

A Research-Driven Life: Seeking and Developing a Nurse Scientist Role in the Rural Setting

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2005 Oncology Nursing Society Distinguished Researcher Award

Dr. Frank-Stromborg's involvement with the Oncology Nursing Society (ONS) spans more than a quarter of a century. Her contributions to the organization have been significant as evident by the following trajectory. Her work in the areas of education and research has been creative and innovative. Her leadership has had an impact on many of the organization's activities and programs. ONS is very appreciative of her long-standing involvement and congratulates her on receiving the 2005 ONS Distinguished Researcher Award.

- 1978: Joined ONS
- 1979: Founding member of the ONS Research Committee
- 1983: Developed a research column in the *Oncology Nursing Forum* that focused on available instruments to measure phenomena relevant to the oncology population
- 1983–1985: ONS Research Committee chair
- 1984–1991: Principal investigator on a series of ONS/National Cancer Institute (NCI) grants to educate more than 500 minority nurses about cancer prevention and detection annually throughout the country
- 1985–1986: Director-at-large on the ONS Board of Directors
- 1985–1995: Codirector of the ONS/NCI Cancer Nursing Research Short Course
- 1986: Presented the ONS Foundation Mara Mogensen Flaherty Memorial Lectureship
- 1987–1988: Secretary on the ONS Board of Directors
- 1995–2000: Oncology Nursing Certification Corporation (ONCC) Research Committee Chair
- 2004: Member of ONS Task Force to develop the *Delegating Cancer Care Toolkit*
- 2003–2005: Represents ONCC as chair of the American Board of Nursing Specialties Research Committee

When I received word that I had been chosen for this award, my first thought was disbelief. Since the award first was given in 1992, I have marveled at the accomplishments of the recipients. I went back and reread the articles each recipient had written and was struck with the level of professionalism, scholarly productivity, and vision for nursing these nurse scientists exhibited throughout their careers. To be selected for the 14th Oncology Nursing Society (ONS) Distinguished Research Award, supported by Bristol-Myers Squibb Oncology, given the caliber, contributions, and impact on oncology nursing of the other awardees is indeed a humbling experience. I had doubts while preparing for this talk, thinking, "I'm not worthy." Other awardees (Given, 1995; Grant, 1999) also have mentioned this feeling of not doing enough to deserve the award. This is especially true because my educational background, employment setting, and research activities

represent an entirely different nurse researcher model than has been spotlighted previously.

I obtained an EdD in educational psychology in 1974. As Lillian Nail, RN, PhD, pointed out in her Distinguished Researcher Award presentation (Nail, 2002), the first generation of oncology nurse scientists obtained their doctoral degrees in disciplines other than nursing in the early 1970s. All of the past recipients of the award have been nurse scientists in large academic settings or freestanding oncology clinical settings, such as the City of Hope and St. Jude Children's Research Hospital. In contrast, I have spent the past 28 years employed at Northern Illinois University (NIU) in DeKalb, a public, non-research-intensive state university. I was a professor in the School of Nursing at NIU that had a master's program consisting of three clinical specialty tracks and no doctoral program. For many years during my employment as a professor, there were limited resources or role models for nursing faculty desiring to conduct research in non-research-intensive academic settings (Waugaman & Schneiderman, 2004). Another significant difference is that the largest hospital in our county is only 100 beds. Until recently, our county had no oncologist or oncology treatment, and the nearest comprehensive cancer center was approximately an hour away. The previous award recipients all have developed research programs that are narrowly focused on behavioral oncology research, symptom management, or outcome indicators such as Mock's investigation of fatigue (Mock, 2003), Dodd's self-care research (Dodd, 1997), Ferrell's quality-of-life work (Ferrell, 1996), and Miaskowski's pain management investigations (Miaskowski, 2000). In contrast, my research program of oncology studies is much broader in scope and has encompassed a multiplicity of areas.

The focus of this article is an overview of the research activities I have participated in during the past 30 years. What I hope to accomplish is to share with you how a research career can be shaped outside major academic or medical centers that



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are located in urban areas. I believe that the most essential ingredients for a research career are not factors external to the person but rather an internal desire to conduct research and contribute to the literature of the profession. This internal desire literally drives and propels everything you do. In fact, when reading all of the presentations by winners of this award, what strikes the reader is that these nurse scientists use every available opportunity to investigate, question, hypothesize, and share what they have learned about the profession. They have a passion—the proverbial fire in the belly—to share what they have learned and advance the scientific knowledge of the disciplines.

The Beginning

My first civilian job after leaving the U.S. Air Force was as an instructor in the College of Nursing at the University of Illinois in Chicago. My assignment was teaching rehabilitation nursing to senior class students. I remember that one of the first questions Dean Mary Kelly Mullane, RN, PhD, asked me when I interviewed for the teaching position was when I intended to get my doctoral degree. This put the seed into my mind. It flourished and came into fruition two years later. It was the practice of the senior faculty that if they could not accept a professional invitation, they made sure another faculty member was recommended. Virginia Olsen, RN, PhD, was asked to speak at a public health educators conference on tuberculosis content in nursing program curricula. When she asked me if I wanted to give the presentation, I gladly accepted the opportunity. Of the many ways that this talk could have been organized and presented, my approach was to go out and visit every nursing program in the city and interview key faculty involved with curriculum development to ascertain how much, where, and when tuberculosis was included in their curricula. I performed a content analysis of all of the interviews, established themes, analyzed current curriculum content, and formulated recommendations for change. The editor of *Nursing Outlook* was in the audience when I gave the presentation. She contacted me shortly after the conference and asked me to publish my presentation as an article (Stromborg, 1971). Following the article's publication, I was contacted for permission to include it in a book on respiratory nursing trends (Stromborg, 1972). My initial foray into conducting research and publishing was as addictive as smoking. I was hooked for life.

I became pregnant at the end of my first year of teaching at the University of Illinois and, because of pregnancy complications, had to move back home with my parents and was on bed rest for the majority of the pregnancy. After a few months of little to no activity, I talked my parents into driving me to NIU, which was about five miles away, where I enrolled in graduate school. I registered for two graduate courses in the educational psychology program that were offered back to back on the same night. I thoroughly enjoyed the classes and at the end of the semester decided to pursue a doctoral degree at NIU in educational psychology. The dissertation subject I selected was the relationship of sex role identity to occupational image of female nursing students. This was happening during the heart of the women's liberation movement in America, and there was increasing attention to the whole concept of socialization of females to a profession. In the spring of 1973, the Minnesota Multiphasic Psychologi-

cal Inventory Male-Female Scale and the Image of Nursing Questionnaire (INQ) were administered to 430 female nursing students in two baccalaureate, five associate degree, and five diploma programs in northern Illinois. A secondary purpose of the study was to determine whether identifiable groups (i.e., students who differed in age, type of nursing program, and education and occupation of parents) differed in their image of nursing. Sex role identity had a significant ($p < 0.001$) positive relationship to image of nursing. The students' image of nursing was more in harmony with the image advanced by the profession when the students' sex role identity was more masculine. An analysis of variance indicated that students with a highly feminine sex role identity had significantly lower total INQ scores and were, therefore, in disharmony with the professional image of nursing. Graduates of associate degree and baccalaureate programs had an image of nursing more in harmony with that advanced by the profession than students who graduated from diploma programs. This study was published in *Nursing Research* (Stromborg, 1976). Like those of all other doctoral students, my dissertation was a labor of love and I was convinced that this would be an area of research in which I would continue to be involved. My dissertation research would have been funded by a doctoral support grant from the Division of Nursing, Health and Human Services, but unfortunately, the year I was to receive the grant, President Nixon impounded the funds. By the time the funds were released, I had completed data collection and analysis and no longer was eligible for the grant award.

