The State of Cancer Care in America™: 2014

American Society of Clinical Oncology
Making a world of difference in cancer care
ASCO MISSION
The American Society of Clinical Oncology (ASCO) is a professional oncology society committed to conquering cancer through research, education, prevention and delivery of high-quality patient care.

ASCO VISION
• All patients with cancer will have lifelong access to high-quality, effective, affordable and compassionate care.
• The most accurate cancer information will be available so that patients and physicians can make informed decisions about cancer prevention and treatment.
• Information we learn from every patient will be used to accelerate progress against cancer.
• Resources will exist to attract the best clinicians and investigators to provide optimal patient care and to conduct transformative research.
• ASCO will be recognized as the most trusted source of cancer information worldwide.

MEMBERSHIP
ASCO’s diverse network of nearly 35,000 oncology professionals recognizes ASCO's dedication to provide the highest-quality resources in education, policy, the pioneering of clinical research and above all, advancing the care for patients with cancer. ASCO is unique in that we are the only organization that encompasses all oncology subspecialties, allowing our members to grow from the professional and personal expertise of their colleagues worldwide and across disciplines. International members make up approximately 30 percent of the Society’s total membership and represent more than 120 countries. ASCO offers a variety of membership categories designed to fit different career stages and specific needs.

For more information about ASCO, please visit www.asco.org.

ABOUT THIS REPORT
The State of Cancer Care in America: 2014 report is a first-ever, comprehensive look at demographic, economic, and oncology practice trends that will impact cancer care in the United States over the coming years. Published in the Journal of Oncology Practice on March 15, 2014, this report also examines the growing emphasis on quality measurement and value, and the rapid expansion of health information technology. The American Society of Clinical Oncology (ASCO) will publish annual updates to this report to help the oncology community, policymakers, and others more effectively shape the future of cancer care in America.

The full text of this report and other features may be found at www.asco.org/stateofcancercare.
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A Message from ASCO’s President

As oncologists, our fundamental responsibility is to ensure that all patients with cancer—no matter who they are or where they live—receive the best possible care.

Today, we have more tools to help our patients than ever before. Thanks to our nation’s history of investment in cancer research, we now have a greater understanding of the molecular basis of cancer and an array of new imaging capabilities, detection and diagnosis methods, drugs, surgical techniques, and radiation delivery systems that collectively enable many patients to live longer, healthier lives with or after cancer. Because of these advances, two-thirds of Americans now live at least five years after a cancer diagnosis as compared to only about half in the 1970s.

Our challenge—and the focus of this report—is to ensure that all Americans benefit fully from these advances. Presently, millions of people lack access to quality cancer care and the demand for care is growing rapidly as a consequence of population growth, aging, and lifestyles, among other factors. Remarkable advances in molecular biology are making cancer care far more complex and expensive, even as it is more effective. This may create a need for even more cancer physicians and other oncology professionals than are being trained today.

As this report makes clear, to overcome these challenges it will be essential for policymakers to recommit to the fight against cancer and make sustained investments in cancer research and care programs. It will also be necessary for cancer care professionals to be even more nimble and creative as we seek to bring valuable cancer advances to a growing number of patients.

This publication is the American Society of Clinical Oncology’s (ASCO’s) inaugural report to the nation on the state of cancer care in America. Going forward, ASCO’s annual reports to the nation on the state of cancer care in America will track progress against cancer and examine the most important trends that affect the oncology community’s ability to provide high-quality, high-value cancer care.

Improving the quality of cancer care has been ASCO’s mission since its founding 50 years ago. We are working to improve cancer care through numerous programs and initiatives, as well as advocating for improved access to high-quality, high-value care. For example, we have established CancerLinQ™, a groundbreaking health information technology initiative that will provide physicians with access to vast quantities of clinical data about real-world patients and help achieve higher-quality, higher-value cancer care. When deployed, CancerLinQ will specifically help ensure that patients with cancer receive the best possible care no matter where they receive treatment.

Cancer affects us all and it is expected to become the leading cause of death in the United States as our population ages over the next 16 years. In many respects, the work before us, such as improving care from new technologies and adapting to new healthcare financing models, are shared by all of medicine. Through our commitment to conquer cancer, and tackle the major challenges in the field, we will not only save millions of lives, but point the way forward in addressing many of the greatest health challenges facing our nation and the world.

Clifford A. Hudis, MD, FACP
ASCO President, 2013-2014
This is a time of extraordinary change and opportunity in cancer care. A dynamic and integrally related combination of scientific and technological advances, healthcare policy changes and demographic shifts is reshaping virtually every aspect of oncology. This transformation has profound implications for millions of people with cancer and their families in the United States and around the world.

Representing nearly 35,000 oncologists and other oncology professionals who care for people with cancer, the American Society of Clinical Oncology (ASCO) is committed to ensuring that Americans have access to high-quality, high-value cancer prevention and treatment services—and that all patients benefit fully from our nation’s investments in cancer research.

In The State of Cancer Care in America: 2014, ASCO examines the many factors that affect our nation’s ability to reach these goals, from current and projected demand for services and oncologist workforce supply to the full range of economic, regulatory and administrative pressures that oncology practices face. This report also examines how a growing emphasis on quality measurement and demonstration of value, together with the rapid expansion of health information technology, stands to improve the care that patients receive.

ASCO presents this overview of the current state of cancer care in the United States with an eye to the future. The report includes recommendations intended for policymakers, cancer care professionals, researchers, and others with a stake in improving our nation’s cancer care system.

**Key Findings and Recommendations**

**Demand for cancer prevention, screening and treatment services is growing rapidly.** By 2030, the number of new cancer cases in the United States will increase by 45 percent and cancer will become the nation’s leading cause of death, largely as a result of the aging of the nation’s population. At the same time, the number of cancer survivors, now at 13.7 million, will continue to grow. Many of these individuals will require significant, ongoing care.
Access to quality cancer care remains uneven. Millions of people with cancer lack access to quality medical care, and rates of access to care are disproportionately lower for African Americans and Latinos. Today, one quarter of uninsured individuals forego care because of cost, and those without a regular source of care are less likely to receive cancer screening. The Patient Protection and Affordable Care Act (referred to hereafter as ACA) is expected to provide millions more Americans with health insurance coverage in the coming years. However, the ACA alone may not solve disparities in cancer care—in part because it places significant emphasis on expanding Medicaid coverage, which has been associated with poor outcomes for patients with cancer. In addition, millions of Americans are expected to remain uninsured even after the ACA is implemented.

Soaring costs have created an urgent need to improve the value of patient care. While costs are rising throughout the healthcare system, the trend is especially pronounced in cancer care—annual costs are projected to rise from $104 billion in 2006 to more than $173 billion in 2020. This increase is a result of many factors, including the cost of many new cancer therapies. Access to high-quality cancer care will be sustained and expanded only if we address these rising costs, including the use of unnecessary or ineffective tests and treatments.

After reviewing the current need for cancer care in America, this report examines future challenges to the U.S. cancer care system, offering recommendations in the following three critical areas:

1. THE ONCOLOGY WORKFORCE
ASCO regularly monitors the size, distribution and diversity of the U.S. oncology workforce to identify trends that could affect patient access. The Society’s latest analysis identified several key challenges:

- Potential workforce shortages. ASCO estimates that, by 2025, demand for oncology services will grow by 42 percent or more, while the supply of oncologists will grow by only 28 percent. In this scenario, there could be a shortage of more than 1,487 oncologists in 2025. Shortfalls will be driven by tremendous growth in the number of Americans over the age of 65, along with the aging of the oncology workforce and large numbers of anticipated retirements. Furthermore, ASCO’s research indicates that these shortfalls may be further exacerbated by high levels of burnout, potentially leading to reduced clinical load or early retirement.

- Geographical concentration and rural gaps. The vast majority of oncology care providers are concentrated in certain regions of the country and in urban areas generally. Only three percent of oncologists are based in rural areas, where twenty percent of Americans live.

- Need for greater workforce diversity. As we work to reduce racial and ethnic disparities in cancer care, it is important to increase the number of oncologists from underrepresented racial and ethnic groups. Today, there are lower percentages of African- and Latino-American physicians in oncology than in many other medical specialties.

To ensure continued availability of oncology services for patients nationwide, ASCO recommends the following:
• Identify creative strategies for leveraging the oncology workforce—for example, collaboration with primary care professionals on overall coordination of patients’ cancer care, allowing oncologists to focus on patients receiving active treatment of the disease.

• Leverage technology and innovative practice models, such as telemedicine and visiting consultants to improve patient access and better connect other providers to cancer specialists.

• Monitor and address physician burnout. Professional organizations should explore ways that burnout can be prevented and/or addressed and encourage confidential reporting of burnout to gain a more accurate understanding of this challenge.

• Monitor and address the size and diversity of the oncology workforce. ASCO will continue to enhance its research, while advocating for targeted interventions to ensure that the workforce of oncologists will be appropriate in size and diversity to address future demands.

2. THE STATE OF ONCOLOGY PRACTICE
This report highlights findings from ASCO’s second annual census of U.S. oncology practices, conducted in 2013, along with related data from other sources. Key findings include:

• Practice size increasing. The median size of practices increased substantially between those reporting in 2012 and 2013, from nine physicians per practice to 15. Whether this is true growth or an artifact of sampling is not certain, however, these results are consistent with other qualitative information about practice consolidation and mergers over the past year.

• Financial instability for oncology practices. Practices cited financial pressures as the greatest threat to their ability to continue providing high-quality care. As a result of cost pressures, significant numbers say they are cutting back on support staff or clinical research, or are sending patients to hospitals to receive chemotherapy. According to the 2013 Medscape Physician Compensation Report, oncology was one of only two specialties to experience an overall decline in annual income between 2011 and 2012. Endocrinologists were down three percent, and oncologists were down four percent.4

• Greatest threats faced by small community-based practices. The 2013 ASCO census suggests that smaller community practices handle a disproportionate share of patient care, particularly in the southern and western United States, yet are under far greater economic pressure than larger practices. Nearly two-thirds of small practices (63 percent) reported that they were likely to merge, sell or close operations in the next year.

• Practices are gradually adapting to a changing healthcare system and new technologies. A majority have adopted electronic health records, and a sizable minority are considering new payment models. Small practices, however, may lack the resources to adapt.

To sustain oncology practices’ ability to meet patient needs in every community, ASCO recommends the following:

• Payers should align payment systems with the goal of delivering high-value, patient-centered care, and provide funding and support to help struggling practices make the transition to value-driven payment models.

• Test a range of promising cancer care delivery models that address the unique challenges of treating the disease. Specifically, policymakers should launch demonstration projects through the Innovation Center within the Centers for Medicare & Medicaid Services or other appropriate avenues.

• Reduce instability in federal payment systems. This includes repealing the flawed Sustainable Growth Rate (SGR) formula and reversing Medicare cuts caused by sequestration, along with other financial pressures that are disproportionately harming small community practices.
3. QUALITY IN CANCER CARE

Although the U.S. cancer care system is arguably the world’s best, the quality of care remains inconsistent, contributing to disparities in outcomes and unnecessary costs. Many organizations are working to measure and improve the quality, consistency and value of cancer care. This report examines the following key developments:

- **Physician-led quality initiatives show potential to improve care.** A number of different quality improvement efforts are being implemented in oncology with physician leadership and participation. For example:
  - Data from ASCO’s Quality Oncology Practice Initiative (QOPI®), in which more than 850 oncology practices have participated, offer compelling evidence of improvement on several measures, related to both cancer-specific treatment and broader measures such as high-quality end-of-life care.
  - Both Medicare and private insurers are working with physicians to pilot test new payment or care delivery approaches that reward high quality care. These range from clinical pathways to patient-centered medical homes, which promote aggressive disease management, care coordination and strong patient/physician communication.

