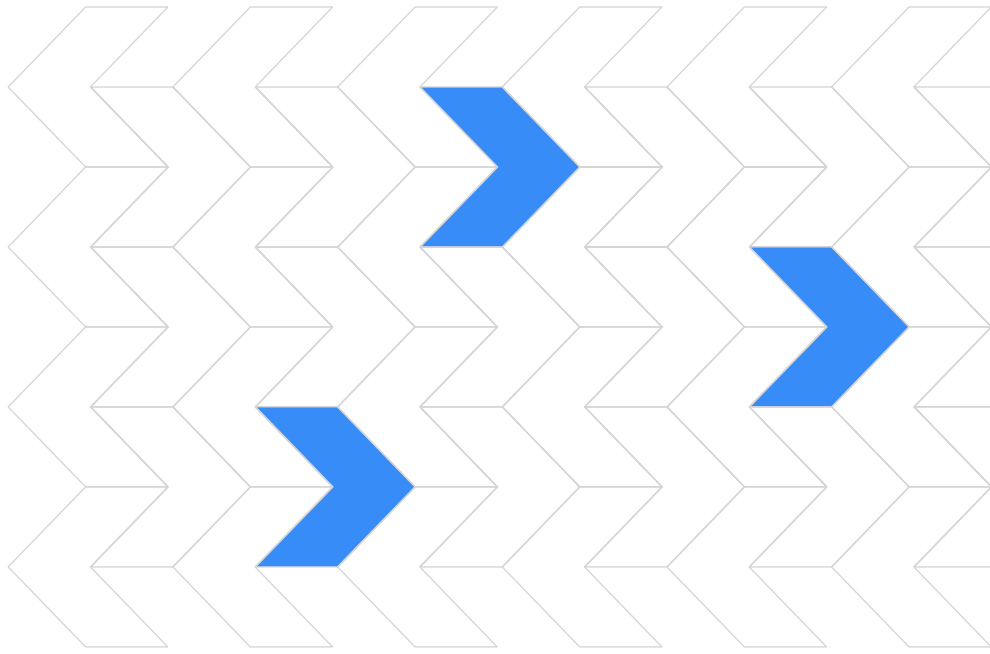




The Future of Cancer

A New Ecosystem of Cancer Care is Emerging



CHARTIS

➤ The healthcare industry is in a period of profound change. Policymakers, financial markets, and technology are working unpredictably and often at cross purpose. The cancer sector is subject to amplified disruption—driven, much like the disease, by unchecked and uncontrolled growth in disease prevalence, medical cost, and care model complexity.

For the 18 million Americans with cancer, it is a time of both optimism and concern. Artificial intelligence (AI) is identifying previously missed tumors. New drugs emerge monthly. Scientists are using the “C-word”—*cure*—as the potential of immunotherapy becomes fully understood. But there are serious challenges. Obesity and vaccine hesitancy threaten to undo decades of progress in prevention. New business models are fragmenting an already-fractured care model. And society’s health equity failures portend a devastating outcome in which many could lack access to next-generation cancer medicine.

Over the next 5 years, we expect these forces to begin remaking the cancer care ecosystem. Its participants—providers, payers, purchasers, and private capital—will array in ways previously unimaginable, shifting how cancer care is consumed, delivered, and financed. In this paper, we explore a few predictions on the near-term **future of oncology**—and what it will take for community and academic cancer centers to thrive in the ecosystem that is emerging.

FUTURE FORCE IN ONCOLOGY

- 1 Prevention and treatment advances will redefine the cancer “consumer”**
- 2 Rapid innovation will remake the requirements of contemporary care**
- 3 Unsustainable costs will prompt intervention across the value chain**
- 4 Traditional provider identities will blur, creating new ecosystems of care**
- 5 New entrants will accelerate disruption and innovation in the care continuum**

WHAT CANCER CENTERS NEED TO DO

Excel in the spaces before and after cancer, addressing the needs of millions of cancer “pre-vivors” and survivors.

Build care models that reflect the complexity of the disease, capable of adapting to high-velocity clinical innovation.

Diversify the business model and create value-based competence, preparing for challenges to today’s onco-economics.

Redefine target patient segments and the role of partnerships in a marketplace of fungible community and academic roles.

