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# Research Unfiltered: Social, Political, and Historical Context of a Program of Research

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2009 Distinguished Researcher Award

I am honored to receive this award and the recognition of my work. I am very appreciative of the colleagues who nominated me and of the Oncology Nursing Society's (ONS's) award selection committee's decision. I am fortunate because there are many talented researchers who are worthy of this honor. This work would not have been possible without the support of my research from a variety of funders, including the ONS Foundation. I am especially thrilled to receive this award because it gives me an opportunity to describe some highlights from my research on quality of life (QOL) and symptoms experienced by people with lung cancer, as well as eliminating barriers to nurses' efforts in tobacco control.

## Historical Context: Trends in Smoking and Lung Cancer

I thought that it might be interesting to provide you with some background and my "unfiltered" observations about the confluence of social and political factors and historical events that shaped my two—at times parallel and at times intersecting—programs of research. My mutual research interests should not be surprising. Lung cancer emerged in the 20th century as a result of the mass production and relentless marketing of cigarettes to the public (Shafey, Eriksen, Ross, & Mackay, 2009), resulting in escalated smoking rates in the middle of the century. Advertisements proclaiming the benefits of smoking and using nurses to promote tobacco use were published in nursing and medical journals (Malone, 2006). My father was one of the many who took up smoking during his service in World War II as a soldier in the Air Force in the Pacific Theater. Similar to many "Baby Boomers," smoking was part of my childhood; my father was a chain smoker and my mother was an occasional social smoker. I grew up in a home filled with love and with cigarettes and ashtrays. I watched televi-

sion programs in which characters smoked and ads for cigarettes were common.

It is common knowledge now that the leading cause of cancer death, lung cancer, would be largely preventable if people would not take up smoking or would quit. But this was not always known. When the first Surgeon General Report on Smoking and Health was published (U.S. Department of Health, Education, and Welfare, 1964), linking smoking to lung cancer, I was a junior in high school and nearly half (46%) of Americans smoked. The dominance of lung cancer as the leading cause of cancer death of men since the 1950s, and the emergence of lung cancer in the mid-1980s as the leading cause of cancer death in women, provided a backdrop to my nursing career and research.

## Introduction to Oncology Nursing

When I received my baccalaureate degree from the University of California, Los Angeles (UCLA), only minimal attention was paid to the health risks of tobacco use in my nursing courses, and none was paid to how to help patients quit. Several of the faculty smoked, including during lectures. Lung cancer, not inappropriately, was presented from a very fatalist perspective. After graduation, when I worked on a general medical surgical floor, I felt compelled to address the special needs of patients with cancer, especially those with lung cancer. It was a time when patients smoked in hospital rooms and when nurses and doctors smoked on the unit and during report. I smoked for a brief period but never learned how to inhale. I stopped when my boyfriend and husband-to-be did not like it. It was a time when we assigned patient rooms based, in part, on smoking status. Few healthcare providers helped smokers to quit; most smokers who were able to quit did so "cold turkey."

It was also the era of the Vietnam War. When my husband was declared eligible for the draft upon his

graduation from medical school, he opted to serve in the Public Health Service at the National Cancer Institute (NCI) in Bethesda, MD. He pursued a program of research, and I had an opportunity to work at the NCI as a float nurse. These were the early days of the new specialty of oncology, with new scientific advances in cancer treatment, including the use of combination chemotherapy, bone marrow transplantation, laminar airflow rooms, and extensive surgery. I worked in medical, surgical, pediatric, and laminar airflow units. I learned the basics of cancer nursing and then some. On a personal note, the people I worked with were not quite sure what to do with this nurse from California. As a graduate of UCLA, I did not receive a nursing hat or pin. The director of nursing, Vernice Fergusson, called me into her office to tell me that my uniforms were too short and to buy a hat. I also was one of the few nurses who did not smoke at report.

After two years, we returned to Los Angeles and I completed the master's program at UCLA. My thesis, "Hopes of Terminally Ill Patients," conducted in the mid-1970s, involved questionnaires and interviews with 30 patients with advanced cancer. I was surprised by the number of women with lung cancer who met the study criteria. It would be another decade before lung cancer was recognized as the leading cause of cancer death among women (Shafey et al., 2009). I presented my study at the first-ever scientific conference on oncology nursing research organized by UCLA and the California Division of the American Cancer Society. Upon graduation in 1976, I taught in the UCLA School of Nursing as a lecturer in a new program to prepare oncology clinical nurse specialists. In 1981, I coauthored one of the first modern textbooks of oncology nursing, *Concepts of Oncology Nursing* (Vredevoe, Derdarian, Sarna, Friel, & Shiplacoff, 1981), which received an *American Journal of Nursing* Book of the Year Award.

## Research Focused on Quality of Life and Lung Cancer

In the 1980s, after several years of teaching, I pursued doctoral study at the University of California at San Francisco, under the direction of Marilyn Dodd, RN, PhD, FAAN, an ONS distinguished researcher. I was her first doctoral student. Following in the footsteps of Marcia Grant, RN, DNSc, FAAN, another ONS distinguished researcher, I became one of the "commuters," flying from Los Angeles to San Francisco every week to attend classes. Ada Lindsey, RN, PhD, FAAN, chair of the physiologic nursing section, who later became dean at the UCLA School of Nursing, also was a member of my committee. I was fortunate to have financial support from the Department of Health and Human Services (Principal Investigator, Kathy Dracup, RN, DNSc, FNP,

FAAN) and a National Institute of Nursing Research Award.

Along with the evolution of oncology treatments, scientific advances also were occurring in the measurement of treatment outcomes, specifically QOL. The heightened awareness of the importance of health-related QOL, during and as a consequence of treatment, especially for patients with lung cancer, had an important influence on my studies. Additionally, cancer was beginning to be recognized as largely a disease of older adults, requiring special considerations, including appraisals of age-related comorbidities. My dissertation focus was on QOL and treatment outcomes of older patients with lung cancer. Patricia Ganz, MD, a researcher now well known for her contributions to the understanding of QOL outcomes of women with breast cancer, was another member of my committee. My dissertation, a one-month prospective study following patients with advanced lung cancer during a course of treatment or supportive care, provided a foundation for my future studies.

