CHAPTER II  
REVIEW OF LITERATURE

LOW-INCOME PATIENT CHARACTERISTICS

Low-income patients have many needs that must be taken into account by health care professionals. For one, this population has a death rate that is twice as high as the rate among those who have higher incomes. This is partially due to the high rate of chronic diseases and conditions among these individuals. Also, limited resource individuals generally have poorer diets and higher rates of obesity and hypertension than those who are not low-income.\textsuperscript{1,2}

Taire et al.\textsuperscript{1} surveyed over 6,000 Massachusetts state employees and found a significant (p < .01) inverse relationship between income level and the prevalence of chronic diseases and conditions. Individuals with an annual income of less than $20,000 had an average of 3.3 chronic diseases and conditions, while those with an annual income between $20,000 and $40,000 had an average of 2.8 chronic diseases and conditions. The researchers also found that 70\% of respondents had seen their regular physician at least once in the previous six months. Eighty-nine percent reported having a regular physician with 87\% of these physicians being generalists.\textsuperscript{1}

Strickland and Strickland\textsuperscript{18} interviewed 281 low-income minority households in rural Georgia as a means of researching the health care coping strategies of limited resource individuals. The researchers found that 24\% of respondents had a chronic disease. Also, 81\% of the subjects visited a physician on a regular basis, while only 6\% attempted to utilize free medical services. The likelihood of any one person seeking treatment for a chronic disease was high (86.9\%), which indicated that most people can be reached through physicians’ efforts. Unfortunately, many of these people did not continue to seek medical treatment due to a belief that their condition was under control or due to an inability to pay for follow-up visits.
A low-income patient will visit a physician approximately four times a year.\textsuperscript{8} Fifty-five percent of office-based physician visits in the United States are to generalists and 45% are to specialists. On average, 70% of adults living in the United States have contact with a physician over the course of one year.\textsuperscript{19}

Ammerman et al.\textsuperscript{8} conducted a telephone survey of limited resource patients examined at a university teaching hospital in North Carolina. The researchers discovered that 74% of the patients felt that their physician believes nutrition is important, but only 57% felt that their physician is knowledgeable in the field of nutrition. Of the patients that received nutrition counseling, 75% indicated that they understood their physician’s nutrition advice, but only 46% stated that they were satisfied with the information that was given. Thus, close to half of all patients surveyed felt that they needed additional nutrition information.

If a patient is to benefit from nutrition counseling during office visits, he or she must be able to understand the advice given. Unfortunately, there is a high illiteracy rate within the low-income population. Weiss et al.\textsuperscript{20} interviewed 177 low-income adults, average age = 72.2 years, to determine the literacy skills of older, low-income Americans. The researchers concluded that the overall reading ability of this group was at the fifth grade reading level. The average American reads at the eighth grade level. In fact, 10% (25 million) of the United States population lacks basic reading skills and an additional 18% (45 million) possess only rudimentary skills.\textsuperscript{20} Overall, one in every five Americans is classified as being functionally illiterate with many of these individuals living in rural areas.\textsuperscript{8} Weiss et al. concluded that physicians should be aware of the functional reading level of their patients since evidence has indicated that poor reading skills may be associated with poor health.\textsuperscript{20}

There are very few nutrition education programs that are designed to accommodate older, low-income adults.\textsuperscript{21} One reason for this is that nutrition services are rarely covered by private insurance, Medicaid, or Medicare. Of the public health nutrition education programs that are available, many are primarily funded to assist pregnant and lactating women, infants,
and young children.\textsuperscript{8,21}

\textbf{OLDER PATIENT NEEDS}

The United States Census Bureau states that by the year 2050, one in every five Americans will be 65 years or older. In 1994, only one in every eight Americans was elderly.\textsuperscript{22} This growing population has a substantial need for nutritional assistance due to the high prevalence of poverty, malnutrition, and chronic diseases and conditions among its members. In 1994, 19\% of older Americans (6 million) were classified as “poor” or “near-poor”. The mean income was $15,250 for a single elderly man and $8,950 for a single elderly woman for a poverty rate of 15\% and 7\%, respectively. Furthermore, race was correlated with income level with 27\% of all African-American elders being classified as “poor”, compared to only 10\% of white elders.\textsuperscript{23}

There is a high prevalence of chronic diseases and conditions among older Americans with 80\% to 85\% of these individuals suffering from diet-related chronic diseases and conditions.\textsuperscript{23,24} Also, 5\% to 15\% suffer from a nutrient deficiency of some kind. In fact, as age increases, chronic diseases increase in both severity and prevalence.\textsuperscript{24} As a result, the elderly have twice as much contact with physicians as the non-elderly. These problems are exacerbated by food insecurities that often occur during these individuals’ lives. On average, 8\% to 16\% of older Americans experience food insecurities within any given six month period. One in every five older persons has trouble walking, grocery shopping, and/or preparing food.\textsuperscript{23}

Burns et al.\textsuperscript{25} reviewed the medical charts of 268 elderly patients visiting several Pennsylvania medical centers to study the nutritional status of older Americans. The researchers found that 31\% of patients had at least one index of severe malnutrition. Sixty percent of the 80+ year old patients suffered from at least one index.

