Oncology nursing has evolved in response to population growth and changing demographics, changing regulatory requirements, decreasing lengths of inpatient hospital stays, and ongoing advances in cancer treatment, information, and biotechnology. Changes in societal perceptions of cancer and increased access to information have enabled patients to seek out knowledgeable and skilled oncology nurses. Nurses also play an ever-increasing role in rehabilitation as patients live longer with the effects of cancer and treatment. Significant outcomes achieved through nursing research include increased access to care and patient education; improved patient satisfaction, cost-effectiveness of health care, and treatment adherence; fewer hospital admissions; decreased lengths of stay; lower readmission rates; fewer emergency room visits; and lower healthcare costs. Oncology nurse researchers also have studied the economic burden of cancer treatment, limited employment options, and survivorship issues. The progress in professional oncology nursing parallels the progress in surgical, radiologic, biologic, medical, and genetic approaches to cancer treatment. The role and practice of the oncology nurse will continue to evolve in the coming decades as population demographics and healthcare systems change and new scientific and technologic discoveries are integrated into cancer care.

Factors Affecting the Evolution of Oncology Nursing Care

JoAnn Mick, PhD, RN, MBA, AOCN®, CNAA, BC

Oncology nurses have always required detailed knowledge of cancer’s biologic and psychosocial dimensions. The oncology nurses’ role includes administering and evaluating treatment plans, independently assessing patients’ physical and emotional status, educating patients and families, participating in clinical cancer research, developing nursing practice guidelines related to cancer care, and treating side effects or other complications (Yarbro, Frogge, Goodman, & Groenwald, 2005).

Oncology nursing standards of practice require that nurses provide competent and knowledgeable care to patients across the cancer continuum. The Oncology Nursing Society (ONS) and the American Nurses Association (ANA) published Statement on the Scope and Standards of Oncology Nursing Practice in 1996. Eleven high-incidence areas of cancer care were identified: prevention and early detection, information, coping, comfort, nutrition, protective mechanisms, mobility, elimination, sexuality, ventilation, and circulation (ONS & ANA, 1996). Three additional areas were identified by 2004: complementary and alternative therapies, palliative and end-of-life care, and survivorship. Recommendations to address each issue were incorporated in the revised standards of practice (ONS & ANA, 2004).

Cancer was first acknowledged as a major chronic health issue in the United States with the passage of the National Cancer Act in 1971. Since then, oncology nursing has evolved in response to population growth and changing demographics, changing regulatory requirements, decreasing lengths of inpatient hospital stays, and ongoing advances in cancer treatment and information technology. Changes in societal perceptions of cancer and increased access to information have enabled patients to seek out knowledgeable and skilled oncology nurses.

At a Glance

- Ethnicity, age, and cost are the most important demographic factors related to cancer treatment outcomes and healthcare access.
- Nurses must be prepared to address issues in the evolution of practice, such as new scientific and information technologies, ongoing advancements in cancer treatment, and changing healthcare systems.
- Nurses’ roles in patient assessment and care increase as more complex treatment protocols are implemented.

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Disparities in Healthcare Access and Treatment Outcomes

Declines in annual cancer mortality rates reflect ongoing progress in cancer prevention, early detection, and treatment. However, according to the American Cancer Society (ACS, 2004), not all segments of the U.S. population have benefited equally. Ethnicity, age, and cost are the most important demographic factors related to cancer treatment outcomes and healthcare access.

Ethnicity

The number of ethnic minorities has continued to grow in the United States (see Figure 1). Non-Hispanic whites were no longer the largest ethnic group in California, Hawaii, New Mexico, and Texas. In 10 other states, minority groups comprised more than 25% of the population (U.S. Census Bureau, 2000, 2005). Continued changes are expected in the ethnic and age compositions of each state’s population.

ACS (2007) reported that the number of early-stage cancer diagnoses, which have the highest five-year survival rate, differed among ethnic groups, with non-Hispanic whites diagnosed more often than all other ethnic groups. Late-stage diagnosis may add to the cost of care and lessen patient outcomes for ethnic minorities.

