicians' perceived need for and utilization of dietitians/nutritionists (R.D.'s) as consultants for patients in need of dietary counseling

SPECIALTY	(N)	PHYSICIANS HAVING PATIENTS IN NEED OF CONSULTATION WITH R.D.		PHYSICIANS MAKING PATIENT REFERRALS TO R.D.'S *		DIETITIAN REFERRAL INDEX (DRI) **
		No.	%	No.	%	Percent
Family Practice	(7)	6	85.7	2	28.6	33.3
Obstetrics/ Gynecology	(34)	30	88.2	8	23.5	26.7
Pediatrics	(11)	8	72.7	3	27.3	37.5
Internal Medicine	(36)	33	91.7	13	36.1	39.4
Referral Care	(119)	81	68.1	18	15.1	22.2
TOTAL	(207)	158	76.3	44	21.3	29.7

* Respondents were to answer this question only if the answer to the previous question was yes. Six respondents did not follow directions, therefore their responses were not counted.

** Dietitian Referral Index (DRI) is the ratio of the number of physicians who make patient referrals to dietitians to the number of physicians having patients in need of consultation with a dietitian. DRI is an expression of the degree to which dietitians are utilized for patient consultations.

44 of 207 physicians (21.3%) provide nutrition education for their patients via referral to a dietitian.

Dietitian Referral Index

Considering the the ratio of physicians making referrals to dietitians to physicians having patients in need of an R.D. consultation (in this study called dietitian referral index or DRI), a more accurate, but still disconcerting picture was revealed. Dietitian utilization was less than 40 percent for all specialties individually and less than 30 percent for the total group (Table 7). These data are similar to dietitian utilization data reported by Krause and Fox (28) in which over 80 percent of physicians had access to the expertise of a clinical dietitian, but only 40 percent of physicians reported frequent use of that expertise. Heidrich and Bersman (2) reported that only 35 percent of physicians who had patients in need of sodium restrictions made referrals to dietitians.

Mechanisms for Providing R.D. Consultation

The physicians who said they had patients who could benefit from an R.D. consultation were asked which mechanism they would prefer to provide that service. The results are summarized in Table 8. Note: many physicians checked more than one mechanism, therefore the percentages may total more than 100 percent. The hospital/clinic R.D. (85.7%) was the

TABLE 8. Mechanisms Preferred by Physicians for Providing Patients with dietitian/nutritionist (R.D.) consultation *

(N)	FAMILY PRACTICE		OBSTETRICS/ GYNECOLOGY		PEDIATRICS		INTERNAL MEDICINE		REFERRAL CARE		TOTAL	
	(7)	(34)	(11)	(36)	(119)	(207)						
MECHANISMS	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
R.D. in private practice who could serve as consultant with fee paid by patient	2	28.6	18	52.9	6	54.5	27	75.0	34	28.6	87	42.0
Use hospital/clinic dietitian	6	85.7	17	50.0	4	36.4	17	47.2	37	31.1	81	39.1
Employ R.D. on staff	--	--	--	--	--	--	2	5.6	--	--	2	1.0
Refer patient back to referring physician	--	--	4	11.8	--	--	1	2.8	35	29.4	40	19.3
Other	--	--	--	--	--	--	2	5.6	1	0.8	3	1.4
No Response	--	--	1	2.9	--	--	1	2.8	1	0.8	3	1.4
TOTAL**	8	114.3	40	129.5	10	90.9	50	139.0	108	90.7	216	104.2

* Respondents were to answer this question only if the answer to the previous question was yes. Four respondents did not follow directions, therefore their responses to this question were not counted.

