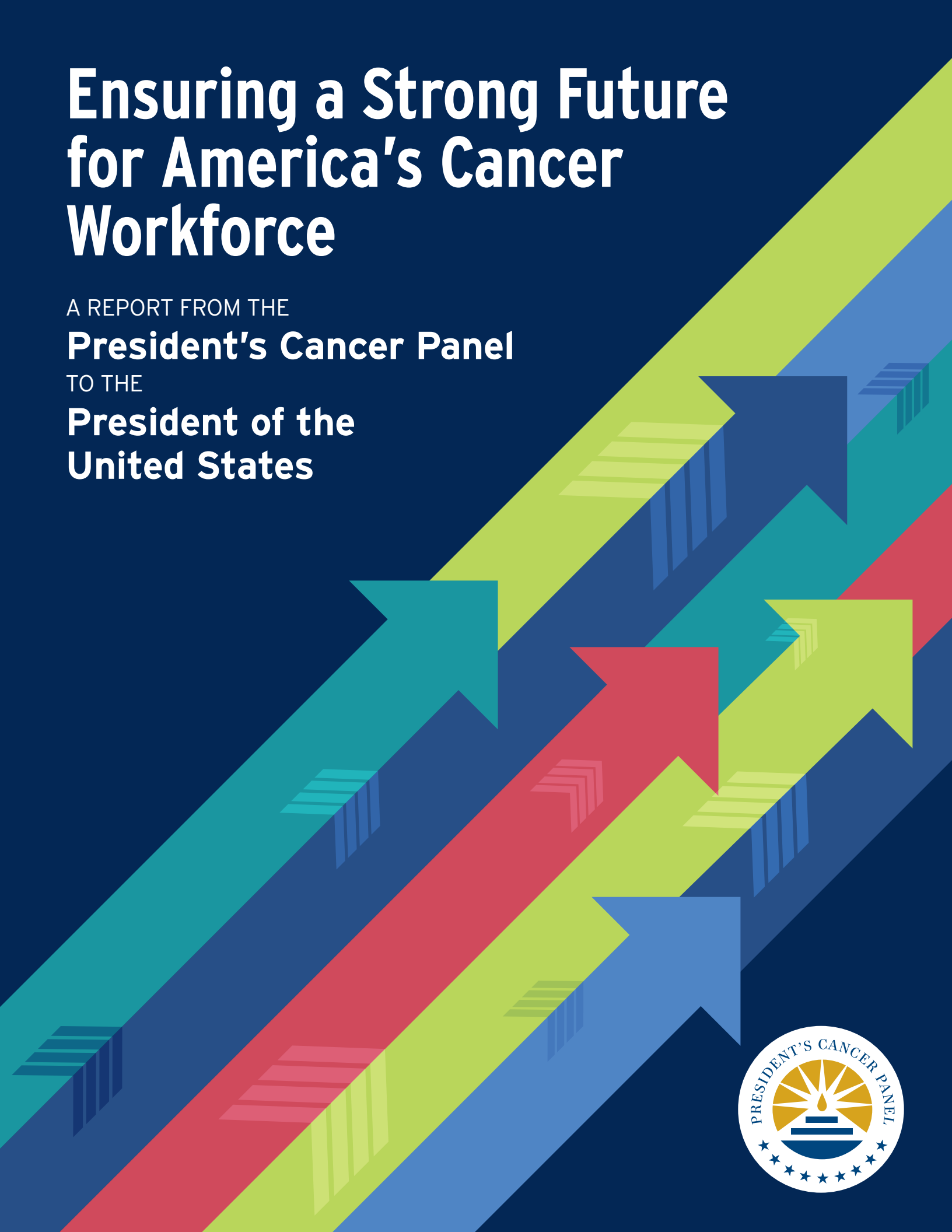
Ensuring a Strong Future for America's Cancer Workforce

A REPORT FROM THE

President's Cancer Panel

TO THE

President of the United States



The President's Cancer Panel

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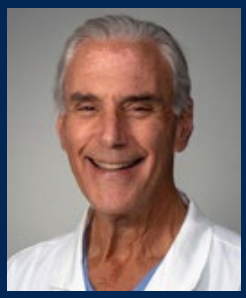

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This report is submitted to the President of the United States in fulfillment of the obligations of the President's Cancer Panel to appraise the National Cancer Program as established in accordance with the National Cancer Act of 1971 (P.L. 92-218), the Health Research Extension Act of 1987 (P.L. 99-158), the National Institutes of Health Revitalization Act of 1993 (P.L. 103-43), and Title V, Part A, Public Health Service Act (42 U.S.C. 281 et seq.).

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Dear President Trump,

Your dedication to the health of all Americans and your commitment to fighting chronic diseases, including cancer, are commendable, and we are deeply appreciative. As physicians and members of the President's Cancer Panel, we have seen firsthand that Americans diagnosed with cancer often face long waits to see their doctors, and many do not have access to the best possible care close to home. These problems are worsened by inefficient systems and unnecessary administrative tasks that prevent doctors and care teams from focusing on their most important job—taking care of patients. We know you share our belief that the United States should continue to lead the world in cancer care and research. Here, we present to you recommendations for securing a strong cancer workforce to achieve this goal.

The United States has long been at the forefront of cancer discoveries. Key U.S. advancements include enhanced techniques for early detection, molecular therapies targeted to specific tumor mutations, and treatments that harness a patient's immune system to attack their cancer. Our nation's progress in cancer research and treatment has been made possible by our skilled and dedicated cancer care and research workforce. However, the cancer workforce is facing significant challenges at a time when the demand for cancer care is rising.

The accelerated pace at which new treatments are introduced, along with the complexities of these treatments, require care teams to continually gain more specialized knowledge at a greater rate than in the past. Factors such as staffing shortages and suboptimal technology make it harder to ensure that all Americans benefit from the best possible cancer care. **All sectors of our country must come together to make sure there are enough people equipped with the skills and resources to deliver high-quality cancer care and continue progress in cancer research.**

In this report, we outline three critical priorities for building a cancer workforce that is ready to meet the current and future needs of people affected by cancer in our great country:

- **Productivity:** In alignment with your administration's priority of improving efficiency, we believe there are opportunities to improve the efficiency and effectiveness of cancer care teams by cutting through red tape, such as prior authorization. The administrative burden from prior authorization processes is a drain on the productivity of health care teams and a significant source of provider burnout that undermines patient care.
- **Partnerships:** Cross-institutional and cross-sector partnerships can help disseminate cancer expertise, foster local and regional workforces, and leverage private-sector support to strengthen cancer research training.
- **Pathways:** Clear and accessible educational pathways are critical to facilitate the entry and career growth of qualified health care professionals ready to deliver top-notch cancer care.

Mr. President, your administration's support for the cancer workforce will help ensure that our nation delivers the best possible care informed by world-class research. Together, we can continue making progress against cancer and save many more lives.

Sincerely,

Mitchel S. Berger, MD

Carol L. Brown, MD

Acknowledgments

The President's Cancer Panel is grateful to all the individuals who generously shared their time and expertise to help the Panel understand the challenges facing the cancer workforce and potential solutions to these challenges. A complete list of participants in the September 2024 Panel meeting on this topic is available in Appendix A.

The Panel appreciates the thoughtful comments provided by individuals from several organizations—including the Advanced Practitioner Society for Hematology and Oncology, American Society of Clinical Oncology, Association of PAs in Oncology, National Cancer Institute, and Oncology Nursing Society—who shared their insights and/or offered feedback on early drafts of the report. The Panel also is thankful for the contributions of past President's Cancer Panel Chair Elizabeth Jaffee, MD, to the meeting and report. Acknowledgment of these contributors should not be interpreted as their endorsement of the Panel's positions or recommendations.

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Executive Summary

The United States has long been a leader in cancer research and care, developing and delivering cutting-edge treatments that have extended and improved the lives of cancer patients. This leadership would not be possible without the skilled and dedicated professionals making scientific discoveries, developing and testing interventions, and supporting Americans' cancer-related care from prevention and screening through treatment, survivorship, and end-of-life care.

