Ensuring Quality Cancer Care Through the Oncology Workforce

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There is a crisis in the oncology workforce. Health professionals involved in prevention, early detection, diagnosis, treatment, survivorship, palliative care, and research are experiencing significant workforce shortages that are expected to worsen. This is because of the rapidly growing population of Americans requiring cancer care, an aging oncology workforce, and inadequate numbers of newly trained workers. This mismatch between supply and demand for cancer care could threaten patient care, safety, and quality.

To help address the challenges in meeting the public's oncology care needs, the National Cancer Policy Forum of the Institute of Medicine (IOM) convened the workshop "Ensuring Quality Cancer Care Through the Oncology Workforce: Sustaining Care in the 21st Century" on October 20 and 21, 2008, in Washington, DC.¹ The forum brings together government, industry, academic, and other representatives to consider issues in science, medicine, public health, and policy relevant to the goals of preventing, palliating, and curing cancer. The forum explores emerging issues in cancer care through workshops that enable forum members and the public to debate and examine potential actions. In keeping with IOM policies, the forum is not intended to provide specific policy recommendations or arrive at consensus conclusions.

This workshop was organized by a planning committee that included many leading oncology professionals and policy makers, and it assembled numerous multidisciplinary oncology experts. The purpose of the workshop was to examine the predicted shortage of professionals in the oncology workforce, describe current solutions, and discuss additional solutions and policy changes that may alleviate the shortage. The workshop covered data and perspectives from a broad range of professionals, including physicians, nurses, social workers, other allied health professionals, and family caregivers. In addition, issues relevant to the entire continuum of research and care were discussed.

The ultimate goal of the workshop was to facilitate interdisciplinary efforts to ensure the workforce is not overburdened in the future and can meet the nation's quality cancer care needs. The workshop may also have helped to inform the larger national discussion on health workforce development by describing the unique and specific aspects of cancer care as well as offering some solutions for cancer care that might be applicable to treatment for other diseases.

Challenges

Oncology Workforce Crisis: A Supply and Demand Imbalance

The supply and demand imbalance in the oncology workforce has been well documented, and predictions indicate that this

imbalance will worsen in the future. Between 2000 and 2030, the number of people in the United States older than age 65 years is expected to double. This population makes twice as many physician visits as that comprising those younger than age 65 years, and the incidence of cancer is far higher among elderly compared with younger individuals.²⁻⁴ In addition, a National Cancer Institute (NCI) study predicted that the number of patients with cancer in the United States will increase by 55% between 2005 and 2020 (Fig 1).⁵

Medical advances are also contributing to the rising demand for cancer care. Data from the Dana-Farber Cancer Institute (Boston, MA) reveal that the number of physician visits per patient, per year, during the first year of therapy increased by 25% between 2001 and 2007 because of new chemotherapy regimens that involve less toxic but more frequent administration.⁶ In addition, improving cancer survival rates increases the demand for cancer care. Two thirds of adults diagnosed with cancer will be alive in 5 years.⁷ A survey commissioned by ASCO found that 68% of oncologist visits are for patients at more than 1 year post diagnosis, the majority of whom are not receiving acute cancer treatment.

On the supply side, almost all oncology professionals are experiencing workforce shortages, including physicians, nurses, allied health care professionals, public health workers, social workers, and pharmacists. The study commissioned by ASCO found that the demand for oncologists is likely to increase dramatically between now and 2020, with a 48% increase in cancer incidence and an 81% increase in people living with or surviving cancer.⁸ The supply of oncologists is only projected to increase 14% during the same timeframe, creating a shortage of 2,500 to 4,080 oncologists. At the same time, a large number of physicians will soon retire. These physicians are being replaced with a new generation of physicians who expect more flexible and less demanding work. Also, oncologists younger than age 45 years are less productive than those ages 45 to 64 years.⁸ Nursing is experiencing similar challenges, with an aging workforce and the need for highly skilled nurses to provide complex care.⁹

Laboratories are also experiencing a shortage of qualified staff.¹⁰ The Bureau of Labor Statistics has projected that by 2015, the United States will need 81,000 additional clinical laboratory technologists to replace retiring staff and another 68,000 to fill newly created positions (Fig 2).¹¹ There are inadequate numbers of programs to train professionals for positions in health, cyto-, and genetic technology as well as dosimetry. The data are no more promising for public health workers,¹³ social workers,¹⁴ pharmacists,¹⁵ and cancer registrars.¹⁶ These

Figure 1. Baseline projected supply of and demand for oncologist visits from 2005 to 2020. Bottom of blue bar marks low for oncologist visit demand; top marks high. Bottom of gold bar marks low for oncologists' visit capacity; top marks high.

professions face aging workforces, a lack of new recruits, and limited educational capacity for training new professionals.

Potential Solutions

The workshop provided an opportunity for speakers and attendants to propose potential solutions to the shortage of oncology professionals. There was general agreement among the participants that the solutions needed to be systemic solutions, involving approaches that cross professions and cover the spectrum of cancer care. The solutions discussed in detail at the workshop included developing new models of care, improving the pipeline for new oncology professionals, and implementing policy changes.

