

ONLINE EXCLUSIVE

ONS 2002 Environmental Scan: A Basis for Strategic Planning

This article is an Oncology Nursing Society report.

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Purpose/Objectives: To analyze information about the environments in which the Oncology Nursing Society (ONS) operates as a basis for strategic planning.

Data Sources: Published reports and ONS internal surveys.

Data Synthesis: Analysis of internal and external trends resulted in a list of implications with regard to managing change, avoiding mistakes, and identifying critical issues for ONS leadership. The team presented ONS leaders with a tool that helped to guide the development of the 2003–2006 Strategic Plan.

Conclusions: The continuing vitality of professional nursing societies such as ONS is critical to the vitality of the profession of nursing itself. Monitoring the environment in which these organizations operate—and effectively using the knowledge that is gained—contributes to their long-term viability and growth. A stronger ONS is in a position to better serve its members, who ensure high-quality care to people with cancer.

Environmental scanning is a systematic effort to obtain information about the world that will affect an organization. Scanning is important in managing change and avoiding costly mistakes. Over the years, the Oncology Nursing Society (ONS) has gathered internal and external information from various member surveys, literature reviews, focus groups, and conferences with experts from inside and outside the nursing profession.

This article builds on ongoing efforts to acquire knowledge by using a model recommended by the American Society of Association Executives (ASAE, 1999). This model has four components.

- The macro environment is the larger space that is shared with other organizations and professions. A scan of this environment examines such things as population and societal trends, as well as trends in industries that can affect a profession.
- The association's immediate operating environment exam-

Key Points . . .

- Environmental scanning is the process of obtaining information about the world that affects an organization.
- Environmental scanning is used for managing change, avoiding mistakes, and identifying critical issues.
- A general set of implications emerges from the process that may be used as a basis for strategic planning.
- Organizations whose planning is based on a sound analysis of their operating environments are positioned for long-term sustainability.

ines internal trends and issues. This covers membership characteristics and operational aspects.

- The association industry environment recognizes the organizational trends that ONS shares with similar organizations that serve other members and professions.
- The final component is the environment in which the members operate (i.e., the profession of nursing itself).

This information was compiled and analyzed to identify the critical issues facing ONS and to provide a basis for strategic

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Digital Object Identifier: 10.1188/02.ONF.E99-E109

Macro Environment: Societal Trends

The Aging Population

The United States is an aging nation, and the average life expectancy increased by more than 30 years in the 20th century (Robert Wood Johnson Foundation [RWJF] & Institute for the Future [ITF], 2000); this trend is expected to continue. People older than 65 make up the fastest growing segment of the population (Sussman, 2000). By 2010, the average life expectancy is estimated to rise to 86 for women and 76 for men (RWJF & ITF), and 100,000 people in the United States will be older than 100 (Sussman). By 2050, people older than 80 are expected to comprise 36% of the population (Society for Human Resources Management, 2001) and 1.1 million people in the United States will be older than 100 (Brickey, 2001).

The aging of the population is the result of the maturing of the largest generation to have lived: the baby boomers. Because of its tremendous volume, the baby-boom generation has had a profound effect on the nation, transforming many aspects of American culture and economy.

Currently, the U.S. adult population crosses over five distinct generations of workers and healthcare consumers. Each generation brings its own challenges to the healthcare system (see Table 1).

Now nearing retirement, baby boomers are maintaining the nation's attention on issues of social security and health care. They are expected to irreversibly alter the traditional doctor-patient relationship (RWJF & ITF, 2000). The two generations that preceded the baby boomers still comprise significant portions of the population. The generation that immediately follows the baby boomers, known as Generation X, is well educated and media savvy and now is a vital part of the family market and workplace (Mitchell, 2000). The millennial generation (i.e., Generation Y) is the first truly high-tech generation; its members have never lived in a world without personal computers or cell phones.

The long-term health of those in Generations X and Y is yet to be seen; however, indications suggest that Generation Y may be one of the least healthy. The largest percentage of cigarette smokers is ages 18–24. Smoking rates among teenagers rose steadily throughout the 1990s. Members of Gen-

eration Y also are less physically fit than older generations, with only two in three high school students participating regularly in vigorous physical activity (Society for Human Resources Management, 2001).

Diversity and Disparity

Indications are clear that the United States is growing increasingly diverse both racially and ethnically. Although the majority of the population remains primarily Caucasian and non-Hispanic (73%), the Hispanic, African American, Asian, and Native American populations are growing at rates that far exceed that of the population as a whole (RWJF & ITF, 2000). This trend is primarily a result of higher immigration and birth rates among these groups. By 2010, minority ethnic and racial groups are expected to account for 32% of the population, up from 20% in 1980 (RWJF & ITF). Non-Caucasians will represent close to half of the population by 2050 (Society for Human Resources Management, 2001). The fastest-growing segment of the U.S. population is the Hispanic group, which primarily is a result of the large numbers of immigrants from Latin American countries; the largest single source country for U.S. immigrants in 1997 was Mexico, accounting for 18% of all immigrants (Romano, 2000).

Wagner (2001) reported that despite improvements in the health of the U.S. population overall, striking disparities continue in the burden of illness and death experienced by African Americans, Hispanics, Native Americans, Alaskan Natives, and Asian Americans. Infant mortality among African Americans, Native Americans, and Alaskan Natives is twice that of Caucasians. Fetal alcohol syndrome is six times as prevalent among African Americans as Caucasians, and heart disease mortality is 40% higher for African Americans than Caucasians (Wagner). Stroke mortality is almost 80% higher for African Americans than Caucasians. Rates of new AIDS cases are greatest among African Americans, Hispanics, and Native Americans (U.S. Department of Health and Human Services, 2000b). African Americans continue to experience cancer incidence and mortality rates higher than any other racial or ethnic group (American Cancer Society [ACS], 2002).

Cancer is a major health concern for all populations. Although survival rates gradually have increased to 62% (the five-year relative survival rate for all cancers combined), cancer remains the second leading cause of death in the United States

Table 1. Five Distinct Generations Affecting the Workplace and Health Care

Generation	Born	% of U.S. Adult Population	Distinguishing Characteristic	Health System Issues
World War II	Before 1933	14.2	First generation to benefit from Social Security, the GI Bill, and Medicare	All are age 70 and older, many needing long-term care.
Swing	1933–1944	14.5	Dominates top positions in public and private sectors	Approaching peak ages for many healthcare issues
Baby boomer	1945–1964	37.9	Largest generation ever	Sheer numbers could overwhelm the system.
X	1965–1976	22.1	Best educated yet	High service expectations
Y	1977–1994	11.3	First to grow up with advanced technology	Less exercise, more smoking

Note. Based on information from Mitchell, 2000.

