

Ensuring Quality Cancer Care Through the Oncology Workforce: Sustaining Care in the 21st Century: Workshop Summary

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ENSURING QUALITY
CANCER CARE
THROUGH THE
ONCOLOGY WORKFORCE
SUSTAINING CARE IN THE 21ST CENTURY
WORKSHOP SUMMARY

National Cancer Policy Forum

Margie Patlak and Laura Levit, *Rapporteurs*

INSTITUTE OF MEDICINE
OF THE NATIONAL ACADEMIES

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The serpent has been a symbol of long life, healing, and knowledge among almost all cultures and religions since the beginning of recorded history. The serpent adopted as a logotype by the Institute of Medicine is a relief carving from ancient Greece, now held by the Staatliche Museen in Berlin.

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Willing is not enough; we must do.”*
—Goethe



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This report has been reviewed in draft form by individuals chosen for their diverse perspectives and technical expertise, in accordance with procedures approved by the National Research Council's Report Review Committee. The purpose of this independent review is to provide candid and critical comments that will assist the institution in making its published report as sound as possible and to ensure that the report meets institutional standards for objectivity, evidence, and responsiveness to the study charge. The review comments and draft manuscript remain confidential to protect the integrity of the deliberative process. We wish to thank the following individuals for their review of this report:

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Although the reviewers listed above have provided many constructive comments and suggestions, they were not asked to endorse the final draft of the report before its release. The review of this report was overseen by **Melvin Worth**. Appointed by the Institute of Medicine, he was responsible

for making certain that an independent examination of this report was carried out in accordance with institutional procedures and that all review comments were carefully considered. Responsibility for the final content of this report rests entirely with the rapporteurs and the institution.

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Introduction

There is currently a crisis in cancer care that experts predict will worsen in the near future due to a rapidly growing population of Americans requiring cancer care combined with an aging/retiring oncology workforce, and inadequate numbers of replacement workers. By 2020, the American Society of Clinical Oncology (ASCO) predicts a 48 percent increase in cancer incidence and an 81 percent increase in people living with or surviving cancer (Erikson et al., 2007). For the same time period, ASCO predicts only a 14 percent increase in the number of practicing oncologists. Expected shortages in other health care workers who are involved in cancer care, including nurses, physician assistants, laboratory and radiology technicians, social workers, radiologists, surgeons, pharmacists, public health workers, and cancer registrars, also will affect both the quantity and the quality of cancer care in the 21st century. In addition, achieving improvements in any aspect of cancer care—including research, clinical trials, health disparities, access to care, patient navigation, survivorship, palliative care, etc.—will be difficult if not impossible without a sufficiently staffed general health care workforce. This is particularly true, since the majority of cancer care is not delivered in major cancer centers, but rather, is provided by primary care physicians and community practices.

Although other health care fields are also expected to face severe shortages in their workforces, there are factors in oncology that make its workforce issues particularly challenging, including the wide range of treatment

options employed, the multiple health specialists involved in treating each cancer patient, the ongoing medical monitoring required after treatment is complete, the important role of family caregivers, and the availability of clinical trials and experimental treatments. As potential reforms are proposed for the health care delivery system, it is important for policy makers to consider the needs of quality cancer care

To help address the challenges in meeting the public's oncology health 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 (see Appendix A for the agenda and Appendix B for a list of workshop speakers). The workshop covered issues relevant to the entire spectrum of cancer care, from prevention and diagnosis to treatment, monitoring, survivorship, and palliative care. This document presents a summary of the ideas presented at the workshop. The first section of this summary outlines the evidence for the current and expected workforce shortages in health care professions in general, as well as evidence specific to the oncology professions. As stated above, any improvements in the oncology workforce will require a well staffed overall health care workforce. It is impossible to completely separate oncology from other areas of health care. The second half of this summary focuses on the solutions to the workforce shortage proposed by the various speakers, including system-based solutions, such as policy initiatives, innovative team approaches to the care of patients, and greater use of electronic medical records. Also explored were providing more innovative education and training, offering more incentives to recruit and retain cancer care workers, and enabling professionals to return to the workforce after raising children or taking time off for other reasons. There was no effort to prioritize the proposed solutions, or make conclusions and recommendations.

Supply and Demand in the Health Care Workforce

In addition to the U.S. population growing by 25 million people each decade, the aging of the American population is indisputably boosting the demand for cancer services, as well as contributing to a lack of health care professionals, stated Mr. Edward Salsberg, Senior Director of the Center for Workforce Studies at the Association of American Medical Colleges (AAMC). Between 2000 and 2030, the number of people in the United States over the age of 65 is expected to double. This elderly population makes twice as many physician visits as those under 65, and the incidence of cancer is far higher for the elderly than younger age groups. In addition, the number of average visits to physicians by people over the age of 45 has risen significantly over the past 15 years (NCHS, 1990, 2000, 2005). “We worry that this trend is going to continue,” said Mr. Salsberg, who noted that the high expectations for medical care held by the baby boom generation are helping foster that trend.

Mr. Salsberg pointed out that another factor contributing to the higher demand for health care services is the increasing pace of medical advances. One study found that most medical advances, such as within the oncology arena, have increased the demand for services. However, medical advances that prevent obesity may be an exception to this general rule. There is a rising number of health problems linked to an increasingly obese population. As medical advances that prevent obesity develop, this may decrease the demand and use of health care services to some degree (RAND Corporation, 2005).

On the supply side, of particular concern are the large number of aging physicians heading into retirement. These physicians are being replaced with a new generation of doctors who prefer to work part-time or in specialties, such as dermatology or neurology, that are less likely to have demanding on-call responsibilities. “Generation X individuals see [fewer] patients. They typically place a greater premium on lifestyle factors than their older counterparts, so that would decrease the amount of supply,” said Dr. Dean Bajorin, Member of the Memorial Sloan-Kettering Cancer Center and Professor of Medicine at Weill Medical College of Cornell University (Hauer et al., 2008).

Although statistics from the Bureau of Labor indicate that health care jobs are going to grow more than twice as fast as non-health care jobs in the next decade, physicians represent a decreasing share of that expanding health workforce (Center for Health Workforce Studies et al., 2008). Mr. Salsberg noted that some health professions, such as nurse aides and home health aides, require a minimal amount of education and training and, as a result, large numbers of these professionals can be graduated quickly to respond to the increasing demands on the health care system. Unfortunately, this is not the case for physicians, who require between 10 and 16 years of education and training. “We’re trying to look at what are the needs going to be in 2015 and 2020, because unless we act now, we’re not likely to meet those future needs,” Mr. Salsberg said.

Assessing the future needs of physicians who provide oncology care includes assessing the future needs of physicians outside of oncology. As Mr. Salsberg noted, a large percentage of patients with cancer do not see oncologists for their cancer care and chemotherapy, because of the unequal geographic distribution and difficulty in accessing an oncologist (Erikson et al., 2007). In addition, a large number of physician sub-specialties besides oncology are involved in treating cancer patients, including gastroenterology, surgery, dermatology, radiology, urology, gynecology, hematology, pathology, pulmonology, and internal or family medicine. Shortages of physicians in many specialties will affect the quality of cancer care.

SHORTAGE OF PHYSICIANS

Many health specialties, including oncology, currently report a shortage of physicians. Despite an expected 21 percent increase in medical school enrollments between 2002 and 2012, the number of residencies has only increased 8 percent over the past 5 years (Salsberg et al., 2008). Dr. Bajorin,

in particular, stressed the increasing lack of general surgeons who are involved in cancer care. Significant numbers of surgeons are subspecializing. According to a 2005 survey of surgical residents, over 50 percent planned on pursuing subspecialty training, and only 15 percent planned on entering the workforce as a general surgeon (Incorvaia et al., 2005). Liability issues have also been problematic for general surgeons, who are confronting high insurance premiums. This is especially true in states that do not cap financial awards of malpractice lawsuits, which leads to physicians altering or limiting their practice due to the threat of being sued (MMS, 2007; Thorpe, 2004).

Using a methodology for making projections developed by the Health Resources and Services Administration, Mr. Salsberg and his colleagues projected that by 2025 there will be a shortage of between 124,000 and 160,000 full-time physicians, after considering a variety of scenarios for future supply and demand (see Figure 1) (AAMC, 2008). Even with

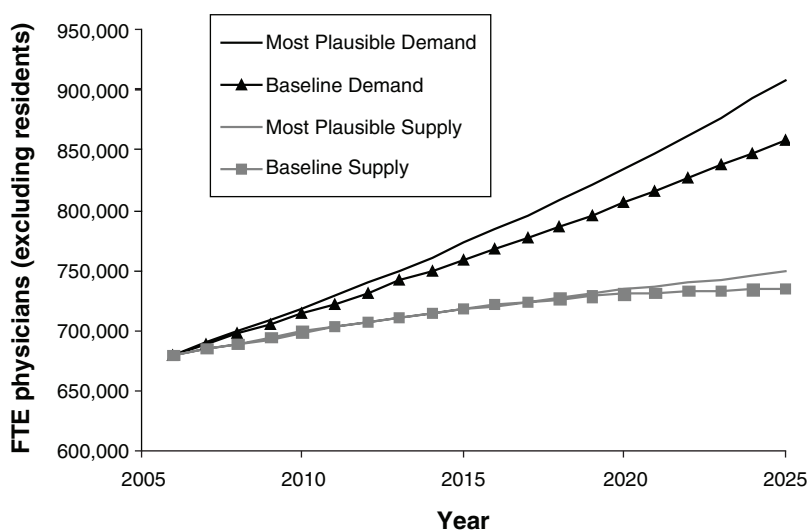


FIGURE 1 Projected full-time physicians, baseline and most plausible scenarios, 2006-2025. By 2025, there will be a shortage of between 124,000 and 160,000 full-time physicians.

SOURCE: Salsberg presentation (October 20, 2008) and the Association of American Medical Colleges. 2008. *The complexities of physician supply and demand: Projections through 2025*. https://services.aamc.org/Publications/index.cfm?fuseaction=Product.displayForm&prd_id=244&prv_id=299 (accessed January 31, 2009). Reprinted with permission from the Association of American Medical colleges.

an expansion of graduate medical education (GME) training positions, the demand will still exceed the supply of physicians in this model (see Figure 2). “We could have a terrible crisis,” said Mr. Salsberg.

Mr. Salsberg added, given that the expected shortage of physicians is not likely to be substantially relieved by newly trained physicians alone, it is important to think about strategies that will ensure access to quality care. “As the difference between supply and demand grows, people will lose access to needed services, and both care and quality can drop. The other reality is that underserved communities are likely to feel the shortage the most because the wealthy communities are clearly likely to outbid poor communities for limited resources,” he said.

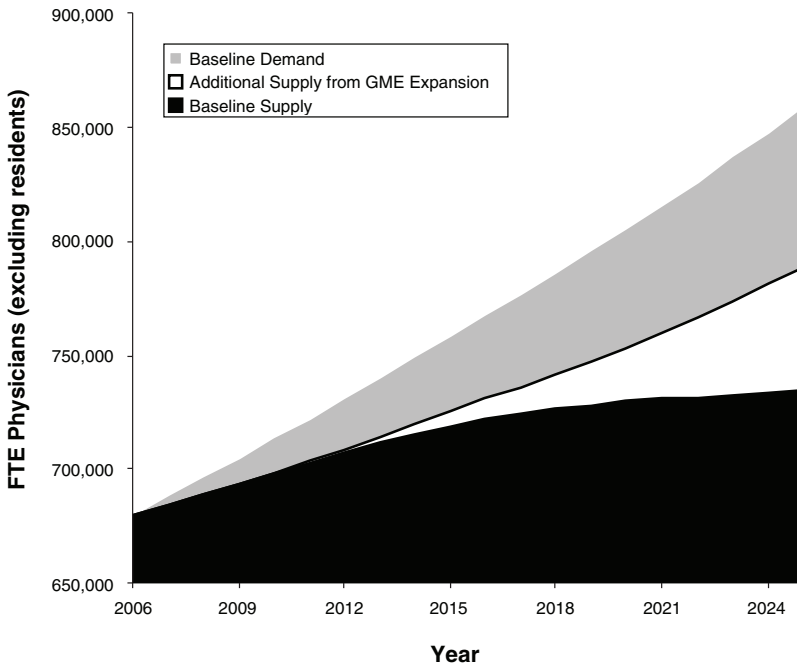


FIGURE 2 Projected national supply and shortfall of physicians with GME expansion.

SOURCE: Salsberg presentation (October 20, 2008) and the Association of American Medical Colleges. 2008. *The complexities of physician supply and demand: Projections through 2025*. https://services.aamc.org/Publications/index.cfm?fuseaction=Product.displayForm&prd_id=244&prv_id=299 (accessed January 31, 2009). Reprinted with permission from the Association of American Medical colleges.

SHORTAGE OF NURSES

The current and predicted future shortage of nurses is also problematic. Dr. Peter Buerhaus, the Valere Potter Distinguished Professor of Nursing and Director of the Center for Interdisciplinary Health Workforce Studies, the Institute for Medicine and Public Health, Vanderbilt University Medical Center, reported that there is an ongoing shortage of nurses that began in 1998. This is the longest lasting shortage of nurses in over half a century, and was sparked by a lack of supply (i.e., too few nurses entering the workforce) rather than by an increasing demand for nursing services. In 2002, the vacancy rates for nursing positions were as high as 13 percent, and currently are estimated to be roughly 8 percent or lower (AHA, 2007; Buerhaus et al., 2005b). The Bureau of Labor Statistics data predicts that close to a million new nurses will be needed over the next decade, both to fill new jobs and to replace vacancies resulting from retiring nurses (see Figure 3) (Martiniano, 2008).

However, Dr. Buerhaus stated that he expects nurse vacancy rates to drop with the current economic slump, based on his analyses of the registered nurse (RN) labor market. He discussed a number of trends in RN employment, including the fact that higher wages usually induce more RNs to enter the workforce and work longer hours. In addition, a bigger stimulus for RNs

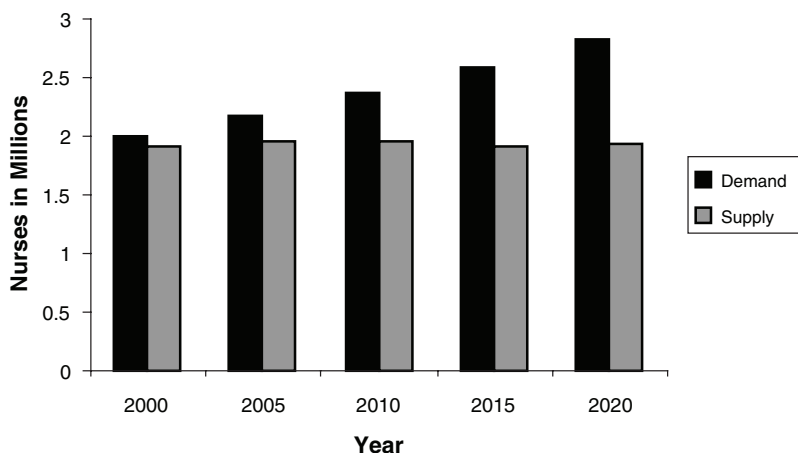


FIGURE 3 The United States faces a potential shortage of more than 1 million nurses by 2020.

SOURCE: Sowers presentation (October 21, 2008). Data from the Human Resources and Services Administration.

entering the workforce is what he called the RNs' "household wealth," which is driven largely by the nurses' spouses' earnings. Since three out of four RNs are married, changes in RNs' spouses' economic well-being can greatly impact RNs' decisions to enter or leave the workforce (Buerhaus et al., 2007b).

When overall employment and earnings are up in the United States, nurses tend to work fewer hours or retreat altogether from the workforce. However, when there is high unemployment, RNs are more inclined to work, and to work long hours. "As this economy continues to unravel, and if unemployment goes up, which most economists are predicting, you're going to have another surge of RN employment eliminating whatever excess capacity there is," Dr. Buerhaus said.

The elimination of the current nursing shortage, due to the poor economic situation, does not mean the nursing shortage crisis is solved, Dr. Buerhaus cautioned. There are many long-term factors that suggest that the supply of future nurses is inadequate and faces potential problems. These include the fact that many currently practicing nurses are older and that there is an increasing proportion of foreign-born nurses who U.S. hospitals sponsor on work visas. In 2012, the largest age group of RNs will be between 50 and 60 years old (Buerhaus et al., 2008). Many of these older nurses are expected to retire by 2025. The older nurses that remain will have experienced years of lifting and pulling patients, and other physical strains that are likely to foster frequent injuries. The long recovery periods required for healing these types of injuries will further decrease nurse workforce supply, according to Dr. Buerhaus. As a result, Dr. Buerhaus predicts the supply of nurses will increase for the next several years, but starting around 2015, when many nurses opt for retirement, the supply of nurses will level off. He projects a shortage of 500,000 full-time nurses in 2025 (Buerhaus et al., 2008).

The predicted shortage of nurses developing midway through the next decade will probably foster an increasing number of foreign-born and -educated RNs, Dr. Buerhaus pointed out. This can be problematic and affect the quality of nursing care as nursing errors and mistakes are often related to failures in communication. Although foreign-born nurses may pass an English language test (i.e., TOEFL—Test of English as a Foreign Language), they may not detect cultural nuances and nonverbal cues. However, Dr. Buerhaus added that there are no data to document that this is a problem. Currently, foreign-born and -educated RNs comprise 15 percent of the nursing workforce in the United States (Buerhaus et al., 2008). Dr. Buerhaus suggested that researchers should explore how increasing this

number may affect the quality of care. Ms. Pamela Malloy, the End-of-Life Nursing Education Consortium Project Director at the American Association of Colleges of Nursing (AACN), added that the evidence does show that foreign-born nurses who do not have English as their primary language do not tend to do well on the state board exams.