The cancer workforce is facing significant challenges. Demand for cancer care is rising for several reasons: The U.S. population is aging, people with cancer are living longer after diagnoses, treatments are becoming more complex, and incidence rates for some cancers are increasing among young people. Many areas of the country have shortages of oncologists and other cancer care team members. In addition, administrative burden and suboptimal technologies detract from workforce productivity. These challenges undermine high-quality patient care, potentially leading to treatment delays and worse outcomes.

In September 2024, the President's Cancer Panel brought together stakeholders from across the National Cancer Program to discuss challenges facing the cancer workforce and strategies for addressing these challenges. The Panel concluded that action is needed to ensure a strong future in which America's cancer workforce efficiently and effectively delivers high-quality cancer care, improves access to cancer clinical trials, and conducts cutting-edge cancer research. This report includes three priorities and related recommendations to achieve these goals and reduce the burden of cancer for all Americans.

PRIORITY 1: CREATE PARTNERSHIPS TO FOSTER AND SUPPORT THE CANCER WORKFORCE

Addressing the challenges facing the modern cancer workforce will require collaboration among different communities and sectors. Bringing together multiple perspectives will lead to innovative solutions, and pooling resources will allow partners to efficiently achieve their shared goals.

RECOMMENDATION 1.1: Facilitate cross-institutional mentorship and partnerships to improve access to high-quality cancer care and clinical trials.

Partnerships between academic cancer centers and community health care centers can help ensure that all people in the United States receive high-quality, timely cancer care regardless of where they live.

RECOMMENDATION 1.2: Create regional cross-sector partnerships to foster growth and development of the cancer care and research workforce.

Educators, community organizations, local and state governments, and employers in the health care and research sectors should work together to identify local and regional workforce needs and collectively identify strategies to meet those needs through education, training, and resource sharing.

RECOMMENDATION 1.3: Create cross-sector partnerships to enhance cancer research training.

Biopharmaceutical research and development investments have swelled over the past several decades, drawing many cancer researchers into the private sector. Currently, most research training programs are housed in academic institutions, funded largely by federal research and training grants, and focused primarily on preparation for careers in academic research or medicine. Biopharmaceutical companies and other stakeholders should provide financial support, mentoring, and hands-on opportunities to help academic research training programs prepare trainees for a broad set of careers.

PRIORITY 2: EXPAND EDUCATION AND TRAINING PATHWAYS TO STRENGTHEN KEY ROLES IN THE CANCER CARE WORKFORCE

Cancer care is a team effort, requiring a robust and well-trained workforce comprising many different roles. Intentional and coordinated investment in education and training are needed to attract people to key roles in oncology and retain them in those roles. The Panel identified specific opportunities related to advanced practice providers (APPs) and allied health care professionals.

RECOMMENDATION 2.1: Develop and support programs to increase the number of advanced practice providers in oncology.

APPs can help address shortages of oncologists, particularly in rural and other underserved areas. Cancer centers in academic institutions should develop and support fellowships for APPs to attract them to and prepare them for careers in oncology.

RECOMMENDATION 2.2: Expand and improve pathway programs for allied health care positions in cancer care.

Allied health care professionals play key support roles in cancer care, and many health care organizations face challenges filling these positions. States and communities should develop and promote education and training pathway programs that make it easier to pursue allied health careers. Cancer centers and professional societies should partner with these programs to ensure that roles critical to cancer care are represented.

PRIORITY 3: SUPPORT CANCER CARE TEAM PRODUCTIVITY

A productive cancer care workforce is one that efficiently and effectively uses its time, resources, skills, and personnel to deliver high-quality cancer care. Currently, numerous factors—including administrative burden—undermine productivity for the cancer care workforce.

RECOMMENDATION 3.1: Improve EHR systems to better support cancer care teams.

Electronic health record (EHR) systems with overly complicated interfaces, limited interoperability, and burdensome data entry requirements pull health care providers away from patient care. EHR vendors and health care organizations should improve EHR design and implementation to better support care team productivity and facilitate the delivery of high-quality cancer care.

RECOMMENDATION 3.2: Reform prior authorization to reduce provider administrative burden.

Complex prior authorization processes consume significant time and resources and often undermine patient care. The Department of Health and Human Services, the Centers for Medicare & Medicaid Services, and public and private payors should work with Congress and state legislators to enact prior authorization reform to reduce provider administrative burden and improve patient outcomes.

All people in the United States should receive high-quality, timely cancer care. America's cancer care and research workforce has saved millions of lives through discovery, prevention, and treatment. With strategic action and collaboration across sectors, the nation can save many more. The Panel urges all members of the cancer community—health care organizations; academic institutions; biopharmaceutical companies; federal, state, and local government bodies; payors; health technology vendors; and patients, families, and caregivers—to work together to ensure a healthier future for all Americans.

Preface

The President's Cancer Panel (the Panel) was established in 1971 by the National Cancer Act (P.L. 92-218) and is charged with monitoring the progress of the National Cancer Program and reporting to the President of the United States on barriers to and recommendations for reducing the burden of cancer. The Panel defines the National Cancer Program broadly to encompass all those affected by cancer and those who can address the burden of cancer to create a better future. This includes cancer patients and survivors, people at risk of cancer, researchers, health care providers, advocates, and family members and caregivers of those diagnosed with cancer. The National Cancer Program also connects local, state, and federal governments; the pharmaceutical and biotechnology industries; health care systems; academic institutions; and nonprofit organizations.

In April 2023, the U.S. Department of Health and Human Services (HHS) released the National Cancer Plan (the Plan), a comprehensive roadmap to guide the nation's efforts against cancer. The Plan established several goals and described strategies for achieving each goal. It also issued a call for every organization and individual in our country to do their part to end suffering from cancer.

In February 2024, the Panel published a report summarizing progress toward the Plan's goals based on input from across the cancer community. The report offered recommendations in five broad priority areas, united by the goal of ensuring that every person in the United States has access to the best possible resources and care for cancer risk reduction, detection, treatment, and survivorship. One of these priority areas focused on the cancer workforce. Assessing the state of the U.S. cancer care and research workforce impressed upon the Panel the need for further exploration and action in this area. For its 2024–2025 assessment of the National Cancer Program, the Panel decided to explore challenges and opportunities related to the cancer workforce.

On September 12 and 13, 2024, the Panel hosted a 2-day public meeting to assess workforce challenges and identify approaches to improve training, recruitment, and retention of a robust clinical care and research workforce. Day 1 of the meeting focused on the cancer care segment of the workforce, and Day 2 focused on cancer research. Experts from across the cancer community shared their insights and proposed solutions to workforce challenges. After the meeting, the Panel conducted additional research and further conversations with subject matter experts. Its findings were then shaped into three priority areas and seven recommendations, which are outlined in this report.

PART I

A Thriving Cancer Care and Research Workforce

PART I

A Thriving Cancer Care and Research Workforce

The 21st century has ushered in unprecedented opportunities in science and technology, as well as advances in medicine that have contributed to falling cancer death rates and millions of lives saved in the United States.[1] This progress was made possible by dedicated researchers and health care professionals who are an invaluable asset to the National Cancer Program. Continued progress requires a strong cancer workforce to increase our fundamental understanding of cancer biology, characterize therapeutic targets, test interventions in clinical trials, and efficiently and compassionately disseminate effective treatments to all patients.

In September 2024, the President's Cancer Panel brought together stakeholders from across the National Cancer Program to discuss challenges facing the cancer workforce and strategies for addressing these challenges.

A commonly used metaphor for the workforce is a pipeline, a closed system that begins at point A (education and training) and travels to point B (career). During the meeting, however, participants observed that given the complex and interconnected nature of the cancer workforce, careers in cancer may be better conceptualized as a highway, with many lanes, entrances, and exits, as well as barriers and opportunities at both the individual (driver/vehicle) and systems (highway infrastructure) levels.

The oncology workforce encompasses a range of roles, including clinical and research staff. Each role requires specific skills and training and makes distinct contributions, and all of these roles are important.