1974 was a busy year for me. I finished the adult nurse practitioner program at Rush University in Chicago, completed my doctoral program, and was pregnant with my second child. My first clinical position as an adult nurse practitioner was at the newly opened Greenbrier Cancer Detection clinic in a western suburb of Chicago. The concept of a cancer detection clinic was new at that time, as was the role of the nurse practitioner. Working in a cancer detection clinic provided a serendipitous opportunity that would lead to a lifelong involvement in cancer prevention and early detection. For instance, I heard from the clinic nurses that patients continually commented about the differences between doctors and nurse practitioners. Another area that fascinated me was the reasons people gave for attending the clinic. My curiosity about the motivators for clinic attendance and satisfaction with the health care delivered by nurse practitioners versus that delivered by physicians led to my next study, "Nurse Practitioner Acceptance in Cancer Detection Clinic" (Frank-Stromborg & Bourque-Nord, 1979). My coinvestigator and I funded this research because of our excitement of discovering the answers to our questions. I received permission from the physician who owned the clinic to do the study. Additionally, I enlisted a friend from my doctoral program, who was a good statistician, to be the coinvestigator. During the year-long study, 277 individuals were assessed and screened by the clinic personnel. A total of 198 people correctly completed and returned the questionnaire for a return rate of 71%. Respondents and nonrespondents were compared on a number of variables, and only one significant difference was uncovered: a significantly higher percentage of respondents had a relative die from cancer than nonrespondents. The three most frequent reasons people gave for attending the cancer detection clinic were a belief in preventive check-ups (62%), the clinic's physical proximity to a respondent's home (47%), and having a friend or relative with cancer (41%). Chi-

square analyses revealed no significant difference in degree of satisfaction with the assessment and screening and whether it was performed by a physician or nurse practitioner. Breaking down the results by gender demonstrated no significant differences in degree of satisfaction with the cancer assessment and screening in relation to the type of health care. Subjects also were asked to react, according to whether a physician or nurse practitioner performed the examination, to as many of the 12 descriptors of their assessment and screening that they believed applied. In comparison to how they viewed the physicians, a significantly higher percentage of respondents (a) saw the nurse practitioner as a caring individual, (b) said the nurse practitioner explained the procedures of the examination, and (c) felt more comfortable having an examiner of the same gender. The last result could have been inflated by the particular sample because it was 66% female. This was the first study to show that a white, middle-class population would accept a cancer detection assessment and screening conducted by a nurse practitioner, and it was published in *Nurse Practitioner* (Frank-Stromborg & Bourque-Nord).

In the mid-1970s, the American Nurses Association started offering certification examinations for nurse practitioners. I believed that it would be helpful for nurses studying for this test to have a book with case studies, questions, and explanations for the correct answers. After approaching a publisher and developing a sample chapter on this concept, my husband and I wrote the first book for nurses desiring to prepare for certification examinations: *Primary Care Assessment and Management Skills for Nurses: A Self-Assessment Manual* (Stromborg & Stromborg, 1979). My commitment to the practitioner role has continued regardless of any position I held. I maintained a clinical practice as a nurse practitioner one day a week for 18 years in various settings in DeKalb County. A significant portion of my clinical practice focused on cancer prevention and early detection, which enriched and provided authenticity to my teaching, writing, and research activities.

There has been a certain eclectic approach to my scholarly activities in that many articles, book chapters, workshops, and presentations have been clinically oriented with a focus on cancer prevention and early detection (e.g., Frank-Stromborg, 1989a; Frank-Stromborg & Cohen, 2000). One method of laying the groundwork for a research career is to initially focus publications in one clinical area. Publishing extensively in a clinical area will assist you in building credibility for securing funds for pilot studies that could ultimately lead to securing larger funding. I found this to be true later in my career when I sought funding for focused cancer prevention and detection research studies.

Commitment to Oncology Nursing Training Grant Opportunities for Research

In 1976, Anne Hart, RN, EdD, chair of the NIU School of Nursing, wrote a training grant for an adult and pediatric oncology clinical specialist program. This grant was selected to receive funding from the Division of Nursing's Department of Health, Education, and Welfare (1977–1980). It was the first oncology clinical specialist program funded by an Advanced Nurse Training Grant from the Division of Nursing. Because my husband was joining my father's medical practice in a small rural town near NIU, I was recruited to be

the project director for the grant. The grant included bringing in nationally recognized oncology nurses to consult on the newly developed community-based curriculum. We were able to bring to campus Virginia Barkley, RN, from the American Cancer Society; Ann Bavier, RN, MS, an oncology clinical specialist; Lisa Begg Marino, RN, MS, one of the founders of ONS; Ida Martinson, RN, PhD; Tricia Green, RN, MS, an oncology pediatric clinical specialist; and Diane Fochtman, RN, MS, a pediatric oncology clinical specialist from Children's Memorial Hospital in Chicago. I vividly remember the surprising and honest questions about how an oncology clinical specialist program could be offered in a rural setting with no major adjacent medical center. Community-based cancer care was not yet a widespread concept, and at that time dying and death were synonymous with having cancer. We had designed a unique curriculum that focused on patients with cancer living with the disease in the community and giving students the skills to plan, design, and implement cancer prevention and early detection clinical and educational programs. The staff included Penny Wright, RN, BSN, Beverly Post, RN, BSN, Mike Segalla, MA, and Judy Diekman, RN, EdD.

Although this three-year grant was primarily a training grant, we recognized the unique research opportunity and used it to conduct several major studies with healthcare professionals and patients. The initial research studies were piggy-backed onto the training grant and laid the ground work for pilot studies to support future applications for research grants.

Two specific approaches were used in the oncology training grant to increase the number of nurse researchers in the northern Illinois region. The approaches were (a) graduate nursing students were involved in every aspect of data collection and analysis, and (b) funds were built into the grant to provide summer funding for faculty research.

In the 1970s, oncology nursing was in its infancy (Carroll-Johnson, 2005). Because there was little to no information about the role of the oncology clinical specialist, the grant staff developed a questionnaire that enabled us to gather baseline data about the employability of oncology clinical specialists and their clinical utilization. The questionnaire also was used as a basis for personal interviews and as a survey tool mailed out to selected groups. Project staff visited every public health agency, visiting nurse association, and large hospital in the 22 counties comprising northern Illinois. The questionnaire also was sent to every oncologist or physician in the area with an interest in cancer, every public health agency, nursing home, school of nursing, visiting nurse association, and hospital in northern Illinois.

The response rate was 95% (20 of 21) for the schools of nursing and 100% for hospitals (50 of 50). The major findings were (a) directors of large hospitals and diploma nursing programs were the most favorable toward use of cancer clinical nurse specialists, and (b) there was a high level of agreement between nursing service and nursing educators when asked about the subject areas that should be included in a curriculum that prepares cancer clinical nurse specialists and the clinical functions that type of nurse should perform. The similarity of opinions between nursing service and nursing educators was validated using Kendall Tau B correlations. It is interesting to note that more than 25 years ago, nurses in service, administration, and education conceptualized the cancer clinical nurse specialist as an advanced practice nurse by stating that they

should be involved in patient education, make referrals and nursing interventions based on psychological assessments, and use physical assessment techniques in outpatient, hospital, and community prevention and detection settings.