Contributing to the shortage of nurses is a lack of faculty to train them. For example, to be qualified to teach nursing at the undergraduate level, a Masters in Nursing is required. Dr. Kathi Mooney, Professor at the University of Utah College of Nursing, noted that the AACN data indicate that there were over 40,000 qualified applicants to colleges of nursing denied admission in 2007. The primary reason cited for such denials was a faculty shortage. A recent AACN survey also found that 85 percent of nursing schools have faculty vacancies or need more faculty members but do not have a budget to pay them (AACN, 2007). Most openings for nursing faculty are for doctoral candidates. Despite the need for Ph.D. nursing faculty, the 2007 Ph.D. enrollment in nursing was up by less than 1 percent from previous years (AACN, 2008b).

Convincing nurses to pursue Ph.D. degrees is difficult, Dr. Mooney noted, because doctorate- or even masters-level prepared nurses in clinical positions can earn a significantly higher salary in health care administration or as nurse practitioners (NPs) than they can as faculty. Other reasons cited for a lack of nursing faculty in the AACN survey were difficulties in finding faculty with the right qualifications or specialty mix, and problems finding faculty willing or able to conduct research (AACN, 2007). Also a substantial contributor to the shrinking of nursing faculty is the aging of current nursing professors. The average age of doctorate-level faculty in nursing is 53.5 years, whereas the average age of doctorate-level faculty holding the rank of professor is 59 years (AACN, 2008a). Compounding the problem is the fact that nursing faculty tend to retire early, with AACN data showing 62.5 as the average age of nursing faculty retirement (see Figure 4) (Berlin and Sechrist, 2002).

SHORTAGE OF ALLIED HEALTH CARE PROFESSIONALS

Dr. Michael Ahearn, Dean of the University of Texas M. D. Anderson Cancer Center's School of Health Sciences, presented data to show that laboratory and radiology technicians (the allied health care workforce) also face a current and future workforce shortage, and the shortage may be even greater than the shortage of physicians and nurses detailed by

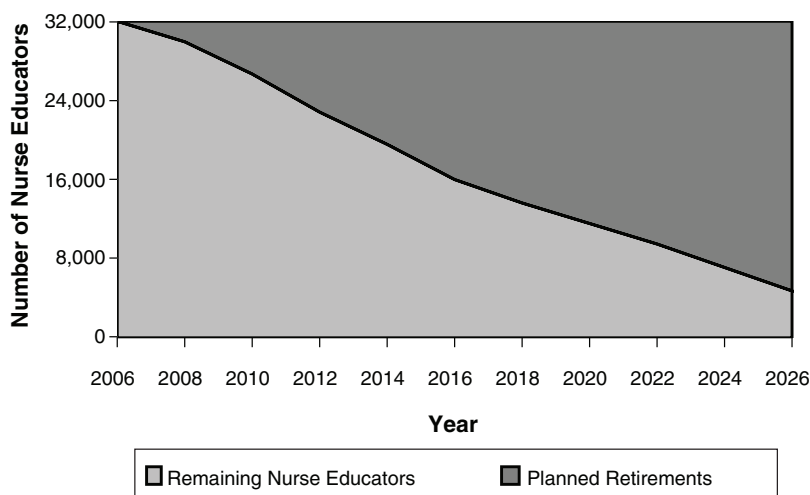


FIGURE 4 The shrinking ranks of current nurse educators.

SOURCE: Mooney presentation (October 21, 2008) and the NLN/Carnegie National Survey of Nurse Educators: Compensation, Workload, and Teaching Practice, 2006, Preliminary Findings, National League for Nursing, New York.

others. In 2001, Tommy Thompson, Secretary of the U.S. Department of Health and Human Services (HHS), declared that the shortage of allied health care workers was a greater menace to the delivery of health care than the well-publicized nursing shortage (Hillborne, 2008). He added that Edward O’Neil, the Director of the Center for Health Professions, claimed that “as important as shortages in nursing, pharmacy, medicine, and even dentistry might become, they will fail to reach the depth of the looming crisis in the allied health workforce” (Center for the Health Professions, 2008).

Allied health professionals compose 60 percent of the health care workforce, and despite this large number, laboratories nationwide are experiencing a shortage of qualified technologists (Health Workforce Solutions, 2007; Passiment, 2006). The Bureau of Labor Statistics projects 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 (see Figure 5) (Hillborne, 2008). With fewer than 4,700 current graduates from combined laboratory science programs, the number

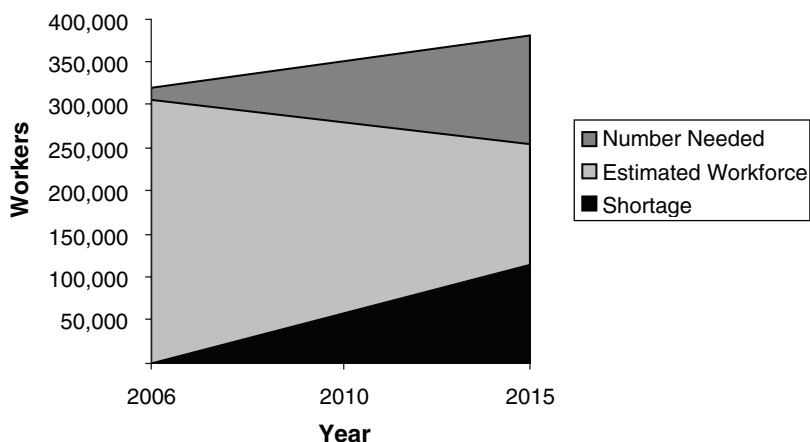


FIGURE 5 Projected gaps in the supply and demand for clinical laboratory science workforce.

SOURCE: Ahearn presentation (October 21, 2008) and McClure, K. J. 2007. *Texas Laboratory Health Care Workforce: Meeting the Needs in 2015*. Unpublished doctoral dissertation, The University of Texas Health Science Center, The School of Public Health, Houston, Texas.

of annual graduates will have to be increased three- to four-fold to meet the estimated demands in these professions, Dr. Ahearn noted.

Unfortunately, there are inadequate numbers of allied health care education programs. Between 1970 and 2005, there has been a significant decline in both the number of education programs for health technologists as well as the number of graduates from such programs in the United States. A 70 percent decline in the numbers of health technology programs in the United States since 1975 has left only 240 operational at the present time, according to Dr. Ahearn. This is an insufficient number to train the rapidly retiring workforce (Anderson, 2007). The American Society for Clinical Pathology claims that the laboratory personnel labor force is aging 78 percent faster than the general U.S. labor market, because the pace of younger, newly trained, laboratory personnel entering the workforce has slowed significantly (ASCP, 2004).

In addition, currently there are fewer than 40 accredited cytotechnology training programs in the United States (ASCP, 2008), graduating fewer than 270 technologists annually. This number falls far short

of even replacing the attrition rate reported for this particular profession. Similarly, there are only six cytogenetic technology training programs in the nation, and they graduate fewer than 41 students annually. Despite the expanding role that molecular genetic technology is playing in both diagnostic clinical and research laboratories, at the present time, there are only 6 accredited genetic technician academic programs in the United States, with an annual output of 60 graduates (NAACLS, 2008). Also, listed on the “endangered list” of allied health professions are baccalaureate degree programs in diagnostic imaging, radiation therapy, and health dosimetry, Dr. Ahearn noted (JRCERT, 2009).

There also will be a shortage of imaging technologists soon. Despite the increasing complexity of imaging procedures, which has created a demand for better-prepared technologists, the American Society of Radiologic Technologists reports that if the current academic enrollment, attrition, and graduation levels remain constant, there will be a 14 percent shortage of even entry-level imaging personnel by as early as 2012 (ASRT, 2005). Additionally, there are only 6 accredited academic health dosimetry programs in the nation, with a total annual output of only 55 graduates, which means that all of the other dosimetrists are trained on the job with variable levels of instruction, Dr. Ahearn said (JRCERT, 2009).

Supply and Demand in the Oncology Workforce

The demand for oncology services is increasing dramatically. A National Cancer Institute (NCI) study predicts that the number of cancer patients in the United States will increase by 55 percent between 2005 and 2020, and that oncology visits will increase from 38 million in 2005 to 57 million in 2020 (Warren et al., 2008). Dr. Lawrence Shulman, Chief Medical Officer, Senior Vice President for Medical Affairs, and Chief, Division of General Oncology, Division of General Oncology, at Dana-Farber Cancer Institute, stated that the demand for cancer services is not just related to the number of cancer patients but is even more substantially impacted by the increasing complexity of cancer care. For example, in breast cancer, the current standard practice is to combine trastuzumab with cytotoxic chemotherapy to treat women with HER2-positive metastatic breast cancer. The addition of trastuzumab halves the recurrence rate in patients with this type of breast cancer (Romond et al., 2005). But this drug has to be given in weekly infusions for long periods of time. In the past, metastatic breast cancer patients would only need eight chemotherapy infusions their first year of treatment; with the advent of trastuzumab, patients now might have to have as many as 27 infusions their first year of treatment. Dr. Shulman said that the addition of trastuzumab also makes women more susceptible to serious complications that can require additional care.

Similarly, a little over a decade ago there was only one FDA-approved drug for metastatic colon cancer. Now there are several drugs for this con-

dition that must be administered by infusions. “Because these drugs have doubled the survival rate for metastatic colon cancer, you’re going to be seeing twice as many patients on any given day,” pointed out Dr. Shulman, and metastatic colon cancer patients are receiving many more infusions. “The number of approved parenteral (intravenous) oncology drugs in general continues to go up very rapidly and that affects our ability to administer care,” he added (see Figure 6). Data from Dana-Farber reveal that the number of physician visits per patient, per year, during the first year of therapy at this cancer center have increased by 25 percent between 2001 and 2007, and the number of infusion visits have more than doubled (Shulman et

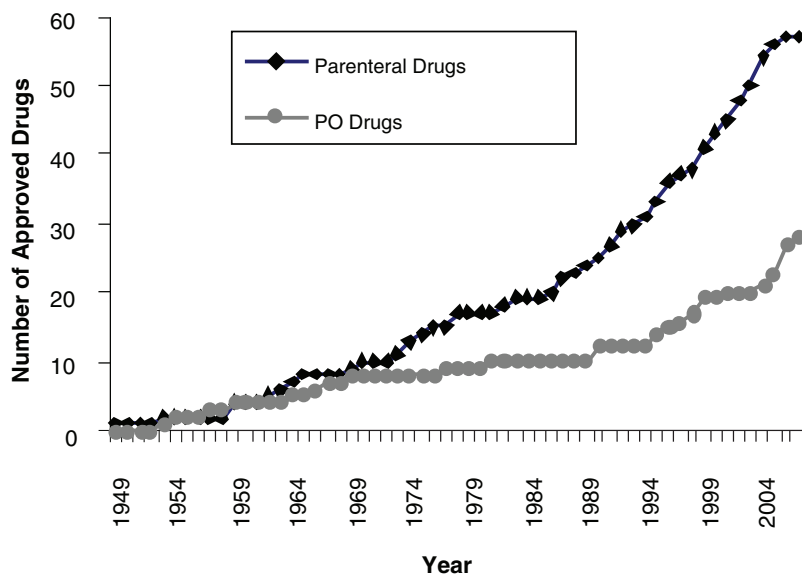


FIGURE 6 This graph depicts the cumulative number of FDA-approved oncology drugs by year and route of administration. Parenteral drugs are administered to the body in a manner other than through the digestive tract, such as through an intravenous or intramuscular injection. PO drugs are administered to the body orally (from the Latin “per os,” by mouth). This data does not include re-approvals for new indications, or ancillary or support medications. It also does not reflect the volume of usage for the types of drugs. SOURCE: Shulman presentation (October 20, 2008) and Shulman, L. N., L. A. Jacobs, S. Greenfield, B. Jones, M. S. McCabe, K. Syrjala, L. Diller, C. L. Shapiro, A. C. Marcus, M. Campbell, S. Santacroce, M. Kagawa-Singer, and P. A. Ganz. 2009 (In press). Cancer care and cancer survivorship care in the US: Will we be able to care for these patients in the future? *Journal of Oncology Practice*. Reprinted with permission. © 2009 American Society of Clinical Oncology. All rights reserved.

al., in press). The intensity of “care is increasing faster than the number of patients is increasing,” stated Dr. Shulman (see Figure 7).

The success of the treatments that cancer patients receive is also fueling an increase in oncology care. Two-thirds of adults diagnosed with cancer can now expect to be alive in 5 years (Jemal et al., 2005). The number of cancer survivors in the United States has steadily grown since 1971, and now exceeds 12 million survivors (Ries et al., 2008). “This results in increased care demands greater than the absolute number of cancer patients would suggest,” said Dr. Shulman. An ASCO-commissioned survey found that 68 percent of oncologist visits are for patients at more than one year post-diagnosis. The majority of these patients are no longer receiving acute cancer treatment (AAMC, 2007).

However, even patients who have completed intense treatment and survivors (patients who have lived for more than 5 years) have significant cancer care needs that cannot be ignored. In addition to the prevention and detection of new or recurrent cancers, cancer survivors may require interventions for the secondary health problems, side effects and late effects of cancer treatment (some of which may not appear for many years post-treatment). Cancer survivors may also require medical attention for

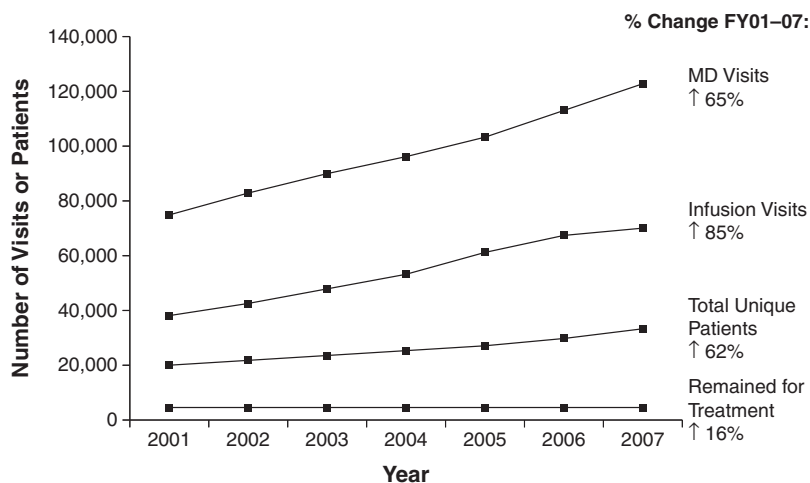


FIGURE 7 MD and infusion visits are growing at a faster rate than unique patients and new patients remaining for treatment.

SOURCE: Shulman presentation (October 29, 2008).

the emotional, financial, and job-related concerns raised by their cancer or cancer treatment (IOM, 2005). “The increasing number of cancer survivors who need care have more treatment-related physical and emotional complications from treatment than we have appreciated, or are currently positioned to care appropriately for,” noted Dr. Shulman. Dr. Linda Jacobs, Clinical Associate Professor at the University of Pennsylvania, Director, LIVESTRONG Survivorship Center of Excellence, and Director, Living Well After Cancer Program, expanded on Dr. Shulman’s point, and added that in a recent survey of cancer survivors, 70 percent of respondents reported that their oncologists did not offer support in dealing with health problems secondary to cancer treatment, such as chronic pain, sexual dysfunction, fertility problems, and depression (LAF, 2004).

SHORTAGE OF ONCOLOGISTS

It is highly unlikely that there will be sufficient numbers of oncologists to meet the rising demand for oncology care that many of the speakers documented. More than half of currently practicing oncologists are age 50 or older and will be retirement age by 2020, pointed out Dr. Edward Benz, President of the Dana-Farber Cancer Institute and President of the Association of American Cancer Institutes. Younger oncologists are not likely to fill their ranks (AAMC, 2007; Erikson et al., 2007). Presumably because of lifestyle preferences, productivity, as measured in visits per week, is lower for oncologists under age 45 than for those ages 45 to 64, a 2006 ASCO survey of practicing oncologists revealed (AAMC, 2007; Erikson et al., 2007). Sixty percent of respondents to a 2005 ASCO survey of graduating fellows rated balancing home and personal life as extremely important (AAMC, 2007; Erikson et al., 2007). A recent ASCO study used current data on the supply of oncologists and the demand for their services to make projections for 2020. This study predicted that the demand for oncologists will increase by 48 percent, whereas capacity will only increase by 14 percent between now and 2020. This will create a shortage of 2,550 to 4,080 oncologists (AAMC, 2007; Erikson et al., 2007) (see Figure 8).

Despite this discrepancy between the supply and demand, few oncology fellowship programs have plans to increase the number of training slots between now and the 2010–2011 academic year. In a 2005 survey, oncology fellowship program directors cited many barriers to increasing training slots for oncologists, the main ones being costs of expansion and lack of financial support for fellows (AAMC, 2007; Erikson et al., 2007).