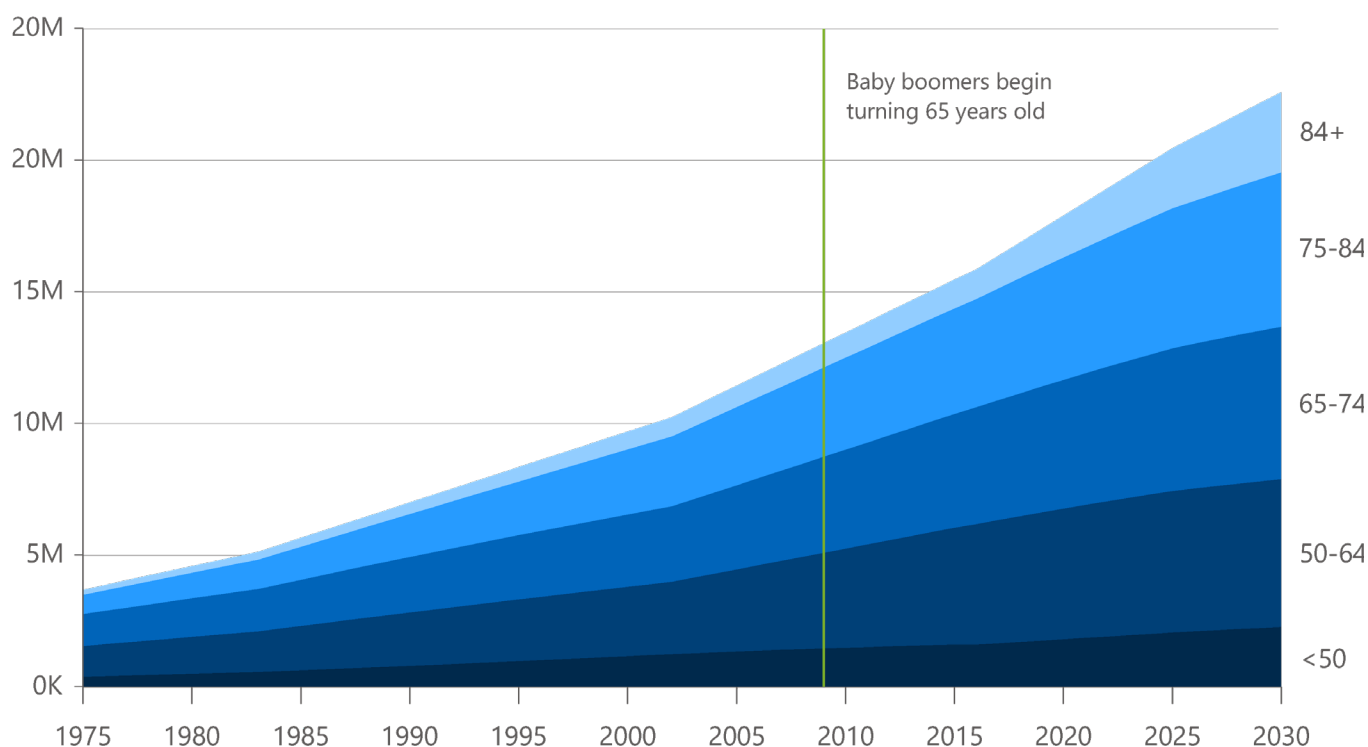
Assemble the expertise and capabilities required to modernize the experience of cancer care.

01 Prevention and Treatment Advances Will Redefine the Cancer “Consumer”

Several interrelated forces are dramatically increasing demand for cancer care. The first is demographic—the Baby Boomer generation is aging into a high-risk window for cancer. New diagnoses are expected to grow to 2.5 million by the end of the decade, despite advancements in primary prevention. At the same time, people are living longer. Cancer mortality rates have fallen 30% over 20 years, and cancer survivors will number 22 million by 2030, generating immense demand for long-term surveillance.¹ These trends are augmented by a maturing understanding of hereditary and lifestyle-based cancer risk. As a result, providers are increasingly able to stratify the highest-risk population (or “pre-vivors”) and, in some cases, intervene to prevent or detect cancer at its earliest manifestation.

Taken together, these cohorts (pre-vivors, active cancer patients, and survivors) number in the tens of millions—representing a step change in the traditional population cared for by cancer programs. Each segment represents a unique consumer, with distinct wants and needs that will need to be addressed by the cancer center of the future.

Figure 1: Cancer Survivors (1975-2030)²



Source: Adapted from Bluethmann SM, Mariotto AB, Rowland JH. "Anticipating the 'Silver Tsunami': Prevalence Trajectories and Comorbidity Burden Among Older Cancer Survivors in the United States." *Cancer Epidemiol Biomarkers Prev.* 2016 Jul;25(7):1029-36. doi: 10.1158/1055-9965.EPI-16-0133. PMID: 27371756; PMCID: PMC4933329.



CANCER CENTERS MUST EXCEL IN THE SPACES BEFORE AND AFTER CANCER

While the core business of cancer treatment will continue to dominate in the near term, cancer centers should begin asking the existential question of what it means to instead be in the business of cancer prevention and chronic disease management. The requirements of that shift are immense. They include investment in upstream areas like community outreach, hereditary genetics, high-risk patient management, and screening assets. On the other end of the continuum, cancer centers will be required to reimagine the survivorship experience and the ways in which they interact with 22 million people in need of surveillance, medical management, and support in returning to health and normalcy.