** Some column totals will exceed 100.0 percent because some respondents marked more than one mechanism.

mechanism chosen with greatest frequency by family practitioners. OB/GYN's selected dietitians in private practice (52.9%) and hospital/clinic R.D.'s (50.0%) with nearly equal frequency. Pediatricians preferred dietitians in private practice (54.5%), as did internists (70.0%). The referral care specialists were nearly evenly divided among three mechanisms: hospital/clinic R.D. (31.1%), refer patient back to referring M.D. (29.4%), and R.D. in private practice (28.6%). Overall, the R.D. in private practice (40.2%) was slightly more popular than the hospital/clinic R.D. (39.1%), followed by refer patient back to referring M.D. (19.3%). These data are compared with data from the Richmond, Virginia study (3) in Table 9. Two mechanisms used in the Richmond study, "R.D. in private practice," and "R.D. as consultant to my practice with fee paid by patient," were condensed into one of the mechanisms which was used in this study, "Refer patient to R.D. in private practice who would serve as consultant with fee paid by patient." An additional mechanism was added to the study as a result of the referral specialty physician (dermatologist) who responded to the pilot telephone survey: "Refer patient back to referring M.D.." The use of hospital/clinic R.D.'s seemed to be more popular in Bethesda (39.1%) than in Richmond (6.3%). The private practice R.D. (42.0%) and the hospital/clinic R.D. (39.1%) were nearly equal in popularity in

Table 9. Mechanisms preferred by physicians in Richmond, Virginia (3) and in Bethesda, Maryland, for providing dietitian/nutritionist (R.D.) consultation for patients

MECHANISMS	RICHMOND %	BETHESDA %
R.D. in Private Practice	39.7	---
R.D. as consultant to my practice with fee paid by patient	23.8	---
Employ R.D. on staff	9.5	1.0
Use hospital/clinic R.D.	6.3	39.1
Refer patient to R.D. in private practice who would serve as consultant with fee paid by patient	---	42.0
Refer patient back to referring physician	---	19.3
Other	6.3	1.4
No Response	14.3	1.4 *
<hr/>		
TOTAL	99.9	104.2 **

* Respondents were to answer this question only if their answer to the previous question was yes. Eleven additional respondents (5.3%) did not follow directions, therefore their responses to this question were not counted.

** Total exceeds 100.0 percent because some physicians marked more than one mechanism.

Bethesda, whereas the private practice R.D. (39.7%) and the R.D. consultant (23.8%) were much more popular than the hospital/clinic R.D. (6.3%) in Richmond. The greater popularity of the hospital R.D. in Bethesda may be due to the large number of teaching hospitals in the area. Physicians may be more aware of the existence and expertise of the hospital/clinic R.D.

Characteristics of M.D.'s Who Ask Patients about Diet

Does the group of physicians who ask their patients about what they eat have any special characteristics? Comparisons between the group of 72 M.D.'s who ask their patients what they eat and the total group of 207 physicians surveyed are shown in Table 10. The smaller group had a larger percentage (97.2%) of physicians with patients in need of nutrition education than the total group (84.1%). In the smaller group, 87.5 percent of physicians provided for nutrition education, compared to only 54.1% of M.D.'s in the total group. There was a tendency for self reliance regarding the imparting of nutrition knowledge within the group of physicians who asked their patients about what they eat. Within this group, a larger percentage of physicians give some nutrition education themselves (80.6%) than in the total group (47.8%). A larger percentage of M.D.'s in the smaller group also refer their patients to dietitians

Table 10. Comparison of nutrition education practices of physicians who query patients about dietary habits with nutrition education practices of the total group of physicians

NUTRITION EDUCATION PRACTICES	PHYSICIANS WHO QUERY PATIENTS ABOUT DIETARY HABITS	TOTAL GROUP OF PHYSICIANS
	N=72	N=207
	Percent	Percent
Query patients about dietary habits	100.0	34.8
Have patients with nutrition education needs	97.2	84.1
Provide for nutrition education in their practice	87.5	54.1
Nutrition education provided only by the physician	38.9	22.2
Nutrition education provided by the physician and others	41.7	25.6
TOTAL physicians who provide some nutritional information themselves	80.6	47.8
Refers patients to dietitians for consultation	29.2	21.3
Have patients who would benefit from consultation with a dietitian	81.9	76.3

(29.2%) than do M.D.'s in the total group (21.3%). A slightly larger percentage of M.D.'s (81.9%) in the small group than in the larger group (76.3%) have patients who would benefit from consultation with a dietitian.