(ACS, 2002). In 2002, approximately 1,284,900 new cases of cancer are expected to be diagnosed and an estimated 555,500 people will die of cancer (ACS). Those who predict future medical breakthroughs surmise that some cancers may be cured; however, cancer will continue to be a leading cause of death worldwide for the foreseeable future (Luther, 2001).

Wider Disparity Between the Rich and the Poor

The changing age structure of the population has greatly influenced American social and economic trends over the past several decades and will continue to do so as long as sharp differences exist in the size of various age groups. Predicted economic growth is related to the large number of baby boomers entering their peak earning years. The percentage of households with an income of \$50,000 or more will increase to 52% in 2010, up from 39% in 1995 (RWJF & IFTF, 2000). Higher income is associated with better health status and access to care.

The gap between the wealthiest 25% and the poorest 25% of the population is growing (RWJF & IFTF, 2000). This projected disparity in income may have negative consequences on the nation's overall health because research has indicated that when income disparity widens, the overall health status of the population declines (Wilkenson, 1992).

Single-parent households are considered to be the major factor contributing to child poverty. At 19%, the United States has one of the highest rates of childhood poverty among the industrialized nations of the world (Mitchell, 2000). Single-parent households are most prevalent among minority groups, with 38% of African American, 26% of Hispanic, and 26% of Native American households headed by a single parent (Council of Economic Advisors for the President's Initiative on Race, 1998).

Technology: Faster and Smaller

Technology will continue to revolutionize every aspect of American society, from grocery shopping to education to genetic engineering. Changes in technology occur more rapidly than any other area, and the trend is toward producing smaller devices that make things happen faster. In fact, microprocessor speeds are estimated to double every 18 months through at least 2010 (Miller, 2000).

Technology has changed the concept of time and boundaries. The Internet and a variety of mobile devices permit their users to be "connected" all the time. Around-the-clock operations are possible because of technologic innovations, and consumers now are demanding services day and night, regardless of widely varying time zones. Globalization has pushed the trend toward continuous operations and service (Society for Human Resources Management, 2001).

September 11, 2001

Many people consider the terrorist attacks of September 11, 2001, to be one of the most significant events in American history. Regardless of one's view with respect to the scale of history, most would agree that its effects on near-term plans are profound. For example,

- Associations' traditional programming formats are threatened by changes in the travel industry, speeding the pace at which organizations such as ONS must develop alternative formats (e.g., distance learning).

- Institutions that employ nurses and those that educate nurses may shift their training priorities more toward emergency preparedness and away from specialties, increasing the urgency of nursing organizations to develop specialty content.
- People in all regions and professions are reexamining what is most important to them and, in turn, reprioritizing how they spend their discretionary time and money. This has potential implications for volunteerism and members' pursuit of continuing education.

Exactly what this means to ONS is not certain, but it will have some impact on members' decision making, which will affect how ONS delivers content and meaning to its members.

The Healthcare Industry

Revolutionary Advances and Ethical Dilemmas

Technology has revolutionized health care in many ways, but it has affected the area of biotechnology profoundly. This area has far-reaching social implications and consequences. Advances through 2020 are expected to significantly prolong human life expectancy and increase productivity as biotechnology fuses with information technology (Molitor, 2000).

Genetics will advance at a record pace as disease-associated genes and related genetic tests are identified and developed. In June 2001, leaders of the Human Genome Project announced the completion of initial mapping of the 3 billion base pairs of the human genome (Collins & McKusick, 2001). Genetic discoveries will continue to play an important role in complex diseases, such as cancer, diabetes, and heart disease. By 2020, every tumor is predicted to have a precise genetic "fingerprint" and therapy will be targeted directly to specific fingerprints (Collins & McKusick).

Microchips containing patients' DNA profiles will be analyzed rapidly at portable laboratories. Sales at these laboratories are expected to increase to \$40 billion in 2009, up from \$1 billion in 1999 (Molitor, 2000). Genetic identification offers the potential for a more preventive approach as compared with a corrective approach. Other genetic advances include using genetic fingerprints to individualize prescriptions (pharmacogenomics) and using site-specific genes to treat inherited or acquired diseases (Molitor; Wooten, 2000). Other medical technology advances of the future that will significantly change healthcare delivery include minimally invasive surgery, xenotransplantation, cloning, and artificial blood (RWJF & IFTF, 2000; Molitor; Wooten).

Information technology will continue to affect health care (RWJF & IFTF, 2000). "Telehealth" (i.e., remote monitoring of chronically ill patients using video cameras, blood pressure monitors, and "smart pill boxes" [Molitor, 2000]) will become a more common practice as the use of electronic monitoring systems is perfected and accepted.

These advances in healthcare technologies likely will be accompanied by ethical dilemmas. The magnitude of advances in biotechnology and informatics will have far-reaching implications that many believe will result in divisive moral and ethical dilemmas (Molitor, 2000).

Healthcare Costs and Access to Care

Healthcare spending is projected to total \$2.3 trillion or 15.5% of the gross domestic product in 2008, after having declined from 13.4% in 1993 to 13% in 1999 (Health Care

Financing Administration [HCFA], 1999). This represents a predicted increase of 4.3% per year from 1999–2010. Health insurance plans are expected to become more restrictive, private health insurance premiums will increase, and employers will be forced to find ways to control costs (Heffler et al., 2001).

The most anticipated cause of increased healthcare spending is prescription drugs. Prescription drug spending increased 16.9% in 1999 to \$100 billion and is expected to increase an average of 12.6% per year, reaching 16% of personal healthcare spending by 2010 (Heffler et al., 2001). Drug price growth is expected to slow between 2004–2005 because \$427 billion of brand-name drugs will lose patent protection (Heffler et al.).