As providers grow into these spaces—before and after cancer—they will encounter new consumer behavior, mirroring that of other chronic disease segments. For a growing subset of patients, quality will be assumed. Purchasing decisions will prioritize the importance of timeliness, ease of use, and agency as patients confront what could be a decades-long care experience. In certain cancer centers that serve narrow segments (generally AMC/NCI), or lack meaningful alignment with primary care, the next few years will prove especially critical. These organizations will need to broaden the aperture of their clinical focus and align the resources and partners needed to co-manage the growing population of cancer pre-vivors and survivors. Other cancer centers with strong primary care alignment and population health capability will be well positioned for growth as they leverage these assets in the emerging cancer care ecosystem.

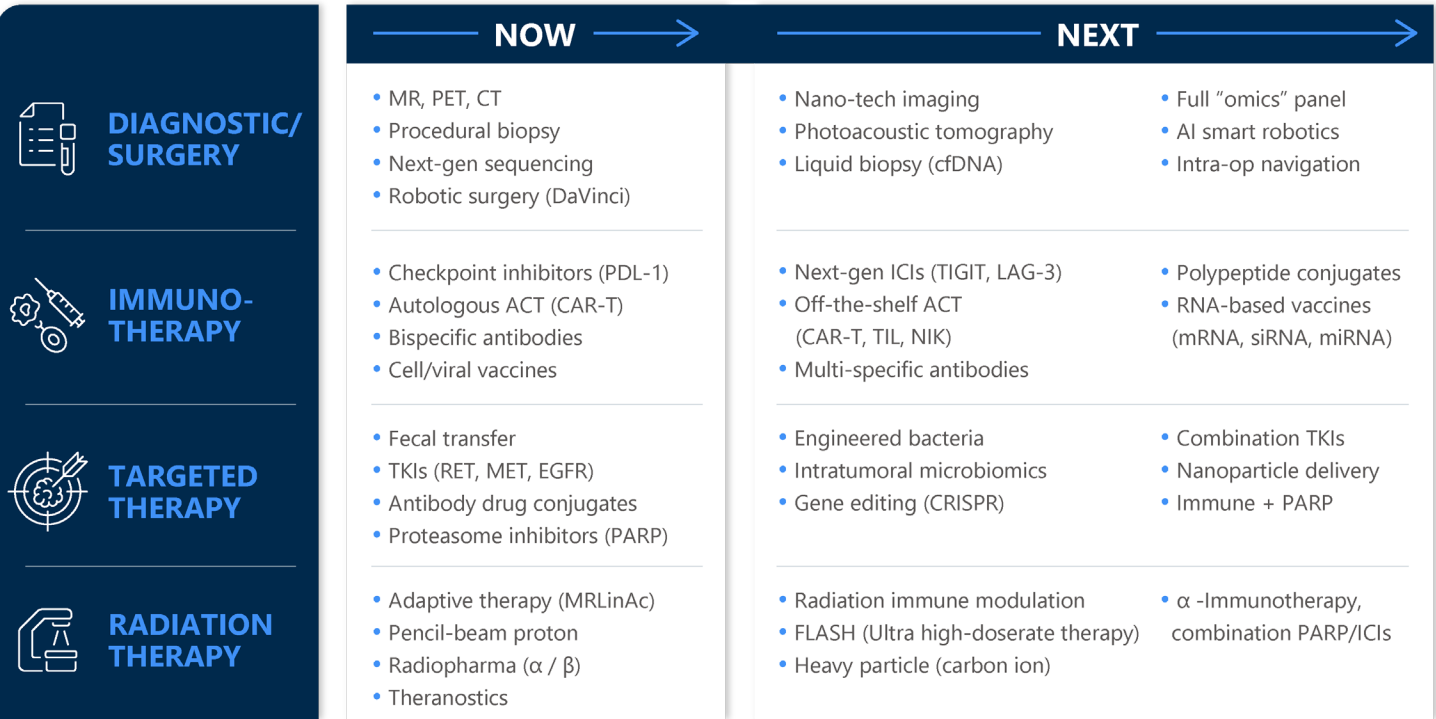
02 Rapid Innovation Will Remake the Requirements of Contemporary Care

We are in the early days of precision oncology's "Cambrian moment"—as our molecular and biologic understanding of cancer transform the ways we detect, classify, and eliminate tumors. At the nucleus of this change are new technologies capable of personalizing cancer care—including tools like blood-based early detection (e.g., GRAIL), AI-assisted radiology and pathology, predictive treatment modeling (e.g., "digital twins"), targeted therapeutics, radiopharmaceuticals, engineered T-cells, and cancer vaccines. These innovations, and many others, are elevating oncology's standard of care writ large and producing isolated but astonishing results, like 100% response rates to anti-PD-1 antibodies in "mismatch-repair deficient" rectal cancer and decade-long leukemia remissions in CAR-T therapy.^{3,4}

As these trends unfold, the world has changed for cancer centers. The disease has multiplied (as organ-based taxonomies give way to molecular subtypes). Adoption cycles have accelerated (evidenced by >120 programs with immune cellular therapy programs). Research has become more targeted (with >55% of clinical trials using biomarkers for eligibility). And information has increased exponentially (with an abundance of patient data and real-world evidence ready to be fed to emerging AI and machine learning platforms). Adapting to this new world will, of course, require modernization of cancer center resources and capabilities—but it will also demand new organizing frameworks to assemble physicians and researchers around complex diseases, and mechanisms to ensure leading practices are not confined to well-resourced settings.