## Selected Oncology Nursing Research Studies

Following my dissertation research, I conducted a series of studies focused on QOL and symptoms of patients with lung cancer (see Table 1). When Ada Lindsey became the dean at the UCLA School of Nursing, I had an opportunity to conduct a secondary analysis of Ruth McCorkle's, PhD, RN, FAAN, extensive data from her longitudinal study of patients with advanced lung cancer (Sarna, Lindsey, Dean, Brecht, & McCorkle, 1993). In a sense, I viewed the opportunity as my postdoctoral training. At a symposium for the Oncology Nursing Society about nutrition, weight loss, and lung cancer, I met Jean Brown, PhD, RN, FAAN (Lindsey, Larson, Sarna, & Brown, 1993). Our shared interest in the issues facing patients with lung cancer, especially symptoms and the impact of tobacco use on symptom outcomes, was a basis for a long-term research collaboration and friendship.

**Women and lung cancer:** An important contribution of my work has been the description of the QOL and symptoms experienced by women with lung cancer. When the 1964 Surgeon General report was published, most of the data were from men (U.S. Department of Health, Education, and Welfare, 1964). The approximate 20-year lag in the rise of smoking among women resulted in the delayed recognition of smoking as a women's health issue. The first report on women and tobacco was published in 1980 (U.S. Department of Health and Human Services, 1980), with lung cancer emerging as the leading cause of cancer death among women in 1985 (Shafey et al., 2009). However, in my review of nursing research studies focused on nursing care of patients with breast cancer or lung cancer published in major nursing journals from 1983–1993,

**Table 1. Selected Research Studies From the Author's Career Focused on Symptoms and Quality of Life (QOL) of Patients With Lung Cancer**

| Study   | Sample   | Methods  | Publications   |
|---|--|--|--|
| Advanced lung cancer  | N = 60; advanced lung cancer   | Six-month prospective, secondary analysis; symptoms, weight change, and smoking status   | Sarna et al., 1993, 1994   |
| Women with lung cancer                                      | N = 69; all stages of lung cancer  | Descriptive assessment of QOL, functional status, symptoms, symptom patterns, and smoking patterns   | Sarna, 1993a, 1993b, 1995b   |
| Nursing assessment of symptoms of patients with lung cancer | N = 48; advanced lung cancer   | Six-month prospective, quasi-experimental study; monthly systematic assessments of symptoms versus usual care  | Sarna, 1998  |
| Symptom profiles  | N = 60, all women; advanced lung cancer  | Factor analysis of symptom patterns  | Sarna & Brecht, 1997   |
| Women with lung cancer                                      | N = 230; all stages, non-small cell lung cancer (NSCLC); 51 pairs of family members and patients | Cross-sectional, six-month prospective study of QOL, symptoms, meaning of illness, smoking status, comorbidity, use of complementary methods to treat symptoms, QOL, and health status of family members | Cooley et al., 2007; Sarna, Brown, et al., 2005; Sarna, Cooley, et al., 2006; Wells et al., 2007                       |
| Long-term survivors   | N = 142; disease-free NSCLC; five years or more since diagnosis                                  | Descriptive study of QOL, symptoms, smoking status, pulmonary function, comorbidity, and health perceptions  | Cooley et al., 2003; Evangelista, Sarna, Brecht, Padilla, & Chen, 2003; Maliski et al., 2003; Sarna et al., 2002, 2004 |
| Recovery after thoracotomy                                  | N = 94; NSCLC  | Four-month prospective study (one, two, and four months after surgery); survey of symptoms and QOL, smoking status, and comorbidity  | Sarna, Cooley, Brown, et al., 2008   |

I found minimal attention to the needs of those with lung cancer, and no studies focused on women with lung cancer (Sarna, 1995a). My exploratory study of 69 women with lung cancer resulted in the first published description of QOL in that population (Sarna, 1993b). One of the papers from the study reported the recognition of combinations of co-occurring symptoms (Sarna, 1993a). Building on that finding, another study conducted a factor analysis focused on symptoms of women with advanced lung cancer (N = 60) to explore symptom patterns. We noted distinct "congregations of distress." Now these are more commonly called "symptom clusters."

A larger, prospective, cross-sectional study of QOL and symptoms of 230 women with lung cancer (Sarna, Brown, et al., 2005) advanced knowledge in the field but also provided a model for oncology nursing research collaboration. To obtain an adequate sample size in a reasonable period of time and to provide a description of living with lung cancer beyond that experienced by women in California, I put together a collaboration of like-minded oncology nursing colleagues in New York (Jean Brown, PhD, RN, FAAN), Connecticut (Mary

Cooley, PhD, RN), Alabama (Roma Williams, PhD, CRNP), and Georgia (Cynthia Chernecky, RN, PhD, AOCN®, FAAN) to establish our own multisite, multistate research enterprise. We described the special research challenges in the project, including communication strategies to support recruitment and the fidelity of study methods (Cooley et al., 2003).

**Lung cancer survivors:** The recognition of the unique circumstances of cancer survivorship provided the impetus for our study of long-term disease-free survivors of non-small lung cancer (NSCLC). Despite the overall grim prognosis, survivors with early-stage disease do exist. Our paper describing the QOL, symptoms, health status, and pulmonary function of 142 five-year disease-free survivors of NSCLC (54% female, average age of 71 years) was another "first" (Sarna et al., 2002). It was a lead article in an issue of the *Journal of Clinical Oncology* and the focus of significant media attention. We noted the frequency of symptoms, including the co-occurrence of symptoms (two to three had at least one respiratory symptom, including one to three with dyspnea) (Sarna et al., 2004). Fifty percent of the survivors viewed their experiences as contributing to positive life changes.

Qualitative data from a subsample of 29 lung cancer survivors supported our quantitative findings (Maliski, Sarna, Evangelista, & Padilla, 2003). However, some survivors also were plagued with ongoing respiratory symptoms and diminished physical function.

Our most recent work also addresses issues faced by patients potentially cured from lung cancer by surgical treatment. We monitored the cascade of symptoms and disruption in QOL after recovery from lung cancer surgery (Sarna, Cooley, Brown, et al., 2008). Although symptoms generally declined over time, for some patients, multiple severe symptoms continued even four months after surgery. These included fatigue (59%), dyspnea (49%), cough (29%), and pain (20%).