Senior citizens in the second decade of the 21st century (i.e., the baby boomers) will form what has been called the “Geri-Boom” generation (Wooten, 2000). By 2005, 38% of the U.S. population will be “empowered healthcare consumers” who will possess at least two of the following three characteristics: a household income exceeding \$50,000, at least one year of college education, and a personal computer (RWJF & IFTF, 2000). These consumers will demand change in the healthcare system. The remaining 62% of the population will consist of working Americans whose healthcare benefits are insecure or nonexistent (RWJF & IFTF).

By 2005, the number of people covered by health maintenance organizations will increase 25% from 78 million in 1998 to more than 100 million people. Those receiving insurance from employers will decrease from 59% in 1997 to 56% in 2010. According to the same report by RWJF and IFTF (2000), the number of Medicare recipients will increase from 38 million in 1998 to 45 million in 2007 (15.5% of the population). In addition, the number of uninsured Americans will continue to be 15% of the population in 2007 (RWJF & IFTF).

Delivery Systems

No one type of healthcare delivery model is anticipated to dominate by 2005. Rather, organizations will employ a mix of delivery models to meet healthcare needs. Disease management guidelines will have a significant effect on medical practice and patient management for chronically ill patients, and the use of advice nurses in contact with patients via telephone or the Internet will be common practice by 2005 (RWJF & IFTF, 2000).

Employment opportunities for assistive personnel are growing rapidly. Much of direct patient care is shifting to lower-cost workers. Four of the highest growth occupations for 1998–2008 in health care and human services will be personal care and home health aides (projected to increase by 58%), medical assistants (to increase by 58%), social and human service assistants (to increase by 53%), and physician assistants (to increase by 48%) (Galbreath, 2001).

The Pharmaceutical Industry

Through his research, James (2000) determined that the pharmaceutical industry will not be an easy place to earn a living in 2005. Pharmaceutical companies will be forced to change their traditional business models to meet changing customer demands and newer technologies. The study also suggested that double-digit annual increases in revenues and profits will cease to exist.

Interestingly, in this time of heavy mergers and acquisitions, merged companies actually lose market share. Large mergers and acquisitions do not help deliver blockbuster earnings and sales. The larger a company is, the higher the sales it needs to meet its expectations. Smaller companies hold the strategic advantage in this regard. In 2010, the typical company will have one-third of the employees it had in 2000 and will market twice as many products (Engel, 2000).

Bioterrorism

The potential for bioterrorism most certainly made its way to the American national consciousness. Although the impact of the anthrax incidents on ONS may not be immediately apparent, a number of items must be considered in terms of planning.

- The focus of national funding priorities may shift. Consider that the Centers for Disease Control and Prevention (CDC) has developed a five-year plan to support disease surveillance and communication in response to the threat of bioterrorism (CDC, 2000).
- Training priorities may shift for institutions that employ nurses.
- Communications technology will become more important should the postal system come under a renewed or sustained threat or if temporary stoppages occur.
- The cost of heightened security at the U.S. Postal Service is likely to be paid by business mailers, and, as a publisher of periodicals, ONS could be affected substantially.

Oncology Nursing Society Operating Environment

Member Demographics

In an internal report, ONS (2002a) identified key facts about its members. The number of active ONS members has increased an average of 5.25% since 1990. The largest segments of ONS member demographics, along with other observations, include the following.

- Approximately 19% of ONS members are 45–49 years of age. Sixty percent of members are older than 40.
- Twenty-one percent of ONS members earn \$40,000–\$50,000 annually.
- Patient care is the largest functional area at 67%.
- ONS members’ largest patient population is in adult care at 85.5%.
- ONS members primarily are employed on oncology specialty units, and 52.5% work in direct patient care.
- As of January 2002, members’ primary specialty is in hematology-oncology (33%), with chemotherapy and biotherapy falling second (25.25%). In 1997, these numbers were reversed.
- ONS members work primarily in a hospital or multihospital system (43%). The number of members in this setting in 2002 is almost the same as it was in 1997, although the number of members in physicians’ offices has almost doubled and the number in home care has decreased by almost half.
- Currently, ONS members have worked, on average, for 20 years in nursing and 10 years in the field of oncology. The number of members with more than 20 years in oncology is five times what it was in 1997, and the number of

members with more than 20 years in nursing is almost twice what it was in 1997.

Sources of Revenue

Table 2 shows the sources of ONS revenue for 1997–2001. Although membership has grown steadily, the portion of total ONS revenue that comes from member dues has decreased, whereas the portion of revenue that comes from most other sources has remained relatively even or has increased. This is seen as a positive trend. In organizations such as ONS, increases in nondues income keep member dues lower. The most dramatic increase in ONS's revenue is from Oncology Education Services, Inc., which contributed 13.92% to the Society's total revenue in 1997 and 36.34% in 2001. This reflects not only the actual growth of the for-profit subsidiary, but also the growing importance of seeking common ground with corporate-funding sources.

Knowledge Management at the Oncology Nursing Society

Knowledge management is the use of organizational knowledge for strategic advantage. The various corporations that comprise ONS receive a substantial portion of their program and operational funding through pharmaceutical and corporate grants, advertisement and exhibit purchases, and other funding (e.g., educational sponsorship). To obtain these funds, a cross section of ONS staff members call on and interact with multiple representatives from sponsoring companies. ONS recognizes that many staff members have developed substantial knowledge and insight regarding these company relationships. Ensuring that ONS's organizational knowledge is preserved and effectively shared is vital in a knowledge management "system" that staff can use regularly to track corporate activity (e.g., mergers, acquisitions), track and share sponsorship activity, stay aware of new product developments that affect ONS members, and be prepared for potential turnover in key ONS staff.

In addition, knowledge that staff obtains on a day-to-day basis can be shared effectively with other staff. ONS has created a knowledge management resource center on its office intranet. This resource center is one of several tools that staff can use to manage this knowledge.

The Association Industry

As a professional membership society, ONS operates in what has become known as the association industry. With more than 140,000 associations operating in the United States, this industry clearly is a major force in shaping the view of the world (ASAE, 2001). Consider the following data.

- Ninety-five percent of associations offer educational programs to their members.
- Seventy-nine percent offer public information and education.
- Ninety-five percent publish at least one periodical, and 39% publish books.
- Associations are the originating source for codes of ethics and professional and safety standards that govern almost all professions.
- Seventy-one percent of all associations conduct industry research that businesses and the government depend on heavily, which often is not available elsewhere.
- More than 173 million volunteer hours in community service are documented annually by associations.
- Nine out of 10 adult Americans belong to an association, and one out of four belongs to four or more associations (ASAE, 2001).