During the second year of the project, the staff developed the Health Survey instrument. The survey was produced for the purpose of discovering lifestyle changes caused by cancer as perceived by a group of ambulatory patients with cancer. The study in which the Health Survey was used was unique in that the focus was on ambulatory patients living with their cancer in the community. In contrast, most nursing studies during that time period focused on the needs of patients with cancer in the acute care setting. The Health Survey was distributed in 39 oncology outpatient units throughout the 22 counties of northern Illinois, with 323 questionnaires constituting the final sample. We anticipated that with the diagnosis of cancer, there would have been significant physical, psychological, and social changes in patients' lifestyles. Results of the study indicated that for more than 50% of the participants, there were three physical parameters and no psychological or social parameters that ambulatory patients indicated changed with the diagnosis of cancer: (a) level of physical activity, (b) sleeping habits, and (c) weight. The results did not support the assumption that a diagnosis of cancer always produced broad changes in lifestyle.

In addition, the results indicated differences in the communication patterns of the respondents with their physicians and nurses, as well as their level of satisfaction with these interactions. Analysis indicated that more respondents discussed problems related to their disease and diagnoses with physicians than with nurses and that physicians provided them with information about their disease and treatment. Most of the patients who discussed their problems with nurses also discussed problems related to their diagnosis but indicated that discussion with nurses provided support and reassurance rather than information about their disease and treatment. Lower patient satisfaction with nurse interactions may have been the result of an apparent inability on the nurses' part to meet patient expectations. The study indicated that nurses were not effectively using their opportunities for patient teaching in ambulatory oncology clinical settings. Interestingly, Dodd's (1982, 1983) research at that time also supported this statement. Another finding that merited attention by the profession was the frequency with which patients reported the inability to discuss problems with nurses because of little nurse-patient contact. This sample of patients had had cancer for more than two years. The recommendations for increasing the visibility of nursing and its educational role with patients were widely disseminated and provided a stimulus for further research in this area. A positive finding was that the overwhelming number of people reported that their respect for nurses had increased since their diagnosis of cancer (Frank-Stromborg & Wright, 1984).

The last question of the Health Survey was open-ended: "What do you remember of your feelings after you received the diagnosis of cancer?" Content analysis of responses revealed seven mutually exclusive themes. A substantial number of responses (27%) indicated that patients with cancer had a confronting, positive attitude toward their disease. Typical statements were "I decided to make the best of it" and "I decided to beat the cancer." In contrast, 29% indicated shock, fear, and disbelief, and 16% reflected feelings of anger, depression, or hopelessness. A small number (9%) of

respondents indicated that they did not want to think about the diagnosis. The smallest number of responses was those indicating feelings of amputation of their future (7%), renewed faith (6%), and doom (6%). The diversity of responses to the initial diagnosis of cancer was affirmed by this study and was in stark contrast to the literature that described the reactions as shock, fear, anger, and depression. The importance of this initial work is that up until that point, it was assumed that all people fell apart when given a diagnosis of cancer. Just as healthcare professionals come to understand the great capacity of the body to compensate physically for injury and disability, this research pointed out the resilient nature of the psyche, its compensatory mechanisms, and its ability to restore emotional homeostasis (Frank-Stromborg, Wright, Segalla, & Diekmann, 1984).

These early studies facilitated the movement of treating the "whole" person and not just physiologic phenomena (e.g., pain and symptoms produced by the disease and therapeutic regimens). A major finding from this work was that patients adjusted to the diagnosis of cancer, and they commented that while others saw them as dying, they were still living. This led to my work focused on developing and testing effective health promotion interventions in cancer populations. The use of Pender's Health Promotion Model (HPM) as the framework for these research studies contributed to the refinement and early validation of this model.

The survey results from the schools of nursing and hospitals were published in the *Oncology Nursing Forum* (Stromborg, Diekmann, Segalla, & Wright, 1979).

Securing Substantial Research Funds Based on the Training Grant Research

In the fall semester of 1983, four NIU faculty members met to discuss the possibility of submitting a program grant (Pender, Sechrist, Frank-Stromborg, & Walker, 1987). The four faculty were Nola Pender, RN, PhD, Karen Sechrist, RN, PhD, Susan Walker, RN, EdD, and me. We were motivated to target research efforts by mutual need for collegial interaction and support in doing research. The group identified health promotion as a common area of research interest and testing the HPM as the "organizing core" for our collaborative research efforts (see Pender et al. for a thorough discussion of the development of the program grant).

To ensure relatedness of the four projects to be developed, it was decided that analogous research questions would be asked in all studies. This would permit parallel analyses within the separate studies and, more importantly, analysis of the combined dataset across all studies.

This group of faculty made a commitment to work together in preparing a program grant proposal despite full-time teaching loads, university committee assignments, lack of research assistants, lack of compatible computer programs, and lack of statistical support. All of those factors made undertaking a collaborative research approach seem impossible. Benoliel (1973) noted, "Even when members of the same discipline combine forces in a study, they can encounter tremendous difficulties because of variations in points of view, goals and anticipations, and personal needs" (p. 5). Making a commitment to this collaborative research endeavor meant a willingness to synthesize personal goals with group goals, to meet mutually agreed on deadlines, to set aside time for discussion and thoughtful review of each other's written drafts of the components of the

proposal, and to accept constructive criticism from each other. The more than 1,000-page proposal was written over a four-month schedule that included the development of a core grant and four separate proposals that comprised the program grant. We viewed the collaborative effort in the same way some view starting a business. We each purchased our own computers ourselves so that the programs would be compatible, hired and paid for a statistical consultant who worked with us from the initial development of the proposal, shared costs with the School of Nursing to have outside consultants read final drafts of the grant, and edited and printed final copies of our proposals because of time constraints and the heavy work load in the Office of Sponsored Projects. In January 1985, with three research projects approved, the research program, Health Promoting Behavior: Testing of a Proposed Model, was funded by the National Center for Nursing Research (Pender, 1988). The fourth project was revised as suggested by reviewers, resubmitted as a supplement to the program, and funded in September of 1986 (Pender & Walker, 1990).

The primary purpose of the study of ambulatory patients with cancer (one of the four projects in the program grant) was to test the usefulness of the HPM in explaining the occurrence of health-promoting lifestyles among ambulatory patients receiving chemotherapy and radiation in outpatient settings. A second purpose was to determine the extent to which cancer-specific cognitive or perceptual and modifying variables not in the model further explained the occurrence of health-promoting lifestyle in ambulatory patients with cancer. It was a descriptive, correlational, ex post facto field study.

Cognitive or perceptual variables in the HPM were key to measuring a health-promoting lifestyle. Because there were no questions that measured cognitive or perceptual variables related to cancer diagnosis, I developed them based on my earlier work from 1977–1980 in which ambulatory patients with cancer responded to the question “What do you remember of your reaction to the diagnosis of cancer?” on the Health Survey. The cancer-specific cognitive or perceptual variable that was not in the HPM was the reaction to the diagnosis of cancer. Content validity was built into the Reaction to the Diagnosis of Cancer Questionnaire (RDCQ) through responses supplied by 340 ambulatory patients to the question “What do you remember of your feeling when first told you had cancer?” that was completed during research conducted during the 1977–1980 Advanced Nurse Training Grant. A convenience sample of 30 ambulatory patients who were undergoing chemotherapy completed the initial RDCQ and were retested three weeks later. The test-retest correlation was $r = 0.86$, suggesting that the RDCQ was stable. Factor analysis on a convenience sample of 441 ambulatory patients confirmed the existence of two separate and distinct dimensions to the initial diagnosis of cancer that explained 61% of the variance; the two dimensions were confronting reactions and distress reactions. Internal consistency for the total tool ($\alpha = 0.896$) and the two subscales of the RDCQ (confronting dimension = 0.82, distress dimension = 0.91) was high (Frank-Stromborg, 1989b). The tool subsequently has been used by more than 50 researchers for theses, dissertations, and clinical research and has been translated into several languages, including Korean.

