The State of Cancer Care in America, 2015: A Report by the American Society of Clinical Oncology

By the American Society of Clinical Oncology

Executive Summary
The US cancer care system remains in a state of transition. In 2014, the United States made significant progress in cancer care as demonstrated by improvement in the 5-year cancer survival rate for many cancer types and a record 14.5 million cancer survivors, as well as by the availability of 10 new drugs and several new tests for the diagnosis, treatment, or management of cancer.1 At the same time, a growing demand for cancer services, turbulence in the cancer care delivery system, and growing concerns about cost of care are creating uncertainties about the capacity of the system to continue to provide high-quality care for all patients with cancer. These factors have focused attention on the need for better definitions of value and meaningful ways to assess quality. In this second annual State of Cancer Care in America report, the American Society of Clinical Oncology (ASCO) chronicles the challenges currently facing the US cancer care system. The report provides background and context to help understand what is happening today in cancer care and describes trends in the cancer care workforce and diverse practice environment that may affect cancer care in the coming years.

Cancer Care in America: A Shifting Landscape
The American population continues to grow and age, driving up demand for cancer services to previously unseen levels. This report includes updates on progress in the field of cancer care and on the state of cancer incidence and survival.

• Progress in cancer care. In 2014, the US Food and Drug Administration (FDA) approved 10 new drugs and several new tests for the diagnosis, treatment, or management of cancer, and more than 771 promising therapies are in the development pipeline.2,3 Advances in treatment have produced improvements in the 5-year survival rate for many cancer types, and there are now 14.5 million Americans who are cancer survivors today1—a number that continues to grow with each passing year.

• Rapidly growing demand. An estimated 1.6 million new cancers were diagnosed in 2014, with growing numbers expected in future years. Demand for cancer care is being driven by newly insured patients, an aging population, and long-term care needs of survivors. In 2014—the first year of the insurance mandate of the Affordable Care Act (ACA)—nearly 8 million Americans registered through new insurance exchanges, and millions more are gaining access to insurance through the expansion of private and governmental programs.4 As ACA implementation progresses, these numbers are expected to increase significantly.

• Persistent inequities. The benefits of cancer screening and treatment advances have not been experienced evenly across racial and ethnic groups, as evidenced by differences in incidence and mortality rates. Although the ACA has successfully expanded access to insurance and cancer care services, millions of Americans remain uninsured, while other individuals with public and private plans continue to lack sufficient coverage for high-quality cancer care.

• Emerging public health concerns. This year, the ASCO report addresses two new issues with potential to influence demand for cancer services:

• Obesity. In the United States today, more than one third of adults and nearly one fifth of children are considered obese. Public health experts are concerned about a range of serious health consequences. There is mounting evidence that obesity leads to at least eight forms of cancer and affects survival.2 Obesity is responsible for more than 84,000 cancer cases annually, and this number is expected to rise substantially in future years6,7—yet the link between obesity and cancer is largely unrecognized by the public.

• Electronic cigarettes. Electronic cigarettes (e-cigarettes) are advertised to American consumers as a safe alternative to smoking—but these claims lack adequate scientific support. As of 2014, the FDA regulated e-cigarettes marketed for therapeutic purposes, but had proposed expanded regulations covering all e-cigarettes. This authority is important because e-cigarettes are becoming popular among smokers and nonsmokers alike, including nearly two million US adolescents.8 For these reasons, ASCO and public health experts support the expansion of the authority of the FDA and are calling for research to assess potential direct and indirect health effects of these devices.

The Oncology Workforce
ASCO regularly monitors the size, distribution, and diversity of the US oncology workforce to identify trends that could affect access to care. The latest analysis by ASCO identified several key issues:

• Number of oncologists constant despite growth in demand. In 2014, approximately 11,500 hematologists and/or medical oncologists provided care to US patients with cancer, a modest 1.6% increase from the previous year.9 Altogether,
more than 18,000 physicians provide oncology subspecialty patient care, including gynecologic oncology, pediatric hematology/oncology, radiation oncology, and surgical oncology. Additionally, more than 3,000 advanced practice providers provide oncology care across the country, including nurse practitioners, doctors of nursing practice, and physician assistants. Advanced practice provider employment is growing rapidly, enhancing the pipeline of providers who might choose a career in oncology.

- Aging workforce and declining interest in private or solo practice careers. Consistent with last year’s report, oncologists are aging, with oncologists ages 65 years and older continuing to outpace those entering the field (ages 40 years and younger). Women continue to increase their share of the workforce and occupy nearly half (48%) of hematology/oncology fellowship slots. In contrast, the number of ethnic and racial minorities in oncology remains discouragingly low. New to this edition of the report, ASCO covers practice decisions made by new entrants into the oncologist workforce. In a 2014 survey of medical oncology fellows, a majority (55.8%) of respondents indicated a preference for university-based clinical practice or research, whereas 36.8% indicated they were likely to choose nonacademic community or private practice settings. Among oncologists presently working in a practice setting, young oncologists are more likely to work in group practice and less likely to work in solo practice than their older colleagues.

- Rural settings underserved. Oncology continues to experience uneven geographic distribution of its workforce. Relative to where Americans ages 55 years and older reside (who account for the majority of new cancer cases), Washington, DC, and Massachusetts have the most oncologists, whereas Hawaii and Nevada have the fewest. For the more than 59 million Americans living in rural areas, a diagnosis of cancer can present unique challenges to obtaining high-quality care for their disease, including long travel distances and decreased access to specialists and state-of-the-art diagnostics, treatments, and technologies. The ASCO 2014 analysis of oncology locations identified approximately 600 hematologists and medical oncologists (5.5%) practicing in rural care sites.

- States investing in outreach, monitoring workforce. Two state-based research initiatives conducted in Iowa and Nebraska examined access in underserved areas and pointed to strategies that may serve to inform efforts in other communities across the United States. In Iowa, community hospitals and health centers in remote areas are offering cancer services by employing visiting oncologists, thereby significantly expanding patient access in the state. In nearby Nebraska, where 47% of residents live in rural areas, and cancer is the leading cause of death, researchers found that the number of oncologists increased by 3%, and the number of oncology nurse practitioners and physician assistants increased by more than a third (37% and 36.1%, respectively) from 2008 to 2012. These increases provided additional provider capacity within Nebraska—although not in rural areas.

- Burnout a continuing problem. A recent survey of medical oncology fellows found that more than a third of respondents experienced high levels of burnout (at least one event a week)—a rate similar to that reported among practicing oncologists.

The State of Oncology Practice

This report highlights findings from the third annual ASCO census of US oncology practices, conducted in 2014, along with related data from other sources.

- ASCO Oncology Census: continuing practice adaptation. Nearly 1,000 (n = 974) US oncology practices participated in this year’s census study, representing more than 10,000 individual oncologists. A continuing trend toward consolidation, one quarter of community-based practices signaled the likelihood of pursuing hospital affiliation in the next 12 months.

- Shifts in practice staffing and administration. The number of practices reporting multispecialty services remained high in 2014, especially among academic and hospital-based practices. A majority (52%) of practices responding to the ASCO Oncology Census employed advanced practice providers, accounting for more than 2,700 advanced practice nurses and 1,100 physician assistants.

- Practice financial health and management. In 2014, cost and payer pressures persisted as the most pressing practice concerns, especially among physician-owned and hospital-based practices. Drug prices were also a major concern among physician-owned practices. Academic practices were primarily concerned with clinical research issues and competitive pressures. Concerning clinical trial participation, a majority (57%) of respondents indicated plans to increase the number of trials in their practice. More practices planned to initiate private clinical trials (39%) than federal trials (27%).

- Preauthorization a growing concern. The time clinicians and their staff spend dealing with insurance companies reduces the time available for patient care and remains a burden on practices. Preauthorization—the requirement that clinicians get prior approval from patients’ insurance providers before ordering certain tests or administering certain treatments—is an area of particular concern among oncology practices. A recent survey of ASCO state affiliate organizations found that preauthorization requirements increase demands on staff time, delay or interrupt patient care, decrease patient satisfaction, and complicate medical decision making.

- Drug shortages in cancer care. Drug shortages remain a relatively small but persistent pressure on practices. According to a 2014 survey of oncology practices, policy changes enacted in 2011 and 2012 may have helped avert or mitigate drug shortages—consistent with findings from several recent governmental analyses. Survey respondents reported
that they often address shortages by recommending different treatment regimens, working directly with manufacturers to obtain available drugs, contracting or sharing drugs available from other local providers, or contracting with other drug distributors.

- **Safe handling of chemotherapy drugs.** The regulation of chemotherapy safety often occurs at the state level, and several states have been active in recent years in developing new rules in this area. State-level efforts are typically informed by available guidelines and recommendations. In 2014, the medical oncology community worked collaboratively to develop standards and to help support communications and educational efforts with policymakers at the state level to ensure that regulations promote safety and are easily adopted when applied to the day-to-day operations of practices.

- **340B Drug Pricing Program.** The 340B Drug Pricing Program requires drug manufacturers to provide price discounts to certain hospitals and other health care facilities that qualify as covered entities. Some have questioned the rapid expansion of the 340B Drug Pricing Program in terms of both the number of eligible facilities and the number of eligible drug claims.19-21 This was a focus for both Congress and the Administration in 2014, but there has been no regulatory action to refine the program to date.

**Quality and Value in Cancer Care**

Defining and delivering high-value care was a key focus across the oncology community in 2014 and will continue to dominate health reform efforts in the year ahead. Cost of care continues to drive practice and payment reform initiatives, quality measurement and improvement efforts, and focus on data and transparency is more broadly viewed as a means of informing consumer choice.

- **Focus on cost.** In the last decade, the average monthly cost of cancer treatment has more than doubled to $10,000.22 A handful of treatments now cost more than $100,000 annually per patient, and as cancer therapy moves toward use of multiple such agents, concerns about cost have grown. Payers and policymakers are focused on strategies to better define value and engage patients in selecting high-value options.

- **Response to cost: targeting utilization.** Health insurers and policymakers have pursued a variety of strategies to control cost while preserving or enhancing quality. These include: administrative controls on utilization (eg, preauthorization for costly therapies and clinical pathways), development of alternative payment models, and quality monitoring. There has also been a strong emphasis on creating more informed and value conscious consumers.

- **Quality assessment and performance improvement.** Greater availability of metrics and tools to analyze clinical data are expanding the way that oncologists learn and improve care quality. Quality measurement and improvement are central elements in virtually every payment reform model proposed this year. Notably, the Centers for Medicare and Medicaid Services (CMS)—the single largest payer for health services in the United States—is increasingly expecting providers and practices to demonstrate their commitment to improving quality of care. Other organizations are also advancing national quality measurement and methods to improve performance.

- **Big data.** The use of large and complex data sets to inform cancer treatment and care delivery is a growing focus. Numerous big data projects are under way among private and public organizations, including the ASCO rapid learning system, CancerLinQ; data sharing among pharmaceutical companies through Project Data Sphere; PCORnet by the Patient-Centered Outcomes Research Institute (PCORI); and several initiatives of private companies such as IBM and Optum.

**Conclusion and Recommendations**

Although the US cancer care system faces many challenges, it is capable of meeting these expectations through mobilization of cancer clinicians and researchers and the broader health care community in this unique time of dramatic change and significant opportunity.

Below are strategies ASCO believes can play an important role in addressing the challenges described in this report:

- **Ensure all publicly funded insurance programs offer consistent and appropriate benefits and services for patients with cancer.**
  - **CMS** should standardize benefits and other program elements across Medicare and Medicaid.
  - **Congress** should eliminate inconsistencies in coverage and benefits that currently exist between Medicaid patients enrolled pre- and post-ACA, and ensure that Medicaid includes coverage of clinical trials.

- **Oncology professionals** should articulate the essential services any plan must include to achieve high-quality, high-value care.

- **Pilot test multiple innovative payment and care delivery models to identify feasible models that promote high-quality, high-value cancer care.**
  - **CMS** should expand its efforts to pilot alternative payment models—beyond its Oncology Care Model—to identify innovative strategies that allow practices flexibility to deliver high-quality, high-value care while containing cost.
  - **Congress** should provide a fair, adequate and stable payment environment for oncology practice, including repeal and replacement of the sustainable growth rate formula.

- **Private insurers** should partner with CMS, patients, and providers to test promising new payment and care delivery models so the impact of alternative strategies on the entire cancer care delivery system can be determined.
• Oncology professionals should engage in testing/evaluating new payment and care delivery models and in developing measures of accountability for the care delivered.

• Promote high-value care by advancing and supporting transparency and shared decision making with patients.

• Oncology professionals should discuss personal goals of care, potential treatment options, expected benefits, and the physical and financial impacts of treatment options with every patient with cancer.

• CMS should make every effort to improve the data that it provides to the public and include appropriate information to understand the implications.

• Congress should require that health information technology vendors create products that promote exchange of interoperable and standardized data for patients and among providers and a secure environment for use of data in research to advance high-quality health care.

• Professional organizations should offer tools and information that facilitate and help routinely incorporate shared decision making into practice.

• Private insurers should ensure that publicly shared information about providers is accurate, in context, and meaningful to the intended audience.

ASCO will continue to track and evaluate the ever-shifting landscape in cancer care over the coming year, will continue to support cancer care providers as they negotiate these growing pressures, and will work with policymakers and other stakeholder organizations to ensure that changes in the system support access to high-quality, high-value care for all patients with cancer.

Cancer Care in America: A Shifting Landscape

The cancer care landscape in the United States continues to shift, with changes in demand for services, health insurance coverage, and organization of the care delivery system. At the same time, new insights made possible by research are enabling continued progress against cancer. The availability of safer and better treatments, along with an expanded focus on value and quality of cancer care, has contributed to increasing survival rates and improved quality of life for patients living with this disease.