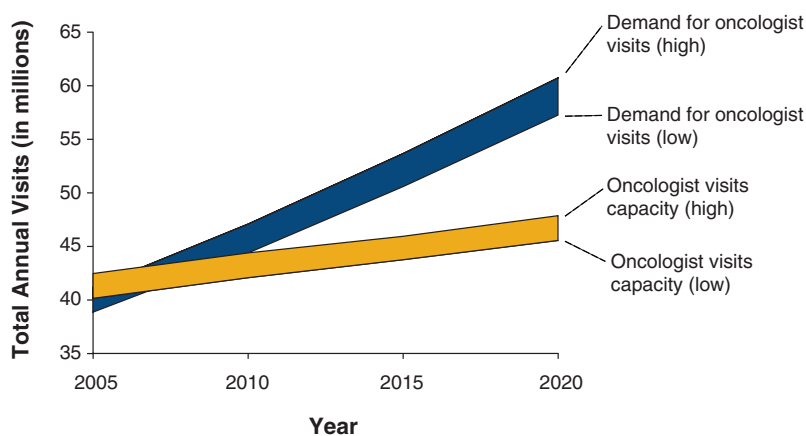


FIGURE 8 Baseline projections reveal significant shortages of oncologists in 2020. SOURCE: Benz presentation (October 20, 2008) and the Association of American Medical Colleges, 2007. *Forecasting the supply of and demand for oncologists: A report to the American Society of Clinical Oncology (ASCO) from the AAMC Center for Workforce Studies*. <http://www.asco.org/ASCO/Downloads/Cancer%20Research/Oncology%20Workforce%20Report%20FINAL.pdf> (accessed January 14, 2009). Reprinted with permission © 2008 American Society of Clinical Oncology. All rights reserved.

An additional impediment to boosting the number of trained oncologists is the increasing subspecialization in internal medicine and primary care (Salsberg et al., 2008). Medical oncologists and hematologists must be board certified in internal medicine before becoming board certified in medical oncology, hematology, or both. However, the number of students trained in internal medicine is only increasing marginally. This means that oncology, cardiology and other subspecialties are all competing for residents from the same small source of internal medicine trainees, Dr. Salsberg said.

In addition, the lack of medical students going into internal medicine creates a second problem for cancer patients. A large percentage of cancer patients are seen by primary care physicians, rather than oncologists, and internal medicine is one of main methods of becoming a primary care physician. A survey of 4th-year medical students found that many medical students have a number of concerns about pursuing postgraduate training in internal medicine. These included inadequate administrative and technological support to deal with the paperwork demands on residents. Students also found the complexities of caring for elderly and chronically ill patients

daunting, and they expressed preferences for work schedules that provided fewer demands from work and more opportunities for personal satisfaction and fulfillment outside of work. As a result, only 2 percent of survey respondents planned a career in internal medicine without subspecialization (Hauer et al., 2008).

While applauding the increasing influx of women into oncology and the fact that women now comprise about half of all oncology residents, Dr. Michael Goldstein, from Beth Israel Deaconess Medical Center and the Chair of the ASCO Workforce Advisory Group, noted that women oncologists tend to see fewer patients than their male counterparts. As a result, the increase in women oncologists could contribute to the shortage of oncologists (AAMC, 2007; Erikson et al., 2007) (see Table 1). However, Dr. Sharon Murphy, Scholar-in-Residence at IOM, commented that there are studies showing that women physicians on average spend more time with their patients (Roter et al., 2002). “Women tend to talk to their patients more, and I think that’s the reason why you see a little lower output. I think patients and families actually value this a great deal,” she said.

There is also a shortage of other specialists involved in cancer care. For example, nearly two-thirds of cancer patients receive radiation therapy during their illness (ASTRO, 2006). Although the number of radiation oncologists in the United States has been growing steadily and the vacancy rate has been declining, there is currently a 5 percent vacancy rate for radiation therapists, Dr. Maureen Lichtveld, Professor and Chair of the Department of Environmental Health Sciences at Tulane University, School of Public Health and Tropical Medicine, and Associate Director of Population Sciences at the Louisiana Cancer Research Consortium, reported. Radia-

TABLE 1 Visits per Oncologist (weekly)

	Age Group	Academic Mean Visits per Week	Private Practice Mean Visits per Week	Other Mean Visits per Week
Male oncologists	45-64 years	63.9	103.1	81.2
	Not 45-64	44.5	83.9	72.9
Female oncologists	45-64 years	55.5	90.6	76.5
	Not 45-64	39.4	70.5	57.5

SOURCE: Goldstein presentation (October 20, 2008) and AAMC, 2007; Erickson et al., 2007.

tion therapy practices across the country report a need of approximately 5.2 radiation therapists per practice (ASRT, 2007).

SHORTAGE OF ONCOLOGY NURSES

The shortage of nurses and nursing faculty has led to an emphasis on providing the broadest nursing education and training the fastest way possible, according to Dr. Mooney. As a result, fewer nurses are receiving education and training in specialties, such as oncology. The number of nursing schools with a specialty in oncology was cut in half in the past 5 years according to Dr. Betty Ferrell, Research Scientist, City of Hope National Medical Center (Ferrell et al., 2003; IOM, 2005). In addition, general nursing educational programs are limited in what they can cover in their curriculums. Typically, accelerated programs have no room for electives, Dr. Mooney said, and overburdened faculty have less time to interest and recruit students to oncology and to prepare them for oncology-focused practice, teaching, and research.

Respondents to a 2000 survey of oncology RNs, nurse executives, and oncologists reported that the shortage of experienced nurses and the decreasing length of patients' stays in hospitals both contribute to a decrease in the quality of cancer care. They also reported that there was a lack of qualified applicants to fill open positions, and increasing paperwork was taking up substantial amounts of nurses' time. In addition, respondents reported greater physician delegation of tasks to oncology RNs in free-standing ambulatory and hospital-based outpatient oncology settings, resulting in inadequate staff, difficulty retaining qualified staff, the necessity for double shifts and overtime, and a greater reliance on supplemental staff (Buerhaus et al., 2001; Lamkin et al., 2001, 2002). A 2006 survey by Dr. Buerhaus also found that nurses spent 23 percent of their time each week on patient care-related notes and documentation, with 56 percent indicating that this amount of time was too much (Buerhaus et al., 2007a).

SHORTAGE OF OTHER ONCOLOGY HEALTH CARE WORKERS

A shortage of other health care professionals involved in providing oncology care, such as public health workers, social workers, pharmacists, and laboratory workers and technicians, will also affect the quality of cancer care throughout the entire continuum, from prevention to late-stage disease (see Table 2).

TABLE 2 Continuum of Quality Cancer Care

Stage of Disease		Quality Cancer Care
None	→	Prevention
Early stage	→	Detect early
Mid-stage	→	Treat and manage
Survival	→	Monitor and support
Late stage	→	Manage symptoms
Death	→	Monitor and support

SOURCE: Lichtveld presentation (October 20, 2008).

Public health workers play an important role early in the continuum of quality cancer care, pointed out Dr. Lichtveld. They are involved in promoting health education, the screening, prevention, and early detection of cancer, as well as the surveillance of cancer incidence, prevalence, and mortality. As is true for the physician and nursing population, the public health workforce is aging, and 23 percent of the current workforce will be eligible to retire by 2012. The Association of Schools of Public Health estimates that 250,000 more public health workers will be needed by 2020. To replenish the workforce and avert a public health workforce crisis, schools of public health will have to train three times the current number of graduates over the next 12 years (ASPH, 2008).

An impending shortage in oncology social workers is also predicted. Social workers have many roles in cancer care, pointed out Dr. Lichtveld, including patient navigation of the health care system, screening and assessment, and helping patients cope with cancer-related depression and anxiety. There are approximately 1,200 oncology social workers in the entire country (ICAN, 2004-2005), and only 13 percent of licensed social workers specialize in health (NASW, 2006).

Nearly 30 percent of licensed social workers are over 55 years of age and are likely to retire in the near future (NASW, 2006). Many institutions that service cancer patients already report a shortage of social workers, including 19 percent of hospices, 14 percent of hospitals, and 8 percent of health clinics, Dr. Lichtveld reported. She added that social workers have experienced increased demands in their work, but decreased resources and supports over the past 2 years, with most social workers employed in health clinics carrying caseloads of 50 or more clients (NASW, 2004).

The number of pharmacists is also likely to be hurt by the aging population and the increasing number of professionals choosing to retire. A shortage of these professionals will affect the quality of cancer care because pharmacists are important in providing chemotherapy, palliative care, treatment of complications, and patient education, as well as playing a key role in cancer clinical trials, Dr. Lichtveld noted. She reported that recent surveys of pharmacists reveal that about one-quarter of pharmacists are approaching retirement age, with more than three-quarters of pharmacy directors and middle managers anticipating resigning their positions within the next decade (White, 2005). In 2007, the pharmacist vacancy rate was 6.4 percent, comparable to the vacancy rate in 2006 and 2005 (ASHP, 2007).

In addition, a workforce shortage is anticipated in cancer registrars. Cancer registrars are important in cancer care, because the data they collect and analyze are used in national and regional cancer priority research and intervention areas, Dr. Lichtveld pointed out. Currently, there are about 7,280 registrars in the United States, but future projections estimate that there will need to be 800 new registrars in 15 years to meet the needs of a larger and older population with a higher rate of cancer (NCRA, 2006).

Future advances in oncology are also threatened due to shrinking support for cancer research. Advances in the clinical care of cancer patients are often based on academic research, so ensuring adequate support for such research is part and parcel of providing quality cancer care. Despite recognizing the importance of academic research in cancer, many academic institutions lack sufficient funds for research. Discretionary funds are no longer available at many academic cancer centers that rely on their academic researchers' clinical activities to support their research endeavors, Dr. Goldstein pointed out. "That puts enormous pressure on physicians who are trying to become researchers, to balance family life, and do clinical work," he said.

Half of oncology graduating fellows start out in academic settings immediately after completing training, with the remaining going into private practice settings. However, about 3 to 7 years later, many academic oncologists reevaluate their careers, and due to lack of success at acquiring research grants, the strains of raising a family, or both, many opt out of academic institutions and pursue community practice. The reverse is not true; private practice oncologists do not move into academics, according to Dr. Goldstein (AAMC, 2007). Dr. Bajorin added that a survey of U.S. medical graduates conducted between 2000 and 2006 found that only 2 percent of respondents were from an M.D./Ph.D. program. Most

of these M.D./Ph.D.s indicated they are pursuing specialties that have more manageable lifestyles than oncology research, such as dermatology, neurology, ophthalmology, pathology, pediatrics, and radiology. All of these specialties have hours that are more controllable than general oncology care, Dr. Bajorin pointed out (Andriole et al., 2008).

Solutions to the Oncology Workforce Shortage

Although the data presented at this workshop suggest that there are current and worsening health care workforce shortages across a variety of health disciplines, these shortages are felt more strongly in cancer care than in other areas of health care, several presenters stressed. Dr. Benz stated that there is great importance in focusing on solutions to the shortage in the oncology workforce because of the high prevalence of cancer in the U.S. population; men have a 1-in-2 chance and women have a 1-in-3 chance of developing cancer during their lifetimes (ACS, 2008). Dr. Lichtveld added that “any investment that we make in cancer care without comprehensively addressing the cancer workforce will fail.” She recommended creating a cancer-specific effort at addressing these shortages. “If it is everywhere, it is nowhere, and often public health has suffered from that,” she said. “We need to be focused on cancer care and the cancer workforce and not on shortages across the board, no matter how tempting that is.” Alison Smith, a Director at C-Change, added that the solutions that are developed in the cancer community could serve as examples for the larger national health care workforce crisis.

A recurring theme during the workshop was that, within the cancer arena, there should be a systems-over-silos approach (i.e., an approach that crosses health care professions and covers the entire spectrum of cancer care). Dr. Lichtveld stressed the multidisciplinary nature of the impending cancer workforce crisis, with shortages felt for all types of health care

workers who provide cancer care. These shortages are also spread out across the continuum of care and across geographic boundaries. “We know that where we did discipline-specific recruitment and retention, although we had initial success, that success was not sustainable because this is a multi-disciplinary issue and the challenges are universal,” Dr. Lichtveld said. She also suggested, because the impending health care shortages create “a growing challenge not only in the quantity of the people, but also in the quality,” both the numbers and knowledge of health care workers should be strengthened.

Many presenters suggested taking short-term actions to meet the immediate need for cancer care, such as improving efficiency, recruitment, and retention, as well as pursuing longer-term solutions that involve strengthening and filling the workforce pipeline. Speakers, such as Mr. Salsberg, Dr. Lichtveld, and Dr. Benz, noted that both approaches are necessary, as steps taken now to boost the numbers of cancer care workers are not likely to have an impact until years after the nation already experiences problems due to this shortage.

This section of the workshop summary outlines the major solutions suggested by the various speakers to minimize the impact of the oncology workforce shortage on the quality of care. These included solutions focused on (1) new models of care, (2) recruitment and retention, (3) education and training, (4) research support, and (5) policy.

NEW MODELS OF CARE SOLUTIONS

Developing and using new models of care to help meet the demand for cancer care was explored extensively at the workshop. It is expected that cancer centers, especially those with academic affiliations, will play a large role in developing and demonstrating such new models of care, as these centers or their satellites train most cancer health care professionals, pointed out Dr. Benz. In addition, cancer centers are the hubs for research and have the resources to provide the specialized care required by many patients. They also serve many cancer survivors, a growing population that, as noted previously, is increasing the demand for cancer care. It is estimated that between 15 and 20 percent of cancer patients will encounter a cancer center at some point during their trajectory of care, according to Dr. Benz (NCI, 2007).

However, a large number of cancer patients are seen in community private practice settings, so physicians practicing in these settings must also

be engaged in creating and carrying out solutions to remedy the workforce shortage, several participants noted. What may work for a large cancer center may not be practical for a small community practice and thus “we had best be thinking about multiple options for solutions and not look for the single magic bullet,” said Mr. Thomas Kean, Executive Director of C-Change.

Alternatively, the health care industry could try to develop new models of care that serve both cancer centers and community practices, as did Duke University Hospital, Mr. Sowers reported. Its cancer care center has set up numerous cancer clinics affiliated with the hospital in the nearby, more rural communities. These clinics are serviced by Duke University physicians, nurses, and a management staff, who travel to the satellite facilities on a regular basis. “We keep the cancer patients in their community—chemotherapy and radiation therapy is delivered in their home hospitals—and they have the Duke brand providing the service back in their local communities.” To do this, Duke University sets up the policies, procedures, and standards of care followed by the local hospitals.

Duke University also offers research or program development affiliations (for which it provides billing and clinical trial infrastructure support), continuing medical and nursing education, and assistance in setting up new cancer programs. “It really is an infrastructure beyond the walls of the cancer center—one that reaches out into the community and looks at how we can serve the community that we live in and influence what happens with cancer care,” Mr. Sowers said. Dr. Shulman added that Dana-Farber is also developing a community outreach program, which includes bringing specialized services to nearby communities, such as survivorship and palliative care—services the communities do not have the resources or expertise to provide. “That gives us, as academic medical centers, a unique opportunity to develop not only models of care within an academic setting, but also models that might work out in the community,” he said.

In addition, other methods for developing new models of care that could address an oncology workforce shortage include (1) improving efficiency; (2) increasing teamwork, especially in the areas of survivorship, palliative care, and family caregiving; and (3) developing a medical home. Each of these potential solutions is discussed in detail below.

Improving Efficiency

One way that implementing new models of care can address the oncology workforce shortage is by improving the efficiency of health care.

Mr. Salsberg offered several suggestions for making better use of the limited number of oncologists, including making greater use of information technology and electronic medical records (EMRs). When a recent ASCO survey asked practicing oncologists what actions could help address the potential shortage of oncologists in the future, the top two suggestions given by most respondents were to increase efficiency by reducing paperwork and regulations, and by improving information technology (see Table 3) (AAMC, 2007).

Expanded use of computer technology by patients could also reduce the workload of oncologists, pointed out Dr. Patricia Ganz, Professor of Health Services in the School of Public Health, and Professor of Medicine in the David Geffen School of Medicine at the University of California, Los Angeles. “We are on the verge of having a very empowered patient population—all those boomers who are going to be having excess demands are also very computer literate,” she said. “My patients e-mail me with questions that I pass on to the nurse practitioner I work with, and this limits the number of visits that people have to have, and puts less stress and demand on the workforce.”

Dr. Bajorin agreed, and added that EMRs combined with patients who are computer literate “provide tremendous opportunity to engage patients.”

TABLE 3 Oncologists’ Views on Addressing Workforce Shortage

		Significant Potential (Percent)
Increase efficiency	Reduction of paperwork and regulations	61
	Improved IT such as electronic medical records	43
Increase/extend oncology workforce	Increased use of NPs/PAs	36
	Train more clinical oncologists	34
	Increased use of oncology nurses and CNS	32
	Create incentives to delay retirement	28
Increase use of related care providers	Hospice and palliative care providers	26
	Social workers, counselors, and patient educators	24
	Hospitalists	20
	Pain and symptom management specialists	17
	Primary care providers to care for patients in remission	15

SOURCE: Salsberg presentation (October 20, 2008) and 2006 Practitioner Survey, ASCO.

He noted one initiative at the Memorial Sloan-Kettering Cancer Center that allows patients to access their lab results through an online portal, and to ask questions about their health by e-mail. Dr. Shulman also stressed the need to develop electronic systems that enable measurement of outcomes and provide decision support for better care, such as electronically based treatment plans and summaries that patients can share with all the practitioners who are involved in their care.