Evaluation by Year of Graduation from Medical School

The respondents to this survey graduated from medical school as early as 1927 and as recently as 1978. The distribution of physicians by specialty and by year of graduation is summarized in Table 11. In the 1970's, 24.6 percent of the total population graduated, 59.4 percent graduated in 1960 or later, 71.5 percent graduated during or after 1950. The year of graduation was unknown for 15 respondents (7.2%). For analysis, the responses to all questions were grouped according to decade of graduation from medical school. Small group sizes and inconsistent differences from one decade to another made interpretation difficult.

Percentages of physicians who give OB/GYN care, other primary care, and referral care who routinely asked patients what they eat are graphed according to the decade in which they graduated from medical school in Figure 1. Note that OB/GYN has been depicted separately from the other primary care specialties. More of the OB/GYN practitioners who graduated in the 1970's asked patients what they eat than did earlier OB/GYN graduates. This could be a reflection of

Table 11. Distribution of physicians by specialty and by year of graduation from medical school

Year of Graduation	SPECIALTIES					TOTAL	
	Family Practice	Obstetrics/ Gynecology	Pediatrics	Internal Medicine	Referral Care *	no.	%
1970-78	1	11	5	11	23	51	24.6
1960-69	4	11	1	16	40	72	34.8
1955-59	---	1	3	1	20	25	12.1
1950-54	---	2	1	4	9	16	7.7
1940-49	1	4	1	4	12	22	10.6
1927-39	---	2	---	---	4	6	2.9
19?? **	1	3	---	---	11	15	7.2
TOTAL IN SPECIALTY	7	34	11	36	119	207	100.0
% OF TOTAL GROUP	3.4	16.4	5.3	17.4	57.5		100.0

* Includes 17 specialties: allergy, endocrinology, cardiology, gastroenterology, dermatology, neurology, neurosurgery, ophthalmology, orthopedic surgery, otorhinolaryngology, physical medicine and rehabilitation, plastic surgery, proctology, psychiatry, rheumatology, general surgery, and urology