After final development of the RDCQ, a sample of 385 ambulatory patients undergoing cancer treatment in 18 clinical sites in northern Illinois participated in the health-promoting

research. Patients participating in the study met the following criteria: (a) older than 21 years, (b) known diagnosis of cancer, (c) English as a primary language, (d) physically, emotionally, and mentally able to complete the research instruments, (e) a score of 60 or higher on the Karnofsky Performance Scale (Karnofsky & Burchenal, 1949), and (f) receiving treatment for cure (not palliation) as defined by the physician. Of the 385 participants, 223 (58%) were female and 162 (42%) were male. Their ages ranged from 21–85, with a mean of 53.7 years ($SD = 12$). As might be anticipated from the larger percentages of women in the sample, the largest number of participants indicated that their primary cancer site was the breast (115 or 30%). The other participants had lymphatic cancer (64 or 17%), colorectal cancer (61 or 16%), lung cancer (40 or 10%), or uterine or vaginal cancer (31 or 8%). The majority of the sample (284 or 74%) was receiving chemotherapy, with a smaller number (98 or 26%) receiving radiation. Three participants had just completed treatment. Many were employed full-time (155 or 40%), married (277 or 71%), and Caucasian (375 or 97%).

In this initial test of the HPM, not all variables could be measured because of the potential for participant fatigue in individuals undergoing treatment for cancer. Variables that were chosen were those believed to be most important conceptually and theoretically, as well as those for which reliable and valid measurement instruments were available. Four of the seven cognitive or perceptual variables in the HPM measured at a health-specific rather than behavior-specific level were examined as possible factors influencing overall health-promoting lifestyle. In addition, a cancer-specific cognitive or perceptual variable not in the model, the initial reaction to the cancer diagnosis, was measured. Several modifying variables in the model within the categories of demographic characteristics, as well as some cancer-specific modifying variables, were assessed as indirect influences on lifestyle. Variables measured in the study were importance of health, perceived control of health, definition of health, perceived health status, reaction to the diagnosis of cancer, and demographic measures, including months since cancer diagnosis, primary cancer site, treatment, and Karnofsky score.

The study found that perceptions of health status, definition of health, and control of health emerged as a constellation of HPM constructs that were associated with reported health-promoting lifestyle behaviors among ambulatory patients with cancer. The cancer-reaction cognitive-perceptual variable also contributed to explaining a health-promoting lifestyle. It was the only cancer-specific variable that was found to be predictive of a health-promoting lifestyle and was one of the four strongest explanatory variables. All of the HPM cognitive or perceptual variables that were studied, except importance of health, were associated with health-promoting lifestyle behaviors. The modifying factors of education, age, income, and employment made a modest contribution to the explanation of health-promoting lifestyle after consideration of general and illness-specific cognitive or perceptual processes. Of these modifying variables, education and age were the strongest predictors of a health-promoting lifestyle. Thus, the profile of ambulatory patients in outpatient chemotherapy and radiation settings who were more likely to report a health-promoting lifestyle had more education, rated their personal health status as high, held a wellness-oriented definition of health, confronted their diagnosis of cancer, were older,

and expressed the belief that their health was controlled by themselves rather than by chance (Frank-Stromborg, Pender, Walker, & Sechrist, 1990).

This study had potential clinical relevance because it helped to contribute to an understanding of (a) the health-promoting, self-care behaviors in which ambulatory patients with cancer engaged and (b) which potentially modifiable variables explained a health-promoting lifestyle. Both provided a basis for nursing interventions. Healthcare professionals have the major responsibility for instructing patients with cancer in self-care behaviors, including those that are health-promoting, and for assisting patients to achieve the knowledge and competencies that can be used to maintain and enhance their health. To promote and facilitate health-promoting behaviors, it is necessary to understand the variables that affect decisions to engage in such behaviors.

Because there was almost nothing in the literature about the health-promoting behaviors of people with cancer, we designed an additional tool that was unique to the sample with cancer so we could obtain baseline data on their health-promoting behaviors. The unique instrument was a Health Diary. The Health Diary was a personal, daily record of health-related events that the individual with cancer completed every day for a month. It was designed to be sent postage-paid to the researchers at the end of each week. The diary used daily ratings and yes-and-no and open-ended response questions. All questions were designed to evaluate what ambulatory patients with cancer do to make themselves feel better. It is important to stress that it was designed to elicit positive responses about health actions, feelings, and interactions in contrast to episodes of illness, symptoms, and disabilities. The majority of information obtained by the Health Diary was qualitative. The number of patients who filled out the Health Diary totaled 108; 59% were female and 41% male (Frank-Stromborg, 1986, 1988).

The data from the Health Diary provided strong evidence that it was possible to be healthy at the same time as one had cancer, a chronic disease. The surveyed sample of 108 ambulatory patients undergoing cancer treatments was engaging in behaviors representative of the dimensions of health-promoting lifestyle. This was evidenced by nutritional awareness, stress management, social health, exercise, movement toward a more desirable level of health through their information-seeking behaviors, and self-actualizing tendencies. Only data related to exercise will be discussed in this review.

At the time this research study was conducted, fewer than 10 studies had investigated the impact of exercise on patients with cancer. Other than Winningham and MacVicar (1988) and MacVicar (1983), no other nurse researchers were investigating the area of exercise in patients with cancer. We contacted and visited Winningham and MacVicar at Ohio State University once we identified that they also were investigating this area, and a rich exchange of information resulted from the visit as well as a wonderful professional, collegial relationship. The global assumption was that patients with cancer were too sick to be involved in exercise and other health-promoting activities. The data from the health diaries cast doubt on that assumption. The types of exercise behaviors reported in the diaries were the same as those found in the general population, including walking, riding a bicycle, work- or home-related physical exertion, aerobics, using a treadmill, bowling, push-ups, swimming, marathon running, weight lift-

ing, and jumping on a trampoline. Before keeping their health diaries, participants were asked general questions about their involvement in exercise prior to and after the diagnosis of cancer. Thirty-eight percent indicated that they were exercising after the diagnosis (32% both before and after the diagnosis and 6% only after the diagnosis). A smaller percentage (28%) indicated that they exercised before the cancer diagnosis but not after, and 33% did not engage in exercise before or after the cancer diagnosis. The specific types of exercise included physical exercise (31%) or tenuous aerobics (32%).

We received 2,636 responses to the daily question in the Health Diary asking about exercise conducted during the day and their feelings about the activity. The majority indicated that they were involved in basic activities such as walking. The next largest group was involved in doing mild exercises and stretching exercises. A small percentage of the sample was doing strenuous exercise. About 21% of the sample indicated that they were doing "other" exercises. When content was analyzed, the "other" exercises they listed primarily were classified as mild and strenuous. The feelings expressed about the exercise they were doing were overwhelmingly positive (67%). The majority of ambulatory patients with cancer indicated that the exercise they did made them feel good, very good, or relaxed. A much smaller percentage indicated that exercise made them feel so-so or poor. The narrative comments written in by the subjects expressing their emotions about exercise ranged from "Ugh!" and "pooped" (exhausted) to "more alert" and "exhilarated." The following examples illustrate the qualitative comments expressed about exercise.