In summary, older, low-income individuals have poor literacy skills and a high rate of diet-
related chronic diseases and malnutrition. These individuals, on average, visit a physician several times a year. The number of older, low-income adults is rapidly growing and their health care needs are demanding an increasing percent of both physicians’ time and government health care dollars. The provision of effective nutrition education to help this population prevent or manage chronic diseases and conditions is of vital importance to them and to society.

**PHYSICIAN NUTRITION ATTITUDES AND BELIEFS**

Nutrition plays a significant role in five of the top ten leading causes of death (atherosclerosis, cancer, diabetes, heart disease, and stroke) in the United States. As a result, researchers are interested in understanding physicians’ attitudes about the importance of nutrition in their patients’ health. O’Keefe et al. explored physicians’ nutrition attitudes using a mail questionnaire that was completed by over 600 Midwestern physicians. The researchers found that 99% of physicians felt that nutrition is an essential component of total health.

Levine et al. surveyed 3,416 primary-care physicians nationwide using a mail questionnaire. More than 75% of physicians surveyed stated that patient knowledge of food composition and preparation techniques is very important. Furthermore, many physicians feel that the role of nutrition in health will become even more important in the future, as indicated by the fact that 85% of physicians expressed this belief in a mail questionnaire.

Kushner surveyed 1,148 primary-care physicians across the United States in regard to their attitudes and beliefs about nutrition’s role in medicine. Fifty-six percent of respondents practiced medicine in a suburban or rural area and 55% were aged 45 years or younger. Most physicians (79%) considered dietary counseling to be a high priority in patient treatment.

Glanz et al. surveyed 960 internists to understand this group’s nutrition attitudes. Most
internists (60% to 70%) expressed a high amount of interest in learning about the nutritional needs of the elderly, weight reduction methods, and the nutritional aspects of certain chronic diseases. The role of vitamins and minerals was of lower interest to the physicians.

**NUTRITION COUNSELING PRACTICES OF PHYSICIANS**

The usual type of nutrition counseling that is provided to patients with non-insulin dependent diabetes mellitus (NIDDM) consists of the physician giving out pre-printed diet sheets in conjunction with approximately five minutes of verbal explanation. The nurse then counsels the patient for ten to twenty minutes using standardized nutrition information. The patient’s ability to follow the prescribed diets is usually not adequately addressed. This is particularly relevant to uneducated patients since nutrition education material is often designed primarily for the well-educated. The incidence rate of NIDDM within the low-income population is approximately 14%.

Of physicians who perform nutrition counseling, approximately 70% spend five minutes or less discussing dietary changes with patients. Close to 10% of physicians spend more than eight minutes discussing changes. Physicians in private practice (non-HMO affiliated) spend more time counseling patients on nutrition issues (34% spend six or more minutes) than physicians in an HMO, hospital, or university setting (14% to 18% spend six or more minutes). Fifty-eight percent of physicians reported that they would like to spend six or more minutes performing nutrition counseling. In general, people would rather receive health risk behavior counseling, including dietary counseling, from their own physician than from hospital personnel, the government, the media, or employers.

Ryan and Steadman surveyed 194 family physicians in South Carolina via a mail questionnaire and found that 72% performed dietary counseling and long-term follow-up with their patients. Similar results were obtained by Levine et al. in their nationwide survey. Sixty-four percent of physicians surveyed reported that they counsel patients about fat, sugar, and salt moderation, while 55% indicated that they prescribe the American Heart
Association’s diet recommendations to control risk factors of cardiovascular disease.

Russell and Roter\textsuperscript{29} used 439 taped medical examinations between 49 primary-care physicians and their patients, all of whom had a chronic disease and who were for the most part on a limited income, to research life-style behavior conversations in medical settings. The most common form of counseling (47.5\% of physicians) was giving directives for a life-style behavior change, such as a dietary change, to patients. Handing out “how-to” printed information, such as self-help material, was used by about one third of physicians. Most dietary discussions were physician initiated and dominated. Thus, physicians are very influential in determining if a patient receives nutrition guidance and, if so, how long the conversation lasts. The average discussion about a lifestyle change was reported to last four and a half minutes, or 20\% of the total examination time.\textsuperscript{29}

Bendich and Butterworth, Jr.\textsuperscript{13} found that 49\% of physicians reported that they personally distribute printed nutrition information “often”, while 40\% do “sometimes”. Furthermore, 31\% reported that they provide printed nutrition information in the waiting room “often”, while 32\% do “sometimes”. If a verbal discussion concerning nutrition was initiated, 63\% of physicians commented that they initiate the conversation “most of the time”.

Arnold and colleagues\textsuperscript{30} interviewed 440 patients with NIDDM to study the nutrition practices of primary-care physicians. The researchers found that only 40\% of patients had received dietary information from their physician during office visits.

The U.S. Department of Health and Human Services conducted a study on the counseling practices of 514 North Carolina primary-care physicians.\textsuperscript{9} Results indicated that only 19\% of physicians counsel at least 80\% of their patients on diet/nutrition issues. Kushner\textsuperscript{5} reported that 9\% of physicians counsel at least 80\% of their patients and 7\% counsel 81\% to 100\% of their patients. Sixty-nine percent of surveyed physicians reported that they provide dietary counseling to no more than 40\% of their patients.
The National Health Objectives for the year 2000 states that 75% of all primary-care physicians in the United States should counsel at least 80% of their patients on dietary issues. More primary-care physicians need to provide nutrition counseling to their patients before this goal can be reached.

