

AACR Cancer Centers Alliance: Fostering Collaboration and Innovation to Advance Lifesaving Scientific Discoveries for Patients



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ABSTRACT

Basic and clinical cancer research discoveries stemming from the nation's cancer centers have markedly improved outcomes for many cancer patients. Despite this forward momentum in our progress against this complex disease, cancer in all its forms remains a major public health challenge that touches the lives of nearly every American, either directly or indirectly. The

newly formed AACR Cancer Centers Alliance will accelerate the pace of discovery by providing an ongoing mechanism for transferring new knowledge, sharing resources, developing national demonstration projects, and driving innovation that impacts cancer science, cancer care delivery, and science and health policy.

We are in an era of extraordinary scientific progress against cancer. Unprecedented advances in cancer research have led to an increased understanding of the biology and development of cancer, and to remarkable improvements in cancer prevention, screening, early detection, diagnosis, and treatment. These breakthroughs have largely originated within our nation's National Cancer Institute (NCI)-Designated Cancer Centers—institutions that were established as an integral part of the National Cancer Act of 1971 and that are laser focused on driving advances in cancer research, patient care, education and training, and community outreach and engagement. Supported by the NCI and significant institutional, state, and philanthropic funds, these NCI-Designated Cancer Centers and other academic and community-based cancer centers have a major impact on the nation's cancer mission. As nearly 70% of the NCI extramural budget flows through the NCI-Designated Cancer Centers, they represent the nation's engine for discovery science, the conduct of translational research that leads to practice-changing cancer clinical trials, and other interventions conducted in patient care and community settings. These centers also deeply engage the diverse communities they serve with research and clinical trial networks and train the nation's diverse

cancer workforce of researchers and clinicians. As a result of this progress, the U.S. cancer death rate has declined 33% since 1991, and more than 18 million cancer survivors are now living longer and fuller lives following their cancer diagnoses.

Despite this forward momentum in our progress against this complex disease, cancer in all its forms remains a major public health challenge that touches the lives of nearly every American, either directly or indirectly. While the latest developments in cancer research, including preventive vaccines, immunotherapy, and precision medicine with targeted therapies, have revolutionized the care of patients, too many patients still die of this dreaded disease. Further, many types of cancer continue to be difficult to prevent, detect at an early stage, and treat, and many unmet needs exist for cancer survivors. Moreover, not all patient populations have benefited from this progress equitably, and access to early and effective care continues to be a major challenge. To markedly improve outcomes for all patients with cancer, innovative approaches and partnerships are urgently needed, particularly if we are to achieve the goal of President Joseph R. Biden's Cancer Moonshot to reduce cancer mortality by at least 50% over the next 25 years.

New opportunities in cancer research, including the promising field of data science and artificial intelligence (AI) that integrates biological, bioengineering, and computational approaches, hold enormous potential to transform our ability to rapidly diagnose and treat cancer for individual patients. Furthermore, information from these databases can then be applied to larger populations to provide cancer care and decentralized clinical trials through digital and virtual means, extending the benefits of personalized cancer care to many more patients. There are also tremendous opportunities to create collaborative networks and partnerships between the nation's NCI-Designated Cancer Centers and other academic and community-based cancer centers, as well as health care organizations that serve diverse, underserved, and rural populations, assuring that all Americans can benefit from advances in cancer research; access to new diagnostics, therapeutics, and clinical trials; and education and training programs that will create a more diverse cancer workforce. These advances and collaborative partnerships transcend today's geographic and sociodemographic barriers to cancer health equity.

As the first and largest professional organization in the world dedicated to advancing every area of cancer science and medicine, the American Association for Cancer Research (AACR), with its convening power and broad scientific scope, is uniquely positioned

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to identify, support, and accelerate scientific priorities that lead to lifesaving discoveries. Thus, the directors of the nation's cancer centers have formally partnered with the AACR to serve as a catalyst in support of the centers' urgent need to marshal their resources and collaborate directly, effectively, and synergistically to address the nation's cancer mission and its challenges.