- A 29-year-old female secretary who had been on chemotherapy for several years with primary cancer of the vena cava and metastasis to the liver stated that aerobics and bicycling exercises made her "feel stronger mentally and physically."
- A 73-year-old female manager of a dry cleaning business who had lymphoma and was on an active chemotherapy protocol was involved in multiple unique exercise programs and wrote, "We went square dancing, which we have been doing for the past 25 years or more, and it was great." Another day she wrote, "I sat in my rocker and rocked strenuously, and that felt as good as exercising," and "went to our dance class which is two hours long. Makes us feel good physically."
- A 33-year-old female physical education teacher who had adenocarcinoma of unknown primary origin with multiple bone metastasis and was in her 32nd month of cyclophosphamide and 5-fluorouracil. Her daily routine after work included weight conditioning, competitive swimming, and jogging four miles, all of which she stated, ". . . motivates my thinking and competitiveness to beat my cancer."

This innovative, ground-breaking study pointed to the need for oncology nurses to include discussions of health-promoting activities with their patients. It was urged that nurses identify and track people who were actively pursuing a health-promoting lifestyle. Do such people do better? If so, in what ways? In the Mara Mogensen Flaherty Memorial Lecture delivered at the ONS 11th Annual Congress, I pointed out that, as oncology nurses, we have accepted the premise that our role includes illness prevention as well as acute care skills. We also needed to recognize and incorporate health-promotion strategies into our oncology nursing practice. The model that we need to look to is cardiac nursing. Following

a myocardial infarction, individuals are immediately put into a structured health-promoting program that includes stress reduction, smoking cessation, exercise, and nutrition counseling to promote a healthy diet. Patients after myocardial infarction are actively involved in their care and program of getting well again. The same is true of patients with diabetes and hypertension following their diagnoses. By determining the relationships between the HPM's cognitive or perceptual, demographic, and cancer-specific variables, this five-year, federally funded study contributed to the development of theory in the area of health promotion. The findings from this study facilitated identification of adults with cancer who are likely to incorporate health-promoting behaviors into their lifestyles or who would profit from behavioral change programs such as training to foster a wellness orientation to health and evaluation of health within a wellness framework, and to encourage a "confronting" orientation to the diagnosis of cancer. It is my fervent belief that increasing competency in health-promoting behaviors could enhance the quality of life as well as the level of personal health for adults with cancer.

Based on the belief that nurses have an essential role in promoting healthy lifestyles for patients with cancer, an essential goal of the project was to mentor and increase the number of nurse researchers in northern Illinois. That was accomplished by inviting more than 50 graduate students to participate in all aspects of the research project during the five years of funding. Furthermore, they were invited to participate in the dissemination of the findings at state, regional, and national conferences to further role model and mentor their scientific reasoning skills. I made a point of integrating all research findings and the research process into the graduate and undergraduate courses that I was assigned to teach. Nursing faculty members also were actively involved in the project, and several faculty were assisted by project personnel in securing their own federal research grants.

The grant personnel presented their research nationally and internationally and published extensively throughout the literature before the grant ended. The importance of research was recognized as I was the only nurse invited to present at the annual Science Writers' Seminar of the American Cancer Society in 1987 and my selection for the 1986 ONS Foundation Mara Mogensen Flaherty Memorial Lectureship.

The high productivity of the team was the result of the collaborative efforts of all members and ongoing commitment to sharing expertise and individual skills with each other. It is difficult to envision working alone after experiencing the richness and growth that come from working with professional colleagues on a research project. Forming collaborative teams has been shown to be an effective approach for increasing scholarly productivity and ensuring success for obtaining research funds when working in a setting with limited resources.

At the end of the five years, the grant personnel, Pender, Sechrist, and Walker, left the university for other career opportunities, and I became a full-time law student. Unfortunately, it is common for grant personnel to scatter when the funding for a long-term research project ends. However, when everyone left for other career opportunities, a substantial amount of data from the study was not published, including the in-depth interviews conducted over a year with exercise exemplars for which I had responsibility. Thirty-eight individuals who were outstanding exercisers were interviewed: 10 individu-

als in corporate exercise programs, 10 individuals in cardiac rehabilitation programs, 9 older adults in Senior Olympics, and 9 ambulatory patients with cancer in outpatient clinics. The interviews were one to two hours in length. Given the demands of generating research funds, publishing the results sometimes becomes secondary to securing more funding to keep the research team together, continuing release time, and other realities of academic employment. One word of advice that I would offer is that every effort should be made by researchers to have the majority of the results of the study reach the literature before moving on to another activity.

Commitment to Improving the Care of Cancer in Minorities

From 1984–1991, I served as principal investigator on four federal grants funded for more than \$727,860 to educate more than 500 minority nurses nationally. The grants were through ONS, and securing this funding has placed ONS at the forefront of nursing organizations with the longest and strongest track record of addressing this issue years before it became fashionable to do so. The strong research-based evaluation component of these grants documented the impact of these newly educated minority nurses on the lives of other healthcare professionals, the lay public, friends, and family members. These cancer prevention and early detection grants were designed to provide nurses with the necessary information to be able to return to their communities, set up primary prevention programs, and "make a difference." The results were disseminated through national publications and multiple national and international cancer conferences (Olsen & Frank-Stromborg, 1993, 1994a, 1994b). At the 1990 meeting of the American Society of Clinical Oncology, our report on these projects was selected to immediately follow a presentation from the secretary of Health and Human Services.

These workshops started with funding from the National Cancer Institute (NCI) for a one-day cancer prevention and early detection course specifically designed for African American nurses sponsored by ONS in the mid-1980s. The workshop was held the day before the 1985 ONS Annual Congress in Houston, TX. Although I had never written a grant before, under the tutelage of Ada Lindsey, RN, PhD, and Ruth McCorkle, RN, PhD, I was able to successfully secure funding. Dr. Lindsey generously shared similar grants she had authored, and Dr. McCorkle was instrumental in setting up a meeting with Barney Lepovetsky, PhD, JD, from NCI. Dr. Lepovetsky was a visionary who immediately saw the need for such a project and was a steadfast advocate for oncology nursing who enabled us to make this and other workshops a reality. Codirectors on this grant were Dr. McCorkle and Judith Johnson, RN, PhD (Frank-Stromborg, Johnson, & McCorkle, 1984). I had become acquainted with Drs. McCorkle and Lindsey when serving on the ONS Research Committee. A national call for applicants through the *Oncology Nursing Forum* and fliers sent to the 9,000 ONS members resulted in an overwhelming number of applicants. A total of 540 African American nurses applied for the 40 workshop openings. The nurses who were selected not only worked with African Americans but lived in African American communities after 5 pm and during weekends. Also selected were nurses who were active in their African American communities such as attending church, sending their children to community schools,

and belonging to social clubs and African American-oriented political organizations. The six-month evaluations indicated that the grant personnel was correct in the belief that the nurses would make an impact on their respective community and be able to initiate changes because they were perceived as a vital part of the community. The immediate and long-term evaluations were excellent. The qualitative data elicited by the Activities Survey elicited a wealth of rich information. This instrument was developed by grant personnel. The workshop participants reported hundreds of cancer-oriented community activities since the workshop, including (Frank-Stromborg et al., 1987)

- Establishing screening programs in five states through church organizations
- Establishing statewide cancer Awareness Day in Black Americans signed into action by the governor of the state
- Working with the military reserves implementing cancer prevention and early detection programs.