## Smoking Patterns and Lung Cancer

The relationship of tobacco as a cause of myriad cancers has been well established for decades (U.S. Department of Health and Human Services, 2004); evidence is mounting that smoking also affects cancer treatment outcomes (Gritz, Dresler, & Sarna, 2005). Yet, data on smoking status, including exposure to secondhand smoke and changes in smoking, are not collected routinely in cancer clinical trials or oncology nursing studies. Their absence limits interpretation of outcomes

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and limits full understanding of the role of tobacco in patient QOL and recovery. In all of our studies in which data on smoking status were collected, there were patients who were current smokers. For example, in the larger study of women with lung cancer, which used self-report and biochemical verification, 37% of ever smokers (smoked more than 100 cigarettes in a lifetime) reported smoking at the time of diagnosis, but only one-third of smokers received help with quitting (Cooley et al., 2007). Younger age, depression, and having a household member who smoked were linked with continued smoking during the six-month course of the study (11%). Even 13% of lung cancer survivors continued to smoke (Evangelista, Sarna, Brecht, Padilla, & Chen, 2003). Smoking (odds ratio = 7.02) and exposure to secondhand smoke (odds ratio = 5.4) were independent predictors of perceived poor health status (Evangelista et al.). Survivors exposed to secondhand smoke were three times more likely to report respiratory symptoms (Sarna et al., 2004).

## Research Focused on Tobacco Control

Four areas limit nurses' delivery of tobacco-cessation interventions to patients: smoking by nurses, lack of knowledge and skills to intervene, limited nursing research, and limited nursing leadership and tobacco-control policies in nursing organizations. Patterns of tobacco use have changed since the 1960s. In 2007, an estimated 20% of adults were current smokers (Centers for Disease Control and Prevention [CDC], 2009). Social and political factors have normalized "quitting." Half of men (51%) and women (50%) who ever smoked have quit (CDC, 2007). The first evidence-based practice guideline to support smokers in their efforts to quit was published in 1996 (Fiore et al., 1996) with a recent update (Fiore et al., 2008). The first medications to blunt symptoms from nicotine withdrawal were available in the mid-1980s, with newer medications also decreasing the pleasure of smoking (Fiore et al., 2008). However, our research indicates that the important advances in supporting smokers' efforts to quit still have not effectively penetrated clinical nursing practice.

The social acceptability of exposure to secondhand smoke is changing, too. Secondhand smoke was identified as containing agents capable of causing cancer in 1993 (Shafey et al., 2009). Smoke was once a part of everyday life in healthcare settings, but hospitals in the United States have been smoke free since 1996 (Longo et al., 1998), and smoke-free policies limit smoking in many public places.

Additionally, people once viewed smoking as an individual "choice" but now see it as a powerful addiction that is the consequence of the tobacco industry's recruitment of youth and vulnerable populations (Malone, 2006). This requires public health interventions aimed at society, not just at individuals. Research with the repository of Internet-based internal documents resulting from the Master Settlement Agreement (a settlement reached with the tobacco industry and 46 state attorneys general) has revealed industry tactics to delude the public regarding the health risks of tobacco, such as inaccurately promoting the health benefits of "light" cigarettes (Bialous, Kaufman, & Sarna, 2003). But many nurses still are not aware of the extent of the industry's efforts in this regard and the importance of strong tobacco-control policies in nursing organizations.

## Removing Barriers: Nurses and Smoking

I first met my colleague and collaborator on much of my tobacco control efforts, Stella Bialous, RN, DrPh, FAAN, at an International Union Against Cancer symposium in Rio de Janeiro, Brazil, in 1998, during a session on cancer prevention in which we both made presentations about tobacco. One of our heroes, Sir Richard Doll (who helped identify the link between smoking and



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lung cancer in the 1950s), was in the audience. Stella and I subsequently presented our work at a symposium at the International Council of Nurses in London, England, coordinated by Ruth Malone, RN, PhD, FAAN, and including Nancy Kaufman, RN, MS, vice president of the Robert Wood Johnson Foundation (RWJF). When only a handful of people showed up to our session, Nancy requested that Stella and I coordinate a summit on nurses and tobacco control at the RWJF headquarters. During the summit, we examined the trends in smoking among healthcare professionals, finding that smoking among nurses continued to be substantially higher than among physicians (Nelson et al., 1994) and that smoking among healthcare providers was a barrier to interventions with patients (Fiore et al., 2000). As a result, we identified that smoking among nurses was a barrier preventing nurses from being more actively engaged in tobacco control, requiring urgent action. We also acknowledged the data supporting nurses' limited knowledge and skills about tobacco control, limited nursing research, and limited nursing leadership, all of which negatively affected nurses' interventions with patients.

**Tobacco-free nurses:** As a result of the RWJF summit, and with the support of a grant from the foundation, we explored strategies to reduce smoking among nurses. The team included me and Drs. Bialous, Mary Ellen Wewers, PhD, MPH, FAAN, and Erika Froelicher, RN, PhD. During the planning phase, we conducted eight focus groups with nurses who were smokers and former smokers in states with high (Kentucky and Ohio) and low (California and New Jersey) tobacco use (Bialous, Sarna, Wewers, Froelicher, & Danao, 2004; Sarna, Bialous, Wewers, Froelicher, & Danao, 2005). As a result of our review of the literature and the focus group findings, we were convinced that smoking among nurses was not just a personal issue affecting their health, but was also a factor that affected their professional roles and routines and caused dissension in the workplace.

Nurses who smoked told us about their guilt and shame (repeating comments from patients, such as “I can’t believe that you are a nurse and still smoke”) and of their desire to quit (“If someone could teach us the right way, that really works, there is a lot of people out there who would want to quit.”). They told us about smoking in the workplace, using “cigarettes as stress-relieving devices.” And we heard about the “war between smokers and nonsmokers” as to who would get a break. The inequities of nurses' breaks depending on

smoking status have been confirmed (Sarna et al., 2009). We also heard about the challenges of getting support for quitting while working varying shifts and days.

The data provided the foundation for the Tobacco Free Nurses (TFN) initiative, the first national program to support nurses who were trying to quit and the first to address enhancing the role of nurses in tobacco control on a large scale. As part of TFN, we created a Web site, and in collaboration with QuitNet®, an Internet provider of evidence-based cessation support, we created Nurses QuitNet®, a nurse-only support site. We conducted a media campaign and created many materials. We reached more than two million nurses through our paid and “in-kind” print advertisements and 6,000 through multiple presentations to various organizations. We sent letters to deans of schools of undergraduate nursing programs and student nurses to increase awareness of the importance that people entering the profession become smoke free, and we offered support to help them quit. We received an American Academy of Nursing Media award in recognition of the quality of our materials. Our Web site was one of the top sites on Google's search for “nurses and tobacco”; monitoring the Web traffic, with an average of 20,000 hits per month, we provided the first data describing the around-the-clock use of the site (Sarna et al., 2007). The power of the press was revealed when our press release on nurses' smoking and the workplace, in January 2005, dramatically increased traffic.