Differences in cancer incidence and mortality rates have persisted among ethnic groups, particularly African American men, who have a 25% higher incidence rate and 43% higher mortality rate than non-Hispanic white men for all cancers combined. Lung and prostate cancer incidence rates have decreased among men in all populations; however, the colorectal cancer incidence rate has decreased only among non-Hispanic whites. The incidence of breast cancer has increased among Asian or Pacific Islander women, decreased among Native American or Alaskan Native women, and remained stable among other groups. Incidence rates for colorectal cancer decreased only for non-Hispanic white women. These differences in incidence and mortality can lead to wide variations in cancer care and treatment outcomes (ACS, 2007).

As population demographics change, nurses must remain knowledgeable about cultural diversity and be sensitive to cultural rituals, beliefs, and practices (e.g., those related to death and dying); the level of family participation in patients’ decision making, care, and dietary preferences; and alternative or complementary medicine practices (Abramo, 2006). Addressing patients’ cultural needs can lead to treatment adherence, optimal disease outcomes, and reduced complications.

Age

Improvements in living and healthcare standards have resulted in a growing population of older Americans (see Figure 2). The fastest population growth in the 1990s occurred in the 65 or older age group. Additionally, a majority of baby boomers, born from 1946–1964, will begin to reach age 65 by 2011 (Wan, Sengupta, Veloff, & DeBarros, 2006).

Many older patients have chronic diseases and increasing cancer incidence rates; therefore, nurses must address a variety of comorbidities; patient safety, including the risk for falls and safe medication administration; and pain assessment and management. Discharge planning should take into account the physical and mental condition of older patients, and in-home support should be made available so that appropriate interventions and assistance are provided. In-home care assessments are particularly important because 28% of individuals 65 or older live alone (U.S. Census Bureau, 2005). Other age-related factors affecting patient care include abuse, domestic violence, and ethical issues (Abramo, 2006).

Cost

Cancer is the most costly illness in the United States, totaling $219.2.3 billion in 2007, including $89 billion in direct medical costs and $18.2 billion in lost productivity (ACS, 2008) (see Figure 3). According to ACS (2004), poverty is the most critical demographic factor affecting health. In 2003, 10% of the 65 or older age group and 12.5% of the total U.S. population were living in poverty (National Institutes of Health, 2006). Populations living in poverty are less likely to receive early-stage cancer diagnoses, leading to more complex and costly medical treatment and nursing care. According to the 2006 National Health Interview Survey, 24% of Americans younger than 65 had no health insurance coverage and 29% of those 65 or older only had Medicare (U.S. Department of Health and Human Services, 2006). Low-income population groups were 10 times less likely to receive medical care.
Aging population (ACS, 2008). Mortality rates decreased for 12%, which has been attributed to the characteristics of an aging population. For 2004–2005, the cancer death rate dropped combined dropped 1.1% per year from 1993–2002 and 2% per year from 1997–2002, with the same rates estimated to continue into 2008 (ACS, 2008); however, the overall five-year survival rate increased from 50% for patients diagnosed in 1975–1977 to 66% for patients diagnosed in 1996–2003 (ACS, 2008). As improvements in cancer treatment have enhanced and extended patients' quality of life, long-term survivorship has become a realistic expectation for approximately 66% of all patients with cancer (ACS, 2007). The ACS (2008) estimated that approximately 10.8 million people in the United States with a history of cancer were alive in 2004. Death from all cancer types combined dropped 1.1% per year from 1993–2002 and 2% per year from 2003–2004. For 2004–2005, the cancer death rate dropped 1%, which has been attributed to the characteristics of an aging population (ACS, 2008). Mortality rates decreased for 12%

Oncology Nursing Care

Oncology nurses focus on patient assessment, education, and care and coordinate interdisciplinary care, symptom management, and supportive care (see Figure 4). Nurses assess patients’ physical and emotional status, health history, and health practices and evaluate their knowledge of the diagnosis and treatment plan. Oncology nurses should be aware of results and implications of patients’ laboratory, pathologic, and imaging tests and address advances in genetics, cancer biology, epidemiology, prevention, early detection, treatment, and symptom management. Advances in cancer treatment have led to increasingly complex treatment regimens (ACS, 2003). Oncology nurses also must be aware of new drugs, therapies, and diseases, such as the multidrug-resistant bacteria that surfaced in the 1990s and created additional assessment and monitoring requirements for infectious disease risk factors (Blendon & Desroches, 2003).
Education

- Caregivers should be educated about major side effects of cancer, treatment, appropriate actions for oncologic emergencies, and helpful community resources.