Associations can learn a great deal from other associations about the most successful ways to operate. Observing trends among the organizations in this business environment provides ONS with tools to use in its own planning.

ASAE (1999) identified major trends that most likely will affect the future of the association industry. A recent trends study investigated emerging issues that are likely to transform associations (Olson & Dighe, 2001). The following is a summary of the issues with implications for ONS.

1. **Meaning:** Competition for members' time and involvement is increasing as delivery channels broaden and more providers develop the capabilities to provide traditional association services. ONS's ability to create meaning in the form of relationships, a sense of belonging, purpose, and contribution will differentiate ONS from providers of similar services, such as commercial Web sites, education companies, and publishers.

Table 2. Five-Year Revenue Trends as of Year-End 2001, Oncology Nursing Society and Subsidiaries, Shown as a Percentage of Gross Revenue

Revenue Source	1997	1998	1999	2000	2001
Member dues	12.46	9.56	8.39	7.41	9.50
Contributions, awards, and grants	6.22	6.73	4.59	2.93	8.45
Registration and exhibit fees	24.28	23.29	21.06	21.97	22.33
Royalties	2.96	2.37	2.17	1.86	1.09
Advertising and publications	3.36	2.83	2.27	1.69	9.70
Management fees	8.30	7.39	8.63	13.02	8.05
Interest and dividends	3.29	3.86	3.46	3.63	4.35
Miscellaneous income	0.24	0.42	0.18	0.12	0.18
Gross revenue: Oncology Nursing Press, Inc. ^a	24.98	22.92	22.24	18.35	–
Gross revenue: Oncology Education Services, Inc.	13.92	20.63	27	29.03	36.34

^aWith the dissolution of the Oncology Nursing Press at the end of 2000, revenue that previously came from the publishing subsidiary is distributed across several lines in 2001, including advertising and publications and portions of royalties and contributions, awards, and grants.

Note. Because of rounding, not all percentages total 100.

2. **Global goals, local services:** Organizations are expected to achieve national and international goals while tailoring products and services for local markets. Challenges for ONS include maintaining a balance between support of local chapter interests and national unity of purpose, mobilizing grass roots support for national initiatives, and providing top-level representation and individual customer service simultaneously.
3. **Inclusiveness:** Associations will leverage multicultural, multigenerational, and multi-interest diversity to expand opportunities, recognizing the value that differences bring to decision making. ONS, as a reflection of the nursing profession in general, has much to do in this regard. The nursing shortage and aging of the nursing workforce make it even more urgent that exclusivity be replaced by inclusiveness.
4. **Generational synergy:** All organizations are faced in the near-term with an unprecedented age mix as five distinct generations share the same workplace and (one hopes) are members of the same organizations. Associations will be challenged to accommodate these five generations in meaningful ways. ONS shares this challenge, as well as the daunting challenge of recruiting nurses from several generations into the oncology nursing specialty.
5. **Learning culture:** Educational programming will need to adapt to advances in technology, generational and cultural differences, and the constant need for people to retrain for new professions and, indeed, relearn their professions. ONS is in the education business, competing with an increasingly crowded field of providers. ONS carries the responsibility of delivering the most reliable and credible education, when it is needed and where it is needed.
6. **Transparency:** Several factors are driving a trend toward more openness and accessibility by associations. These include greater public activism, a demand for accountability, a more litigious society, and communication technology. As ONS seeks and acquires a “seat at the table” among more well-known entities and as it gains more recognition in public arenas, it increasingly will be expected to maintain transparency in its policies, processes, and advocacy activities.
7. **Living organizations:** Structured management styles are giving way to more fluid, flexible, and adaptive approaches such as those that foster self-organizing activity. The chief challenges for ONS in this regard are maintaining the momentum gained by recent organizational changes, keeping new structures from becoming too rigid or institutionalized, and holding to the ONS mission and goals in front of chapters and special interest groups (SIGs) even as they are encouraged to become more independent.

To place association industry trends in the context of nursing, executives at five specialty nursing organizations were interviewed by telephone about the association trends identified by ASAE (1999). Responses were consistent with general association industry trends. Recent organizational changes experienced at other nursing associations were similar to those experienced in ONS. Common trends are summarized in Figure 1.

Members' Operating Environment

The Profession of Nursing

According to a 2000 national sample survey of RNs conducted by the U.S. Department of Health and Human Ser-

- More reliance on staff
- More reliance on non dues revenue sources
- Project teams replacing committees
- Continuous needs assessment
- Aging members
- Anticipating decreases in conference revenue
- Technology affecting all aspects of operations
- Thinking more about partnering
- More globally focused
- More image conscious
- Concerned about the nursing shortage

Figure 1. Organizational Trends Common Among Specialty Nursing Organizations

vices (2000a), nursing is by far the largest single healthcare profession, with approximately 2.7 million RNs licensed to practice in the United States. Although this was a 5.4% increase from 1996, it was the lowest increase reported in all previous national surveys. Nursing's multiple entry points are arguably one of its greatest problems. The growing demand for RNs with more specialized skills will make it necessary for the profession to distinguish between the various paths to nursing practice and articulate a clear continuum of education and practice in nursing.

One of the most significant issues for the foreseeable future is the aging of the nursing workforce (see Table 3). At a time in the not-too-distant future when aging baby boomers will need more nursing services than ever, many RNs will need care themselves rather than be able to provide it for others. The “graying” of American nurses and nurses worldwide also will require a reexamination of working hours, retirement benefits, recruitment and retention packages, and pay schemes for people who reach the top of their salary ranges.

Table 4 shows characteristics of the U.S. nursing workforce compared with ONS members. One of the most profound changes in nursing care in the 21st century will be where care is provided. Outpatient services are growing at a rate 18 times greater than inpatient services (Luther, 2001). The data in Table 4 indicate this shift already is more pronounced in oncology nursing than in nursing in general. The lack of diversity in the workforce also is clear and fairly consistent between ONS and the general RN population.