- **“Big data” arrives in cancer care.** The adoption of health information technology is already transforming many aspects of cancer care, but more dramatic change is on the horizon. Within years, big data initiatives such as ASCO’s CancerLinQ® and the collaboration between IBM’s Watson and Memorial Sloan-Kettering Cancer Center will unlock and analyze data from large numbers of patients—and feed conclusions back to doctors in the form of personalized guidance for each patient. Such guidance will be vital in an area of increasingly complex treatments tailored to the genetics of each patient’s tumor.

To maximize the benefits of these efforts for patients and to achieve consistent, high-quality care, ASCO recommends the following:

- **Build on existing investments made by the oncology community in quality monitoring and information technology.** In particular, Congress and the Administration can work with the oncology community to pursue a national oncology quality measurement system that is efficient, meaningful and relevant to oncology professionals and their patients.

- **Advance “learning health systems” such as ASCO’s CancerLinQ, which have the potential to dramatically improve oncology care, but will require engagement by payers and policymakers to have the greatest impact.**

- **Remove disparities in access to cancer care, in part by requiring health insurers to set benchmarks that include benefits and services essential to the care of all patients with cancer.**

- **Establish a common understanding of how to define and measure value in oncology care, so that physicians, payers and others have a common method for assessing the relative value of cancer treatment options and making treatment and coverage decisions.**

**FOR MORE INFORMATION**

Published in the *Journal of Oncology Practice*, the ASCO State of Cancer Care in America: 2014 report is available online. For full report text, downloadable PDF, and other features, please visit www.asco.org/stateofcancercare.
Two generations ago, a cancer diagnosis was often met with a sense of fatalism and discussed only through whispers and rumors. Today, many patients with cancer and survivors proudly proclaim their fight against these diseases. Public campaigns have sprung up across the world to raise awareness and promote prevention measures and access to treatment. This has not happened by accident. The cancer revolution is a result of long investment in research to understand cancer’s biology, together with advances in the way care is delivered to patients every day. Cancer care has also benefitted greatly from technological innovation occurring throughout society. More than ever, the worlds of science and technology promise to improve survival and quality of life for millions of people with cancer.

Fulfilling that promise, both today and in the future, will depend on our nation’s ability to immediately address current and future challenges. These include:
- increasingly complex cancer diagnosis and treatment;
- a rapidly growing population of individuals requiring cancer care services;
- the unsustainable growth in cancer care costs; and
- persistent disparities in access to high-quality care.

This chapter describes the profound role these challenges have in shaping demand for cancer care today and in the future. The remainder of the report focuses on the current supply of oncology services, capacity to meet projected need, and quality of care.

**Progress in Cancer Care**

Five decades ago, only a handful of hard-to-tolerate treatments for cancer existed, and most of them were minimally effective. Since then, major U.S. investment in cancer research has dramatically improved the ability to prevent, detect and treat the many diseases now recognized as cancer.

This investment often starts with federal government funding from the National Institutes of Health (NIH) and the National Cancer Institute (NCI) in laboratory and translational science. Once a development reaches the stage where it is ready for development as a medication and initial studies in patients, the research is most often funded by pharmaceutical companies and conducted by investigators in academic and community sites. The federal government also funds clinical research through the NCI National Clinical
Trials Network (formerly called the Cooperative Group Program) and other NCI-funded programs. These collaborations between the public sector, private companies and patients are critical to advancing better cancer prevention, diagnosis, treatment, supportive care, survivorship, and quality of life.

Today’s patients benefit from a range of important advances, such as a growing number of approved cancer drugs, new therapies that are tailored to the molecular characteristics of each cancer and each patient, more precise and effective surgical techniques, and comprehensive supportive care measures to control the symptoms of cancer and the side effects of treatment. In 2013 alone, the U.S. Food and Drug Administration approved 18 new cancer-treatment drugs and biologics, bringing the total number of FDA approved anti-cancer drugs to more than 170 today. (Table 1)

As a result of this progress, more people are surviving cancer than ever before. Two-thirds of Americans now live at least five years after diagnosis. Today’s patients benefit from a range of important advances, such as a growing number of approved cancer drugs, new therapies that are tailored to the molecular characteristics of each cancer and each patient, more precise and effective surgical techniques, and comprehensive supportive care measures to control the symptoms of cancer and the side effects of treatment. In 2013 alone, the U.S. Food and Drug Administration approved 18 new cancer-treatment drugs and biologics, bringing the total number of FDA approved anti-cancer drugs to more than 170 today. (Table 1)

### Table 1. FDA-Approved Cancer-Treatment Drugs and Biologics Approved in 2013

<table>
<thead>
<tr>
<th>Generic Name</th>
<th>Brand Name</th>
<th>Approved Use</th>
<th>Precision or Targeted Therapy?</th>
<th>Oral or Injection</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sorafenib</td>
<td>NEXAVAR</td>
<td>Differentiated thyroid carcinoma</td>
<td>N</td>
<td>Oral</td>
</tr>
<tr>
<td>Crizotinib</td>
<td>Xalkori</td>
<td>Non-small cell lung cancer, anaplastic lymphoma kinase (ALK)-positive</td>
<td>Y</td>
<td>Oral</td>
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<tr>
<td>Ibrutinib</td>
<td>IMBRUVICA</td>
<td>Mantle cell lymphoma</td>
<td>Y</td>
<td>Oral</td>
</tr>
<tr>
<td>Obinutuzumab</td>
<td>GAZYVA</td>
<td>Chronic lymphocytic leukemia</td>
<td>Y</td>
<td>Injection</td>
</tr>
<tr>
<td>Pertuzumab injection</td>
<td>PERJETA</td>
<td>HER2-positive breast cancer</td>
<td>Y</td>
<td>Injection</td>
</tr>
<tr>
<td>Paclitaxel protein-bound</td>
<td>Abraxane for</td>
<td>Adenocarcinoma of the pancreas</td>
<td>N</td>
<td>Injection</td>
</tr>
<tr>
<td>particles (albumin-bound)</td>
<td>injectable</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Afinitin</td>
<td>Gilotrif tablets</td>
<td>Non-small cell lung cancer, with epidermal growth factor receptor (EGFR)</td>
<td>Y</td>
<td>Oral</td>
</tr>
<tr>
<td>Denosumab</td>
<td>Xgeva injection</td>
<td>Giant cell tumor of bone</td>
<td>N</td>
<td>Injection</td>
</tr>
<tr>
<td>Lenalidomide capsules</td>
<td>REVLIMID</td>
<td>Mantle cell lymphoma</td>
<td>N</td>
<td>Oral</td>
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<tr>
<td>Trametinib</td>
<td>MEKINIST tablet</td>
<td>Melanoma with BRAF V600E or V600K mutation</td>
<td>Y</td>
<td>Oral</td>
</tr>
<tr>
<td>Dabrafenib</td>
<td>TAFINLAR capsule</td>
<td>Melanoma with BRAF V600E mutation</td>
<td>Y</td>
<td>Oral</td>
</tr>
<tr>
<td>Radium Ra 223 dichloride</td>
<td>Xofigo injection</td>
<td>Prostate cancer</td>
<td>N</td>
<td>Injection</td>
</tr>
<tr>
<td>Erlotinib</td>
<td>Tarceva</td>
<td>Non-small cell lung cancer with EGFR exon 19 deletions or exon 21 (L858R)</td>
<td>Y</td>
<td>Oral</td>
</tr>
<tr>
<td>Ado-trastuzumab emtansine</td>
<td>KADCYLA for injection</td>
<td>HER2-positive, metastatic breast cancer</td>
<td>Y</td>
<td>Injection</td>
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<tr>
<td>Pomalidomide</td>
<td>POMALYST capsules</td>
<td>Multiple myeloma</td>
<td>N</td>
<td>Oral</td>
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<td>Doxorubicin hydrochloride</td>
<td>Generic version of DOXIL Injection</td>
<td>Ovarian cancer</td>
<td>N</td>
<td>Injection</td>
</tr>
<tr>
<td>liposome injection</td>
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<tr>
<td>Doxorubicin hydrochloride</td>
<td>Generic version of DOXIL Injection</td>
<td>AIDS-related Kaposis’s sarcoma</td>
<td>N</td>
<td>Injection</td>
</tr>
<tr>
<td>liposome injection</td>
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<td></td>
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<tr>
<td>Bevacizumab</td>
<td>Avastin</td>
<td>Colorectal cancer</td>
<td>N</td>
<td>Injection</td>
</tr>
</tbody>
</table>
years after a cancer diagnosis, an increase from only about half in the 1970s. (Figure 1) Thanks to earlier detection and better treatments, the nation’s cancer death rate has decreased 20 percent since the early 1990s, reversing decades of increases. There are now 13.7 million cancer survivors living in the United States, and millions more around the world. (Figure 1)

Effectively treating cancer is about more than prolonging life, however. Advances in research and cancer care have made it possible to dramatically improve quality of life, as well. Thanks to better symptom management and treatments with fewer side effects, many patients are now able to live active, fulfilling lives during and after cancer treatment.

Surviving cancer comes with its own complications, however. In addition to the possibility of recurrent cancer, survivors are at increased risk of a variety of other conditions, including diabetes, cardiovascular disease, osteoporosis, and decreased functional status—as well as other types of cancer. These patients require services offered by multiple healthcare providers in addition to oncologists to adequately address their unique health concerns. One study estimated that the annual excess economic burden of survivorship among recently diagnosed cancer survivors is more than $16,000 per survivor and, among those previously diagnosed, more than $4,000 per year. The growing number of long-term survivors of cancer is a success story, but now requires greater focus on transitions in care and coordination with other providers.

**Rapidly Growing Demand for Cancer Care**

Although the U.S. cancer care system is among the best in the world, significant challenges will threaten the nation’s ability to meet the needs of all patients. Most significantly, the number of people in need of cancer care is projected to increase sharply in the coming years for several reasons:

- **Increasing cancer burden.** Despite advances in cancer prevention, it is projected that by 2030, the number of new cancer cases in the United States will increase by 45 percent—from 1.6 million to 2.3 million cases annually—and cancer will become the nation’s leading cause of death. This trend is driven largely by the nation’s rapidly aging population.

- **Growing ranks of cancer survivors.** The number of people who survive cancer is growing rapidly. It is estimated that by 2022, there will be almost 18 million cancer survivors—a more
than 35 percent increase from today. Although the growing number of survivors is a welcome sign of progress, this trend also presents a challenge because many of these individuals require significant, ongoing care, such as surveillance for cancer recurrence, screening for new cancers, and care for the long-term effects of their initial treatment.

- **Newly insured patients.** The Congressional Budget Office has projected that the Affordable Care Act will provide insurance to an additional 29 million Americans by 2017. Enhanced access to insurance will release pent up demand, bringing newly covered—and potentially more complex—patients with cancer into the system. By one estimate, the ACA will increase demand for medical oncologists by an additional 130 full-time clinical care oncologists per year by 2025 as a result of expanded access to insurance.

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**Disparities in Access and Outcomes**

Not all Americans have benefitted equally from advances in cancer prevention, screening and treatment. Disparities in cancer care are influenced by multiple factors, and improving access to care will not, by itself, eliminate these gaps without additional interventions. As one example of the challenges facing the oncology community, one study of Florida patients found that, compared with uninsured patients, Medicaid patients were 6 percent more likely to have late-stage prostate cancer at diagnosis, 31 percent more likely to have late-stage breast cancer, and 81 percent more likely to have late-stage melanoma.

**Racial Disparities**

Research shows that members of racial and ethnic minorities in the United States are more likely to develop cancer, less likely to access high-quality cancer care, and more likely to die from cancer when compared with whites. For example, the death rate for cancer among African American males is 33 percent higher than among white males, and for African American females, it is 16 percent higher than among white females. For Hispanic women, the incidence of cervical cancer is twice that of white women.