In an analysis of 1,790 nurses who registered on NursesQuitNet to quit smoking, 30% had not made an attempt to quit in the prior year, 68% smoked one-half to one full pack of cigarettes per day, and 66% reported smoking within 30 minutes of awakening, indicating a high level of nicotine addiction (Bialous et al., 2009). Data from 246 NursesQuitNet registrants who responded to at least one follow-up e-mail (at 3, 6, or 12 months) indicated that almost half of the respondents (43%, 45%, and 53%, respectively) reported not smoking (Sarna et al., in press). Self-reported barriers to quitting included lack of support from colleagues, stress, lack of cessation services, fear of not getting a work break, and smoking among household members. Research using the Internet is challenging, but the results were encouraging.

**Smoking patterns and the Nurses' Health Study:** Perhaps one of our most important scholarly contributions is our analysis of 27 years of smoking data from the Nurses' Health Study (NHS), the longest-running prospective study of women's health in the world (Sarna, Bialous, Wewers, et al., 2008). The NHS was launched in 1976, recruiting married female nurses aged 25–42 years (born from 1920–1946); and NHS II was initiated in 1989 to attract a more recent cohort of nurses (aged 25–42 years; born from 1947–1964). Questionnaires are mailed every two years, with a response rate of greater than 90%.

I still remember the moment when Dr. Bialous and I, as part of our research for TFN, were flipping through one of the Surgeon General's reports in my office and came across the graphs about women and smoking. They demonstrated the risk of lung cancer and smoking using data from nurses who smoked, nurses who were participants of the NHS. At that time, the last published report about nurses and smoking from the NHS, in 1987, only reported baseline data (Myers et al., 1987). We were committed to find out how smoking trends in the NHS had changed. We wrote a proposal requesting permission to do a secondary analysis, and we were able to obtain funding to support our efforts from the RWJF. In collaboration with the NHS statisticians, we completed two analyses: One focused on smoking trends among NHS participants (Sarna, Bialous, Wewers, et al., 2008), the other on the relationship of quitting to changes in QOL (Sarna, Bialous, Cooley, Jun, & Feskanich, 2008).

In the first prospective report of smoking trends among RNs (Sarna, Bialous, Wewers, et al., 2008), we analyzed 27 years of data from 14 biennial questionnaires (1976–2002) from the NHS and eight from the NHSII (1989–2003) (N = 237,648 nurses). We realized that we needed to consider mortality rates in never, former, and current smokers in the analysis. Across age groups, the evidence was clear: Mortality rates were higher for smokers. However, similar to the British Doctors' Health Study (Doll, Peto, Boreham, & Sutherland, 2004), nurses who quit experienced health benefits, with mortality rates among former smokers lower than those for current smokers. The decline in smoking among NHS participants mirrored changes among women in the U.S. population. When the NHS was initiated in 1976, 33% of the participants were current smokers. By 2002–2003, the smoking prevalence rate was 8% among the aging nurses. However, the majority (69%) of the smokers at the end of the follow-up period, 2002–2003, never reported "not smoking," revealing the challenges of the addiction.

**National trends:** We also analyzed changes in smoking patterns among RNs and licensed practical nurses (LPNs) using the Tobacco Use Supplement of the 2002–2003 Current Population Survey. The data, compared with earlier findings of an analysis conducted with Mary Ellen Wewers, demonstrate a national decline in smoking among nurses but disturbing disparities in quitting between RNs and LPNs (Wewers, Lawrence, Sarna, & Bialous, unpublished report).

### Removing Barriers: Lack of Knowledge and Skills

After the clinical practice guideline for smoking cessation was published (Fiore et al., 1996), we were very interested in the role that nurses could play in helping patients to stop smoking. I received funds from the

ONS Foundation to conduct the first study of oncology healthcare professionals and smoking-cessation interventions (Sarna, Brown, Lillington, Rose, et al., 2000). We conducted a national survey of ONS members (n = 1,508) regarding oncology nurses' smoking-cessation interventions with patients (Sarna, Brown, Lillington, Rose, et al., 2000), including barriers to interventions (Sarna, Wewers, Brown, Lillington, & Brecht, 2001) and attitudes about tobacco control (Sarna, Brown, Lillington, Wewers, & Brecht, 2000). Oncology nurses, similar to other healthcare professionals, reported lack of time and skills to conduct interventions, and only 10% had heard of the cessation guideline. Nurses who smoked were more than twice as likely to report barriers to providing interventions to patients who smoke (odds ratio = 2.6, 95% confidence interval 1.24, 5.46) (Sarna et al., 2001) and were more likely to have negative attitudes about tobacco control (Sarna, Brown, Lillington, Wewers, et al., 2000). The questionnaire has gone on to be used, revised, and modified by many other researchers nationally and

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internationally. The finding of lack of awareness of the guideline was similar in a survey of members (N = 163) of the Black Nurses Association, in which only 11% reported providing counseling to smokers trying to quit (Sarna et al., 2003).

Based upon findings of nurses reporting limited knowledge and skill in tobacco-dependence treatment, we decided to survey schools of nursing (n = 385 bachelor of science programs, 71% response rate; n = 246 graduate programs, 68% response rate) regarding required tobacco content in their curricula (Wewers, Kidd, Armbruster, & Sarna, 2004). Although health effects of tobacco were well covered by the majority of nursing programs, less attention was given to interventions that could actually help smokers quit. In an examination of 15 of the most popular nursing textbooks for undergraduate students, we found that myths were propagated (e.g., that light cigarettes are safer) and that coverage of evidence-based treatment for tobacco dependence was minimal (Wells, Bialous, & Sarna, 2009).

### Removing Barriers: Limited Nursing Research

In response to a request from the *Nursing Research* journal for articles to celebrate its 50 years of publication, I collaborated with Linda Lillington, DNSc, RN, in an unfunded review of 48 years of data-based articles (N = 1,705) and editorials published in the journal to

determine the frequency of publications that included tobacco use in sample descriptions as a variable potentially moderating outcomes and as a specific outcome (Sarna & Lillington, 2002). We expected that although tobacco had been identified as the leading cause of preventable death in the United States for more than a decade (McGinnis & Foege, 1993), nursing research literature in the field would be very limited. Thus, we were not surprised by our findings that the inclusion of smoking status in sample descriptions was rare and relatively recent. Only 18 studies reported tobacco use as an outcome measure, with the first paper on smoking cessation published in 1996. None of the studies that were reviewed addressed interventions to reduce exposure to secondhand smoke. In fact, the first mention of tobacco use was in the methods section in a paper published in 1961 that focused on controlling time from smoking until temperature measurement.

