DEPARTMENT OF HEALTH AND HUMAN SERVICES
PUBLIC HEALTH SERVICE
NATIONAL INSTITUTES OF HEALTH
NATIONAL CANCER INSTITUTE

17th JOINT MEETING
of the
BOARD OF SCIENTIFIC ADVISORS AND
NATIONAL CANCER ADVISORY BOARD

Summary of Meeting
3 December 2024

Conference Room TE406, East Wing, Shady Grove Campus
National Cancer Institute
National Institutes of Health
Bethesda, Maryland

BOARD OF SCIENTIFIC ADVISORS and
NATIONAL CANCER ADVISORY BOARD JOINT MEETING
BETHESDA, MARYLAND
Summary of Meeting
3 December 2024

The Board of Scientific Advisors (BSA) of the National Cancer Institute (NCI) and the National Cancer Advisory Board (NCAB) convened for the 17th Joint Meeting on 3 December 2024 in Conference Room TE406, East Wing, Shady Grove Campus, NCI, National Institutes of Health (NIH), Bethesda, Maryland. The meeting was open to the public on Tuesday, 3 December 2024, from 9:04 a.m. to 3:58 p.m., and was closed to the public on Tuesday, 3 December 2024, from 8:00 a.m. to 8:57 a.m. The NCAB Chair, Dr. John D. Carpten, Director, Comprehensive Cancer Center, Director and Chief Science Officer, Beckman Research Institute of City of Hope, and the BSA Chair, Dr. Shelton Earp, Lineberger Professor of Cancer Research, Lineberger Cancer Center, and Director, UNC Cancer Care, University of North Carolina at Chapel Hill, presided during the open sessions. Dr. Carpten presided during the closed session. In the open sessions, the BSA considered new requests for applications (RFAs), cooperative agreements (Coop. Agr.), and program announcements with special receipt, referral, and/or review (PARs) of new and re-issue concepts presented by NCI program staff.

BSA Members

Dr. Shelton Earp (Chair)
Dr. Chandrakanth Are
Mr. Timothy Babich (absent)
Dr. Suzanne J. Baker (absent)
Dr. Karen M. Basen-Engquist
Dr. Andrew T. Chan
Dr. Nelson J. Chao
Dr. Suzanne D. Conzen
Dr. Gloria D. Coronado
Dr. Mark P. Doescher
Dr. Chyke A. Doubeni
Dr. Debra L. Friedman
Dr. Jennifer R. Grandis
Dr. William C. Hahn
Dr. Dorothy K. Hatsukami
Dr. Trey Ideker
Dr. Michelle M. Le Beau
Dr. Ana Maria Lopez
Dr. Wells A. Messersmith
Dr. Karen M. Mustian
Dr. Lisa A. Newman
Dr. Raymond U. Osarogiagbon
Dr. Katharine A. Rendle
Dr. Erle S. Robertson
Dr. Charles M. Rudin
Dr. Cornelia M. Ulrich
Dr. Samuel L. Volchenboum
Dr. George J. Weiner
Dr. Kris C. Wood
Dr. Richard C. Zellars

NCAB Members

Dr. John D. Carpten (Chair)
Ms. Margaret Anne Anderson (absent)
Dr. Nilofer S. Azad
Dr. Richard J. Boxer
Dr. Callisia N. Clarke
Dr. Luis Alberto Diaz, Jr.
Dr. Andrea A. Hayes Dixon (absent)
Ms. Ysabel Duron
Dr. Karen M. Emmons
Ms. Tamika Felder
Dr. Christopher R. Friese
Ms. Julie Papanek Grant
Dr. Amy B. Heimberger
Dr. Ana Navas-Acien
Dr. Edjah K. Nduom
Dr. Kimberly Stegmaier*
Dr. Fred K. Tabung
Dr. Ashani T. Weeraratna
Dr. Karen M. Winkfield