**Insurance-Driven Disparities**

Though the Affordable Care Act will lead to an unprecedented expansion in health coverage for millions, the Congressional Budget Office estimates that 23 million individuals will still be uninsured by 2019. For these individuals—and other vulnerable populations—access to cancer care will remain a significant challenge.

Medicare, Medicaid and the newly established health insurance exchanges will be key drivers of coverage for patients with cancer, and the respective share of patients with coverage through these programs is likely to increase as more Americans enter government-sponsored programs in the coming years. Federal regulations do not standardize benefits for all plans sold within the exchanges, but they do provide protection against discrimination based on age, expected length of life or other health conditions. It remains to be seen how this protection will be enforced, and what insurance practices will be prohibited. This is an important area to monitor as coverage begins for many newly insured Americans.

The American Society of Clinical Oncology (ASCO) has identified a number of specific measures needed to make meaningful...
progress against disparities in cancer care. These include adopting patient-centered quality improvement initiatives; attracting more minority providers; training the oncology workforce to meet the needs of diverse patients; and improving data collection to allow a deeper understanding of racial, ethnic, and regional disparities.

Programs that have already had some success in addressing cancer disparities provide important learning opportunities. The Delaware Cancer Consortium, the state’s cancer control program, for example, nearly eliminated racial disparities in outcomes for African American patients with colorectal cancer without increasing overall health system costs. The Consortium succeeded by aggressively expanding screening and treatment. ASCO has recently put forth several recommendations that would strengthen Medicaid programs and increase their potential for this kind of success.

New Challenges in a Shifting Cancer Landscape

Oncology leaders, scientists, and clinicians generally agree that a new era of cancer care is emerging. New scientific, technical and economic trends are likely to alter oncology care delivery more significantly in the next 20 years than in the last 50. To continue improving the quality of cancer care and ensure that the needs of future patients are met, a number of key challenges must be anticipated and addressed.

SOARING COSTS

Annual cancer care costs are projected to rise from $104 billion in 2006 to more than $173 billion in 2020. This projected increase is driven in part by a healthcare system that incentivizes the use of tests, treatments and services, some of which are unnecessary, ineffective or avoidable. This increase is also driven by the cost of new cancer therapies, particularly as novel therapies are developed and administered in combinations of two, three or more drugs. With newly approved drugs costing as much as $100,000 for a course of treatment, combination therapies are already becoming cost-prohibitive for many patients, even those with insurance.

COMPLEXITY OF PRESCRIBING AND MANAGING NEW CANCER TREATMENTS

Recent breakthroughs in our understanding of cancer “panomics”—the combination of genes, proteins, molecular pathways, and unique patient characteristics that together drive the disease—will lead to significantly more effective treatment strategies that are precisely tailored to each individual patient.

This new, more personalized approach to cancer treatment will significantly increase the complexity of cancer care. As cancer becomes segmented into more and more “rare” genetically defined diseases, it will be increasingly difficult for physicians to assimilate and apply the volume of available information in the care of their patients. Oncologists will need to collect, analyze and monitor a vast quantity of patient data, using an array of new diagnostic tools. To address these challenges, advances in the use of health information technology and other tools will be essential.

In addition, a growing number of patients will receive their cancer treatment at home, by oral administration, rather than in the presence of an oncology professional. This shift will have many benefits for patients. It also presents new challenges for oncologists to educate and communicate with patients and caregivers to promote adherence and monitor side effects.
WORKFORCE SHORTAGES AND DEMOGRAPHICS
On the basis of the best information available in 2013, ASCO is projecting a national shortage of physicians specializing in oncology by 2025. The anticipated shortfall is associated with multiple factors, including the dramatic increase in cancer care services required by an aging population, and will occur at the same time as projected shortages of other members of the cancer care team, including nurses, pharmacists and social workers. Workforce challenges that present potential barriers to patient access must be addressed, including the relatively low representation of racial and ethnic minorities in the current oncologist workforce and a geographic distribution of cancer physicians weighted heavily toward urban areas. (Chapter 2, The Oncologist Workforce, discusses these issues in greater detail.)

Rising to the Challenge: Priorities for Action
The oncology community is uniquely positioned to re-envision the cancer care delivery model in a way that ensures high-quality care for all patients and addresses critical flaws in our nation’s healthcare system. To make such care available to more people, it will be essential to reduce unsustainable costs throughout the system. Addressing the cost of new cancer drugs and ensuring the value of cancer care should, in particular, be considered.

DRUG PRICING APPROACHES
Currently, traditional market forces are largely absent in pricing new cancer drugs, resulting in an artificial marketplace with few competitive pressures to limit prices. More frightening is the prospect that emerging targeted agents—many with staggering price tags—will need to be used in combinations in order to be effective. Figure 2 illustrates a rapid, unrelenting march toward drug costs that are unsustainable for the system—and for patients who must share in that cost. Physicians must join with insurers, policymakers, pharmaceutical companies, providers, and advocates to develop a more rational system for drug pricing. Solutions need to encompass pricing, insurance coverage and

Figure 2. Monthly and Median Costs of Cancer Drugs at the Time of FDA Approval, 1965-2013

![Figure 2. Monthly and Median Costs of Cancer Drugs at the Time of FDA Approval, 1965-2013](source: Memorial Sloan-Kettering Cancer Center. Center for Health Policy and Outcomes)
evidence-based practice to ensure patients will not be burdened by high out-of-pocket costs. More rational pricing must be coupled with efforts to ensure that drug companies are still able to recoup their investments in high-risk, high-cost research programs in order to sustain innovation. (Figure 2)

**PROMOTING HIGH-VALUE CARE**

In practical terms, promoting high-value care means supporting the use of tests and treatments that scientific evidence demonstrates are most likely to improve survival and quality of life. This means taking proactive steps as a profession to reduce the use of unnecessary procedures and ineffective treatments. Studies have demonstrated the role of evidence-based guidelines in reducing costs. For example, a 2009 study showed that adhering to guidelines regarding upfront testing for KRAS mutations in patients with metastatic colorectal cancer could save $604 million in drug costs every year. Another study of patients with metastatic colorectal cancer showed KRAS testing before administering epidermal growth factor receptor inhibitors could produce cost savings of as much as $12,400 per patient in the United States with equivalent outcomes.

**What This Means for Patients**

Focusing on two essential elements can help the oncology community more accurately address the needs of tomorrow’s cancer patients.

First, significant work remains to address persistent barriers to high-quality oncology care. The following chapters discuss some of the ways in which access can be improved. Greater commitment is needed on the national level, however, to address disparities in cancer care, especially those that disadvantage members of racial and ethnic minorities.

Second, greater effort is needed to define and enhance the value of cancer care. Prioritization and investment in large-scale quality improvement programs will support consistent delivery of evidence-based medicine, providing an immediate, substantial, and positive impact on the care of patients with cancer.

Greater commitment is needed...to address disparities in cancer care, especially those that disadvantage racial and ethnic minorities.
2. The Oncology Workforce

The size and demographics of the oncology workforce heavily influence patients’ ability to access high-quality cancer care. Ensuring an adequate and diverse corps of cancer specialists to meet current and future patient needs is critically important to the nation’s health.

Understanding the characteristics of today’s oncologist workforce is essential to anticipating future challenges. Key questions include: How closely does the oncology physician workforce reflect the demographics of the American population as a whole and what shifts would be desirable? How will the geographical distribution of the workforce impact cancer specialty care in years to come? What factors impede attracting and retaining physicians in oncology specialties?

This chapter presents data describing the current medical oncologist workforce (including medical oncologists, hematologists/oncologists, and hematologists) and predictions of how it may change over time. Specifically, the following pages discuss:

• The size and demographics of the U.S. oncology workforce (including medical oncologists, hematologists/oncologists, and hematologists);
• Projections of future supply and demand for oncology services; and
• Factors that influence recruitment and retention of oncologists in the years ahead.

A Snapshot of the Field

An analysis of the American Medical Association’s (AMA) Physician Masterfile database identifies approximately 13,400 physicians in the United States who specialize primarily in adult medical oncology and/or hematology.24 (Medical oncologists primarily treat organ-based cancers that occur as tumors, and hematologists primarily treat blood-based cancers.) Separately, Medicare’s Physician Compare database (which tracks physicians engaged in caring for Medicare participants) identifies approximately 11,300 medical oncologists and hematologists/oncologists actively engaged in delivering chemotherapy services, a core component of cancer care for most patients. (Table 2)

<table>
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<th>Oncology Specialty</th>
<th>Masterfile Number</th>
<th>Physician Compare Number</th>
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<td>11,343</td>
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<tr>
<td>Pediatric Hematology/Oncology</td>
<td>2188</td>
<td>(not relevant, since pediatricians do not treat Medicare patients)</td>
</tr>
<tr>
<td>Surgical Oncology</td>
<td>443</td>
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</tbody>
</table>
Because adult cancers predominantly affect people over the age of 65 (who are eligible for Medicare), the Physician Compare database can be used to provide an indicator of the number of oncologists involved in patient care. Approximately 80 percent of professionals trained as oncologists are currently engaged in treating patients. The other 20 percent are most likely involved in administration, research, teaching, and government jobs that do not involve direct patient care.\textsuperscript{25}

In addition to medical oncology and hematology, subspecialties that care for people with cancer include gynecologic oncology, radiation oncology, surgical oncology, and pediatric hematologic/oncology. According to the Physician Compare data, there are 921 gynecologic oncologists, 4,178 radiation oncologists, and 760 surgical oncologists in the United States. (Pediatric hematologists/oncologists do not treat Medicare patients and are, therefore, not tracked in this database.) The Masterfile database identifies 2,188 total pediatric cancer physician specialists. Other specialists, such as urologists, also care for patients with particular types of cancer (e.g., prostate cancer).

Given the relatively flat curves for gynecologic, pediatric and radiation oncologist subspecialties growth in overall oncology numbers appears to be driven primarily by increases in the hematologic/oncology and medical oncology workforce. (Figure 3)

Demographics of the Medical Oncology Workforce

To more fully understand the medical oncology physician workforce, ASCO examined demographic trends including age, sex and racial/ethnic background. The analysis that follows is based primarily on ASCO’s Workforce Information System, or WIS, and refers to physicians who designate a specialty of hematologic/oncology, medical oncology, or hematology.\textsuperscript{26} (See Appendix A, for further details.)

AN AGING WORKFORCE

As a whole, the medical oncology workforce, like most clinical care workforces in the United States, is growing older. In 2008, the proportion of oncologists 64 years of age and older...
surpassed the proportion under 40 years of age for the first time.\textsuperscript{27} This gap continues to widen, with the medical oncologists being slightly older than the general physician population, a consistent trend for the last eight years.\textsuperscript{28} (\textit{Figure 4})

The large number of medical oncologists 64 years of age and older suggests that their transition out of the workforce may have broad implications on cancer care over the next several years. This is a concern not only because of the size of the cohort that may retire soon, but also because older physicians appear to carry a heavier clinical workload than those under 45 years of age, based on self-reported patient visits per week.\textsuperscript{29} Thus, their retirement may have an impact disproportionate to their numbers.