In addition, the workforce is spread across different sectors and settings. Cancer care takes place in community practices and hospitals located in the places where Americans live and work, as well as in large academic medical centers, most of which are in larger cities. In addition to delivering cancer care, academic medical centers provide education and training and conduct clinical, translational, population, and basic science research. Much of the research taking place in academic medical centers is funded by the American public through government agencies, most notably the National Institutes of Health (NIH). Biopharmaceutical companies also conduct research with the goal of developing new and improved products for preventing, detecting, diagnosing, and treating diseases. In general, companies focus on research that will lead to a broadly marketable product. Publicly funded research has historically focused on a broader set of research questions, including those that may not be immediately translatable to clinical care.

These sectors do not operate independently. Their work is frequently complementary and, in many cases, interdependent. People with cancer may receive care both in their community and in an academic medical center, depending on the complexity and trajectory of their disease. Most physicians and researchers working in community practices and biopharmaceutical companies received at least some of their training in academic centers. Clinical trials of biopharmaceutical products are done in partnership with academic and community clinicians. The vast majority of breakthrough cancer treatments have been informed by research supported by both public and private funds.

Efforts to strengthen the workforce must acknowledge the importance and value of the different roles and sectors, and they must take a holistic approach to identify and address challenges that prevent any segment of the workforce from fulfilling its potential and playing its part.

Challenges to an Optimized Cancer Care and Research Workforce

The care delivery and research components of the cancer workforce face significant challenges. On the clinical side, demand for cancer care is rising as the U.S. population ages, people with cancer live longer after their diagnoses, and incidence rates for some cancers are increasing among people under age 50.[2-4] In the United States, 2 million new cancer diagnoses were expected in 2025, and there are more than 18 million cancer survivors.[1] In addition, as cancer treatments have improved, they have also become more complex. These advances often necessitate more appointments and additional coordination by more specialized multidisciplinary teams than in the past.[5]

Widespread adoption of health information technology, including electronic health records (EHRs), has increased the administrative burden on care teams and created inefficiencies. This burden, along with stressful and demanding work environments, has contributed to burnout and attrition (or highway "exits") among cancer care professionals in all lanes.[6-8]

The growing need for oncology services and the increasing time spent on administrative tasks have contributed to oncologist shortages. The gap between supply and demand for oncologists has been a concern for nearly 20 years[3,9] and is projected to continue to grow through at least 2037.[10] Shortages are particularly severe in rural areas. About two-thirds of rural U.S. counties do not have an oncologist,[11] despite higher rates of cancer diagnosis and mortality in rural areas.[12] These shortages can lead to delays in treatment, undermining high-quality cancer care and potentially leading to worse outcomes.[6,8]

The cancer research workforce is facing its own set of challenges. Clinical and administrative demands make it harder for oncologists in academic institutions to conduct research and enroll patients in clinical trials.[13] There are also challenges related to research funding and training. Since shortly after World War II, cancer research in the United States has been largely driven by NIH-funded laboratories at universities, and generations of scientists have been trained in these same laboratories.[14] Public funding for cancer research has grown substantially since the 1950s. Over the past few decades, biopharmaceutical companies also have increased their investments in research and development, including in cancer.[15,16] This private sector growth has drawn a significant and increasing proportion of cancer researchers into the private sector. The traditional research training paradigm—underwritten by the federal government and designed to prepare future academic investigators—is no longer aligned with the changing research landscape.

Envisioning a Thriving Future

All people in the United States should receive high-quality, timely cancer care, from cancer screening and prevention through treatment, survivorship, and end-of-life care. It should not matter whether they live in a rural or urban area or whether they receive care at a major academic hospital or a community practice. All patients should also have access to clinical trials at their site of care. Strong public and private investments in research should support thriving research programs in academic and biopharmaceutical settings that continually increase scientific understanding of the mechanisms underlying cancer and identify ways to combat it.

All people in the United States should receive high-quality, timely cancer care, from cancer screening and prevention through treatment, survivorship, and end-of-life care.

Achieving these goals will require a robust cancer care and research workforce that is sufficiently staffed with well-trained, competent professionals. Training programs and career development opportunities should allow the steady entry of people, or "drivers," onto all lanes of the cancer workforce highway. These drivers should have the resources they need to perform to the top of their credentials, unobstructed by roadblocks that keep them from doing their jobs: caring for patients and expanding knowledge to help reduce the burden of cancer. The workforce should be cultivated throughout the country to ensure that all communities have an adequate workforce for both cancer care and research.

In this report, the Panel presents priorities and related recommendations to build a robust cancer workforce that efficiently and effectively meets the following goals:

- Deliver high-quality, evidence-based cancer care to all people in the United States.
- Improve access to cancer clinical trials where people receive care.
- Conduct basic, translational, and population research in academic, government, and biopharmaceutical settings to advance future cancer prevention and care.

PART II

Priority Areas and Recommendations

PART II

Priority Areas and Recommendations

In this report, the Panel outlines key challenges and identifies three priority areas (Figure 1):

- Create partnerships to foster and support the cancer workforce.
- Expand education and training pathways to strengthen key roles in the cancer care workforce.
- Support cancer care team productivity.

To foster continued leaps forward in cancer research and ensure that these advances in care reach everyone, all facets of the cancer community—government, health care, industry, and academia—must commit to building and maintaining a robust and effective workforce.

Many of the opportunities outlined in the following sections are not unique to the cancer workforce. Progress within cancer care and research could model solutions for other medical specialties and research fields. Partnerships across disease areas and disciplines could also yield broad benefits and create economies of scale.

Figure 1. President's Cancer Panel Priorities and Recommendations

PRIORITY 1: CREATE PARTNERSHIPS TO FOSTER AND SUPPORT THE CANCER WORKFORCE

Addressing the challenges facing the modern cancer workforce will require collaboration among National Cancer Program stakeholders from different communities and sectors. Bringing together different perspectives will lead to innovative solutions, and pooling resources will allow partners to efficiently achieve their shared goals. The Panel has identified several opportunities for partnerships to expand access to cutting-edge cancer care, leverage local and regional resources to support creation of cancer care teams, and invest in the future of the cancer research workforce.

RECOMMENDATION 1.1

Facilitate cross-institutional mentorship and partnerships to improve access to high-quality cancer care and clinical trials.

A central goal of the National Cancer Program is to ensure that advances in prevention, early detection, treatment, and survivorship care reach every American. Unfortunately, many population groups experience significantly higher rates of cancer or poorer outcomes after a cancer diagnosis than the U.S. population overall.[17] The reasons for these differences are varied and complex, but insufficient access to high-quality, evidence-based, timely cancer care is a key contributor. These gaps in cancer rates and outcomes can only be closed with support from a thriving cancer care and research workforce.

The collision of excess cancer burden and workforce challenges is especially evident in rural and remote communities. Rural residents have significantly higher age-adjusted cancer death rates than their counterparts in large metropolitan areas and are more likely to have reached later stages of disease by the time they are diagnosed and begin treatment.[18] In recent years, the rural–urban gaps in cancer outcomes have grown as overall declines in cancer deaths cluster in more heavily populated areas.[18,19] It is not surprising that rural patients face challenges in accessing cancer care, because about two-thirds of rural U.S. counties—home to about 32 million people—have no oncologist.[20] Consequently, patients from rural areas must travel farther to receive care. Almost 14% of people in the U.S. live more than 3 hours from a National Cancer Institute (NCI)–designated cancer center or satellite facility.[19] Limited infrastructure and lack of research staff mean that cancer patients in rural and remote areas have less access to cutting-edge treatments through clinical trials.[19]

Rural health centers face unique challenges in recruiting and retaining cancer care and research staff.[20-22] Smaller local populations mean smaller hiring pools and frequent challenges in finding candidates with the right training and education. Rural communities often have trouble recruiting physicians away from city centers that may offer more employment opportunities for spouses or be viewed as more desirable for families. With fewer cancer cases, these rural centers cannot take advantage of economies of scale for clinical care or clinical trial staff. Their smaller care teams are, by necessity, generalists who must treat all types of cancer rather than specialists in certain cancer types or subtypes.