However, Dr. Goldstein noted that there is a paucity of studies that document whether EMRs actually increase productivity. Although there is general agreement that EMRs improve legibility and documentation, and that they provide a good way to transfer records to physicians, they require a time-consuming learning curve to implement them properly, and the cost of purchasing an EMR system can be substantial. Although Dr. Goldstein indicated EMRs will eventually be instituted in most, if not all, practices, the best format and ways to integrate them into an oncology practice have not yet been established. To aid in the decision making involved in changing to EMRs, ASCO developed an oncology-specific handbook with information and resources about selecting and implementing EMRs.

Teamwork

Another strategy for bolstering the oncology workforce by changing the traditional models of care is to integrate and expand the role of physician assistants (PAs) and nurse practitioners (NPs) within a collaborative/team-based care model. Encouragingly, the number of new PAs entering practice each year has grown fivefold in the past 15 years (AAMC, 2008). The number of new advanced practice nurses is also growing rapidly—expanding from just under 6,000 nurses in 2002 to close to 7,000 in 2007. However, according to Mr. Salsberg, it is uncertain what the impact of increasing educational requirements will have on the growth of NPs and PAs, and whether an increase in NPs and PAs will result in more of these health care workers providing oncology care. Neither PAs nor NPs practice only in primary care. They are spread throughout the health care system among many different health specialties, Mr. Salsberg noted. Dr. Goldstein pointed out that only a minority of PAs opt for internal medicine and oncology specialties (4.7 and 1.7 percent, respectively) (AAPA, 2008), and only 1 percent of NPs specialize in oncology (AAPA, 2004).

An ASCO survey of practicing oncologists found that about half of the respondents currently work with an NP or PA and, of those who do,

they report that the use of these health professionals fostered higher patient visit rates. About two-thirds of those who work with an NP or PA believe it benefits the practice by improving patient care, efficiency, and physician satisfaction (AAMC, 2007). But Dr. Goldstein added that when he surveyed private practices about the role of PAs or NPs, he found a wide divergence of opinion on the usefulness of these professionals, which suggests “we’re not doing a good job yet in ascertaining and developing ways that NPs and PAs can be integrated into practices more effectively,” he said. He suggested documenting and sharing collaborative practice models and doing more outreach to nonphysician practitioner training programs.

Dr. Goldstein noted that, as part of its strategic 5-year plan, ASCO will be starting pilot programs that will assess how oncologists can work most efficiently with NPs and PAs. Also, with support from the Susan G. Komen Foundation for the Cure, ASCO is seeking proposals for exploring new oncology practice models of care and their impact on efficiency, productivity, and patient and professional satisfaction. Mr. Salsberg suggested evaluating expanded roles for PAs and NPs within a collaborative care setting for “how far different professionals can go, in terms of their roles and their responsibilities.” Dr. Bajorin suggested that competitive grants be given to researchers studying innovative approaches to practice, including team care and part-time practice, as well as conducting and evaluating pilot programs to test such innovative models of service delivery.

Mr. Salsberg pointed out, however, that unless there are payment reforms, there will be little incentive for such a team-based approach to cancer care. “I think PAs and NPs can do a whole lot of services, but if they are not paid and it’s going to cost the physician money to become more efficient, they are less likely to do it,” he said. He also pointed out that such expansive team care may not be feasible in a small individual practice. Dr. Goldstein concurred, noting that the starting salary for an NP in community practice in the Boston area is about \$80,000 a year plus benefits. In addition, almost no NPs are trained in oncology when they join practices. One large practice in Massachusetts has developed its own curriculum to train its own NPs, he said, but this requires about 6 months before the NPs are free to practice independently. “This is a tremendous use of resources and constitutes a major expense to the practice,” he said. Dr. Thomas J. Smith, Massey Endowed Professor for Palliative Care Research Medical Director, Thomas Palliative Care Unit, VCU-Massey Cancer Center, expressed frustration that there is no agreed-upon reimbursement rate among insurance companies and Medicare for NP services. Medicare and

commercial insurers reimburse NP services at different rates. Attempts to achieve consensus on a consistent rate have not been successful, he said.

One discussant suggested that various state laws limiting the scope of practice for PAs and NPs might prove problematic, although Mr. Salsberg noted that the vast majority of states now permit PAs and NPs to prescribe drugs. From a policy perspective, Dr. Atul Grover, the Director of Government Relations at AAMC, pointed out that special interest groups tend to pressure Congress not to support initiatives that enable tasks typically done by doctors to be performed by nonphysicians. “We are going to have to really think long and hard about how to get to a point where we can stop worrying about the labels of individuals—their professions or professional societies—and get to a point where we put the patient back in the center of care,” he said. He also noted the importance of “getting the training right—of having people function to the maximum ability of their training, skill level, and competencies.” Several participants, including Dr. Benz, suggested ensuring that ancillary cancer care staff have some core competency in oncology. Dr. Lichtveld called for national benchmarks of quality as opposed to those provided by individual disciplines.

Carol Schwartz, Senior Manager of Policy and Practice at the American Society of Hematology, noted the relatively untapped health care employee pool of exiting military medics. “I challenge you to try and figure out how to fit them in. Their education and training and experience does not crosswalk very well into different states’ scopes of practice. As a result, in most states they have to start at the beginning as a nursing assistant when they have been working very autonomously in the military at a much higher level.” This discourages them from pursuing a health career, she claimed.

Building on both the concept of team science and translational research, Dr. Mooney suggested more partnerships between nursing research scientists and physician scientists to broaden the clinical research being conducted in cancer and cancer centers. Dr. Bednash added that the National Institute of Nursing Research (NINR) is a major source of funding for pre- and post-doctoral studies in nursing. But NINR is severely underfunded. This shortage of money has limited NINR’s ability to produce the nursing workforce that can educate, do research, and be specialty-focused, she said.

There was some discussion about using primary care providers to care for cancer patients in remission, to help relieve the workload burden of oncologists. But this strategy was only supported by a small number of practicing oncologists in a recent ASCO survey (AAMC, 2007). Lack of support for

this option may reflect the difficulties of finding available primary care physicians. Nearly one in five Americans have inadequate or no access to primary care physicians because of a shortage of such physicians, not because they do not have health insurance (NACHC and RGC, 2007). “The primary care network is very oversubscribed,” said Dr. Shulman. “One of the challenges I have is that many of my patients don’t have primary care physicians and I can’t bribe any of my primary care physician colleagues to take them into their practice, and so the care for them remains on us. It doesn’t look like there’s going to be a tremendous increase in the number of primary care doctors over the next decade to share the care of these patients, and we need to acknowledge that fact.”

Survivorship Care

A third method of producing new models of care is to change how survivorship care is administered. Currently, nearly 70 percent of oncologist office visits are for survivorship care (AAMC, 2007). However, Dr. Jacobs noted that there are no established guidelines for caring for adult cancer survivors. The development of such guidelines would help ensure that adult cancer survivors receive proper care not only from their oncologists, but also by the other providers who might be responsible for the cancer survivors’ post-cancer-treatment care. One survey of cancer survivors found that more than one-third rated the quality of information they received from their oncologists as fair to poor, including information about long-term side effects (McInnes et al., 2008). “Survivors tend to think that they are left in the medical twilight zone post-treatment,” said Dr. Jacobs.

She reiterated IOM’s recommendation that “patients completing primary treatment should be provided with a comprehensive treatment summary and follow-up plan that explains the cancer type, treatments, and consequences, as well as the timing and content of follow-up care” (IOM, 2005). A treatment plan and summary could bolster the use of primary care physicians or nonphysician health care workers to provide cancer or survivorship care, pointed out Dr. Goldstein.

However, Ms. Galassi pointed out that if survivorship care is shifted away from oncologists, into the primary care setting, then oncologists could be overburdened with acute care patients, which might foster burnout. But, Dr. Goldstein noted that the ASCO survey of oncologists found that death and dying were not major factors in leading physicians to retire, but rather it was frustration with the system and overwork (AAMC, 2007). “Oncologists

expect to have dying patients. Frustration with the regulations, paperwork, and practice environment were driving more people out of practice than the patient population,” he said. Dr. Bajorin added that, if survivorship care was shifted from the oncologist to the primary care physician, there would still be a substantial difference between supply and demand. However, he still recommended training oncology fellows in collaboration with primary care providers, and the team use of NPs and PAs, as it is estimated that cancer will increase by 81 percent by 2020 (NCI, 2009).

ASCO currently is developing customizable disease-specific chemotherapy treatment plans and summaries (ASCO, 2008). These plans and summaries are meant to improve documentation and coordination of cancer treatment and survivorship care. They are intended to facilitate provider-to-provider and provider-to-patient communication. The templates may be distributed to patients or providers as records of the care planned and received. Importantly, the treatment plans and summaries are not intended to replace detailed chart documentation, including complete patient histories or chemotherapy flow sheets. The treatment plans detail planned chemotherapy regimens, doses, cycles, durations, and the major side effects, while the treatment summaries describe the treatment delivered, the major toxicities, and the follow-up plan for care. Some ASCO treatment plans and summaries for specific cancers are already available on the ASCO website (ASCO, 2008).

Dr. Jacobs recommended the survivorship care plan resource offered by Oncolink.¹ She noted that patients seem to like using this plan, which can be created by patients for themselves or by their providers, and includes a large amount of educational information. “It’s very important that patients be empowered and given records of their treatment so that they become portable in the event of a natural disaster, or in the event that they are in a different part of the country or the world,” said Dr. Goldstein. “With these treatment plans and summaries, the medical professionals seeing the patients will have an adequate summary on which to base future interventions.”

Even with the widespread use of treatment plans, there will still be several challenges involved in caring for cancer survivors, including their diverse needs that extend beyond their cancer care needs, and funding issues, Dr. Jacobs pointed out. Cancer survivors are a diverse group, often with a wide range of diseases or conditions besides cancer that need to

¹See <http://www.oncolink.com/oncolife>.

be treated or monitored. Yet these non-cancer-related health needs are often not a priority for oncologists. One study found that 8 percent of cancer survivors only see their oncologist, whereas 68 percent see both their oncologist and primary care physician. Those who received all their care from a primary care physician were less likely to undergo cancer-related surveillance procedures but more likely to receive preventive health measures such as eye exams, flu vaccines, cholesterol screening, and bone density scans. Those who saw only an oncologist had the worst preventive care (Earle and Neville, 2004).

Reimbursement for survivorship care does not cover the costs of providing appropriate monitoring and support for the physical, social, and emotional effects in the short and long term course for the disease and treatment of cancer. In order to offer these services, institutions that do provide this care absorb the cost or must seek funding from other sources. Many community-level institutions and smaller-scale providers simply cannot afford to do so. As a result, survivorship care is not self-sustaining and must receive external support or income from other patients, Dr. Jacobs noted. She added that when survivorship care is done at a large institution, such as an academic cancer center, it will generate downstream revenue for that institution because of the additional care provided by radiologists, cardiologists, and other specialists.

Several survivorship clinics exist within cancer centers and academic institutions. The oldest are pediatric oncology follow-up clinics, some of which have been operational for over 20 years. These clinics serve survivors with all types of cancers and require significant resources to meet a wide range of needs. A few cancer centers run adult follow-up clinics akin to these pediatric models, but they currently reach a limited number of patients and are unlikely to ever meet the needs of a wide population of cancer survivors, especially considering how expensive they are to run, Dr. Jacobs said.

Alternatively, some cancer centers, such as Memorial Sloan-Kettering,² offer disease-specific survivorship clinics, many of which are run by NPs. “They are fairly successful,” said Dr. Jacobs, “but they are unreasonable at most institutions that don’t have the resources to back them up.” Instead, many oncology practices employ NPs to provide survivorship care. In these practices, the NPs follow the patients and do all of the long-term follow-up care. Another alternative used for survivorship care is a consultative service, in which an oncologist interested in providing survivorship care sets aside

²See <http://www.mskcc.org/mskcc/html/64918.cfm>.

one day a week, for example, to see cancer survivors about their long-term, cancer-related concerns.

Dr. Jacobs is currently involved in a pilot program implementing an integrative care model of survivorship treatment at the University of Pennsylvania. Survivorship care-focused visits are done by NPs in the participating oncology practices, with the goal of ultimately transitioning patients to their primary care physicians for their cancer follow-up care. At these visits, a treatment summary and care plan is completed and discussed with the patient, and copies of the summary and care plan are made for the patient's primary care physician or other subspecialists. The NP that does the follow-up care for the patient is also the same NP assigned to the patient's case when he or she was undergoing treatment.

Because survivorship clinics are so resource-intensive, Dr. Jacobs expects their use to be limited to certain cancer centers. "I'm not sure this is the way to go," she said. "The broadest reaching survivorship care model is to develop treatment summaries and care plans for patients. Patients take control, to some extent, of the care that they need. They are informed of what they need, and we're helping them inform the providers that are caring for them."

Partnership between private oncology practices and other local medical offices, hospitals, or cancer centers may be a more efficient and economical way to provide cancer patients with the full continuum of care they need, including psychosocial support, nutritional counseling, and palliative and end-of-life care, Dr. Goldstein suggested. Although, he noted, this option may not be available in rural and other underserved areas.

More social workers in oncology care might also help relieve the burden of care on oncologists while improving patients' well-being. Dr. Ferrell pointed out that, at the City of Hope National Medical Center in Los Angeles, "our medical oncologists say they are overwhelmed with the amount of time they are spending with social issues, psychological issues, anxiety and depression, and yet my institution has very few social workers. The fact that there are only 1,200 social workers who specialize in oncology is a glaring cry for our community to see what incentives and opportunities can get them more involved in cancer care." Ms. Rosalina Van Zanten from the Association of Oncology Social Work pointed out that, despite the higher level of education required for social workers, their salary is less than entry-level nurses with a bachelor's degree, and she suggested that there needs to be more monetary and professional validation of health care social workers in order to increase the number of these professionals.

She added that more than one-third of cancer patients are between the ages of 40 and 65 (Ries et al., 2008). This is a time when individuals face some of the most productive years of their lives that typically are filled with substantial work responsibilities. However, many cancer patients are faced with losing their health insurance if they have to leave their jobs, and there are no guarantees that they will receive adequate long-term reimbursement from the social security disability system, she said. “Some of these folks go on social security disability to be told after a number of years that they no longer qualify. There is a great need to address these psychosocial issues and others because the social fabric that we live in so impacts what happens to people,” she said. Dr. Smith added that a study by Cathy Bradley has shown that many cancer patients leave work not because of their cancer but due to the physical side effects of treatment, such as fatigue and nausea and vomiting, and the psychological symptoms, such as boredom or feeling useless, anxiety, or depression (Steiner et al., 2008). “It cries out for a randomized trial of applying the best symptom management you can right up front to see whether you can cut that rate in half, which wouldn’t be a surprise at all,” he said.

Palliative and Hospice Care

In the 2006 ASCO survey of practicing oncologists, more than one-quarter suggested that increasing the use of hospice and palliative care providers is a way of addressing workforce shortages (AAMC, 2007). More use of palliative care specialists and palliative care or hospice facilities might help relieve the burden of care on oncologists while simultaneously better meeting patients needs, suggested Dr. Smith.

Palliative care is a rapidly growing field. Hospice and palliative medicine is now a specialty recognized by the American Board of Internal Medicine. About 70 percent of all hospitals with over 200 beds have a palliative care program, and there are now eight national palliative care leadership centers, Dr. Smith noted.³ But he added that hospice and palliative care is often underutilized. Although the optimal time in hospice is 3 months, the average terminally ill cancer patient spends about 17 days in a hospice before they die, and about a third of such patients spend less than a week in hospice (Harrington and Smith, 2008). This is unfortunate, according to Dr. Smith, because studies show that hospice and palliative care lowers

³See <http://www.capc.org>.

health care expenditures and enhances patient care. He and others have shown that palliative care can significantly reduce the pain, nausea, depression, and anxiety of dying patients (Khatcheressian et al., 2005), as well as cut the costs of caring for terminally ill patients in half, sometimes saving about \$5,000 over the course of the last hospitalization (Smith et al., 2003; White et al., 2006).

In addition, many terminally ill patients do not receive adequate palliative care and are given chemotherapy treatments instead. Dr. Smith reported that 16 to 20 percent of cancer patients receive chemotherapy within 2 weeks of their death (Harrington and Smith, 2008), “which is probably not the best use of their time,” he said. “A declining length of stay in hospice is bad hospice care because my hospice colleagues claim they don’t even have a chance to get to know the person on such short stays, much less plan for the bereavement of the family, and there are lots of missed opportunities for life reviews and advanced medical directives. It also bankrupts the hospice because they get paid a per diem,” Dr. Smith added.

Part of the reluctance to use hospice or palliative care sooner stems from both patients’ and doctors’ unwillingness to give up the quest for a cure and recognize that the patient is dying. “A lot of us didn’t go into oncology to have deep discussions with people about what they want to do with the last six weeks of their lives,” said Dr. Smith. “A lot of us went into oncology to cure cancer and that’s what we’re good at.” He added that between 10 and 35 percent of patients are unwilling to give up and receive palliative or hospice care, one study found (Matsuyama et al., 2006). “They are willing to have every aggressive toxic treatment with little chance of helping in the hopes that they will be the one who beats the odds,” Dr. Smith said.

Yet one study found that cancer patients and their families that have a discussion with their physicians about their imminent death were half as likely to want heroic measures, were three times more likely to complete “Do Not Resuscitate” forms, and were twice as likely to go to hospice than the 37 percent of patients who never had that discussion. The researchers estimated that just that simple intervention—a conversation about death—would save more than \$300 million in end-of-life health care expenditures, if extrapolated to the entire United States. Patients that had discussed their imminent death with their physicians and families were not more depressed or less hopeful than those that did not, he added (Wright et al., 2008; Zhang et al., 2008). “One of the reasons I get from my colleagues about not having these conversations is ‘I don’t want to take away their hope and make them depressed,’” Dr. Smith said. “But in fact, patients almost always

accept that they are going to die when they get to that point. We just don't have the script in our brain to sit down and have that tough discussion."