\textbf{INCREASING PERCENTAGE OF FEMALE ONCOLOGISTS}

Current trends suggest that a long-standing gender gap among physicians specializing in medical oncology is gradually closing. Nearly one-third (29.3 percent) of the current workforce is female, which is consistent with the current overall physician workforce (32 percent).\textsuperscript{30} As the broader field of medicine achieves greater gender parity, so does oncology. Since 2009, 46 percent of medical oncology training positions have been occupied by women, and the percentage is moving upward. This finding is consistent with the overall percentage of all medical residents and fellows who are female (46.3 percent) and internal medicine residents who are female (44.6 percent).\textsuperscript{31}

\textbf{GAPS IN RACIAL AND ETHNIC DIVERSITY}

In 2004, the Institute of Medicine issued a comprehensive report on the science supporting greater diversity in the medical workplace. The report concluded that medical workforce diversity “is associated with improved access to care for racial and ethnic minority patients, greater patient choice and satisfaction, better patient-provider communication, and better educational experiences for all students while in training.”\textsuperscript{32}

By any measure, the overall physician workforce is far less racially and ethnically diverse than the U.S. population as a whole. African American and Hispanic physicians are especially underrepresented in both the physician workforce and in medical schools.\textsuperscript{33}

Even fewer African American and Hispanic physicians are participating in medical oncology training programs. According to the ASCO Workforce Information System, only 3.1 percent of oncology trainees identify themselves as black or African American, in comparison to 5.9 percent in medical training programs overall. Also, consistently lower percentages of Hispanics enter the medical oncology workforce (7.5 percent) compared with internal medicine as a whole (8.7 percent).\textsuperscript{34}

While these data are instructive, further assessment of diversity in the medical oncology workforce is difficult because of a lack of reliable information; existing databases on the physician workforce as a whole often exclude information about race and ethnicity. This challenge reflects much more than an information systems issue, however. Recruiting and retaining greater numbers of racially and ethnically diverse physicians is clearly needed, and requires collaborative efforts across the entire educational
system, as well as focused work by medical schools and professional societies, to generate greater diversity in medical school applicants. Professional societies also have a role to play in attracting a greater number of under-represented racial and ethnic groups to their discipline. For example, the Conquer Cancer Foundation of ASCO has engaged in this initiative by offering financial support to enable under-represented medical students to attend the ASCO annual meeting and engage in a mentored research experience in oncology.

Geographic Distribution

For patients with cancer, proximity to their doctor is extremely important. The disease and its treatment can be exhausting and many people seeking cancer care are older with compounding health and mobility issues. As a result, travel can be a significant burden that complicates or disrupts care. In rural areas without many doctors, the paucity of local options can seriously influence outcomes for patients.

EXTREMELY POOR COVERAGE IN RURAL AREAS

Analysis of the geographic distribution of physicians specializing in medical oncology highlights several areas of concern. First, the distribution of physicians is heavily skewed toward urban areas. In general, oncologists are concentrated in the Northeast, Gulf of Mexico, and Great Lakes regions, as well as in Florida.

Figure 5. Oncologists per 100,000 Population by State

Sources: National Provider Identifier Downloadable File, Centers of Medicare and Medicaid Services (accessed August 12, 2013) and 2013 TIGER/Line® Shapefiles, U.S. Census Bureau
and California. Nearly 97 percent of physicians practice in urban areas or urban clusters, and approximately 3 percent practice in rural areas. In contrast, the U.S. census estimates that about 19 percent of Americans live in rural areas. Most striking, more than 70 percent (2,067) of the U.S. counties analyzed had no medical oncologists at all.

In addition to the geographic distribution of absolute numbers of oncologists, an important indicator for access to care is the ratio of oncologists per 100,000 people. Figure 5 shows that, for the nation as a whole, there are 3.8 oncologists per 100,000. Numbers range from a high of 15.3 in the District of Columbia (which has a small population and several large institutions) to a low of 1.6 in Wyoming. Massachusetts weighs in with 8.2 and Maryland 6.6 oncologists. (Figure 5)

Also of concern, a number of communities in the central and mid-western portions of the United States are covered only by medical oncologists over age 64. (Figure 6) Without movement of younger oncologists to these practice sites, patients from these communities may have to travel greater distances for oncology care in response to retirements in upcoming years. This is especially apparent in Wyoming, South Dakota, Texas, and Hawaii, and may also be a concern in Colorado, Utah, and Kansas. (Figure 6)
Lessons from Iowa

To better understand the challenges faced by rural patients with cancer, ASCO partnered with the University of Iowa to conduct an in-depth analysis of how medical oncology care services are delivered in that state. These data help build a case study for rural cancer care in America today.

The analysis found 106 practicing hematologists/oncologists in Iowa from 2004 to 2010. These physicians were primarily located in 14 cities that contain approximately half of the State’s population. (Figure 7)

Throughout America, states have sought ways to increase access to specialists in rural counties. In Iowa, these arrangements are called visiting consulting clinics (VCCs). Through formal agreements arranged between rural clinics and sponsoring practices in more urban areas, physicians visit rural locations on a set schedule. In Iowa from 2004 to 2010, VCC agreements connected 15 sponsor organizations with 85 individual clinics. (Figure 8)

The analysis showed that it was most common for visiting physicians to travel to VCCs once per month (45 percent), although some VCC arrangements allowed for physician visits as often as two or three times per month (28 percent), once a week (18 percent) or more than once a week (9 percent). The University of Iowa tracks these arrangements, but there is no apparent systematic national process to determine the adequacy of rural service specialty care arrangements. Furthermore, recent ASCO polling on the impact of sequestration suggested that service arrangements like VCCs might be at risk.

Although the study demonstrated that VCCs help increase access to medical oncology specialty care in rural Iowa, the analysis was not able to determine whether patient outcomes were improved. ASCO (in collaboration with the American Cancer Society and the American Society for Radiation Oncology) is conducting a similar study of oncology practice location on the national level and plans to examine patient outcomes in that analysis.

The Future Workforce

ANTICIPATED WORKFORCE SHORTAGES

For nearly 10 years, ASCO has been tracking and analyzing the impact that an aging and growing population, increasing numbers of cancer survivors, and slower growth in the supply of medical oncologists will have on the country’s capacity to address the needs of patients with cancer. The most recent workforce projections and analyses reflect an urgent need to address the anticipated workforce shortage before this reality arrives.

ASCO data suggest that by 2025, overall demand for medical oncology services will grow 42 percent, requiring 15,721 hematologist/oncologists providing full-time equivalent (FTE) clinical care. At the same time, supply of hematologists/oncologists is projected to grow only 28 percent (14,234 FTEs), generating a shortage of 1,487 clinical care FTEs in 2025. These figures do not take into account the increase in demand that is likely to occur as a result of the impact of the ACA on insurance coverage. When fully implemented, the ACA could increase the demand by an additional 130 clinical care FTE hematologists/oncologists per year by 2025.
Figure 7. Geographic Distribution of Iowa Oncologists by Primary Practice Location

Figure 8. Iowa Visiting Consulting Clinic Arrangements

*Includes medical oncologists and hematologists

Source: Iowa Health Professions Tracking Center, Office of Statewide Clinical Education Programs
UI Carver College of Medicine, May 2013
BURNOUT COULD EXACERBATE WORKFORCE SHORTAGES

Physician “burnout”—long-term exhaustion that leads to diminished interest in work—is an ongoing problem that impacts many different medical specialties. Oncology is not immune to this concern. As a high-intensity field with a growing patient population and increasingly complex treatment protocols, oncology is prone to long-term physician fatigue in ways that may not yet be fully understood.43

To better assess the impact of burnout on the oncology workforce, ASCO conducted a study in 2012 to examine the issue.44

Of the nearly 1,500 hematologist/oncologist respondents, the study found that:

• 44.7 percent of respondents feel burned out.45

• Those who devote the greatest amount of their professional time to patient care appear to be at greatest risk for burnout.

• Those in private practice report lower satisfaction in their career than those in academic practice.46

• Nearly 27 percent of oncologists are moderately or highly likely to reduce their clinical hours in the next 12 months, 34 percent are moderately or highly likely to leave their current position within 24 months, and 28 percent planned to retire before the age of 65.47

Interestingly, although medical oncologists experience high levels of burnout, a majority of respondents indicated they would again choose to become a physician (82.5 percent) and oncologist (80.5 percent) if they could revisit their career and specialty choice.48

These findings raise significant concerns, especially for physicians in private practice, who deliver 50 percent more clinical services than those in academic settings. Without serious consideration of new ways to help physicians manage their workload, burnout-related attrition will compound the acute shortages already anticipated.

CLINICAL WORKLOAD VOLUME IN PRIVATE PRACTICE VS. ACADEMIC SETTINGS

If the trend toward consolidation of smaller community practices into larger academic settings continues (see Chapter 3, The State of Oncology Practice, for further discussion), one potential issue to monitor to examine access to care could be the relative difference in patient volume between the two settings.

A 2012 ASCO survey showed that private practice oncologists see almost twice as many patients as their academic colleagues (74 vs. 37 patients) and spend more time on clinical care (43 vs. 29 hours per week). Time spent per patient was comparable, with private practice oncologists spending an average of 52 minutes with new patients and 18 minutes with return patients. Academic practitioners spent 54 minutes with new patients and 21 minutes with returning patients. The 2012 data on work volume...
are consistent with previous analysis done in the ASCO 2007 workforce study. This will be an important area to monitor in the coming year.

What This Means for Patients

The strength of the oncology workforce means everything to patients. A patient’s ability to access a cancer specialist, understand their diagnosis, and adhere to treatment is directly related to the workforce’s ability to attract, train and retain a motivated corps of healthcare professionals. The current U.S. cancer care delivery system is at risk in each of these areas.

If current productivity and treatment models remain unchanged—and the medical oncology training pipeline does not grow—insufficient capacity will exist to meet the growth in demand that is inherent in an aging population. This will, at minimum, translate to limited access, including longer waits or travel distances, for patients with cancer. These trends could also have larger repercussions on patient outcomes.

Moving Forward: Recommendations for Monitoring and Addressing Workforce Shifts

To address challenges facing the medical oncology workforce, policymakers and other stakeholders in the oncology community should prioritize the following activities in 2014 and beyond:

Identify Strategies for Leveraging the Medical Oncology Workforce. With growing demand for cancer care services and the potential for future oncologist shortages, the oncology community should explore models of care that result in the best use of each member of the cancer care team. This may include expanded use of advanced practice providers and exploring ways for oncology professionals to collaborate with primary care professionals for appropriate transition and coordination of care for patients with cancer.

Expand Access by Leveraging Technology and Innovative Practice Models. Healthcare providers are beginning to address this through visiting consultant programs and telemedicine (using connectivity tools to connect primary care providers to specialists). The oncology community should understand what is working in other healthcare fields and seek to expand these innovative ways to provide access to high-quality cancer care.

Support Professionals by Monitoring and Addressing Burnout. The oncology community should explore ways to better prevent and address burnout, including development of support and other resources for providers having difficulty. Professionals who are experiencing burnout may be reluctant to share these concerns with colleagues. They may be more willing to connect through programs and technologies that provide confidentiality.

Monitor and Address the Size and Diversity of the Medical Oncology Workforce. Timely data collection that reports accurately on the cancer workforce is vital to preventing and mitigating negative trends. ASCO will continue to enhance its Workforce Information System to improve the types of data collected and the implications of findings for access and quality of care. This work will highlight areas with potential for targeted interventions that help to sustain a healthy workforce—one that is diverse, robust and able to meet future demands.
Individual oncology practices form the foundation of cancer care in America. Oncology practices function in an increasingly dynamic and challenging environment, with changes occurring in virtually every facet of the healthcare delivery system. Practices both large and small are constantly adapting while striving to deliver quality care to a growing patient population. Until recently, however, few data have been available to describe these adaptations or analyze their impact on patient care.

To address this lack of information and more fundamentally describe the shape of oncology practice in the United States, ASCO in 2012 launched the National Oncology Census—the only annual survey of the oncology community that seeks to understand changes in oncology practice over time. (See Appendix B for further details.)

This chapter describes the findings from the 2013 ASCO census, comparing its results with those of the previous year and considering its implications for patients and the oncology field as a whole. Specifically, the following pages discuss:

- the characteristics of oncology practices in the United States, including size, provider specialization, patient mix, and practice affiliation;
- environmental challenges and the response from practices; and
- the unique role of small community practices and the obstacles they face in providing care.

This chapter also takes a closer look at how adoption of electronic health records is affecting oncology practice.

