The Cancer Moonshot – Navigating Uncharted Territory

Authors: Pamela Damsky, Giselle D'Agostino
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Like NASA’s bold promise to reach the moon in the 1960’s, the Cancer Moonshot initiative will change the face of cancer research and oncology in ways that we can only begin to perceive. The changes to come present a material challenge to cancer care providers: how to maintain a competitive, consumer-focused cancer program offering differentiated care today, while preparing for significant and highly uncertain changes ahead. Providers need to anticipate and plan for the future by evolving their programs, securing their ability to provide patients with the best care, and mitigating financial vulnerabilities to sustain and advance this strategically critical clinical service area.

Cancer is one of the most important diseases of the 21st century when you consider its reach, impact and the vast resources dedicated to care delivery and research. Almost 40 percent of the United States’ population will be diagnosed with cancer at some point in their lifetime. In 2016, more than 15 million individuals were living as cancer survivors, a number that is expected to grow to upwards of 20 million by 2026. The aging population, high prevalence and increasing cost of care for patients and survivors are contributing to the growing national economic burden of cancer. In 2014, direct medical costs alone were estimated at almost $88 billion, a growing portion of which is borne by patients, survivors and their families. Escalating treatment costs and increases in insurance plan cost-sharing are in large part responsible for more individuals reporting financial distress associated with cancer care. Just last year, approximately one in three cancer survivors went into debt to cover the cost of cancer treatment and of these individuals, 55 percent owed more than $10,000.
Cancer researchers were galvanized in late 2016 by the announcement of the Cancer Moonshot initiative and $1.8 billion in supplemental National Institutes of Health (NIH) funding dedicated to cancer research to “achieve a decade’s worth of progress in five years”.¹ The Moonshot is more than an infusion of research funding. It includes a variety of initiatives by and between public and private organizations such as: the Food and Drug Administration’s (FDA) participation to broaden clinical trial eligibility; partnerships with pharmaceutical companies to expand access to cancer compounds; greater transparency of clinical trial availability to patients; and even agreements with UBER and Lyft to provide patients with local transportation for treatment.

**Forces Shifting the Future of Cancer Care**

Similar to how NASA’s moonshot in the 1960’s drastically altered our understanding of man’s role in space, our understanding of cancer and how to treat it is fundamentally changing. There are different forces at work, each of which could independently change the delivery of cancer care as we know it. Combined, these forces could shift cancer care as significantly as the development of mammography and other imaging modalities in the 1960’s and 1970’s.³ Material changes in cancer care models – with implications for operational and financial performance – will be required to address these shifts.

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**Molecular Medicine**

Molecular (precision) medicine is demonstrating exciting results for patients with certain cancers coupled with specific genetic profiles. Earlier this year, the FDA approved the first cancer treatment based on a genetic biomarker rather than a specific tumor origin. Each new discovery and approval will significantly increase survival and begin to shift treatment patterns from current standards of care, specifically from chemotherapy, radiation therapy and surgery, to molecular therapy. The development of molecular medicine is already changing treatment patterns and protocols. Molecular tumor boards are increasingly common at major research centers, and many health systems are collecting genetic information on all patients who present with cancer to inform clinical trial evaluation should it be needed.