Pain and Supportive Care

- Nurses should focus on pain management by making patients comfortable, promoting adherence to therapy, and performing follow-up evaluations.
- Assessment of patients’ psychosocial and spiritual needs may be coordinated through social workers and chaplaincy, with respect to patients’ religious beliefs.

Treatment

- Nurses should promote patient recovery, a return to normal activities, and reduced hospital stays.
- Patients should be prepared for loss of body functions, mobility limitations, and changes in physical appearance.

Figure 4. Recommendations for Nursing Care

and services are an important intervention for patients and caregivers, and nurses can help individuals to identify appropriate community resources, including financial and community support programs, transportation, lodging, and home health or hospice care.

The length of hospital stays has decreased, resulting in more patients being discharged while still requiring treatment. A family member or other caregiver usually delivers the treatments, so oncology nurses should identify caregivers early in a patient’s hospital stay and educate them about the patient’s care needs. Patient and caregiver education begins before therapy is initiated and continues during and after therapy. Oncology nurses use the ONS and ANA (2004) patient and caregiver education outcome criteria, which include describing the illness and therapy at a level consistent with the patient or family’s educational and emotional status; participating in the decision-making process pertaining to the plan of care; identifying appropriate community resources that provide information and services; addressing appropriate responses to predictable issues; detailing appropriate actions for oncologic emergencies and major side effects of the disease or therapy; and describing the treatment schedule.

While caring for and monitoring patients, nurses teach family members or caregivers how to monitor the effectiveness and side effects of pharmacologic and other treatment interventions, including respiratory status, bowel function, and mental and cognitive function. Education related to electronic or computerized home-monitoring devices used for testing vital signs, blood glucose levels, cardiac activity, and other symptoms often is provided by nurses. Patients and caregivers also are instructed on when and how to contact medical personnel in the event that additional assistance is required (ACS, 2003).

Effects of Cancer and Treatment

**Pain:** Pain control is a major aspect of cancer symptom management, with 30%-45% of patients reporting moderate to severe pain and 75% with advanced illness reporting pain (ACS, 2004). Improvements in nursing care for pain management focus on promoting patient comfort, improving patient education efforts to ensure that patients and their families are informed about pain control, providing information about and assistance with available behavioral and physical interventions, educating patients and caregivers about the prevention and alleviation of side effects of pharmacologic therapies, and promoting adherence with therapy and follow-up. More than any other health professional, nurses spend time with patients who are experiencing pain and must be knowledgeable about pain assessment and pharmacologic and nonpharmacologic treatment approaches (Yarbro et al., 2005). The American Pain Society provides evidence-based recommendations to ensure the appropriate assessment and management of cancer pain (National Guideline Clearinghouse, 2005). Nurses must clinically assess new medications and medication delivery technologies that are continually being developed.

**Fatigue:** Since the 1980s, oncology nurses have developed specific interventions to address cancer treatment-related fatigue, often the most distressing side effect reported by patients (Ferrell, Grant, Dean, Funk, & Ly, 1996). Oncology nurse researchers have contributed significantly to the definition, incidence, measurement, and management of fatigue in the patient population and continue to develop research and evidence-based clinical practice guidelines for treatment (McGuire & Ropka, 2000; ONS, 2008).

**Psychosocial and spiritual needs:** Fear, anxiety, depression, and uncertainty are common in patients undergoing cancer treatment, and nurses must be aware of patients’ hope and sense of meaning (Ferrell & Dow, 1998). Oncology nurses assess patients’ psychological symptoms, offer supportive care, provide patient education, and coordinate the interdisciplinary services of social work, chaplaincy, and rehabilitation, among others (Pearson, 1998). Social concerns emphasized by oncology nurses include sexuality, fertility, appearance, and counseling of caregivers, significant others, and children (Hoffman, 1991). Spiritual care and attention to patients’ existential concerns, including assessing spirituality, referring patients to chaplaincy services, and providing care with respect for patients’ religious beliefs, also fall to oncology nurses.