Efforts have been made to attract physicians to rural areas, including offering loan forgiveness and higher salaries, but most have focused on primary care providers.[23-25] Although these incentives may be useful, they will not be sufficient to build a robust oncology workforce in rural areas. **Cross-institutional partnerships should be established to extend the reach of the oncology care and clinical research workforce.** Several partnership models have already been developed and implemented in oncology to facilitate mentorship and teamwork across institutions and leverage economies of scale. These partnerships are often enabled by technology (see *Using Technology to Connect Cancer Care Teams* on page 11) and flexible

USING TECHNOLOGY TO CONNECT CANCER CARE TEAMS

Technology is essential for connecting interinstitutional teams and bringing high-quality cancer care and clinical trials to rural and other underserved areas. The Panel reiterates calls made in past reports for policies and investments related to technology. Insurers—including the Centers for Medicare & Medicaid Services—should expand access to telehealth services, and states should participate in the Interstate Medical Licensure Compact to allow telehealth across state lines. Steps also must be taken to ensure that patients and health care organizations have internet access adequate to support the use of telehealth and other health information technology (IT) tools. In addition, interoperable health IT tools, including EHRs, are needed to facilitate information sharing and handoffs. Priority 3 of this report notes that well-designed EHRs can help improve the efficiency and productivity of the oncology workforce.

Sources: President's Cancer Panel. Initial assessment of the National Cancer Plan: a report to the President of the United States. Bethesda (MD): National Cancer Institute; 2024 Feb. Available from: https://prescancerpanel.cancer.gov/reports-meetings/ncp-initial-assessment; President's Cancer Panel. Improving cancer-related outcomes with connected health: a report to the President of the United States from the President's Cancer Panel. Bethesda (MD): President's Cancer Panel; 2016. Available from: https://prescancerpanel.cancer.gov/reports-meetings/connected-health-report-2016; President's Cancer Panel. Enhancing patient navigation with technology to improve equity in cancer care. Bethesda (MD): National Cancer Institute; 2025 Nov. Available from: https://prescancerpanel.cancer.gov/reports-meetings/enhancing-patient-navigation-2024

staffing models that leverage multidisciplinary teams (see *Recommendation 2.1*).

Many of these partnerships use a hub-and-spoke model that connects a centralized specialist team with multiple community sites. The longstanding ECHO (Extension for Community Healthcare Outcomes) model has used this approach to create virtual communities for learning and mentorship. This mentorship can be crucial for providers who must care for patients with many types of cancer in a time of rapidly changing treatment and diagnostic options. ECHO programs have been used to improve cancer prevention, screening, treatment, and palliation in rural and underserved areas around the world.[26] Other hub-and-spoke partnerships allow patients to receive basic services from local providers and travel to partnering academic centers only when they need more complex care. Implementation of this model in Montana—supported by Conquer Cancer with funding from the Merck Foundation—involves recruiting and training advanced practice providers to work in community practices, strengthening referral loops between academic medical centers and local primary care providers, and establishing linkages with community-based organizations for patient services.[27] A similar rural cancer home model in Minnesota uses formal and informal partnerships between a rural health care system and specialty care centers to support activities such as virtual tumor boards, telehealth consultations, and chemotherapy supervision.[22]

Cross-institutional partnerships also are being used to bring clinical trials to community sites, where most cancer patients receive their care. The NCI Community Oncology Research Program (NCORP) uses a hub-and-spoke model to make NCI-funded clinical trials available in community settings, including in rural areas. Research bases provide administrative, data management, scientific and statistical, operational,

and regulatory support to several community affiliates. Over the past 5 years, NCORP has enrolled more than 20,000 patients in NCI cancer treatment trials, with 20% coming from rural America.[28] The NCI Virtual Clinical Trials Office (VCTO), a pilot program created to address falling trial participation during the COVID-19 pandemic, provides a team of remote research staff to help with activities such as screening and enrolling patients, educating patients about trials, and capturing and managing data.[29] This type of centralized support to ease administrative burden may be particularly helpful to sites with fewer resources that might not otherwise be able to participate in trials.

Academic and community cancer centers should continue to establish and build partnerships to extend the reach of the oncology workforce and bring high-quality cancer care and clinical trials to rural and other medically underserved communities. The strategies proposed here to address challenges in these regions—including mentorship and collaboration on complex cases—could also help improve cancer care and clinical trial access in nonrural communities, particularly those facing economic hardships. These efforts will require investment from multiple sectors. NCI should continue NCORP and expand the VCTO to bolster clinical trial access. Pharmaceutical companies should also support these partnerships, particularly those that build the capacity of community cancer centers to participate in clinical trials, including pharma-sponsored trials.

RECOMMENDATION 1.2

Create regional cross-sector partnerships to foster growth and development of the cancer care and research workforce.

The health and life sciences sector is a significant source of employment in many regions of the country.[30] Although health care and research organizations recruit nationally and internationally for some roles, they depend heavily on local populations for allied health professionals, research support staff, and other positions. Many people, particularly young people, may not be aware of or know how to pursue employment opportunities in these sectors. Employers in the same geographic area have a shared interest in strengthening their local and regional workforces.

Regional cross-sector partnerships can provide a framework for strengthening local and regional health care and research workforces. Participating members could include employers (e.g., health care organizations, research institutions, industry), educators (e.g., K–12 school districts, community colleges, universities), economic development boards, community organizations, and local and state governments. Partners would work together to design and conduct assessments of employer needs as well as landscape analyses to identify relevant resources that could be leveraged to support the workforce. They could then collectively develop strategies to meet the identified needs. The best strategies would vary depending on the needs and resources of the region. They could include:

- Outreach to local K–12 schools, community colleges, and universities to increase exposure to and interest in health care and research careers (see *Increasing Awareness of STEMM Jobs and Careers* on page 13).
- Development of educational programs, curricula, and skills training that directly align with career opportunities in the region. These could be delivered through high schools, community colleges, universities, employers, or community organizations (see *Priority 2*).
- Identification of opportunities for resource sharing across organizations (e.g., visiting instructors/trainers, joint professional development, shared remote services, on-site experiences at cancer centers).
- Advocacy for state regulatory or legislative changes.

Engagement of school counselors, community employment counselors, and human resources departments is important to ensure that students and community members are aware of and know how to access career development resources for health and health care jobs.

INCREASING AWARENESS OF STEMM JOBS AND CAREERS

The strength of the cancer workforce depends upon the entry of new drivers onto the workforce highway. Talented and motivated young people must be aware of and drawn to jobs and careers in cancer care and research, and they need the knowledge and skills required to pursue these careers. Early outreach starting in K–12 settings is essential to ensuring sufficient time to foster interest and capability.

Over the past few decades, numerous efforts have aimed to improve STEM (science, technology, engineering, and math) education and enrich the workforce of the future. These efforts have included development of curricula and standards, investment in teacher training, establishment of magnet schools, and creation of programs and activities that provide interactive experiences. Examples of outreach programs for health care careers include:

- Sanford Health **Aspire**, which offers classroom visits, career days, summer camps, informational interviews, volunteer opportunities, and scholarships.
- The Brigham and Women's Hospital **Healthcare Career Exploration Program**, a 7-week immersive program for high school juniors and seniors interested in health care.

Opportunities for collaboration to increase interest and readiness for careers in STEM and medicine, referred to as STEMM, abound. Professional societies, medical schools, hospitals, cancer centers, federal agencies (such as NIH and the National Science Foundation), state governments, and other organizations with an interest in cancer care and research could partner to support programs that attract K–12 students and prepare them for STEMM careers.