**Practice Size**

The 2013 ASCO National Oncology Census identifies several important shifts since 2012, including increased practice size, a greater number of affiliations between practices and other entities, and a wider array of physician specialties housed within each practice. The census also describes an increasingly fragile cancer care system: the number of community-based practices continues to decline; cost and payer pressure remain primary concerns for providers; and despite stable or increasing numbers of patients in each practice, a troubling number of practices report the likelihood of closing operations in the next year.
INCREASING PRACTICE SIZE

ASCO’s two years of census data suggest that oncology practices as a whole are growing larger, and that small practices with only a few physicians are becoming increasingly rare. (Figure 9.) Among census participants, there was an increase in the proportion of practices reporting seven or more physicians between 2012 (29 percent) and 2013 (42 percent), coupled with a decrease in those reporting six or less (71 percent and 58 percent, respectively).52

The average practice size among respondents also increased substantially between 2012 and 2013, with the median number of physicians per practice at 15 physicians per practice in 2013 versus 9 in 2012.53 (Figure 9)

The significant proportion of practices with seven or more physicians was even more apparent on a regional level. In the South, nearly half of all practices were “large” (7 or more physicians per practice). In the West and Midwest, 43 percent of respondents reported their practice was large. Only in the Northeast were practices similarly divided between the small, medium and large practice groups.54 (Figure 10)

In 2013, practices overall reported an average of 1,620 new patients in the past 12 months, a 28 percent increase over 2012. This increase can be partially explained by the fact that 2013 responding practices were larger than those that responded in 2012. Among private practices, those with one to two physicians had an average of 387 new patients in 2013; those with three to six physicians had an average of 1,227 new patients, and those of seven physicians or more had an average of 2,700 new patients.55

Shifts in Practice Staffing and Administration

WIDER RANGE OF SPECIALTIES AND PROVIDER TYPES

The ASCO census asked all practices whether they included members of several different oncology specialties: medical...
oncology, hematology, hematology/oncology, gynecologic oncology, pediatric hematology/oncology, radiation oncology, surgical oncology, or other (including non-oncology). The 2013 census responses show an increase in the number of practices reporting multi-specialty representation, from 25 percent in 2012 to 51 percent in 2013.\(^4\) This change could reflect the merger or acquisition of smaller practices into larger entities, the trend toward larger practice size independent of mergers, or planned diversification of services to remain competitive.

**Increasing Use of Advanced Practice Providers**

The 2013 ASCO census also indicates increased use of advanced practice nurses and other non-physician providers. With the exception of non-certified oncology nurses, practices had, on average, an increased number of all allied health personnel, including certified oncology nurses, nurse practitioners, physician assistants, licensed practical nurses, and medical assistants. This held true even when large academic centers were omitted from these analyses.

The number of non-physician providers in oncology practices is also likely to increase in the future. A majority of respondents indicated they planned to hire additional certified oncology nurses and nurse practitioners in the coming year. This may reflect a concern for growing patient volume and the need to utilize non-physician providers to a greater extent in order to sustain or increase timely patient access to care.

**Practice Financial Health and Management**

**More Practices Plan to Affiliate with Other Providers**

In 2013, practices were more likely to indicate they would enter into a new affiliation whether with another practice, an academic medical center, or a community hospital, than they were in 2012. More than one-quarter (26 percent) of practices projected the likelihood of affiliation with a community hospital in the coming year in the 2013 survey; in 2012, the figure was 15 percent.\(^5\)

These results are consistent with several other reports and surveys. Analyses have shown that oncology care continues to move into the hospital outpatient setting, where it is usually more expensive.\(^4\) It is likely that the move by smaller community practices to merge or affiliate with hospital practices has driven, at least in part, the shift toward larger practice size. As a potential indicator of this connection, one in five practices in 2013 described themselves as an academic practice—more than double the proportion reporting that designation in 2012 (9.5 percent).\(^6\) This shift also likely reflects increased participation of academic practices in the 2013 census, but has been noted in the field as a whole.

**Payer Mix Remains Stable**

Oncology practices typically serve patients with a mix of public and private insurance, along with a small sub-set of uninsured or self-paying patients. Payer mix by revenue remained relatively stable between the 2012 and 2013 census data. Although increases in the percentage of uninsured/self-pay and Medicaid patients occurred, the change was not significant.\(^6\) (Figure 11)

Because more than half of cancer diagnoses occur in Medicare-eligible patients, the federal government is a significant driver of practice revenue. Recently, the federal budget sequester and various Medicare policies have put downward pressure on reimbursement levels, but the U.S. Department of Health and
Human Services reports show stable or increasing physician participation rates in the Medicare program.\textsuperscript{43}

This stability may shift in the future, however. The introduction of health insurance exchanges combined with a larger Medicaid-eligible population through the Affordable Care Act may result in significant changes in the years to come. The exact nature of these changes is impossible to predict and will be monitored through the ASCO census over coming years.

**PAYER AND COST PRESSURES ARE PRIMARY CONCERNS**

When asked about the most significant environmental pressures they faced, ASCO census participants were generally consistent between 2012 and 2013, with a majority citing cost and payer related issues as their greatest concerns.\textsuperscript{64} \textit{(Figure 12)}

**MIXED PICTURE ON ONCOLOGY DRUG SHORTAGES**

Though shortages of cancer drugs have been a major challenge facing oncologists and patients in the last few years, this concern did not rank highly in the 2013 ASCO census. There may be several factors behind this counterintuitive finding.

First, although key generic injectable cancer therapies remain in short supply, the number of newly reported shortages has declined. This is perhaps due to actions by the U.S. Food and Drug Administration and manufacturers to prevent shortfalls. Second, many physicians have found workarounds where drugs are scarce. Potentially involving higher costs, less convenient regimens and the risk of poorer outcomes, these alternative approaches may also be the only option for patients in need. Compounding these issues is the shortage of other key medicines that are used to support cancer treatment, including anti-nausea medications, intravenous fluids, and even some key pain medications.

\textbf{Figure 12. Pressures Cited by Practices by Year}

![Bar chart showing pressures cited by practices by year]
ADOPTION OF NEW PAYMENT MODELS

In response to economic pressures, and as a result of growing emphasis on quality measurement, some oncology practices are pursuing innovative care models or other initiatives that aim to enhance quality of care and control costs. These include shared savings programs, prospective payment arrangements, patient-centered medical homes, and more efficient practice workflow.

The ASCO census asked participating practices about their existing payment models, and whether there was consideration within the practice of novel delivery and/or payment models. The overwhelming majority of practices (79 percent) reported that they remain in a fee-for-service environment. Twenty-four percent of practices, however, reported that they were considering novel delivery/payment models; 63 percent of those are considering payment models that reward care coordination services, and 37 percent are considering models that reward pathway adherence.

Increasingly, clinicians, administrators and policymakers are discussing changes to the traditional fee-for-service model that would benefit patients and the system as a whole. (See Box A.)

INCREASING REFERRALS TO HOSPITALS FOR CHEMOTHERAPY

Separate from the ASCO census, other recent data indicate changes in the facilities where patients receive care. For example, according to data from The Moran Company, hospital outpatient departments accounted for 33 percent of fee-for-service chemotherapy administration in 2011, up from just 13.5 percent in 2005. These shifts represent potential disruptions of care—as fewer patients receive treatment from their own physicians’ staff—and also raise concerns about cost. Chemotherapy administration in hospital outpatient departments is usually reimbursed at higher rates than in physician practices. From 2005...
to 2011, Medicare payments to hospital outpatient departments for chemotherapy administration tripled (from $98.3 million to $300.9 million), even as spending for the same service in physician offices decreased by 14.5 percent (from $507.5 million to $433.8 million).67

Separately, an ASCO 2013 member survey found that 50 percent of respondents sent some of their Medicare patients elsewhere for chemotherapy—primarily to hospital outpatient departments—as a result of declines in Medicare reimbursement for cancer treatments after the federal budget sequester.68

MAINTAINING SUPPORT SERVICES WHILE REDUCING CLINICAL RESEARCH

In addition to providing cancer care, oncology practices typically provide important support services to their patients, including case management, social work and nutritional counseling. These services play an important role in helping patients navigate the complexities of cancer care and maintain their quality of life during treatment. Encouragingly, most practices in the ASCO census do not seem inclined to eliminate the support services they already offer. Only approximately five percent of survey respondents indicated they were very or somewhat likely to eliminate these services.69

Oncology practices also serve as a major point of enrollment for clinical trials of new cancer therapies—an important benefit to patients individually and to the ongoing search for effective treatments. Whereas more than half of practices reported they are planning to increase participation in clinical research, some reported they are contemplating reducing or eliminating this activity from their practice.70 (Figure 13) This will be an important area to monitor in the coming year.

INCREASED LIKELIHOOD OF STAFF LAYOFFS

Although a minority of practices reported that they were likely to lay off staff in 2013, the number planning such moves was significantly higher than in 2012—a possible indication of increasing financial pressures in the cancer care system. The positions most likely to be eliminated were administrative and non-physician clinical staff, suggesting that although patients’ access to physicians will not be significantly affected, increased wait times or other issues could emerge.71 (Figure 14)
Private Community Practices at Risk

This section takes a closer look at the subset of the ASCO census data specific to private community practices. Such practices can vary widely in size but tend to be smaller than academic practices. The number of private community practices represented in the census fell by approximately 25 percent between 2012 and 2013 (from 335 to 253). These practices still comprised nearly half (47 percent) of all respondents in the 2013 sample, however, and represented 1,782 physicians.72

 SMALLER PRACTICES CONCENTRATED IN SOUTH AND WEST

Small community practices—those with just one or two physicians—were far more prominent in the South than in any other region, representing 43 percent of all private community practices there. Slightly larger practices of three to six physicians were most common in the West.73 (Figure 15)

These concentrations likely reflect the predominance of small towns and rural communities in many areas of the South, and to some degree in the West. In such areas, small and mid-size community practices are often the primary providers of cancer care, enabling people to receive high-quality, personalized treatment close to home. What cannot be ruled out, however, is the potential for reporting bias that might skew interpretation of the data.

 SMALL PRACTICES UNDER DURESS AND REPORT GREATEST VOLATILITY

The 2013 ASCO census suggests that smaller community practices may handle a disproportionately large share of patient

Figure 15. Private Community Practice Size by Region, 2013

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</tbody>
</table>
Small and medium-sized practices see more than a third of new patients, highlighting their critical importance to the nation’s cancer care system, and the potential risk to patients if these practices close or curtail services. (Figure 16) Moreover, as a result of likely under-sampling of small to medium-size practices, it is possible these practices see even larger proportions of patients than indicated in the census results.74

Troublingly, the smallest practices had the greatest expectations of selling or closing their doors. All told, two-thirds of small practices (63 percent) reported that they were likely to merge, sell, or close operations in the next year.75 (Figure 17) That is double the percentage that reported the same likelihood for the ASCO census overall. Depending on whether practices simply change affiliation (remaining in the same location), move to a new location or close their doors, these trends could create significant access issues for patients in areas served by small practices.
While the ASCO census data do not explain the reasons for this change, it likely reflects both the integration of smaller practices with larger health systems and tough decisions forced by financial and bureaucratic pressures.