Figure 2: Precision Oncology Roadmap⁵



CANCER CENTERS MUST BUILD CARE MODELS THAT REFLECT THE COMPLEXITY OF THE DISEASE

As the arc of cancer medicine moves toward personalization, so too must the care model. In larger population centers, that means we will witness the passing of the “generalist” model—organized around discrete modalities and tumor-agnostic programs and expertise. Like their academic peers, community centers must undergo a transformation toward tumor-specific service lines, brought to life through multidisciplinary interactions among physicians with highly specific expertise.

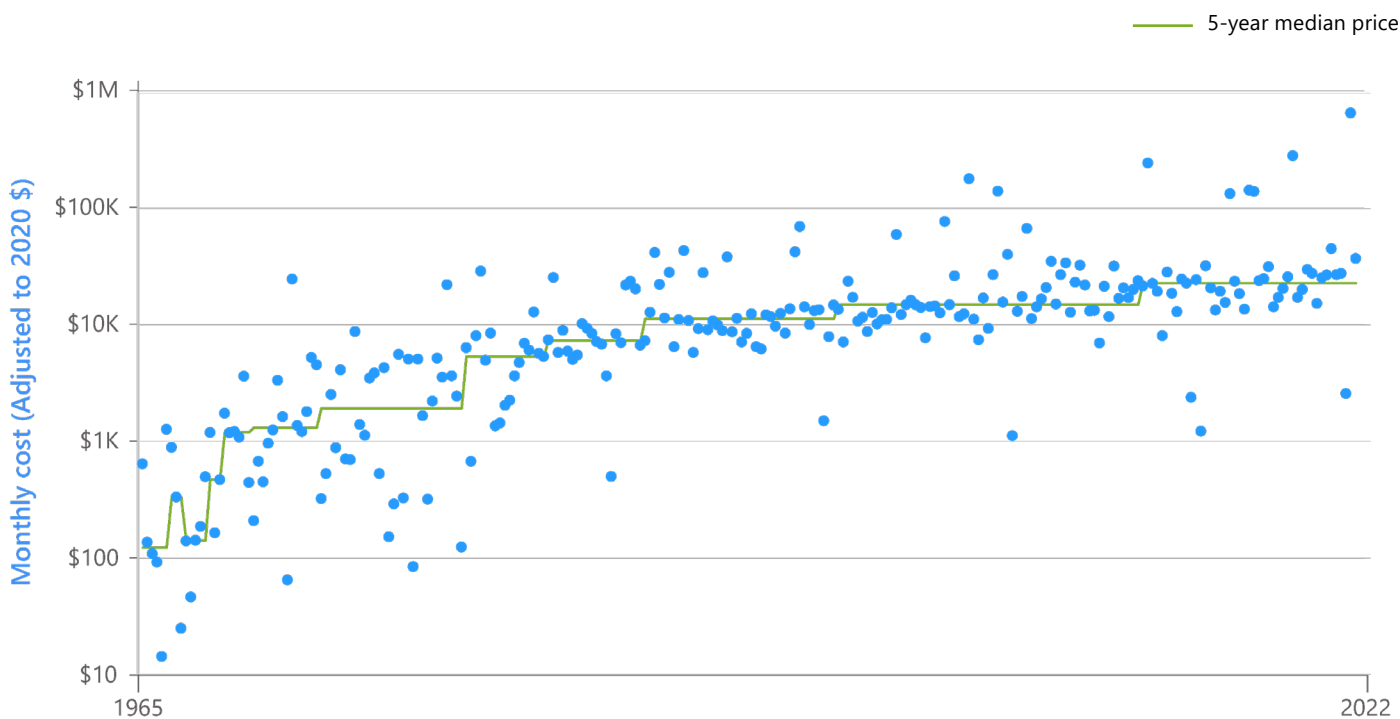
Evolution will be forced by a savvy consumer, seeking providers that specialize in “their cancer,” and by the practical limitations of remaining a generalist as the body of cancer knowledge continues to expand. In small communities and rural settings, the importance of interconnectivity with sub-specialized hubs will be critical as generalists collaborate with colleagues through virtual second opinions, remote tumor conferences, and decision support systems that disseminate contemporary guidelines for disease-specific care. In larger environments, practical planning dilemmas will need to be overcome—like the volume/scale thresholds required to sustain sub-specialists, care team efficiency in multidisciplinary settings, the impact of sub-specialization on productivity-based compensation models, and continuous reexamination of the capabilities needed in each tumor program to remain on the vanguard of clinical care and research.

