Cancer Nursing: The Modern Era

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Purpose/Objectives: To identify critical elements of the major shift in cancer nursing practice, education, and the expectations of professional nursing immediately following World War II that were precursors of contemporary oncology nursing preparation and practice.

Data Sources: General healthcare, medical, and nursing literature, particularly in the *American Journal of Nursing*, published after World War II and before the inception of the Oncology Nursing Society (ONS); archival materials in the collection of ONS; nursing history literature; and personal communications.

Data Synthesis: Nurses in a wide variety of practice settings with varied levels of experience, including staff nurses, homecare nurses, and high-level leaders and decision makers of the time, were responsible for bringing attention to and addressing the challenges and joys of cancer nursing.

Conclusions: Professional nursing in general and cancer nursing in particular underwent significant changes and a distinct paradigm shift in cancer nursing education and practice in the period of time surrounding World War II, which promoted the advancement of cancer nursing.

Implications for Nursing: This historical review provides lessons for contemporary cancer nursing clinicians, executives, researchers, and educators with regard to imagining ways to approach issues, the necessity of collaboration and public-private partnerships, and maintaining the passion for this increasingly complex nursing specialty.

Sandelowski (1997) suggested that from 1870–1940, emerging technology, defined as the "use of material objects to achieve practical human ends" (p. 4), divided American nursing into two periods—before and after World War II. Sandelowski (1997) presented the case that, throughout American nursing history, technology transformed nursing work, altered social relations and division of labor, and transferred many forms of technology from the domain of medicine to nursing. The work of America's first trained nurses from 1870–1930 consisted of providing for the physical needs and comfort of patients (Hilkemeyer, 1985) and childbearing women; those tasks, categorized as "in-the-flesh" techniques—observing, positioning, and lifting—primarily involved nurses' trained senses of sight, hearing, smell, and touch, along with "deft and gentle hands, and strong back and limbs" (Sandelowski, 1997, p. 5).

A second category of nursing work during this era involved "device-mediated procedures" (Sandelowski, 1997, p. 6)—for example, administration of medicines, application of poultices, dressing changes, and catheterization—all requiring use of appliances, utensils, and other objects. Sandelowski (2000) linked hospitals' growing image as sites for "sympathetic and scientific care embodied in the new trained nurse" (p. 3) and use of new devices including the thermometer, stethoscope, opthalmoscope, laryngoscope, fluoroscope, and electrocardiography to the diagnostic revolution in medicine that occurred throughout the 1930s. Nurses were expected to collect, record, interpret, and convey to physicians information gleaned from use of those devices, making nurses' eyes "the most critical instruments in physicians' new diagnostic armamentarium" (Sandelowski, 2000, p. 5).

Lusk (2005) assessed the work of American nurses caring for people with cancer from 1920–1950. This work incorporated a review of cancer and nursing education, as well as nursing care specific to cancer from 1920–1950. Lusk's (2005) findings revealed a core body of cancer nursing knowledge, such that those four decades were a prelude to cancer nursing's emergence as a specialty.

For purposes of this article, the modern era began when the paradigm shifted from nurses offering care and comfort to the age when nurses could complement traditional caring measures with scientific knowledge, skills, and technologies to advance the quality and quantity of the lives of people with cancer. Others refer to this same timeframe as "the Curative Era" in the context of cancer (Zubrod, 1979, p. 490). This transition can be linked to events associated with, and social, scientific and technologic contexts of, the World War II era and beyond. At that time, some of the most important scientific and

ideologic advances occurred, which profoundly affected nursing in general, as well as cancer nursing. Cytotoxic chemotherapy and antibiotics were being introduced, therapeutic and scientifically applied radioactive materials became routine in clinical practice, changes in technology and ideology affected nursing education and practice (i.e., by permitting nurses to perform IV therapy and other measures previously considered to be in the domain of medical practice), and the assurance of research participants' rights were stipulated in the Nuremberg Code and subsequently, the Declaration of Helskinki (Shuster, 1997; World Medical Association, 2008).

Virginia Barckley recalled her early days as an oncology nurse in the 1930s and the commonly held assumption that cancer nursing was a "grim concatenation of hard work, boredom, and frustration, without even hope of recovery at the end" (Barckley, 1967, p. 278). She defied this assumption, writing,

> If we fail to perceive the excitement and challenge in cancer nursing, we miss the opportunity, given to so few, to learn the difference our own care can make in enhancing the comfort and the survival of such patients" (Barckley, 1967, p. 278).