Despite this progress, significant challenges face the nation’s cancer care delivery system, including continued growth in demand for cancer care. In large part because of an aging population, the number of cancer cases will continue to rise, and cancer will remain a leading cause of death among adults in the United States. In addition, millions have gained coverage through the ACA, which will enable greater use of cancer prevention services as well as the potential for more people to access cancer treatment. As later sections of this report detail, the challenges are compounded by demographics of the oncologist workforce, challenges of continuity of care, and increases in the cost and complexity of delivering quality cancer care.

In this section of the State of Cancer Care in America, ASCO surveys the current landscape of the needs of patients with cancer, offering essential context for later sections on the oncology workforce, practice, value, and quality.

PROGRESS IN CANCER CARE

In 2014, the United States made significant progress in improving the quality of cancer care as demonstrated by growth in the number of new drugs and technologies approved by the FDA, improvements in the 5-year cancer survival rates for many cancer types, and the increasing number of cancer survivors.

Growing Number of New Drugs and Technologies

People with cancer have access to a wider array of treatment options than ever before. In 2014, the FDA added 10 new drugs and biologics to its list of more than 170 approved anticancer agents and added nine new indications to existing drug labels (Table 1).2

In 2013, the FDA established a new designation—breakthrough therapy—to recognize drugs that target serious and life-threatening conditions and have a high likelihood of improving patient outcomes, potentially increasing the pace at which life-extending drugs will reach patients.26 For drugs with a breakthrough therapy designation, the FDA works with sponsors to streamline development and review of the therapy. In 2014, the FDA gave breakthrough therapy designations to 13 cancer agents.24 Of the newly approved drugs listed in Table 1, six had previously received breakthrough therapy designations.

The trend toward therapies that are tailored to each cancer and each patient continued in 2014. All 10 of the newly approved drugs listed in Table 1 attack cancer at the molecular level, and the use of such targeted therapies grew from 11% in 2003 to 46% in 2013.22 Drug development in oncology remains an area of high innovation; of the 771 cancer therapies now in development, 80% are potentially first in class, representing approaches to treating cancer that are different from any other marketed therapy.2 The development of companion diagnostics and biomarkers has also helped physicians identify which patients will benefit from these drugs, avoiding complications and expense for patients who will not benefit.

The FDA has also approved several medical devices and tests with the potential to improve patients’ outcomes through early detection of cancer. In 2014, four new screening tools were approved: BRACAnalysis CDx, which detects BRCA1 mutations associated with ovarian cancer; Cologuard, a home-based, noninvasive colon cancer screening test that detects abnormal cells in stool specimens; Therascreen, which detects the KRAS mutation associated with colon cancer; and SenoClaire, which provides greater clarity in breast mammography without increasing radiation exposure.27 The approval of Cologuard marks a new era of regulatory collaboration and efficiency in the United States; Cologuard is the first diagnostic to receive joint approval by the FDA and CMS for coverage in the Medicare program.28 In late 2013, the FDA also made headlines by approving four diagnostic devices for high-throughput gene sequencing, also known as next-generation sequencing.29,30 Two of these devic-
es—the MiSeqDx Platform and Universal Kit from Illumina (San Diego, CA)—can be used by laboratories to develop and validate sequencing of almost any aspect of a patient’s genome, thereby creating new avenues for cancer detection and selection of therapy.

Improvements in Cancer Survival

Scientific advancements, together with technologic and practice innovations, are responsible for marked improvements in survival rates among cancer types in recent years. Today, more than two thirds of patients (68.5%) live beyond 5 years of a cancer diagnosis. Patients diagnosed in 1975 had only a 49% likelihood of surviving 5 years. Since last year, the National Cancer Institute has reported improvements in 5-year relative survival for many cancer types, notably for myeloma (from 43.2% to 44.9%) and certain forms of acute leukemia (from 28.8% to 30.8%).

Despite a steady decline in mortality rates, cancer accounts for nearly a quarter of all deaths in the United States. For certain cancers, mortality rates have remained steady or even increased. For example, age-adjusted mortality has been rising among patients with pancreatic cancer and men with liver cancer for decades. These mortality increases have been widely attributed to shifts in the racial and ethnic distribution of cases and associated differences in survival outcomes.

Increasing Numbers of Cancer Survivors

More than 1.6 million new cancers were diagnosed in 2014, bringing the total of Americans living with a history of cancer to 14.5 million. Figure 1 illustrates the steady growth in the number of cancer survivors over the past decade.

RAPIDLY GROWING DEMAND FOR CANCER CARE

As the US population grows and ages, the number of people with cancer has reached a record high—and will continue to grow. According to a recent study, there is likely to be a 45% increase in cancer incidence between 2010 and 2030, leading to increased demand for cancer care and post-treatment services. Three major trends are contributing to the increased demand for cancer care:

- Newly insured patients. Millions of uninsured Americans signed up for health insurance last year because of the ACA insurance mandate. At the end of the open enrollment period in March 2014, 8 million people had registered through new insurance exchanges, and millions more were granted access to insurance through the expansion of private and governmental programs. The Congressional Budget Office estimated that the law would result in 12 million fewer uninsured Americans in 2014 and 26 million fewer by 2017 (Fig 2).

Table 1. New Drugs Approved by FDA for Cancer Treatment in 2014

<table>
<thead>
<tr>
<th>Generic Name*</th>
<th>Brand Name</th>
<th>Cancer Type</th>
<th>Precision or Targeted Therapy†</th>
<th>Target</th>
<th>Oral or Injection</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nivolumab‡‡</td>
<td>Opdivo</td>
<td>Melanoma</td>
<td>Yes</td>
<td>PD-1</td>
<td>Injection</td>
</tr>
<tr>
<td>Olaparib</td>
<td>Lynparza</td>
<td>Ovarian cancer, germline BRCA mutated</td>
<td>Yes</td>
<td>PARP</td>
<td>Oral</td>
</tr>
<tr>
<td>Pembrolytumab‡</td>
<td>Keytruda</td>
<td>Melanoma</td>
<td>Yes</td>
<td>CD19</td>
<td>Injection</td>
</tr>
<tr>
<td>Idelisib‡</td>
<td>Zydelig</td>
<td>CLL</td>
<td>Yes</td>
<td>PDKI</td>
<td>Oral</td>
</tr>
<tr>
<td>Belinostat</td>
<td>Belodaq</td>
<td>PTCL</td>
<td>Yes</td>
<td>HDAC</td>
<td>Injection</td>
</tr>
<tr>
<td>Ceritinib‡‡</td>
<td>Zykadia</td>
<td>NSCLC, ALK positive</td>
<td>Yes</td>
<td>ALK</td>
<td>Oral</td>
</tr>
<tr>
<td>Situximab</td>
<td>Sylvant</td>
<td>MCD</td>
<td>Yes</td>
<td>IL-6</td>
<td>Injection</td>
</tr>
<tr>
<td>Ramucirumab</td>
<td>Cyramza</td>
<td>GEJ adenocarcinoma</td>
<td>Yes</td>
<td>VEGFR2</td>
<td>Injection</td>
</tr>
<tr>
<td>Ibrutinib‡‡</td>
<td>Imbruvica</td>
<td>CLL</td>
<td>Yes</td>
<td>BTK</td>
<td>Oral</td>
</tr>
</tbody>
</table>

* Listed in chronologic order from most recent to least recent.
† Refers to therapies that are directed at discrete molecular targets.
‡‡ Granted approval after receiving breakthrough therapy designation by FDA.
Included in the pool of the newly insured are patients with cancer and cancer survivors who had previously struggled to find adequate, affordable coverage because of their history of cancer. Millions of newly insured patients will require cancer and survivorship services, potentially requiring 130 additional cancer cases by 2030.7 And as racial and ethnic minorities continue to make up a larger proportion of the overall population, it is likely that the demographics of cancer will change as well, given the differences in cancer risk by race and ethnicity.23

• Increasing cancer burden. Several key demographic shifts are leading to an increased number of cancer cases. The US Census Bureau projects that the number of people older than age 65 years will double by midcentury.37 Despite declines in smoking, these Americans remain highly vulnerable to cancer. In addition, obesity (discussed later in this section) is expected to cause an additional 500,000 cancer cases by 2030.7 And as racial and ethnic minorities continue to make up a larger proportion of the overall population, it is likely that the demographics of cancer will change as well, given the differences in cancer risk by race and ethnicity.23

• Growing ranks of cancer survivors. Thanks to better treatments, we are seeing a continued increase in the number of cancer survivors. The American Cancer Society projects that the number of cancer survivors will increase from 14.5 million in 2014 to 19 million by 2024.1 The growing number of cancer survivors will require long-term care and monitoring to detect and treat recurrence or new cancers and manage long-term treatment adverse effects. They may also have ongoing financial and psychosocial needs. Although survivorship care can be offered by primary care and other providers, many cancer survivors prefer to maintain relationships with their oncologists.36 In anticipation of the challenges an increasingly stretched oncology workforce will face, ASCO has developed new resources to help providers meet patients’ cancer survivorship needs and address them through coordination among patients, oncologists, primary care physicians, and other care providers (see ASCO Cancer Survivorship Compendium).

### Significant Inequities in Cancer Care

Recent efforts to expand access to quality cancer care have made a huge difference for millions of people—but this progress is uneven. Not all Americans are benefitting equally from cancer advances, including many racial and ethnic minorities, as well as the many Americans who remain uninsured or underinsured.

#### Persistent Racial and Ethnic Disparities

In the United States, the benefits of cancer screening and treatment advances have not been experienced evenly across racial and ethnic groups. Cancer incidence varies by race and ethnicity, with African Americans having the highest overall age-adjusted rates and Asian Americans having the lowest (Fig 3).31 These disparities are especially dramatic for some cancers. When looking at prostate cancer risk, for example, African American men are 1.5 × as likely as white men and are 3 × as likely as American Indian men to develop the disease. In contrast, Asian and Pacific Islander populations have the highest risks for liver cancer.31 Patterns such as these are seen for many types of cancer.

Mortality rates also vary across racial and ethnic groups, independent of incidence rates. For example, although African Americans are 2.5% more likely to develop cancer than whites, they are 19.6% more likely to die as a result of cancer (Fig 3).31 These factors are more pronounced among patients with pancreatic cancer, where African American men are 2.1 and 4.4 × more likely to die as a result of their cancer than white and Asian men, respectively. Asian individuals have slightly higher mortality rates for liver cancer, but the differences are less dramatic than the differences in incidence. Among patients with cancer today, African American men are 27% more likely to die as a result of cancer than white men, and African American women are 11% more likely to die as a result of cancer than white women.32

Cancer disparities result from a complex mix of social, economic, and demographic factors, and they defy easy solutions.

![Fig 2. Insured and uninsured population projections under the Affordable Care Act (ACA). Data adapted.](image-url)
survivors. Although the ACA has successfully expanded access to insurance and cancer care services, millions of Americans remain uninsured, and many others lack adequate coverage for treatment and management of their cancer. Uninsured and underinsured patients with cancer continue to face delayed and restricted access to life-saving, life-extending treatments and to services that enhance quality of life.

Disparities in Health Care Coverage

People with health insurance have a better chance of surviving cancer than those who are uninsured. Insurance also promotes long-term health and financial stability among cancer survivors. Although the ACA has successfully expanded access to insurance and cancer care services, millions of Americans remain uninsured, and many others lack adequate coverage for treatment and management of their cancer. Uninsured and underinsured patients with cancer continue to face delayed and restricted access to life-saving, life-extending treatments and to services that enhance quality of life.

Geography, cultural practices, socioeconomics, access to healthy choices, education, biology, and comorbidities are some of many factors that interact and contribute to differences in cancer incidence and outcomes across segments of the population. Major new advances that improve quality of life and survival may be out of reach for medically indigent individuals, widening the gap between what is possible and what is accessible. ASCO is working to enhance knowledge and better equip oncologists to promote more equitable access to care, most recently publishing an online educational resource addressing cancer disparities (see Online ASCO Series on Disparities in Cancer Care).

Online ASCO Series on Disparities in Cancer Care

To improve awareness of care disparities among a spectrum of cancer care providers, ASCO and the LIVESTRONG Foundation have worked with a multidisciplinary planning group of 11 other organizations to develop interdisciplinary eLearning activities. Examples of online courses include:

- Disparities in Cancer Care: Do You Know...?
- Cultural Competence for Oncology Practice
- Disparities in Cancer Care: Take Action!

Oncologists, oncology nurses, and pharmacists may take these courses for continuing education credit. More information is available at university.asco.org/disparities-cancer-care.

The Congressional Budget Office predicts that 31 million nonelderly residents will still lack insurance in 2024 (Fig 2). This uninsured population includes people who have elected not to purchase insurance, as well as unauthorized immigrants and people living in states not expanding Medicaid. Currently, 27 states and Washington, DC, have elected Medicaid expansion, with three additional states considering expansion. This leaves 20 states with no immediate plans to expand.

Regardless of state-level plans to expand Medicaid, access to quality cancer care will remain a challenge for Medicaid beneficiaries because of low physician reimbursement, high drug copays, and lack of access to clinical trial participation. In 2014, ASCO released a policy statement calling for broad Medicaid program reform (see ASCO Calls for Medicaid Reform).

According to recent reports, health insurance premiums are increasing for subsets of the population, including young, healthy individuals. As a result, some young, uninsured individuals are choosing to pay fines rather than pay for insurance. Furthermore, a growing number of plans—including Medicaid expansion programs and state health exchanges—are pursuing cost-containment measures such as tiered pricing, narrow networks, and restricted formularies, practices that may disproportionately affect patients facing costly cancer treatment. Among young and healthy individuals who do enroll in insurance, many gravitate toward high-deductible plans to lower their upfront expenses. This could prove both medically and financially catastrophic for people diagnosed with cancer.

Policy experts have questioned the adequacy of cancer benefits and oncology provider networks included under ACA exchange plans. The law mandates that certain preventive services such as breast, cervical, prostate, and colorectal cancer screening, as well as obesity and tobacco cessation counseling, be offered free of cost to patients. It also requires insurance plans to cover essential health benefits in 10 categories, the majority of which are relevant to cancer care (eg, ambulatory care, hospitalization, and prescription drugs). However, many of the specific services and the extent of coverage included in the essential health benefits are being left to the discretion of states and payers within states and may fail to ensure sufficient coverage of cancer services.