President's Cancer Panel

Dr. Elizabeth M. Jaffee (Chair)
Dr. Mitchel S. Berger (absent)
Dr. Carol L. Brown (absent)

* Pending appointment

Alternate *Ex Officio* NCAB Members

Dr. John Gordon, CPSC
Dr. Joseph R. Graber, DOE
Dr. Michelle Heacock, NIEHS
Dr. Michael Kelley, VA (absent)
Dr. Richard Pazdur, FDA (absent)
Dr. Craig D. Shriver, DoD (absent)
Dr. Kerry Souza, NIOSH (absent)
Dr. Lawrence A. Tabak, NIH (absent)

Members, Scientific Program Leaders, National Cancer Institute, NIH

Dr. W. Kimryn Rathmell, Director, National Cancer Institute
Dr. Jill S. Barnholtz-Sloan, Acting Director, Center for Biomedical Informatics and Information Technology
Dr. Shaalan Beg, Senior Advisor for Clinical Research
Dr. Oliver Bogler, Director, Center for Cancer Training
Dr. Philip E. Castle, Director, Division of Cancer Prevention
Dr. Stephen J. Chanock, Director, Division of Cancer Epidemiology and Genetics
Dr. James H. Doroshow, Director, Division of Cancer Treatment and Diagnosis
Dr. Dan Gallahan, Director, Division of Cancer Biology
Mr. Peter Garrett, Director, Center for External Affairs
Dr. Katrina A.B. Goddard, Director, Division of Cancer Control and Population Sciences
Dr. Satish Gopal, Director, Center for Global Health
Dr. Paulette S. Gray, Director, Division of Extramural Activities
Dr. James Gulley, Acting Co-Director and NCI Clinical Director, Center for Cancer Research
Dr. Ed Harlow, Special Advisor to the NCI Director
Dr. Toby T. Hecht, Deputy Director, Division of Cancer Treatment and Diagnosis
Dr. Warren A. Kibbe, Deputy Director for Data Science and Strategy
Dr. Kristin Komschlies McConville, Director, Office of Scientific Operations, NCI at Frederick
Ms. Amber Lowery, Executive Officer and Deputy Director for Management, Office of the Director
Dr. Douglas R. Lowy, Principal Deputy Director, National Cancer Institute
Dr. Glenn Merlino, Acting Co-Director and Scientific Director for Basic Research, Center for Cancer Research
Dr. Margaret Mooney, Associate Director, Cancer Therapy Evaluation Program
Dr. Diane Palmieri, Director, Center for Research Strategy, and Executive Secretary, Office of the Director
Dr. Krzysztof Ptak, Acting Director, Office of Cancer Centers
Dr. Henry Rodriguez, Director, Office of Cancer Clinical Proteomics Research
Mr. Jeffrey Shilling, Chief Information Officer and Chief of Infrastructure and Information Technology Services Branch, Center for Biomedical Informatics and Information Technology
Dr. Dinah S. Singer, Deputy Director, Science Strategy and Development
Dr. Sanya A. Springfield, Acting Deputy Director, Strategic Engagement, Director, Center for Cancer Health Equity
Dr. Carol J. Thiele, Acting Co-Director, Center for Cancer Research
Mr. Michael Weingarten, Director, Small Business Innovation Research and Small Business Technology Transfer Programs
Dr. Robert Yarchoan, Director, Office of HIV and AIDS Malignancy

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I. NCAB CLOSED SESSION—DR. JOHN D. CARPTEN

"This portion of the meeting was closed to the public in accordance with the provisions set forth in Sections 552b(c)(6), Title 5 U.S.C., and section 1009(d) of the Federal Advisory Committee Act, as amended (5 U.S.C. §§ 1001-1014)."

There was a discussion of personnel and proprietary issues. Members absented themselves from the meeting during discussions for which there was potential conflict of interest, real or apparent.