03 Unsustainable Costs Will Prompt Intervention Across the Value Chain

The cost of cancer care is tremendous. Spend among payers totaled \$211 billion in 2022, or 7% of total healthcare expense, and is expected to grow to more than \$300 billion by 2030. For the individual patient, cost in the first year of cancer therapy often exceeds median U.S. household income.⁶ The key drivers of this cost include market prices for cancer drugs (which are 7 times the cost they were 20 years ago); mark-up on those prices (frequently exceeding 200% in hospital-based settings); and broader disutility and unwarranted care that accumulate across a frequently unmanaged and fractured cancer care episode.⁷

Multiple stakeholders are challenging the unsustainable trajectory of cancer cost. The Centers for Medicare and Medicaid Services is pursuing drug pricing reform through direct negotiation with manufacturers (enabled through the Inflation Reduction Act of 2022), 340B payment changes, and voluntary risk-sharing arrangements on total cost of care (e.g., the Enhanced Oncology Model launching in 2023). Commercial payers are seeking to control spend through infusion site-of-service mandates, specialty pharmacy requirements like white bagging (which nearly doubled between 2019 and 2022), narrow networks, and owned “payvider” capacity (e.g., Optum Cancer Centers).⁸ Large employers are also taking an active role, directly contracting in high-spend areas like cancer and seeking out fixed-price agreements for certain early stage cancers like those being facilitated through Carrum Health at Memorial Sloan Kettering Cancer Center (MSKCC), City of Hope, and the University of Chicago.

Figure 3: Monthly and Median Cancer Drug Cost 1965-2022



Source: Chartis review of therapeutics & monthly & median costs of cancer drugs at the time of FDA approval from Drug Pricing Lab
<https://www.drugpricinglab.org/issue/launch-price-tracker/>



CANCER CENTERS MUST DIVERSIFY THE BUSINESS MODEL AND BUILD VALUE-BASED COMPETENCIES

Cancer programs face the classic dilemma of disrupt or be disrupted as site-of-care pressures mount on ancillaries like imaging, infusion, and radiotherapy. The threat is most imminent in infusion, directed by private equity (e.g., Vivo Infusion), home-based platforms (e.g., CVS Coram), payer-owned infusion (e.g., United Optum), and oncology physician practice management models (PPMs) (e.g., One Oncology). In the near term, cancer centers will need a multi-pronged strategy that protects the medically necessary (and financially critical) hospital-based setting, while simultaneously building or partnering in infrastructure that can retain infusion directed to ambulatory and home-based settings.

In addition to site-of-care diversification, building competencies to succeed under value-based contracting will be important, including things like patient reported outcomes, clinical pathways, end-to-end care coordination, financial counseling, symptom management, and early palliative intervention. These tools require investment unlikely to be offset by additional reimbursement but critical to shaping a value proposition for risk-bearing entities. Investment will be especially critical in high-resource settings (e.g., freestanding cancer hospitals) as purchasers begin placing the burden of proof on them to demonstrate whether there is a quality or long-term cost advantage associated with being treated in their ecosystems.

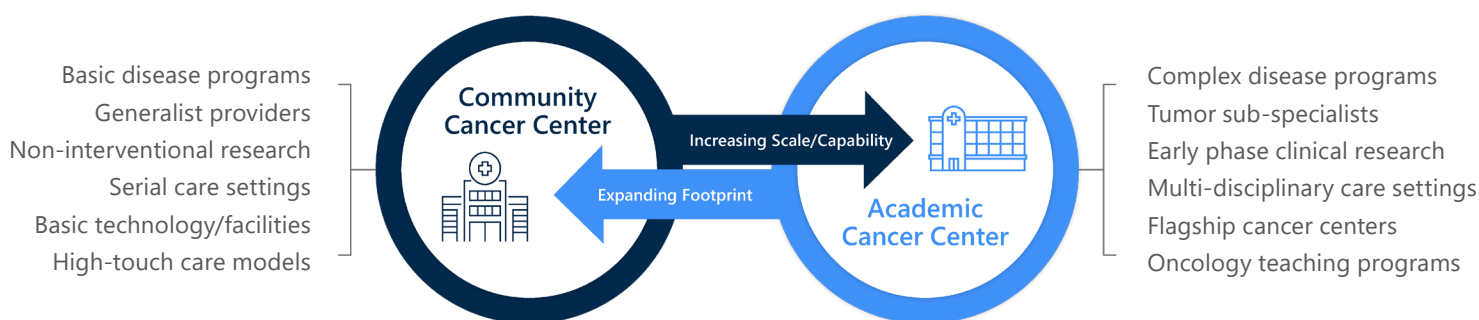
04 Traditional Provider Identities Will Blur, Creating New Ecosystems of Care

Consolidation in healthcare has been prolific over the past decade. Nearly 70% of hospitals have joined health systems, and more than 1,000 oncology practices have been acquired.^{9,10} A byproduct of this consolidation is community cancer programs that have an equal or greater scale than NCI-designated centers (e.g., Atrium Health, Providence, Intermountain Health, Inova Health System, and Northwell Health). Many of these organizations have invested heavily in tertiary/quaternary services and early phase clinical trials, altering the balance between traditional academic and community roles, and challenging long-held market beliefs about the appropriate destination for complex care and research.