New Models of Care

The ability of organizations to develop new models of care to address the oncology workforce shortage was discussed extensively. Academic medical centers often lead the way in demonstrating new models of care, because they are responsible for training most oncology professionals. However, only 15% to 20% of patients with cancer are treated in academic cancer centers.¹⁷ Community settings also need to be engaged in creating new models of care. The examples in this article discuss

Figure 2. Gaps in the clinical laboratory science workforce. Reprinted with permission.¹²

strategies for improving efficiency, providing team-based care, and changing treatment for postacute cancer. Efforts to explore how they can be replicated, expanded, or proven feasible remain critical.

Efficiency. One strategy for improving traditional oncology care is to increase efficiency through use of technology. Many oncologists believe that electronic medical records have the potential to streamline paperwork, expedite medical record retrieval, and enable decision support tools.⁸ Increasing patients' use of e-mail, online portals to lab results, and electronic treatment plans may also reduce the workload of practitioners. These technologies allow patients to directly communicate with their practitioners and eliminate the need for some office visits. However, more conclusive research on optimal use of these technologies and the costs of implementing them is needed.

Teamwork. Another strategy for addressing the workforce shortage is to expand the role of physician assistants (PAs) and nurse practitioners (NPs). PAs and NPs are increasingly managing many routine patient concerns in team-based care models. The survey commissioned by ASCO of practicing oncologists found that two thirds of those who work with NPs or PAs believe it benefits the practice by improving care, efficiency, and physician satisfaction.⁸

More research and guidance is needed to most appropriately integrate NPs and PAs into oncology practices and provide training specific to oncology. Payment reform will also be necessary, because there is currently no agreed-on reimbursement rate for NP and PA services. In addition, better approaches to teaching interdisciplinary collaboration will be necessary in initial and continuing health professional education across all professional disciplines.

Beyond acute cancer care. Cancer is increasingly being viewed as a chronic disease, and more is known about the needs of patients in postacute care stages. Survivorship, palliative and hospice care, family caregiving, and the medical home have emerged as key models of care in oncology. Collaborative efforts to define the standards of care, treatment plans, and professional competencies for care are needed.

Many academic cancer centers have created survivorship clinics supporting the complex and long-term needs of people living with cancer. These NP-driven clinics provide expertise and coordination of care for survivors and reduce the time demands on oncologists. However, without changes to the reimbursement system, smaller institutions are less likely to be able to develop comparable models of care for survivors.

Better use of palliative care and hospice services could also improve care quality and reduce demands on the oncology workforce. The average terminally ill patient with cancer spends approximately 17 days in hospice before death. Almost one third of such patients spend less than 1 week in hospice, suggesting a significantly underutilized resource.¹⁸ Patients' and doctors' unwillingness to give up hope of a cure, the difficulty of having conversations about death, and low reimbursement rates are obstacles to increasing the use of palliative and hospice care. However, several successful models were discussed at the workshop that demonstrate best practice of palliative care.

In addition, more support for family caregivers was suggested as part of the solution to the oncology workforce shortage. An NCI-sponsored study found that family caregivers of patients with cancer spend an average of 20 hours per week providing care, with more than half providing care daily.¹⁹ Oncology professionals need training on how to collaborate and coordinate care with family members and provide the caregivers with the necessary medical information to administer quality care.

Lastly, the concept of a medical home could be considered when redesigning models of care in oncology. In the medical home model, care is provided by a dedicated team, and providers are reimbursed with an upfront fee and higher reimbursement for episodes of care. This model is being explored mainly with primary care physicians providing chronic disease care with the expectation that closer, proactive management will lead to lower long-term costs. A similar model in oncology care is promising.

Pipeline of Workforce Development

Finding and retaining professionals in oncology requires evaluating the entire pipeline of workforce development, starting with efforts to attract individuals into health careers, making education available and affordable, and investing in efforts to retain professionals in oncology careers. Solutions to these challenges discussed at the workshop ranged from institutional-level initiatives that could be replicated more broadly to federally funded policy initiatives.

Recruitment. One method of addressing the workforce shortage is to increase the number of people who choose oncology as a career. An example of a successful recruitment effort is the Johnson & Johnson Campaign for Nursing's Future, which emphasized the positive aspects of nursing and has had a positive impact on nurses' professional satisfaction.²⁰ This campaign could serve as a model for similar recruitment efforts in other professions. Another successful recruitment strategy is exposing individuals to health professionals early in life and providing professional role models. The NCI Cure (Continuing Umbrella of Research Experiences) Program introduces underserved minority students to oncology professions.²¹ Many academic cancer centers also engage in career promotion by providing speakers to school students, offering summer camp programs, and organizing field trips to their centers.

Education and training. Participants at the workshop suggested that academic cancer centers develop innovative training and educational programs. Cancer centers have the potential to reach large audiences through training and residency programs, Internet resources, continuing education programs, and electronic decision support systems. Cancer centers could also work with their associated medical, nursing, and pharmacy schools to ensure oncology is part of their general curricula.