In efforts to further accelerate nursing research, we obtained funding from the Agency for Healthcare Research and Quality (AHRQ) to hold the first nursing research conference on tobacco-dependence treatment with participation from nursing experts in the field. The papers were published in a special issue of *Nursing Research* (Sarna & Bialous, 2006). We are editing the 2009 issue of *Advances in Nursing Research*, which will include multiple chapters to describe the state of the science in the area of nurses and tobacco-control research.

**Helping smokers quit:** Some of our current work is focused on educating nurses so that they can help smokers quit. Our CDC-funded project involves nurses from 30 hospitals in California, West Virginia, and Indiana. Using a quasiexperimental design, we are evaluating the effect of Web-based methods and technology, including our TFN Web site and dissemination of the evidence-based *Treating Tobacco Use and Dependence Treatment: 2008 Update Clinical Practice Guideline* (Fiore et al., 2008) on self-reported interventions with patients who smoke. Nurses in the experimental group receive a Webinar conference based on a modified Rx for Change® curriculum, a toolkit of materials relevant to their states, and access to a special tab on our Web site. To date, we have distributed more than 8,000 toolkits to nurses, including a pocket guide, "Helping Smokers Quit: A Guide for Clinicians." We developed the booklet in collaboration with AHRQ during the TFN initiative, according to the evidence-based practice recommendations (Fiore et al., 2008) using the five "A"s for delivering a smoking-cessation intervention (ask, advise, assess, assist, arrange). This is one of AHRQ's most frequently requested materials. Preliminary baseline results support our previous findings that nurses generally do a good job asking about tobacco use but offer minimal assistance, with very few referring smokers to the free telephone smoking quit line (1-800-QuitNow).

## Removing Barriers: Promoting Nursing Leadership

Complementing our research efforts have been strategic partnerships with nursing organizations (Sarna, Bialous, Barbeau, & McLellan, 2006). We were able to collaborate with the American Nurses Association, including the union arm; the American Association of Colleges of Nursing; the National Federation of Licensed Practical Nurses; and the National Coalition of Ethnic Minority Nurses. We held a leadership summit at the headquarters of the AHRQ to ensure that tobacco was on the agenda of nursing organizations. ONS was a member of that group.

Tobacco control is cancer control, and my policy efforts have continued (Bialous et al., 2003). In the early 1990s, the American Nurses Association convened a working group to address nurses and tobacco control, which resulted in the "Nursing Center for Tobacco Intervention" and Web site housed at the College of Nursing at the Ohio State University under the direction of Mary Ellen Wewers. Over the past decade, I, along with my colleague Stella Bialous, have been privileged to assist ONS and other nursing organizations with policies related to nurses and tobacco control. This includes the most recent ONS policy, "Nursing Leadership in Global and Domestic Tobacco Control" (ONS, 2008), which was endorsed by the American Nurses Association, among policies for other nursing groups. In 1995, when we spearheaded efforts to revise the ONS policy on oncology nurses and tobacco control, including the importance of tobacco-control content in oncology nursing education, certification, and clinical practice (Sarna & Brown, 1995), a statement that oncology nurses should be smoke-free role models passed after some controversy. Nurses, the largest group of healthcare professionals, have the potential to make huge contributions to tobacco-control policy, and we have made every effort to make other groups and individuals aware of this, too.

## International Efforts

Lung cancer is the most common type of cancer and is the leading cause of cancer death worldwide. There are 1.5 million new cases projected for 2007, 12% of all cancer cases (Garcia et al., 2007). Along with national efforts, I also have been involved in international efforts for the past 15 years to expand the role and number of nurses in tobacco control. In 1995, a memo to Pearl Moore, then chief executive officer of ONS, addressed the possibility of expanding tobacco-control efforts of cancer nurses internationally. TFN was selected as an exemplar for other healthcare organizations as part of World No Tobacco Day 2005, in a year devoted to the role of healthcare professionals in tobacco control.



Although smoking rates are declining in many countries, the actual number of smokers is growing with the expansion of the population (Shafey et al., 2009). In 2010, six million people are projected to die from tobacco-related diseases. If trends do not change, deaths will increase to seven million people every year by the next decade, with more than 70% of deaths occurring in low- and middle-income countries. Tobacco-control efforts in China, the world's largest market for cigarettes with the largest number of smokers (Shafey et al.; Yang, Ma, Liu, & Zhou, 2005), are pivotal to efforts to reduce tobacco-induced morbidity and mortality globally and in China. Secondhand smoke is widespread, with an estimated 0.54 billion Chinese exposed (Yang et al.).

Building on our study of tobacco content in curricula among nursing programs in the United States (Wewers et al., 2004), with funding from the University of California Pacific Rim project, we conducted a similar project with nurse investigators from four countries in Asia: China (mainland and Hong Kong SAR), the Philippines, Korea, and Japan (Sarna, Danao, et al., 2006). A survey of schools of nursing in China (N = 32) was the first known study to examine the extent of tobacco-control education in nursing education in China (Chan, Sarna, & Danao, 2008). Similar to findings in the United States, although Chinese nursing students were taught the health risks of tobacco use; few were taught interventions to help smokers quit. Content amounted to less than one hour per year of study, and 93% reported smoking among faculty. Based on the findings, I was not surprised to learn that nurses (N = 2,888) in four major cities in China (Beijing, Shanghai, Guangzhou, and Chongqing), although they had some knowledge about the health effects of tobacco use, seldom intervened with patients (Chan, Sarna, Wong, & Lam, 2007). For the nurses who had received education about tobacco control, that made a difference in increasing interventions with patients and provides the basis for a future intervention study. Sophia Chan, RN, PhD, MEd, FAAN, Bialous, and I have plans to continue to address the urgent need to prepare nurses in China, the country with the largest number of smokers in the world, more than 300 million, approximately half of the male population (Shafey et al., 2009).