Oncologists may also be unwilling to refer patients to hospice sooner because of the loss of income generated from giving the patients chemotherapy and treatments to ameliorate the side effects of chemotherapy. It is unlikely that oncologists consider their reimbursement when determining whether to give a patient chemotherapy or not. However, the rate of reimbursement may influence how long and aggressively oncologists provide chemotherapy, and which chemotherapy treatment they provide. One study found that for every \$1 increase in reimbursement, there is a greater than \$23 increase in chemotherapy costs (Jacobson and Buchmueller, 2007). "Palliative care can share some of the increasing workload with oncologists, but we have to fix the income stream in oncology if we're going to do that," noted Dr. Smith. Another disadvantage of transferring patients to palliative care or hospice facilities is that the patient must shift from one known health care team to a team with which the patient is not acquainted. Usually there is little communication between the oncology team and the hospice team once patients are transferred.

Given the impressive advantages of palliative care and hospice, Dr. Smith offered several innovative models of care for providing it so that more patients benefit from it. Because oncologists often find it difficult to discuss end-of-life care with their patients, one option is to "take the doctor out of the picture" and have a third party screen patients for eligibility for hospice. Once the third party receives the doctor's permission, they could discuss the hospice option with the patients and family members. When this procedure was followed in a nursing home, it increased the number of patients going into hospice 20-fold (Casarett et al., 2005). Dr. Smith also suggested that hospice personnel should provide physicians with feedback as to whether they timed their patients' entry into the facility properly, and how their patients' length of stay in hospice compares to that of their peers. "What drives us as physicians is the need to be seen as competent in the eyes of our peers," said Dr. Smith.

Another way to coordinate care between oncologists and hospices was undertaken by the Ireland Cancer Center in Cleveland, which had a chaplain from the nearby hospice of the Western Reserve meet with every lung cancer patient, along with an advanced practice nurse and social worker, *before* they went to see their oncologist. "It did not turn people off, but instead became a real selling point for the program," noted Dr. Smith. This program increased hospice use from 13 to 80 percent, and length of stay in

hospice from 10 to 44 days “because patients knew that they were going to be taken care of and what people they would be transitioned to,” Dr. Smith said (Pitorak and Armour, 2003; Pitorak et al., 2003). The program was so successful that it was subsequently expanded.

An alternative to referring patients out for palliative care is to have a palliative care specialist in the oncology practice. One study using this model of cancer care found that it saved an average of 170 minutes of provider time for each referral to the palliative care specialist (Muir, 2007). This technique can be especially convenient to patients, because the palliative care specialist is within the same office and is easy to access. In addition, because the income from the specialist is retained within the practice, there is no lost revenue from referring outside the practice.

Hospices could also be less strict on what type of cancer care they allow in their facility to increase enrollment and length of stays. Chemotherapy can be either curative or palliative; hospices should not do curative care, but could allow chemotherapy that is palliative. For example, the 2007 management team of Faith Hospice in Michigan recognized that the best palliative treatment for some patients may involve some radiation or chemotherapy, blood transfusions, and other procedures the facility previously had not allowed. When the management team approved those procedures on a case-by-case basis, they doubled the number of patients they saw, and they went from losing close to \$400,000 to gaining over \$900,000 within one year, Dr. Smith reported.

Another reasonable approach is to have some “triggers” in place for when to consult with a palliative care specialist or to transition a patient to hospice, Dr. Smith said. Those triggers could be the fact that the patient has an illness that could be life ending, or a high pain score, or is considering third-line chemotherapy. “A lot of research is needed on collaborative palliative care models, and triggers so that we can figure out the best way to do it, rather than each of us evolving our own particular way,” Dr. Smith noted.

Dr. Shulman commented that as much as he and other oncologists like to see their patients who are cancer survivors, as well as administer palliative care, “those options are going to disappear over the next couple of years because the reality is not going to allow it—there’s no way we’re going to be able to provide active cancer therapy in centers like Dana-Farber if they are filled up with survivors and patients that should be in hospice. . . . Oncologists need to see the reality of the coming world and work proactively to figure out models of survivorship care and working smarter with palliative

care services.” Dr. Jacobs agreed, but noted that “it’s really going to require a complete culture change in how we provide care to patients.”

Dr. Ganz pointed out that making more use of palliative care will require not just practice redesign but also financial redesign to be feasible. Dr. Smith concurred, noting that palliative care is currently a low-paying profession, with most full-time palliative care physicians only generating about \$70,000 a year in income after taxes, in part because of Medicare’s cap of \$150 per day for palliative care. “We have to fix the income stream,” he said. In addition, innovative cancer care models typically work in large integrative health care systems, where the income generated from one program, such as the cost savings linked to palliative care, can be shifted to another less profitable program, such as survivorship clinics. These models are not likely to be financially sustainable in the community setting where most cancer patients receive their care, Dr. Ganz noted. Only 15 to 20 percent of patients encounter a cancer center in the course of their treatment (NCI, 2007). Dr. Shulman concurred and noted, “that’s why it’s important to develop these programs in the community and try to figure out what models work. If we just do them in the academic medical centers, we’re not going to reach the majority of patients.”

Family Caregiving and Home Health Care Agencies

Another facet of developing new models of care in oncology that was discussed at the conference is family caregiving. “Cancer is not just a patient disease,” pointed out Dr. Audie Atienza, National Cancer Institute, Division of Cancer Control and Population Sciences. “Cancer affects three out of four families and is a family illness” (ACS, 1996). Although the study of family caregiving is in its infancy, especially family caregiving for cancer, the limited number of studies that have been done suggest family caregivers spend significant amounts of their time assessing and managing patients’ symptoms, administering medicines or other treatments, and providing assistance with daily living tasks. These caregivers typically do not receive significant training or support. An NCI-sponsored study of family caregivers of cancer patients found that such caregiving is typically a half-time job, with caregivers averaging about 20 hours a week for caregiving, and more than half providing care every day (Van Ryn et al., 2006) (see Box 1).

Although family caregivers have been suggested as being part of the solution to the shortage of the oncology workforce, Dr. Atienza pointed out that

BOX 1 **The Caregiver Burden**

In the CanCORS caregiver survey . . .

- 55% of respondents provided care every day
- 20% of respondents provided care 1-6 days a week
- 25% of respondents reported providing care less than 1 day a week

SOURCE: Atienza presentation (October 20, 2008) and Van Ryn et al., 2006.

physicians are often not trained how to effectively collaborate and coordinate the care with family members and give them the information they need to perform medical tasks. Ms. Galassi added that, before any burden of cancer care is shifted to the family caregiver, it is important to assess what tasks can be viably designated to them without compromising patient care.

Ms. Suanna Bruinooge, Director of the Research Policy Division, Cancer Policy and Clinical Affairs Department at ASCO, suggested considering ways that nurses, or other nonphysician staff, can support family caregivers to reduce the number of visits that are required in an oncology practice. Such personnel can respond by phone to family caregivers' questions and reassure caregivers that they are treating the patient adequately. Dr. Atienza mentioned a Veterans Administration program that is modeled along these lines. This telehealth program uses technology to connect veterans with health experts to reduce the number of health care visits they need to make in person. "They get their care remotely," he said. This program is currently considering how to involve family caregivers to optimize the telemedicine system, with the premise that it can reduce the stress and burden on family caregivers, as well as provide them with information to assist with the care of the patient which will limit their hospital visits. Dr. Benz noted that "when we think of collaborative models, we have to think of collaboration across distances now. We have opportunities to do that in ways we didn't when these notions first came up. A big part of our solution lies in getting ahead of the use of technology instead of always being behind it."

Dr. Atienza cautioned, however, that family members can sometimes hinder patient care, especially when the goals of the family member differ from that of the patient. “We need to consider the family both as a possible facilitator in treatment, but also as a possible hindrance to care,” he said.

One participant at the workshop pointed out the importance of home health care agencies in providing oncology home care. Such agencies often have oncology nurses on call 24 hours a day. These nurses can reduce the burden of unnecessary visits to oncologists, Ms. Jill Teixeira claimed, a consultant for Oncology Care—Home Health Specialists, Inc., Landenberg, Pennsylvania. She added that home care agencies provide another work outlet for oncology nurses, especially for retirees or others that wish to work part-time.

Medical Home

One discussant suggested considering the virtues of a patient-centered medical home when redesigning the delivery of cancer care. A new and rapidly evolving model for health care, the medical home is mainly being used by primary care physicians to treat patients in need of chronic care. Care is provided by a team of professionals that make up the “medical home.” Providers are monetarily rewarded, with an enhanced up-front fee and higher reimbursement for episodes of care. This allows the professionals in the medical home to spend more time with their patients, and to spend more time managing their patients’ care. Employers and insurance companies are supportive of patient-centered medical homes, because they expect eventual cost savings (IOM, 2008).

Mr. Salsberg agreed that a medical home model should be considered when addressing the oncology workforce shortage, but added that such a system should not preclude patients from having their oncologist or oncology team act as their medical home. (Typically, in a medical home, continual, personalized care is provided for by a primary care physician.) Ms. Bruinooge added that “when someone’s in active cancer care, their oncologist is probably their primary care giver, even if they’re not getting all the primary care services. But their oncology practice is giving them the most intensive treatment, and we take it very seriously that oncologists are trained first and foremost as internists.”

Dr. Grover noted that the AAMC has endorsed the medical home model and is considering how well primary care is delivered in oncology, cardiology, and other specialty settings. In recent meetings that he had with health insurers, they reassured him that they would support not just

primary care–based medical homes but also oncology practices that meet the criteria of a medical home. However, not all oncology practices will be able to meet those criteria, which include 24/7 access to the practice, and an EMR system.

RECRUITMENT AND RETENTION SOLUTIONS

Workshop speakers and participants discussed several strategies for increasing recruitment and retention of oncology health care professionals. These strategies included providing more incentives for going into the oncology field, allowing more flexible work schedules, creating an attractive work culture, and developing opportunities for partially retired workers to remain in the workforce.

Marketing Health Care and Oncology Careers

To increase the number of people who choose oncology as a career, Dr. Buerhaus suggested a national advertising campaign that emphasizes the positive aspects of oncology professions, including job opportunities. For example, in 2002 Johnson & Johnson launched *The Campaign for Nursing's Future*, which has been highly successful at increasing the numbers of people who chose nursing as a profession, according to Dr. Buerhaus.⁴ In 2003-2004 surveys of nursing students and chief nursing officers, 81 percent reported that the campaign had a positive impact on how they felt about being a nurse (Donelan et al., 2005). This campaign could perhaps serve as a model for similar campaigns in other health care fields, or for professions specific to oncology.

Dr. Geraldine Bednash, Executive Director of the AACN, stressed the importance of economic incentives to prompt people to pursue a degree in nursing or other oncology professions, noting that when Rosalynn Carter successfully lobbied to have federal funding earmarked to support the training of psychiatric mental health nurses, many nurses pursued that specialty. She said that if you combined funding for the training of a nurse specialty in oncology with messaging about the vital role nurses can play in this field, “you would get people who would step up to the table.”

About 65 percent of nurses say they were motivated to go into nursing due to exposure to a nurse, Dr. Buerhaus said (Buerhaus et al., 2005a), and

⁴See <http://www.campaignfornursing.com/>.

he agreed with participant Brenda Nevidjon, President of the Oncology Nursing Society (ONS), that effort should be made early in the public school systems to shape the attitudes and opinions about the nursing profession. Dr. Bajorin added that he has found that many of those who pursued oncology as a career did so because their interest in the field was piqued at an early age, and they were provided with good role models. Providing good role models is a recruitment technique that could be used across multiple professions involved in oncology care.

Several academic cancer centers are currently trying to provide these role models. Mr. Kevin Sowers, Interim Chief Executive Officer and Chief Operating Officer, Duke University Hospital, reported that Duke University Hospital provides speakers for elementary and middle school students, offers a summer camp program in partnership with the North Carolina Area Health Education Centers, and also has an educational program in which high school students with an interest in health care are taught by Duke health care professionals.⁵ Dr. Shulman added that the Dana-Farber Cancer Center has a high school outreach program, whereby Dana-Farber faculty lecture in the high schools regularly, and the students participate in field trips to the Center and in a summer research program. These programs are modeled after the Gateway Program in New York, which partners high schools with hospitals and academic centers, Dr. Shulman said.⁶ “We have two medical residents now who began that program under very disadvantaged circumstances when they were in ninth grade,” he added. Dr. Ahearn noted that the NCI’s Cure Program provides funding for outreach programs that expose underserved minority students to oncology.⁷

Dr. Benz suggested that ASCO and other organizations linked to the cancer care community should make a more concerted effort to market careers in oncology. “As intense and difficult as it is to see so many patients die from cancer, at least when we compare ourselves to other specialties, there’s generally a higher work satisfaction in oncology. Part of that is due to the teamwork and the feeling that you are making a difference and are doing things besides just trying to cure the disease—you can have a positive impact,” he said.

⁵See <http://www.nchealthcareers.com/programs/duke.htm>.

⁶See <http://www.dfcc.harvard.edu/about-dfcc/research-training-opportunities/high-school-and-undergraduate-training/>.

⁷See <http://minorityopportunities.nci.nih.gov/mTraining/index.html>.

One strategy to recruit workers who are already trained in oncology is to offer on-site expositions (expos). A recent two-day nursing expo held by Duke University Hospital was so successful that similar expos are planned for other allied health care workers, Mr. Sowers reported. At the nursing expo, the hospital gave nurses from across the nation tours of its facilities. The nurses met with senior leadership, received continuing education, and interviewed for jobs. This led to the hiring of 85 nurses in one day at a cost of \$10,000. These were dollars well spent, Mr. Sowers pointed out, given that it can cost as much as \$50,000 to \$100,000 to replace one nurse, not including salary, when both direct and indirect costs are considered (Davis et al., 1995). Duke University also improved its nurse recruitment website, recognizing that younger members of the workforce prefer to find and apply for jobs online rather than in person.⁸

Retention Strategies

In addition to the problems of recruiting oncology specialists in an era of health care worker shortages, retaining workers who have been oriented and trained remains an equally important challenge. Although Mr. Sowers stated that it is important to pay people market-competitive salaries, “it is not the key driver that will keep people in the workplace. The key driver is the work culture that we create and the leaders that we put in place to help mentor and grow them within our workplaces.”

Health care turnover rates vary by region but average around 15 to 20 percent, according to Mr. Sowers (Jenkins and Fina, 2008; Kosel and Olivo, 2002). This rate is steadily increasing as the median age of the workforce increases and “baby boomers” enter into retirement. More specifically, the average RN turnover rate was 14 percent in 2005 (AACN, 2008c), and the total average rate of physician turnover was 6.7 percent in 2006 (AMGA, 2007). Mr. Sowers stressed that “retention begins on the day of the job interview,” because the interviewer has to ensure that there is a cultural fit—that the expectations of the job seeker are the same as the person doing the hiring. He added that the first year on the job is often the most important as far as retention is concerned, citing one report that found that although the average annual nurse turnover rate in hospitals was 8 percent, the average voluntary turnover for first-year nurses was 27 percent (PricewaterhouseCoopers, 2007).

⁸See <http://www.dukenursing.org/>.

Duke University Hospital has pursued several tactics to improve recruitment and retention of health care workers, including training programs, financial support programs for the education of its workers, leadership and career development support, and a “Retirement Institute” to make use of the extensive knowledge base of its retired workers. Training programs offered by the Duke University Hospital include those for General Education Degree (GED) certification; basic training in math, science, and writing skills; and those aimed at easing the transition to specialty care. The hospital also developed a program to convert temporary workers into permanent workers, reducing its use of temporary workers by 50 percent over the past 5 years. In addition, there is a Professional Development Institute, in which current workforce employees that work part-time can get paid for full-time work while they go to school part-time. “We choose a select few to go into specialty areas where we pay for their education,” Mr. Sowers said. “Because of our commitment to them, they remain committed to us.” The hospital also pays a thousand-dollar bonus to every nurse that receives certification in oncology.

In addition, Duke University Hospital is strongly committed to career and leadership development of its health care workers as a way to improve retention. It offers a year-long program during which 20 employees with leadership or managing potential are coached and mentored. A physician leadership program is currently being developed to foster physician leadership in health care management. The hospital also offers its nurses ways to advance or continue to be challenged and engaged in their work, such as rotations between inpatient and outpatient care, or between being part of a disease treatment team and doing triage. NPs can also provide care for cancer survivors or symptom management.

Nurses are encouraged to advance their way up the “clinical ladder” of administrative, clinical, or educational career tracks of their choosing. Their performance is reviewed regularly in this regard, and advancement is based not only on the recommendations of managers and peers but also by measurable improved outcomes in the patients they treat. Managers and hospital administrators are also expected to meet certain metrics, including a low turnover rate of those under their supervision. Recognition awards are given regularly to employees of merit as “celebrations of accomplishments are an important part of what we do to retain our workforce,” Mr. Sowers noted.

The strategies that Duke University Hospital used to improve retention are successful, as its overall annual turnover rate is 12 percent—far lower

than the national average for an academic teaching hospital, and within oncology nurses there is only about 5 percent turnover the first year. “Clearly a focus on the work culture and leadership development plays an important part of retaining and growing the oncology workforce,” Mr. Sowers said.