O’Keefe et al. found that 59% of physicians did not have a health care professional to assist them in counseling patients on nutrition issues. Of the remaining physicians who did have assistance, 35% utilized a physician assistant, registered nurse, or nurse practitioner. An onsite registered dietitian (RD) was used by 25% of physicians, while 19% used a medical assistant, licensed practical nurse, or a medical technician to assist in the nutrition counseling process. On average, each physician examined 101 patients a week.

Iszler et al. conducted focus groups with an unspecified number of randomly-chosen adults, aged 21 to 75 years, living in rural areas of North Dakota and Minnesota. The researchers found that 66% of individuals had received some form of nutrition counseling from their physician. Many of the subjects commented that the nutrition advice was usually too difficult to follow or too vague. Analysis revealed that the older adults received more nutrition counseling than the younger adults.

Hartman and colleagues conducted focus groups with 41 Expanded Food and Nutrition Education Program (EFNEP) clients living in Minnesota. Some of the clients stated that physicians use complicated words that are difficult to understand. These results indicate that physicians need to take into account a patient’s socioeconomic circumstances in order to effectively counsel patients on dietary issues.

Taira et al. found that low-income patients received significantly less dietary counseling from their physician than higher income patients (p < .02). A possible reason for this is that physicians must deal with more chronic diseases when examining low-income patients, and thus do not have as much time to provide nutrition counseling.
ATTITUDES, BELIEFS, AND CHARACTERISTICS OF PHYSICIANS RELATED TO NUTRITION COUNSELING

Before a physician will actively provide dietary counseling, he or she must feel confident about discussing such issues. Bendich and Butterworth, Jr.\textsuperscript{13} found that 53\% of physicians felt unprepared to talk to their patients about nutritional matters, 32\% felt highly competent to do so, and 76\% believed it was an effective use of their time. Surprisingly, 83\% felt it is their duty to provide counseling, even though most did not feel prepared to do so.

O’Keefe et al.\textsuperscript{10} reported that 89\% of physicians surveyed believed it is their responsibility to perform nutrition counseling, even though 78\% felt unprepared to talk with patients about dietary issues. Correspondingly, Kushner\textsuperscript{4} stated that 69\% of physicians felt reluctant to provide nutrition information to their patients due to their own lack of nutrition training. Also, 62\% of physicians believed that they lack adequate knowledge about nutrition issues, even though 78\% of these physicians stated that it is a physician’s responsibility to provide nutrition counseling. In addition, half of physicians reported that they believe that providing nutrition advice would ultimately not improve patients’ diets. These results indicate that physicians take upon themselves the responsibility of caring for patients’ nutritional well-being even if their knowledge of nutrition is lacking.

Ryan and Steadman\textsuperscript{28} studied physicians’ attitudes on counseling patients about cholesterol. They discovered that only 35\% of physicians felt inadequately prepared to counsel patients about cholesterol, which is considerably lower than the reported number of physicians who generally feel inadequate to perform nutritional counseling.\textsuperscript{5,10,13} This research indicates that physicians are more confident providing certain types of nutrition counseling than other types.

There are many barriers which discourage or prevent physicians from discussing nutrition issues with their patients. A lack of time is one of the major hindrances that is often cited by practitioners. Seventy-five to 84\% of physicians surveyed felt that there is not enough time
to provide their patients with adequate nutrition information.\textsuperscript{10,11}

Other barriers include a lack of physician reimbursement and the fact that the physician’s staff is not adequately trained to assist in the counseling process.\textsuperscript{3,5,11} Furthermore, 70\% of physicians surveyed felt that low patient compliance is a dissuading factor.\textsuperscript{5,13}

Younger physicians have been shown to perform more nutrition counseling than older physicians. Also, female physicians are more likely to provide nutrition counseling than their male counterparts.\textsuperscript{12}

**PHYSICIAN INFLUENCE ON PATIENTS’ ATTITUDES AND ACTIONS**
Physicians have long been considered a trustworthy source of health information; thus, their advice is often the standard on which people base their daily practices. This is also true in regard to nutrition issues. As a result, patients’ dietary practices are highly influenced by their physicians’ nutrition attitudes.\textsuperscript{13} Arborelius and Bremberg\textsuperscript{32} interviewed several primary-care physicians and their patients in regard to the degree of discussion between the two parties concerning healthy life-style issues. The researchers found that general practitioners have a large influence on the life-style habits of their patients. In fact, a patient is more likely to adhere to a treatment plan if the physician discusses the plan in a positive manner. Thus, a physician’s behavior is crucial to a patient’s willingness to follow the nutrition advice given. However, there was a small fear among the physicians that their patients might feel alienated if the advice is not mutually accepted. The physicians who felt this way were more likely to believe that their own efforts do not make a major impact on patients’ actual behavior.

Patients are more likely to adhere to a physician’s advice if the physician is specific about how to accomplish treatment goals and if short-term advantages are emphasized. Also, the advice is more likely to be followed if a physician incorporates the patient’s life situation into the treatment.\textsuperscript{32}
DiMatteo et al.\textsuperscript{33} conducted a two year longitudinal study of 186 physicians and their older, chronic disease patients to determine the different influences on patient adherence to a physician’s advice. They found that 80\% of patients did not completely follow the advice of their physician in regard to treatment of their chronic disease or condition. The patients were more apt to follow a physician’s advice if they perceived the information to be understandable and clear.