Cutting-edge science has long been the primary purview of academic medical centers in general, and NCI-designated Cancer Centers in particular. While these important organizations will maintain their position at the forefront of cancer research, new, less-expensive technologies are enabling community providers to screen for and match patients exhibiting specific genetic markers with many of the newest treatments available. Technology companies, many of which are venture-backed, are complementing molecular science by making the costly process of genetic mapping accessible to patients in community settings. For example, in September 2016, Catholic Health Initiatives and Dignity Health announced a joint venture Precision Medicine Alliance to “offer patients from both health care systems faster and more accurate diagnostic and treatment protocols based on their genetic and molecular profile information.” Syapse, a precision medicine software company, is helping these organizations scale this offering for approximately 150 hospitals and 12 million patients a year.⁴
However, the nature of genetics-based treatment will moderate the impact of molecular medicine; by definition, the number of people that will benefit from each new approved treatment is a fraction of those treated by conventional treatment. Even with increased research funding, it is likely to take years to reach a tipping point for care delivery. Additionally, the costs of these treatments are exponentially higher than traditional treatment; a recent drug for leukemia treatment approved by the FDA is expected to cost $475,000 for a course of treatment. Patients who do not have the financial resources, or have insufficient insurance coverage, will not be able to access the newer, costlier treatments. Meanwhile, insurers and providers alike will be challenged to adapt to these disruptive advancements as the balance between different modalities changes and the financial coverage of such treatment remains uncertain.

**Disruptive Technologies and Treatments**
There are significant advances in prevention and treatment modalities that will impact larger populations more directly than molecular medicine. Vaccines for both prevention and treatment are an active field of study already yielding important results. For example, the Centers for Disease Control (CDC) estimates that cancers related to the Human Papilloma Virus (HPV) currently affect almost 40,000 men and women each year in the U.S., and that 73 percent (29,100) of these could have been helped by the HPV vaccine. The incidence and prevalence of these cancers will be dramatically reduced in the future because of the vaccines given to young girls and boys today. Beyond prevention, two vaccines are currently approved for the treatment of metastatic prostate cancer and metastatic melanoma. Patients receiving these vaccines have a less resource-intensive treatment regimen than one that includes radiation therapy, surgery or rounds of chemotherapy.

Other disrupters, such as oral chemotherapies and less-invasive screening procedures, will positively impact oncology care but also have financial consequences for patients and providers. There are approximately 75 oral chemotherapies available today for many types of cancer including breast, prostate, lung and blood. These are more convenient and less invasive for patients, enabling them to avoid long sessions in an infusion chair. However, the patient cost for oral chemotherapy is often higher than traditional, infusion-based treatments, putting patients and families at increased risk for significant debt associated with cancer treatment. Increased adoption of oral chemotherapy also will lead to a decline in revenue-producing infusion encounters for providers and hospitals.

Newer, less-invasive screening options are also being developed. For instance, reducing the cost and discomfort associated with colonoscopies, while increasing patient convenience, can improve both early and total detection rates for colon cancer. This trend will also shift the site of care away from hospitals, and in some cases physician offices. Providers will be financially impacted by this as at-home tests generate little to no revenue for hospitals, while colonoscopies are often a very profitable procedure for both the physician and the facility.
Reimbursement changes

Advancements in health reimbursement models and the overall shift to value-based care have an important role in the future of cancer care. Many organizations with high numbers of safety-net patients are dependent upon the discounts they receive on drug costs through 340b pricing to remain profitable. With 340b pricing concessions a repeated area of focus by the Centers for Medicare and Medicaid Services (CMS), these price discounts are likely to be reduced or restructured, creating financial challenges for many provider organizations. Other policies that will negatively impact provider finances include the potential loss of hospital-based billing for outpatient services. While neither of these would impact the care delivery model, both changes could profoundly impact financial performance.

New payment models are also emerging that aim to improve the quality of and reduce the overall cost of cancer care. CMS, as well as innovative provider and payor organizations, are driving change by experimenting with various value-based payment arrangements. The CMS Oncology Care Model, which focuses on episodes of care that include chemotherapy, incentivizes physicians and hospitals to enter into payment arrangements with financial and performance accountability. CMS has also indicated that it will continue to work with stakeholders at the national and state level to develop models that tie cost to clinical outcomes and quality. Cancer care providers will need to increasingly become knowledgeable on the impact new government and commercial payment models will have on their practices and be prepared to develop requisite capabilities to succeed under these arrangements.