Specifically, in a series of historic meetings over the past year, the AACR invited cancer center directors from across the country to discuss how their individual institutions could further collaborate to accelerate the pace of discovery for patient benefit. There was unanimous enthusiasm for a set of transformational shared goals and strategic initiatives that will facilitate robust coordination among their institutions and the AACR. Therefore, a leadership committee of the nation's preeminent cancer center directors and the AACR's Board of Directors are pleased to announce the formation of the AACR Cancer Centers Alliance to further advance their collective cancer research mission.

The AACR Cancer Centers Alliance will bring together these world-class institutions with the goal of facilitating collaboration and markedly expanding their scope and impact for the benefit of all patients. A number of important areas of collaboration have been identified. However, the Alliance will initially focus on four main areas of collaboration:

- Basic and translational research
- Clinical research, clinical trials, and regulatory science and policy
- Education; training; professional advancement; and diversity, equity, and inclusion
- Speaking with a unified voice

The goals of the AACR Cancer Centers Alliance align with those of President Biden's Cancer Moonshot and the National Cancer Plan led by NCI Director Dr. Monica M. Bertagnolli. Since the Association of American Cancer Institutes (AACI) has historically focused on enhancing the role of cancer centers, the Alliance will identify opportunities for fruitful interactions with the AACI as part of this novel endeavor.

The Alliance will work synergistically to reduce the cancer burden by providing an ongoing mechanism for transferring new knowledge, sharing resources, developing national demonstration projects, and driving innovation that impacts cancer science, cancer care delivery, and science and health policy.

Basic and Translational Research

Basic research is fundamental to our understanding of the biological underpinnings of all human diseases, including cancer. Basic research discoveries funded by the National Institutes of Health (NIH) and the NCI have made major contributions to the identification of novel therapeutic targets and cancer drug development and have been the engine of the earliest phases of drug discovery. Currently, the nation's cancer centers typically work independently of one another to raise funds in support of their respective programs that are mainly local or regional in scope. This economic model can lead to competition among centers as well as to siloed and sometimes redundant efforts that are counterproductive to the vital mission of preventing and treating cancer. Developing innovative funding models and sharing best practices, specialized skills, and sophisticated core facilities among cancer centers will de-risk the most challenging research projects being undertaken by cancer scientists, among which are furthering the understanding of the biology of cancer and exploring opportunities

in drug discovery and development, computational science, bioengineering, and other areas of data science. Overall, this collective approach among cancer centers has the potential to accelerate advances in basic, population, and translational research related to the prevention, early detection, and treatment of cancer at both the national and international level.

Clinical Research, Clinical Trials, and Regulatory Science and Policy

Clinical trials are crucial to ensure the safety and efficacy of novel cancer treatments.

Advances in the understanding of cancer biology have enabled researchers in academia and the private sector to develop innovative clinical trial designs that increase efficiency and efficacy. However, this increased knowledge about the molecular and cellular biology of the heterogeneity of cancer has also generated a major need to further revamp the design of clinical trials that lead to the approval of new anticancer drugs. Although observations of clinical benefit that are made from the real-world use of a cancer therapeutic are increasingly being utilized to support U.S. Food and Drug Administration (FDA) decision-making and the acceleration of new drug approvals, more innovation is clearly needed.

Further, to design more inclusive clinical trials, the Alliance will work to provide cancer centers with additional opportunities to explore state-of-the-art technologies, including AI-driven approaches to harness real-world data and new technologies such as digital and platform approaches to develop and deliver decentralized and pragmatic trials to patients and communities beyond the centers' physical facilities. These novel approaches will allow our community to reach diverse, understudied, and underserved patients in more settings and thereby advance cancer health equity.

Clinical trials require significant resources and skilled clinical and administrative staff. Patient accrual is challenging due to numerous practical and financial barriers to enrollment, and unfortunately racial and ethnic minorities and individuals from disadvantaged, rural communities remain underrepresented in many clinical trials. Fostering a more collaborative and nationally integrated approach to clinical trials utilizing decentralized trials conducted in health care, community, and home settings can improve the diversity of patient populations in these important studies. As previously noted, the development of collaborative networks and partnerships among the nation's NCI Cancer Centers with other academic and community-based cancer centers and health care entities serving diverse and underserved populations has the potential to greatly enhance access to cancer clinical trials and new approaches to prevent and treat cancer for all patients. In addition, sharing knowledge and resources among cancer centers will maximize investments from sectors that facilitate and support clinical trials, including the NIH, the NCI, the Department of Defense, the FDA and other regulatory agencies, the biopharmaceutical industry, venture capitalists, cancer research foundations, patient advocacy groups, payors, and philanthropic and community organizations.