In a recent analysis of drug coverage within new plans, low-premium plans were found to be widely variable in their coverage of treatments for a sample of rare diseases. For example, pazopanib, a treatment for advanced soft tissue sarcoma, ranged from no coverage (for 40% of bronze plans) to top-tier formulary inclusion that requires high copayments.

The ACA has also made it challenging for patients to access care from certain cancer care providers. In an effort to contain costs, insurers have created narrow networks of practitioners to keep insurance costs down. A growing number of patients with cancer are discovering that their cancer care providers are no longer considered in network. This is particularly concerning for vulnerable populations—including people with childhood and rare cancers—because their plans may not include clinicians with the appropriate expertise to treat their disease. In March 2014, CMS issued network adequacy standards to help...
EMERGING PUBLIC HEALTH CONCERNS: OBESITY AND E-CIGARETTES

With obesity incidence rapidly rising in the United States, public health experts are concerned about a range of serious health consequences. More than 34% (78.6 million) of the adult population is considered obese, a percentage that has more than doubled since the 1960s.\(^5\)\(^1\),\(^2\) During this period, obesity prevalence among children and adolescents has more than tripled to 17% of the population.\(^5\)\(^1\),\(^2\)

Recent research has uncovered links between obesity, cancer risk, and cancer prognosis. Obesity is a risk factor for many types of cancer, including endometrial, esophageal, postmenopausal breast, and colon cancers, with as many as 84,000 cases attributed to obesity each year.\(^5\)\(^0\) If trends continue unabated, obesity may lead to an excess of more than 500,000 cancer cases by 2030.\(^7\) There is also mounting evidence that obesity is associated with worse outcomes for certain cancers, including breast, prostate, and colon.\(^5\)\(^1\),\(^2\) By one estimate, 14% to 20% of cancer-related mortality is attributed to being overweight or obese.\(^5\)\(^5\) In response to this emerging public health issue, ASCO recently launched an initiative to explore and address the link between obesity and cancer (see ASCO Calls for Medicaid Reform).

Another emerging public health concern is the introduction of e-cigarettes to American consumers. Manufacturers market e-cigarettes as a safe alternative to regular cigarettes because they contain only nicotine and are not combustible. As such, they have been offered as a potential new strategy for curbing or eliminating tobacco use. E-cigarettes are becoming popular among smokers and nonsmokers alike, including nearly 2 million US adolescents.\(^8\) In light of this trend, some experts worry that e-cigarettes will have the undesired effect of creating new smokers. Moreover, e-cigarettes have not been adequately studied for long-term safety or for efficacy when compared with existing tobacco cessation tools. In April 2014, the FDA signaled it would pursue authority to regulate e-cigarettes, as it has over most tobacco products.\(^5\)\(^6\) ASCO and other concerned organizations have expressed support for this proposed rule.\(^5\)\(^7\)

CONCLUSION

Advances in science and technology have contributed to sustained progress in cancer prevention and treatment. In the United States, patients with a cancer diagnosis are experiencing improved survival and better quality of life. Many challenges remain, however, such as persistent disparities in access to cancer prevention and care, as well as insurance coverage, and new public health crises, such as obesity and e-cigarette use. Demand for services is likely to grow, with projected increases in cancer incidence, unprecedented numbers of survivors, and greater access to health insurance made possible by the ACA. Additional research to better understand these challenges will help policymakers learn how to develop methods to address these issues.

Critical Role of Medicare for Patients With Cancer

A majority (52.8%) of new cancers occur among Americans age 65 years and older and are therefore treated through Medicare.\(^5\)\(^6\) In 2014, the nation celebrated a significant milestone when Medicare announced it will cover routine lung cancer screening for people at high risk. Such screening has been proven effective by clinical research and is supported by evidence-based guidelines from ASCO and the American College of Chest Physicians.

However, other major Medicare challenges remain, including the continuing threat of drastic cuts to physician payments—and patient access to cancer care—because of the flawed sustainable growth rate formula. One of the top priorities of ASCO is to ensure that Medicare provides access to high-quality cancer prevention, screening, and treatment (see Improving How Medicare Works for Seniors With Cancer; for additional information about Medicare payment, see Quality and Value in Cancer Care section).

ASCO Calls for Medicaid Reform

Medicaid is a vital safety net for low-income Americans with cancer. But critical Medicaid coverage gaps and restrictions prevent many patients from accessing high-quality cancer care. In November 2014, ASCO released a policy statement calling for major reforms of the Medicaid program.\(^4\)\(^2\) The recommendations highlight the urgent need to expand access to cancer care by closing major gaps in Medicaid coverage and removing barriers to key elements of quality cancer care for Medicaid enrollees.

More information is available at www.asco.org/Medicaid.

Improving How Medicare Works for Seniors With Cancer

ASCO strongly supports bipartisan legislation to repeal the flawed sustainable growth rate (SGR) payment formula. The SGR Repeal and Medicare Provider Payment Modernization Act of 2014 (S 2000/HR 4015) would establish a more stable and rational payment system that reflects the reality and cost of today’s medical practice environment and ensure access to high-quality cancer care for all Medicare beneficiaries.

For more information about ASCO’s work on the SGR, see www.asco.org/advocacy/repeal-sgr-formula-now.
The Oncology Workforce

The nation’s ability to care for an increasing number of people who will be diagnosed with cancer depends on a workforce that is sufficient in size, diversity, and geographic distribution. The oncology workforce must also be equipped with the tools and information necessary to meet the needs of the patient population. As the US population grows and changes, it is important for the cancer community to regularly consider the evolving demands for cancer services and recalibrate the resources required to address them.

This year’s report provides updated numbers on oncologists practicing in the United States, highlights information about advanced practice nurses and physician assistants, and explores trends in oncology workforce research occurring at the state level.

A SNAPSHOT OF THE FIELD

According to recent data from the American Medical Association (AMA), more than 22,000 physicians work in oncology-related specialties: medical oncology, hematology, gynecologic oncology, pediatric hematology/oncology, radiation oncology, and surgical oncology (Table 2). This report primarily focuses on medical oncology and hematology. (Medical oncologists focus on cancers that occur primarily in body organs and tissues, and hematologists focus on cancers of the blood and other types of blood diseases.) Slightly more than 14,000 physicians identify a specialty of medical oncology and/or hematology (Table 2). Among these, the number of hematologists and medical oncologists (hereafter referred to as oncologists) who cite direct patient care as their primary activity is approximately 11,700 (86.2%). The remaining 14% spend the majority of their time on administration, research, and teaching, among other activities. Looking at oncologists involved in direct patient care provides a better understanding of workforce capacity. Workforce researchers have expressed concerns, however, that the AMA Masterfile may not provide the most timely information about physician activity in clinical care.

Because claims data may be the most reliable indicators to identify physicians actively treating patients, we also used Medicare data to ascertain the number of oncologists involved in direct patient care. CMS provides access to a database that includes information on all physicians who have billed for Medicare reimbursement within the previous 12 months (Physician Compare). Physician Compare includes unique provider numbers, specialty designations, and geographic locations of service delivery. Because the majority of cancer diagnoses are in patients age 65 years and older, virtually all oncologists treat Medicare patients. In May 2014, Medicare claims data reflected reimbursement activity by 11,530 medical oncologists and/or hematologists, up 1.6% from last year (Table 2).

Advanced Practice Providers Specializing in Oncology

Given the multidisciplinary and complex nature of oncology treatment, cancer care is delivered by a broad spectrum of providers in addition to oncologists, including advanced practice providers, pharmacists, nurses, and professionals providing psychosocial support. Oncology care is also delivered in different settings across the continuum of care. With an increasing focus by patients and payers on value and quality of care and concern about potential clinician shortages, policymakers are increasingly looking at team-based care. Enhanced engagement of patients and improved communication and collaboration of all types of clinicians have the potential to enable clinicians to improve the quality of care and mitigate workforce shortages, especially in light of projected growth in demand.

Advanced practice providers working in oncology include nurse practitioners, doctors of nursing practice, and physician assistants. Doctors of nursing practice/nurse practitioners have chemotherapy prescribing authority and, in 20 states, can op-
erate as independent providers with no scope-of-practice limitations. Of the more than 192,000 doctors of nursing practice/nurse practitioners working in the United States, 1% (approximately 1,900) are certified in oncology. The physician assistant workforce is also active in oncology; of 93,098 physician assistants working in 2013, an estimated 2% worked in oncology (approximately 1,800 physician assistants). The US Bureau of Labor Statistics projects that nurse practitioner and physician assistant employment will increase by 33.7% and 38.4%, respectively, from 2012 to 2022—growth rates much higher than those for the overarching labor force (10.8% projected increase) and physicians and surgeons (17.8% projected increase).

In the ASCO 2014 census of US oncology practices (discussed in greater detail in The State of Oncology Practice section), practices reported widespread employment of advanced practice providers (Appendix A, online only). The 900 census respondents employed more than 2,700 doctors of nursing practice/nurse practitioners and 1,100 physician assistants. The majority (75%) of nurse practitioners, doctors of nursing practice, and physician assistants worked in academic settings, with the remainder split roughly evenly between hospital/health systems and private physician-owned practices.

DEMOGRAPHICS OF THE MEDICAL ONCOLOGY WORKFORCE

In 2010, ASCO launched the Workforce Information System to track demographics and other workforce trends in the medical oncology community (Appendix B, online only). The system monitors physicians who report hematology, hematology/oncology, or medical oncology as their primary specialty in the AMA Masterfile. This year’s data parallel those reported last year, finding that the oncology workforce is aging and shifting to include more women and, to a lesser degree, become more diverse in race/ethnicity. The 2015 report looks at these trends from new angles and introduces information on the practice preferences of oncologists entering the field.

An Aging Workforce

The oncology workforce continues to age; a steadily growing proportion (19.8%) of medical oncologists is nearing retirement age at 64 years or older (Fig 4). This segment of the workforce continues to outnumber oncologists entering the field—oncologists younger than age 40 years represent only 16% of the workforce. The median age of oncologists (52 years) has remained stable over the last year, although this median varies widely by state, with South Dakota and Oregon having the youngest oncologists (each with a median age of 48 years) and Delaware having the oldest oncologists (with a median age of 58 years). The median age of the overall physician population is also 52 years.

Increasing Percentage of Female Oncologists

The proportion of women in medical oncology continues to grow, with women accounting for just more than 30% of oncologists this year (Fig 5). This is approaching, but still slightly below, the overall figure for women in medicine (32.6%). Female oncologists as an overall group are younger than male oncologists (median age of 46 v 56 years). Of all the oncology subspecialties, pediatric hematology/oncology attracts the most women, whereas gynecologic oncology attracts the fewest.

The proportion of women in oncology fellowship programs (48%) is much higher than the proportion of women currently in practice and has recently surpassed medical training programs overall (46%; Fig 6). Within internal medicine subspecialties, oncology fellows are in the middle of the male-female distribution and closely mirror the overall percentage of women among residents and fellows.

Gaps in Racial and Ethnic Diversity

Diversity in the medical oncology workforce remains a challenge. For example, although the US Census estimates approximately 13% of the population is African American, only 2.3%
of practicing oncologists are African American (Fig 7). The rate is not much better in training programs, where only 4% of oncology fellows are African American. This figure, which lags approximately 2% behind the general population of residents and fellows, has hovered at this level for a decade. Hispanics, despite comprising 17% of Americans, represent only 3% of practicing oncologists and 5.8% of oncology fellows (Fig 8).

Increasing ethnic and racial diversity in the cancer care workforce has potential to advance cultural competency and expand access to quality care. To help advance this goal, ASCO initiated a mentorship program for medical students and residents from underserved ethnic and racial communities (see ASCO Diversity Mentoring Program).

Practice Choices of Fellows Entering the Oncology Workforce

A new feature of this year’s State of Cancer Care report is the tracking of practice decisions made by new entrants into the oncologist workforce. As part of the 2014 ASCO In-Training Exam (ITE) survey, nearly 1,400 medical oncology fellows responded to questions about preferred practice setting.

Consistent with the past 5 years of reporting, the majority (55.8%) of ITE survey respondents indicated a preference for university-based clinical practice or research, whereas 36.8% indicated they were likely to choose nonacademic community or private practice settings.

With respect to ultimate choice of practice setting, data from the AMA Masterfile show that slightly more than 69% of oncologists ages 40 years and younger work in group practice, as compared with only 42.7% among those age 66 years and older (Fig 8). Group practice in the Masterfile could include academic and hospital or health system-owned practices, unlike the ITE data that distinguish among practice settings. In addition, practice setting definitions are changing considerably with

ASCO Diversity Mentoring Program

In 2014, ASCO launched the ASCO Diversity Mentoring Program, an initiative designed to encourage medical students and residents who are underrepresented in medicine to pursue careers in oncology. The program aims to help trainees prepare for the challenging field of oncology by fostering relationships with experienced oncology professionals who can provide career and educational guidance and serve as a professional resource. Thus far, more than 100 ASCO members have volunteered to be mentors, and 70 medical students and residents have requested mentors.
practice ownership changes (further discussion in The State of Oncology Practice section). Current Masterfile data also suggest that younger oncologists are less likely to choose self-employment or solo practice.

At present, the differences in terminology make it challenging to stitch together a long-range view and fully understand employment preferences of oncologists entering the field. Given concerns about workforce capacity and distribution, ASCO will continue tracking and reporting these data on an annual basis, with planned enhancements to its data collection methods. More detailed information on the oncologist practice environment can be found in The State of Oncology Practice section.