Preparing for the Change Ahead

Against this context, cancer care providers face a formidable challenge: they must maintain a competitive, consumer-focused cancer program that offers differentiated care; determine when and how to adapt care models to anticipate and reflect disruptive change in the future; and continually refine their operations to mitigate against downward financial pressures. Traditional strategies of network expansion, sub-specialization and cultivation of referral relationships are necessary but not sufficient to address these challenges. At a minimum, providers need to have a deep understanding of the potential impact of disruptive clinical and technological advancements on everything from clinical care to operational and financial performance.

There are three areas of focus for leading health systems and providers to advance and position their cancer programs for the changes ahead.
Create and foster disease-based, multi-disciplinary teams to provide strategic and operational oversight and direction to the program.

The complexity of cancer care is often exacerbated by the large number and broad range of stakeholders involved in care delivery. Developing multi-disciplinary teams focused on a particular group of cancers creates the opportunity for enhanced communication and coordination across disciplines. For example, in one organization, an early meeting between the independent gastroenterologist and the employed gastrointestinal oncologist identified immediate solutions to address long-standing issues in patient referrals and access. Smaller programs might have the scale to launch only a few teams, such as breast, lung, prostate and colon cancer, while larger programs might have more than ten, including a molecular medicine team.

Such disease-based, multi-disciplinary teams are best positioned to identify and incorporate operational and clinical changes into a program. As the science of cancer advances and changes care delivery, the expertise and diverse perspectives offered by the disease teams become the primary platform through which to evaluate and incorporate new and advanced treatment options. On a more immediate basis, they can play a key role in developing and disseminating processes and care models to ensure a common patient experience across a health system, for example by creating multi-disciplinary clinics, consistent roles for patient navigators, protocols for urgent care and expanded access to clinical trials.

Over time, disease teams can also assume greater responsibility for elements of the disease-specific program, such as establishing clinical and quality standards. These standards not only impact patient care, but are also increasingly important for meeting requirements of value-based payor contracts and/or desired accreditations. For example, a disease-based breast cancer team may adopt a set of clinical quality standards and play a lead role in communicating these standards to all providers within the cancer center to ensure that the program meets the requirements of the National Accreditation Program for Breast Centers (NAPBC) accreditation. Programs with a material research portfolio may additionally engage the disease teams to determine the optimal mix of clinical trials to meet their patients’ needs. As economic pressures increase, the disease teams can also be charged with identifying opportunities to reduce clinical variation and unnecessary utilization to improve the cost performance of the program while meeting emerging value-based performance goals.

Structure program governance to promote front-line, multi-site and multi-disciplinary leadership and accountability.

To promote best-in-class operating performance as a critical strategy for success, and to support the development and maturation of disease teams, organizations will likely need to change the way that the cancer program is governed. Some organizations have developed governance committees comprised of representatives from critical departments across the system. A common challenge these organizations face is that committee meetings favor departmental reports and updates rather than active engagement of leadership in issue identification and resolution.
A robust, multi-disciplinary and disease-based governance model establishes a forum for broad participation and leadership by promoting disease team visibility and accountability for strategic and operational decisions. The core governance committee, comprised of the disease team leaders, can be supplemented with representation from the major modalities and locations as needed. Disease teams function as subgroups of the governance committee, providing insight into and feedback of governance committee activity as required. Structuring governance in this way encourages engagement in the most critical operational and strategic discussions and decision making.

A governance model built upon disease teams can also be leveraged to achieve performance goals and standards, as well as incorporate local market changes and disease-specific emerging treatments into annual cancer program strategic planning discussions. For example, the governance committee may establish high-level goals across the program, such as establishing a minimum number of quality standards by which they will hold their providers accountable. Disease teams are then relied upon to define the specific standards, and determine the mechanisms by which they will achieve these goals. Within strategic planning, disease teams are likely to be asked to provide insight into the emerging science and technology, the associated implications on clinical practice and the required investments to participate. This model encourages greater physician involvement across the cancer program, and providers are imbued with greater responsibility and authority over the performance of their team. For academic organizations, these models are not intended to supplant traditional academic department structures; however, disease team leaders may collaborate with department leadership on recruitment and clinical program development prioritization and may also inform individual provider operating, access and quality goals.