The Alliance will also help implement many regulatory science and policy initiatives that are needed to address the growing number of complex issues affecting cancer research and patient care, including the increasing number of medical interventions, data-sharing opportunities, and novel approaches to clinical research, all leading to the essential transformation of the delivery of cancer care.

Finally, in addition to partnering in the development and execution of clinical trials, the Alliance will explore ways to improve the sharing of clinical data, focusing at the outset on federated data network models. The research conducted at cancer centers generates a huge amount of scientific and clinical information. Ongoing challenges with the storage and interpretation of these data have impeded our community's understanding of cancer and have limited the progress that we can make for patients. A reevaluation of the legal, ethical, and financial issues pertaining to the best models for data sharing will lead to more progress in clinical research and improved cancer care.

Education; Training; Professional Advancement; and Diversity, Equity, and Inclusion

The concept of sharing resources also extends to the education and training of a robust and diverse cancer research workforce, which is vital to current and future advances in cancer research and to the ability to achieve cancer health equity. Additionally, it is essential to have a cancer research workforce that has a deep and diverse pipeline of future cancer leaders who will drive the many aspects of the cancer mission, ranging from answering broader scientific questions to delivering better informed and designed clinical trials with diverse, community-matching patient accruals. Cancer researchers—especially those who are early in their careers—have been negatively affected by the pandemic and its resultant economic uncertainty. It is therefore urgent that our community stabilizes and reverses this trend to realize the full potential of U.S.-based cancer research.

Cancer centers have begun to tackle these pressing challenges individually, but they recognize that collaborations will act as a “force multiplier” for such activities. By working together and sharing solutions through cancer education and training, they will strengthen their community of leaders and instill more optimism about professional careers in the cancer field. Creating new and inclusive opportunities for the next generation of cancer researchers and clinicians will create a workforce that is reflective of the diverse communities they serve. Cancer center directors strongly feel that now is the time to collectively examine all structural and systemic biases in the cancer research and care enterprise, and by doing so our community will be able to accelerate progress against cancer together.

Speaking with a Unified Voice

Too few Americans and others across the globe understand the critical role that our nation's cancer centers have in driving the cancer research mission, transforming cancer care, training the cancer workforce, engaging the communities they serve, and addressing diversity and cancer health equity in all its forms. The nation's cancer centers

share the responsibility of stimulating continued progress against cancer to improve, extend, and save more lives from cancer. Directly impacting the patients and communities that need to be served across the nation, and indeed across geographies and diverse populations, is one of the vital goals of the Alliance. Through the Alliance, the centers will speak with a unified voice to address the key priorities in cancer science, clinical trials, and patient care; issues related to science and health policy and cancer health equity; and the urgent need to develop innovative, robust, and sustainable funding research models. Since cancer centers are the recipients of a significant portion of the NCI budget, it is imperative that the most effective approaches are designed and implemented to ensure that these precious funds are leveraged in a manner that maximizes progress against cancer. To achieve this vision for the future, the AACR will apply its substantial resources and multidisciplinary expertise to help amplify these messages to policymakers, the cancer community at large, and the public, and thereby maximize progress in addressing today's challenges in the cancer field.

In Conclusion

The AACR Cancer Centers Alliance is an innovative approach to fostering synergistic collaborations that will address the many hurdles currently facing the nation's cancer centers and thus accelerate transformative breakthroughs for patients with cancer. While individual cancer centers have already greatly benefited cancer patients, their overall impact will be markedly amplified by working together. The Alliance will extend the opportunities for enhanced collaborations that are currently being made by the NCI through cooperative groups and numerous other initiatives. By prioritizing collaborations that maximize synergies across cancer centers and that leverage each center's unique strengths, the Alliance will be a powerful force in accelerating the pace of cancer discovery, fostering health equity, and saving more lives from cancer.

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