Still, Barckley acknowledged, "Those were hard days" (Johnson, 1985, p. 5).

Noting that the 1940s set the stage for many "firsts" in cancer nursing, Katherine Nelson, PhD, a cancer nursing leader of the 20th century, referred to that decade as the "heyday" for oncology and cancer nursing (Nelson, 1987). From 1940 onward, effective cancer therapies progressed from the discovery of potential application to routine use in clinical practice, and early traces of hope emerged among nurses and people affected by better forms of treatment and enhanced quality of life.

Advances in Cancer Treatment and Nursing Practice

Radiation Therapy

The radioactive nature of uranium was discovered by Henri Becquerel in 1896. Radium's usefulness in medicine only was guessed at in 1904 when Simpson described the element for *American Journal of Nursing* readers. Supervoltage radiation therapy equipment in the form of cobalt-60 units was not introduced until the early 1950s; subsequently, radiation therapy gained a prominent role in cancer treatment (Bloomer & Hellman, 1975; Hilkemeyer, 1985) (see Figure 1). In the 1940s, graduate nurses often worked as roentgenologic technicians, with the "same responsibility for reassuring the patient and keeping him comfortable during the treatment as the hospital nurse has afterward" (Hopp, 1941, p. 432). The roentgenologic nurse of this era was expected to be "cheerful and congenial" (Hopp, 1941, p. 432) and to anticipate and intervene to minimize radiation-related symptoms including anorexia, nausea, and vomiting.

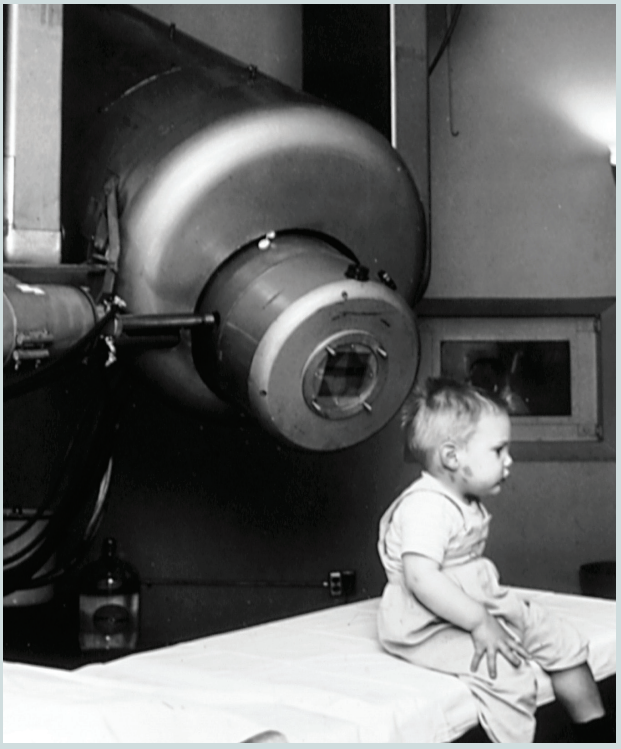

Figure 1. The First Patient Treated With Radiation Therapy for Retinoblastoma in 1957
Note. Photo courtesy of Stanford University.

By 1950, nurses' responsibilities associated with radiotherapy included attending to patients' emotional reactions, identification of gaps in patients' knowledge, correction of misconceptions, and reinforcement of information provided to patients by physicians (Best, 1950). Nurses were expected to provide assistance in maintaining a constant field with consistent positioning during treatments and to ensure accurate dosage. Nurses assumed additional responsibilities with regard to brachytherapy: applicator positioning, instructing and monitoring patients' adherence to special diets, collection of all excreta and emesis, and maintaining cleanliness and prevention of irritation and infection in the treated area. Nurses administered liver extract, vitamin B, and other substances in the treatment of radiation sickness (e.g., nausea, anorexia, fatigue, malaise), which occured more frequently when the gastrointestinal tract fell within a radiation treatment field. Finally, nurses were expected to "maintain good physical condition and morale" of radiation recipients in their care (Best, 1950, p. 143).