GEOGRAPHIC DISTRIBUTION

Oncology continues to experience uneven geographic distribution of its workforce. According to the ASCO Workforce Information System (Appendix B, online only), more than one third of medical oncologists are located in three states (California, New York, and Texas), and a majority practice within nine states. Density calculations raise similar concerns. On the basis of the Medicare Physician Compare data, Washington, DC, and Massachusetts still hold the top spots for number of oncologists per 100,000 residents who are 55 years of age and older; Hawaii and Nevada have the lowest concentrations, each with approximately 10 oncologists per 100,000 individuals age 55 years and older (Fig 9). US residents age 55 years and older represent nearly 25% of the population but account for almost 77% of new cancer cases.15,16 Although California has the highest number of practicing oncologists of any state, the large population of individuals 55 years of age and older in the state places it in the lowest density bracket, with fewer than 13 oncologists per 100,000.

Poor Coverage in Rural Areas

For the more than 59 million Americans living in rural areas, a diagnosis of cancer can present unique challenges to obtaining high-quality care for their disease, including long travel distances and decreased access to specialists and state-of-the-art diagnostics, treatments, and technologies.12-14 Complicating these challenges is an increasingly urban physician workforce across all of medicine. Overall, 10% of physicians practice in rural areas; however, a recent analysis indicated that only 4.8% of new physicians are choosing to practice in nonurban areas.67,68 This is of particular concern in oncology, where treatment is highly specialized and often requires frequent follow-up visits to the clinic. The ASCO analysis of oncology locations in Medicare Physician Compare identified 633 medical oncologists and hematologists (5.5%) practicing in rural care sites (Fig 10). Nearly three quarters of these practices (73.3%) have only one practice location.

Two successful state initiatives conducted in Iowa and Nebraska have addressed access in underserved areas and offered strategies that may serve to inform efforts in other communities across the United States. These are profiled in the following section entitled Lessons From the States.

LESSONS FROM THE STATES

The ASCO 2014 State of Cancer Care in America report69 described an ASCO–University of Iowa study on oncology practice patterns within the state of Iowa, a state where the population largely resides in rural areas.14 A particular strength of the study was its data source: the Iowa Physician Information System, a statewide registry validated against national data sets and maintained through routine calls to every practice site. The registry includes information on physician practice locations and participation in visiting consultant clinics (VCCs), a program whereby community hospitals and health centers use vis-
iting specialists to increase access to specialty care in remote areas.

In September 2014, researchers published a longitudinal analysis of medical oncologists and hematologists working in VCCs in Iowa. In 1989 (the first year of available data from Iowa Physician Information System), Iowa provided 778 oncology clinic days through VCC programs throughout the state. Over the following 23 years, Iowa significantly expanded oncology care access by opening VCC locations and increasing clinic days at existing sites. In 2011, the final year of study, more than 2,100 clinic days were recorded at 66 VCCs across the state, with 95% of these days being offered in rural communities. Nearly half (45%) of Iowa oncologists and some cancer providers from Nebraska, South Dakota, and Wisconsin contributed to these VCC clinic days.

In nearby Nebraska, where 47% of residents live in rural areas, and cancer is the leading cause of death, researchers conducted a statewide study to closely examine their oncology provider workforce. Using the Health Professions Tracking Service, a data source operated by the University of Nebraska, they collected information on physicians, nurse practitioners, and physician assistants who provided cancer services between 2008 and 2012. Over the span of the study, the number of oncologists increased by 3%, and the number of oncology nurse practitioners and physician assistants increased by more than a third (37% and 36.1%, respectively). These increases provided additional provider capacity within Nebraska—although not necessarily in rural areas. Despite the high proportion of rural residents in the state, approximately 80% of oncologists, nurse practitioners, and physician assistants work in urban areas.

Understanding workforce distribution and capacity is critical to addressing gaps in care for communities across the country. Nebraska and Iowa have invested in robust workforce monitoring systems that enable targeted programs to bridge areas of need. As states enhance their ability to collect specialist-level data on workforce and care delivery mechanisms, efforts can be better targeted to anticipate, avoid, and quickly address gaps in access.

SUSTAINING THE ONCOLOGY WORKFORCE

Oncologist Burnout

Last year’s State of Cancer Care in America report described the results of an ASCO survey of more than 1,000 US oncologists, highlighting a troubling finding: Nearly half of respondents experienced some form of burnout. Burnout refers to long-term exhaustion leading to diminished interest in work and even health deterioration in some instances. In late 2014, ASCO helped conduct a follow-up study documenting burnout experiences among oncology fellows. Of the 1,345 US medical oncology fellows who participated, approximately 34% indicated having high levels of burnout (at least one event a week). The proportion was not significantly different from the 33.7% observed among practicing oncologists from the original study. Moreover, fellows’ expectations about work hours consistently underestimated levels seen in the practicing workforce. These findings suggest that fellows, already at risk for burnout while acclimating to a demanding work environment, will face additional stresses after entering the workforce.

Failing to address burnout and other quality-of-life issues among trainees and practicing oncologists can lead to serious workforce consequences. Oncologists experiencing such pressures may opt to reduce their patient volume or ultimately retire at an earlier age. Researchers have pointed to strategies including peer support systems, workload management guidance, and increased care coordination to prevent and address physician burnout, but they generally agree that further research and test-
ASCO is exploring ways to promote provider wellness by researching burnout, career satisfaction, and quality-of-life initiatives to identify effective methods to support oncology professionals.

**New Areas of Study**

Current predictions of oncologist and other health care workforce shortages are challenging in the context of a rapidly shifting practice environment. New practice models emerging in response to greater emphasis on quality and value of care will have significant influence on the size, shape, and capacity of the oncology workforce. Team-based care, practice transformation to better accommodate disease management and care coordination, and reaching underserved populations are all key areas of focus for ASCO in the coming year.

**CONCLUSION**

As the oncology community continues to be challenged by an aging workforce, uneven distribution of providers, and a dynamic practice environment, the need to explore new practice models will become increasingly important. The 2015 State of Cancer Care in America report highlights challenges posed by the demographics of the oncologist workforce, as well as the need for care coordination among specialists and across practice settings. These issues have direct implications for how practices are structured and the quality and value of care delivered. Continued close monitoring of these trends will be critical to develop strategies that enable oncology specialists to adapt and thrive in a changing world and enhance their ability to deliver high-quality cancer care.

**The State of Oncology Practice**

Oncology practices across the United States continue to experience volatility, with changes occurring in virtually every facet of the cancer care delivery system. Economic constraints, competition, growing administrative burden, and proliferation of cost-containment programs are among the many pressures practices say contribute to uncertainty about their continued existence.

In this section, we highlight practice trends based on the ASCO Oncology Census. We also draw attention to two additional issues of significance for practices and the oncology marketplace:

- Efforts by several states to strengthen facility requirements for safe handling of chemotherapy in all practice settings
- Ongoing shifts in site of care, in part brought on by drug discounts available to hospitals through the 340B program

![Fig 11. Distribution of participating census practices according to American Society of Clinical Oncology 2014 Oncology Census.](image)

![Fig 12. Practices by practice setting from 2013 to 2014 according to American Society of Clinical Oncology 2014 practice census. NOTE. The response options for the 2013 census were different, but they have been regrouped into the 2014 census categories for comparison purposes.](image)
ASCO CENSUS: CONTINUING PRACTICE ADAPTATION

In 2012, ASCO began an annual oncology census to better understand and respond to economic and care delivery challenges. In addition to collecting current data on practice size, distribution of specialties, practice setting, and services, the ASCO Oncology Census captures information on how practices are adapting to today’s environment and what they anticipate in the year ahead (Appendix A, online only). Nearly 1,000 US oncology practices from across the country participated in this year’s census study—nearly doubling the 2013 response rate of 530 practices. The 2014 respondents served as the practice homes for more than 10,000 individual oncologists (Fig 11).

Practice Setting

The 2014 ASCO Oncology Census asked respondents to classify the ownership arrangements of their employment setting from among the following options:

- Physician-owned practice or group (including multisite network)
- Academic practice
- Practice, group, or outpatient department that is owned by a hospital or health system
- Government
- Industry
- Retired or temporary

The ASCO State of Cancer Care in America report focuses on physicians in clinical practice settings: physician-owned, academic, or hospital/health system-owned practices (Fig 12).

The total number of practices that responded to the census increased by 83% from 2013 to 2014, with each clinical practice category experiencing increases: academic (78% increase), hospital/health system owned (185% increase), and physician owned (67% increase). The dramatic increase in hospital/health system-owned practices may indicate a migration of physician-owned practices to this arrangement. To better understand this relationship, ASCO is analyzing trends among practices that responded to multiple rounds of the ASCO census. Results are expected in 2016.

Academic practices are more evenly distributed across all census regions (Fig 13). Hospital/health system practices are more prevalent in the Midwest, and physician-owned practices seem more concentrated in the South and West. Hospital/health system- and physician-owned practices are almost equally represented in the Northeast.

SHIFTS IN PRACTICE STAFFING AND ADMINISTRATION

Availability of Oncology Specialties

The number of practices reporting multispecialty services remains high. New this year, the ASCO Oncology Census asked about internal medicine and hospitalist services; 184 respondents (19%) reported providing internal medicine services and 145 practices (15%) hospitalists. Not surprisingly, academic centers and hospitals were more likely to report specialized services (eg, pediatric oncology and surgical oncology) than physician-owned practices (Fig 14).
Involvement of Advanced Practice Providers
A majority (52%) of practices responding to the census (across all practice types) reported employing advanced practice nurses (primarily nurse practitioners) and/or physician assistants, with 281 practices employing advance practice nurses (29%), 60 employing physician assistants (6%), and 164 employing individuals from both fields (17%). These practices employ a total of 2,752 advanced practice nurses and 1,136 physician assistants (Fig 15). The majority of advanced practice providers currently practice in academic settings. This may change, because a majority of physician-owned practices indicated they are “somewhat likely” or “very likely” to hire advanced practices nurses and/or physician assistants in the coming year. When comparing the number of oncologists at these practices with advanced practice providers, census data revealed an average of 0.64 advanced practice provider per oncologist (median, 0.50). This is consistent with recently published data that suggest a ratio of one advanced practice provider to two oncologists across practice settings. Additional data about the advanced practice provider workforce are provided in The Oncology Workforce section.

Practice Affiliations
The ASCO Oncology Census queried practices about affiliations (defined as contractual agreements) with other providers, such as hospitals, medical centers, and other practices (Table 3). Understanding this aspect of practice business management can help shed greater light on the apparent consolidation that is occurring within the oncology practice community and its possible impact on cancer care. Because respondents could choose only one affiliation type, it is possible that practices have other affiliations as well.

Practices also reported on their likelihood to become affiliated or develop a contractual agreement with another entity over the next 12 months. One quarter (25%) of practices projected the likelihood of affiliation with a community hospital in the next 12 months, similar to the number in the 2013 census. Smaller percentages of practices indicated the likelihood of affiliation with another practice (18%) or an academic medical center (17%). The contractual agreements could range from specific services to partial or full ownership. Additional research is needed to examine the implications of these affiliations on access, cost, and care outcomes.

Payer Mix Trends
Oncology practices generally provide care to patients with Medicare and private insurance, with a smaller proportion of Medicaid and uninsured or self-paying patients. The 2014 payer mix data across all practices show some subtle, but important, changes from the previous years, with a 3% increase in the percentage of patients with cancer with both Medicare and Medicaid since 2012 (Fig 16). This is likely the result of two trends: (1) aging of the baby boom generation into the Medicare program and (2) states choosing to implement the ACA expansion of Medicaid. Interestingly, 25% of respondents anticipated another increase in both Medicare and Medicaid patients in the next 12 months.

Changing Payment Models
Payment reform and the need to incentivize high-value, patient-centered care are urgent priorities for oncology providers and policymakers. For example, the current system under

Table 3. Existing Affiliations

<table>
<thead>
<tr>
<th>Type of Oncology Practice</th>
<th>No Affiliation (%)</th>
<th>Other Academic Medical Center (%)</th>
<th>Community Hospital (%)</th>
<th>Other Medical Center (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physician-owned practice</td>
<td>67</td>
<td>8</td>
<td>23</td>
<td>2</td>
</tr>
<tr>
<td>Academic medical center</td>
<td>25</td>
<td>58</td>
<td>14</td>
<td>4</td>
</tr>
<tr>
<td>Hospital/health systems</td>
<td>38</td>
<td>29</td>
<td>27</td>
<td>7</td>
</tr>
</tbody>
</table>

NOTE. Data from the ASCO 2014 Oncology Census.

Fig 15. Number of advanced practice nurses and physician assistants by practice setting according to American Society of Clinical Oncology 2014 practice census.

Fig 16. Payer mix by year according to American Society of Clinical Oncology 2014 practice census. FFS, fee for service; HMO, health maintenance organization.
which Medicare reimburses physicians for patient care has not been able to keep up with the upward cost curve and is therefore a major focus of reform as policymakers look for increasingly scarce health care dollars. (For additional discussion of payment reform, see Quality and Value in Cancer Care section.)

The ASCO Oncology Census asked practices about existing payment models as well as future plans for implementation of novel care delivery and/or payment models. The majority of practices (72%) reported that they continued to work in a fee-for-service environment. Other payment models selected were capitation (8%), episodes of care/bundling (9%), and other non-fee-for-service alternative payments models (11%). Of practices considering or implementing novel models, 36% reported that they had implemented or were considering a pathway adherence program, and 30% were considering medical home programs emphasizing care coordination.

Practices indicating involvement with clinical pathway programs were asked to describe their program. Although some practices were using well-developed programs that were commercially available, many others reported using practice-developed or home-grown pathway programs. Others reported using programs mandated by specific payers. This emergence of variable pathway programs raises concern about a lack of standardization of pathway programs, which, when combined with new payer requirements, may result in increased administrative burdens for many oncology practices. (More detailed discussion on oncology pathways is available in Quality and Value in Cancer Care section.)