In summary, primary-care physicians feel that nutrition is important in health maintenance. Depending on the specific topic of interest, one half to three fourths of physicians provide roughly three to five minutes of nutrition counseling to their patients. A majority of physicians do not feel confident in their ability to discuss nutrition issues. Barriers to physician counseling include a lack of time, physician reimbursement, office support, and nutrition training, and a belief that patients’ diets will ultimately not be significantly improved. Physicians who provide clear, tailored nutrition advice positively influence their patients’ nutrition attitudes and practices.

**PHYSICIAN NUTRITION REFERRALS**

**Physician practices.** Ninety percent of physician referrals for nutrition counseling are to RDs, hospital clinics, and/or weight loss centers.\textsuperscript{14} O’Keefe et al.\textsuperscript{10} found that if a referral was made, 67\% of patients were referred to RDs, 58\% to hospital-based programs, 50\% to self-help programs, such as Weight Watchers, and only 5\% to university or medical school based programs. Analysis revealed that there was a significant direct correlation (p < .0003) between a physician’s positive attitude about nutrition education and the number of referrals made to nutrition counseling services outside of the physician’s practice.

Bourget et al.\textsuperscript{15} studied physician referral practices among 95 Ohio primary-care physicians. Each participant was required to maintain a patient referral log for one month as well as complete a patient follow-up survey one year after each examination. Of 5,172 patients who were examined, 309 were referred to another health care provider for a referral rate of
5.97%. The referral rate for 25 to 44 year old patients was 6.1%, whereas there was a non-significant increase to 7.9% for 45 to 64 year old patients. Surprisingly, the rate decreased to 5.5% for patients over the age of 65 years, even though older adults generally suffer from more health care problems. Male and female patients were referred 6.5% and 5.6% of the time, respectively. Also, 13% of referrals (0.79% of all office visits) were to a non-physician, such as a nutritionist or patient educator.

Bourget et al. further found that most patients (63%) followed through on referrals, while only 14% of patients disregarded their physician’s advice. Almost one fourth of the physicians were unsure if the patient followed through on their referrals. In general, physicians are more satisfied with the referral process (i.e. patient care and communication) if feedback from the referral source is written and not expressed verbally.

Reynolds and colleagues tracked a group of English physicians over a nine month period. The physicians had a patient referral rate of 2.8 referrals per 100 consultations. There was a substantial difference in referral rates among individual physicians and to different specialities. One factor that could partially determine referral rates is the supply of specialists in a given area.

Bendich and Butterworth, Jr. found that 62% of physicians reported that they refer patients to a hospital or clinic on a regular basis and 46% recommend group programs. Only 34% of respondents reported that they refer patients to a RD “often”, while 44% “sometimes” refer to a RD. Furthermore, 13% of the physicians stated that they refer to outside professionals, other than RDs or clinic nutritionists, and 19% stated that they anticipate making a referral to an outside professional in the future. The researchers concluded that physicians are slightly increasing their referrals to outside nutrition professionals.

Levine et al. found that 41% of physicians conferred with a RD or other health care professional about nutrition issues, while only 22% actually referred patients to a RD. Also,
20% made referrals to nutrition resources, such as organizations or written materials.

Arnold and colleagues\textsuperscript{30} found that 50% of diabetic patients had never been counseled by a RD since their physicians had never referred them to such services. However, since there are different severity levels of diabetes, some of these patients may not have needed to see a RD.

There is a difference between the referral rates to RDs of urban and rural physicians. Lasswell et al.\textsuperscript{14} used a mail questionnaire to survey 142 family physicians who had just graduated from their residency program. The investigators discovered that there was a significant difference between the referral rates of rural medical doctors and the referral rates of physicians practicing in urban, suburban, and mixed locations ($p < .001$). Only 37% of rural physicians had referred a patient with a nutrition problem to a RD, while 79% of suburban physicians, 65% of urban physicians, and 69% of physicians living in a mixed location had made such a referral. A possible explanation is that rural physicians take on a greater responsibility for providing nutritional care themselves, since there are fewer nutrition services, such as RDs, available in their immediate area.

**Physician expectations.** Physicians have many expectations of nutrition education programs. Sowinski et al.\textsuperscript{36} surveyed 139 physicians representing 20 specialities to discover what attributes would increase physician referral rates to an outpatient nutrition clinic. Analysis of the mail questionnaire revealed that 92% of physicians felt that patient reimbursement is a very important factor in determining whether or not they make a referral. Other favorable features included the availability of cooking classes (81%), follow-up reports to the physician (80%), and the provision of patient educational materials (74%). Taking up the physician’s time was rated the most undesirable characteristic. Of all physicians surveyed, 22% reported that at least half of their patient population had a diet-related disease, while another 30% stated that one fourth to one half of their patients had a diet-related disease. The fact that physicians feel strongly that patient reimbursement is important indicates a need for referrals to free community nutrition education programs. The results of this study are
representative of physicians as a group and not just of primary-care physicians who comprised less than 35% of the study population.\textsuperscript{36}

A study by Splett and colleagues \textsuperscript{37} investigated physicians’ expectations of referral programs for prenatal nutrition care. A total of 130 physicians were surveyed using a mail questionnaire. The results indicated that 97% of physicians felt that nutrition programs should have an experienced staff. Nearly 94% of physicians commented that a versatile attitude by the program’s staff toward patient needs is very desirable. Other favorable characteristics of referral programs included a cooperative relationship with the physician and his or her staff (93%), the provision of information on how to make food choices (81%), establishment of pre-planned protocols and standards (75%), and the provision of up-to-date information to patients (75%).