The Nursing Shortage

The national unemployment rate for nurses is at its lowest level since the late 1980s. However, as opportunities for women have expanded, the number of young women entering the RN workforce has declined. Buerhaus, Staiger, and

Table 3. Aging of the Nursing Workforce

Age (years)	RNs 1980 (%)	RNs 2000 (%)	ONS Members 2002 (%)
< 40	53	32	38
> 30	25	9	31

ONS—Oncology Nursing Society
Note. Based on information from the Oncology Nursing Society, 2002a; U.S. Department of Health and Human Services, 2000a.

Table 4. Selected Characteristics of RNs in the United States Compared With Oncology Nursing Society Members

Characteristic	% of All RNs ^a	% of ONS Members ^a
Employment		
Full-time	58.5	78
Part-time	23.2	17
Advanced practice	7.3	9
Work setting		
Hospital	59.1	43
Public or community health	18.3	<1
Outpatient or ambulatory care	9.5	24
Education	2.1	5
Education		
Diploma	22.3	15
Associate degree	34.3	24
Bachelor's degree	32.7	37
Master's or doctorate	10.2	17
Age (years)		
> 40	68.3	62
< 40	31.7	38
Gender		
Female	94.1	97
Race		
Caucasian	87.7	82

^a Percentages do not total 100 because some respondents did not answer all questions and because only selected categories are presented.

ONS—Oncology Nursing Society

Note. Based on information from Oncology Nursing Society, 2000a; U.S. Department of Health and Human Services, 2000a.

Auerbach (2000) reported that women graduating from high school in the 1990s were 35% less likely to become RNs than those graduating in the 1970s. Reductions in nursing program enrollments through the 1990s attest to this narrowing pipeline. According to a National League for Nursing Accrediting Commission, Nursing Executive Center (2000) report, enrollment in diploma programs dropped 42% and enrollment in associate degree programs declined 11% from 1993–1996. Furthermore, from 1995–1998, enrollment in bachelor of science in nursing programs declined 19% and graduate programs declined 4%. The number of individuals passing national RN licensing examinations declined from 97,679 in 1996 to 74,787 in 2000, a decrease of 23%.

Growing concerns about the nursing shortage and the ability to retain nurses are becoming more widespread. As of June 2001, legislation to address the nursing shortage had been introduced in 15 states. Additionally, legislation to reduce mandatory overtime for nurses had been introduced in 10 states and has been introduced at the federal level (U.S. General Accounting Office, 2001).

The nursing shortage, coupled with an aging and growing population, poses a particularly difficult problem for areas within nursing that serve older patients and require specialized skills and experience. Because cancer is the second leading cause of death and disproportionately affects older patients, oncology nursing may be more vulnerable to these professional and demographic trends than other areas of nursing (Buerhaus, Donelan, DesRoches, Lamkin, & Mallory, 2001).

With respect to the oncology nursing workforce, anecdotal reports suggest that the current nursing shortage is affecting oncology as severely as other highly specialized nursing areas. Satryan (2001) reported that the shift in cancer care from dedicated oncology units to medical and surgical areas of the hospital will result in patients with cancer no longer having the benefit of specialized oncology nursing care. These changes to mixed units could affect the safety of cancer care, psychosocial care, and patient and family teaching and counseling and may have a negative impact on the quality of care received by patients and families.

The results of a recent workforce study by ONS (Buerhaus et al., 2001) coincide with commonly held views of the changes occurring throughout the nursing workforce. Not only do oncology nurses believe that overall and oncology-specific nurse staffing currently is inadequate, these views also are shared widely by oncologists and nurse executives. Nurse executives report great difficulty in retaining experienced oncology nurses and have a lack of qualified applicants for open positions (Buerhaus et al., 2001).

Oncology nurses perceive the work environment as one marked by increasing workloads, inadequate and decreasing staffing levels, rising paperwork, and sicker patients. Results of the ONS workforce study suggest that nurses in dedicated oncology units perceive their workplace environments more positively than their colleagues who work on mixed units (Buerhaus et al., 2001; Lamkin, Rosiak, Buerhaus, Mallory, & Williams, 2001).

Evidence suggests that perceptions of staffing and characteristics of the workplace vary according to where oncology nurses are employed. Oncology nurses working in freestanding ambulatory settings perceived their work environments more positively than either their inpatient or hospital-based outpatient department counterparts. Oncology nurses in freestanding ambulatory settings were significantly more likely to state that nurse staffing had increased, although they also perceived increasing numbers of patients in their workloads (Buerhaus et al., 2001).

Regardless of their setting, oncology nurses' perceptions of more difficult work and sicker patients has not dampened their enthusiasm for their profession. They retain a strong commitment to nursing and caring for patients with cancer. Two-thirds of oncology nurses would recommend the nursing profession as a career (Buerhaus et al., 2001).

Nursing Education

Since 1980, basic nursing education has moved away from diploma programs to associate degree or baccalaureate programs. The portion of diploma graduates fell from 63% in 1980 to 29.6% in 2000. From 1980–2000, the number of associates degree and bachelor of science in nursing graduates increased from 19% to 40.3% and 17.3% to 29.3%, respectively. The average age for RNs graduating from basic education programs from 1995–2000 was 30.5 years (U.S. Department of Health and Human Services, 2000a).

The National League for Nursing Accrediting Commission, Nursing Executive Center (2000), reported 86 diploma, 885 associate degree, 695 baccalaureate degree, 358 master's degree, and 75 doctoral nursing programs in the United States. Changes in the healthcare environment have affected the basic knowledge and skills nurses must possess to provide adequate nursing care. Baccalaureate nursing programs

typically provide a broader, more scientific curriculum than other basic nursing programs and enable a sound foundation for nursing (National Advisory Council on Nurse Education and Practice, 1996). A survey conducted by the American Association of Colleges of Nursing (2001) noted that after a six-year decline, enrollment in baccalaureate nursing programs had increased in 2001. Although it is a positive sign, this increase is not sufficient to meet the demand of a million nurses by 2010. Enrollment in graduate and higher degree programs showed little change in the same period (American Association of Colleges of Nursing).