The ASCO Oncology Census also asked practices about their participation in accountable care organizations, which are groups of physicians, hospitals, and other health care providers that come together voluntarily to provide coordinated, high-quality care to an assigned population of patients. Current participation in accountable care organizations varies by practice setting, with 31% of hospital/health system-owned practices, 27.3% of academic practices, and 21.3% of physician-owned practices reporting participation (Fig 17).

**Practice Pressures**

The range of pressures currently facing oncology providers varies and seems to be highly dependent on practice setting (Fig 18). Academic practices indicated their top pressures are clinical research issues, staffing issues, and competitive pressures. Hospital/health system-owned practices and physician-owned practices identified payer pressures, cost pressures, competitive pressures, and drug pricing as their most important pressures in 2014. In addition, 60 respondents chose “other” and indicated electronic health records (EHRs), 340B drug pricing, hospitals, and government as the greatest pressures their practices are facing.

Two new pressures were added to the census question on practice pressures in 2014: (1) clinical research issues and (2) access to genomic testing. Clinical research issues (not defined by the survey) were cited as a pressure by 7.4% of respondents, and access to genomic testing was cited by 0.7%.

Comparing this year’s data on practice pressures with the 2 previous years of census data reveals several interesting shifts (Fig 19). When the two new pressures are included in the data analyses, results indicate a notable decrease in both payer pressures (from 26.2% in 2012 to 21.9% in 2014) and cost pressures (from 24.3% to 17.2%) and an increase in pressures

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Fig 17. Participation in accountable care organizations according to American Society of Clinical Oncology 2014 practice census.

Fig 18. Pressures cited by practices by practice setting in 2014 (select top two) according to American Society of Clinical Oncology 2014 practice census.

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related to drug pricing (from 8.6% to 14.8%). If the data are analyzed without the new pressures, payer pressures rose to 24% of responses, and drug pricing rose to 16% in 2014. In a recent article, oncologists in physician-owned practices cited reduced drug reimbursements from insurers as a major factor in practice sales and closures.74

Respondents were also asked how likely their practices were to close, sell, merge with another practice, or purchase another practice in the next 12 months. Although the majority of the respondents to this question indicated they were unlikely to do any of these things in the next 12 months, 7% indicated a likelihood of closing their practice, 8% said they were likely to sell the practice, a notable 15% indicated they were likely to merge with another practice, and 13% said they were likely to purchase another practice.

Staffing
The number of practices that reported they were likely to lay off clinical and administrative staff in the next 12 months continued to grow (Fig 20). Notably, an increase in practices reporting layoffs was observed for every staff category, with administrative staff positions reported most often as likely to be eliminated.

Conversely, greater percentages of practices reported a likelihood of hiring staff in the next 12 months. Oncology physicians were chosen as likely to hire by 46% of practices. Practices were similarly likely to hire certified oncology nurses (43%) and nurse practitioners (39%).

Although most practices reported they were likely to hire new staff, the number of practices reporting plans to lay off staff has continued to grow each year. Practices reporting plans to increase staff seemed to be focused on hiring clinical professionals, including physicians, advanced practice providers, and oncology nurses.

Practices also anticipated growing patient volume in the next 12 months, with 71% of academic and hospital/health system practices and 43.6% of physician-owned practices expecting an increase (Fig 21).

EHRs
The use of health information technology (IT) in oncology practices continued its modest growth, with 89% of census practices reporting the use of either basic or advanced EHRs. Another 6% reported that they would be looking to implement an EHR in the next 6 months. Only 5% of practices reported that they did not use EHRs, a percentage identical to that in 2013. This rate of EHR adoption is slightly higher than those reported across medical specialties—medical (68%), surgical (63%), and primary care (77%)—by the Office of the National Coordinator for Health Information and Technology.75

Although the adoption rate is high, frustration with the use of health IT is widespread. Several practices mentioned EHR issues as one of the pressures affecting their practice, with comments ranging from “decreased productivity because of the EHR” to the “excessive burdens of meaningful use.” A recent survey by Medscape reported that nearly a third of physicians believed that EHRs had negatively affected patient services and clinical operations.76

Medicare provides incentives and payment adjustments to eligible professionals who use certified EHR technology through its EHR Incentive Program.77 As of December 2014, the Physician Compare database identified more than 5,000 hematologists/oncologists (46%) participating in the program.9

![Fig 20](https://ascopubs.org/doi/10.1200/JOP.2014.56.02.15) Practices likely to lay off staff in each year according to American Society of Clinical Oncology 2014 practice census. LPN, licensed practical nurse; LVN, licensed vocational nurse.
Clinical Trial Participation

Participation of practices in clinical trials helps to determine the efficacy and safety of potential new cancer therapies. A majority (57%) of respondents indicated plans to increase the number of trials in their practice, although a smaller percentage (27%) reported plans to begin conducting federal trials, compared with 39% planning to start private clinical trials.

Large percentages of practices responded that they were unlikely to begin conducting trials, with 46% of practices saying this about federal trials and 39% about private trials. Among practices reporting likely plans to eliminate trials, 10% were likely to eliminate federal trials, whereas 5% were likely to eliminate private trials. Another 6% of respondents said they planned to eliminate all clinical trials from their practice (Fig 22). The data were more negative overall for federally funded trials than for private trials.

PREAUTHORIZATION

Preauthorization—the requirement that clinicians receive prior approval from patients’ insurance company before ordering certain tests or administering certain treatments—is concerning because it may result in delays to care. In addition, the time clinicians and their staff spend communicating with insurance companies reduces the time available for patient care and may hurt staff morale. Moreover, there is little evidence that these requirements improve the quality of patient care. ASCO decided to collect baseline data in the census and add this topic to the 2015 State of Cancer Care in America report because of anecdotal concerns from its membership about increasing requirements for preauthorization.

A 2014 survey of state-based oncologist membership organizations affiliated with ASCO (n = 36) included questions on the impact of preauthorization on oncology practice. Ninety-four percent of respondents reported that preauthorization requirements increased demands on staff time, 89% indicated that it delayed or interrupted patient care, 72% said it decreased patient satisfaction, and 64% reported it complicated medical decision making. In addition, nearly 70% reported that their preauthorization requests were often initially rejected by insurers, likely leading to appeals and additional requests.

Health IT has the potential to facilitate communication between oncologists and insurance companies regarding preauthorization. For example, the IBM Watson computer includes a feature that allows clinicians to rapidly request and obtain preauthorization from insurance companies for treatment protocols. There is limited evidence, however, that oncology practices have been successful at realizing the potential of health IT to reduce administrative burden.

IMPACT OF DRUG SHORTAGES ON TREATMENT

Drug shortages remain a relatively small but persistent pressure on practices. Both the FDA and the Government Accountability Office (GAO) released reports observing that the num-
ber of new drug shortages was decreasing, although many shortages have persisted for more than a year.

In 2014, ASCO—in collaboration with the Hematology/Oncology Pharmacy Association—conducted a survey to assess the prevalence and impact of drug shortages on oncology practices (Appendix C, online only). When compared with a 2012 survey, it seems that policy changes enacted in 2011 and 2012 have helped avert or mitigate drug shortages.82,83 Whereas 36% of respondents felt that drug shortage pressures were getting better in 2012, only 10% report significant improvement in 2014. Nearly 70% of respondents in 2014 reported that shortages were “a little better” or “the same.” This is consistent with FDA and GAO observations that the total number of drug shortages (new and persisting) had plateaued.80,81

Lack of timely communication about drug shortages is a continuing problem. Pharmacists (78%) overwhelmingly learned of drug shortages from distributors at the time of ordering, and most physicians (61%) learned of shortages from the pharmacy. The next most common method of communication is through professional societies, but only 25% of physicians and 45% of pharmacists learned about drug shortages in this way. Increased communications between professional societies and clinicians (including, physicians, pharmacists, nurse practitioners, and physician assistants) about shortages may allow clinicians to mitigate any delay in treatment caused when a clinician prescribes a drug he or she does not know is in shortage. Respondents reported that they often addressed shortages by recommending a different treatment regimen (68%), working directly with the manufacturer to obtain any drug available (62%), contracting or sharing drugs available from other providers in the region (50%), or contracting with another drug distributor (47%; Fig 23).

Addressing drug shortages takes time away from patient-focused activities. Approximately half of the respondents to the survey provided estimates of time spent on drug shortages, categorized by profession. Respondents estimated that physicians spent on average 2 hours a week dealing with shortages, although the range of time varied widely (range, 0 to 10 hours). Pharmacists spent more time dealing with shortages, on average more than 6.5 hours (range, 0 to 40 hours), whereas nurses, nurse practitioners, physician assistants, and office managers also devote time to drug shortage mitigation (2 to 4 hours per week on average). The burden fell most heavily on pharmacists in a hospital setting, where they spent nearly 8 hours a week on shortages. In private practice settings, the work of dealing with shortages was more evenly shared, with all professionals devoting 2 to 4 hours a week.

SAFE HANDLING OF CHEMOTHERAPY DRUGS

The regulation of chemotherapy safety often occurs at the state level, and several states have been active in recent years in developing new rules in this area. Some states have considered adopting guidance recommended by the US Pharmacopeial Convention (USP) and applying the requirements of USP Chapter 797 on sterile compounding to the physician office setting.

The application of USP 797 has raised concerns because some of the requirements in USP 797 are unnecessarily burdensome and inflexible when applied to the day-to-day operations of medical oncology practices. For example, the Maryland Legislature enacted legislation that would have required physician offices to comply with USP 797 in early 2014, but it subsequently removed the mandate because of concerns raised by the medical oncology community. Policymakers in Maryland currently are working with ASCO members and other stakeholders to draft and refine regulations that better reflect the realities of modern physician practices in the fields of medical oncology, hematology, and rheumatology.

In 2014, several states were in various stages of developing and implementing rules to help prevent occupational exposure to hazardous drugs based on recommendations published by the National Institute for Occupational Safety and Health (NIOSH).34 States pursuing regulations based on the NIOSH guidelines include Washington, California, and North Carolina. Currently, NIOSH is working to update its recommendations in this area, with publication of new guidance scheduled.

![Fig 23. Common responses to drug shortages according to drug shortage survey by American Society of Clinical Oncology and Hematology/Oncology Pharmacy Association.](image-url)
for 2015. ASCO is working collaboratively with NIOSH to provide perspectives from the medical oncology community on how best to protect our workforce while avoiding unnecessary burdens.

Perhaps the most controversial development in 2014 involved drafts posted by USP for a new proposed Chapter • for the handling of hazardous drugs in health care settings. ASCO provided written comments on the initial USP draft, urging USP to make extensive changes to the proposal.\(^8\) Given the extensive comments submitted by numerous stakeholders, USP officials decided to post a revised version on December 1, 2014, and solicit additional public comments. Comments on the second version of the draft chapter are due by May 31, 2015.\(^8\)

ASCO developed a task force in 2014 to develop updated guidance on the safe handling of chemotherapy drugs. In addition to developing updated guidance in this area, the ASCO task force is spearheading efforts to collaborate with other organizations that develop standards and to help support communications and educational efforts with policymakers at the state level.

### 340B DRUG PRICING PROGRAM

An issue that is contributing to changes in organization of oncology practices relates to the inducements created by the 340B Drug Pricing Program. The 340B Drug Pricing Program requires drug manufacturers to provide price discounts to certain hospitals and other health care facilities that qualify as covered entities. Independent physician practices are not eligible to participate in the 340B Drug Pricing Program, but hospital-based or -owned outpatient oncology practices may have access to 340B pricing if the hospital participates in the program. Some practices responding to the ASCO Oncology Census added in free text that the 340B program is causing “the greatest pressure your practice is experiencing currently.” When Medicare or private insurers reimburse for drugs through the 340B program, there is often a significant differential between the discounted 340B acquisition cost and the payment level. Congress intended for this differential to help promote access to health care services for underserved and vulnerable patient populations.

A number of stakeholders have expressed concerns regarding the 340B Drug Pricing Program as currently implemented. In 2011, the GAO concluded that oversight of the 340B Drug Pricing Program by the Health Resources and Services Administration (HRSA) had been inadequate.\(^8\) Other stakeholders have questioned whether the program continues to meet the original vision of Congress to “stretch scarce federal resources as far as possible, reaching more eligible patients and providing more comprehensive services.”\(^8\)

Some have questioned the rapid expansion of the 340B Drug Pricing Program in terms of both the number of eligible facilities and the number of eligible drug claims.\(^19-21\) In 2011, the GAO found that the number of entities participating in 340B had nearly doubled over the previous decade, growing from 8,605 in 2001 to 16,572 in 2011.\(^8\) In 2014, the Office of Inspector General for the Department of Health and Human Services examined the growth of contract pharmacy arrangements under the 340B Drug Pricing Program. It found that after the HRSA decision to liberalize its policies on contract pharmacy relationships, the number of contract pharmacy arrangements under the 340B Drug Pricing Program increased by 1,245% from 2010 to mid 2013.\(^8\)

In July 2013, HRSA finalized regulatory changes to 340B regulations that would allow program participants to purchase orphan drugs at the program discounts for nonorphan indications. In May 2014, implementation of the regulation was halted by a federal court ruling that limited the ability of HRSA to regulate.\(^9\) HRSA announced in November 2014 that it would not issue far-reaching regulatory reforms in 2015.\(^9\) Most observers agree that any significant changes to the program will have to come from Congress.

In response to growing concerns regarding the 340B Drug Pricing Program, ASCO released a policy statement in 2014 (see ASCO Policy Statement on the 340B Drug Pricing Program).

### CONCLUSION

The landscape of oncology practice is rapidly changing in the wake of increased demand for cancer services, financial and administrative pressures, and widescale health care reform. Large practices continue to grow in number as midsize practices consolidate. Payer pressures and drug pricing pressures have increased for both hospital/health system-owned and physician-owned practices. The time clinicians and their staff spend dealing with insurance companies and drug shortages reduces the time available for patient care and remains a burden on practices. ASCO is monitoring the evolution of cancer care delivery through its annual oncology census to anticipate and react to practice needs and the changing environment.