**Treatment**

**Surgery:** Surgery often is performed in conjunction with other cancer therapies. Surgical treatment plans include careful attention to quality-of-life issues and consideration of how normal body functions can be maintained or restored. Postoperative care often is provided by nurses according to standardized care plans that promote patient recovery and return to normal activities and reduce hospital length of stay. Oncology nurses play a key role in assessing patients’ understanding of expected surgical outcomes, as well as potential adverse outcomes, such as clinical effectiveness, change in or loss of body function, mobility limitations, and changes in physical appearance. Nurses also assist by physically and psychologically preparing patients for surgery, reducing anxiety, supporting postoperative physiologic stability, providing pain management, implementing interventions to prevent complications, and promoting patients’ adherence with postoperative instructions (Johnson & Yarbro, 1993).

**Chemotherapy:** Oncology nurses play an integral role in the administration of antineoplastic drug therapies. Chemotherapy
Nurses should be familiar with new therapies, treatment modalities, clinical trial results, supportive care devices, and drug administration systems.

administration includes patient assessment; safe drug handling, administration, and disposal; evaluation of laboratory data; calculation of drug dosages on the basis of body surface area; insertion of IV or central venous catheter devices; continuous and time-intensive monitoring to address potential adverse reactions or drug interactions; and documentation. Patients receiving chemotherapy and investigational medications often require time-intensive assessment and monitoring because of the life-threatening side effects and complications routinely experienced from regimens of potentially lethal drugs. Nurses also should be familiar with new therapies, treatment modalities, clinical trial results, supportive care devices, and drug administration systems.

**Radiation therapy:** Oncology nurses should understand the principles of radiobiology and radiation physics. Various internal and external radiation treatments are available for cancer treatment. As part of treatment, nurses conduct physical assessments of areas that may be affected by targeted radiation and implement any required interventions. They also assess patients’ nutritional status, ensuring that patients and families understand the disease process, proposed treatment plan, and possible side effects and address practical issues such as transportation to the treatment center (Johnson & Yarbro, 1993).

**Biologic therapy:** Advances in molecular science have resulted in many new biologic therapies for patients with cancer. Biologic agents, including interferons, interleukins, vaccines, colony-stimulating factors, and monoclonal antibodies, often are administered in conjunction with chemotherapy, radiation therapy, or surgery. The biologic agents and their side effects have created administration, patient monitoring, and side-effect intervention challenges for oncology nurses. Many patients continue on biologic therapy after being discharged, and oncology nurses must teach patients or family members how to prepare and administer drugs and manage possible side effects in the home setting (Johnson & Yarbro, 1993). Oncology nurses develop individualized plans of care, which are designed specifically to meet patients’ unique needs. However, health care may be guided increasingly by predictive evidence from genetic or molecular testing (Innovations.org, 2007), adding to the availability of targeted approaches to treatment that will reveal patients’ susceptibility to certain diseases and further increase expectations for personalized care.

**Complementary and alternative therapy:** An increased focus on complementary and alternative therapy has emerged (Gaskill, 2001), forcing nurses to be more familiar with integrative medicine; botanical medicine such as vitamins, supplements, nutrition, and diet; holistic medicine; mind-body medicine such as acupuncture, Chinese medicine, and ayurveda; traditional medicine such as homeopathy, naturopathy, yoga, and body work; and massage therapy, among others.

**Genetics:** About 5% of all cancers are considered hereditary; the remainder result from gene mutations that occur from factors such as hormones, smoking, and sunlight (ACS, 2007). As the cancer genetic field develops, genetic counseling and risk assessment roles are available to oncology nurses. The effect of the Human Genome Project on cancer care is unknown, but the emerging information may further develop cancer care services (National Human Genome Research Institute, 2003). As more cancer-preventive information is available through genetic research, oncology nurses must be prepared to educate patients in the decision-making process and adapt to new patient care needs (Meyskens & Tully, 2005).

**Information Technology**

Online healthcare services and information have expanded, and oncology nurses must stay informed about the information available to patients through the Internet. Development of web bibliographies—Web sites that list accurate information sources and teach patients how to evaluate the credibility and accuracy of online information—have become an important nursing intervention since the late 1990s (Mick & Cohen, 2004).