Another strategy for combating the impending shortage of oncology health care workers is to redesign service delivery so it is more responsive to workforce needs. Mr. Sowers noted that there has been a major demographic shift among physicians, with women making up more than one-third of all physicians and half of all new medical school graduates. “This gender change within the workforce creates different variables that we must consider in terms of creating the work culture necessary to retain the individuals now going into that workforce,” he said. Duke University Hospital has responded to the demographic shift by offering job sharing for those who want to work 20 hours a week.

Dr. Goldstein suggested that to more adequately balance work life with personal life, which so many incoming physicians see as vital, physicians should do more job sharing and have more part-time practices. Physicians that have childcare needs could work weekend clinics if their spouses can remain at home to care for their children during that time. But Dr. Benz pointed out that “if you create shared jobs, you still have two overheads, including two malpractice premiums,” and if physicians are doing academic research “two people can’t share the same labs usually because they don’t work on the same project or with the same technicians. Part of the challenge we face is how do we provide for these flexible work load options economically.”

Surveys of physicians done by Mr. Salsberg and others suggest that older physicians are interested in part-time practice, and younger physicians are interested in flexible scheduling and more controllable hours (AAMC, 2007). Consequently, Dr. Goldstein suggested making greater use of retired physicians to help with coverage of the practices of other physicians when they are on vacation or away at meetings. “Retired physicians are a valuable resource that shouldn’t be wasted,” he said. One innovative example of the use of retired health care workers is the Retirement Institute Program that Duke University Hospital is currently developing. This program is aimed at helping their retirees stay engaged in the workforce by serving as mentors, supporting the telephone triage of patients that call in, or by performing other work tasks.

Ms. Galassi suggested eliminating some of the existing barriers to reentry into clinical practice that RNs and NPs face. Many such nurses quit

working to spend time with their children, but once their children are more independent, they wish to enter the workforce again. However, there are limited refresher programs and “if you leave, it’s hard to get back in,” she said. The same is true for physicians who wish to reenter the work force after a long gap in practice. The American Academy of Pediatrics is currently spearheading a project involving physician reentry into the workforce that will explore what is encompassed under the rubric of reentry and will create guidelines, recommendations, and strategies in this regard.⁹ Dr. Bajorin recommended developing more such programs that examine the challenges for those reentering clinical practice or considering delayed retirement.

EDUCATION AND TRAINING SOLUTIONS

Cancer centers are at a unique advantage to offer innovative training and education programs both directly and indirectly, through the hospitals, offices, and other affiliates of the centers, Dr. Benz pointed out. These advantages are increasing with expanded access to the Internet. “Cancer centers are hubs in a kind of Internet network where, whether it’s by means of telemedicine or by continuing CME [continuing medical education] support or electronic decision support, we can provide the kind of expertise and support to be sure the entire workforce has at least a minimum level of competence in oncology care. We need to use our role as cancer center directors as a force for change in the various colleges and schools with which we associate, including medical, nursing, and pharmacy schools, to be sure every one of them has an oncology curriculum that we are happy with,” Dr. Benz said.

Dr. Benz also suggested that cancer centers should work more closely with colleges and technical schools to emphasize oncology in the curriculum and to “market” opportunities in oncology for various types of expertise. Greater oncology expertise must be built into the general curriculum of health science and health administrative programs, he noted, since cancer and cancer survivorship will be too pervasive to be provided only in an oncology context. Cancer centers have the critical mass to support such efforts.

Several speakers and participants offered education and training solutions to ameliorate the shortage in the oncology workforce, including using federal or state support to expand nursing and medical school faculty and student positions; revising teaching and training to emphasize innovative

⁹See <http://www.aap.org/reentry/>.

collaborative care models; developing oncology-specific training programs for nurses; and having more exposure to oncology in nursing and medical school curriculums. Innovative models for education and training were also explored, including using Internet-based technology to promote more flexible remote learning opportunities, and providing onsite education and training of needed allied health care workers in academic cancer centers. The education of nurses, physicians, and allied health care workers is discussed in detail below.

Nurses

One of the education solutions proposed at the workshop was to increase the number of nursing students. To achieve this goal, one participant suggested expanding the number of nursing faculty to increase nursing schools' capacity. However, another participant pointed out that many academic health centers are currently facing significant budget crises and downsizing, and cannot add new academic slots.

Alternatively, Dr. Buerhaus suggested using federal funding to increase the capacity of nursing schools, by increasing the number of faculty, clinical teaching arrangements, and space devoted to educating nurses. He suggested linking any public subsidies for nursing education to greater curricular emphasis on quality and safety, geriatrics, chronic care, cancer survivorship, and collaborative team care. He also recommended using federal funding to boost the number of men and Hispanics who go into nursing, because as the population becomes more diverse, the nursing profession will also have to attract a more diverse student body.

Dr. Bednash suggested embedding oncology and palliative care training into nursing schools' core curriculums to ensure that all nurses have some knowledge of oncology care. In addition, a few participants suggested creating organized on-the-job training programs in oncology to compensate for the lack of advanced practice nursing and PA educational programs that have oncology as a subspecialty. For example, the M. D. Anderson Cancer Center has created an oncology post-graduate program for PAs, according to Ms. Bruinooge. However, these on-the-job programs will only be successful if the professionals who complete these programs are permitted to use their full training in a healthy collaborative environment that bypasses traditional turf wars between nurses and physicians, Dr. Bednash suggested. "It's kind of like the *Field of Dreams* phenomenon. If you build it, they will come. Unless we build the environments that have team practice and

openness to collegueship and collaboration, we will not get people there,” she said.

Dr. Benz suggested creating post-graduate training programs that address core competencies in oncology, and allowing those that complete the training programs to be recognized as having expertise in cancer care. Dr. Lichtveld pointed out that a good starting point for establishing those core competencies would be to build off of what has been established by C-Change in collaboration with other organizations.¹⁰ She also recommended that core competencies be measurable “because when it gets measured, it gets done.”

University of Utah Program

To address the current shortage in nursing faculty, especially of those with cancer expertise, the University of Utah recently began an innovative program to encourage more cancer nurses to participate in its nursing Ph.D. program. This program was developed after assessing the barriers that prevent higher education among oncology nurses.

One barrier Dr. Mooney and her colleagues identified was the limited number of programs that have a strong core of cancer faculty; nursing faculty with expertise in oncology are scattered geographically around the country. Consequently, many nurses who want cancer expertise need to relocate or commute long distances to attend nursing schools doing the type of training or research they wish to pursue. This is often impossible, because most nursing Ph.D. candidates are older and have family obligations that preclude long commutes or relocation. In addition, many cancer nurses wish to stay in their cancer centers and to extend their research interest to the center, without interrupting their career or relocating.

Other significant barriers to pursuing a Ph.D. nursing degree include tuition fees and a lack of significant stipends to support students while they are in school. Many existing stipends require full-time study, which limits the income Ph.D. students may be able to make part-time as nurses. Medical students are generally willing to receive loans for their medical school training as a trade-off for their income increasing once they receive that training. However, this is not the case for nursing Ph.D. students, whose salaries may decrease if they take a faculty position after they acquire their degree, Dr. Mooney pointed out.

¹⁰See <http://www.c-changetogether.org/pubs/cccpp.asp>.

To meet the needs of these potential cancer nursing Ph.D. students, the University of Utah College of Nursing created a program in which Ph.D. students can specialize in cancer prevention and control research through remote classes and on a part-time basis. The program capitalizes on the student's work setting as a laboratory for scientific and research development. The nine-semester plus dissertation program requires taking two to three classes per semester, as well as electives, cognates, and research practicums, which may be taken locally with approval of the supervisory committee.

Responding to the need to take the classroom to the student, rather than the reverse, every class is taught through live, interactive, Internet-based videoconferencing at each individual student site. Faculty office hours and dissertation advisement are accomplished through point-to-point live, Internet-based videoconferencing, and through standard phone calls and e-mail. This learning at a distance is supplemented with attendance at national conferences, where students meet and network with researchers and/or present their own research, and at annual intensive, week-long campus sessions. At these sessions, students meet with their faculty, other students, and faculty outside of the program; attend specialty workshops and group social activities; and receive guidance on career planning, applying for scholarships, fellowships, grants, and preparation of conference abstracts and other research publications.

Despite the concern that remote learning would prevent students from experiencing the vital social experiences involved in on-campus learning, "the students are quite bonded," Dr. Mooney reported. "We find them to be more interactive and supportive of each other than we do our on-campus students. And we found high[er] approval of both faculty and courses by the distance students than the on-campus students." Although many of the students have been older and not part of the "tech generation," they have expressed very low frustration levels with the technology used to provide the distance learning they received, Dr. Mooney added. In support of these facts, Dr. Paul Mazmanian, Professor, Continuing Medical Education and Family Medicine, Virginia Commonwealth University Medical Center, noted a recent study that found learning can be achieved equally well with Internet-based distance programs as it can be with more standard on-campus programs (Cook et al., 2008).

To get the program started, The University of Utah used an NCI grant to provide financial resources to assist students with costs and to support the development, implementation, and evaluation of the program. A private donor gave support for student attendance at conferences. Most students

have received American Cancer Society or ONS scholarships. The student cost of the equipment for the distance learning is minimal—\$300 plus the cost of an up-to-date computer and high-speed Internet access, in addition to out-of-state tuition. One of the biggest expenses of the program is the use of the bridge technology to support the videoconferencing. This technology costs more than \$300,000 to purchase. However, luckily, the University of Utah already had this technology in place, and the program has been able to utilize the system by paying a small fee.

The University of Utah College of Nursing program has admitted 29 students in three different cohorts since the program began in 2003. Fifteen have graduated from the program and the remaining 14 are at the dissertation proposal or final approval stage. The average time to graduation has been 3.7 years for the distance learners, versus 5.8 years for on-campus learning. Participation in the program has led to students having 78 peer-reviewed journal publications, 65 national and international presentations, and 3 National Institutes of Health (NIH) grants, Dr. Mooney reported. She added that the approach that the University of Utah took to address the need for Ph.D. teaching and research faculty in cancer nursing could be used as a model to address other oncology workforce training needs.

Physicians

A second educational solution proposed at the workshop was to increase the number of oncologists. There were several suggestions for how to achieve this goal. One participant suggested building more medical schools to remediate the shortage of physicians providing cancer care. However, Mr. Salsberg pointed out that this may be a potential long-term solution, but the 10 to 15 years of lead time required for such new schools to begin graduating students will not solve the immediate shortage in physicians.

Alternatively, Dr. Bajorin suggested partnering with specific medical societies to address the overall shortage of physicians, especially physicians that feed the oncology specialty pipeline. “We need to address the adequacy of training slots, and for those programs that want to increase their slots, we need to be able to give them the help to do so,” he said.

Given the current economic crisis, several conference participants expressed concern about medical students having sufficient funds and/or loans to pay for their medical school education. As a result, financial incentives might be another way to boost the number of oncologists. Dr. Bajorin suggested providing financial support to oncology fellows. ASCO recently

launched a loan repayment program because the average American trainee has over \$100,000 worth of debt. The ASCO loan repayment program will forgive up to \$70,000 of qualifying education loans.¹¹

Within the arena of training and educating the research oncology workforce, Dr. Jonathan Wiest, Director of the Center for Cancer Training at NCI, noted that NCI offers a graduate school loan repayment program for M.D.s and Ph.D.s. This program provides up to \$70,000 over 2 years, and recipients can compete for additional loan repayments for their remaining debt. According to Dr. Wiest, this program has been successful in encouraging physician-scientists to pursue academic research careers.

Other suggestions were aimed at improving the education of medical students, residents, and fellows, and marketing oncology as a profession. Dr. Bajorin suggested emphasizing training collaborative care planning, team leadership skills, and how to work with physician extenders during residency or fellowship. To promote collaborative care, he also suggested building partnerships between oncology and NP/PA training programs. In addition, Dr. Bajorin recommended that physicians be taught how to have efficient practices and business management skills, similar to the training given to many European physicians. Another shortcoming of medical school education and training he suggested addressing is a lack of exposure to oncology in an outpatient setting. This could be increased through education and training, and by creating linkages between private practice and fellowship training, he said.

Allied Health Care Professionals

The M. D. Anderson Cancer Center has taken proactive steps to close the gap between the health care supply and demand of allied health care workers by undertaking its own education and training programs. It formed in-house education and training programs for allied health care professions such as laboratory technicians and radiologic technicians. The graduates from these health sciences degree programs “are important personnel resources to support the patient care and research activities,” said Dr. Ahearn. The M. D. Anderson Cancer Center currently offers baccalaureate degrees in seven professions: clinical laboratory sciences, cytotechnology, cytogenetic

¹¹See <http://www.asco.org/TACF/Awards/Award+Opportunities/ASCO+Diversity+in+Oncology+Initiative+funded+by+Susan+G.+Komen+for+the+Cure/The+ASCO+Loan+Repayment+Program,+funded+by+Susan+G.+Komen+for+the+Cure%C2%AE>.

technology, molecular genetic technology, diagnostic imaging, radiation therapy, and health dosimetry. “Each of these professions provides critical support for the operation of the cancer center,” noted Dr. Ahearn.

The M. D. Anderson Cancer Center has experienced benefits linked to having an in-house allied health education program, both for the students and for the institution. Students are able to receive both their didactic and their clinical training in an oncology setting. In this environment, students not only receive a comprehensive curriculum covering all that is required of their profession, but also an in-depth knowledge gained from a faculty well versed in oncology, Dr. Ahearn noted. “Students receiving our training at the Cancer Center are able to make a seamless transition into the oncology workforce. The level of experience gained by a cytotechnology student after months of reviewing fine needle aspirations from a variety of cancers in the oncology center cannot be duplicated in a general hospital laboratory,” he said.

From a human resource perspective, “having well-trained graduates in hard-to-fill positions on site to meet both attrition and growth needs is invaluable. These individuals are already familiar with the culture of the institution and can be quickly assimilated into a very productive workforce,” Dr. Ahearn said. He noted that currently the M. D. Anderson Cancer Center employs close to one thousand radiation therapists and clinical laboratory or diagnostic imaging technologists. Between 2000 and 2007, the M. D. Anderson Cancer Center employed 44 percent of the students that graduated from its health sciences programs. Nearly all of the remaining graduates found jobs in Houston or other Texas hospitals, with only 10 percent employed outside the state (see Figure 9) (McClure, 2007).

The use of in-house-trained technicians has saved the M. D. Anderson Center thousands of dollars, because its human resources department calculates that the recruitment costs across the institution are \$3,600 per hire, with hard-to-fill positions costing three to four times as much, taking into account hiring bonuses and relocation costs. In addition, the M. D. Anderson Center’s Department of Laboratory Medicine calculates that hiring graduates from its own School of Health Science positively impacts its revenue by \$21,000 per student hired, because of the decreased training time and increased revenue due to the graduates’ level of productivity. “Graduates acquired from the school are a good fit,” Dr. Ahearn said. “They’re quickly assimilated into the culture of the institution and they exhibit a decreased rate of turnover.”

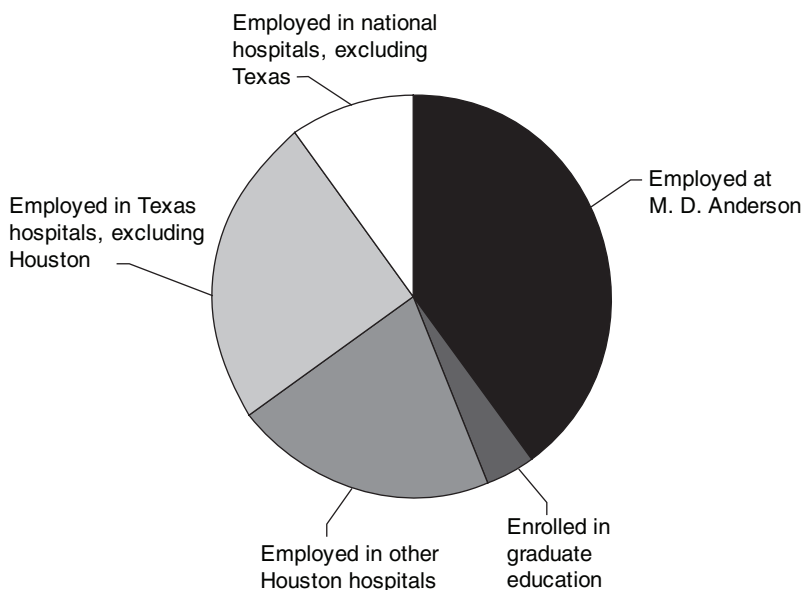


FIGURE 9 M. D. Anderson graduate placement outcomes. This graph demonstrates the effectiveness of the M. D. Anderson program of training and retaining its own allied health care professionals.

SOURCE: Ahearn presentation (October 21, 2008) and The University of Texas M. D. Anderson Cancer Center's School of Health Professions, Department of Medical Graphics & Photography, and the Department of Human Resources.

Dr. Ahearn also pointed out the diversity of the student body attending the M. D. Anderson Cancer Center's health sciences education programs. Between 2000 and 2007, less than one-third of the students were Caucasian. More than one-third of the students were Asian/Pacific Islanders, with African American and Hispanic students equally comprising the remaining students. This is a much more diverse population than that currently reported for the national workforce in either the clinical laboratory or the radiologic sciences.