### Quality and Value in Cancer Care

As the nation approaches its fifth year since enactment of the ACA, affordability of health care remains a key concern of policymakers, taxpayers, clinicians, and patients. Although 2014 saw some slowing of health care expenditures, most observers do not believe these reductions will continue, and questions about sustainability of the current cancer care delivery system persist. In many ways, cancer—which consumes a large and growing portion of US health care spending—illuminates the challenges of today’s system: care fragmented across multiple providers and settings, payment structures that do not match services, and lack of clarity or communication around treatment goals and cost.

In light of these concerns, in 2014 the oncology community ramped up its search for value in cancer care, where patients receive the right treatments, at the right time, for the right price. The first part of this section reviews cost of care. The remaining sections review strategies for increasing the value of cancer care: (1) payment reform and new models of care, (2) creating cost-
FOCUS ON COST

Although the United States performs well on several cancer-specific quality indicators, including cervical and breast cancer screening and relative 5-year survival for breast and colorectal cancers, other Organization for Economic Cooperation and Development countries are able to achieve similar or better outcomes at a fraction of the cost.93,94 Indeed, a 2014 population-based analysis of American women with breast cancer and ductal carcinoma in situ found no relationship between spending and adherence with quality measures or between spending and survival.95 Direct medical costs of cancer care (now at $86 billion annually32) are not the largest portion of US health care spending, but they are among the fastest growing. Considering current levels of cancer incidence, survival, and cost, cancer care expenses could increase by as much as 39% between 2010 and 2020.96

A cancer diagnosis can result in serious financial consequences for patients and their families. A 2013 study found patients with cancer to be nearly 3× more likely to experience bankruptcy than people without cancer.97 Faced with high out-of-pocket costs, some patients even decide to forgo or prematurely discontinue important cancer treatments.98 And financial burdens of cancer care are often felt long after active treatment. Nearly half experience problems living on their household income, and financial hardship drives nonadherence to prescribed treatment.99 Difficulties may extend into survivorship, with young adults experiencing wage and productivity losses after an experience with cancer.9 The so-called financial toxicity of cancer treatment is a major area of concern for patients and their physicians.100-102

Drug Costs

Drugs continue to be a major focus in the discussion about cost and value in cancer care, and increasingly, this is a conversation about specialty pharmaceuticals. Specialty pharmaceuticals are those that represent significant cost, require special handling, or are part of complex treatment regimens. A large number of oncology drugs fall into this category. As treatment evolves to more targeted drugs that fight specific molecular abnormalities in a patient’s tumor—and the prospect of the need for combinations of these drugs grows—concerns about affordability, both for patients and the US health care system overall, are growing.

In the past year, alarming statistics about drug costs have emerged:

- The average monthly cost of a branded cancer treatment has more than doubled to $10,000 over the past decade.22
- Cancer drug costs are steadily increasing over time, with some approaching nearly $40,000 per patient per month in 2014 dollars.103
- Eight of the 10 most expensive drugs reimbursed by Medicare are cancer drugs (Table 4).
- Seven US drugs cost more than $100,000 annually, up from only four drugs in 2010105; four (57.1%) of seven of these drugs are used in cancer treatment.
- Targeted drugs are especially expensive, reaching up to $270,000 annually per patient.106
- The United States spends $37.2 billion annually on cancer drugs and supportive therapies, more than 40% of worldwide expenditures.22
- In 2012, spending on specialty pharmaceuticals reached $87 billion in the United States and is on track to account for 50% of drug spending by 2019.107
- Spending on oral oncology drugs is also growing, with a 37% increase in average quarterly spending over 5 years, from $940 million in 2006 to $1.4 billion in 2011 (in 2012 dollars).108

Paradoxically, the price of a drug seems to have little relation to its demonstrated efficacy. For example, researchers point to tyrosine kinase inhibitors for treatment of chronic myeloid leukemia.106 The first-generation therapy, imatinib, increased the 10-year survival rate in chronic myeloid leukemia from 20% to 85%.109 When it was approved in 2001, it carried a price tag of $30,000. By 2012, the price had risen to between $80,000 and $92,000, despite falling development costs and an expanding patient pool. In 2006, a second-generation inhibitor, dasatinib, was approved for use in patients who become resistant to imatinib. Although this and other second-generation inhibitors have demonstrated improvement in early surrogate measures of prognosis, they have not shown an increase in long-term survival. These second-generation inhibitors range from $115,000 to $124,000 per year.106

Increasingly under fire, manufacturers have pointed out that drug prices in oncology reflect the high cost of research, that there is a limited market for highly specialized drugs, and that today’s prices are needed to finance future research.110 As the debate over drug prices continues, policymakers are seeking strategies for lowering cost, including value-based reimbursement, enhanced clinical guidelines to minimize variation and waste, and formation of nonprofit organizations involved in the manufacturing and delivery of drugs.111

ASCO Policy Statement on the 340B Drug Pricing Program

In June 2014, ASCO released a policy statement concerning the 340B Drug Pricing Program.92 The statement recommends that policymakers focus on meeting the original intent of the program, consider policy changes that are consistent with the original intent of the program, clarify ambiguous aspects of the program, and understand and respond to the adverse impacts that the program may have on patient access to high-quality oncology care. The ASCO policy statement on the 340B Drug Pricing Program can be found at www.asco.org/340B.
Although they represent one of the fastest growing costs in the health care delivery system, drugs are not the largest contributor to overall spending on cancer care in the United States. UnitedHealthcare recently reported that hospitals and outpatient facilities account for more than half of spending on cancer care.112 The nearly 5 million cancer-related hospitalizations each year in the United States represent a cost of more than $20 billion,113 and as many as one fifth of those hospitalizations are potentially avoidable.114

The complexity of cancer care—including the need for multiple providers and specialists over the course of treatment—makes oncology especially vulnerable to fragmentation and inefficiency. Several reports point to the fragmentation of care for patients with cancer, gaps in transition from treatment to survivorship, and failures in communication between multiple providers and specialists involved in a patient’s care.115-117 Apart from unnecessary or wasteful spending, poorly managed disease can lead to complications for patients, such as long-term effects from disease or treatment, disease progression, unplanned hospitalizations, and avoidable visits to the emergency room.

In a 2014 New England Journal of Medicine Perspectives column, a general internist shared his experience coordinating care for a patient with cancer:

“Over the 80 days between when I informed Mr. K. about the MRI [magnetic resonance imaging] result and when his tumor was resected, 11 other clinicians became involved in

### Table 4. Ten Most Expensive Medicare Part B Payments for Drugs Delivered in Physician Office and at Home

<table>
<thead>
<tr>
<th>HCPCS</th>
<th>Name</th>
<th>Dose (mg)</th>
<th>Average Sales Price per Dosage</th>
<th>Total Medicare Annual Payment</th>
<th>FDA-Approved Indication</th>
</tr>
</thead>
<tbody>
<tr>
<td>J2778</td>
<td>Ranibizumab injection</td>
<td>0.1</td>
<td>$397.26</td>
<td>$1,325,482,737</td>
<td>Macular degeneration, Macular edema, Diabetic macular edema</td>
</tr>
<tr>
<td>J0178</td>
<td>Aflibercept injection</td>
<td>0.1</td>
<td>$980.50</td>
<td>$1,028,454,803</td>
<td>Metastatic colorectal cancer</td>
</tr>
<tr>
<td>J9310</td>
<td>Rituximab injection</td>
<td>100</td>
<td>$678.70</td>
<td>$879,704,671</td>
<td>Non-Hodgkin lymphoma, Chronic lymphocytic leukemia</td>
</tr>
<tr>
<td>J1745</td>
<td>Infliximab injection</td>
<td>10</td>
<td>$69.96</td>
<td>$756,940,457</td>
<td>Crohn’s disease, Ulcerative colitis, Rheumatoid arthritis, Psoriatic arthritis, Ankylosing spondylitis, Plaque psoriasis</td>
</tr>
<tr>
<td>J2505</td>
<td>Injection, pegfilgrastim</td>
<td>6</td>
<td>$3,123.83</td>
<td>$628,741,617</td>
<td>Neutropenia</td>
</tr>
<tr>
<td>J9035</td>
<td>Bevacizumab injection</td>
<td>10</td>
<td>$84.62</td>
<td>$606,329,275</td>
<td>Epithelial ovarian cancer, Fallopian tube cancer, Primary peritoneal cancer, Cervical cancer, Colorectal cancer, Breast cancer, Renal cell cancer, Glioblastoma, Non–small-cell lung cancer</td>
</tr>
<tr>
<td>J0897</td>
<td>Denosumab injection</td>
<td>1</td>
<td>$14.15</td>
<td>$428,692,767</td>
<td>Giant-cell tumor of bone, Prostate cancer, Breast cancer, Bone metastases, Osteoporosis</td>
</tr>
<tr>
<td>J9305</td>
<td>Pemetrexed injection</td>
<td>10</td>
<td>$59.49</td>
<td>$296,412,288</td>
<td>Non–small-cell lung cancer, Mesothelioma</td>
</tr>
<tr>
<td>J9041</td>
<td>Bortezomib injection</td>
<td>0.1</td>
<td>$44.89</td>
<td>$281,769,218</td>
<td>Multiple myeloma</td>
</tr>
<tr>
<td>J9355</td>
<td>Trastuzumab injection</td>
<td>10</td>
<td>$78.72</td>
<td>$270,119,091</td>
<td>Gastric or gastroesophageal junction adenocarcinoma, Breast cancer</td>
</tr>
</tbody>
</table>

NOTE. Bold font indicates drug used for treatment of patients with cancer. Pricing reflects fourth quarter 2013 payment rates, which correspond to second quarter 2013 manufacturer reports. The last column lists FDA-approved indications, but Medicare may also provide reimbursement for additional, so-called off-label, uses. Data adapted. Abbreviations: FDA, US Food and Drug Administration; HCPCS, Healthcare Common Procedure Coding System.
his care, and he had 5 procedures and 11 office visits (none of them with me). As the complexity of his care increased, the tasks involved in coordinating it multiplied. I kept a running list and, at the end, created an “instant replay” of Mr. K.’s care. ...In total, I communicated with the other clinicians 40 times (32 e-mails and 8 phone calls) and with Mr. K. or his wife 12 times. At least 1 communication occurred on 26 of the 80 days, and on the busiest day (day 32), 6 communications occurred.”118

Another factor driving cost of services is the trend toward conversion to hospital-based practices. Last year witnessed a continuing trend toward affiliation, and the 2014 ASCO Oncology Census reflected similar findings (see The State of Oncology Practice section). The impact of this shift can be considerable; at least one analysis showed cost in hospital outpatient departments was 19% to 38% higher than cost for similar services provided in physician offices.104 Hospitals have argued the higher cost reflects the overall requirement for round-the-clock operation and other infrastructure requirements. Regardless, both CMS and the Medicare Payment Advisory Commission have expressed ongoing interest in pursuing site-neutral payment policies. In a report issued in June 2014, the Medicare Payment Advisory Commission suggested options for reducing payment differentials between inpatient rehabilitation and skilled nursing facilities and signaled it would be exploring other areas where CMS should consider addressing disparity in payment.119 The 2014 Protecting Access to Medicare Act included a provision that expands the types of information CMS may consider in determining costs under the physician fee schedule, including “significant difference in payment for the same service between different sites of service.”120 Private payers have also begun to address this growing trend. In April 2014, the not-for-profit insurer Highmark announced that it would not pay higher chemotherapy administration fees for services rendered in hospitals.121

RESPONSE TO COST: TARGETING UTILIZATION

Health insurers and policymakers have pursued a variety of strategies to control cost while preserving or enhancing quality. These include: administrative controls on utilization (eg, pre-authorization and clinical pathways), development of alternative payment models, and quality monitoring. There has also been a strong emphasis on creating more informed and value conscious consumers. The remainder of this section explores the heightened efforts in 2014 to produce greater value for the nation’s investment in cancer care.

Clinical Pathways

Clinical pathways are designed to reduce costly variation in care through recommended care processes for specific clinical situations. Via Oncology, Innovent, Eviti, New Century Health, and P4 Pathways are some of the commercial developers of clinical programs and pathways in oncology. Many payers are pursuing the use of pathways because they have demonstrated the potential to yield significant savings.

- Use of the P4 Pathways Program in 46 CareFirst BlueCross BlueShield oncology practice sites led to $10.3 million in savings from reduced drug costs and hospitalizations—amounting to $30.9 million in savings if scaled to the entire health plan.122
- In a CareFirst program requiring pathways for use of granulocyte colony-stimulating factors, the plan was able to achieve a significant decrease in emergency department visits and hospitalizations for neutropenia and associated costs.123
- A retrospective analysis of proposed therapy for 2,544 patients with cancer found that approximately 25% of the treatment plans did not conform to national guideline recommendations, and there was no identifiable rationale for the deviation. Deviations in care cost an average of $25,000 per patient.124
- A collaboration between US Oncology practices in Texas and Aetna found that use of the Innovent Oncology Program resulted in improved patient care, greater pathway adherence, and decreased costs for emergency department visits and inpatient admissions in 221 patient cases.125
- During 2014, Wellpoint began offering monthly payments to oncologists in six states for patients treated according to recommended treatment pathways and plans to extend the program to all networks in 2015.126

Although many developers point to the fact that their programs are evidence based, there is growing concern that many commercial pathways programs fail to release information on methodology, governance, and oversight.127 Patients and physicians have voiced concerns that overly restrictive pathways may interfere with the delivery of care that is personalized and appropriate to an individual patient’s needs.128,129 Furthermore, multiple insurer requirements for disparate clinical pathways make it difficult for practices to adhere to requirements—and present a significant administration burden. Future tracking of quality and survival outcomes, in addition to pathway compliance and practice efficiency, will be important to gauge the impact of these recommended approaches to treatment decisions and care management.