Bendich and Butterworth, Jr.\textsuperscript{13} found that most physicians believe counseling by a RD or nutritionist benefits a patient. Aspects that physicians reported should be part of a RD’s or nutritionist’s examination included documentation of patient results, communication between the RD or nutritionist and the physician’s office, education on food planning and self-management, and a clear, concise plan tailored to patients’ needs.\textsuperscript{37,38} Monk et al.\textsuperscript{38} concluded that RDs should refer low-income patients to other organizations since many of these individuals can not afford to pay for a RD’s services.

Hart et al.\textsuperscript{39} surveyed 119 Ohio physicians (70 nephrologists, 49 internists) as a means of understanding physicians’ expectations of clinical RDs. There was no significant difference between the nephrologists’ (specialists) and the internists’ (generalists) expectations. Eighty-eight percent of physicians agreed that clinical RDs should instruct patients about current diet orders after a physician orders the diet. Only 47% of physicians stated that clinical RDs should instruct patients about a current diet without a physician’s order. Sixteen percent of physicians felt that a clinical RD should have at least a master’s degree, but 27% believed that this was unnecessary.
A similar study was conducted by Boyhtari and Cardinal\(^{40}\) using 237 mail surveys sent to Michigan internists and clinical RDs. The participants were asked to rate whether they “agree” (1) or “disagree” (5) with several statements using a Likert scale. The RDs strongly agreed (1.3) with the idea that RDs should manage and control diseases and medical complications with therapeutic diets or nutritional support; whereas the internists significantly agreed less (2.2) (\(p < .003\)). Both RDs (1.5) and internists (1.6) strongly agreed that RDs should plan diets based on a patient’s socioeconomic, cultural, and ethnic status.

**Patient participation in free nutrition education services.** The Rural Health Promotion Program study\(^{41}\) was funded by the Health Care Financing Administration as a means of testing patient participation in health promotion programs offered through Medicare. Eighty-seven physicians, seven hospitals, and 3,884 elderly patients comprised the study population. All patients underwent a health screening review at a primary-care physician’s office (group I) or at a local hospital (group II) where blood cholesterol levels, blood pressure, and basic anthropometric measurements were taken. The health care professionals in the hospital were not specifically identified. If found to be eligible, an individual was given a voucher which allowed him or her to participate in designated nutrition counseling services. Most patients (61%) had completed between nine and twelve years of high school and were receiving both Medicare and private insurance (88%).

Close to 45% of eligible participants attended at least one of the nutrition services. The patient’s education level was significantly related to participation in that 54% of patients with some college education participated, while 45% of patients who had completed only nine to twelve years of high school participated. Only 38% of patients with less than eight years of formal education attended a nutrition counseling session. Income was directly, but not significantly, related to participation. Age was significantly related to participation in that attendance was lower among individuals 70 years or older versus those who were 65 to 69 years old (\(p = .029\)). Group I was significantly more likely to attend a nutrition service than group II (\(p = .014\)). Thus, patients were more likely to follow through on a nutrition referral
from an office-based primary-care physician than a nutrition referral from a hospital. Interestingly, 55% of group I attended one of the nutrition programs at a hospital. This indicates that physicians are willing to encourage participation in health promotion services, but more so in programs that are not based within the physician’s own office. Overall, older adults were shown to be willing to utilize available nutrition education services and were more likely to begin such a program if advised to do so by an office-based primary-care physician.41

In summary, 35% to 75% of primary-care physicians refer patients to RDs at least some of the time, depending on practice location. Approximately 10% to 20% of physicians make referrals to sources other than RDs, such as private organizations and patient educators. Favorable characteristics of referral programs include a cooperative attitude by the referral source, good communication with the physician and his or her staff, and the provision of current information tailored to patients’ needs. Older adults will participate in nutrition education programs if given the opportunity. Their participation rate increases if referred by an office-based primary-care physician.

FACTORS THAT INFLUENCE PHYSICIAN NUTRITION COUNSELING OR REFERRALS

Nutrition in managed care. There has been a rapid expansion of managed care in the United States over the past decade. As of early 1998, managed care companies provided health care to more than one third of the United States population and to one fourth of all Medicare recipients. These changes have lead to an increase in the number of physicians in group practices versus solo/independent practices, as well as an increase in the use of ambulatory care and home health care services.42 Due to the emphasis by managed care companies on prevention as a means of reducing costs, primary-care physicians have more of a burden to utilize preventive services. As a result, more opportunities for nutrition professionals to become involved in the treatment process are emerging provided that the cost effectiveness of nutrition therapy can be documented.42
**Nutrition training of physicians.** The traditional medical school curriculum does not emphasize nutrition’s role in combating diseases and maintaining health.\(^{14,43}\) In 1995, only 22% of all United States and Canadian medical schools required their students to take a nutrition course. Close to 50% of schools offered nutrition as an elective and 67% covered nutrition issues in other required classes.\(^{44}\) Thus, only a small percent of physicians have received in-depth nutrition training during their formal medical education.