The nursing shortage has affected many areas of the profession, including the colleges and universities that educate new nurses. Nursing faculty decline has been attributed to the aging nursing population (mean age for nursing faculty from 1999–2000 was 50.2 years), the decline in nursing school enrollment, and the variety of nursing positions available to today's nurse (Hinshaw, 2001). With the decline of enrollment, colleges and universities have decreased the number of faculty positions available, thus sending potential faculty members into other areas of nursing practice. The shortage and decreased enrollment will leave many vacancies in faculty positions when current faculty retires. In addition, nurses usually do not enter into academia until later in their careers, decreasing the time they have to refine their skills as teachers (Hinshaw).

The academic norm for educating at the baccalaureate and graduate level is a doctorate degree. To date, only 50% of nursing faculty of degree programs are prepared at the doctoral level. Although this number is significantly greater than 15% in 1978, it had not changed significantly from 1995–2000 (Hinshaw, 2001). With the low numbers of nurses pursuing advanced degrees and the anticipated retirement of many faculty through 2010, this number will not be increasing in the near future (Hinshaw). In an effort to effect change, specialty nursing organizations joined together to endorse the Americans for Nursing Shortage Relief and outlined numerous consensus issues. Recognizing the decline in nursing faculty at schools and universities across the United States, funding increases have been recommended for faculty development, as well as for creating a fast-track nursing faculty scholarship and loan program (American College of Nurse Practitioners and the Americans for Nursing Shortage Relief Coalition, 2001).

Competencies will change for 21st century nurses. Future RNs will need ever-increasing critical thinking skills, independent clinical judgment, management and organization skills, leadership abilities, and understanding of technologies to practice in diverse settings. A broader educational foundation will be needed to ensure that nursing professionals have the knowledge and skills needed to assume greater responsibility for the management and coordination of personnel, services, data, and resources, in addition to their roles as care providers (Pew Commission, 1999).

Every day, new therapies and treatments are being discovered that will save, enhance, or sustain lives. Education no longer can end with a degree, but must continue throughout every nurse's career. Nurses graduating today will not have the skills to care for patients in 10 years without adding to their basic nursing education. In addition to providing education directly to practicing nurses, nursing organizations are in a unique position to provide specialty education to nurses. Not only must nursing organizations provide continuing-education opportunities for nurses, but they also must en-

courage nurses to pursue their academic education. Nursing organizations can assist in the academic preparation of nurses by providing resources to schools of nursing.

Nursing Leadership

Regardless of their positions within organizations or communities, confident nurses who are willing to lead and not afraid of change have the potential to become future leaders of the profession. Nursing leaders develop strong communication skills and are knowledgeable about the role of nursing and the state of health care. As suggested by Grossman and Valiga (2000), nursing leaders are those who focus on the opportunities of today and tomorrow.

Nursing associations with access to large numbers of nurses interested in advancing their profession are in a unique position to provide the guidance, direction, and support for the future leaders of nursing. Nursing organizations can provide a variety of opportunities for nurses within their communities to become leaders. Assisting nurses to practice leadership skills, create a vision, strategically plan to accomplish the vision, and implement change within their own environments not only will strengthen individual nurses, but also the nursing profession and healthcare environment as a whole (Grossman & Valiga, 2000).

2001 Environmental Scan Survey

In November 2001, an environmental scan survey was sent to approximately 3,300 ONS members (ONS, 2002b). Of these, 3,000 were randomly selected from among ONS individual RN members and approximately 300 were members holding leadership positions within ONS (e.g., boards of directors, councils, SIG coordinators, chapter presidents). The overall response rate was 15% (472 responses), including 329 members and 143 leaders.

The purpose of the survey was to measure members' and ONS leaders' perceptions of the trends in their operating environments and gauge their expectations of ONS with respect to these trends. Questions addressed the external operating environment and the internal ONS environment.

Most Important Issues

Four of the ONS survey questions asked respondents to select issues (from a list of 21) that are most important in cancer care, are most important in cancer nursing, most affect their practice, and are most important for ONS to address. Seven issues emerged as most important with respect to all four questions (see Table 5).

The nursing shortage was cited as the most important issue facing cancer care today by 48% of respondents, the most important issue facing cancer nursing by 60%, the most important issue for ONS to address by 38%, and affecting practice the most by 30%. Interestingly, those issues cited as most important were not always the same issues affecting practice the most (e.g., care by nonspecialty providers) and those most important to nursing were not always the most important to cancer care (e.g., advanced practice role).

One important observation is that the top issues are divided between those that have to do with *advocacy* and those that have to do with *services*. Advocacy initiatives are broad and outward-looking (e.g., nursing shortage, reimbursement, access to care). These issues are served by ONS's efforts to

Table 5. Ranking of Seven Top Issues Identified in the 2001 Oncology Nursing Society Environmental Scan Survey

Survey Item	Nursing Shortage	Reimbursement Issues	Access to Care	New Knowledge	Need for Evidence-Based Standards	Care by Nonspecialty Providers	Advanced Practice Role
Most important issues facing cancer care today	1	2	3	4	5	6	19
Most important issues facing cancer nursing today	1	8	13	2	3	4	5
Issues currently affecting your practice the most	3	2	12	1	4	15	5
Most important issues for the Oncology Nursing Society to address	1	4	7	2	3	6	5

influence policymakers, legislators, and public opinion and, thus, have to do with representing the members rather than providing something for the members. Other top issues, notably keeping abreast of new knowledge and the need for evidence-based guidelines and standards, have to do with programs and products (i.e., services that ONS provides to members). The respondents to this survey called on ONS to do both, which has implications for how ONS needs to allocate its resources in the near-term.

Support for ONS Advocacy Efforts

The ONS survey listed 15 health policy issues that the Society currently is advocating on Capitol Hill. Respondents were asked to select the most important. The five top issues selected were

- Private insurance coverage for clinical trials (38%)
- Medicare reimbursement for anticancer therapies (35%)
- Private insurance coverage for screening and early detection (31%)
- Patients' Bill of Rights for cancer care (31%)
- Access to appropriate pain and symptom management therapies (27%).

All of these issues relate to access to care and reimbursement, both of which were among the top-rated issues in terms of importance.

Most Valued Services

In response to a question about the most valued ONS services, the top four were

- Journals (76%)
- National conferences (57%)
- Practice standards (44%)
- ONS Online (34%).

All of these are tied closely to keeping abreast of new knowledge and the need for evidence-based guidelines and standards, which are two of the top-rated issues in terms of importance. This list of most-valued services is almost identical to the list obtained consistently from ONS's ongoing satisfaction surveys.