Cytotoxic Chemotherapy

Many drug development programs were devised from 1940–1950. Nitrogen mustard gas was a deadly agent of

warfare in World War I, with exposure known to induce marrow hypoplasia and involution of lymphoid tissue. Initial research on the biologic effects of those agents was published from 1919–1931 (Berenblum, 1931; Krumbhaar, 1919; Winternitz, 1920). The first clinical trial in which nitrogen mustard was used against Hodgkin lymphoma was launched in 1942 (Goodman et al., 1984; Hirsch, 2006), ushering in the Curative Era (Zubrod, 1979) and the focus on curative antitumor drug development. Nitrogen mustard, administered by physicians, was introduced to clinical practice in the early 1950s (Hilkemeyer, 1985).

Prior to the 1930s, nurses giving intramuscular injections was considered inappropriate: IV administration of substances as nursing functions was controversial into the 1960s (Sandelowski, 1997, 1999). Administration of fluids and nutrients via IV had become commonplace by 1935, but performance of venipuncture was strictly in the physician's domain until World War II. During World War II, nurses began doing venipuncture on the front lines and in home hospitals where military service had depleted the physician population. Nurses' roles in administration and management of cytotoxic chemotherapy in the 20th and 21st centuries evolved from the long and heated debates initiated during World War II and continuing through the 1960s over whether venipuncture was a medical or nursing procedure (Sandelowski, 1999). Hilkemeyer (1985) noted that "for a nurse to have administered any chemotherapy at that time [the 1950s] would have been unthinkable" (p. 7). Rosalind (1954) described an IV administration curriculum planning process for senior nursing students in 1954. A description of the initial IV therapy program for nurses at Ohio State University Health Center in a 1957 article noted that an applicant,

> Doesn't necessarily need leadership qualities but she should be able to organize her duties effectively . . . must be alert, observant, and capable of good judgment, and with a personality that inspires the patient's confidence and shows him that she recognizes his needs (Shanck, 1957, p. 1012).

In that institution, the nursing committee of the medical staff permitted nurses to add chemotherapeutics (among other medications, vitamins, and fluids) to IV flasks (Shanck, 1957). By the 1960s, the *American Journal of Nursing* included articles describing chemical agents that destroy cancer cells, a variety of routes of administration, and an introduction to the use of combination therapy (Golbey, 1960); nursing techniques and responsibilities with regard to managing patients receiving chemotherapy (Donaldson & Fletcher, 1964); and descriptions of progress in cancer chemotherapy research (Livingston, 1967). Within 15 years, nurses in research settings, such as St. Jude's Children's Research Hospital and the University of Alabama, were increasingly doing what Hilkemeyer in 1955 considered unthinkable—administering cytotoxic chemotherapy (C.H. Yarbro, personal communication, October 16, 2010) (see Figure 2).

Surgery

In the field of surgical oncology, important advances in the immediate post-World War II era were *not* readily apparent. In an article describing recent advances in surgery, Palumbo (1950), a prominent surgeon, identified that most noteworthy recent advances in operative techniques were in procedures of the cardiovascular, pulmonary, peripheral vascular, and autonomic nervous systems, as well as techniques used in surgeries of the esophagus and brain. So-called advances in cancer surgery often were more radical and disfiguring procedures than they replaced, or radiation therapy or chemotherapy were added to already extensive procedures. Breast cancer therapeutic surgical procedures introduced after World War II include adrenalectomy and hypophysectomy (Moore, Woodrow, Aliapoulios, & Wilson, 1967). Articles describing nursing care of patients with breast cancer in the 1940s focused on treatment of malodorous, open lesions; care of arm lymphedema; and measures to manage metastatic complications (Glienke & Kress, 1944b; Helm, 1943). The Halsted or radical mastectomy introduced in 1882, which removed the breast, axillary lymph nodes, and chest muscles, remained the most common surgery for breast cancer through the 1960s and continued to be used into the 1980s (Bland, 1981).

Acknowledgment of the anguish and disfigurement associated with radical mastectomy inspired Jeanne C. Quint (1963) to more fully explore the impact of mastectomy. Quint was an early nurse researcher using qualitative methodology, mentored by Anselm Strauss in data

Figure 2. The Beginning of the National Cancer Institute's Chemotherapy Testing Program

Note. Photo courtesy of the National Cancer Institute.

analysis and application to grounded theory. Publications from the study focused on the social psychological process of living with an uncertain future (Quint, 1963) and the institutional practices of information control on women's lives (Benoliel, 1996; Quint, 1965).