Culture Change

Several speakers pointed out that the new models of cancer care proposed at the workshop will require an education effort to produce culture change. Many physicians will have to be reeducated so they can adequately

adjust to a new way of providing cancer care, whether it be through collaborative team efforts, more Internet-based practices, or any of the other new models proposed. Useful in that reeducation process will be the findings of several studies that have assessed what prompts physicians to change their way of practicing medicine, Dr. Mazmanian pointed out. One study found that printed educational materials and formal continuing medical education programs did not foster significant behavioral change (Davis et al., 1995). In contrast, the most effective interventions were mediated through pharmaceutical representatives, opinion leaders and patients, and by automatic reminders. Multiple interventions were more effective at eliciting change than single interventions. As a result, Dr. Mazmanian suggested taking a systems approach when trying to foster change in the health community, and conducting educational demonstration projects.

In addition, Dr. Lichtveld, suggested that part of the culture change needs to include the development of cultural competencies. The workforce should be able to address the unique needs of minority patients. She pointed out that the number of African American patients, Hispanic patients, and other minority patients are increasing in this country, and she stated that cancer care should be tailored to serve such a diverse population (see Figure 10). “This is a requirement rather than a luxury to help address

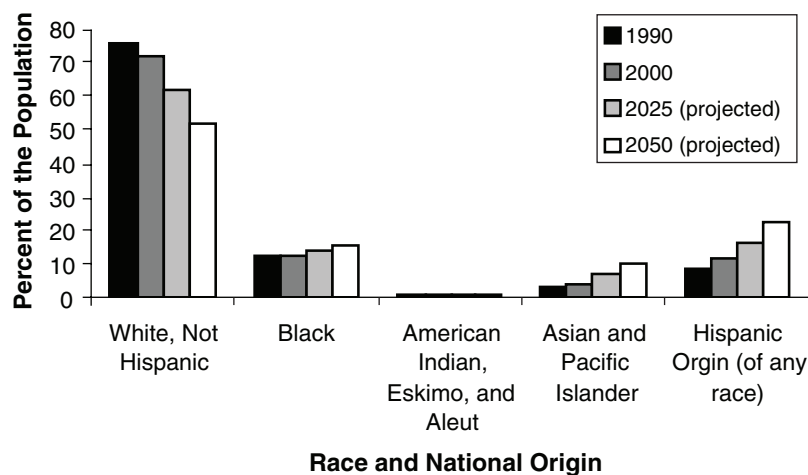


FIGURE 10 Rationale for cultural competence: Why do we have to be culturally competent?

SOURCE: Lichtveld presentation (October 20, 2008). Data from the U.S. Census Bureau, Population Division on Housing and Household Economic Statistics Division.

health disparities,” she said. Developing and adopting national standards for cultural competency, such as the standards the AAMC and the Association of Schools of Public Health (ASPH) are currently trying to develop, will help improve the quality of care.

RESEARCH SUPPORT SOLUTIONS

Advances in oncology care are closely related to the basic and clinical research done on cancer. However, cancer research has been hurt by a lack of funding in recent years, according to several participants. The NCI provides a number of Career Development Awards (CDAs) to support basic, translational, and clinical research in oncology, as well as K12 institutional grants aimed at fostering physicians to collaborate with basic science researchers to promote translational therapeutic research. Dr. Wiest noted that “even during this time of a flat budget, the NCI has continued to support M.D.s and M.D./Ph.D.s to pursue academic research, both through the Career Development Awards and the loan repayment program. The success rate for physician scientists has remained relatively stable, and oncologists are actively engaged in research.”

Dr. Wiest showed that the success rate for applicants being awarded CDAs is between 15 and 25 percent. This number has remained relatively flat since 2004, across both M.D.s, Ph.D.s and M.D.s/Ph.D.s (see Figure 11). When broken down by subspecialty, medical oncologists have acquired the most CDA and K12 grant funds, followed by surgical oncologists, pathologists, and radiation oncologists (see Figure 12). The success rate for these specialties being awarded CDAs has varied over the past 4 years, as can be seen in Figure 13.

Dr. Wiest suggested ways to improve NCI support of physician-scientists, including increasing the salary cap on CDAs from \$75,000 to \$100,000 and partnering with foundations and societies to supplement resources for subspecialty physicians in academic research. He also suggested considering redirecting dollars to CDA mechanisms that have had the biggest impact in promoting academic research among physician-scientists. In addition, it might be worthwhile to consider redirecting some of the funds used in the loan repayment program to support physician-scientists, Dr. Wiest said.

Dr. Benz suggested that cancer centers, the NIH, foundations, and other sources of research training support need to work with one another to expand training opportunities for faculty across all disciplines related

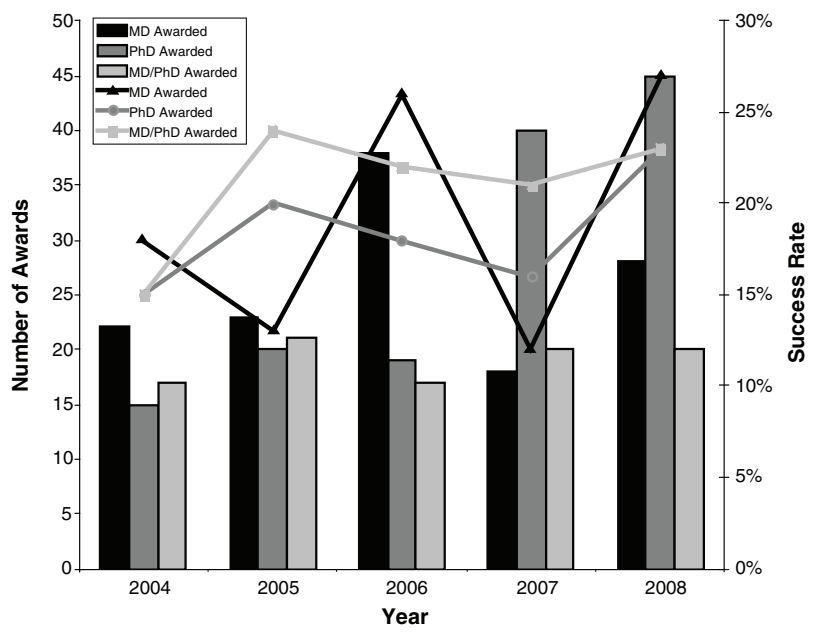


FIGURE 11 Career Development Awards (CDAs) awarded by applicant degree. SOURCE: Wiest presentation (October 20, 2008) and the National Cancer Institute.

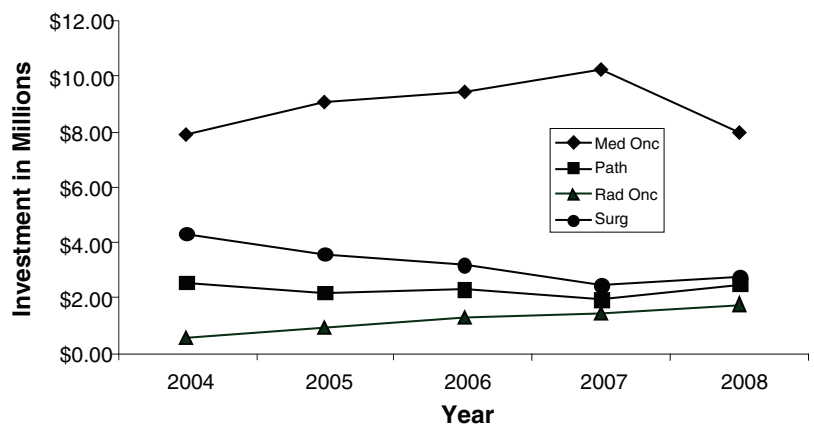


FIGURE 12 Cost by subspecialty. The cost reflects money accrued by each subspecialty through CDA and K12 grant funds. Med Onc = Medical Oncologists, Path = Pathologists, Rad Onc = Radiation Oncologists, Surg = Surgical Oncologists. SOURCE: Wiest presentation (October 20, 2008) and the National Cancer Institute.

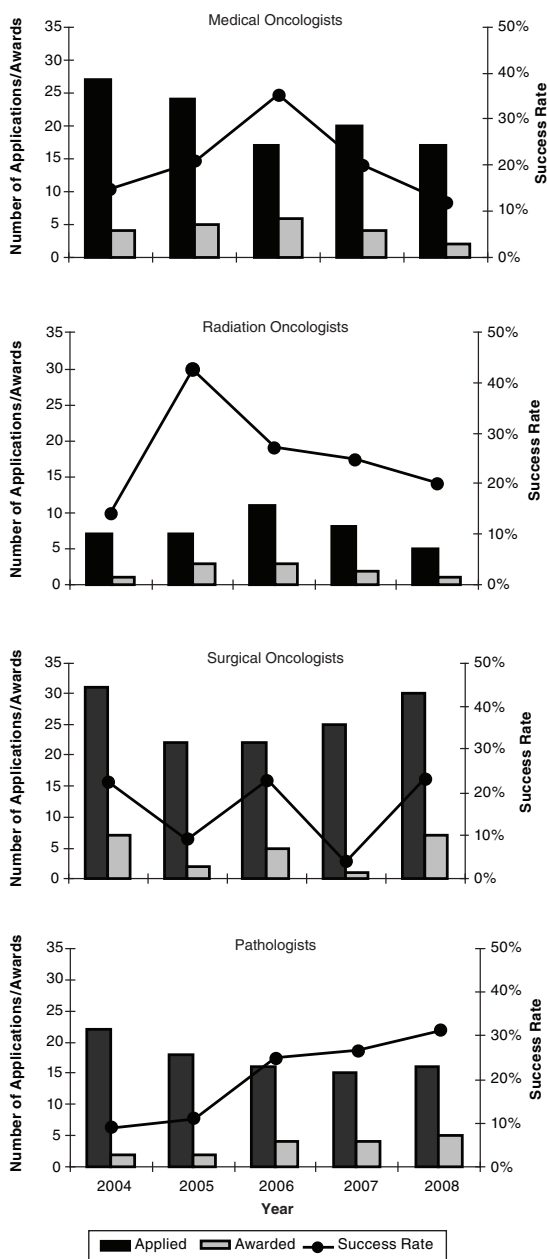


FIGURE 13 CDAs to subspecialists. The different oncology subspecialties have had various levels of success at achieving CDA awards over the past four years.

SOURCE: Wiest presentation (October 20, 2008) and the National Cancer Institute.

to oncology. Dr. Bajorin suggested continuing programs such as those of ASCO, which provide travel awards to residents so they can attend national meetings, as well as supporting a medical school student rotation program so that medical students can go to a major cancer center and participate in oncology care and oncology research.

POLICY SOLUTIONS

Two policy experts at the workshop discussed possible policy solutions to the crisis in the oncology workforce. One long-term solution that was offered to help counter impending oncology workforce shortages was to boost the numbers of physicians who receive GME, especially those that pursue internal medicine residencies and oncology fellowships. As Dr. Grover pointed out, “No matter how many M.D.s or D.O.s [Doctors of Osteopathic medicine] you produce or how many international graduates you bring from abroad, you are largely limited by the size of your graduate medical educational enterprise, that is, the training of residents and fellows.”

Because the government, through Medicare and other federal and state programs, provides the financial support for training residents and fellows, public policy that controls funding for these programs may indirectly affect both the numbers of physicians and the specialties they acquire, pointed out Dr. Grover. Medicare is the largest explicit payer for GME and directly offers financial compensation for residency education costs, including resident stipends and salaries. It also indirectly compensates for the higher patient care costs due to the presence of teaching programs in academic hospitals. Other government sources of support for GME include Medicaid; the Veterans Administration; Title VII, which supports primary care physician training; and the Children’s Hospital Graduate Medical Education Program, which supports pediatric training.

The Balanced Budget Act of 1997 limited the number of residencies and fellowships for which Medicare would pay, as part of a money-saving strategy by the federal government. This Act assumed the number of physicians currently being generated was sufficient to meet the nation’s needs, and, with a few exceptions, stipulated that additional residencies and fellowship positions beyond those established in 1996 would not be funded. In addition to this Act, CMS recently made its requirements for reimbursement more stringent, according to Dr. Grover. For example, it no longer reimburses for training at nonhospital sites, or for a number of other education or patient safety and quality-related activities. It also

has made it more difficult to acquire reimbursement for any resident time spent in research activities unless they relate to the clinical care of patients.

The Bush administration and the Medicare Payment Advisory Commission (MedPAC), an independent Congressional agency, recently proposed limiting Medicare reimbursement to GME even further. These measures have not been passed, but some are still being considered. “As we are trying to grow, they’re still thinking about what to cut,” noted Dr. Grover, and “the pressure to cut is even more extreme now with the current state of the economy,” he added.

Dr. Grover showed that the Balanced Budget Act combined with the influx of managed care, which emphasizes using gatekeeper primary care physicians to reduce the need for specialists, has led to the total number of residency positions remaining relatively stagnant since the mid-1990s (see Figure 14). “We’re at a point where we certainly aren’t able to grow at the rate or to the extent at which the population requires additional health care workers trained,” he said. “We are probably in deficit funding now, meaning that our institutions are taking on the full costs of training an additional 3,000 to 5,000 residents and fellows that Medicare doesn’t reimburse. I don’t think our institutions are going to be able to go much further without some help from the federal government,” Dr. Grover stressed.

Senators Joe Biden, Harry Reid, and others tried to provide that financial help with a bill¹² they introduced in 2007 that aimed to raise the Medicare GME funding caps in those states that are below the national average in terms of residents to population ratios. The bill, which was not passed during the 110th session of Congress, would have increased Medicare-funded slots by 1,222 residency positions, although there were concerns that the funding for this bill may have come from limiting the per capita amount of funding for all residency slots. Policy makers could also try to seek additional funding for GME from other government agencies or programs that provide health care funding, including the Veterans Administration and Title VII, Dr. Grover added.

As for seeking policy solutions for the shortage of oncologists specifically, Dr. Grover noted that since 2002 the number of oncology fellowships has increased more than the number of residencies that train primary

¹²U.S. Congress. House. *Resident Physician Shortage Reduction Act of 2007*, HR 1093. 110th Cong., 1st. Sess. U.S. Congress. Senate. *Resident Physician Shortage Reduction Act of 2007*, S 588. 110th Cong., 1st Sess.

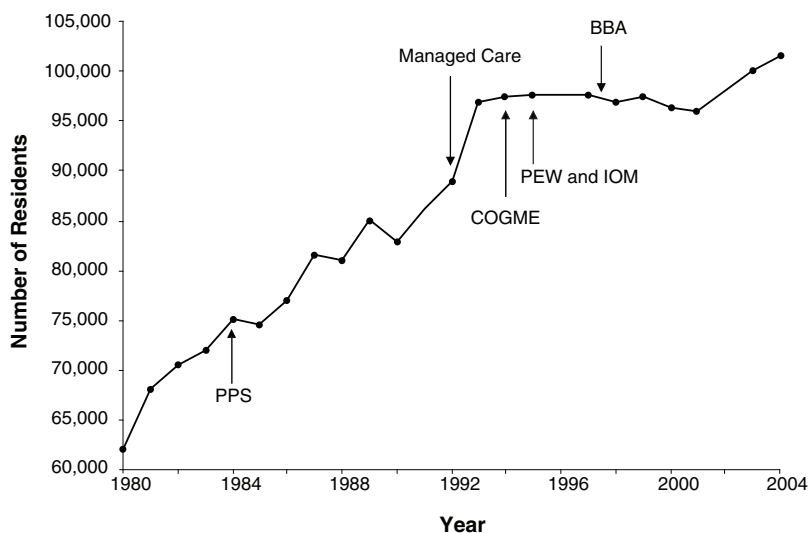


FIGURE 14 Total Graduate Medical Education (GME) positions in all medical specialties, 1980-2004. This graph depicts the effect of the policy environment on growth in GME positions. In the 1980s when a prospective payment system (PPS) was in place, there was a steady increase in GME positions. In the 1990s when managed care was being utilized, the growth in GME positions slowed. Reports by COGME, PEW, and IOM in the 1990s emphasized the role of gatekeepers and primary care. When the Balanced Budget Act (BBA) of 1997 was passed, GME positions were already at a plateau.

NOTE: COGME = Council on Graduate Medical Education, Summary of the Fourth Report, *Recommendation to Improve Access to Health Care Through Physician Workforce Reform*, www.cogme.gov/rpt4.htm; IOM = Institute of Medicine. 1996. *The Nation's Physician Workforce: Options for Balancing Supply and Requirements*. Washington, DC: National Academy Press; PEW = *Critical Challenges: Executive Summary, Revitalizing the Health Professions for the Twenty-First Century*, www.futurehealth.ucsf.edu/summaries/challenges.html.

SOURCE: Grover presentation (October 21, 2008) and the Association of American Medical Colleges.

care physicians, for which there is a heightened perceived need to expand. “People are concerned about family medicine and general internal medicine, so when you look at the lack of problems that oncology has relative to other specialties in attracting people, it makes it less sympathetic,” Dr. Grover said. He added that, because oncologists have higher incomes than many other specialties, “it becomes very difficult to make a case for it and have people be sympathetic. Within health care, you have to be realistic

about where oncology fits in with everybody else, given the overall lack of federal resources.” Dr. Kavita Patel, Deputy Staff Director for the Senate Health, Education, Labor and Pensions Committee, Health Subcommittee of Senator Edward M. Kennedy, agreed, noting that “we are dealing with intersecting forces and needs, and we are trying desperately to prioritize, and there is definitely a priority for primary care at this time for refinancing and aligning payment and incentives and workforce issues.”