Bundling and Episodic Payment

Many of the payment reform models now being tested involve fixed payment for services with potential for shared savings or performance-based bonuses. Bundling or episode-based payments are common versions of this approach and have gained traction with both Medicare and private payers. The Center for Medicare & Medicaid Innovation (CMMI) is developing specialty-specific models involving episode-based payment for procedures or complex and chronic disease management, along with other innovative arrangements.130 Moving away from volume-driven incentives inherent in fee for service, bundled payment can offer a more flexible environment where practices can organize in the way that best responds directly to the needs of
their patients. However, bundled payments in oncology may expose practices to additional financial risk—especially when cancer care bundles are not adequately defined and valued. Bundled payments also introduce the potential for underutilization; a robust quality-monitoring system is vital to assuring neither over- nor underutilization of cancer care. It is not yet clear whether widespread adoption of bundling will occur. In August, reports were published of an unsuccessful bundled payment pilot by a large network in California; contributing factors included administrative burden and inability to agree on risk elements to be included in the bundle.131

In 2014, the Center for American Progress (CAP) organized a consortium to develop a framework for care bundling in oncology, standardize quality measures for program evaluation, and launch a multisite demonstration project to test the framework.132 The CAP consortium announced that initial cases would include metastatic non–small-cell lung cancer and adjuvant and metastatic colon cancer. As of December 2014, CAP had not announced the specifics of its plan; one difficulty has reportedly been challenges in defining services for inclusion in the bundle.

Private insurers are also exploring bundled payment options. During 2014, UnitedHealthcare published results of its own bundled payment pilot involving five medical groups and 810 patients with breast, colon, or lung cancer. The primary outcome measured was total medical cost per episode of care (excluding drug costs), comparing data from the sites with data in a national payer registry. Although the study reported an increase in chemotherapy drug costs of $13 million, total medical costs were reduced by $33 million when compared with projected fee-for-service expenses. There were no observed declines in quality.133 UnitedHealthcare could not draw conclusions about the reasons for the savings, although subset analyses demonstrated “statistically valid decreases in hospitalization and usage of therapeutic radiology.” Additional studies will be important to validate these findings and ascertain successful models that could be used by other practices.

Other innovation initiatives in oncology funded through CMMI include:

- The Deep South Cancer Navigation Network (University of Alabama at Birmingham) is using lay health workers to decrease unnecessary hospitalization and increase patient satisfaction.135
- The University of Virginia received more than $2.5 million for a program focusing on proactive palliative care and palliative radiation therapy for patients with advanced cancer and collection of patient-reported outcomes.135
- The University of Pennsylvania is implementing a set of skilled home care services for patients with palliative care needs before they are eligible for hospice.135
- University Hospitals Care Medical Center of Ohio received funding to improve care for patients with cancer with complex care needs, including patients with late-stage disease or significant comorbidities.136

In August 2014, CMS also released for public comment its proposed cancer care payment and service delivery model, the Preliminary Design for an Oncology Focused Model.137 The model—proposed by CMMI—relies on adjustments to the current fee-for-service payment system, attempting to control costs while maintaining quality of care. CMS is proposing traditional fee-for-service payments under Medicare Parts A, B, and D; per-member, per-month payments to support care transformation; and retrospective, risk-adjusted performance-based payments. Performance-based payments would be based on a retrospective analysis of episodes of care and the ability of a practice to achieve savings relative to a selected list of measures. Episodes would begin on the date of initial chemotherapy administration—or Part D chemotherapy claim—and end 6 months later or when the beneficiary dies. Per-member, per-month payment amounts would be based on the estimated...
practice costs of providing enhanced services in the new model, including care coordination/navigation, documentation of care plans, and 24/7 patient access to an appropriate clinician with real-time access to the medical records of the practice. The proposed demonstration would apply to all cancer types. Episodes would include all Medicare Part A, B, and D services that fee-for-service beneficiaries receive during the defined episode. CMS is assessing feedback on the proposal, and a final draft is expected in early 2015.

ASCO also released its own physician-developed detailed payment proposal in May 2014, an approach that would provide bundled payments for the comprehensive services provided in high-quality cancer care (see ASCO Medicare Reimbursement Reform Proposal).

This past year, the Community Oncology Alliance also released a payment reform model that emphasizes practice transformation to an OMH.\textsuperscript{138} This model focuses on the following elements:

- Core quality and value measures
- Benchmark capability to compare with peers
- Tools and services to aid clinics in transition
- Platform for information exchange
- Public and private payer models

As part of this effort, the Community Oncology Alliance teamed with the Commission on Cancer to develop an OMH accreditation program. Applicant organizations will be reviewed based on 19 measures that promote OMH goals: (1) patient access, (2) extended or after-hours access to practice staff/providers, (3) evidence-based care, (4) comprehensive team-based care, and (5) quality improvement.\textsuperscript{139}

PCORI, a nongovernmental organization established through the ACA, is providing significant funding to explore care delivery models. As of the end of 2014, PCORI had awarded more than $50 million to cancer projects across 14 states and in Washington, DC.\textsuperscript{140}

The patient-centered medical home (PCMH) model originally was created to enhance communication, coordination, and accountability in the primary care arena, but it has also demonstrated promise in oncology.\textsuperscript{141,142} In 2013, PCORI granted an award to the National Committee for Quality Assurance to advance the PCMH model in specialty care.\textsuperscript{143} On the basis of standards developed in collaboration with ASCO and other specialty organizations, the National Committee for Quality Assurance created the Patient-Centered Specialty Practice Recognition Program.\textsuperscript{144} The model focuses on mechanisms to promote information sharing and care coordination between specialty and primary care practices, with an emphasis on organizing around the patient and their family or other caregivers.

Private payers are also pursuing the medical home model for oncology. Aetna recently announced plans to launch a pilot in January 2015 focused on patients with breast, colon, or lung cancers in Ohio, Georgia, and Texas. The insurer hopes the medical home strategy will reduce hospitalization and emergency department utilization.\textsuperscript{145}

### Creating Value-Conscious Consumers

A major theme of health reform has been greater patient engagement, including shared decision making about treatment options. Providers have focused on better communication about available therapies and their costs and benefits, often using formal treatment plans to support discussions with patients and families. Policymakers are approaching greater patient involvement by focusing on transparency in cost and providing consumer-focused information about provider practice patterns. The data released thus far, unfortunately, have limitations.

In April 2014, CMS released a public data set of health care services performed by physicians and other health care professionals in 2012. The data included amounts charged to Medicare and payments made to providers. This disclosure—the first of its kind—was described by CMS as an effort to make the health care system "more transparent, affordable, and accountable."\textsuperscript{146} Whether this strategy achieved the goals of the Administration was a topic of debate in the medical community. ASCO and other professional organizations reacted strongly, arguing that the information was released out of context and that it included numerous errors. For example, CMS bundled physician payment together with drug reimbursement, the latter being largely a pass through. It was also not made clear that physician payments supported the entire practice and that in oncology, the average physician supports seven to eight full-time staff members from these payments. Furthermore, the data did not capture certain structural realities of the payment system. For example, a multimillion dollar payment was attributed to one physician leader of a large clinic, when, in fact, the amount helped support drug expenses and salaries for 40 providers in that clinic.\textsuperscript{147} Rather than adding clarity and transpar-

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**ASCO Medicare Reimbursement Reform Proposal**

In May 2014, ASCO released "Consolidated Payments for Oncology: Payment Reform to Support Patient-Centered Care for Cancer," introducing a model of Medicare reimbursement for physicians providing cancer services. The proposal centers on flexible, monthly, bundled payments for various patient treatment scenarios, including new patient payments, clinical trials payments, and payments for patients receiving ongoing treatment and transition care—thereby helping to cover uncompensated time and activities and incentivizing high-quality, evidence-based, patient-centered care.

ASCO is in the process of testing the consolidated payment approach across multiple types of practice settings. Results from the pilot are expected in 2015.

The full ASCO payment reform proposal can be found at [www.asco.org/paymentreform](http://www.asco.org/paymentreform).
ency, observers raised concerns that broad public release of information without important context may actually create more confusion about oncology for patients and their families.

In 2014, the ASCO Value in Cancer Care Task Force initiated efforts to develop a value framework designed to assess and discuss the relative value of cancer treatment options and help each physician and patient make the best possible treatment decision for each unique situation (see ASCO Value Initiative).

QUALITY ASSESSMENT AND PERFORMANCE IMPROVEMENT

Quality measurement and improvement were central elements in virtually every payment reform model proposed during 2014, including major federal legislation to overhaul the Medicare physician payment formula and replace the flawed sustainable growth rate formula. Although the House-passed bill (H.R. 4015) failed to pass the Senate, the legislation included provisions that:

- Emphasized quality improvement
- Supported use of clinical data registries
- Streamlined current federal incentive programs
- Encouraged provider participation in alternative payment models, including patient-centered medical homes

The emphasis on quality is reflected in reimbursement programs recently adopted by payers—notably CMS—and provider and patient organizations. For full Medicare reimbursement, CMS now requires eligible providers to participate in the Physician Quality Reporting System (PQRS). Providers participating in PQRS have multiple routes to submit quality data to CMS, including through Medicare Part B claims, EHRs, and CMS-approved registries. Data submissions can be made at the practice level through the group practice reporting option, an option that will become increasingly important as practices continue to consolidate. Those who did not participate in PQRS in 2014 face a 2% reduction in Medicare reimbursements on Part B physician fee schedule services in 2016. CMS is also driving increased visibility of quality assessment by making PQRS participation information publicly available through its Physician Compare Web site (see The Oncology Workforce section for details about the data source).

As of December 2014, only 37% of hematologists/oncologists identified in the Medicare Physician Compare data set had reported using PQRS. Practices have cited as reasons for the low involvement rate the high cost of participation not being offset by incentive payments and the lack of measures for oncology. However, penalties will become greater (2% in 2016), and other programs will rely on PQRS for evaluating performance (eg, the Value-Based Payment Modifier). Non-participating practices may reconsider as the penalties become greater.

ASCO is hoping to address the low uptake rate by enabling participation in its Quality Oncology Practice Initiative (QOPI) to meet PQRS requirements. A provision included in the American Taxpayer Relief Act of 2012 authorized the Department of Health and Human Services to deem other registries as meeting PQRS requirements. In 2015, QOPI participants may qualify for meeting PQRS requirements.

At the national level, organizations such as the Commission on Cancer, the National Quality Forum, the Agency of Healthcare Research and Quality, and ASCO have published or endorsed metrics spanning a variety of cancer services, including overutilization of treatments and procedures, palliative care, and end-of-life care. Patient satisfaction and patient-reported outcomes are also receiving attention in oncology. Additionally, individuals and institutions across the country are contributing to a growing body of research dedicated to the collection and analysis of cancer quality indicators.

The 2015 State of Cancer Care in America report illustrates progress in quality measurement and improvement, with recent efforts in an area of particular importance to cancer patients: palliative care.

ASCO Value Initiative

ASCO is developing a framework for evaluating the relative value of new cancer treatment regimens across three domains: treatment efficacy, toxicity, and cost. ASCO has identified three goals for its value initiative:

- Oncologists will have the skills and tools needed to assess relative value of interventions and use these in discussing treatment options with their patients.
- Patients will have ready access to information that assists them in selecting high-value treatments that meet their unique needs.
- Those responsible for covering the costs of cancer care will have a useful algorithm with which to define and assess the value of cancer treatment options.

Framework elements have been defined as:

- **Clinical benefit**: improvement in survival, time to disease progression, or quality of life or a decrease in symptoms
- **Toxicity**: adverse effects associated with treatment
- **Cost**: expenses incurred by patients, society, and insurers

Earlier this year, ASCO hosted a series of stakeholder meetings to solicit feedback on an early draft of the framework. The society is in the process of reflecting on and integrating these diverse perspectives to ensure that the final version of the framework is responsive to patient needs and useful in the clinical setting. ASCO plans to release a revised version for broad public review and comment in 2015.

For details, please visit [www.asco.org/value](http://www.asco.org/value).
Room for Improvement: Quality Measurement in Palliative Care

In a September 2014 consensus report, the Institute of Medicine evaluated the state of palliative care in the United States, identifying significant unmet need for high-quality services for patients with serious and terminal illnesses throughout the continuum of their care. Palliation encompasses many aspects of care, including pain and symptom management, psychosocial support, and end-of-life services—all areas that are important to the care of patients with cancer.151-153

Increased focus on palliative care may contribute to advancing high-value, patient-centered care. Palliative care has been shown to improve quality of life, increase patient and caregiver satisfaction, and even lengthen survival and reduce costs in several instances.154,155 A 2014 study comparing patients with late-stage cancer treated in and out of hospice found that patients receiving hospice services experienced lower rates of hospitalizations, intensive care admissions, and invasive procedures than patients not receiving these services—resulting in lower expenditures in the last year of life and savings of nearly $9,000 per patient.156

A number of recent studies have focused on palliative care in the oncology setting, including several new or updated systematic reviews of the palliative care quality measurement literature. One such 2014 study identified 284 cancer-specific palliative care quality measures from 13 sources assembled between 1995 and 2012.157 While noting significant growth in number of quality measures, this report also mentioned gaps in data collection related to common cancer symptoms (eg, fatigue and anorexia) and to nonphysical attributes of care (eg, emotional distress and patient/provider communication). Concerning pain management in cancer care, an updated systematic review of 46 articles published between 1994 and 2013 found that the quality of pain management had improved since 2008—but that approximately one third of patients with cancer still do not receive sufficient treatment to address the intensity of their pain.158

Recent findings provide evidence that enhanced palliative care improves quality of life for patients with cancer. At MD Anderson Cancer Center, researchers found that patients referred to outpatient palliative care early in the continuum of care had improved end-of-life care compared with patients with later and inpatient referral.159 Despite persistent and growing evidence of the benefits and improved outcomes with palliative care, performance gaps persist in this area. To raise awareness of the issue and provide a venue for discussion of successful approaches to promote palliative care, ASCO initiated the annual Palliative Care in Oncology Symposium in 2014.