I led my first preconference workshop on nurses and tobacco control, funded by the American Cancer Society, at the 1994 World Conference on Tobacco or Health in Paris, and I have presented on nurses' role in tobacco control at every world conference since then. Recently, Dr. Bialous and I held a preconference workshop in Mumbai, India, supporting nurses' role in helping patients quit tobacco use for 50 nurses from 20 different countries. We also addressed the importance of mobilizing nurses to help implement the World Health Organization's Framework Convention on Tobacco Control, the first-ever public health treaty (Shafey et al., 2009). Plans are under way to continue the efforts

Despite lung cancer being the leading cause of cancer death and misery for millions of Americans, research in lung cancer has been underfunded and patients continue to be stigmatized as "causing" their illness.

in expanding the global network of nurses and tobacco control. Decreasing nurses' barriers to intervention will benefit patient outcomes. The 13 million nurses in the world can play an important role in changing the course of this epidemic.

## Concluding Thoughts

Given this overview of my two programs of research and of factors influencing the evolution of my studies, I would like to make a few comments about the future of oncology nursing research in these areas. I have been fortunate to have received funding from a variety of agencies, including ONS, for my studies focused on people with lung cancer. However, despite lung cancer being the leading cause of cancer death and misery for millions of Americans, research in lung cancer has been underfunded and patients continue to be stigmatized as "causing" their illness (Gritz, Sarna, Dresler, & Healtson, 2007). The nursing research focused on this disease continues to be inadequate to support best practices. The multiple symptoms and QOL issues faced by these patients make it a priority population for ongoing cancer nursing research. Treatment advances and the promising results with early detection of lung cancer create new areas for nursing research. For example, data from my collaboration with researchers in the Radiation Therapy Oncology Group focused on patients with stage II–III NSCLC, suggested that patients' ratings of symptoms provide an important perspective on treatment outcomes (Sarna, Swann, et al., 2008) and that QOL predicts overall survival (Movsas et al., in press).

Similarly, considering the public health importance of tobacco and the enormous potential for nursing intervention, research as to best practices for implementation of evidence-based findings into clinical practice is not adequate (Sarna & Bialous, 2006; Wewers, Sarna, & Rice, 2006). Lung cancer and tobacco control are critical areas in oncology nursing research; future studies must be encouraged and supported, and the mentorship of new researchers in the field is vital.

## Postscript

Because my talk is about research "unfiltered," it is only fair to describe one of the factors that affected the personal context of my program of research—my own



cancer diagnosis. In 2002, when the country was reeling from the horrors of 9/11, when the galleys for my landmark study of QOL of lung cancer survivors (Sarna et al., 2002) were in press, I discovered a lump in my breast—nine months after a mammogram. As I went through surgery (twice), chemotherapy, hospitalization for sepsis, and radiation therapy, my research continued. I am not the first distinguished oncology nurse researcher to be diagnosed with cancer. I join many of my oncology nursing colleagues who are survivors. Perhaps it has given me an enhanced sensitivity to the positive as well as negative consequences of cancer survivorship on QOL. It certainly has given me a sense of urgency to address issues that are important to me. The unwavering support of my family, especially my children and husband; my friends; my research colleagues; the wonderful students and faculty at the UCLA School of Nursing, especially my colleague in the oncology nursing program, Nancy Jo Bush, RN, MN, MA, AOCN®, during these past decades has been critical to all of my accomplishments. I relish the opportunity to work with talented, bright colleagues who want to make the world a better place. I hope that

my research supports the efforts of nurses to reduce tobacco use and to provide the best care for patients with cancer, especially lung cancer. I am deeply honored to have received this recognition, and I loved the opportunity to write my own “herstory.”

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Linda Sarna, RN, DNSc, FAAN, AOCN®, is a professor in the School of Nursing at the University of California, Los Angeles. No financial relationships to disclose. Mention of specific products and opinions related to those products do not indicate or imply endorsement by the *Oncology Nursing Forum* or the Oncology Nursing Society. Sarna can be reached at [lsarna@sonnet.ucla.edu](mailto:lsarna@sonnet.ucla.edu), with copy to editor at [ONFEditor@ons.org](mailto:ONFEditor@ons.org). As the recipient of the 2009 Distinguished Researcher Award, Sarna presented this article at the 34th Annual Oncology Nursing Society Congress in San Antonio, TX.