** Fifteen respondents did not indicate their year of graduation.

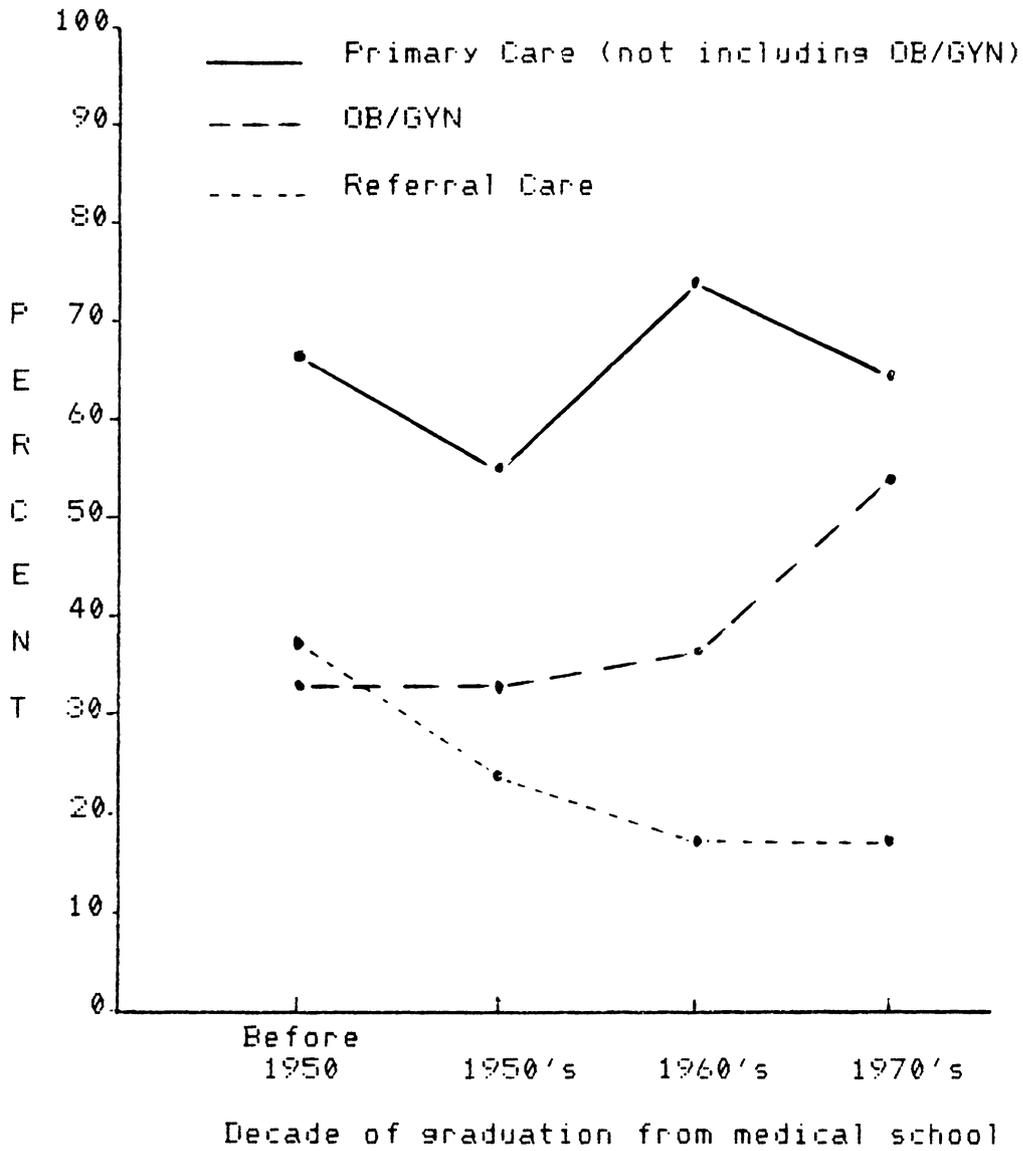


Figure 1. Percentages of physicians who routinely query patients about dietary habits

improved nutrition education in medical schools in the 1970's and/or a reflection of the large amount of research that has been done in the area of maternal nutrition. Percentages of referral care specialists who asked patients about dietary habits declined from its highest point with the "before 1950's" graduates to a lower point with the graduates of the 1960's and remained at the same level with the 1970's graduates. More older physicians may be asking patients about dietary habits as a carry-over from earlier years of their practice when their patient load was smaller and they may have included some primary care as well as referral care in their practice.

For another analysis, the study population was divided into groups of physicians who graduated from medical school either before 1955, or during and after 1955. The year 1955 was chosen as the year of demarcation because it was the approximate starting point of the "Period of Disenchantment" (4) with nutrition. The quality and quantity of nutrition education in medical schools dwindled during the mid 1950's to mid 1970's.

The graduation period from 1955 through 1978 contained 71.5 percent of the total sample population. It contained 69.7 percent of all referral care physicians, 71.4 percent of all family practitioners, 67.6 percent of all OB/GYN's,

81.8 percent of all pediatricians, and 77.8 percent of all internists.

The percentage of affirmative responses to all yes/no questions, as well as percentages of M.D.'s who gave some nutrition education themselves, of M.D.'s who are the only source of nutrition education in their practice, and of M.D.'s who make patient referrals to dietitians, are reported in Table 12. A few of the groups had such small sample sizes that one response could change the percentage of responses in the sample group by eight to 12 percent; therefore, only group percentages which differ by nearly 15 percentage points or more will be discussed. The term "magnitude of the difference" (MOD) will be used in describing differences among percentage of responses in the various groups.

A larger percentage of recent (1955 and after) than early (before 1955) graduates who provide primary care provided for nutrition education in their practices (MOD=14.7). Recent graduates had only slightly larger percentages in four of the categories. Early graduates included a higher percentage of physicians who had patients in need of R.D. consultation, and of physicians who made referrals to dietitians.