At the same time, NCI centers have begun expanding regionally into community hospital backyards with owned and partnered assets. Places like MSKCC report delivering 60% to 70% of infusion and radiotherapy volume at regional sites, rather than on the main campus in Manhattan.¹¹ This decentralization of the NCI center is both a signal of the new competitive environment (i.e., the need to compete in the community) and an acknowledgment of the premium patients place on close-to-home access for cancer care.

The dual effect of community scale and academic expansion is an erosion of the constructs by which NCI centers and community hospitals have traditionally collaborated. That model—fashioned around co-branding, aligned quality standards, and fast-track referral—no longer serves the needs of sophisticated community sites or academic centers in need of a diversified customer base. In coming years, we expect a rewrite of the strategic playbook for NCI centers to include new forms of community partnership, predicated on higher-fidelity clinical integration and strategic/financial alignment.

Figure 4: Convergence of Cancer Roles



CANCER CENTERS MUST REDEFINE TARGET PATIENT SEGMENTS AND REIMAGINE THE ROLE OF PARTNERSHIPS

The emergence of consolidated and scaled community competitors will require NCI centers to revisit the fundamentals of their delivery models. That includes rationalizing their target patient segments—classically skewed toward high-complexity cancers—and competing more intentionally in earlier-stage, higher-incidence tumors. This urgency is evident in campaigns from places like Dana-Farber that emphasize “when it comes to cancer, it matters where you start.” This reenforces the prerogative to be in the business of diagnostics, front-line therapy, and common cancer subtypes.

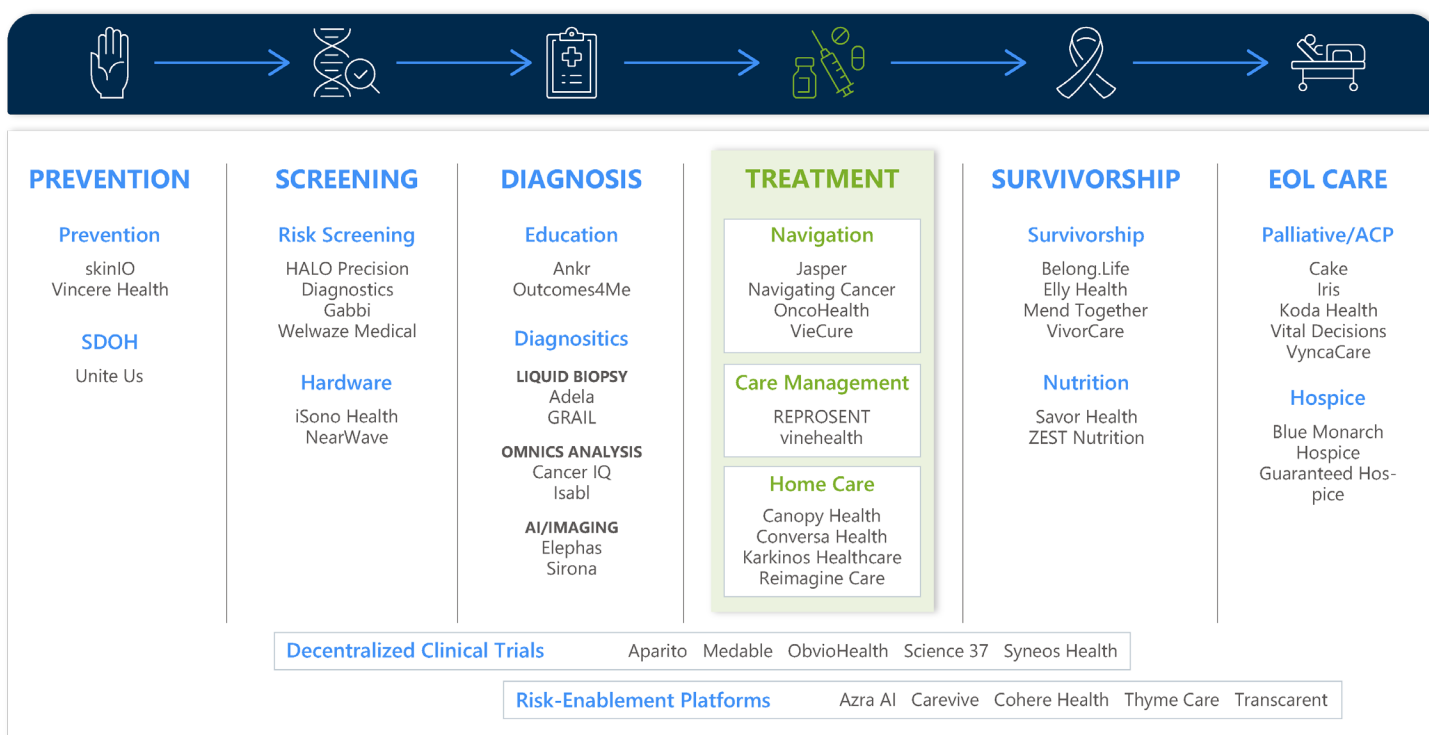
A key requirement of serving these segments will be decentralization of the cancer center, pushing closer to where patients live. That decentralization may resemble the constellation of owned satellites around places like the Siteman Cancer Center in St. Louis or Johns Hopkins in Baltimore; the co-managed and virtually merged cancer service lines between UCSF Health and John Muir Health, and between Stanford Medicine and Sutter Health; or the national footprints assembled by MD Anderson Cancer Center’s recently narrowed Partner network, Dana-Farber’s southward expansion with Christ Hospital in Cincinnati, or City of Hope’s acquisition and integration of Cancer Treatment Centers of America. These examples all represent variations on the same theme—modern network strategies for an increasingly decentralized and role-fungible cancer industry.