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## References

- Bialous, S.A., Kaufman, N., & Sarna, L. (2003). Tobacco control policies. *Seminars in Oncology Nursing*, 19(4), 291–300.
- Bialous, S.A., Sarna, L., Wells, M.E., Elashoff, D., Wewers, M., Froelicher, E.S., et al. (2009). Characteristics of nurses who used the Internet-based NursesQuitNet® for smoking cessation. *Public Health Nursing*, 26(4), 329–338.
- Bialous, S.A., Sarna, L., Wewers, M.E., Froelicher, E.S., & Danao, L. (2004). Nurses' perspectives of smoking initiation, addiction, and cessation. *Nursing Research*, 53(6), 387–395.
- Centers for Disease Control and Prevention. (2007). Cigarette smoking among adults—United States, 2006. *Morbidity and Mortality Weekly Report*, 56(44), 1157–1161.
- Centers for Disease Control and Prevention. (2009). State-specific prevalence and trends in adult cigarette smoking—United States, 1998–2007. *Morbidity and Mortality Weekly Report*, 58(09), 221–226.
- Chan, S.S., Sarna, L., & Danao, L.L. (2008). Are nurses prepared to curb the tobacco epidemic in China? A questionnaire survey of schools of nursing. *International Journal of Nursing Studies*, 45(5), 706–713.
- Chan, S.S., Sarna, L., Wong, D.C., & Lam, T.H. (2007). Nurses' tobacco related knowledge, attitudes, and practice in four major cities in China. *Journal of Nursing Scholarship*, 39(1), 46–53.
- Cooley, M., Sarna, L., Brown, J., Williams, R., Chernecky, C., Padilla, G., et al. (2003). Challenges of recruitment and retention in multisite clinical research. *Cancer Nursing*, 26(5), 376–384.
- Cooley, M., Sarna, L., Brown, J., Williams, R., Chernecky, C., Padilla, G., et al. (2007). Tobacco use in women with lung cancer. *Annals of Behavioral Medicine*, 33(3), 242–250.
- Doll, R., Peto, R., Boreham, J., & Sutherland, I. (2004). Mortality in relation to smoking: 50 years' observation on male British doctors. *British Medical Journal*, 328(7455), 1519–1527.
- Evangelista, L.S., Sarna, L., Brecht, M.L., Padilla, G., & Chen, J. (2003). Health perceptions and risk behaviors of lung cancer survivors. *Heart & Lung*, 32(2), 131–139.
- Fiore, M., Jaen, C., Baker, T.B., Bailey, W., Benowitz, N.L., Curry, S.J., et al. (2008). *Treating tobacco use and dependency: 2008 update. Clinical practice guideline*. Rockville, MD: U.S. Department of Health and Human Services.
- Fiore, M.C., Bailey, W.C., Cohen, S.J., Dorfman, S.F., Goldstein, M.G., Gritz, E.R., et al. (1996). *Smoking cessation. Clinical practice guideline No. 18*. Rockville, MD: U.S. Department of Health and Human Services, Public Health Service, Agency for Health Care Policy and Research, Centers for Disease Control and Prevention.
- Fiore, M.C., Bailey, W.C., Cohen, S.J., Dorfman, S.F., Goldstein, M.G., Gritz, E.R., et al. (2000). *Treating tobacco use and dependence. Clinical practice guideline*. Rockville, MD: U.S. Department of Health and Human Services, Public Health Service.
- Garcia, M., Jemal, A., Ward, E., Center, M., Hao, Y., Siegel, R., et al. (2007). *Global cancer facts and figures 2007*. Atlanta, GA: American Cancer Society.
- Gritz, E.R., Dresler, C., & Sarna, L. (2005). Smoking, the missing drug interaction in clinical trials: Ignoring the obvious. *Cancer Epidemiology, Biomarkers, and Prevention*, 14(10), 2287–2293.
- Gritz, E.R., Sarna, L., Dresler, C., & Heaton, C.G. (2007). Building a united front: Aligning the agendas for tobacco control, lung cancer research, and policy. *Cancer Epidemiology, Biomarkers, and Prevention*, 16(5), 859–863.
- Lindsey, A.M., Larson, P.J., Sarna, L., & Brown, J.K. (1993). The lung cancer experience: Comparison of variables and findings across three studies. *Oncology Nursing Forum*, 20(3), 490–493.
- Longo, D.R., Feldman, M.M., Kruse, R.L., Brownson, R.C., Petroski, G.F., & Hewett, J.E. (1998). Implementing smoking bans in American hospitals: Results of a national survey. *Tobacco Control*, 7(1), 47–55.
- Maliski, S.L., Sarna, L., Evangelista, L., & Padilla, G. (2003). The aftermath of lung cancer: Balancing the good and the bad. *Cancer Nursing*, 26(3), 237–244.
- Malone, R.E. (2006). Nursing's involvement in tobacco control: Historical perspective and vision for the future. *Nursing Research*, 55(4 Suppl.), S51–S57.
- McGinnis, J.M., & Foege, W.G. (1993). Actual causes of death in the United States. *JAMA*, 270(18), 2207–2212.
- Movsas, B., Moughan, J., Sarna, L., Langer, C., Werner-Wasik, M., Nicolaou, N., et al. (in press). Quality of life supersedes the classic prognosticators for long-term survival in locally advanced non-small cell lung cancer (NSCLC): An analysis of Radiation Therapy Oncology Group (RTOG) 9801. *Journal of Clinical Oncology*.
- Myers, A., Rosner, B., Abbey, H., Willet, W., Stampfer, M., Bain, C.,