**Regulatory Requirements**

Changing regulatory requirements enhance oncology nurses’ focus on quality patient care and improved patient outcomes. The Joint Commission (2007) evaluates the quality of acute care facilities, including operations, cost, length of hospital stay, number of sentinel events, medical and nursing staff, and ancillary services. The Joint Commission’s standards help ensure optimal levels of quality care and positive clinical outcomes.

Organizations with Magnet designation have been recognized for management style, nursing autonomy, leadership quality, organizational structure, professional practice, career development, and quality of patient care, all of which influence nursing care quality. Nursing indicators and patient outcomes are measured continually to recognize best practices in nursing service (American Nurses Credentialing Center, 2007) and to promote quality of care and treatment effectiveness.

**Oncology Nursing Research**

Since the National Cancer Act was passed in 1971, the U.S. government and national nursing organizations have supported nursing research in an effort to better understand the effects of cancer and its treatment on patients, families, caregivers, and healthcare providers. Oncology nurses have led research initiatives on topics such as pain, fatigue, sexuality, fertility, family coping, long-term treatment, and survivorship (Ferrrell, Virani, Smith, & Juarez, 2003). Nurses also have developed evidence-based practices that help patients and families manage their issues. ONS (2008) Putting Evidence Into Practice® provides evidence about fatigue, nausea and vomiting, infection prevention, sleep/wake disturbances, caregiver strain and burden, constipation, depression, dyspnea, mucositis, peripheral neuropathy, pain, and bleeding prevention.

Nursing research in the 1980s led to the development of more effective methods of controlling chemotherapy- or radiation-induced nausea and vomiting; instruments to measure the occurrence, distress, and experiences of symptoms; improvements in pain management; effective discharge planning with
programs and referrals to community resources; interventions to assist patients and families with end-of-life issues and bereavement; and prevention or treatment of chemotherapy-associated stomatitis (Johnson & Yarbro, 1993). Nurses’ efforts also have led to effective techniques that prevent venipuncture infection, maintain venous catheters for long-term therapy, enhance psychological support for patients and families at various stages of disease and treatment; and help nurses intervene as patient advocates (Benoliel, 1983).

Significant outcomes achieved through nursing research include increased access to care and patient education; improved patient satisfaction, cost-effectiveness, and treatment adherence; fewer hospital admissions; decreased lengths of stay; lower readmission rates; fewer emergency room visits; and lower healthcare costs (Brooten & Naylor, 1995; Crosby, Ventura, & Feldman, 1987). Oncology nurse researchers also have studied the economic burden of cancer, limited employment options, and survivorship issues (Hoffman, 1991).

ONS (2004) identified 10 research priorities: quality of life, participation in decision making about treatment in advanced disease, patient and family education, participation in decision making about treatment, pain, tobacco use and exposure, screening and early detection of cancer, prevention of cancer and cancer risk reduction, palliative care, and evidence-based practice, all areas currently being evaluated by practicing oncology nurse researchers. In the coming decades, a dramatic increase in the need for oncology-specialized nurses is expected to ensure appropriate cancer nursing care for a growing, aging patient population. ONS (2007) published a position statement addressing many issues related to the nursing shortage, including measures to ensure availability of qualified oncology nursing educators in academia and continuing nursing education, incorporation of research and clinical trials in nursing educational curricula, and plans to effectively manage growth and development in oncology nursing practice.

ONS (2004). The progress in oncology nursing parallels surgical, radiologic, biologic, medical, and genetic approaches to cancer treatment. Oncology nurses are an integral component of the cancer care team, and collaboration among practitioners, educators, and researchers is essential to ensure evidence-based oncology nursing practice. As the population’s demographics and healthcare delivery systems change and new scientific and technologic discoveries are integrated into cancer care in the coming decades, the role and practice of the oncology nurse will continue to evolve.

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Conclusion

The progress in oncology nursing parallels surgical, radiologic, biologic, medical, and genetic approaches to cancer treatment. Oncology nurses are an integral component of the cancer care team, and collaboration among practitioners, educators, and researchers is essential to ensure evidence-based oncology nursing practice. As the population’s demographics and healthcare delivery systems change and new scientific and technologic discoveries are integrated into cancer care in the coming decades, the role and practice of the oncology nurse will continue to evolve.

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