05 New Entrants Will Accelerate Disruption and Innovation in the Care Continuum

For decades, the cancer care model has been constructed around physical hospital assets and a sequentially discrete value chain. These dynamics are being challenged as nontraditional entrants, often backed by private capital, bring to market innovative care models and point solutions that alleviate common friction in the cancer continuum. These players include modernized practice models and physical care environments (e.g., Solis Mammography, Oncology Care Partners) as well as digitally native solutions that span the cancer continuum (e.g., Thyme Care's virtual care coordinators and Reimagine Care's digital platform for cancer care at home, Figure 5). Collectively, these new entrants are setting the pace for care model innovation and, in some cases, disintermediating traditional cancer center consumer relationships and business lines.

The response from incumbent cancer providers to industry disruption has been mixed and market dependent. Many are relying on reputation and referring channel relationships to box out would-be competitors and taking a wait-and-see approach to site-of-care diversification or a full embrace of the digital cancer care experience. Others are disrupting the status quo by "sharing the ground" with nontraditional providers—including literal examples like One Oncology and US Oncology's co-habitation with MSKCC in Brooklyn and University of Colorado (UC) in Longmont, respectively—or adopting a fail-fast mentality to site-of-care innovation—like Intermountain Health and Sprinter Health's mobile lab draw pilot and UC and Reimagine Care's digitally enabled home-based care model for complex bone marrow transplants.

Figure 5: Cancer's Digital Health/Enablement Ecosystem¹²



Source: Inventory of digital enablement partially sourced from Flare Capital



CANCER CENTERS MUST MODERNIZE THE CARE EXPERIENCE

While disruption will manifest in different timeframes across different markets, relying on structural market advantages to protect share in outdated cancer care models will not be a winning strategy over the long term. Cancer centers need to look inward and candidly assess their patient experiences, understanding where they meet, exceed, or fall short of those offered by new entrants in the space. The results of this introspection may lead some toward partnership with erstwhile competitors in areas like diagnostics, chemotherapy at home, etc. Others may choose to transform from within—building or buying the tools capable of modernizing their care models, including end-to-end navigation, remote monitoring and symptom management, and virtual-first supportive care. In this swirl of innovation and unorthodox collaborations, it will be critical for cancer centers to discern which solutions add real value and reduce complexity—by listening to the consumer. They also will need to assemble the expertise to determine where innovation intersects with patient needs and ensure that multivendor, multipartner ecosystems are not reductive to the goal of a frictionless and seamless patient journey.

Building a Future for All

As the future trends in this report manifest—growing demand, rapid innovation, and unsustainable cost—there is material risk that existing inequities in cancer care will be made worse. At baseline, the disparities are sobering: cancer mortality rates are 13% higher for Black versus white patients; uninsured women are 33% less likely to have routine breast screening; and Black and Hispanic patients are 3.4 times less represented in clinical trials.^{13,14}

The challenge of the decade for cancer centers will be to ensure equitable access to preventative, and potentially curative, cancer medicine. These aims are a major focus of the Biden Administration's renewed Cancer Moonshot—specifically in reducing cancer screening disparities. It is also the focus of the U.S. Food and Drug Administration's Project Equity, which requires clinical trials data submitted for new drug approvals to mirror the demographic diversity of the intended patients.¹⁵

But the real work of cancer health equity will not be at the federal level—it will be in local communities. We expect that work to look like Cone Health's online transportation assistance program, the Levine Cancer Institute's Financial Toxicity Tumor Board, St. Elizabeth Healthcare's lung cancer screening and rural outreach, and the University of Chicago's OCECHE program to promote Black participation in clinical trials, to name a few.