II. CALL TO ORDER AND OPENING REMARKS—DRS. JOHN D. CARPTEN AND SHELTON EARP

Dr. John D. Carpten called to order the 17th Joint Board of Scientific Advisors (BSA) and National Cancer Advisory Board (NCAB) meeting. He welcomed members of the Boards, NCAB *ex officio* members, President's Cancer Panel members, liaison representatives, staff, and guests. Members of the public were welcomed and invited to submit to Dr. Paulette S. Gray, Director, Division of Extramural Activities (DEA), National Cancer Institute (NCI), in writing and within 10 days, any comments regarding items discussed during the meeting. Dr. Carpten reviewed the confidentiality and conflict-of-interest practices required of Board members in their deliberations.

Dr. Carpten and Dr. Shelton Earp called Board members' attention to the future meeting dates listed on the agenda and NCI DEA's website.

Motion. A motion to accept the minutes of the 4 September 2024 NCAB meeting was approved unanimously.

III. NCI DIRECTOR'S REPORT—DR. W. KIMRYN RATHMELL

Dr. W. Kimryn Rathmell, Director, NCI, welcomed members of both the BSA and NCAB to the 17th Joint Meeting of these Boards. Dr. Rathmell reported on NCAB and BSA appointments, recent news and updates, the budget outlook, and research and program highlights.

Dr. Rathmell explained that because of anticipated changes in Congress, no legislative update will be provided during this meeting. She called attention to the detailed, written legislative update in the Boards book. Dr. Rathmell remarked that this has been a particularly busy time for NCI and that cancer researchers are well equipped to handle uncertainty and accustomed and trained to deal with ambiguity in these situations. Cancer researchers also understand that other constants are the impact of their research and their role in communicating with the greater public about health. She emphasized not wavering from the goals articulated in the National Cancer Plan to end cancer as we know it and to avoid becoming distracted by uncertainty. NCI's focus in this update is on momentum and advances in cancer.

NCAB and BSA Appointments. Dr. Rathmell welcomed reappointed NCAB member, Dr. Luis Alberto Diaz, Jr., Head, Division of Solid Tumor Oncology, Grayer Family Chair in Medicine, Department of Medicine, Memorial Sloan Kettering Cancer Center, and new NCAB member, Dr. Kimberly Stegmaier, Professor of Pediatrics, Harvard Medical School, Ted Williams Investigator, Dana-Farber Cancer Institute, Vice Chair of Research, Pediatric Oncology, Co-Director, Pediatric Hematologic Malignancies Program, Dana-Farber/Children's Hospital Cancer Center, Institute Member, Broad Institute of Harvard and MIT, pending appointment.

Dr. Rathmell welcomed new BSA members: Dr. Suzanne D. Conzen, Professor and Division Chief, Department of Medicine, The University of Texas Southwestern Medical Center; Dr. Debra L. Friedman, Deputy Director, Vanderbilt-Ingram Cancer Center; Dr. William C. Hahn, William Rosenberg Professor of Medicine, Department of Medicine, Harvard Medical School; Dr. Wells A. Messersmith,

Professor and Head, Division of Medical Oncology, Department of Medicine, University of Colorado School of Medicine; Dr. Katharine A. Rendle, Assistant Professor, Department of Family Medicine and Community Health, University of Pennsylvania; Dr. Charles M. Rudin, Deputy Director, Memorial Sloan Kettering Cancer Center; Dr. George J. Weiner, C.E. Block Chair of Cancer Research and Professor, Department of Internal Medicine, The University of Iowa; and Dr. Kris C. Wood, Associate Professor, Department of Pharmacology and Cancer Biology, Duke University. Dr. Rathmell noted that Dr. Andrea Hayes Dixon, Dean, Howard University College of Medicine, has retired from the National Cancer Advisor Board.