Kushner\(^5\) found that 58% of physicians had received some type of nutrition training at one point during their medical education or career, although the exact extent and nature of the training was not discussed. Of these physicians, 64% were aged 45 years or younger, whereas 49% were over age 45 years. Differences existed in the location of the training based upon the physician’s age. Fifty-seven percent of younger physicians (< 46 years) and 43% of older physicians (> 45 years) had received nutrition training during their residency. In contrast, 35% of the younger group and 60% of the older group had received training while in practice. The primary sources of nutrition information for the physicians were medical journals (69%), RDs (58%), and seminars and conferences (46%).

Bendich and Butterworth, Jr.\(^{13}\) found that 68% of practicing physicians surveyed felt that their medical school nutrition education was inadequate. This partially explains why many physicians do not feel prepared to counsel patients on nutrition issues.\(^{5,10,13}\) Most medical students are dissatisfied with the nutrition education they are receiving.\(^{43}\)

**Physician knowledge of patients’ socioeconomic situations.** Arborelius and Osterberg\(^45\) conducted a study on the degree to which physicians neglect the psychosocial problems of their patients. Results of the 19 physician/patient interviews showed that as many as 50% of physicians neglect to deal with patients’ psychosocial problems during office visits. This may result in low-income patients being referred to RDs, even though they cannot afford such services. Likewise, low-income patients may not be able to follow their physicians’ nutrition
advice if it does not take into account the patients’ socioeconomic constraints.

Levine et al.\textsuperscript{12} found that 28\% of physicians reported that they determine their patient’s financial condition during the examination, while 20\% consider the patient’s economic situation before prescribing a specific diet. Only 9\% reported that they consider the patient’s methods of food preparation and who the primary food preparer in the family is.

Macario and colleagues\textsuperscript{46} conducted focus groups with health care providers and members of an adult basic education class to determine the factors influencing nutrition education of patients with low literacy skills. The researchers concluded that physicians should make referrals of low literacy patients to programs that concentrate on providing education tailored to patients’ needs. As previously discussed, the older, low-income population generally has poor literacy skills.\textsuperscript{20}

\textbf{Transportation influence on physician selection.} The distance required to travel from a patient’s house to a physician’s office is a strong indicator of which physician a person will visit, if any at all. In fact, only 9\% to 12\% of patients travel for more than 30 minutes to their usual source of care and only 2\% travel for more than one hour.\textsuperscript{47} Thus, in order for the people of a certain region, particularly rural areas, to be referred to a community nutrition education program, it is imperative that the primary-care physicians practicing in that immediate area be active in making such referrals.

\textbf{FREE COMMUNITY NUTRITION EDUCATION PROGRAMS}

\textbf{EFNEP and WIC.} The Expanded Food and Nutrition Education Program (EFNEP) and the Special Supplemental Food Program for Women, Infants, and Children (WIC) provide free nutrition education to low-income individuals. EFNEP is a federally-funded, nutrition education program administered nationwide through state Cooperative Extension Services. Its target audience is families and children with limited incomes (185\% of the federal poverty guidelines or less). Eligible families include those with a pregnant woman or teen, a female in
the childbearing stage, an infant, or a young child. Program Assistants, who are indigenous
to the client population, provide the nutrition education through small group meetings or in-
home visits. There are 29 city/county extension offices in Virginia from which EFNEP
programs are administered.\textsuperscript{17}

WIC is primarily a supplemental food program that also provides free nutrition education to
high-risk clients including pregnant, postpartum or breast feeding women, infants, and
children under five years of age. WIC clients must have an income of 185\% or less of the
federal poverty guidelines and a documented nutrition problem. Nutritionists conduct the
educational sessions through individualized counseling or group classes during WIC clinics.
There are currently 154 WIC sites across Virginia.\textsuperscript{17} EFNEP and WIC serve a similar
clientele of young families, but neither provides nutrition education to middle and older aged
low-income individuals or to those suffering from chronic diseases.

**FSNEP.** The Food Stamp Nutrition Education Program (FSNEP), named Smart Choices
Nutrition Education Program (SCNEP) in Virginia, was initiated in FY 1996 by the Virginia
Cooperative Extension. This program is primarily funded by food stamp administrative funds
provided through the Food and Nutrition Service, U.S. Department of Agriculture, and
works in collaboration with the Virginia Department of Social Services.\textsuperscript{6}

In the counties/independent cities in Virginia where both EFNEP and FSNEP operate,
FSNEP provides nutrition education to members of food stamp households, headed by
middle and older adults without young children, who are not eligible for EFNEP or WIC. In
counties and cities where EFNEP is unavailable, FSNEP provides nutrition education to food
stamp households across the life cycle including older adults with chronic diseases and
conditions.\textsuperscript{48} The education consists of six to twelve sessions that are taught either in the
home, in groups, or through a video lesson series. The lessons are designed to teach basic
nutrition concepts, food economic skills, general health promotion, and the prevention and
management of chronic diseases through nutritional means. The primary curriculum is the
Healthy Futures Series which emphasizes disease prevention and health promotion.\textsuperscript{49} When instructing younger families and pregnant women, the Eating Right is Basic-3 curriculum, which is designed for this particular group, is employed.\textsuperscript{50} Much of the educational material used is based upon the results of numerous focus groups with low-income persons as well as information from current scientific literature.\textsuperscript{17}