When OB/GYN's were considered separately, recent graduates seemed more concerned about the aspect of nutrition in

Table 12. Comparison of responses of M.D.'s who graduated from medical school before 1955 and during or after 1955

SPECIALTY	YEAR GROUP	(N)	QUIERRIED PATIENTS (0-3*)	NUTRITION			EDUCATION		HAS PATIENTS IN NEED OF R.D. CONSULTATION (0-7*)	MAKES PATIENT REFERRALS TO R.D.'S
				PATIENTS NEED (0-4*)	PROVIDED IN PRACTICE (0-5*)	M.D. GIVES SOME **	M.D. IS SOLE PROVIDER			
			%	%	%	%	%	%	%	
TOTAL GROUP	1955-78 before	(148)	36.5	87.2	56.1	48.0	22.3	77.0	23.0	
	1955	(44)	40.9	84.1	54.5	52.3	29.5	79.5	15.9	
	1977	(15)	---	53.3	33.3	33.3	---	60.0	20.0	
PRIMARY CARE ***	1955-78 before	(65)	58.5a	98.5c	83.1e ^g	70.8h	29.2	86.2m	30.8	
	1955	(19)	52.6b	94.7d	68.4f ^g	63.2i	26.3	89.5n	31.6 ^p	
OB/GYN	1955-78 before	(23)	43.5	100.0	73.9	60.9	30.4j	91.3o	26.1	
	1955	(8)	37.5	87.5	62.5	62.5	---j	75.0o	25.0	
REFERRAL CARE	1955-78 before	(83)	19.3as	78.3c	34.9e	30.1hr	16.9k	69.9m	16.9t	
	1955	(25)	32.0bs	76.0d	44.0f	44.0ir	32.0k	72.0n	4.0 ^{pt}	

* No Response to 0-3=1.9%, 0-4=1.4, 0-5=0, 0-7=2.4%

** Includes "M.D. is sole provider of n.e."

*** Includes OB/GYN

Differences between entries with paired letters are designated by the following magnitude of percentage point differences (MOD):

a=39.2	d=18.7	g=15.4	j=30.4	n=17.5	q=14.7
b=20.6	e=42.2	h=40.7	l=15.1	o=16.3	r=13.9
c=20.2	f=34.4	i=19.2	m=17.3	p=27.6	s=12.7
					t=12.9

patient care than did earlier graduates. Larger percentages of recent than early graduates who provide OB/GYN care had patients in need of R.D. consultations (MOD=16.3) and were sole providers of nutrition education in the practice (MOD=30.4). In the other categories, recent graduates also had the larger percentages, but the MOD's were less than 15.

Recent graduates who provide care for referred patients were less inclined to query patients or to provide nutrition information than were earlier graduates. Although these recent graduates were as aware as the earlier graduates of patient nutrition education and diet counseling needs, they were four times as likely to refer the patients to a registered dietitian for consultation. A possible explanation for this is that the older physicians (early graduates) may have given a wider range of services when they first began practicing medicine, even though they were technically a "referral specialist". These extra services may still be a part of their style of practice today.

It may be postulated from these analyses that physicians who give primary care, give greater consideration to the nutritional status of their patients than do physicians who give referral care. When physicians who provide referral care and primary care were compared, large differences were noted between recent and early graduates. Larger percentages of recent graduates who provide primary care than

recent graduates who provide referral care asked patients about diet (MOD=20.2), had patients with nutrition education needs (MOD=20.2), provided for nutrition education in their practice (MOD=48.2), gave some nutrition information themselves (MOD=40.7), and had patients in need of consultation with a dietitian (MOD=16.3). Early graduates who provided primary care had larger percentages than early graduates who gave referral care in those same and one additional category--percentage of physicians making patient referrals to dietitians (MOD=27.6). The differences can be attributed to the inherent differences in primary and referral care.

For the entire group of physicians in terms of those who graduated before 1955 and those who graduated during and after 1955, the recent graduates had slightly larger percentages of physicians than earlier graduates in only three categories--physicians having patients with nutrition education needs, physicians providing for nutrition education in their practice, and physicians making patient referrals to dietitians. The earlier graduates had slightly larger percentages of physicians in the other four categories. Because of the small differences observed, no postulations should be made from this "total group" data. Although MOD is slightly less than 15, it appears that fewer recent graduates who practice through referrals are querying patients,

sivins nutritional information themselves, and more are referring patients to dietitians than early graduates who practice through referrals. It is too early to see any differences that may result from improved nutrition education in medical school curricula because sufficient numbers of "new" physicians are not yet practicing medicine for a comparison to be made.