Following the tremendous success of this one-day workshop, a grant was written and funded by NCI from 1986–1988 for a series of five regional, two-day workshops for African American nurses. The codirector on this grant was Claudette Varricchio, RN, DNS (Frank-Stromborg & Varricchio, 1986). African American nurses were provided with the opportunity to enhance their cancer prevention and screening knowledge and skills. Content was presented by African American nurses who had attended the first workshop, and opportunities were provided to network and collaborate with experts. Coordination of these regional workshops was made possible by the outstanding organizational support of ONS, in particular Cynthia Miller-Murphy, RN, MS, and Bridget Culhane, RN, MS. Their assistance contributed to the success and quality of all the workshops and is gratefully acknowledged.

Eighty applicants were chosen for each workshop and then assigned to one of two groups (744 total applicants): Group one attended the workshops, and group two served as a matched control group for purposes of evaluating the success of the workshops. Once participants in group one completed the workshops, project directors used a cross-sectional, repeated measures design to test the two groups for knowledge of and attitudes about cancer prevention and involvement in community-based cancer prevention activities.

The investigators developed and refined three instruments that were used to measure the impact of the educational offering: Cancer Prevention Attitude Test, Cancer Activities Survey, and the Cancer Cognitive Test. The Cancer Prevention Attitude Test was piloted in California with 1,117 nurses, and the results were compared with the results from 714 physicians specializing in oncology through a collaboration with researchers in the Department of Medicine in the School of Medicine at the University of California, Los Angeles (Chlebowski, Sayre, Frank-Stromborg, & Lillington, 1992).

The investigators concluded that

1. The workshops significantly increased participants' knowledge about cancer prevention and early detection as measured by the Cancer Prevention and Early Detection Cognitive Test.
2. Participants increased their involvement in cancer prevention and early detection activities in their communities to a greater extent than did nonparticipants as measured by the Cancer Prevention and Early Detection Activities Survey.

3. Workshop participants' attitudes about cancer were more positive than the attitudes of nonparticipants as measured by the Cancer Prevention Attitude Test.

In 1989, another grant was written and funded (1989–1991) for \$202,860 by NCI (Frank-Stromborg & Olsen, 1989). The regional workshops followed the same format as the previous workshops for African American nurses. The grant enabled the refinement of the Cancer Prevention Attitude Test and Cancer Activities Survey.

Upon deciding to attend law school in 1991, I met with Sandra Millon Underwood, RN, PhD, who agreed to assume responsibility for the continuation of the grants and received funding from NCI for a series of similar workshops for nurses working with African Americans.

Based on the educational model used successfully with African American nurses, another grant was obtained from NCI with Sharon Olsen, RN, MS, as the coinvestigator (Frank-Stromborg & Olsen, 1991). The purpose of the grant was to offer a series of regional workshops for 180 ethnic and nonethnic nurses working with Hispanic, Asian/Pacific Islander, and Native American/Alaska Native populations. The response was as strong as it had been for the previous African American nurses workshops: 218 Hispanic nurses, 131 Native American nurses, and 73 Asian/Pacific Islander nurses applied. The following is representative of the reasons given for wanting to attend the course. According to a family nurse practitioner in U.S. Public Health Service at Red Lake HIS Hospital in Minnesota,

It has been my experience, especially in the Native American populations, that though the cancer rate is apparently low, when Native Americans are diagnosed, the cancer is already quite advanced and often beyond cure. I need ideas for how to make this population more aware of symptoms and less afraid to come in for examinations or screening, plus I want to hone my own skills in early cancer detection.

Before beginning the regional workshops, an extended three-day workshop was held. Ten stellar applicants for each of the three ethnic groups were selected to attend. Culturally specific seminars were presented during the first two days. On the third day, three culturally specific focus group interview sessions were held. Study questions and work assignments previously sent to participants enabled them to attend the workshop prepared to share information about the unique health beliefs and practices of their ethnic group and how these beliefs and practices influenced cancer prevention and early detection. Participants also were asked to bring and share patient education materials designed specifically for the ethnic groups with which they worked.

The focus groups generated information on health beliefs, medical practices, physical factors, and psychosocial issues to consider when assessing cancer risk and health status. Sessions were tape-recorded and transcribed. The faculty for each of the five subsequent regional workshops used the information gained from this three-day workshop and actively sought additional input from participants. The result was a large body of practical, practice-oriented, culturally sensitive information concerning Native Americans, Alaska Natives, Hispanics, Asians, and Pacific Islanders. This led to authorship of the first edition of *Cancer Prevention in Minority Populations: Cultural Implications for Health Care Professionals* (Frank-

Stromborg & Olsen, 1993, 2001). The extensive reviews by ethnic nurses from across the United States helped to ensure that the information in each chapter was culturally relevant, timely, and of practical assistance to healthcare professionals working with members of the Native American/Alaska Native, Hispanic, Asian/Pacific Islander, Native Hawaiian, and African American cultures. Words cannot express the appreciation of the generosity of sharing from the hundreds of ethnic nurses who participated in the focus groups or reviewed all of the chapters. Unqualified sharing of information with professional colleagues is the cornerstone of oncology nursing. The book was acknowledged to be a landmark contribution to the nursing literature in terms of translating the qualitative data gathered from intensive focus groups into practical, clinically relevant information that all nurses could use in their own clinical settings. The investigators also made a point to disseminate the information from the grant in the oncology literature (Olsen & Frank-Stromborg, 1993, 1994a, 1994b).

As was true of the workshops with African American nurses, workshop participants were requested to complete the Cancer Prevention Attitude Test, the Cancer Cognitive Test, and the Cancer Activities Test immediately after the workshop and six months later. Seven positive hypotheses were stated related to the impact of the workshop on changing attitudes and knowledge about cancer prevention and early detection and increasing community-based cancer activities. All hypotheses were supported.

From 1986–1994, I served as faculty and research consultant on a grant written by Carol Reed-Ash, RN, EdD, and Dr. McCorkle that was designed to offer cancer prevention and early detection workshops for nurses from developing countries (Ash, McCorkle, & Frank-Stromborg, 1999). These international workshops followed the educational approach first pioneered in the ONS workshops for African American nurses and were funded by NCI. Linda White, RN, MS, from the University of Texas M.D. Anderson Cancer Center in Houston was also a named faculty member and participated in the decade-long grant. Linda was a pioneer in the education of nurses for an advanced practice role in cancer detection, and I had the honor of collaborating professionally and exchanging information with Linda at meetings in the United States and internationally. The workshops were held in conjunction with the International Congress for Cancer Nursing, which is held every two years in Europe, the Middle East, or Canada. When I was a visiting professor and research consultant in the College of Nursing at the University of Pennsylvania from 1994–1995, one of my projects was to analyze the impact of these 10 years of international workshops. Seventy-one nurses from 55 countries attended the conferences. Prior to the workshop, participants filled out a detailed cancer-related activity survey. Six months after the conference, they were mailed a follow-up activity survey to collect information on their subsequent cancer prevention activities. Each group of participants was expected to return for the next scheduled program. The return visit was to review the basic content, learn advanced concepts, and assess their efforts related to cancer activities in their countries. A comparison of the frequencies of responses to items in the pre- and postconference surveys showed a dramatic increase in cancer-related activities by participants after they attended the course. For instance, the area of Patient and Public Education Activities saw a dramatic increase. Before the course, 21 responses were related to patient

and public education, as compared with 101 responses from the participants after the course. The involvement of participants in patient and public education ranged from one-on-one activities to planning and implementing national programs that reached thousands of citizens. The written and verbal testimony of the participants two years after they attended the course provided evidence that they were accomplishing the goals they had set for themselves. Because the participants were in key educational, governmental, and organizational positions and deeply committed, increasing their knowledge and skills directly influenced cancer prevention activities at multiple levels. The course gave them the knowledge and skills necessary to lobby effectively for change. Moreover, they had the personal contacts and power to follow through on their goals to effect change. The positive effects of participation were empirical and measurable (Ash et al.). Education and influence are cultural capital. As a result of this joint project, 71 nursing leaders from 55 countries collaborated with other educators, redefined their institutional and public personae as cancer care providers, and made significant contributions to the promotion of health in the global community.