Supportive Care

Significant advances in cancer care occurred with the introduction of antibiotics and antiemetics—initial measures in supportive care—which radically changed nursing practice. Many of the deadly infections that occurred in the preantibiotic era (e.g., pneumonia, meningitis, postoperative peritonitis, vegetative endocarditis) became nonlethal as sulfonamides, penicillin, and streptomycin were introduced to clinical practice from 1939–1950 (Cannon, 1955).

Similarly, access to even marginally effective antiemetic agents in the 1950s altered the course of cancer treatment and its outcomes. In its earliest trials as an antiemetic, chlorpromazine was given to terminal patients with cancer whose conditions were complicated by nausea and vomiting that did not respond to standard antiemetic measures including sedation, atropine, and antacids. Later, chlorpromazine was found to relieve chemotherapy- and radiation-induced nausea and vomiting, allowing affected patients to continue treatment.

Over time, technologic advances changed physician practices such that by the late 1920s, even physicians acknowledged that nurses, among all medical personnel, had the closest and most constant contact with patients.

In situations of protracted vomiting and subsequent severe fluid and electrolyte imbalance, the antiemetic effects of chlorpromazine were life-saving (Friend & Cummins, 1953; Nance, 1956).

Post-World War II advances in pharmacologic (e.g., antibiotics, cytotoxics, antiemetics), technologic (e.g., therapeutic and diagnostic radiology), and other treatment innovations (e.g., IV therapy, early postoperative ambulation, earlier hospital discharge) undoubtedly undermined cancer nurses' traditional bed and body work. Sandelowski (1999) makes this point, comparing pre- and post-World War II nursing care. Traditional and low-technology interventions for infections and fever, such as bathing patients to provide comfort, were replaced by penicillin injections that could eradicate infection faster, more effectively, and reliably while requiring minimal nursing effort. Infectious diseases that had been lethal illnesses requiring intensive bedside nursing care became treatable, curable, short-term conditions. IV infusion of fluids to hydrate patients was much more efficient than coaxing patients to consume adequate fluids by mouth. From 1931–1951, average hospital length of stay decreased from 14 to 10 days, and therapeutic bed rest had fallen out of favor. Traditional bed and body work that had defined nursing before World War II became less vital and certainly less dramatic than new technologic, drug, and surgical approaches to illness. The potential of those advances to compromise the natural core of nursing was and continues to be a contentious issue (Almerud, Alapack, Fridlund, & Ekebergh, 2008; Bernard & Sandelowski, 2001; Sandelowski, 1999).

Nurses and Cancer Control

Advances in prevention and early detection prior to World War II included promotion of breast self-examination and implementation of the Papanicolaou smear technique to identify early cancerous changes in the uterine cervix. At a Michigan State Nurses' Association meeting in 1915, physician Reuben Peterson appealed to his audience of trained nurses to help in the distribution of knowledge to women "who do not know, who do not see" the need for consulting physicians early when signs of cancer appear (Peterson, 1915, p. 817). Peterson (1915) noted that the work of prevention and early detection of disease appealed to nurses, citing the eagerness with which nurses are "fitting themselves for and taking up everything which has to do with prevention of disease" (p. 818) and the importance of the organized efforts of nurses in the antituberculosis campaign. Over time, technologic advances changed physician practices such that by the late 1920s, even physicians acknowledged that nurses, among all medical personnel, had the closest and most constant contact with patients (Levin, 1927), and therefore, the means and abilities to disseminate information about early detection. All nurses are in key case-finding positions because they work with patients and have the opportunity to observe signs and apply knowledge in discerning cancer in such areas as the skin, breast, cervix, and rectum where the disease frequently occurs.

Rosalie Peterson (1954) noted the importance of nurses' knowledge and attitudes in cancer control activities.

> The nurse who appreciates the importance of recognizing symptoms of early cancer will find that her interest increases the acuity of her observations. If, however, cancer is a disease that is hard for us to accept, we may unconsciously close our eyes and our minds to objective symptoms. Moreover, we will be unable to help stimulate patients to seek prompt diagnosis and adequate treatment (Peterson, 1954, p. 463).

The vaginal smear technique, invented by George Papanicolaou to identify early dysplastic changes in the uterine cervix, was described in a paper delivered during

the Third Race Betterment Conference in 1928 (Papanicolaou, 1973) and was introduced to clinical practice in 1943 (Papanicolaou & Trout, 1943), by which time it was called the *Pap smear*. Formal nursing roles in cancer control did not emerge until the 1970s. Linda White and her colleagues at the University of Texas MD Anderson Hospital created the first structured institutional program to teach nurses how to do interviewing, cancer screening, and detection in 1975 (Hilkemeyer, 1985; White, Judkins, Cornelius, & Patterson, 1978), and efforts to demonstrate and build nurses' competencies in cancer control continue to the present day (Kottke & Trapp, 1998).