Recommendations for Medical Schools

Medical school faculty and administrators should continue to increase the quality and quantity of nutrition education in medical school curricula. To increase the attention given by private physicians to the nutrition aspects of preventive health care and, to increase the quality and quantity of therapeutic nutrition provided for patients of physicians in private practice, emphasis should be placed on:

1. Routine assessment of patients' nutritional status
2. The making of appropriate referrals to dietitians/nutritionists when patient nutrition education requirements exceed the time or knowledge limitations of the physician or other office personnel
3. Combating diet fads and nutrition misinformation

Recommendations for Postgraduate Nutrition Education

Nutrition education topics should be included in continuing medical education conferences, seminars, and educational tapes and publications. Appropriate topics include:

1. Nutritional assessment--including assessment of nutrient and energy intake for all ages
2. The economics of using paraprofessionals, such as dietitians, as adjuncts to private medical practices
3. Recognition and refutation of nutrition misinformation
4. Maintenance of adequate nutritional status in the prevention of or in lessening the severity of disease

The topics listed above would also be appropriate for programs at professional society meetings. As with presentation of information in medical schools, efforts should be made to make the topic presentation lively and relevant to medical practice by interspersing examples of clinical applications. Brief group discussions or workshops immediately following the presentation would be a valuable reinforcing experience.

Grand rounds and noon conferences, generally found in the hospital setting, are another mode of transfer of nutrition information. The programs could include case presentations of nutrition related diseases and syndromes and discussion of treatment in terms of nutrition, medical, or surgical procedures. A dietitian could give part of the

presentation pertaining to the patient's diet. In the question/ answer period which follows, dietitians in the audience could steer the the discussion toward the nutrition considerations if necessary.

Recommendations for Dietitians

Both hospital dietitians and dietitians in private practice should continue to strive for increased visibility to the medical profession. The R.D. should be tactfully assertive, but not pushy--do not wait to be asked, volunteer information that might be helpful. Let the physician know what your recommendations or suggestions for patient care might be.

Another way dietitians could increase visibility is to teach nutrition courses, write newspaper columns, or participate in conferences which have nutrition related topics.

Suggestions for Future Research

1. Do a similar study in other suburban areas, in rural areas, and in inner city ghetto areas and make comparisons.
2. Repeat such surveys after 10 or 15 years have lapsed and make comparisons.
3. Ask physicians to answer some questions on a continuum or ranking basis, such as one (most desirable) to five (least desirable)
4. Survey physicians and paraprofessionals and make comparisons (e.g. OB/GYN's and nurse midwives; internists and nurse practitioners; family practioners and physicians' assistants).

SUMMARY

Three hundred thirty-seven questionnaires were hand delivered to offices of private physicians in the Bethesda, Maryland area. Two hundred seven questionnaires were returned.

The purpose of the study was to increase the body of knowledge concerning the consideration of nutrition as an aspect of patient assessment and care in private medical practices.

The specialty groups having the largest percentages of M.D.'s who routinely asked patients what they eat were proctologists, pediatricians, gastroenterologists, and endocrinologists (83-100%). In a middle group were family practitioners, internists, and cardiologists (57-60%). It is interesting that only 38.2 percent of OB/GYN's asked.

The need for patient nutrition education was indicated by 97.7 percent of all primary care physicians and by 73.9 percent of referral care physicians.. Approximately 84 percent of the total group of physicians said they had patients who would benefit from nutrition education. Although the need was great, according to the Nutrition Education Index, patient nutrition education needs are being met by only 80.2 percent of primary care physicians, 48.8 percent of referral care physicians or 64.3 percent of the

total group.