NCI Recent News and Updates. Dr. Rathmell acknowledged NCI leaders and the senior leadership team, including Cancer Moonshot™ leaders Dr. Douglas R. Lowy, Principal Deputy Director, NCI, and Dr. Dinah S. Singer, Deputy Director, Science Strategy and Development. She announced recent leadership changes: Dr. Warren A. Kibbe is the Deputy Director for Data Science and Strategy; Dr. Kristin Komschlies is the Associate Director, Office of Scientific Operations, NCI at Frederick; Ms. Amber Lowery is the Executive Officer and Deputy Director for Management, Office of the Director; Dr. Sanya A. Springfield is the Acting Deputy Director, Strategic Engagement; Dr. Shaalan Beg is the Senior Advisor for Clinical Research; and Mr. Peter Garrett is the Director, Center for External Affairs (CEA). The CEA is a new NCI Center that brings together and oversees the work of the Office of Advocacy Relations, the Office of Communications and Public Liaison, and the Office of Government and Congressional Relations to amplify and optimize how NCI communicates scientific efforts and advances.

Dr. Rathmell also noted recent senior leadership transitions, organizational changes, and accolades. Dr. Louis M. Staudt has stepped down as Director, Center for Cancer Genomics and will continue as Chief, Lymphoid Malignancies Branch, Center for Cancer Research (CCR), NCI. Dr. Staudt also will focus on the Clinical Trial Innovation Network. NCI recognized the Center for Cancer Genomics as a resource to synergize the extramural community and noted that cancer genomics is widely used in cancer research laboratories. To improve this synergy and efficiency, NCI has made an administrative change to move the Center for Cancer Genomics from being a stand-alone entity to being housed in the Division of Cancer Biology's Office of Cancer Genomics. Dr. Rathmell congratulated two intramural investigators on their recent accomplishments in cancer research and in professional societies. Dr. Steven Rosenberg, Chief, Surgery Branch, CCR, was honored for his 50 years of excellent service to NCI in pioneering research to improve the lives of people with cancer and was recognized for his contribution to immunology at NCI's September 2024 scientific symposium, "Past, Present, and Future of Cellular Immunotherapy." Dr. Stephen J. Chanock, Director, Division of Cancer Epidemiology Genetics, was elected to the National Academy of Medicine.

In July 2024, NCI hosted its first Annual Scientific Priorities Retreat. Attendees included representatives from NCI divisions, centers, and offices; chairs from the seven Boards/Committees; and members of the extramural community. The goal was to survey the landscape of cancer initiatives to identify focus areas where NCI can demonstrate output and value to the public. Dr. Rathmell highlighted the key themes of the retreat: Demonstrate trust and trustworthiness and understand what it means to develop trust and where to be proactive. NCI is considering formation of a working group to focus on the science of trust; support artificial intelligence (AI) and data science, which are crosscutting and powerful communication tools that fit into the trust focus; and understand how science is communicated and recognize where it fits regarding training and cancer biology in general. Other themes include research on prevention, immunology, obesity, vaccines, and early onset cancers, which will be discussed later in the meeting.

In November 2024, the President's Cancer Panel released its report on "Enhancing Patient Navigation with Technology to Improve Equity in Cancer Care," which included four priorities and recommendations for developing this technology. A detailed update will be provided later in the meeting. NCI hosted the Annual NCI-Designated Cancer Center (Cancer Center) Directors Meeting in September 2024 and discussed four topics: empowering and recognizing work that crosses cancer boundaries (e.g., chimeric antigen receptor T-cell therapy); enabling nationwide efforts to achieve unifying cancer goals

across the 72 Cancer Centers; making the Cancer Centers Support Grants (CCSG) renewal process less burdensome; and engaging communities. NCI is planning to hold a retreat in early 2025 to discuss the CCSGs with the administrative directors, who are key staff in the day-to-day operations of the Cancer Centers. NCI is striving to develop a more collaborative relationship with the Cancer Centers in the future.