This survey revealed interesting trends with respect to employers' support of nursing professional development. Sixty-three percent of the respondents indicated that professional development is considered important or very important in their healthcare settings, and only 8% said it was not considered important. This is supported further by the fact

that 79% of the respondents' employers support time off for continuing-education programs, 68% will reimburse for formal education programs, and 67% will pay registration for continuing-education programs. Forty-six percent of the respondents' employers pay for certification examination fees and travel expenses for continuing-education programs.

ONS members are more technology-literate than ever before. Eighty-nine percent of respondents to this survey said that e-mail is the most effective way for ONS to communicate with members. Finally, for ONS members who said they do not participate in various programs, lack of time was the chief reason, cited by 87%.

Three trends that emerged from the survey responses include less time, increasing support by employers for education, and increasing comfort with technology, which combine to confirm that ONS may be at the right time and place in terms of development of technology alternatives for distance education programs.

Areas for Improvement

When asked what ONS needs to improve, 64% of respondents said ONS should increase visibility and political influence. Fifty-three percent said ONS should increase opportunities for new nurses or staff nurses to be more involved, and 45% said ONS should increase opportunities for mentorship. Thirty-eight percent said ONS should increase opportunities for networking.

Currently, two of the main ways that ONS facilitates all of these is through its chapters and SIGs. Forty percent of the respondents were members of SIGs, and 78% were members of chapters. In both cases, lack of time was selected as the chief reason for not participating by 66% of the non-SIG members and 53% of the nonchapter members.

Given the overwhelming reason for not participating (i.e., lack of time), ONS clearly must find ways to increase opportunities while simultaneously reducing the time commitment required of volunteers. The opportunities for ONS to achieve both of these goals may reside, again, in the effective use of technology to facilitate meaningful participation.

General Implications for the Oncology Nursing Society

This report examined ONS's operating environment with respect to the macro environment, internal ONS operating

Education

- A variety of technologies is available to deliver distance learning in ways that and places where members need it.
- Upcoming generations will expect educational opportunities in nontraditional formats.
- The fields of expertise in nursing education are changing dramatically and rapidly.
- The need for new knowledge affects Oncology Nursing Society (ONS) members' practice the most.
- Members face increasing challenges in terms of discretionary time and money for continuing education.
- Institutions that employ nurses are challenged by the nursing shortage to recruit and retain staff.
- The events of September 11 have caused people to reexamine what is most important to them; their employers may become more focused on training issues, such as emergency preparedness, rather than on continuing education in specialty areas.
- Member needs identified through a variety of instruments are very consistent and well represented by the education blueprint developed annually by the ONS Steering Council.
- ONS exhibits and conference registrations continue to be highly profitable activities that members consider important ONS services.

Research

- More than ever before, ONS must lead the effort to demonstrate the impact of cancer nursing on patient outcomes.
- ONS must continue to promote nursing practices that are evidence-based.
- ONS must continue to seek and expand opportunities to fund its own initiatives by finding common ground with research-funding sources.

Publishing

- Electronic publishing technologies continue to evolve faster than our members' adoption of them, yet members are more technology-literate than ever before.
- The next generation of workers will have highly refined technical skills, which will influence publishing and the delivery of educational content.
- ONS publications consistently are cited among the most important benefits of membership.
- Published standards and guidelines are becoming increasingly important.

Leadership

- Recruiting members to leadership roles continues to be a challenge.
- Nurses may be the best recruiters and mentors of young people into nursing.
- Leadership development content must be expanded to reach to a greater number of members.
- Formal mentoring programs need to be developed and refined.
- The wisdom of retiring members can be rechanneled to strengthen the specialty and the organization.

Membership

- ONS must find ways to provide meaningful participation with less commitment of volunteer time.
- Members with identified expertise are main avenues for the development of expert content.
- Chapters play a vital role in recruiting and retaining members.
- ONS must attract young people into oncology nursing.
- ONS needs to reach beyond the traditional profile to find tomorrow's oncology nurses.

Partnership

- ONS's relationships with corporate funders will be strengthened by efforts to seek common ground.
- Opportunities exist to shift ONS's relationships with its chapters from parent-child to partner-partner.
- ONS must partner with other nursing organizations (e.g., shared benefits, services programs).
- ONS must partner in ways that will attract students to oncology nursing.
- ONS must partner with patient-advocacy groups and other cancer-related organizations on issues of common concern.

Public outreach

- Public-education programs can contribute to the public's understanding of what constitutes quality cancer care.
- Focus should increase on public awareness of the role of the nursing profession in the delivery of quality care.
- Chapters must be supported for grass roots activities related to advocacy, nurse recruitment, financial sponsorship, healthcare policy activism, and public education.

Advocacy

- ONS has built considerable momentum in the legislative arena, and this momentum needs to continue at an increasing rate.
- ONS continually must increase efforts to get oncology nursing a seat at decision-making tables.
- Members need to develop heightened awareness of the need for nurses to be healthcare policy advocates.
- ONS needs to be proactive in influencing policy that affects the practice of oncology nursing and access to quality cancer care.

Managing the ONS business

- Managing corporate knowledge at ONS is a critical element in maintaining revenue streams.
- ONS operates in a business environment that is influenced greatly by changes in the pharmaceutical industry.
- Nondues revenue is an increasingly larger portion of total revenue.
- Business objectives need to continue to drive much of ONS's decision making.

Figure 2. Strategic Implications Identified in the Environmental Scanning Process

environment, trends in the association industry, and the members' operating environment. A general set of implications emerged for ONS, which were used as a starting point for a discussion of broad strategic goals. These implications are summarized in Figure 2. The implications identified in the environmental scanning process provided a tool to ONS

leaders that helped to guide the development of the 2003–2006 Strategic Plan.