**Adoption of EHRs and Other Health Information Technology**

**INCREASED USE OF TECHNOLOGY**

The oncology community continues to increase its adoption of health information technology (HIT). In 2008, less than 20 percent of oncology providers used any electronic health record (EHR) system in their clinical setting. In contrast, surveys conducted by ASCO in 2012 and 2013 found that the rate of self-reported use of either “basic” or “advanced” EHRs by oncologists has grown to exceed 75 percent. The recent survey data suggests that the use of advanced EHRs by oncologists increased modestly over a one-year period from 61 percent in 2012 to 68 percent in 2013. In addition, 9 percent of survey respondents in 2013 indicated that their practices planned to implement a new EHR system within the upcoming six months. (Table 3)

**IMPLEMENTATION COSTS MAY AFFECT ADOPTION RATES**

A substantial commitment of financial resources is required for physician practices, hospitals and other healthcare providers to acquire and operate modern EHR systems. According to information provided by the Office of the National Coordinator for Health Information Technology, the cost of purchasing and installing an EHR system can range from $15,000 to $70,000 per provider. This cost does not include investments required to redesign workflow, lost revenues during transition, and other administrative expenses. These costs present obvious challenges for community-based oncology practices that already are struggling in the face of significant administrative burdens and a challenging economic environment. The federal government is taking steps to address this issue. (See Box B)

**FEDERAL INCENTIVES FOR HIT ADOPTION**

Recognizing the potential financial benefits of promoting wide scale adoption of HIT, Congress enacted the HITECH Act within the federal stimulus legislation of 2009 to provide direct financial support for healthcare providers to invest in HIT systems. The U.S. Department of Health and Human Services used its authority under the HITECH Act to establish new programs that provide incentive payments within Medicare and Medicaid. The Centers for Medicare & Medicaid Services (CMS) is responsible for the implementation of the Electronic Health Records Incentive Program, which provides incentive payments to providers who demonstrate meaningful use of EHR systems.

These programs create measurable benchmarks for the adoption and use of EHR technology by providers and technology standards EHR vendors must meet. CMS requires providers to “meaningfully use” their EHRs in order to receive incentive payments. Eligible providers must attest that they have used a certified EHR and met the required meaningful use criteria over the course of a 90-day reporting period.

**MANY SEE BENEFITS TO HIT IN THE WORKPLACE**

Anecdotal reports suggest that oncology specialists have found that some HIT systems provide immediate benefits in improving patient care. At the same time, oncologists often report that HIT systems have increased their daily workloads. These observations are consistent with more general reports of physician experiences with HIT systems. For example, a recent survey of physicians indicated that more than half of those surveyed believe at least some progress is being made in using HIT to ensure patient safety, improve patient care, and advance evidence-based medicine. A majority of respondents, however,
American Society of Clinical Oncology reported that HIT is resulting in little or no progress in saving time for physicians, improving patient relationships or managing healthcare costs. (Figure 18)

**ONCOLOGY REQUIRES UNIQUELY TAILORED HIT**

The adoption of HIT systems in oncology is complicated by the unique data requirements of modern oncology practices. These requirements include chemotherapy dosing and administration, clinical trial and protocol management, tumor staging and nomenclature, toxicity assessment and management, and survivorship care.

A number of commercially available HIT systems are being marketed as meeting the needs of oncology practices. In 2013, ASCO sponsored the 7th annual EHR Vendor Lab, which provides an opportunity for oncology professionals to experience and compare multiple oncology EHR products in an efficient manner. By creating criteria that must be met by participating vendors and promoting provider feedback, this forum has provided an opportunity for the oncology community to help influence the evolution of HIT products that facilitate cancer care.

A number of oncologists have determined that significant customization is necessary to adapt HIT systems to meet the needs of their practices. For example, the first oncology practice to achieve certification as a patient-centered medical home has reported on the crucial role played by its HIT system. This oncology practice found that its existing HIT system did not fully support the essential workflow and did not contain many of the elements needed to qualify as a patient centered medical home in oncology. For example, obtaining the information needed to develop treatment plans and summaries (e.g., performance status, previous therapy, comorbid conditions) required 23

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**Figure 18. Physician Views on Progress Relating to HIT Adoption**

<table>
<thead>
<tr>
<th>Category</th>
<th>No progress</th>
<th>A little progress</th>
<th>Some progress</th>
<th>Significant progress</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ensuring patient safety</td>
<td>10%</td>
<td>35%</td>
<td>42%</td>
<td>13%</td>
</tr>
<tr>
<td>Improving the quality of care for patients</td>
<td>15%</td>
<td>30%</td>
<td>44%</td>
<td>11%</td>
</tr>
<tr>
<td>Leveraging EHRs to increase the practice of evidence-based medicine</td>
<td>16%</td>
<td>33%</td>
<td>40%</td>
<td>11%</td>
</tr>
<tr>
<td>Ensuring ease of use</td>
<td>24%</td>
<td>32%</td>
<td>36%</td>
<td>8%</td>
</tr>
<tr>
<td>Improving patient relationships</td>
<td>27%</td>
<td>34%</td>
<td>33%</td>
<td>6%</td>
</tr>
<tr>
<td>Increasing efficiency/saving time for physicians</td>
<td>36%</td>
<td>30%</td>
<td>27%</td>
<td>7%</td>
</tr>
<tr>
<td>Managing the cost of healthcare</td>
<td>38%</td>
<td>35%</td>
<td>22%</td>
<td>5%</td>
</tr>
</tbody>
</table>


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The most significant threat of closures or other disruptions to care appear to be among small community practices...
separate steps including visits to various screens, tabs and other sources within the EHR. By modifying the original system, the practice was able to improve access to information that supported greater efficiency, enhanced disease management, improved care coordination, and resulted in better patient communication.81

What This Means for Patients

The ASCO census and other data indicate that oncology practices are responding to financial and other pressures in a variety of ways, including consolidation, use of new payment models and, in some cases, limiting certain services or closing their doors. The most significant threat of closures or other disruptions to care appear to be among small community practices, where more than a third of new patients enter the cancer care delivery system.

With only two years of data, it is difficult to determine whether these findings represent larger shifts in oncology care in America. If they do, however, the findings signal the possibility of significant reductions in access to cancer care in some areas, particularly in small communities and rural areas where patients rely on community practices for most of their care.

More broadly, practices’ adaptation to the changing healthcare environment will offer both benefits and challenges for patients. For example:

- Expanded use of advanced practice providers may extend the reach of an increasingly limited oncologist workforce, while enhancing patient support and improving the coordination of care. For example, addition of highly skilled clinical support staff—pharmacists, laboratory technicians and others—may enhance convenience and quality of care for patients.
- A reduction in the number of practices could cause access issues in certain parts of the country, with some patients experiencing longer waits, decreased access to physicians, or increased travel distances to receive treatment. While patients appear to still have reasonable access to oncology services, turbulence among practices across the oncology practice community could have a negative—and lasting—impact on availability of cancer services in communities across the United States.
• Payment reductions, especially in Medicare, have led some practices to send patients to hospitals and other settings for chemotherapy, potentially disrupting care and leading to higher costs.

• Quality and efficiency gains experienced by practices with implemented EHR systems may be out of reach for small, community practices where those gains could have the greatest benefits.

These will be critical areas to monitor as the new health exchanges and other reforms evolve in the coming year.

**Moving Forward:**
**Recommendations to Sustain a High-Functioning Cancer Care Delivery System**

To address the challenges facing the cancer care delivery system, policymakers and other stakeholders in the oncology community should prioritize the following actions in 2014 and beyond:

**Align Payment Systems with the Goal of Delivering High-Value, Patient-Centered Care.** Although some oncology practices are already anticipating and adapting to the move toward new payment models, others lack the resources or infrastructure to make these changes alone. ASCO is encouraged by proposals coming from Congress that would allocate funds to assist practices in these endeavors, especially smaller practices and those in regions with shortages of health professionals.

**Test Promising Delivery Models that Address the Unique Challenges of Treating Cancer.** Congress and the Administration have identified oncology as a high priority for new payment strategies. ASCO strongly encourages policymakers to work with ASCO and others in the oncology community to study a range of promising approaches. Any evaluation of pilot projects must include clear plans to translate lessons learned into new payment systems that support high-quality, high-value cancer care. Specifically, policymakers should launch multiple demonstration projects through the Innovation Center within the Centers for Medicare & Medicaid Services or other appropriate avenues.

**Reduce Instability in Federal Payment Systems to Promote Implementation of New Delivery Models.** Policymakers should eliminate barriers that prevent oncology practices from participating in efforts to improve quality and cost savings in oncology care. This includes reversing sequestration cuts to Medicare payments in oncology, removing prompt pay discounts in the average sale price formula, and reversing cuts to oncology contained in the 2014 physician fee schedule. This is especially important for medium and small community practices, which see more than a third of new cancer patients but are the most likely to report merging, selling or closing their doors in the coming year.

**Monitor the Impact of Oncology Practice Consolidation and Closure on Cost and Access.** Congress should direct the Institute of Medicine to determine whether reductions in the number of community oncology practices have adversely affected access to cancer care services, especially in rural and underserved areas.
More than two decades ago, the Institute of Medicine defined quality care as “the degree to which health services for individuals and populations increase the likelihood of desired health outcomes and are consistent with current professional knowledge.”

In a subsequent report, “Ensuring Quality Cancer Care,” the IOM further refined the definition to mean care that is delivered in a technically competent manner with strong communication, cultural sensitivity and shared decision making. Advancing access to high-quality, evidence-based care is the fundamental goal of oncology and has been core to ASCO’s mission since the Society first formed in 1964.

Many organizations, including ASCO, have dedicated resources to improved measurement of the quality of care that patients receive, and to improving the quality, consistency, and value of that care. Though these efforts are not new to oncology, they are taking on increased urgency in an environment of practice and payment reform. With the United States now projected to spend $120 billion on cancer care in 2020, diverse stakeholders are seeking ways to control spending while preserving or enhancing quality. Oncology professionals play a key role in controlling the costs of cancer care, and the profession has actively engaged in a variety of efforts to manage this growing issue. Further, concern about cost is driving demand from purchasers, payers and policymakers for clear evidence of value. Performance measurement and improvement programs are necessary components for demonstrating value and, even more importantly, driving forces toward the best possible outcomes for patients facing the life-altering diagnosis of cancer.

This chapter provides insight into the current quality of oncology care, highlights a number of recent efforts to improve quality and cost effectiveness, and describes the potential for “big data” to enhance quality and value in cancer care.

Quality Measurement: Insights from ASCO’s Quality Oncology Practice Initiative

ASCO’s Quality Oncology Practice Initiative (QOPI®) was launched in 2006 to promote excellence in cancer care by helping practices create a culture of self-examination and improvement. Offered as a free program to ASCO members, QOPI is an oncologist-led,
practice-based quality assessment and improvement program. The program integrates measures developed by practicing oncologists and quality experts, and spans the continuum of cancer care. The measures, which are reviewed and updated annually, are based on clinical guidelines, published studies, and collective expert consensus—ensuring that emerging science and new clinical recommendations are considered by participating practices without a significant research-to-practice delay. Oncology practices have demonstrated a strong interest and willingness to examine their performance. Growth in QOPI participation has been robust since it began in 2006. (Figure 19)

More than 850 oncology practices have registered in this national, voluntary program to date. In each data collection round (twice each year) approximately 300 oncology practices submit data on nearly 25,000 records. Participating practices submit patient-level data to QOPI and receive analyzed measure reports, including site-specific performance and aggregated national performance for comparison and benchmarking purposes.

Recent analyses of QOPI data have shown consistently high levels of performance in many areas of cancer care. For example, one analysis of more than 150 participating practices showed high scores (greater than or equal to 90 percent) in complying with
recommendations for postoperative (adjuvant) chemotherapy standards in breast, colorectal and non-small cell lung cancers.86 (Figure 20)

Figures 21 and 22 illustrate rapid improvement by QOPI participants in adoption of new clinical practices over time. These include appropriate testing for genetic mutations (e.g., KRAS) to match each patient with the most effective treatment (see Figure 21) and examining the appropriate number of lymph nodes in tissue specimens from patients with colon cancer (see Figure 22). Showing improvement, but still not at the highest level of performance, is appropriate use of anti-nausea medications (e.g., aprepitant) for patients receiving chemotherapy likely to produce severe nausea and vomiting. (Figures 21 & 22)

Also, as seen in Figure 23, QOPI participants have shown demonstrable improvements in end-of-life care for adult patients with advanced cancers.87 (Figure 23)

Although adherence to recommended practices is high in many areas, there are clearly areas where performance can be improved. They include documentation of appropriate smoking cessation counseling, evaluation of infertility risk, and fertility preservation counseling. Adherence to these quality measures ranged from a high of 34 percent for smoking cessation to a low of 6 percent for discussion of fertility preservation. (Figure 24)

The recognition that oncology providers need additional resources to support practice improvement led to an expansion of ASCO programs. For instance, in 2013, ASCO launched its Quality Training Program to offer six-months of quality improvement training including face-to-face education sessions and facilitated local improvement project for 15 oncology provider teams.