Commitment to Improving the Profession of Cancer Nursing

American Cancer Society's Program of Professorships in Oncology Nursing

Another project that was accomplished while I was a visiting professor at the University of Pennsylvania studying with Dr. McCorkle and her research team was analyzing the impact of the American Cancer Society's (ACS's) Program of Professorships in Oncology Nursing. The ACS professors in oncology nursing invited a faculty member from a state without a professorship to analyze data provided by a subset of ACS professor recipients for one calendar or academic year and devise a reporting tool. I was the researcher selected to analyze the data and design a new reporting tool, and I welcomed the opportunity to contribute to the profession. The data that were analyzed included each professor's yearly report to ACS and the attached appendixes to the reports with details in graph and table format, newsletter, copies of syllabi, and other information. The results of study unquestionably demonstrated that the stated goals of the ACS professorship were being met. Professors indicated that the funding and resultant release time enabled them to increase their involvement in all domains of oncology nursing at the local, regional, national, and international levels. Their narrations gave evidence of the opportunity to be involved in the community, academic settings and with students because of the funding. The professors believed that the funding and release time enabled them to strengthen their involvement in and influence on cancer care (Frank-Stromborg & Weir, 1999). The extraordinary productivity of the oncology professorships that was possible with outside funding mandates that national programs similar to the ACS professorship program be developed and fostered.

Commitment to Improving Cancer Care in the Community

From 1996–2003, a series of grants were authored that continued my focus on cancer prevention and early detection

and improving the health care of minority and nonminority populations in rural settings. Funding was secured from a multiplicity of sources including the Illinois Department of Nuclear Safety Environmental Protection Agency, Helene Fuld Health Trust, the ONS Foundation, Department of Defense, private trust fund through Kishwaukee Community Hospital, and Department of Health and Human Services's Division of Nursing. The grants were the result of a wonderful collaborative relationship with Kenneth Burns, RN, PhD, associate chair. This collaborative relationship represents a model that I have enjoyed throughout my career and one that builds on the strengths of each individual and is highly successful in terms of securing funding (more than \$1,600,000 was obtained). Whenever possible, Dr. Burns and I included faculty in writing, planning, and implementing the grants. The contributions of Mary Uscian, RN, MSN, director of the Tri-County Community Health Center (TCCH), a rural, nurse-managed clinic, are especially acknowledged. Although I was in an administrative position during this time, it was my belief that as the chief administrator in the nursing program, I needed to be an example and demonstrate to faculty ongoing research productivity. Dr. Burns and I were able to author and secure research funds that (a) positively benefited the community, (b) publicized the expanded role of nurses throughout the community, (c) provided both students and faculty with research mentors and opportunities to participate in research, and (d) contributed to the oncology and nononcology nursing literature in the area of cancer prevention and early detection.

The oncology-related grants obtained during that period of time were

1. "A Day for Latino Women: Preventive Strategies to Educate and Screen for Cervical Cancer," funded by the ONS Foundation
2. "Community Prostate Cancer Study," funded by Kishwaukee Community Hospital and private trust fund. The motivators and barriers for men attending a prostate cancer screening program in a rural setting were investigated. Nurse practitioners screened more than 600 men at factory worksites, the Farm Bureau, senior centers, and the public health department (Frank-Stromborg, 1999).
3. "La Clinic Day: An Innovative Approach to Breast Cancer Screening for Rural Hispanic Women," funded by the Department of Defense. The breast cancer screening and related educational program were imbedded within a family fair for the whole family that was held throughout the county in the local Catholic churches.
4. "Community Radon Project," funded by a private trust fund, Kishwaukee Community Hospital, and the Illinois Department of Nuclear Safety Environmental Protection Agency.

The first in the series of community-based grants was titled "A Day for Latino Women." This project was funded by the ONS Foundation in 1997. The *Por La Vida* (For Life) intervention model provided the conceptual framework for this project. The broad purposes of the cancer education project were to provide health education about cervical cancer and breast cancer and cervical and breast cancer screening for a group of medically underserved, low-income, Latino women located in the rural region.

"A Day for Latino Women" was a well-organized, collaborative effort between the Catholic community outreach program serving the rural Latino community, NIU nursing

program, and TCCH. Eighty-one women were screened at TCCH at no cost. Barriers to access, such as cost of and the need for transportation or childcare, were essentially eliminated to encourage use of TCCH as a usual site of medical care for this ethnic population. Use of female nurse practitioner students attempted to eliminate traditional cultural embarrassment regarding examination by men. Peer relationships and social support for bilingual members of *Centro Cuerpo de Cristo* Catholic Ministry assisted in promotion and delivery of services to the women.

Two Spanish-language instruments were administered to the 81 participants of the cancer screening program: the Cancer Cervical/Breast Knowledge Pre- and Post-Test and the Cancer Primary Prevention Questionnaire. There was also case management follow-up of the 81 women who attended the program. The most important factor for helping this group of rural women to attend the screening program was the invitation from the church. The majority of women indicated that it was the church's inviting them or a nun from the church that had helped them decide to come to the screening program.

When these rural Latino women were asked why they had come for the cancer screening examination, they responded primarily that they wanted medical information. The subjects' orientation appeared to be prevention or early diagnosis. Other significant reasons for seeking the cancer screening examinations related to the economics of access. The reasons related to economics of access and availability of services confirm earlier research that these are important barriers to preventive care for Latino women. The desire for information as a driving force in seeking health care has not been reported in previous studies. Based on this research, an important aspect of any marketing strategy to attract rural Latino women to cancer screening programs should emphasize the knowledge they will gain by coming to the screening program. Healthcare professionals need to talk directly with Latino women to find out what information they desire for their families and how that information can be provided in a setting that combines such knowledge with breast and cervical cancer screening services (Frank-Stromborg, Wassner, Nelson, Chilton, & Wholeben, 1998). This research received the Presidential Award from the American Association for Cancer Education and the European Association for Cancer Education.

Another grant written during that period of time was the Community Radon Project funded by the Illinois Department of Nuclear Safety. The study was conducted in two phases. Phase I was the initial Community Radon Program and included 473 participants (Duckworth & Frank-Stromborg, 2003). Based on the results of the initial study, the Illinois Department of Nuclear Safety requested the research team to expand the sample size and provided a state grant to do so. Additional funding from the state of Illinois was based on the fact that the first phase was one of the largest radon studies conducted in the state. Special recognition goes to Tammy Duckworth, MA, PhD, who was the project director of this grant and did a magnificent job.