Cancer Nursing and Education

Throughout the 1940s, cancer nursing as a specialty was explored in many ways. The Russell Sage Foundation supported efforts to identify existing and future nursing service needs for people with cancer (Brown, 1948). Existing nursing care needs included irrigations, enemas, hypodermics, guidance in nutrition, and change and application of dressings. Conclusions drawn from Brown's (1948) work suggested that care of patients with cancer did not require nurses to possess different or unusual technical skills, but did support the idea that cancer nursing might be more intense and complex in critical and terminal stages of the disease. Findings noted that improvement was necessary in areas other than those requiring technical skills (i.e., enhancing nurses' competencies to include recognizing and meeting patients' emotional problems).

Recognition of emotional and psychological influences on recovery after cancer surgery and the nurse's influence were reflected in nursing literature of the 1930s and 1940s. In 1938, a student nurse wrote,

> The very fear tires the patient and makes her less resistant to the complications possible after any operation. The patient will face the operation more calmly if she feels that the nurse is personally interested in her welfare, is capable of giving her the care she needs. . . . The doctor cures the physical ills of the patient (with the nurse's aid) but it is up to the nurse to help that patient to become a person once more able to face and cope with life (Kelly, 1938, p. 470).

A nursing education milestone occurred in 1942 with the publication of *The Public Health Nurse Curriculum Guide* by the Joint Committee of the National Organization for Public Health Nursing and the United States Public Health Service. The targeted learner for this product was the trained nurse who intended to continue in nursing practice. This publication represented the first time in nursing education history that curriculum included content devoted solely to cancer.

Throughout its history, the American Cancer Society has supported nursing education. The American Cancer Society formed its Nursing Advisory Committee in 1948 and published the first reference book for nurses, *A Cancer Source Book for Nurses*, in 1950 (American Cancer Society, 1950). The book was available free of charge from state divisions, went through many editions, and continued to be free to nurses until the 1980s. Beginning in 1949, scholarships for basic preparation in nursing were awarded through the American Cancer Society's 60 divisions. For example, the Iowa Division awarded 50 such scholarships annually, covering tuition, books, and uniforms for a three-year course at any of the 25 accredited nursing schools in Iowa (Blake, 1954). The primary aim of those scholarships was to meet the unfilled needs for nursing service in this early nursing shortage, but a secondary aim was to expand the cancer case finding and home nursing service of local American Cancer Society units.

The Nursing Section of the Cancer Control Program of the National Cancer Institute was created in 1948, and Rosalie Peterson was named senior nurse officer and chief public health nursing consultant of the Cancer Control Division. Under her guidance, cancer nursing courses for nursing faculty were offered (Peterson, 1948).

Renilda Hilkemeyer became a consultant to the Bureau of Cancer Control in Missouri in 1950. She recognized the many settings in which people with cancer require nursing care and initiated an educational program to teach hospital and nursing school faculty and public health nurses about the care of patients with cancer. The program of instruction was conducted at the Ellis Fischel State Cancer Hospital in Columbia (Hilkemeyer, n.d.).

Before 1950, articles detailing nursing care of terminally ill patients with cancer usually suggested that the nurse should be a cheerful attendant. The article "Nursing Care in Terminal Cancer" by Handorf and Pederson (1950) proposed that care of patients in terminal stages is "rich in opportunities for comfort to the patient and his family as well as satisfaction for the nurse" (p. 643). Handorf and Pederson (1950) acknowledged that expert nursing and application of techniques for terminal care were familiar to nurses in the care of other chronic and progressive diseases, but also instructed that special problems produced by cancer could aggravate ordinary nursing issues.

Control of cancer pain, then as now, was a matter of great concern to nurses. However, by 1944, Glienke and Kress (1944a) suggested modern medicine was coping more successfully with the pain associated with advanced cancer. In particular, they noted effective analgesia provided by alcohol injections, "operations on nerves," narcotics "in smaller quantities," cobra venom, calcium gluconate, and well-planned x-ray therapy (p. 354).