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References

- American Association of Colleges of Nursing. (2001). *Enrollments rise at U.S. nursing colleges and universities ending a six-year period of decline*. Washington, DC: Author.
- American Cancer Society. (2002). *Cancer facts and figures 2002*. Atlanta, GA: Author.
- American College of Nurse Practitioners and the Americans for Nursing Shortage Relief Coalition. (2001). Assuring quality health care for the United States: Supporting nurse education and training. Building an adequate supply of nurses. Retrieved January 31, 2002, from <http://www.nurse.org/acnp/news/ansr.coalition.shtml>
- American Society of Association Executives. (1999). *Facing the future*. Washington, DC: American Society of Association Executives Foundation.
- American Society of Association Executives. (2001). Associations in a nutshell. Retrieved January 22, 2002, from <http://www.asaenet.org/newsroom/faq2/0,2412,showarticle=yes^articleId=261,00.html>
- Brickey, M. (2001). The extended life: Four strategies for healthy longevity. *Futurist*, 35(5), 52–56.
- Buerhaus, P., Donelan, K., DesRoches, C., Lamkin, L., & Mallory, G. (2001). State of the oncology nursing workforce: Problems and implications for strengthening the future. *Nursing Economics*, 19, 198–208.
- Buerhaus, P., Staiger, D., & Auerbach, D. (2000). Policy responses to an aging registered nurse workforce. *Nursing Economics*, 18, 278–284, 303.
- Centers for Disease Control and Prevention. (2000). Biological and chemical terrorism: Strategic plan for preparedness and response. Recommendations of the CDC strategic planning workgroup. Retrieved January 29, 2002, from <http://www.cdc.gov/mmwr/preview/mmwrhtml/rr4904a1.htm>
- Collins, F.S., & McKusick, V.A. (2001). Implications of the human genome project for medical science. *JAMA*, 285, 540–544.
- Council of Economic Advisors for the President's Initiative on Race. (1998). Population. In *Changing America: Indicators of social and economic well-being by race and Hispanic origin* (chap. 2). Retrieved January 9, 2002, from <http://w3.access.gpo.gov/eop/cal/>
- Engel, S. (2000). Where the value and strength lie. *MedAd News*, 19(7 Suppl.), 3–8.
- Galbreath, R. (2001). *The good and bad news about the labor market through 2008* [Society for Human Resource Management White Paper]. Alexandria, VA: Society for Human Resource Management.
- Grossman, S., & Valiga, T.M. (2000). *The new leadership challenge: Creating the future of nursing*. Philadelphia: Davis.
- Health Care Financing Administration. (1999). National health expenditures projections: 2000–2010. Retrieved January 7, 2002, from <http://www.hcfa.gov/stats/nhe-proj/proj2000/default.htm>
- Heffler, S., Levit, K., Smith, S., Smith, C., Cowan, C., Lanzenby, H., et al. (2001). Health spending growth up in 1999; faster growth expected in the future. *Health Affairs*, 20, 193–203.
- Hinshaw, A. (2001). A continuing challenge: The shortage of educationally prepared nursing faculty. *Online Journal of Issues in Nursing*, 6(1). Retrieved August 28, 2002, from http://www.nursingworld.org/ojin/topic14/tpc14_3.htm
- James, B. (2000). *Pharmaceuticals: The new management agenda for the 21st century*. Retrieved December 29, 2001, from <http://www.morphepharma.com>
- Lamkin, L., Rosiak, J., Buerhaus, P., Mallory, G., & Williams, M. (2001). Oncology Nursing Society workforce survey part I: Perceptions of the nursing workforce environment and adequacy of nurse staffing in outpatient and inpatient oncology settings. *Oncology Nursing Forum*, 28, 1545–1552.
- Luther, A. (2001). Presidential perspectives 2001: Nursing issues in the 21st century. *ORN—Head and Neck Nursing*, 19(3), 20–25.
- Miller, B. (2000). Trends, countertrends. *Training and Development*, 54(3), 23–40.
- Mitchell, S. (2000). *American generations: Who they are. How they live. What they think* (3rd ed.). Ithaca, NY: New Strategist.
- Molitor, G.T. (2000). Life sciences era evolves amidst controversy. *Association Management*, 52(5), 75–80.
- National Advisory Council on Nurse Education and Practice. (1996). *Report to the secretary of the Department of Health and Human Services on the basic registered nurse workforce*. Washington, DC: U.S. Department of Health and Human Services, Division of Nursing.
- National League for Nursing Accrediting Commission, Nursing Executive Center. (2000). *The nurse perspective: Drivers of nurse job satisfaction and turnover*. Washington, DC: Advisory Board Company.
- Olson, R., & Dighe, A. (2001). *Exploring the future*. Washington, DC: American Society of Association Executives Foundation.
- Oncology Nursing Society. (2002a). *Comparison of year-end member demographics, 1991, 1996, 2001* (Internal report). Pittsburgh, PA: Author.
- Oncology Nursing Society. (2002b). *Summary report—Environmental scan survey* (Internal report). Pittsburgh, PA: Author.
- Pew Commission. (1999). *Recreating health professions practice for a new century*. San Francisco: Author.
- Robert Wood Johnson Foundation & Institute for the Future. (2000). Health and health care 2010. The forecast, the challenge, demographic trends, and the burden of disease. Retrieved December 29, 2001, from http://www.rwjf.org/app/rw_publications_and_links/rw_pub_other.jsp
- Romano, G. (2000). Including all. *Association Management*, 52(6), 30–37.
- Satryan, M. (2001). The oncology nursing shortage and its impact on cancer services. *Oncology Issues*, 16(1), 21–23.
- Society for Human Resources Management. (2001). *The new workforce: Generation Y*. Alexandria, VA: Author.
- Sussman, D. (2000). Generation Rx: As demographics change, the patient of 2010 will pose new challenges. *NurseWeek*. Retrieved September 10, 2002, from <http://www.nurseweek.com/news/features/00-08/futpat.html>
- U.S. Department of Health and Human Services. (2000a). *The registered nurse population: National sample survey of registered nurses—March 2000 preliminary findings*. Rockville, MD: Author.
- U.S. Department of Health and Human Services. (2000b). *Strategic research plan to reduce and ultimately eliminate health disparities, fiscal years 2002–2006*. Washington, DC: Author.
- U.S. General Accounting Office. (2001). *Nursing workforce: Emerging nurse shortages due to multiple factors* (General Accounting Office Publication No. GAO-01-944). Washington, DC: Author.
- Wagner, C. (2001). Demography: Minority health. *Futurist*, 35(3), 12–13.
- Wilkenson, R.G. (1992). Income distribution and life expectancy. *BMJ*, 304, 165–168.
- Wooten, J.O. (2000). Health care in 2025: A patient's encounter. *Futurist*, 34(4), 18–22.