Sources: Next Generation Science Standards. Home page [Internet]. NGSS; n.d. [cited 2025 Aug 4]. Available from: https://www.nextgenscience.org/; Allen PJ, Chang R, Gorrall BK, et al. From quality to outcomes: a national study of afterschool STEM programming. International Journal of STEM Education. 2019;6(37). Available from: https://doi.org/10.1186/s40594-019-0191-2; Exploratorium. Professional development programs [Internet]. San Francisco (CA): Exploratorium; 2025 [cited 2025 Aug 4]. Available from: https://www.exploratorium.edu/education/professional-development-programs; Magnet Schools of America. A snapshot of magnet schools in America. Washington (DC): Magnet Schools of America. Available from: https://magnet.edu/getinvolved/research-studies/snapshot-of-magnet-schools-report; Sanford Health. Aspire by Sanford: careers with purpose [Internet]. Sioux Falls (ND): Sanford Health; n.d. [cited 2025 Aug 26]. Available from: https://sanfordcareers.com/k12-aspire-by-sanford; Brigham and Women's Hospital. Healthcare Career Exploration Program (HCEP) [Internet]. Boston (MA): BWH; 2025 [cited 2025 Jul 17]. Available from: https://www.brighamandwomens.org/about-bwh/volunteer/healthcare-career-exploration-program

The Virginia Partnership for Health Science Careers in west central Virginia is one example of a regional cross-sector effort to strengthen the workforce.[31] The partnership, created in 2019, is already seeing increased enrollment in health sciences programs.[32] The group's website provides a roadmap and templates to help other regions interested in creating a similar partnership. In southwest Ohio, Workforce Innovation at The Health Collaborative has worked for more than a decade to develop education pathways for health care careers and bring together partners to solve critical workforce concerns.[33]

Funding for regional cross-sector partnerships could come from companies or employers, economic development funds, state budget appropriations, or grants from philanthropic organizations or government agencies. For maximum impact, regional partnerships should focus on health and science jobs generally, rather than specifically on oncology. However, cancer centers and local cancer-related organizations should work within the partnerships to promote oncology-specific needs and opportunities.

RECOMMENDATION 1.3

Create cross-sector partnerships to enhance cancer research training.

The cancer research workforce drives the discovery and development of strategies and treatments to reduce the burden of cancer. Investments in research training today will ensure that the United States has thriving academic and biopharmaceutical research programs and continues to be a leader in cancer research, driving progress that will reduce the burden of cancer for future generations. In the past, most cancer research was done in academic settings, but private-sector research and development investments have swelled over the past several decades,[16] resulting in a cancer research portfolio that is more evenly spread between the public and private sectors.

As new career opportunities have emerged, a growing number of science PhDs are leaving universities for careers in the biopharmaceutical industry,[34] and clinical researchers are also being drawn away from academic medical centers.[35-37] The higher salaries offered by industry are attractive, and many early-career researchers are daunted by the prospect of building careers in competitive academic settings. The number of tenured faculty positions has remained flat, even as the number of PhD trainees has increased,[38] and obtaining the grant funding needed to support an academic laboratory has become more challenging.[39] In addition, academic oncologists face increasing challenges balancing clinical, teaching, and research responsibilities.[13]

Cross-sector partnerships should be created to build programs that are supported by both the private and public sectors and prepare research trainees for a broad set of careers.

These shifts in the research workforce necessitate a new paradigm for research training. Currently, most research training programs are housed in academic centers, funded largely by federal research and training grants, and focused primarily on preparation for careers in academic research or medicine. This traditional apprenticeship model is not aligned with today's range of cancer research career paths. **Cross-sector partnerships should be created to build programs that are supported by both the private and public sectors and prepare research trainees for a broad set of careers. These partnerships should include academic institutions, government agencies, biopharmaceutical companies, professional societies, and trade organizations.**

Building robust programs capable of meeting the needs of trainees and their future employers will require financial support beyond traditional federal research and training grants. Biopharmaceutical companies that depend on—and financially benefit from—academic training for scientists who move into industry jobs or enroll patients to pharma-sponsored trials could help fund research training. This contribution should

not be viewed as philanthropic but rather as a strategic investment and an opportunity to collaboratively shape research training. Federal support for biomedical research training and career development is important and should continue; however, it is insufficient to build the national workforce required to reduce the burden of cancer. If other funding sources are not secured, the United States risks losing a generation of researchers and interrupting the consistent and remarkable progress that it has made against cancer in recent decades.

Academic institutions and departments should ensure that the course offerings, mentorship opportunities, and hands-on experiences of their training programs support the needs of students with a range of career aspirations both within and outside academia. To do this effectively, institutions should seek substantive input from and partner with biopharmaceutical companies, professional societies, and trade organizations that have a deep understanding of nonacademic careers in research, pharmaceutical development, regulatory science, and other areas.

Companies, government agencies, and trade organizations should seek direct interaction with research trainees. Seminars, guest lectures, and alumni events could facilitate contact with a broad trainee audience. Trainees who express interest in a nonacademic career path would benefit from more extensive interactions, which could include rotations or ongoing mentoring relationships outside of traditional academic settings.

Some cross-sector collaborations already exist and are succeeding (see *Examples of Cross-Sector Partnerships for Research Training*). Expanding these shared partnerships would help connect industry, academia, and regulatory agencies so that researchers can find the best career fit.

EXAMPLES OF CROSS-SECTOR PARTNERSHIPS FOR RESEARCH TRAINING

The **Robert A. Winn Excellence in Clinical Trials Award Program** was created to build a workforce of community-oriented clinical investigators, with a goal of ensuring that patients enrolled in clinical trials mirror the populations burdened by the diseases being studied. The program supports traditional training in research methods, design, and implementation, plus a modified community-based participatory research approach, with funding provided by multiple pharmaceutical companies. The program's approach has proven effective: Awardees not only develop thoughtful, high-impact clinical trials but also successfully recruit participants from at-risk and rural populations.

The **PhRMA Foundation**, a nonprofit funded by several biopharmaceutical companies, provides predoctoral and postdoctoral grants and fellowships, as well as grants for new faculty. Recipients must be at a U.S. degree-granting university. In 2024, the foundation made 37 awards totaling $3.86 million. Many of the supported projects focused on cancer.

Sources: Robert A. Winn Excellence in Clinical Trials Award Program. Robert A. Winn Excellence in Clinical Trials: Career Development Award (Winn CDA) [Internet]. Richmond (VA): Winn Awards; 2025 [cited 2025 Jul 15]. Available from: https://winnawards.org/winn-cda; Winn RA. Creative partnerships/diversity in clinical trials awards program. Presented at: President's Cancer Panel meeting; 2024 Sep 13; virtual. Available from: https://prescancerpanel.cancer.gov/reports-meetings/ncp-retaining-robust-diverse-cancer-workforce-meeting/meeting-summary; Robert A. Winn Excellence in Clinical Trials Award Program. History of the Winn Award programs [Internet]. Richmond (VA): Winn Awards; c2025 [cited 2025 Jul 15]. Available from: https://winnawards.org/about; PhRMA Foundation. 2024 annual report. Washington (DC): the Foundation; 2025. Available from: https://www.phrmafoundation.org/wp-content/uploads/2025/03/2024-PhRMA-Foundation-Annual-Report.pdf; PhRMA Foundation. Grants & fellowships [Internet]. Washington (DC): the Foundation; 2024 [cited 2025 Jul 15]. Available from: https://www.phrmafoundation.org/grants-fellowships

PRIORITY 2: EXPAND EDUCATION AND TRAINING PATHWAYS TO STRENGTHEN KEY ROLES IN THE CANCER CARE WORKFORCE

Cancer care is a team effort, requiring a robust and well-trained workforce comprising many different roles, or "lanes," on the highway. One of the most effective strategies for strengthening this workforce is ensuring that professionals can grow in their careers (see *Opportunities for Upskilling and Career Advancement* below).[40]

Through discussion during the meeting and subsequent conversations with stakeholders, the Panel identified opportunities related to two of these lanes: nurse practitioners (NPs) and physician associates (PAs), collectively known as advanced practice providers (APPs), and allied health care professionals.

To take on the complexities of cancer care, the APP and allied health care workforce must be ample in numbers, educated, and experienced. Increasing the number of these professionals will require intentional and coordinated investment in education and training to meet workforce needs and build skills.

RECOMMENDATION 2.1

Develop and support programs to increase the number of advanced practice providers in oncology.