The nutrition educators used by physicians to supply nutrition information to patients were usually a combination of the physicians (47.8%), nurses (13.0%), or dietitians (21.3%). In 22.2 percent of all practices, the physician was the only nutrition educator. The physician was the sole nutrition educator in 41.1 percent of all practices in which nutrition education was provided.

Need for patient consultations with dietitians was identified by 87.5 percent of primary care physicians, by 68.1 percent of referral care physicians, and by 76.3 percent of the total group. The large numbers of physicians saying they have patients who would benefit from consulting a dietitian may be their admission of a lack of time or knowledge to do an adequate job themselves.

The Dietitian Referral Index was only 33.8 percent for primary care physicians, 22.2 percent for referral care physicians and 27.8 percent for the total group, indicating that the dietary counseling needs of many patients are not being met. Greater percentages of both primary care and referral care physicians referred patients to hospital/clinic dietitians than to dietitians in private practice. Because of the large number of teaching hospitals in the area, possibly the physicians are more aware of the existence and expertise of the hospital dietitian.

When asked what mechanism(s) they would prefer to supply R.D. consultation for their patients, there was a slight preference among both referral and primary specialists for dietitians in private practice over hospital/clinic R.D.'s. A third preference was popular with the referral care physicians--to refer a patient in need of counseling by a dietitian back to the referring physician.

In terms of overall consideration of nutrition as an aspect in patient care, primary care physicians as a group had more affirmative answers to the various questions on the survey than referral specialists. Specialists in OB/GYN stood out because of surprisingly low percentages of affirmative responses to questions regarding the assessment of patients' dietary habits and provision of nutrition education for patients.

The influence of year of graduation from medical school on physicians' consideration of nutrition as an aspect of patient care was difficult to evaluate. The sample size was not of sufficient magnitude to give definite credence to the small differences in percentages among comparison groups. However the above statement that more primary care physicians than referral care physicians gave attention to the aspect of nutrition in patient care was true of both early and recent graduates. In addition, it can be stated with reasonable certainty that recent OB/GYN graduates pay

more attention to nutrition than early OB/GYN graduates.

When compared to the total group, larger percentages of the group of 72 physicians who routinely asked patients about what they eat provided for nutrition education in their practices, provided some nutrition information themselves, and referred patients to dietitians for counseling.

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Appendix 1. Cover Letter

5022 Acacia Avenue
Bethesda, MD 20314

Dr.

Dear Dr.

I need your help.

I am Linda Hubbard, a graduate student in the Virginia Tech off-campus masters degree program.

This letter is to request your participation in a survey dealing with the relevance of patients' food intake patterns in the private practice of medicine in the various specialty and sub-specialty groups.

Your responses to the questions will be held in strictest confidence and will be used to form the basis of a masters thesis.

Even if you feel that food intake patterns are not particularly relevant to your practice, your response to the questionnaire will be valuable in assessing that aspect. Negative and positive information is equally important to this study. Please respond and help make this study as un-biased as possible.

I will return to your office to pick up the completed questionnaire on

Sincerely,

Linda R. Hubbard

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NUTRITION AS AN ASPECT OF THE PRIVATE PRACTICE OF MEDICINE

by

Linda D. Hubbard

(ABSTRACT)

Private physicians in the Bethesda, Md. area were surveyed via hand delivered questionnaire. Two hundred seven responses were received (response rate=61.4%). Data were analyzed according to specialty and year of graduation from medical school.

A larger percentage of primary care providers than referral care providers routinely asked patients about food patterns. Approximately 84% of all physicians said they had patients in need of nutrition education (n.e.) and 76% had patients in need of consultation with a dietitian (R.D.); however only 54% of physicians provided for n.e. in their practice and only 21% made patient referrals to dietitians. Hospital/clinic R.D.'s were being utilized by twice as many physicians as R.D.'s in private practice; however, physicians indicated a slight preference for dietitians in private practice as the preferred mechanism for providing R.D. consultation for patients, followed closely by hospital R.D.'s. Generally, providers of primary care gave more affirmative answers to the survey questions than physicians who provide care on a referral basis, indicating greater attention to nutritional aspects of patient assessment.