FSNEP is managed by a faculty member of Virginia Tech’s Human Nutrition, Foods and Exercise Department who is also a registered dietitian. Actual client education is performed by Program Assistants who are indigenous to the client population and specially trained and supervised by Extension Family and Consumer Sciences Agents. This training consists of an initial course covering basic nutrition information, teaching methods, food preparation techniques, the use of approved curricula, and clientele management skills which is supplemented with follow-up training on a monthly basis.\textsuperscript{49} As of early 1998, there were 54 Program Assistants covering approximately three fourths of Virginia, with some Program Assistants being responsible for more than one county or city. Recruitment of participants, which began in June 1996, is the primary responsibility of the Program Assistants. Referrals are received from WIC, the Area Agency on Aging, and through phone calls to a free phone hotline. The Department of Social Services provides considerable assistance in recruitment by providing lists of food stamp households to local FSNEP staff.\textsuperscript{17}

Participant contact is initiated in the following ways:

1. Direct contact with food stamp recipients referred by a local food stamp office through the provision of a list of all food stamp households
2. Brochures mailed to food stamp recipients listing a free phone hotline number and subsequent self-referral of individuals calling the hotline
3. Contact in the grocery store through in-store programs or displays
4. Contact via pre-formed groups, such as senior meal sites and GED classes
5. Door-to-door visits in low-income neighborhoods usually to households on the food stamp listing

Future recruiting efforts by FSNEP will include a statewide media campaign directed at food
stamp clients and other low-income groups in order to inform them of the program. By the end of 1998, it is hoped that 8,000 food stamp households will have been reached with special emphasis being placed on recruiting older individuals.17

FSNEP supports Virginia Welfare Reform which is attempting to move welfare recipients into the workforce.51,52 Before an individual can properly perform work responsibilities, he or she must be well-nourished. By providing nutrition education to welfare recipients, FSNEP is preparing these individuals to secure employment. This move toward self-reliance is very important in not only allowing people to obtain employment, but also in reducing overall federal health care costs.

**FOOD STAMP PROGRAM**
The Food Stamp Program is a nationwide entitlement program that provides food purchasing assistance to 25 million people annually.53 In order to be eligible, a family must make 130% of the federal poverty guidelines or less in gross income calculated on a monthly basis. The average monthly entitlement is $73 per person with just over one half of recipients being children and 7% aged 60 years or older. Approximately 90% of food stamp recipients have a limited income with an average recipient gross monthly income53 of $514.

Due to the passage of The Personal Responsibility and Work Opportunity Reconciliation Bill in 1995, spending on the Food Stamp Program will be cut by $23 billion over the next several years. In fact, half of the spending cuts in this welfare reform package will come from food and nutrition programs. Even though this new law created a system of block grants to the states as a means of federal fund distribution, no nutrition programs, including the Food Stamp Program, will be administered as a block grant.54

**PAYMENT OF PHYSICIAN SERVICES**
Unless a low-income individual has adequate insurance, he or she likely can not afford
services such as physician office visits and consultations with RDs. In 1993, 15.3% of the United States population was uninsured, while the rate in Virginia was slightly lower at 13.1%. Of all uninsured people, 66% were classified as being low-income. Even though 86.9% of Virginians had some form of health insurance, many of these people were only partially covered.\textsuperscript{55} Private health insurance pays for 49% of all physician services, while patients pay 15% through out-of-pocket means.\textsuperscript{56}

\textbf{Medicaid.} Medicaid is a federally-funded, state-operated health insurance program for low-income persons. Currently, there are 720,496 Virginia residents who are eligible to receive Medicaid. Of these potential recipients, a total of 598,807 are enrolled in the program including 86,740 over the age of 65 years and just over 109,000 people who have a disability. Of all Medicaid recipients, 271,424 are enrolled in the managed care plans Medallion or Medallion II. Medicaid covers 7% of total health care costs in the United States\textsuperscript{56} and 12% of all older adults’ health care costs.\textsuperscript{57}

Eligibility for Medicaid is based on several factors, such as family income and unpaid medical expenses, and is determined by the Department of Social Services. In general, all recipients of Temporary Assistance for Needy Families (TANF) and Supplemental Security Insurance (SSI) are qualified to receive Medicaid. Pregnant women are eligible throughout their pregnancy and 60 days postpartum if they have an income of 133% or less of the federal poverty guidelines. Virginia also allows for coverage of the so-called “medically needy”. These are individuals who are over the income eligibility limit, but who have medical expenses that are equal to or greater than the difference between the income limit and their gross income.\textsuperscript{58}