In her presentation, Dr. Patel discussed the recent landscape of federal and state initiatives intended to provide support for the education and training of the general health care workforce, as well as the cancer workforce. Her first example, the Health Professions Education Partnerships Act of 1998,¹³ illustrated successfully enacted federal legislation that provides grants, contracts, and scholarships to support the education of underrepresented minorities interested in the health professions. She also highlighted some examples of legislation that did not pass Congress, including the National Cancer Act,¹⁴ which was introduced in 2002, 2003, and 2007 and included provisions to promote the growth of the cancer workforce through grants, scholarships, fellowships, loans, and loan repayment mechanisms. An additional bill not passed by Congress was the Quality of Care for Individuals with Cancer Act,¹⁵ introduced in 2002 and 2004, which included provisions to establish grants to support cancer curriculum development, programs to promote an adequate and diverse cancer workforce, and a plan to assist health care workers in professions facing the most severe shortages.

Dr. Patel also discussed two examples of state legislation addressing health care workforce issues. Massachusetts enacted legislation¹⁶ in 2008 that created a loan forgiveness program for physicians and nurses who agree to practice primary care in medically underserved areas, as well as providing tuition incentives for University of Massachusetts medical students who agree to practice primary care in the state for 4 years. As part of the state’s

¹³Health Professions Education Partnerships Act of 1998, P.L. 105-392, 105th Cong., 2d Sess. (November 13, 1998).

¹⁴U.S. Congress. Senate. *National Cancer Act of 2002*, S 1976. 107th Cong., 2d Sess.; U.S. Congress. Senate. *National Cancer Act of 2003*, S 1101. 108th Cong., 1st Sess.; U.S. Congress. Senate. *National Cancer Act of 2007*, S 1056. 110th Cong., 1st Sess.

¹⁵U.S. Congress. Senate. *Quality of Care for Individuals with Cancer Act*, S 2965. 107th Cong., 2d Sess.; U.S. Congress. Senate. *Quality of Care for Individuals with Cancer Act*, S 2771. 108th Cong., 2d Sess.

¹⁶The Commonwealth of Massachusetts General Court. Senate. *Bill to promote cost containment, transparency and efficiency in the delivery of quality health care*, SB 2863. 185th Sess.

overall health care reform efforts, Minnesota also passed legislation¹⁷ 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.

In addition to Dr. Patel's survey of recent workforce legislation, she also discussed the comprehensive cancer legislation that Senators Kennedy and Hutchison are currently developing.¹⁸ The legislation is aimed at the entire continuum and spectrum of cancer care, including workforce issues. In crafting the legislation, one of the issues that they are trying to confront is determining which agencies the legislation should target. According to Dr. Patel, they have debated whether the legislation should designate multiple agencies responsible for programs that foster quality cancer care or increase the oncology health care workforce. "We talk sometimes about having a 'cancer czar' or some coordinator of cancer programs," she said.

But both Drs. Patel and Grover pointed out that any current efforts to devise legislation that fosters a growth in the oncology workforce may be dwarfed by both the new administration's focus on making major health care reforms and an economy on the downturn that cannot support major funding for new programs and initiatives. However, Dr. Patel noted that the change in administration offers new opportunities. "We are going to be dealing with new agencies and agency heads and new high-level nonpolitical appointees, so this may be the time to make sure that those people hear that cancer care must be a priority," she said. Ms. Smith added that attempts to acquire funding for programs that will help alleviate the shortage of oncology health care workers should be couched in language that stresses their long-term economic benefits. "We could say, 'by funding a more elegant model for delivering care, we could offset hospitalization, or by funding educational programs, we might offset unemployment,'" she said.

Ms. Bruinooge raised the issue of whether Medicare funding for GME could be used for collaborative cancer care, much of which takes place outside hospital settings. Dr. Grover concurred, noting that "with the new administration coming in, we will have the opportunity to say there's a lot that can be done from a regulatory side to train people for the 21st century

¹⁷Minnesota State Legislature. Senate. SF 3780. 85th Sess.

¹⁸U.S. Congress. Senate. *21st Century Cancer ALERT (Access to Life-Saving Early Detection, Research, and Treatment) Act of 2009*, S. 717. 111th Cong., 1st Sess.

and not the 18th century. It would be helpful if Congress gave CMS that extra leeway to encourage the development of new arenas of training, new models of collaborative, interdisciplinary care.”

However, Dr. Grover warned that training in new models of care will be a waste of time if there are not opportunities to employ those new models in real-world settings. He suggested a strategy that attempts to transform the practice of medicine to fit training activities in the new models of care. He added that a major barrier to developing new models of care is a payment system that is based on capitation. “Health care is not widgets,” he said. “We shouldn’t get rewarded for doing more and get paid according to volume.” Ms. Smith suggested a pay-for-performance reimbursement system that rewards better care, a concept which Dr. Grover noted is just starting to be explored by policy makers. Dr. Patel cautioned that pay-for-performance is “an answer in certain areas for certain conditions, but it’s not going to get us to that comprehensive change.”

Dr. Patel also noted that “we are going to have to marry what we do in training with what we do on the private side and so sometimes I think that CMS is not necessarily the vehicle of change.” She noted that there are over 230 demonstration projects within CMS, and it is unclear how useful they are. “These demonstration programs are usually underfunded and though you might get results from it, you don’t have the sample size to actually show anything that is going to convince policy makers,” she said. Instead, she suggested organizations, such as the AAMC, support demonstration projects in real time to inform those at the federal level what innovative and creative programs should be supported with public funds. “Show people what you know works even if it is examples from 20 institutions—that’s a lot more data than we have in many cases about anything,” Dr. Patel said.

Both Drs. Patel and Grover stressed the importance of thinking outside the box of oncology and building on the work of other related fields. Dr. Patel suggested using what can be done within the cancer arena as a model for what can be done in all health care and vice versa. For example, the coordination of care required for adequate cancer survivorship care can be a useful model for the care of patients with other medical problems, she pointed out. “We need to think of how we can build on each other’s energies and passions and the money spent on doing these things,” she said. Ms. Schwartz suggested building synergy by supporting other organization efforts related to oncology, such as the National Priorities Partnership, which recently released a document that stresses making palliative care a health care priority.

Dr. Grover concurred but commended IOM's effort to bring together different professions within the cancer care umbrella with a unified purpose of determining what cancer patients need. He suggested that all these factions voicing a unified message will impress policy makers more than fractious efforts. Dr. Shulman added, "We're only going to make progress if we band together with physicians, nurses, social workers, physician assistants, and all the other groups. If we're all squabbling and have different ideas about how to divide up the pie and who's in charge and who gets reimbursed for what, then we'll be nibbling at change and won't foster the bold changes that are needed." Dr. Bednash agreed and urged physicians to join with nurses in lobbying for more support for the clinical training of nurses and their reimbursement in a collaborative care setting. She also suggested that the numerous consumer advocacy groups for various types of cancers join this unified effort to address oncology workforce issues. Ms. Smith added that the cancer survivor community should be tapped to advocate for oncology health care needs.

Mr. Salsberg suggested learning from what was done to promote efforts to address the shortage of primary care providers. Studies documenting the shortages of primary care providers led to public media campaigns and lobbying efforts in Congress, he noted. "There were a number of alliances and principle statements coming out that increased awareness on the part of the public about the shortages of primary care physicians," he said. He also noted the speed and creativity of the government efforts that are under way to address the current economic crisis. "It does seem that this country seems to respond more quickly to crisis so maybe we need a public relations effort to really help our leaders understand that this is a crisis that needs urgent attention," he said.

Summary

In two lively days of presentations and discussions, a recurring view was that, due to an aging and retiring work force, growing numbers of cancer survivors, and an aging patient population, the demand for cancer care will outpace the supply of the wide spectrum of oncology health care workers involved in cancer care; this potential workforce shortage is likely to affect physicians, nurses, allied health care professionals, physician assistants, social workers, public health workers, and cancer registrars. These workforce shortages are problematic because they will lessen both the access to and the quality of care available for cancer patients, and may increase the burden on families of individuals with cancer. The implications of these workforce shortages will also affect a wide range of institutions, including research institutions, training hospitals and academic cancer centers, and community practices.

Several strategies were proposed to ameliorate these shortages, including (1) improving the recruitment and retention of various professionals; (2) developing new models of care, especially in the areas of survivorship, palliative care, and family caregiving; (3) increasing the education capacity and training of the health care workforce, by providing potential students with incentives such as scholarship or loan repayment programs, and by providing institutions with incentives to expand training program capacity; (4) continuing support for health research; and (5) changing federal policy on funding and reimbursement for cancer care, including providing

reimbursement mechanisms that reflect comprehensive, multidisciplinary cancer care delivery. In addition, many of the workshop participants suggested that the various professionals involved in cancer care should work with each other, to implement and achieve these proposed strategies in order to ensure the workforce is not overburdened in the future and can meet the nation's quality cancer care needs.

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Acronyms

AACN	American Association of Colleges of Nursing
AAMC	Association of American Medical Colleges
ASCO	American Society of Clinical Oncology
ASPH	Association of Schools of Public Health
CDA	Career Development Award
CME	continuing medical education
CMS	Centers for Medicare and Medicaid Services
DEXA	dual-energy x-ray absorptiometry
DO	Doctor of Osteopathic Medicine
EMR	electronic medical record
FDA	U.S. Food and Drug Administration
FTE	full-time employee
GED	General Education Degree
GME	graduate medical education
HHS	U.S. Department of Health and Human Services

IOM	Institute of Medicine
MD	Medical Doctor
MedPAC	Medicare Payment Advisory Commission
NCI	National Cancer Institute
NIH	National Institutes of Health
NINR	National Institute of Nursing Research
NP	nurse practitioner
ONS	Oncology Nursing Society
PA	physician assistant
RN	registered nurse
TOEFL	Test of English as a Foreign Language

Appendix A

Workshop Agenda

**National Cancer Policy Forum
Workshop on
Ensuring Quality Cancer Care Through the Oncology Workforce:
Sustaining Research and Care in the 21st Century**

The Keck Center of the National Academies
500 Fifth Street, NW—Room 100
Washington, DC 20001

DAY 1: MONDAY, FEBRUARY 25, 2008

- 8:30 am Registration and Continental Breakfast
- 9:00 am Welcome from NCPF/IOM and Overview of the Workshop
Welcome—*Edward Benz, MD, Association of American Cancer
Institutes*
Overview—*Betty Ferrell, PhD, RN, FAAN, City of Hope
National Medical Center*
- 9:15 am **Demographic and Health Workforce Trends: Implications
for Cancer Care in the Future**
- Summarize key national reports addressing the workforce crisis in health care
 - Address the implications for the oncology workforce
 - Describe the impact of the oncology workforce as a public concern
- Edward Salsberg, MPA, Center for Workforce Studies,
Association of American Medical Colleges*

10:15 am BREAK

10:30 am **Breaking Down the Problem: Professional Perspectives**

- Present the findings from ASCO's Workforce Study, as well as the workforce challenges facing the larger physician community
- Describe the current and future needs for new nursing workforce
- Identify needs for advanced practice nursing
- Identify needs for other professionals (e.g., social work, public health, and cancer registration) in cancer care

Physician (oncologist and primary care)—*Dean F. Bajorin, MD, Memorial Sloan-Kettering Cancer Center*

Nursing—*Peter I. Buerhaus, PhD, RN, FAAN, Vanderbilt University Medical Center*

Other Professions—*Maureen Lichtveld, MD, MPH, Tulane University*

Moderator—*Suanna Bruinooge, American Society of Clinical Oncology*

12:00 pm LUNCH

1:00 pm **System Perspectives**

- Describe the impact of workforce issues on the cancer care and the generation of the future workforce in academic cancer centers
- Identify workforce issues in community oncology as the setting for the vast majority of cancer care
- Summarize the needs and challenges in workforce demands for the research force impacting the advancement of knowledge in oncology

Academic Cancer Centers—*Edward Benz, MD, Association of American Cancer Institutes*

Community-Based Practice Settings—*Michael A. Goldstein, MD, Beth Israel Deaconess Medical Center*

Cancer Research Workforce Training—*Jonathan S. Wiest, PhD, National Cancer Institute*

Moderator—*Suanna Bruinooge, American Society of Clinical Oncology*

2:30 pm **BREAK**

2:45 pm **Patient Perspectives**

- Describe the future of cancer care from the patient perspective and the needed workforce to deliver that care
- Present issues related to the growing population of cancer survivors and emerging models of care delivery
- Identify the needs of patients with advanced disease and those at end of life and palliative care in oncology

Overview: Patients Needs in 21st Century Oncology—

Lawrence N. Shulman, MD, Dana-Farber Cancer Institute

Survivorship: Caring for the 12 Million Surviving Cancer—

Linda A. Jacobs, PhD, RN, LIVESTRONG Survivorship

Center of Excellence, Abramson Cancer Center

Palliative Care: How to Care in Advanced Disease—

Thomas J. Smith, MD, FACP, Virginia Commonwealth

University School of Medicine

Moderator—*Alison Smith, BA, BSN, RN, C-Change*

4:15 pm **Family Caregivers**

- Present data from the NCI-supported CANCORS study describing the experience of family caregivers as a vital aspect of the oncology workforce
- Describe the impact of the professional workforce shortage on family caregivers

Audie Atienza, PhD, National Cancer Institute

5:00 pm **Adjourn Day 1**

DAY 2: TUESDAY, OCTOBER, 21, 2008

8:30 am Registration and Continental Breakfast

9:00 am **Brief Summary of Day 1 Presentations and Discussion of Goals of Day 2**

- Synthesize the proceedings of Day 1 to summarize the workforce challenges in oncology
- Establish the Day 2 agenda of identifying potential solutions and policy implications

Thomas Kean, MPH, C-Change

9:30 am **Signs of Success/Models of Addressing the Oncology Workforce Needs**

- Present a model cancer center program conducting institution-based workforce training
- Recognize potential strategies for oncology physician training and work design
- Describe a university model preparing nurses for advanced practice and research in oncology
- Present the experience from an Academic Cancer Center and community affiliations related to staff retention and care delivery

Training (M. D. Anderson Model)—*Michael Ahearn, PhD, The University of Texas M. D. Anderson Cancer Center*

Physician Education—*Paul Mazmanian, PhD, Virginia Commonwealth University Medical Center*

Nursing Education—*Kathi Mooney, PhD, RN, FAAN, AOCN, University of Utah College of Nursing*

Retention—*Kevin Sowers, RN, MSN, Duke University*

Moderator—*Alison Smith, BA, BSN, RN, C-Change*

11:30 am LUNCH

12:30 pm **Policy Perspectives: Needed Legislative Efforts**

- Recognize policy changes necessary to support research, education, and clinical practice for oncology

Kavita Patel, MD, Senate Health, Education, Labor, and Pensions Committee

Atul Grover, MD, PhD, Association of American Medical Colleges

Moderator—*Brenda Nevidjon, MSN, RN, FAAN, Oncology Nursing Society*

2:00 pm **Formulation of a Future Strategy: A Framework for Action**

- Summarize potential strategies for participating organizations and for the NCPF to address oncology workforce needs
- Identify strategies for the oncology community to have a unified voice in advocacy for workforce issues

Summarizer—*Betty Ferrell (moderator), RN, FAAN, City of Hope National Medical Center*

Moderator—*Edward Salsberg, MPA, Center for Workforce Studies, Association of American Medical Colleges*

3:00 pm Adjourn Day 2

Appendix B

Workshop Speakers and Moderators

Michael Ahearn, Ph.D., M. D. Anderson Cancer Center

Audie Atienza, Ph.D., National Cancer Institute, Division of Cancer Control and Population Sciences

Dean F. Bajorin, M.D., Memorial Sloan-Kettering Cancer Center

Edward Benz, Jr., M.D., F.A.C.P., Dana-Farber Cancer Institute

Suanna Bruinooge, American Society of Clinical Oncology

Peter I. Buerhaus, Ph.D., R.N., F.A.A.N., Vanderbilt University Medical Center, Center for Interdisciplinary Health Workforce Studies

Betty Ferrell, Ph.D., R.N., F.A.A.N., City of Hope National Medical Center

Michael A. Goldstein, M.D., Beth Israel Deaconess Medical Center

Atul Grover, M.D., Ph.D., Association of American Medical Colleges

Linda A. Jacobs, Ph.D., R.N., University of Pennsylvania, Abramson Cancer Center

Thomas Kean, M.P.H., C-Change

Maureen Lichtveld, M.D., M.P.H., Tulane University, School of Public Health & Tropical Medicine

Paul E. Mazmanian, Ph.D., Virginia Commonwealth University

Kathi Mooney, Ph.D., R.N., F.A.A.N., A.O.C.N., University of Utah, College of Nursing

Brenda Nevidjon, M.S.N., R.N., R.A.A.N., Oncology Nursing Society

Kavita K. Patel, M.D., M.S.H.S., U.S. Senate Health, Education, Labor,
and Pensions Committee

Edward Salsberg, M.P.A., Association of American Medical Colleges,
Center for Workforce Studies

Lawrence N. Shulman, M.D., Dana-Farber Cancer Institute

Alison Smith, B.A., B.S.N., R.N., C-Change

Thomas J. Smith, M.D., F.A.C.P., Thomas Palliative Care Unit, Virginia
Commonwealth University

Kevin Sowers, R.N., M.S.N., Duke University Health System

Jonathan S. Wiest, Ph.D., National Cancer Institute, Center for Cancer
Training