The troubling gap between the demand for cancer care and the supply of working oncologists continues to grow, leaving many areas of the country without lifesaving access to care (see *Challenges to an Optimized Cancer Care and Research Workforce* on page 4). Although some aspects of care require a

OPPORTUNITIES FOR UPSKILLING AND CAREER ADVANCEMENT

Technological advancements, new treatments, and regulatory and policy changes in health care generate a perpetually growing pool of medical and procedural knowledge that must be transmitted to cancer care teams. Health care organizations should provide their employees with opportunities to expand their skills and knowledge, also known as upskilling, so they can better address patient and organizational needs while adapting to change. Training and skill development programs vary but can include courses offered by health care organizations, professional societies, or academic institutions, and they may lead to certifications or credentials. Continuing education and training can support employee retention by increasing confidence and competence, ensuring that employees feel—and are—prepared to manage the complex and multifaceted nature of cancer care. Opportunities that prepare employees for career advancement and job transitions within cancer care are also key to retaining qualified professionals on the cancer care highway.

Source: Shiri R, El-Metwally A, Sallinen M, et al. The role of continuing professional training or development in maintaining current employment: a systematic review. Healthcare (Basel). 2023;11(21). Available from: https://doi.org/10.3390/healthcare11212900

physician, many tasks are within the scope of practice for APPs. Enabling APPs to take on these tasks ensures that more patients can be seen and that oncologists' time is reserved for work requiring a physician's expertise.

Increasing the number of qualified APPs in oncology is a key strategy for addressing physician shortages, particularly in rural areas and other medically underserved communities.

Increasing the number of qualified APPs in oncology is a key strategy for addressing physician shortages, particularly in rural areas and other medically underserved communities. Analysis of primary care teams has found that the proportion of providers in rural versus urban settings is higher for NPs and PAs than physicians, which indicates that APPs serve especially vital roles in these communities.[25,41-43]

NP and PA graduate programs deliver a generalized curriculum, with limited time dedicated to specialty care, including for cancer.[44] Specialized training and education for disease areas or patient groups are typically acquired after graduation.[45,46] Stakeholders from the APP community noted that the complexity of cancer care and the seriousness of the condition can be intimidating. Exposure to this fulfilling field and thorough training can increase confidence and interest, thereby reducing barriers to entry.

APPs transition to clinical practice in oncology via multiple pathways, including on-the-job trainings as well as preceptorships, residencies, and fellowships. Some societies for APPs, including the Advanced Practitioner Society for Hematology and Oncology and the Association of PAs in Oncology, offer postgraduate oncology trainings and continuing education modules for working professionals both new and experienced in the field.[47,48] Many cancer centers and health care organizations create their own training programs.

Other organizations have developed oncology fellowship programs for licensed APPs. These postgraduate fellowships, funded by the institutions that host them, benefit individual APPs, the health care workforce, and health care organizations by furthering APPs' careers and creating a steady stream of highly trained, ready-to-work oncology professionals.[49] Analysis of postgraduate fellowships and residencies for NPs has found measurable increases in positive outcomes, including increased job satisfaction and decreased interest in leaving their jobs.[50]

Institutions supporting these programs see a return on investment that is both significant and timely, because a large proportion of fellows are hired upon completing the program, filling crucial openings in care teams. By this time, the APPs have gained practical experience and academic knowledge that will allow them to integrate seamlessly into cancer care teams and begin work immediately. A smaller number of APP fellows choose to transition to other settings, including community practices.

Current numbers of both APP oncology fellowship programs and slots in these programs are insufficient to meet demand from both would-be fellows and their future employers. The APP oncology fellowship program is a successful model that should be implemented more broadly. **Cancer centers in academic institutions should develop and support fellowships for APPs.** As centers of excellence, NCI-designated cancer centers should lead this work. Because fellowships are not possible or optimal in all settings, health care organizations without APP fellowship programs should ensure that oncology APP onboarding includes structured training, protected time for learning, and mentorship. Partnerships with professional societies and larger cancer centers could help with training resources and mentorship (see *Recommendation 1.1*).

The Panel also heard from stakeholders that growth of the APP workforce is limited by the same barriers faced by other care team members, including prior authorization (see *Priority 3*) and the limitations of telehealth policies. Practices and patients in remote and rural areas in particular would benefit greatly from the removal of these obstacles to lifesaving cancer care.[51]

RECOMMENDATION 2.2

Expand and improve pathway programs for allied health care positions in cancer care.

Allied health care positions represent critical lanes in the oncology workforce highway (see *Examples of Allied Health Care Professionals* on page 19). While often less visible than physicians and nurses, these professionals and their expertise are crucial for patient care. Unfortunately, there are not enough allied health care professionals to meet demand, and filling these positions is challenging. In one survey of 1,005 health care facilities, 85% reported experiencing shortages of allied health care professionals,[52] and the National Center for Health Workforce Analysis projects shortages for a range of allied health care positions. Pathways toward these jobs and careers must be visible, accessible, and feasible to increase the number of people, or "drivers," entering these lanes.

Education and training requirements for allied health care jobs vary; some positions require a 4-year college degree, whereas others require an associate degree or certification. Pathway programs such as early college and career and technical education (CTE) programs (see *Pathway Programs* below) are designed to facilitate access to the knowledge, skills, and credentials needed to fill specific roles. These programs serve young people entering the workforce as well as working professionals exploring new careers.

Many states and communities invest in pathway programs to help address their growing need for skilled workers, including in health care.[33,53-55] At least 1,000 early college programs across 33 states[56] have been created since the model was first promoted in the early 2000s,[57] and all U.S. states and territories

PATHWAY PROGRAMS

Early college programs allow high school students to take college courses and, in some cases, earn an associate degree or other credential. Students who participate in early college programs are more likely to enroll in college, complete college earlier, and save money on tuition (most programs are free or low cost).

Career and technical education (CTE) programs provide instruction and hands-on training that lead to industry-specific certifications or licenses. CTE programs can cater to students or working professionals and may be based in high schools, technical centers, community colleges, or 4-year universities. CTE programs contribute significantly to a student's academic performance, high school completion, college readiness, and employability.

Sources: Berger A, Turk-Bicakci L, Garet M, et al. Early college, early success: early college high school initiative impact study. Washington (DC): American Institutes for Research; 2013 Sep. Available from: https://www.air.org/sites/default/files/downloads/report/ECHSI_Impact_Study_Report_Final1_0.pdf; Lindsay J, Hughes K, Dougherty SM, et al. What we know about the impact of career and technical education: a systematic review of the research. Arlington (VA): Institute of Education Sciences and Career & Technical Education Research Network; 2024 Apr. Available from: https://cteresearchnetwork.org/sites/default/files/2024-05/CTE-Research-Synthesis-508.pdf

EXAMPLES OF ALLIED HEALTH CARE PROFESSIONALS

- Radiation technologists
- Laboratory technicians
- Pharmacy technicians
- Medical assistants
- Certified nursing assistants
- Care managers
- Patient navigators and community health workers
- Clinical trial coordinators

develop official CTE plans and receive federal funds to support and improve their programs.[58] This disseminated approach to workforce development is well suited to oncology allied health care and clinical research support jobs, because these workers are needed throughout the country to help deliver cancer care.

The state- and local-level nature of pathway programs allows them to be tailored to meet the needs of employers in their communities. Virtually all pathway programs involve partnerships of some type. At a minimum, early college programs include a K–12 school district and a community college or university. Some early college programs include an industry partner that provides input on curriculum, hands-on experiences, and mentoring (see *P-TECH: Industry Partnership for Early College*). For CTE programs, state plans must be developed with input from employers and industry representatives in addition to educational institutions, state agencies, and community organizations.

States and communities should continue to expand and improve pathway programs with a focus on addressing local and regional workforce needs—including those in health care and oncology—and ensuring that students are well prepared for these jobs. Cancer centers, professional societies, local businesses, and other organizations that deliver cancer care should partner with pathway programs in their states, regions, and communities to ensure that health care roles critical to the cancer workforce are represented. In addition to providing opportunities to influence curricula and training, such partnerships would enable direct connections to trainees (e.g., through rotations or mentorship) and facilitate recruitment of new hires.

P-TECH: INDUSTRY PARTNERSHIP FOR EARLY COLLEGE

Pathways in Technology Early College High School (P-TECH) provides an integrated 6-year program that includes coursework and workplace experience. The program culminates in an associate degree and, often, job opportunities with partnering industries.