A stratified random sample of 5,620 households in Dekalb County, a semirural community, was surveyed. The survey, conducted before the radon test, solicited information about respondents' knowledge and beliefs about radon, demographic characteristics, characteristics of their residences, and previous radon home testing and radon mitigation efforts. In return

for completing the preradon test survey, participants were provided with the opportunity to conduct free radon tests in their homes. Survey participants who requested the free radon testing were sent a postradon test survey with their radon results. The post-radon test survey assessed intentions to take further action upon receipt of their test results. The final sample was 820 respondents, which is one of the largest studies of radon, a recognized carcinogen, conducted in one county.

Elevated radon levels were observed in nearly half (46%) of the Dekalb County residences tested. Radon levels were higher in newer homes, single-family dwellings, residences owned by the respondent, and rural homes. Although the majority of respondents had heard of radon and correctly identified it as a gas, approximately half did not accurately identify the health consequences of radon exposure. Although 60% of subjects who had radon results above 4.0 pCi/L intended to take some action, 40% intended to take no action (radon levels of 4.0 pCi/L and higher indicate a need for action). These and other findings have major implications for nursing education, practice, and research. One of many implications is that nurses can become the leaders among healthcare professionals in researching indoor radon, its carcinogenic effects, the public's risk perception, and factors that motivate their willingness to engage in residential screening and implement mitigation actions. This is especially significant because the health effects of prolonged exposure to indoor radon resulting from the new construction techniques of the past 20 years would only now be manifested in increased mortality rates from lung cancer. An unexplored avenue for research is the linking of radon measurement data to cancer deaths within specific high-radon zones (Duckworth, Frank-Stromborg, Oleckno, Duffy, & Burns, 2002).

Commitment to the Oncology Nursing Society Through Research Activities

Some of the most enjoyable associations I have had have been with individuals I have met through my ONS activities. As the only oncology nurse researcher at my employment setting, I must credit my involvement in oncology research totally to the nurse researchers I met years ago in ONS who were more than generous with sharing their expertise and willingness to serve as mentors. This includes Marcia Grant, RN, DNSc, Dr. McCorkle, Dr. Lindsey, Dr. Johnson, and Sue Baird, RN, MPH, MA, to name just a few.

My association with ONS began in 1977 when I attended the first annual congress in Washington, DC. I was invited to be on the first research committee by Dr. McCorkle in 1979. Little did I know what a fantastic adventure I would have with ONS. Many of the committee's activities were supported by our individual universities through copying materials, mailing surveys, data analysis, and the frequent phone calls to each other. ONS at that time literally was supported by similar efforts of all its members. The associations I made on this committee opened the doors to many later research activities and grant writing. For those of you in employment settings similar to mine, one of the most effective ways to get involved with other researchers, form working partnerships, find mentors, and continue to grow professionally is to get involved with a national organization of your chosen specialty, volunteer to be on committees or task forces, and join the special interest groups of that organization.

The outcomes of the first ONS Research Committee were impressive and laid the foundation for many activities that continued for decades, including surveying the membership to determine research priorities and holding a session at each annual Congress for research presentations. My involvement with the committee continued under the leadership of Dr. Grant. During that time, one of the activities of the research committee was to secure funding for a workshop that would be held prior to each annual Congress. The workshop was designed to provide consultation and mentoring to nurses conducting master's and doctoral research in the area of oncology. Dr. Lindsey authored the initial grant that received funding from NCI, and Dr. Grant authored the later grants. I served as one of the initially named grant personnel and faculty on this grant for a number of years. These workshops were held prior to each annual ONS Congress and provided invaluable assistance and mentoring to hundreds of nurses pursuing doctoral degrees.

In 1983, I was appointed chair of the ONS Research Committee and further expanded the role of this essential committee started by previous chairs Drs. McCorkle and Grant. Activities started during that period included beginning a series of research methodologically oriented articles in the *Oncology Nursing Forum* and conceptualizing and editing the first edition of *Instruments for Clinical Nursing Research* that originally was published by Appleton-Century-Crofts. The book was awarded the *American Journal of Nursing* Book of the Year in 1988 and is now in its third edition (Frank-Stromborg & Olsen, 2004). All royalties from the book were directed to the ONS Foundation to assist nursing research. The book is considered a premier publication used throughout the country in nursing and non-nursing master's and doctoral programs as well as by practicing clinicians. It has put ONS in the unique position of being the only clinically specialty organization with a respected research textbook used nationally and internationally by educators and clinicians from all disciplines. What has been most rewarding about the project is that the original committee members and authors have continued to contribute to each edition of the book. I have had the pleasure of watching them mature into seasoned, respected nurse researchers who have made significant contributions to the profession.

In 1990, the first NCI-funded and ONS-sponsored workshop on pain in patients with cancer was held at Keystone, CO. This momentous event was made possible through a grant, "Frontiers in Oncology Nursing: Course on Pain," authored by Betty Gallucci, RN, PhD, who served as the principal investigator, and Dr. Varricchio and myself, who served as co-principal investigators. The conference invited nurses from every U.S. state and had nationally and internationally recognized pain experts as faculty during the weeklong conference. The workshop then became a model for subsequent events sponsored by ONS with funding from NCI. Many of the nurses who were participants at this initial conference went on to become leaders in the area of pain management in patients with cancer.

In 1995, Miller-Murphy, then deputy executive director of the Oncology Nursing Certification Corporation (ONCC), asked me to convene and chair the first ONCC Research Committee. The committee was extremely productive during its five years of existence because of the energy, commitment, stellar research skills, and diligence of the committee

Contributions to Oncology Nursing Practice by Improving the Legal Knowledge of Clinicians

Although I was continuing my focus in the area of cancer prevention and early detection in the 1990s, graduation from law school in 1994 broadened my contributions to the oncology literature. Since then, legal issues in health care have dramatically increased to the point that clinicians are confronted daily with questions about the legality of what they are doing in the clinical arena. In the late 1990s and early 2000, I authored multiple articles on the legal implications of oncology-related nursing practices. For instance, multiple articles were published looking at the legal implications of the undertreatment of pain (Frank-Stromborg & Christensen, 2000), screening for prostate cancer in asymptomatic men (Gerard & Frank-Stromborg, 1998), cancer screening and early detection for the advanced practice nurse (Frank-Stromborg & Bailey, 1998), and nursing documentation (Frank-Stromborg, Christensen, & Do, 2001a, 2001b). In 2002, I served as guest editor to the first edition of *Seminars in Oncology Nursing* solely devoted to the legal and ethical issues in oncology nursing (Frank-Stromborg, 2002).

The End of One Career and the Beginning of Another

In May 2004, I retired as chair of the NIU School of Nursing and entered the legal profession full-time as an assistant state's attorney in the DeKalb County State's Attorney Office in Sycamore, IL. Although this may seem shocking to some, it is important to remember that as our longevity increases, more and more people will have more than one career in their lifetime as they reach the maximum number of years for employment in a setting. We have seen increasing numbers of second-career students enter nursing, and it is only logical that we will also see the reverse trend. There are no adequate words to express how much I have enjoyed my nursing career, my long-term association with ONS, and all the friends and colleagues I have had the honor and privilege of working with in ONS.

I have tried to include all the colleagues with whom I have worked during the past 38 years of my nursing career. No research activity in this article was possible without the assistance of other nurses and non-nurses. Although I was not able to list each and every person, the references listed do give the names of everyone involved in the research. If I have inadvertently omitted anyone, I apologize.

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