Building on a strong quality measurement and improvement foundation in oncology care, ASCO is looking to the future to address more complicated and complex quality-related issues, such as how to assess patient outcomes, how to include measures that are relevant to less common types of cancer, and how to incorporate patient-reported outcomes in quality measures.

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Figure 20: Concordance with Recommendations for Adjuvant Chemotherapy

<table>
<thead>
<tr>
<th>Collection Round</th>
<th>Concordance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spring 2006</td>
<td>1.00</td>
</tr>
<tr>
<td>Fall 2006</td>
<td>0.90</td>
</tr>
<tr>
<td>Spring 2007</td>
<td>0.80</td>
</tr>
<tr>
<td>Fall 2007</td>
<td>0.80</td>
</tr>
<tr>
<td>Spring 2008</td>
<td>0.70</td>
</tr>
<tr>
<td>Fall 2008</td>
<td>0.70</td>
</tr>
<tr>
<td>Spring 2009</td>
<td>0.60</td>
</tr>
<tr>
<td>Fall 2009</td>
<td>0.50</td>
</tr>
<tr>
<td>Spring 2010</td>
<td>0.50</td>
</tr>
<tr>
<td>Fall 2010</td>
<td>0.50</td>
</tr>
</tbody>
</table>

- **Colon cancer**
- **Breast cancer**
- **Non-small cell lung cancer**
Figure 21. Concordance with Recommended KRAS Status Testing

Figure 22. Concordance with Recommendations on Use of Anti-Nausea Drugs and Lymph Node Retrieval in Colorectal Cancer

Figure 23. Chemotherapy in the Last Two Weeks of Life

Figure 24. Areas for Improvement
Managing Quality—and Cost

The Institute of Medicine (IOM) has continued to be a strong voice in identifying national trends in healthcare quality and suggesting paths for improvement. With the support of ASCO and others, the IOM initiated a project in 2011 to provide a set of recommendations regarding cancer care. The Institute’s September 2013 report, *Delivering High-Quality Cancer Care: Charting a New Course for a System in Crisis*, made recommendations in three broad areas: (1) translating evidence into clinical practice, (2) improving the performance of healthcare providers, and (3) measuring quality.88 (See Box C.)

One of the strategies inherent in the IOM recommendations, and central to many major quality initiatives, is the identification of over-, under-, and mis-utilization of healthcare services. This unwarranted variation in practice is an important driver of both gaps in healthcare quality and cost.89 In oncology, a number of projects involving redesign of practice in ways that reduce variation and better support high-quality, patient-centered, cost-effective care are underway. Programs to standardize use of chemotherapy and other procedures represent one strategy, as does the development of clinical guidance designed to reduce use of unnecessary or ineffective treatments or tests.

A major driver of practice redesign is the federal government, which is making an unprecedented investment in new payment and service strategies that lower cost and improve care. Much of

### INSTITUTE OF MEDICINE RECOMMENDATIONS FOR IMPROVING QUALITY CARE

An independent committee convened by the IOM and comprised of a broad group of physicians, patient advocates and experts in health economics, policy and law was tasked with examining opportunities and challenges for delivering quality cancer care. The committee’s ten recommendations issued in 2013 are summarized below:

1. Provide patients and their families with understandable information about cancer prognosis, treatment benefits and harms, palliative care, psychosocial support, and costs.
2. Provide patients with end-of-life care that meets their needs, values, and preferences.
3. Ensure coordinated and comprehensive patient-centered care.
4. Ensure that all individuals caring for cancer patients have appropriate core competencies.
5. Expand the breadth of data collected in cancer research for older adults and patients with multiple comorbid conditions.
6. Expand the depth of data collected in cancer research through a common set of data elements that capture patient-reported outcomes, relevant patient characteristics, and health behaviors.
7. Develop a learning healthcare information technology system for cancer that enables real-time analysis of data from cancer patients in a variety of care settings.
8. Develop a national quality reporting program for cancer care as part of a learning healthcare system.
9. Implement a national strategy to reduce disparities in access to cancer care for underserved populations by leveraging community interventions.
10. Improve the affordability of cancer care by leveraging existing efforts to reform payment and eliminate waste.

Box C
the federal effort is coordinated through the Center for Medicare and Medicaid Innovation (CMMI), which has already awarded nearly $900 million for its Healthcare Innovation Awards program and has committed up to $900 million more.90 Private insurers are also seeking ways to leverage their access to both clinical and financial data—and their ability to move quickly—to become leaders in quality and practice innovation. Using measurement, strong information technology and provider contracting, private insurers have advanced some of the most innovative transformations in practice. Aetna recently teamed with US Oncology (USON), for example, to reduce costs and minimize practice variation using USON-developed treatment algorithms and software. Over the course of one year, there was a 12 percent reduction in overall costs for treatment of patients with breast, colon and lung cancer. Significant reductions also occurred in emergency department visits and hospitalizations—two key indicators of quality and cost in oncology.91

As encouraging as results like this may be, there are also risks associated with having disparate and uncoordinated payer-driven quality initiatives, including the potential for such programs to focus primarily on cost rather than improving outcomes. In addition, physicians may face overlapping quality and technology initiatives, creating administrative burdens or complicating care. Close coordination between providers and payers is, therefore, essential. Efforts for practice or payment redesign should also include clear evaluation systems that determine the impacts on quality.

Below are examples of several models being explored by both public and private payers in an effort to minimize the potential for errors in care and ensure that treatment reflects both accepted standards and current scientific-evidence:

**CLINICAL PATHWAYS**
Clinical pathways can provide an evidence-based evaluation system that guides care management for a defined group of patients over a set period of time. These programs have been identified as one way to minimize variations in cancer care, and to reap savings by diminishing or eliminating services that do not provide value.

Clinical pathways are already used by institutions, commercial organizations, payers, and other health systems across the country, and are leading to promising results. In one study involving non-small cell lung cancer, outpatient costs were 35 percent lower for patients treated according to an established pathway and there were no differences in overall 12-month survival.92 Several commercial clinical pathway programs are now in use across the United States, including Via Oncology, McKesson Specialty Health’s Innovent, Eviti, and Cardinal Health’s P4 program.

**CHOOSING WISELY®**
The Choosing Wisely campaign, launched by the American Board of Internal Medicine (ABIM) Foundation, represents an alternate method for drawing attention to value. The concept for the campaign was originally proposed in 2010 by Howard Brody, MD, PhD, in a *New England Journal of Medicine* commentary.93 Dr. Brody challenged medical specialties to take a critical look at their fields, and to each identify five costly practices that are commonly performed despite lack evidence.

As a participant in the campaign, ASCO has issued two “Top Five” lists of common, costly procedures in oncology that are not supported by evidence and that should be questioned. (See Box D.) Selections were based on a comprehensive review of published studies and current guidelines from ASCO and other organizations.94, 95 ASCO is now in the process of developing measures to see how oncology practices in the QOPI® program are adopting these recommendations.
**CHOOSING WISELY: ASCO’S TOP FIVE**

**2012**

- Avoid unnecessary anticancer therapy, including chemotherapy, in patients with advanced solid-tumor cancers who are unlikely to benefit, and instead focus on symptom relief and palliative care.
- For early-stage breast cancer at low risk of spreading, do not use advanced imaging technologies (positron emission tomography/PET, computed tomography/CT and radionuclide bone scans) for determining the cancer’s spread.
- For early-stage prostate cancer at low risk of spreading, do not use advanced imaging technologies (positron emission tomography/PET, computed tomography/CT and radionuclide bone scans) for determining the cancer’s spread.
- For individuals who have completed curative treatment for breast cancer, and who have no symptoms of recurrence, advanced imaging tests (PET, CT and radionuclide bone scans) and routine blood tests for certain biomarkers (CEA, CA 15-3, CA 27-29) should not be used to screen for cancer recurrences.
- Avoid administering white blood cell stimulating factors to patients who have a very low risk for febrile neutropenia (less than 20 percent).

**2013**

- Do not give patients starting on a chemotherapy regimen that has a low or moderate risk of causing nausea and vomiting antiemetic drugs intended for use with a regimen that has a high risk of causing nausea and vomiting.
- Do not use combination chemotherapy (multiple drugs) instead of single-drug chemotherapy when treating an individual for metastatic breast cancer unless the patient needs urgent symptom relief.
- Avoid using advanced imaging technologies (i.e., PET, CT, and radionuclide bone scans) to monitor for a cancer recurrence in asymptomatic patients who have finished initial treatment and have no signs or symptoms of cancer.
- Do not perform PSA testing for prostate cancer screening in men with no symptoms of the disease when they are expected to live less than 10 years.
- Do not use a targeted therapy intended for use against a specific genetic abnormality unless a patient’s tumor cells have a specific biomarker that predicts a favorable response to the targeted therapy.

**Box D**

**PATIENT-CENTERED MEDICAL HOMES**

The Patient-Centered Medical Home (PCMH) model seeks to improve patient care and reduce unnecessary healthcare expenditures through aggressive disease management, care coordination, and strong patient/physician communication. The concept began largely as a primary care model, but in 2013 the National Committee for Quality Assurance (NCQA) launched an effort that focuses on specialty specific medical homes. Sixty-four organizations, including several oncology practices, are participating as early adopters in this new program. In addition to NCQA, the Community Oncology Alliance (COA)—along with ASCO and the Commission on Cancer (CoC)—is also developing a proposed set of oncology-specific medical home standards.

In one oncology practice, transition to a patient-centered medical home produced dramatic results:

- Emergency department visits lowered by 68 percent.
- Hospital admissions per patient per year decreased by 51 percent.
- Average length-of-stay for hospitalized patients reduced by 21 percent.
- Outpatient visits per patient per year cut by 22 percent for all hematology/oncology patients.
- Outpatient visits per patient per year decreased by 12 percent for the subset of patients receiving chemotherapy.
- Projected savings of $11,955 per chemotherapy patient.
- Estimated annual savings of $1.0 million per hematologist/oncologist.
**PHYSICIAN QUALITY REPORTING SYSTEM**

The most prominent quality reporting program under Medicare is the Physician Quality Reporting System (PQRS), previously known as the Physician Quality Reporting Initiative (PQRI). Congress established PQRS under the Tax Relief and Healthcare Act of 2006, which directed CMS to develop pay-for-reporting programs for physicians who provide ambulatory care. The program initially provided payment bonuses for reporting certain quality measures to CMS, but has since transitioned into a mandatory reporting program that assesses a penalty for a provider’s failure to satisfy their reporting requirements. Eligible providers who did not participate in PQRS in 2013 face a 1.5 percent reduction in Medicare reimbursements on Part B physician fee schedule services in 2015. Non-participants in 2014 face a two percent reduction in 2016.

**VALUE BASED PAYMENT MODIFIER**

Congress established the Value Based Payment Modifier (VBPM) to create further incentives under Medicare for efficient, high-quality care. The Affordable Care Act requires that all eligible providers be subject to the VBPM by 2017. The VBPM scores groups of eligible providers on various measures of cost and quality and adjusts provider payment on the basis of their performance relative to other providers in the same period. When fully implemented, the Affordable Care Act will require that the VBPM increase payments by as much as two percent for providers who deliver high-quality care at a low cost, while those delivering what is deemed to be low-quality and high-cost care are subject to a two percent reduction.