A number of innovative models for education and training were explored at the workshop. The University of Utah (Salt Lake City, UT) created a program to train nursing faculty and researchers in oncology through a distance-learning doctoral program. One of the major obstacles to oncology nurses pursuing higher education is the limited number of programs that have strong cancer faculty.

Many nurses seeking doctorates are older, with significant family obligations, and do not want to relocate.

The M. D. Anderson Cancer Center (Houston, TX) developed a program designed to address the institution's need for allied health care workers by creating an in-house educational program. The cancer center offers baccalaureate degrees in seven allied-health professions in the fields of laboratory and radiation technologies. Between 2000 and 2007, the institution employed 44% of the graduates from its program.¹² This program has saved recruitment costs and ensures that the new hires are well trained and likely to assimilate to the culture of their institution.

Fewer innovative programs are being developed to train oncologists and physicians because of the 10 to 15 years of training required for these professionals. However, programs are being developed to offset the financial costs of medical school. ASCO recently launched a loan repayment program to forgive up to \$70,000 in educational loans for physicians pursuing an oncology specialty. The NCI also has a loan repayment program for physicians pursuing academic research careers in oncology.

Retention. Retaining professionals is an important component of ensuring an adequate workforce. It is also an important business strategy given the recruitment costs associated with turnover. Salary is only one factor that affects retention; other key factors are work culture and expectations of both employees and employers.

Duke University Hospital (Durham, NC) has taken innovative steps to improve the retention of its staff. It offers extensive training programs and funding for the education of its employees, including a General Education Development certification program and courses designed to transition employees into specialties. The Professional Development Institute allows employees who work part time to get paid for full-time work while they go to school part time. Orientation, coaching, and mentoring programs are designed for new employees and emerging leaders. Duke is also providing more flexible work arrangements to meet the demands of younger and female physicians. However, creating flexible work arrangements presents new challenges, especially for smaller group practices, because health benefit and malpractice expense coverage is not prorated in the same manner that salary expenses can be for part-time work arrangements.

Recruiting and retaining physician researchers is another important component of a quality oncology workforce. Sustaining funding for researchers throughout their careers has been difficult for the NCI in the past few years because of limited funding. The NCI provides a number of career development awards to support basic, translational, and clinical research in oncology, as well as K12 institutional grants. Additional funding might allow the NCI to increase salary caps on career development awards and partner with nongovernmental organizations to supplement these resources for academic researchers.

Cultural change. Many of the proposed solutions to improve recruitment, education, training, and retention will require significant changes in practice and work culture. At the same time, the

patient population is changing in its social and cultural complexity. This dynamic landscape affects both students and professionals and requires changes to complex educational systems, care delivery systems, and learned human behaviors.

Policy

To successfully implement many of the new models of care and pipeline development solutions, participants at the workshop recognized that policy changes will also need to be made. Unfortunately, a number of recent policies have contributed to the oncology workforce shortage. Medicare is the largest payer of graduate medical education, covering a substantial portion of residents' educational costs. The Balanced Budget Act of 1997²² limited the number of residencies and fellowships funded by Medicare and assumed that the number of physicians being generated was sufficient to meet health care needs. In addition, the Centers for Medicare and Medicaid recently changed reimbursement policy; the cost of training residents at nonhospital sites—along with a number of other activities related to education, patient safety, and quality—is no longer covered.

Congress and state legislatures are starting to address these existing policy problems. The Resident Physician Shortage Reduction Act of 2007²³ aimed to raise the Medicare General Medical Education funding cap and increase the number of Medicare-funded resident positions by 1,222 spots. The Health Professions Education Partnerships Act of 1998²⁴ was passed to provide grants, contracts, and scholarships to support the education of underrepresented minorities. Other legislative proposals have included grant funding for scholarships, fellowships, loans, and loan repayment mechanisms as well as cancer curriculum development, programs to promote an adequate and diverse cancer workforce, and a plan to assist health professions facing the most severe shortages.²⁵⁻²⁸

At the state level, Minnesota passed legislation in 2008 that requires the commissioner of health to study and recommend changes necessary to health professional licensure and regulation so that advanced-practice RNs, PAs, and other licensed health care professionals are fully utilized.²⁹ Massachusetts enacted legislation to create a loan forgiveness program for physicians and nurses who agree to practice primary care in medically underserved areas and provide tuition incentives for University of Massachusetts (Worcester, MA) medical students who agree to practice primary care in the state for 4 years.³⁰

Discussion

This workshop made it clear that no single solution to the oncology workforce crisis exists, and cooperation across profes-

sions will be required to start addressing this problem. The major themes at the workshop were:

- Cancer has unique characteristics that should be considered in reform activities
- New models of care are needed to ensure quality cancer care
- Team-oriented patient care should be emphasized to optimize quality, multidisciplinary talents, and scarce human resources
- Creative, collaborative efforts to recruit, train, and retain professionals are needed
- Professionals need to be trained to meet the cultural and social complexities of a growing population and to work more collaboratively
- Policy incentives could attract students to health professions and support institutions in expanding their training programs
- The reimbursement system needs to be updated to support contemporary forms of care delivery

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