Source: Rosen R, Alterman E, Treskon L, et al. P-TECH 9-14 pathways to success. New York (NY): MDRC; 2023 Oct. Available from: https://www.mdrc.org/sites/default/files/P-TECH_Final_Report.pdf

PRIORITY 3: SUPPORT CANCER CARE TEAM PRODUCTIVITY

A productive cancer care workforce is one that efficiently and effectively uses its time, resources, skills, and personnel to deliver high-quality cancer care. Ideally, all care teams would have the tools and environment they need to work at their full potential.

Currently, numerous factors undermine productivity for the cancer care workforce. Administrative burdens are one of those factors. Poorly integrated EHR systems and suboptimal prior authorization processes generate administrative work that pulls physicians, nurses, and other clinical staff away from patient care and makes it harder for administrative staff to do their jobs. This burden can lead to burnout and eventually undermine organizational goals through reduced productivity and workforce attrition.[59,60] Given the increasing demands of cancer care and the growing workforce shortages, it is critical to support workforce productivity by improving EHR systems and streamlining prior authorization processes.

RECOMMENDATION 3.1

Improve EHR systems to better support cancer care teams.

EHR systems are widely used across clinical settings[61] and have helped streamline patient data management and medical billing. However, physicians and other health professionals report frustration with EHR systems due to their overly complicated interfaces and poor usability.[59,62,63] Of particular concern is that these complex systems, with their time-consuming data entry requirements, limit care teams' capacity

STRENGTHENING THE HEALTH IT WORKFORCE

A skilled health IT workforce is critical for the successful development and implementation of technological tools. Health IT professionals, including help desk representatives, cybersecurity specialists, and programmers, play a vital role in ensuring that health care organizations are well-positioned to adopt technologies that support care teams and promote patient safety. Health care organizations and technology developers should invest in their health IT teams by identifying and addressing workforce challenges. Additional efforts are also needed to provide health IT professionals with opportunities for upskilling within their current positions or workplace settings. Pathway programs with a focus on health IT can be created in partnership with universities and community colleges to sustain the entry of qualified professionals into the field (see *Recommendation 1.2* and *Priority 2*). Greater commitment to strengthen the health IT workforce will help health care organizations promote the highest standard of care in today's era of technological advancements.

Figure 2. Five Rights Model

to directly engage with their patients.[59,63] Physicians report spending a significant portion of their day, including time outside of office hours, completing EHR tasks, many of which are not directly related to patient care.[59,63-65] Nonintuitive EHRs increase workloads[63] and place additional strain on care teams grappling with other challenges, such as workforce shortages. Lack of interoperability among EHR systems also adds a burden on care teams, because additional time and personnel are needed to access and share patient data within and between institutions.

EHR vendors and health care organizations should improve EHR design and implementation to better support care team productivity and facilitate the delivery of high-quality cancer care. Changes should be informed by thoughtful assessment of local clinical workflows and current EHR uses. The aim should be to achieve the principles of the Five Rights model (Figure 2): delivering the right information to the right people (e.g., providers, patients, caregivers) in the right formats, through the right channels, and at the right times in the clinical workflow.[66]

Well-designed EHR systems can reduce workflow inefficiencies by streamlining routine tasks, enabling safe and secure patient data exchange between systems, and encouraging evidence-based care. EHR tools can also help care teams integrate clinical trials into standard care by identifying eligible patients for trials and facilitating the collection of patient data for research. There are many examples of interventions targeting EHRs and team dynamics, including improving the choice architecture of EHR systems, eliminating unnecessary EHR alerts, creating specialty-specific EHR tools, and increasing the use of support staff to respond to messages and capture notes.[67] The Panel encourages continued progress toward improving EHR usability to enable care teams to deliver the best possible care.

In addition to improving usability and workflow, health care organizations must ensure that the introduction of new tools is accompanied by appropriate training for all users. Efforts are also needed to maintain a robust health IT workforce fully equipped to assist with the development and adoption of tools (see *Strengthening the Health IT Workforce* on page 20).

RECOMMENDATION 3.2

Reform prior authorization to reduce provider administrative burden.

Prior authorization has emerged as a significant drain on productivity for providers, including oncologists. The original intent of prior authorization requirements was to encourage evidence-based and cost-effective therapeutic choices. In reality, complex prior authorization processes consume significant time and resources and often undermine patient care.[68]

Physicians, including oncologists, frequently name prior authorization as a leading and growing contributor to administrative burden and burnout.[59,69,70] In a 2024 American Medical Association survey, practices reported completing an average of 39 prior authorization requests per physician per week.[68] Submitting these requests pulls providers away from patient care, and the volume of requests often necessitates dedicated staff.[70-72] Organizations and providers who cannot afford to add personnel for this purpose may fall even further behind on their clinical responsibilities. Even more concerning, more than 90% of providers reported that prior authorization had delayed patient treatments.[68] Treatment delays have consequences for patients with cancer, including stress and, in some cases, serious medical harm.[69,72-74]

Prior authorization is a process that requires health care providers to get advance approval from a payor before a treatment or procedure qualifies for reimbursement and delivery to the patient.

Provider frustration with prior authorization is compounded by lack of trust in the process. Payors often require approval for evidence-based, guideline-concordant cancer treatments, yet cases are frequently reviewed by nurses or physicians without relevant expertise.[68,72] While it is possible to appeal denials—in fact, multiple analyses have found that decisions are often partially or fully overturned[69,75]—many providers do not appeal because they think it will take too much time or they have insufficient resources.[68] In addition, payors are increasingly turning to artificial intelligence (AI) to assist with prior authorization decisions, prompting concern from many providers.[68,76] In a pending class action lawsuit, claimants allege that one payor knowingly used an AI model with a 90% error rate.[77,78]

Several organizations have developed evidence-based guidance for prior authorization and are advocating for reform at the federal and state levels;[70,79,80] some of their strategies are summarized in the *Proposals for Prior Authorization Reform* sidebar. A number of states have passed or introduced prior authorization reforms.[81] At the federal level, multiple bills have been introduced to address inefficiencies within the prior authorization process. For example, the Reducing

PROPOSALS FOR PRIOR AUTHORIZATION REFORM

Strategies for improving prior authorization include:

- Integrating prior authorization processes into EHRs.
- Implementing prior authorization bypass (i.e., gold carding) based on provider performance with respect to quality measures, adherence to evidence-based guidelines, or prior authorization approvals.
- Prohibiting prior authorization requirements for pathway- or guideline-concordant care.
- Requiring payors to disclose their review processes and outcomes.
- Requiring providers who participate in peer-to-peer discussions on behalf of payors to have appropriate, specialty-specific expertise.
- Establishing efficient and responsive appeals processes for prior authorization denials (e.g., 48-hour completion of review/decision on appeals for oncology and expedited review for patients whose clinical circumstances require urgent treatment).

Sources: American Society of Clinical Oncology. ASCO position statement: prior authorization [Internet]. Alexandria (VA): ASCO; 2022 21 Oct [cited 2024 Nov 21]. Available from: https://cdn.bfldr.com/KOIHB2Q3/as/j7g3ns3c7v6prjw9cvn9nq6/2022-Prior-Authorization-Statement; American Hospital Association, America's Health Insurance Plans, American Pharmacists Association, et al. Consensus statement on improving the prior authorization process. Chicago (IL): AMA; 2018. Available from: https://www.ama-assn.org/sites/ama-assn.org/files/corp/media-browser/public/arc-public/prior-authorization-consensus-statement.pdf; American Medical Association. Model legislation: Ensuring Transparency in Prior Authorization Act. Chicago (IL): AMA; 2025. Available from: https://fixpriorauth.org/sites/default/files/2025-04/Health%20Plans%2C%20Ensuring%20Transparency%20in%20Prior%20Auth%20Act%202025.pdf

Medically Unnecessary Delays in Care Act of 2025 (H.R.2433) would require that prior authorization requests made to Medicare, Medicare Advantage, and Part D prescription drug plans be reviewed exclusively by board-certified specialists with the requisite knowledge to make an informed medical decision.[82] The Improving Seniors' Timely Access to Care Act of 2025 (S.1816, H.R.3514) would establish several requirements for use of prior authorization under Medicare Advantage plans, including creation of an electronic prior authorization program and transparency regarding prior authorization requests and outcomes.[83,84]

The Panel recommends that HHS, the Centers for Medicare & Medicaid Services, and public and private payors work with Congress and state legislators to enact prior authorization reform to reduce provider administrative burden and improve patient outcomes.