**Using “Big Data” to Advance Quality of Care**

The volume of scientific and clinical information in the field of oncology is increasing at an unprecedented rate, especially with the increased availability of genomic sequencing. This increase in information presents significant opportunities for the treatment of patients with cancer. It is becoming increasingly daunting for oncology specialists, however, to navigate the ever-expanding pool of published research, clinical practice guidelines, and patient data. One promising approach is to use “big data” solutions to help practicing physicians distill massive volumes of data into meaningful information that supports delivery of high quality care. Two initiatives in this area show particular promise.

**IBM WATSON AND MEMORIAL SLOAN-KETTERING CANCER CENTER**

Memorial Sloan-Kettering Cancer Center is partnering with IBM to use IBM’s Watson technology to improve the accessibility of the existing clinical literature and other medical information for physicians. Watson relies on natural language processing capabilities to incorporate unstructured data such as case histories, molecular and genomic data, journal articles, clinical guidelines, and best practices. This technology is being “trained” to compare a patient’s medical information against this array of information to help guide clinical decisions. In addition, the system is being established to compare a patient’s medical information against the universe of open clinical trials to help oncologists identify additional clinical options for their patients.

By combining vast amounts of research knowledge with clinical wisdom generated over decades of clinical experience—and providing that information electronically—Watson allows delivery of evidence-based cancer care to patients in all settings, not just those able to access care in highly specialized cancer centers like Memorial Sloan-Kettering.
ASCO’S CANCERLINQ™

ASCO has launched a multi-year initiative designed to fundamentally transform the practice of oncology by harnessing the potential wealth of information regarding the care of individuals with cancer that is captured in various health information technology systems. The ASCO CancerLinQ initiative is focused on building a “learning health system” comprised of a knowledge-generating computer network that will collect and analyze cancer care data from millions of patient visits and expert guidelines—and feed that knowledge back to providers at the point of care. In this way, CancerLinQ will support greater consistency and quality in practice—and speed progress in developing new or better treatments.100

In 2013, ASCO successfully implemented an operational prototype, which demonstrated the feasibility of such a system and provided important lessons about the technological and logistical challenges involved in full-scale implementation. The prototype gathered de-identified data from more than 100,000 patients with breast cancer who received treatment at hospitals and practices across the United States.

The CancerLinQ prototype featured the following core functions:

- Acceptance of any cancer care data, in any format, directly from electronic health records and other sources, overcoming the long-standing hurdle posed by inconsistent health data standards.

The full CancerLinQ system, when implemented, will also provide guidance based on the collective experiences of other similar patients.

- Access to and exploration of an extensive database of information on the care of patients with breast cancer—including patient characteristics, treatments, and outcomes—to identify real-world trends and associations and new hypotheses for research.
- Feedback on physicians’ performance against ten quality measures from QOPI.

Although much work remains, successful pilot testing of the CancerLinQ prototype has paved the way for full implementation of this cutting-edge project. ASCO announced in November 2013 that it is proceeding with formal development of the system, encompassing a series of successively more powerful quality improvement tools for physicians. The first components will become available by early 2015.
What This Means for Patients

Although concerns about escalating cost have motivated increased attention to performance measurement, the primary aim of quality monitoring among oncology professionals is to ensure that every patient benefits from high-quality, high-value, evidence-based cancer care.

Oncology practices demonstrate high quality in many areas of cancer care, but show a need for improvement in others. The oncology community has shown a commitment to quality improvement, as evidenced by the nearly 900 practices that volunteer to participate in QOPI. Ongoing attention to measure development and implementation—particularly in emerging and gap areas—ensures a culture of quality improvement.

Payers and providers are pursuing innovations in care that could result in lower costs and improved patient outcomes. Many of these new models include an emphasis on patient-centered care, including better disease management, communication and care coordination. These should produce both higher quality care and a better patient experience.

To make the most of these developments, both physicians and patients need to be fully engaged in the design and implementation of quality initiatives. Robust participation and engagement could significantly increase the number of patients who receive care consistent with the most up-to-date science and clinical standards.

Looking ahead, CancerLinQ and similar efforts promise to transform how patients receive care. By enabling physicians to gain insights from vast quantities of cancer care data, and to monitor the quality of the care they provide in real time, the system will help ensure that patients receive state-of-the-art care in every location and every setting.

Moving Forward: Recommendations for Achieving High-Quality Care for Patients with Cancer

To address the challenges in providing high-quality oncology care, stakeholders in the oncology community should prioritize the following in 2014 and beyond:

**Build on Existing Investment in Quality Monitoring and Information Technology to Enhance the Delivery of High-Value, Patient-Centered Care.** With the growing emphasis on value-based payment systems, oncology practices need tools that embed quality measurement and improvement into every day practice. Oncologists have demonstrated commitment to self-assessment through QOPI participation and have invested in data-driven improvement activities. The importance of such activities will grow with the move to redesign oncology practice. Congress and the Administration can leverage this commitment by working with the oncology community to pursue a national oncology quality measurement system that is efficient, meaningful to patients, and relevant to oncology professionals, and which minimizes the administrative burdens placed on oncology practices.

**Advance Rapid Learning Systems for Cancer Care.** With the power of health information technology, oncology providers will be able to better engage in shared decision making with patients...
To make the most of these developments, both physicians and patients need to be fully engaged in the design and implementation of quality initiatives.

and improve disease management, patient monitoring and coordination of care. A rapid learning system for oncology can automate quality reporting and help support efforts to smooth variation in practice by providing clinical decision support tools that promote evidence based decision making at the point of care. CancerLinQ, ASCO’s rapid learning system in oncology, will require the support of policymakers to realize its full potential.

Patients, Payers and Providers Should Work Together to Achieve a Common Understanding of How to Define and Measure Value in Oncology Care. A common method for assessing the relative value of cancer treatment options should drive treatment choices, insurance benefits and research priorities. Policymakers should create incentives for implementation of quality registries, such as QOPI, that provide robust and comprehensive measures of oncology care. Steps should be taken to reduce unnecessary administrative burdens and redundancies for oncology practitioners by allowing participation in oncology registries to meet federal reporting requirements.

Remove disparities in access to cancer care. Policymakers should require health insurers to use benchmarks and standards that include benefits and services essential to the care of all patients with cancer. The oncology services and treatments covered by health insurers should be reported in a manner that is detailed and transparent to the public. All stakeholders must work together to ensure that individuals with cancer, including those newly insured under the Affordable Care Act, have access to the full range of services and therapies that are essential for the delivery of high-quality, high-value, evidence-based oncology care. Payer policies that directly or indirectly discriminate against patients with cancer, such as selective cost sharing or other policies, should be prohibited.
5. Conclusion

The U.S. cancer care system is among the best in the world, but it is facing a growing number of challenges that threaten its sustainability. Workforce stresses, escalating costs, uneven access to care, and a volatile practice environment are combining to create what the Institute of Medicine has called “a system in crisis” in need of urgent intervention. This first annual report to the nation on the state of cancer care in America offers insight into many issues raised by the IOM and provides recommendations for action. By taking these steps, the cancer community will be able to move beyond crisis mode to achieve a high-functioning, rapid learning system that promotes progress and delivers patient-centered, high-value care for every individual with cancer.

In summary, the recommendations below are critical to addressing the wide swath of issues confronting the U.S. cancer care delivery system:

**Ensure continued availability of oncologist services for patients nationwide.**
- Identify creative strategies for leveraging the oncology workforce—for example, collaboration with primary care professionals on overall coordination of patients’ cancer care, allowing oncologists to focus on patients receiving active treatment of the disease.
- Leverage technology and innovative practice models, such as telemedicine and visiting consultants, to improve patient access and better connect other providers to cancer specialists.
- Monitor and address physician burnout. Professional organizations should explore ways that burnout can be prevented and/or addressed and encourage confidential reporting of burnout to gain a more accurate understanding of this challenge.
- Monitor and address the size and diversity of the oncology workforce. ASCO will continue to enhance its research, while advocating for targeted interventions to ensure that the workforce of oncologists will be appropriate in size and diversity to address future demands.

**Sustain oncology practices’ ability to meet patient needs in every community.**
- Align payment systems with the goal of delivering high-value, patient-centered care, and provide funding and support to help struggling practices make the transition to value-driven payment models.
- Test a range of promising cancer care delivery models that address the unique challenges of treating the disease. Specifically,
policymakers should launch demonstration projects through the Innovation Center within the Centers for Medicare & Medicaid Services or other appropriate avenues.

- Reduce instability in federal payment systems. This includes repealing the Sustainable Growth Rate formula and reversing Medicare cuts caused by sequestration, along with other financial pressures that are disproportionately harming small community practices.

Enhance quality and consistency of care.

- Build on existing investments made by the oncology community in quality monitoring and information technology. In particular, Congress and the Administration can work with the oncology community to pursue a national oncology quality measurement system that is efficient, meaningful and relevant to oncology professionals and their patients.

- Advance “learning health systems” such as ASCO’s CancerLinQ, which have the potential to dramatically improve oncology care, but will require engagement by payers and policymakers to have their greatest impact.

- Remove disparities in access to cancer care, in part by requiring health insurers to set benchmarks that include benefits and services essential to the care of all patients with cancer.

- Establish a common understanding of how to define and measure value in oncology care, so that physicians, payers and others have a common method for assessing the relative value of cancer treatment options and making treatment and coverage decisions.
References

7. Refers to therapies that are directed at discrete molecular targets.


26. This analysis refers to physicians who designate a specialty of hematology/oncology, medical oncology, or hematology.


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Appendices

APPENDIX A: ASCO WORKFORCE INFORMATION SYSTEM
The American Society of Clinical Oncology (ASCO) created the Workforce Information System (WIS) to assemble current data on the U.S. oncologist supply and compare those data to the latest cancer epidemiology. For purposes of the WIS, “oncologists” include those who report a primary specialty of medical oncology, hematology or hematology/oncology.

The WIS provides a data collection and analysis process that is composed of three sections: workforce supply, new entrants, and cancer incidence and prevalence. Tabulations of the number of oncologists in the United States are derived mainly from the American Medical Association Physician Masterfile. The WIS reports data pulled from the Masterfile in April 2013 as “2012” data to maintain consistency with longitudinal data reporting from previous versions of the WIS.

Information on fellows and residents in the oncology workforce pipeline come from published sources such as the Journal of the American Medical Association. The WIS compares the characteristics of these oncologists with those of all physicians and tracks emerging trends in the physician training pipeline.

Incidence and prevalence estimates are published by the American Cancer Society and National Cancer Institute.

For geographical comparisons, the number of oncologists per age group per zip code was tabulated then mapped to the centroid of 5-Digit ZIP Code Tabulation Areas derived by the U.S. Census Bureau.

In January 2013, ASCO released the second edition of WIS, and a subsequent article in the Journal of Oncology Practice published key findings. To download the full report, visit www.asco.org/wis.

APPENDIX B: THE ASCO NATIONAL ONCOLOGY CENSUS
ASCO established the National Oncology Census to capture comprehensive, timely data that helps characterize oncology practice in the United States. Currently in its second year, the census collects information about oncology care specialties and services, practice settings, staffing and mergers, use of technology, payer mix, and patient volume. ASCO is using these data to develop benchmarks that will help individual practices make informed decisions that sustain quality patient care.

The 2013 census was launched on May 30, 2013 and included 11 required and additional optional questions. Of an estimated 2,000 oncology practices in the United States, 530 practices representing 8,011 physicians responded. In 2012, 632 practices representing 5,018 physicians responded. On the basis of this response rate, it is likely we do not have information from a significant portion of smaller practices.

In a number of cases, this report draws comparisons between 2012 and 2013 survey data. These comparisons signal a number of potentially important shifts, some of which are consistent with other research or anecdotal information. However, they must be interpreted with caution, and cannot be considered trends until future census rounds are complete. (A full report on the 2013 ASCO National Oncology Census has been published in the Journal of Oncology Practice.)
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