The Shift from Hospital to Home

From 1950–1980, cancer treatment in America was characterized by extensive surgery, massive radiation,

intensive hormonal therapy, or combinations of those modalities. Toxicities were quite severe, and patients needed highly skilled and rigorous nursing care. Nurses operated radiation therapy equipment, administered IV chemotherapy and other measures to preserve fluid and electrolyte balance and adequate nutrition, and provided day-to-day observations, patient self-care instructions, skin care to prevent irritation and infection, and other measures to ensure good physical condition and morale of their patients.

Between World Wars I and II, hospitals held a popular image as places for the attention of trained nurses. By the mid-1940s, the fact became evident that care for many patients with cancer eventually occurred at home. Family caregivers' needs for help opened great opportunities and responsibilities to hospital nurses for planning and preparing for home care (Glienke & Kress, 1944a). The sympathetic attitude of the nurse, combined with a holistic approach to care, was viewed as critical to achieving the long-term benefits of cancer treatment. Glienke and Kress (1944a) described the expectation of nurses.

> The nurse who is completely sympathetic with the cancer patient will not rest contented as soon as an incision has healed or a reaction to irradiation has disappeared. She will want to help the patient work along with the handicap to the point where it is no longer disabling. Without such help the patient may not receive full benefit of the expensive treatment. If the handicap is quite serious, as for instance, the leakage from a vesigovaginal fistula, the patient may become so despondent that life becomes a heavy burden. It is therefore paramount that the nurse cultivate in herself and convey to the patient a hopeful, courageous attitude (Glienke & Kress, 1944a, p. 351).

The mind-body connection was acknowledged as an important consideration for the nurse planning home service for her patient with cancer.

> The nurse is likely to encounter severe emotional reactions. How the patient feels may influence bodily condition more than what is done for him physically. His emotional state may help his recovery or retard it by consuming energy in fear and anxiety (Glienke & Kress, 1944a, p. 351).

A commission was established in 1950 to study the nursing care given to patients in terminal stages of cancer (Peterson, 1954). The care of 5,000 patients with cancer in institutions and in their homes in a large metropolitan center was analyzed. The study concluded that "more nursing time and better quality of nursing services are needed" in both care settings, and that ultimately, "more professional nurses are needed" (Peterson, 1954, p. 464). The study involved a large sampling of patients; therefore, the situation likely was similar throughout the United States.

A second study conducted in 49 agencies throughout the United States by the Field Studies and Demonstrations Nursing Section of the National Cancer Institute found that the care most frequently given to patients with cancer in their homes (e.g., irrigations, enemas, hypodermics, nutritional guidance, dressing of wounds) could be considered general nursing care. Peterson (1954) concluded, "There is no such thing as cancer nursing: the patient with cancer needs the same care that any equally ill patient needs" (p. 464).

Peterson (1954) wrote that professional nurses should be competent to recognize and understand patients' fundamental health needs and be equipped with technical and psychological skills to meet those needs. The situations that nurses found in home settings were complex and physically and emotionally demanding. Nurses entering homes encountered crowded living conditions, as well as absence of running water and indoor toilet facilities. Odors emanating from necrotic and draining wounds, draining fistulas, emesis, soiled linens, and dressings were commonplace; Virginia Barckley noted that the moment she entered a home, the odors told her what she would find (Johnson, 1985). Nurses practicing during this era had few resources, aside from home remedies, to address most of those nursing care problems until the 1960s. The discovery that the phenothiazine class of drugs (e.g., chlorpromazine, prochlorperazine) performed as antiemetics did not occur until the early 1950s (Downs, 1966; Nance, 1956). Even through the late 1970s, nurses at Johns Hopkins Hospital heated ginger ale for patients' use as an antiemetic. "Do what you can" was often the nurse's only orders (Glienke & Kress, 1944a, p. 352).

The shift in site of care from hospital to home provided an early indication of the need for teamwork—the collaboration among physicians, public health nurses, families, hospital nurses, and social workers. "With sympathy and creativeness, physician and nurse can help to liberate resources in patients and families and protect them from being crushed by their burdens" (Glienke & Kress, 1944a, p. 352). Peterson (1954) highlighted nurses' roles among the many disciplines involved in cancer recovery and rehabilitation.

> Nursing is not the only discipline that is interested in the patient's needs nor can the members of any one discipline meet them all, but it may be the nurse who takes the initiative in securing joint action (p. 464).