All of the previously mentioned groups of individuals receive full coverage under Medicaid. Inpatient hospital care is provided for up to 21 medically necessary days. All inpatient visits, except emergency room visits, must be pre-authorized by a physician. Outpatient hospital care as well as physician services in-office or in a hospital are covered. Health department or
other licensed health clinic costs are also reimbursable. Medicaid covers many more services such as early and periodic screening diagnosis and treatment which includes nutritional check-ups for children under the age of 21 years. Other services include home health care, purchasing medical supplies such as blood glucose self-monitoring strips for diabetic children, nutrition counseling and education classes for pregnant women, hospice care of the terminally ill, and renal dialysis for patients with end stage kidney disease. Services that are not covered include weight loss programs, routine physicals and immunizations for adults, telephone consultations with physicians, and remedial education classes for those other than pregnant women.58

**Medicare.** The Medicare program is a universal health insurance program for the aged and certain groups of the disabled.57 All Medicare recipients receive part A which mainly covers hospital stays. Part B must be purchased (monthly premium = $48.10) and covers physician visits and physician-related costs, such as x-rays and radiation treatments.59 The average Medicare beneficiary has an annual income of less than $25,000 and receives just over $2,000 a year in benefits from the program. Medicare pays for 45% of older adults’ health care costs, while private sources pay 37%.57 Medicare covers 20% of total health care costs in the United States.56

The Medical Nutrition Therapy Act was introduced during the 104th Congress, but has not been passed as of early 1998. This act would provide coverage for medical nutrition therapy, which includes diet modification and assessment of patients’ nutritional status, under Part B of the program. If made into law, the Medical Nutrition Therapy Act would generate $65 billion a year in hospital savings from the management of diabetic patients alone.60

In summary, FSNEP is the only free community nutrition education program designed for older, low-income individuals. EFNEP and WIC serve younger clients but do not specifically target Food Stamp households. Medicaid provides health insurance to limited resource individuals with older adults comprising 10% of all recipients. Medicare Part A (hospital
insurance) is available to all older Americans, regardless of income level, whereas Part B (physician insurance) must be purchased. Medicare pays for a substantial portion of older adults’ health care costs in the United States. Since older, low-income adults have a high rate of diet-related chronic diseases and conditions and are not receiving adequate dietary counseling from their primary-care physicians, there is a strong need for these individuals to be referred to free community nutrition education programs.

**QUESTIONNAIRES AS SURVEY INSTRUMENTS**

The use of questionnaires as a survey instrument creates both problems and advantages for researchers. In terms of advantages, mail questionnaires cost 50% less to administer than telephone interviews and 75% less than personal interviews to reach the same number of subjects. Also, a very large and representative sample can be reached through the mail. Potential drawbacks include a lengthy turnaround time, which is the time from when the questionnaire is initially mailed to when it is received, and obtaining incomplete or improperly answered questions.61

Physicians, as a study group, present additional problems when using a mail questionnaire. They usually work within severe time constraints and often are shielded from receiving mailed questionnaires by office managers. This leads to low response rates which typically range from 11% to 36%.12,36,61-63 depending on the researchers’ aggressiveness in pursuing follow-up.

There are several steps that can be taken to increase response rates. For one, a follow-up postcard should be mailed seven to fourteen days after the initial mailing.61,62,64 This card should express gratitude to those who have returned the questionnaire and request return of the survey from non-respondents. The card should also re-emphasize the importance of the subject’s participation.10 Other steps include personalizing the survey by placing a stamp on the return envelope and signing the cover letter.65,66 The cover letter should include sponsorship information, reasons the subject’s participation is important, a statement of
confidentiality, and the name and phone number of a contact person.\textsuperscript{61,64,65,67}

Within the body of the survey, questions should not solicit details about events that occurred more than three months prior to the mailing date since this tends to frustrate respondents.\textsuperscript{68} The request for demographic information should always be placed at the end of the questionnaire since many people feel that these types of questions are somewhat invasive.\textsuperscript{65} Furthermore, the same format should be consistently used throughout the survey so that respondents can easily move from one section to another.\textsuperscript{66}

The actual questions should not request duplicate information or address potentially embarrassing issues.\textsuperscript{66,67} They should be specific and as clear as possible to avoid different interpretations on the meaning of a question.\textsuperscript{68} Furthermore, questions requiring the least amount of thought should be placed at the beginning of the survey, while open-ended questions should appear at the end. Often respondents will decide not to complete a questionnaire if the first few questions are difficult and require extensive thought.\textsuperscript{65}

Before mailing the questionnaire to the study group, it should be pilot tested with a few members of the population to be studied. The pilot group should be asked for suggestions on improving the questions and general layout of the questionnaire.\textsuperscript{65}

When low-income individuals are to be surveyed, the reading level of the subject group should be taken into account. The questions should be written on a fifth grade reading level since 20\% of the United States population reads at or below this level.\textsuperscript{31} In fact, Hartman et al.\textsuperscript{31} found that 37\% of EFNEP clients in the Minneapolis-St. Paul area had literacy skills at or below the eighth-grade level.

**OVERALL SUMMARY**

Older, low-income individuals have many health care needs, such as the management of diet-related chronic diseases and conditions. Primary-care physicians provide some, but not an
adequate amount, of nutrition counseling to this group. Nutrition is very important in the management and prevention of diet-related chronic diseases and conditions. Referrals to nutrition professionals would provide additional nutrition education to patients, but many people can not afford the services of RDs or are simply not referred to them by their primary-care physician. Thus, there is a great need and potential for older, low-income adults with diet-related chronic diseases and conditions to be referred by their primary-care physicians to free community nutrition education programs, such as FSNEP.