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**Fig 24.** Quality Oncology Practice Initiative practice performance in pain and symptom management. NOTE. For the spring 2014 round of data collection, 217 to 438 practices submitted data for these measures.

**Fig 25.** Quality Oncology Practice Initiative practice performance in end-of-life care. NOTE. For the spring 2014 round of data collection, 256 practices submitted data for these measures.
To increase awareness through measurement, ASCO created a quality assessment and improvement program derived from clinical guidelines, published measures, and expert consensus. QOPI has a module of measures devoted to end-of-life care as part of a library of more than 160 quality measures covering the broader cancer care spectrum, and a module for palliative care is currently being developed. Altogether, QOPI has more than 40 measures related to pain and symptom management, palliative care, and end of life.

As of spring 2014, QOPI practices had achieved between 69% and 85% concordance for selected measures of pain and symptom management (Fig 24). Constipation assessment and prescription of antinausea medications are areas that demonstrate continuing improvement over time. Since 2008, antinausea palliation scores had nearly doubled, from 44% to 80%. Constipation assessment also increased from 2008 to 2014, moving from 50% to nearly 70%. These numbers show the variability in performance among measures of pain and symptom management and illustrate the importance of initiatives to improve quality of care in these areas.

Figure 25 features three measures from the QOPI End-of-Life module. Although QOPI practices showed signs of improvement in pain management and discussions and activities related to palliative care and hospice options, hospice enrollment more than a week before death remained low.

To address areas needing improvement, ASCO established the Virtual Learning Collaborative and Quality Training Program (see ASCO Virtual Learning Collaborative and ASCO Quality Training Program).

Results from these ASCO programs and quality improvement programs from other organizations are beginning to enhance clinician expertise and provide models for successful strategies. In addition, payment reform approaches can provide the resources to support clinician time and attention to patient-centered improvements. Randomized controlled trials are not always feasible or viable ways to test different approaches. Greater availability of metrics and tools to analyze clinical data are expanding the way that oncologists learn and improve care quality.

BIG DATA

Big data—the collection and analysis of large and complex data sets—has the potential to improve the quality, and thus the value, of cancer care. Big data is characterized by its volume or quantity, variety or different types and formats, and velocity or speed of accumulation.

Currently in the United States, treatment standards are determined in large part from the 3% of patients with cancer who participate in clinical trials—and these patients tend to be younger, healthier, and less diverse than the overall population of patients with cancer. Meanwhile, the remaining 97% of data on how other patients with cancer respond to therapies are not available to inform patient-clinician decision making. New methods and technologies are needed to enable the cancer community to use big data to learn what is and is not currently working for the majority of patients who would not have qualified or chose not to participate in clinical trials.

The number of organizations engaging in large-scale data efforts continues to grow. Within the pharmaceutical research and development arena, for example, companies are making unprecedented efforts to openly share data from their cancer clinical trials through the Project Data Sphere initiative. During 2014, its first year of operation, the initiative collected and shared control-arm data on more than 10,000 patients from more than a dozen sources. Private companies such as Cancer Outcomes Tracking and Analysis, Flatiron Health, IBM, IMS, Optum, and NantHealth are actively involved in cancer-related data initiatives. Nonprofit organizations such as PCORI via PCORNet and the Commission on Cancer via the National Cancer Database are contributing their own efforts.

ASCO is playing a unique role as a specialty society interested in supporting oncology clinicians seeking assistance in measuring and improving quality and learning from the experiences of patients with cancer (see CancerLinQ).

ASCO Virtual Learning Collaborative

In May 2014, ASCO teamed with the American Academy of Hospice and Palliative Medicine to establish the Virtual Learning Collaborative to help oncology practices enhance their delivery of high-quality palliative care services. The program consists of an online toolkit of resources and channels for practices to connect with one another to share ideas and best practices. During the initial launch that will run through 2015, a group of 24 oncology practices will participate and evaluate program activities to determine the feasibility of expanded virtual support tools covering many aspects of cancer care.

Details are available at www.asco.org/vlc.

ASCO Quality Training Program

Between October 2013 and March 2014, 15 interdisciplinary oncology teams participated in the inaugural Quality Training Program—a comprehensive education and training program that assisted the oncology teams with the design and implementation of quality improvement activities in their practice settings. In the initial round, practices sought improvements in such areas as oral chemotherapy documentation and emotional distress assessment and management for patients with cancer. On the basis of the success of the pilot, ASCO will offer the Quality Training Program to a broad audience of practices in 2015 and onward.

Program information is available at www.asco.org/qualitytraining.
These endeavors are in the early stages, so results are generally not yet available in the peer-reviewed literature. Future editions of this report will cover these initiatives in greater detail.

State and national governmental agencies are also substantially contributing to the big data movement. In late 2013, the Centers for Disease Control and Prevention announced its joint efforts with the Agency for Healthcare Research and Quality to enhance the National Program of Cancer Registries to better capture comparative-effectiveness and patient-centered outcomes data. The Centers for Disease Control and Prevention and the Agency for Healthcare Research and Quality announced their joint efforts to enhance the National Program of Cancer Registries to better capture comparative-effectiveness and patient-centered outcomes data. A total of 13 states were identified for the data enhancement project. In addition, CMS has a longstanding tradition of sharing health care data for the purposes of establishing transparency and advancing health services research. CMS products range from provider-level data sets, including the newly released Medicare Provider Utilization and Provider Payment data set, and patient-level data when linked with the SEER Program of the National Cancer Institute. The FDA is currently piloting elements of its Mini-Sentinel Initiative, a system intended to quickly identify and assess safety issues from real-world patients.

CONCLUSION
The health care environment in the United States remains turbulent, and cost concerns have given rise to numerous experiments designed to find ways of lowering spending while...
preserving quality. Strategies such as specialty medical homes and bundling/episode-based payments have shown mixed results, but certain pilots have produced savings without reducing quality. With the increase of funding from CMMI and PCORI to support development of different payment models (as noted earlier in this section), over the next 5 years, more data will become available that will be key to identifying successful approaches to organization, delivery, and payment for cancer care.

Creating value-conscious consumers will continue to be a major focus of payers, with emphasis on patient engagement in treatment decisions and expanded public information about provider quality and cost. Providers need to be actively engaged to assure performance measures and payment models support appropriate clinical care—and to convey accurate information to patients and families.

Large data sets hold promise for speeding scientific progress and providing greater insight into the value of individual treatment options. The challenge lies not in accumulating massive amounts of data, but rather in distilling these data into information that is accurate, meaningful, and readily accessible to providers, patients, and other stakeholders.

Conclusion and Recommendations

The US cancer care delivery system remains in a highly volatile state, experiencing many of the disruptions taking place in the broader medical community. Economic, policy, and technology changes are strong catalysts for many of the trends observed over the past 2 years, including shifts in site of practice, emergence of new care delivery models, and growing concerns about cost of care. The ASCO analysis of the state of cancer care has revealed a number of positive trends, such as increased survival rates and innovation in health care delivery, as well as more concerning trends, such as continuing disparities in access to cancer care, narrowing provider networks, aging of the oncology workforce, and continued migration of services away from community practices.

Anticipated oncology workforce shortages have not yet occurred, but this may be a result of delayed retirements, shifts in practice site, or involvement of advanced practice providers—or because of overall reductions in health care spending and utilization seen in the past couple of years. This is an area that will require continued monitoring.

Although practices in the 2014 ASCO Oncology Census reported a small increase since 2013 in the number of patients covered by Medicaid the anticipated major surge in the number of insured patients with cancer—especially those funded through state Medicaid programs—has not been observed. This may be related to insufficient time for newly insured patients to present with a cancer diagnosis. Other coverage-related changes are more apparent: narrowing provider networks, increasing patient responsibility for cost of care, and growing administrative requirements such as preauthorization for drugs and/or services. As cost concerns escalate, payers are putting heavy emphasis on performance-based payments, and many are building their own quality measurement programs in selected disease areas, especially in cancer.

Both practices and payers are responding to continued system challenges, such as fragmentation of cancer care across multiple providers and settings, barriers to access, payment structures that do not match services, and lack of clarity or communication around treatment goals and cost. Strategies include adoption of innovative payment models, expanded use of team-based care, practice transformation to medical home structures, emphasis on shared decision making, and rural outreach initiatives. The impact of these strategies remains to be seen and will be important to monitor in the coming year.

The following are strategies ASCO believes can play important roles in addressing the challenges described in this report:

- **Ensure all publically funded insurance programs offer consistent and appropriate benefits and services for patients with cancer.** The ACA has extended coverage to millions of Americans, but as is clear from this report, there remain significant disparities in access to care across the country, including among Medicaid patients. Currently, 67.9 million Americans—approximately one fifth of the US population—are enrolled in Medicaid, including those added under the ACA expansion. Of these, an estimated 2.1 million are patients with cancer or cancer survivors. However, studies show that Medicaid patients often do not receive the same quality of cancer care as patients with private insurance and have substantially increased risks of presenting with advanced-stage cancers at diagnosis, when treatment is less likely to be effective. Disparities in access to cancer care persist across the United States, and public insurance programs should be structured to minimize barriers that contribute to this challenge.

- **CMS should standardize benefits and other program elements across Medicare and Medicaid.**
- **Congress should articulate the essential services any plan must include to achieve high-quality, high-value care.**

- **Pilot test multiple innovative payment and care delivery models to identify feasible models that promote high-quality, high-value cancer care.** Current payment systems do not support many of the elements required to achieve improved health outcomes, enhanced patient experience, and lower cost. These aims for all of health care are especially critical in oncology, where care is complex and delivered by multiple providers across many care settings. Many new promising models have been proposed, but there is limited evidence as to their feasibility or impact.

- **CMS should expand its efforts to pilot alternative payment models—beyond its Oncology Care Model—to identify innovative strategies that allow practices flexibility to deliver high-quality, high-value care while containing cost.**
• Congress should provide a fair, adequate, and stable payment environment for oncology practice, including repeal and replacement of the sustainable growth rate formula.

• Private insurers should partner with CMS, patients, and providers to test promising new payment and care delivery models so the impact of alternative strategies on the entire cancer care delivery system can be determined.

• Oncology professionals should engage in testing/evaluating new payment and care delivery models and in developing measures of accountability for the care delivered.

• Promote high-value care by advancing and supporting transparency and shared decision making with patients. Most innovation initiatives either under way or being proposed include emphasis on engaged and informed patients. CMS and other payers are sharing information about provider quality and cost, but as noted earlier in the report, some of the information is out of context or inaccurate. Other efforts are focused on promoting shared decision making, informing patients about their treatment options, deciding how those options can support personal patient goals, and understanding the physical and financial costs of each option. The engaged patient is critical to successful outcomes and to providing high-value care.

• Oncology professionals should discuss personal goals of care, potential treatment options, expected benefits, and the physical and financial impacts of treatment options with every patient with cancer.

• CMS should make every effort to improve the data that it provides to the public and include appropriate information to understand the implications.

ASCO will continue to track and evaluate the ever-shifting landscape in cancer care over the coming year, will continue to support cancer care providers as they negotiate these growing pressures, and will work with policymakers and other stakeholder organizations to ensure that changes in the system support access to high-quality, high-value care for all patients with cancer.

Author's Disclosures of Potential Conflicts of Interest
Disclosures provided by the authors are available with this article at jop.ascopubs.org.

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AUTHOR’S DISCLOSURES OF POTENTIAL CONFLICTS OF INTEREST

The State of Cancer Care in America, 2015: A Report by the American Society of Clinical Oncology

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No relationship to disclose
Appendix A

American Society of Clinical Oncology
National Oncology Census Methodology

The American Society of Clinical Oncology (ASCO) established the National Oncology Census to capture comprehensive, timely data that help characterize oncology practice in the United States. Begun in 2012, the census collects information about oncology services and specialties, practice settings, staffing and mergers, payer mix, patient volume, and practice pressures. ASCO is using these data to understand practice demographics and needs so that ASCO may adapt to the changing environment and be supportive of oncologists’ interests.

Launched in May 2014 and closed in August 2014, the latest census represents 974 practices representing more than 10,000 oncologists. In 2012, ASCO had 632 practices and 5,018 oncologists participate compared with 530 practices and 8,011 oncologists in 2013.

During its open period, ASCO mailed more than 2,600 letters to both verified and unverified practice addresses identified through the ASCO membership database, state affiliate membership lists, and Medicare Physician Compare data. Medicare Physician Compare includes data on all physicians who have billed Medicare in the previous 12 months.

The census collects one response per practice. Of those who completed the census, 581 responders were doctors of medicine or doctors of osteopathic medicine, and 173 responders were practice administrators, office managers, practice supervisors, or those in similar occupations. The remaining 220 responders were a mix, including advanced practice nurses and physician assistants. Practices were asked to select the most appropriate ownership type for their practice: academic, physician owned, or hospital/health system owned. Responders included 420 physician-owned practices, 362 hospital/health system-owned practices, and 192 academic practices. On the basis of this response rate, it is possible that ASCO does not have information from smaller practices as well as large academic institutions.

Appendix B

ASCO Workforce Information System Methodology

ASCO created the Workforce Information System (WIS) to assemble current data on the US oncologist supply and compare those data with 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 from the American Medical Association Physician Masterfile and the Centers for Medicare and Medicaid Services Physician Compare data set.9,10 Demographic data on practicing oncologists come from the Masterfile. Geographic analyses of oncologists’ practice locations are conducted using Physician Compare and US Census data.15

Information on fellows and residents in the oncology workforce pipeline come from published sources such as 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.


Appendix C

ASCO and Hematology/Oncology Pharmacy Association Drug Shortages Survey

An online 13-question survey tool with multiple choice and short answer questions was administered for 6 weeks to US ASCO and Hematology/Oncology Pharmacy Association members and nonmembers. ASCO and Hematology/Oncology Pharmacy Association members received links to the survey via e-mail, and both organizations provided links to the survey tool in newsletters and other communications aimed at, but not exclusive to, members; 257 individuals responded.