Disclosure of the Cancer Diagnosis: An Ethical Dilemma

When Virginia Barckley was a Philadelphia visiting nurse in the 1930s and 1940s, the word *cancer* was largely avoided and nurses were prohibited from talking with patients and families about diagnosis, prognosis, or details of the illness (Johnson, 1985). Barckley said, "Patients had a tumor, you know, or a growth, but they never had

cancer: the word was just too terrible to say" (Johnson, 1985, p. 5). Valda Johnson (1934) acknowledged this practice "might be criticized as verging on deceit" (p. 768), but countered the concern by suggesting it "served to allay the shock which inevitably follows the reception of the news that one has a cancer and gives the patient a set of mind to cooperate in the treatment" (p. 768). Best (1950) guided nurses through the difficult scenario that occurs when the patient has not been told of the cancer diagnosis by the physician, instructing the nurse to avoid revealing the diagnosis and, instead, to assure the patient that "radiation is used for conditions other than cancer" (p. 140). The question of disclosure and nurses' subsequent ethical dilemmas appeared repeatedly and continues to the present day (Kendall, 2006).

Emergence of the Oncology Nursing Specialty

The National Institute of Health was designated in 1930 and, seven years later, the National Cancer Institute was established by Congress in the National Cancer Act of 1937. Its initial responsibilities defined by the National Cancer Act included conducting and fostering research on the causes, diagnosis, treatment, and prevention of cancer, as well as the provision of training and instruction in cancer diagnosis and treatment (National Cancer Institute, 2010). The National Cancer Institute created the Cancer Chemotherapy National Service Center in 1955, which, in turn, developed the clinical trials network.

The specialties of oncology nursing and medical oncology may owe their development to the rapid growth of clinical trials that began in the 1960s (Hubbard & Donehower, 1980). The increasing use of cytotoxic chemotherapy throughout the 1960s meant that all nurses would eventually find themselves caring for patients receiving those agents. Donaldson and Fletcher (1964) asserted that nurses must understand the rationale for this form of treatment, its basic principles, various administration techniques, effects of individual drugs, and early signs of toxicity. Despite the paucity of formal education programs for cancer nursing, no defined role for cancer nursing, and no formalized identity for the nurse aside from institutional affiliations, some nurses embraced these challenges, and cancer nursing roles started to emerge (Henke, 1980). Nurses assumed roles in clinical trial teams outside of hospital nursing services and were responsible to research physicians. Once again serving as physicians' eyes, as suggested by Sandelowski (2000), those nurses observed patients' responses to therapy, counseled patients and families, mastered complex study protocols, and gained knowledge and expertise regarding patterns of disease and drug reactions (Henke, 1980). Henke (1980) contended that a symbiotic relationship grew as physicians and nurses acquired on-the-job specialty training together, and the resulting interdependency allowed the nursing role to expand beyond task-oriented functions.

> In the 1930s and 1940s, the word *cancer* was largely avoided and nurses were prohibited from talking with patients and families about diagnosis, prognosis, or details of the illness.

The Nurse Training Act of 1964 was a component of President Lyndon Johnson's Great Society initiatives, indicating that the number and preparation of nurses were central to America's health agenda. Funding encouraged development of master's degree training programs; applicants got direct aid for tuition and stipends, encouraging enrollment. It also was a catalyst for the founding of many specialty nursing organizations, including the Association of Pediatric Oncology Nurses in 1974 and the Oncology Nursing Society in 1975 (Lynaugh, 2008).

Conclusion

World War II marked the entry of cancer nursing into its modern era. Some elements of this demarcation were direct outcomes of war-based needs and events, such as recognition of the cytotoxic effects of nitrogen mustard, the necessity of nurses being allowed to initiate and perform infusion therapy in field hospitals, and the introduction of penicillin. Other paradigm shifts occurred as indirect outcomes, including recognition of the potential curative effects of cytotoxic medications; attention to supportive care with prophylactic antibiotics, antiemetics, and nutritional and hydration support; and the introduction of IV therapy in nursing education curricula and related expansion of scope of nursing practice. Advances in nursing science, education, and scope of practice through the 1950s and 1960s took place in the context of the dramatic changes in women's work. Finally, scientific and technologic advances generated by research efforts offered promising treatment for cancer and also generated nurses' needs and opportunities to connect with colleagues, ultimately serving as the catalyst for formation of the Oncology Nursing Society in 1975—opening what could be called the postmodern era of cancer nursing.

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