PART III

Conclusions

PART III

Conclusions

The United States has long been a leader in cancer research and care, developing and delivering cutting-edge treatments that have extended and improved the lives of cancer patients. This leadership would not be possible without the skilled and dedicated professionals making scientific discoveries, developing and testing interventions, and supporting Americans' cancer-related care from prevention and screening through treatment and survivorship.

Today, this leadership is at risk. Workforce challenges in cancer care and research jeopardize our ability to (1) maintain momentum in groundbreaking cancer advances, and (2) remain at the forefront of treatment innovation and cancer care. For patients and their communities, workforce challenges undermine the quality of care and hinder access to lifesaving care, including clinical trials of new treatments. These preventable barriers, in turn, lead to worse cancer outcomes.

The Panel believes that the three priority areas presented in this report are vital for building and maintaining a robust cancer workforce in the United States.

PARTNERSHIPS. Partnerships that engage stakeholders from different sectors are vital to enhance the National Cancer Program and address today's cancer challenges. Cross-institutional partnerships can extend the reach of cancer care to all communities in the United States, and cross-sector partnerships can enhance cancer research training to bring this vital work into alignment with the current research landscape.

PATHWAYS. A successful cancer care and research workforce is like a highway with many lanes, or roles. Efforts to fortify the workforce must encompass the many unique career journeys, as well as the interconnected nature of cancer research and care. Regional partnerships to identify workforce needs and build education and training pathways can help different types of professionals, or "drivers," enter these lanes and stay on the cancer workforce highway.

PRODUCTIVITY. Administrative burden and inefficiencies are major sources of frustration and attrition for the cancer care workforce. Optimal work environments and tools are needed to sustain cancer care professionals and allow them to perform at the top of their license or training, which will support care delivery and employee retention. Prior authorization reform is critical; current processes require significant time and resources from care teams and result in treatment delays that harm patients.

America's cancer care and research workforce has saved millions of lives through discovery, prevention, and treatment. With strategic action and collaboration across sectors, the nation can save many more. The Panel urges all members of the cancer community—health care organizations; academic institutions; biopharmaceutical companies; federal, state, and local government bodies; payors; health technology vendors; and patients, families, and caregivers—to work together to ensure a healthier future for all Americans.

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Appendices

Appendix A: Meeting Participants

MEETING DATES: SEPTEMBER 12–13, 2024

MEETING PARTICIPANT	AFFILIATION
Elisa Arespacochaga, MBA	American Hospital Association
Johanna Bendell, MD	Roche
Oliver Bogler, PhD	National Cancer Institute
Alexandra Brown, MD	American Society for Clinical Pathology
Colleen A. Campbell, PhD, MS, LGC	National Society of Genetic Counselors
Candice Chen, MD, MPH	Health Resources and Services Administration
Callisia N. Clarke, MD, MS, FACS, FSSO	Medical College of Wisconsin
Behrous Davani, PhD	National Cancer Institute
James Fitzgibbon, DPT, MBA	Kaiser Permanente School of Allied Health Sciences
Julie Louise Gerberding, MD, MPH	Foundation for the National Institutes of Health
Jennifer M. Gillette, PhD	University of New Mexico Comprehensive Cancer Center
Steve Grambow, PhD	Duke University School of Medicine
Atul Grover, MD, PhD, FACP, FCCP	Association of American Medical Colleges Research and Action Institute
Quita Beeler Highsmith, MBA	Genentech
Clifford Hudis, MD, FACP, FASCO	American Society of Clinical Oncology
Bianca Islam, MD, PhD, MSc	Case Western Reserve University
Kim Jay	Sinai Urban Health Institute
Michele L. Johnson, MPA, MEd	Corning Incorporated
Othman Laraki, MS, MBA	Color Health
Jessica MacIntyre, DNP, MBA, APRN, NP-C, AOCNP	Oncology Nursing Society
William McDade, MD, PhD	Accreditation Council for Graduate Medical Education
Larissa Nekhlyudov, MD, MPH	Brigham and Women's Hospital, Harvard Medical School
Heather H. Pierce, JD, MPH	Association of American Medical Colleges
Brian M. Rivers, PhD, MPH	Morehouse School of Medicine
Gadi Saarony, MBA	Advarra
Joel Schildbach, PhD	National Science Foundation
Christine Schuyler, BSN, RN, MHA	Jamestown Community College

MEETING PARTICIPANT	AFFILIATION
Jolynn Sessions, PharmD, BCOP, CCP, FHOPA	Hematology/Oncology Pharmacy Association
Carolyn Seyss, PharmD, RUCIF	Rutgers, The State University of New Jersey
Lawrence N. Shulman, MD, MACP, FASCO	University of Pennsylvania
Kevin Sowers, MSN, RN, FAAN	Johns Hopkins Health System, Johns Hopkins Medicine
Beth Steinberg, MS, RN, NEA-BC	The Ohio State University Wexner Medical Center
Mariana Stern, PhD	USC Norris Comprehensive Cancer Center
Ishwaria Subbiah, MD, MS, FASCO	Sarah Cannon Research Institute
Caroline Sutter, DNP	George Mason University
Nathan L. Vanderford, PhD, MBA	University of Kentucky College of Medicine
Arti Patel Varanasi, PhD, MPH, CPH	Advancing Synergy
Eric Winer, MD, FASCO	Yale Cancer Center
Robert A. Winn, MD	VCU Massey Comprehensive Cancer Center

Appendix B: Priorities and Recommendations Table

PRIORITY/RECOMMENDATION	RESPONSIBLE STAKEHOLDER(S)
Priority 1: Create Partnerships to Foster and Support the Cancer Workforce	
Recommendation 1.1: Facilitate cross-institutional mentorship and partnerships to improve access to high-quality cancer care and clinical trials.	• Health care organizations • Academic medical centers • National Cancer Institute • Biotechnology and pharmaceutical companies
Recommendation 1.2: Create regional cross-sector partnerships to foster growth and development of the cancer care and research workforce.	• Academic institutions (universities, community colleges) and K–12 educators • State and local governments • Professional societies • Trade organizations • Economic development boards • Employers (health care organizations, research institutions, biotechnology and pharmaceutical companies)
Recommendation 1.3: Create cross-sector partnerships to enhance cancer research training.	• Academic institutions (universities, community colleges) • Government agencies • Biotechnology and pharmaceutical companies • Professional societies • Trade organizations
Priority 2: Expand Education and Training Pathways to Strengthen Key Roles in the Cancer Care Workforce	
Recommendation 2.1: Develop and support programs to increase the number of advanced practice providers in oncology.	• Cancer centers at academic institutions
Recommendation 2.2: Expand and improve pathway programs for allied health care positions in cancer care.	• Cancer centers • Professional societies • School districts • Universities and community colleges • State governments • Employers, including local businesses

PRIORITY/RECOMMENDATION	RESPONSIBLE STAKEHOLDER(S)
Priority 3: Support Cancer Care Team Productivity	
Recommendation 3.1: Improve EHR systems to better support cancer care teams.	• Health care organizations • EHR vendors
Recommendation 3.2: Reform prior authorization to reduce provider administrative burden.	• U.S. Congress • State legislatures • Department of Health and Human Services • Centers for Medicare & Medicaid Services • Public and private payors

Appendix C: Abbreviations and Acronyms

ABBREVIATION/ACRONYM	DEFINITION
AI	Artificial intelligence
APP	Advanced practice provider
CTE	Career and technical education
ECHO	Extension for Community Healthcare Outcomes
EHR	Electronic health record
HHS	U.S. Department of Health and Human Services
IT	Information technology
NCI	National Cancer Institute
NCORP	NCI Community Oncology Research Program
NIH	National Institutes of Health
NP	Nurse practitioner
PA	Physician associate
P-TECH	Pathways in Technology Early College High School
STEM	Science, technology, engineering, and math
STEMM	Science, technology, engineering, math, and medicine
VCTO	Virtual Clinical Trials Office

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