Succeeding in the Ecosystem That Emerges

The future of cancer care will be a story of rapid clinical innovation, managing the cost of that innovation, and a reshuffling of roles in the oncology industry. The implications for today's providers are clear:

- Expand services that accommodate the needs of millions of cancer pre-vivors, patients, and survivors.
- Remake care models that accommodate the pace and complexity of clinical innovation.
- Diversify the business model and build value-based competencies.
- Redefine strategy in a marketplace of fungible provider, payer, and private capital roles.
- Modernize the patient experience, ensuring care model innovation is guided by the voice of the consumer.
- Ensure the promises of tomorrow's cancer ecosystem are accessible to everyone, in equal measure.

Succeeding in these aims will require balance as cancer centers seek to reposition themselves for tomorrow's relevancy while maintaining today's viability. Navigating this duality will require cancer leaders to create time and space for planning. It will require an openness to exploring new solutions, often through new forms of collaboration. And it will demand dexterity, as the cancer industry—like its namesake—continues to evolve in complexity, develop resistance to traditional solutions, and command our most innovative thinking to build toward a brighter future for cancer care.

AUTHORS

Ryan Langdale
Director
rlangdale@chartis.com



Sophie Clamon
Engagement Manager
sclamon@chartis.com



SOURCES

1. U.S. Cancer Statistics Working Group. U.S. Cancer Statistics Data Visualizations Tool, based on 2021 submission data (1999–2019): U.S. Department of Health and Human Services, Centers for Disease Control and Prevention and National Cancer Institute, November 2022, <https://www.cdc.gov/cancer/dataviz>.
2. Shirley M. Bluethmann, Angela B. Mariotto, Julia H. Rowland, "Anticipating the 'Silver Tsunami': Prevalence Trajectories and Comorbidity Burden Among Older Cancer Survivors in the United States," *Cancer Epidemiology, Biomarkers, and Prevention*, 25, no. 7 (July 2016): 1029-36, <https://pubmed.ncbi.nlm.nih.gov/27371756/>.
3. Andrea Cercek, MD, et al, "PD-1 Blockade in Mismatch Repair-Deficient, Locally Advanced Rectal Cancer," *New England Journal of Medicine* 386, no. 25 (June 23, 2022): 2363-2376, <https://www.nejm.org/doi/full/10.1056/NEJMoa2201445>.
4. J. Joseph Melenhorst, et al, "Decade-Long Leukaemia Remissions With Persistence of CD4+ CAR T Cells," *Nature* 602 (Feb. 2022): 503-509, <https://www.nature.com/articles/s41586-021-04390-6>.
5. Chartis research, 2023.
6. A.B. Mariotta, et al, "Medical Care Costs Associated with Cancer Survivorship in the United States," *Cancer Epidemiology, Biomarkers, and Prevention*, 29, no. 7 (July 2020), <https://pubmed.ncbi.nlm.nih.gov/32522832/>.
7. "Costs of Cancer Drugs at the Time of FDA Approval" from the Memorial Sloan Kettering Cancer Center Drug Pricing Lab.
8. "White Bagging Update 2022: Hospitals Battle to Boost Buy-and-Bill," *Drug Channels*, Sept. 2022, <https://www.drugchannels.net/2022/09/white-bagging-update-2022-hospitals.html>.
9. American Hospital Association, <https://www.aha.org/infographics/2020-07-24-fast-facts-infographics>.
10. 2020 Community Oncology Alliance Practice Impact Report, <https://communityoncology.org/research-and-publications/studies-and-reports/2020-community-oncology-alliance-practice-impact-report/>.
11. Memorial Sloan Kettering Cancer Center Quarterly Disclosure Unaudited Combined Financial Statements for the Period Ended September 30, 2022.
12. Jonathan George and Ian Chiang, "How Digital Health Can Improve Cancer Care Delivery," (December 2022), <https://www.medigy.com/news/2022/12/05/mobihealthnews-how-digital-health-can-improve-cancer-care-delivery/>.
13. Centers for Disease Control and Prevention, Health Equity in Cancer, <https://www.cdc.gov/cancer/health-equity/health-disparities-measured.htm>.
14. Adrienne M. Gilligan, et al, "Death or Debt? National Estimates of Financial Toxicity in Persons with Newly-Diagnosed Cancer," *The American Journal of Medicine*, October 2018, <https://pubmed.ncbi.nlm.nih.gov/29906429/>.
15. U.S. Food and Drug Administration, Project Equity, <https://www.fda.gov/about-fda/oncology-center-excellence/project-equity>.

About Chartis

Chartis is a leading healthcare advisory services firm serving healthcare providers, payers, health service and technology companies, and investors. Chartis brings an unparalleled breadth and depth of expertise in strategy, performance improvement, digital and technology, clinical quality and patient safety, health equity and belonging, and strategic communications. Learn how Chartis is helping to build a healthier world at www.chartis.com.

Connect with us: www.chartis.com | [LinkedIn](#) | [Twitter](#) | [YouTube](#)

© 2023 The Chartis Group, LLC. All rights reserved. This content draws on the research and experience of Chartis consultants and other sources. It is for general information purposes only and should not be used as a substitute for consultation with professional advisors.