- et al. (1987). Smoking behavior among participants in the Nurses' Health Study. *American Journal of Public Health*, 77(5), 628–630.
- Nelson, D.E., Giovino, G.A., Emont, S.L., Brackbill, R., Cameron, L.L., Peddicord, J., et al. (1994). Trends in cigarette smoking among U.S. physicians and nurses. *JAMA*, 271(16), 1273–1275.
- Oncology Nursing Society. (2008). Nursing leadership in global and domestic tobacco control. *Oncology Nursing Forum*, 35(5), 745–747.
- Sarna, L. (1993a). Correlates of symptom distress in women with lung cancer. *Cancer Practice*, 1(1), 21–28.
- Sarna, L. (1993b). Women with lung cancer: Impact on quality of life. *Quality-of-Life Research*, 2, 13–22.
- Sarna, L. (1995a). Lung cancer: The overlooked women's health priority. *Cancer Practice*, 3(1), 13–18.
- Sarna, L. (1995b). Smoking behaviors of women after diagnosis with lung cancer. *Image—The Journal of Nursing Scholarship*, 27(1), 35–41.
- Sarna, L. (1998). Effectiveness of structured nursing assessment of symptom distress in advanced lung cancer. *Oncology Nursing Forum*, 25(6), 1041–1048.
- Sarna, L., & Bialous, S.A. (Guest Eds.). (2006). Reports from a national conference on nursing and tobacco cessation: Setting a research agenda. *Nursing Research*, 55(4, Suppl.).
- Sarna, L., Bialous, S.A., Barbeau, E., & McLellan, D. (2006). Strategies to implement tobacco control policy and advocacy initiatives. *Critical Care Nursing Clinics of North America*, 18(1), 113–122, xiii.
- Sarna, L., Bialous, S.A., Cooley, M.E., Jun, H.J., & Feskanich, D. (2008). Impact of smoking and smoking cessation on quality of life in women in the Nurses' Health Study. *Quality of Life Research*, 17(10), 1217–1227.
- Sarna, L., Bialous, S.A., Hutchinson, K.M., Williams, B.S., Froelicher, E.S., & Wewers, M.E. (2003). Views of African American nurses about tobacco cessation and prevention. *Journal of the National Black Nurses Association*, 14(2), 1–8.
- Sarna, L., Bialous, S.A., Wells, M., Kotlerman, J., Froelicher, E.S., & Wewers, M.E. (2009). Do you need to smoke to get a break? Smoking status and missed breaks among staff nurses. *American Journal of Preventive Medicine*, 37(2, Suppl.), S165–S171.
- Sarna, L., Bialous, S.A., Wewers, M.E., Cooley, M.E., Jun, H.J., & Feskanich, D. (2008). Trends in smoking in the Nurses' Health Study (1976–2003). *Nursing Research*, 57(6), 374–382.
- Sarna, L., Bialous, S.A., Wewers, M.E., Froelicher, E.S., & Danao, L. (2005). Nurses, smoking, and the workplace. *Research in Nursing and Health*, 28(1), 79–90.
- Sarna, L., Bialous, S.A., Wewers, M.E., Froelicher, E.S., Wells, M., & Balbach, E. (2007). Web log analysis of the first two years of the Tobacco Free Nurses website. *Online Journal of Nursing Informatics*, Fall(11). Retrieved August 18, 2009, from [http://ojni.org/11\\_3/sarna.htm](http://ojni.org/11_3/sarna.htm)
- Sarna, L., Bialous, S.A., Wewers, M.E., Froelicher, E.S., Wells, M., Kotlerman, J., et al. (in press). Nurses trying to quit smoking using the Internet. *Nursing Outlook*.
- Sarna, L., & Brecht, M.L. (1997). Dimensions of symptom distress in women with advanced lung cancer: A factor analysis. *Heart and Lung*, 26(1), 32–30.
- Sarna, L., & Brown, J. (1995). Tobacco prevention and cessation in oncology nursing practice, education, and research [Proposed resolution]. *Oncology Nursing Forum*, 22(2), 256–257.
- Sarna, L., Brown, J.K., Cooley, M.E., Williams, R.D., Chernecky, C., Padilla, G., et al. (2005). Meaning of illness and quality of life of women with lung cancer. *Oncology Nursing Forum*, 32, E1–E11.
- Sarna, L., Brown, J.K., Lillington, L., Rose, M., Wewers, M.E., & Brecht, M.L. (2000). Tobacco interventions by oncology nurses in clinical practice: Report from a national survey. *Cancer*, 89(4), 881–889.
- Sarna, L., Brown, J.K., Lillington, L., Wewers, M.E., & Brecht, M. (2000). Tobacco-control attitudes, advocacy, and smoking behaviors of oncology nurses. *Oncology Nursing Forum*, 27(10), 1519–1528.
- Sarna, L., Cooley, M.E., Brown, J.K., Chernecky, C., Elashoff, D., & Kotlerman, J. (2008). Symptom severity 1 to 4 months after thoracotomy for lung cancer. *American Journal of Critical Care*, 17(5), 455–467.
- Sarna, L., Cooley, M.E., Brown, J.K., Williams, R.D., Chernecky, C., Padilla, G., et al. (2006). Quality of life and health status on dyads of women with lung cancer and family members. *Oncology Nursing Forum*, 33(1), 1106–1116.
- Sarna, L., Danao, L.L., Chan, S.S., Shin, S.R., Baldago, L.A., Endo, E., et al. (2006). Tobacco control curricula content in baccalaureate nursing programs in four Asian nations. *Nursing Outlook*, 54(6), 334–344.
- Sarna, L., Evangelista, L., Tashkin, D., Padilla, G., Holmes, C., Brecht, M.L., et al. (2004). Impact of respiratory symptoms and pulmonary function on quality of life of long-term survivors of non-small cell lung cancer. *Chest*, 125(2), 439–445.
- Sarna, L., & Lillington, L. (2002). Tobacco: An emerging topic in nursing research. *Nursing Research*, 51(4), 245–253.
- Sarna, L., Lindsey, A., Dean, H., Brecht, M., & McCorkle, R. (1993). Nutritional intake, weight change, symptom distress, and functional status over time in adults with lung cancer. *Oncology Nursing Forum*, 20(3), 481–489.
- Sarna, L., Lindsey, A., Dean, H., Brecht, M.L., & McCorkle, R. (1994). Weight change and lung cancer: Relationships with symptom distress, functional status, and smoking. *Research in Nursing and Health*, 17(5), 371–379.
- Sarna, L., Padilla, G., Holmes, C., Tashkin, D., Brecht, M.L., & Evangelista, L. (2002). Quality of life of long-term survivors of non-small cell lung cancer. *Journal of Clinical Oncology*, 20(13), 2920–2929.
- Sarna, L., Swann, S., Langer, C., Werner-Wasik, M., Nicolaou, N., Komaki, R., et al. (2008). Clinically meaningful differences in patient-reported outcomes with amifostine in combination with chemoradiation for locally advanced non-small cell lung cancer: An analysis of RTOG 9801. *International Journal of Radiation Oncology, Biology, Physics*, 72(5), 1378–1384.
- Sarna, L., Wewers, M.E., Brown, J.K., Lillington, L., & Brecht, M.L. (2001). Barriers to tobacco cessation in clinical practice: Report from a national survey of oncology nurses. *Nursing Outlook*, 49(4), 166–172.
- Shafey, O., Eriksen, M., Ross, H., & Mackay, J. (2009). *The tobacco atlas* (3rd ed.). Atlanta, GA: American Cancer Society and World Lung Foundation.
- U.S. Department of Health and Human Services. (1980). *The health consequences of smoking for women: A report of the Surgeon General*. Washington, DC: U.S. Department of Health and Human Services, Public Health Service, Office of the Assistant Secretary for Health, Office on Smoking and Health.
- U.S. Department of Health and Human Services. (2004). *The health consequences of smoking: A report of the Surgeon General*. Atlanta, GA: Centers for Disease Control and Prevention.
- U.S. Department of Health, Education, and Welfare. (1964). *Smoking and health: Report of the advisory committee to the Surgeon General of the Public Health Service* (Vol. Publication No 1103, 386). Washington, DC: U.S. Department of Health, Education, and Welfare, Public Health Service.
- Vredevoe, D., Derdarian, A., Sarna, L., Friel, M., & Shiplaceoff, J. (1981). *Concepts of oncology nursing*. Upper Saddle River, NJ: Prentice-Hall.
- Wells, M., Bialous, S., & Sarna, L. (2009). Do nursing textbooks provide adequate information for teaching tobacco cessation interventions? [Abstract BX]. *10th National Conference on Cancer Nursing Research*. Orlando, FL. *Oncology Nursing Forum*, 36(1), xix.
- Wells, M., Sarna, L., Cooley, M.E., Brown, J.K., Chernecky, C., Williams, R.D., et al. (2007). Use of complementary and alternative medicine therapies to control symptoms in women living with lung cancer. *Cancer Nursing*, 30(1), 45–55.
- Wewers, M., Kidd, K., Armbruster, D., & Sarna, L. (2004). Tobacco dependence curricula in U.S. baccalaureate and graduate nursing education. *Nursing Outlook*, 52(2), 95–101.
- Wewers, M.E., Lawrence, D., Sarna, L., & Bialous, S.A. (unpublished report). Prevalence of cigarette smoking in nursing occupations. TUS-CPS 1992–2001.
- Wewers, M.E., Sarna, L., & Rice, V.H. (2006). Nursing research and treatment of tobacco dependence: State of the science. *Nursing Research*, 55(4, Suppl.), S11–S15.
- Yang, G., Ma, J.M., Liu, N., & Zhou, N. (2005). Smoking and passive smoking in Chinese, 2002. *Chinese Journal of Epidemiology*, 26(2), 77–83.