**Invest in program-specific infrastructure to support a system-wide, operationally- and disease-focused program.**

The best cancer strategies are rooted in best in class operations, which in turn are supported by leading analytics and information technology. This is why leading cancer programs prioritize access to information commensurate with access to care and the latest scientific advancements. The foundation of a cancer program's business analytics lies in a robust and up-to-date tumor registry. As cancer programs are significantly outpatient in nature, traditional inpatient data sources are insufficient to provide meaningful insight. Tumor registries enable analysis of information by type of cancer as well as other dimensions such as patient origin, payer mix and site of care. Investments in staffing and data architecture will pay strong dividends through the insight the registry is able to provide. For example, a regional cancer center in the Midwest significantly increased retention of cancer patients by using their tumor registry data to understand which patient cohorts were diagnosed locally but treated elsewhere.
A related area for investment and insight is survivorship data tracking. Effectively supporting the increasing number of cancer survivors requires that accurate, longitudinal patient information be available quickly, often from across multiple platforms. Investing in tools for survivorship tracking and reporting will provide data to support research initiatives, and ultimately will help organizations distinguish themselves from local competition. The growing complexity of clinical data associated with cancer care, precision health and survivorship has also created the need for systems that can intelligently handle terabytes of data across multiple providers and sites of care, often within one treatment cycle. Aligning the architecture, analyses and outputs of datasets with future patient care and program management needs will increasingly become a key requirement for success.

Finally, the informatics and technology resources supporting an organization’s cancer program should be optimized to advance clinical care and complement the work of disease-based teams. Leading providers are building standardized order sets and clinical guidelines into electronic medical records to minimize clinical variation and achieve utilization goals across disease teams. Cancer networks on multiple platforms will be challenged to develop effective solutions to achieve these goals. Similarly, ensuring provider access to clinical information across all sites of care enables patients to receive as much of their care as possible close to home while coordinating between care locations. This includes local participation in clinical trials, which can be a strategic differentiator, particularly for provider networks spanning larger geographies or local programs wanting to retain patients leaving the market for care.

For many cancer care providers, the challenge to simultaneously achieve best-in-class operating performance today, while preparing for significant and highly uncertain changes ahead, may seem like a moonshot in and of itself. Yet, by developing strong disease teams that are aligned with a robust governance model and supported by the required technical infrastructure, health systems can successfully advance their internal capabilities to complement their cancer program’s core strengths. To truly distinguish themselves in their communities and with their patients and referring providers, highly successful cancer programs need to support continuous anticipation and adaptation to changes in the external environment, along with an organizational capacity for and a culture receptive to change.
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About the Authors

**Pamela Damsky**
Director, Oncology and Service Line Planning
917.513.2368
pdamsky@chartis.com

Pamela Damsky is a Director with The Chartis Group leading its Oncology and Service Line Planning practices. Ms. Damsky has almost 30 years of healthcare experience, the majority of which is in advisory services. She has partnered with national and regional health system clients across the country in developing and executing a broad range of strategic and operational initiatives. Ms. Damsky brings deep expertise in organizational strategy, alignment, clinical transformation and performance improvement to help organizations succeed today while preparing for new and future environments.

**Giselle D'Agostino**
Strategy Practice Area Specialist
617.216.6566
gdagostino@chartis.com

Giselle D'Agostino is a Strategy Practice Area Specialist with The Chartis Group. Ms. D'Agostino has 15 years of healthcare consulting, administration and project management experience, working with academic medical centers, biotechnology and pharmaceutical companies and health IT providers. At the Chartis Group, Ms. D'Agostino's consulting experience includes advising academic and community health systems in the areas of strategic planning, service line planning and economic alignment.
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