NCI Budget. Dr. Rathmell focused her budget update on the NCI Fiscal Year (FY) 2026 Annual Plan and Professional Judgment Budget Proposal (also called the Bypass Budget), which estimates the cost of the work that NCI is expected to perform and is reported directly to Congress. The Annual Plan and Budget Proposal for FY 2026, released in September, includes three vignettes (i.e., three cancer research stories) to help readers understand the value of NCI's work. The first is about a clinical trial participant with non-Hodgkin's lymphoma refractory to all conventional therapies who has been disease free for three years since starting on the venetoclax, ibrutinib, prednisone, obinutuzumab, and lenalidomide (ViPOR) trial. ViPOR demonstrates the outcome of combining the knowledge, skills, and tools available in cancer research today. Dr. Staudt will focus on advancing ViPOR from a small proof-of-concept study to a larger clinical trial. The second vignette features an early-career investigator studying pre-cancers in low-resource settings and cervical cancer prevention, highlighting the importance of supporting the next generation of cancer researchers and enabling tools, resources, and skill building to succeed in this environment. The third vignette describes a company supported by NCI's Small Business Innovation Research (SBIR) program investigating a novel approach using a targeted imaging molecule to detect tumor cells in the operative field to help surgeons have the best outcomes for their patients. This candidate molecule is advancing through the drug development pipeline to commercialization and highlights the value of NCI's SBIR program. The Annual Plan also highlights four scientific priorities: tackling the emergence of early-onset cancers in young adults; approaching cancer as a disease that affects the entire body; alleviating financial toxicity for cancer survivors and caregivers; and expanding the utility of cancer-targeting vaccines.

In previous FY 2023 to FY 2025 Professional Judgment Budgets, NCI sequentially increased the proposed budgets. The FY 2026 proposal remains at the proposed FY 2025 level, $11 billion (B), which is a significant increase above the FY 2024 proposal of $9.9 B (of which NCI received $7.2 B enacted). In FY 2024, NCI had a net decrease in appropriations. Additional details about this decrease will be provided later in the meeting.

The federal government is operating under a continuing resolution (CR) until 20 December 2024; therefore, the FY 2025 budget is pending. NCI kept the FY 2026 proposal at the previous level for two reasons. The FY 2025 proposal reflected a significant increase above the current enacted budget. NCI is realistic about the financial constraints in this budget environment and is an effective steward of the federal dollars allocated.

With an increase in appropriations, NCI would be able to fund grants at a level befitting today's cancer research and support innovative ideas that may otherwise go unfunded due to paylines in the single digits. An increase also would support work outlined in NCI's strategic priorities that rely on an infrastructure to conduct clinical research across the nation and within additional communities. The BSA *ad hoc* Working Group in Support of Efforts to Enhance Community Cancer Research and Quality Care will provide its report later in the meeting on improving community engagement in clinical research and bringing clinical research to the 80 percent of patients who are receiving care outside of academic centers. In addition, NCI plans to continue investing in infrastructure to support research in financial toxicity, behavioral health, obesity, and nutrition.

From FY 2023 to FY 2024, both the rate and number of R01 and R37 applications were stable; however, they significantly increased for two cycles in FY 2025. This will subsequently result in a decrease in the number of grants that NCI awards. Given this trend, NCI established interim paylines for FY 2025 at the 9th percentile for R01 grants to established and new investigators, 15th percentile for R01

grants to early-stage investigators (ESIs), and 7th percentile for R21 exploratory grants. Noncompeting grants will be funded at 90 percent of the committed level.

Cancer Research and Program Highlights. Dr. Rathmell reported on recent research advances across NCI infrastructure projects that bring new data into the field. The Human Tumor Atlas Network recently published 10 new studies in October 2024 in various *Nature* journals on using three-dimensional (3-D) capabilities to visualize how tumors develop, spread, and respond to treatments. NCI researchers and collaborators published in the November issue of *Nature Cancer* the results of a study to uncover a new role of mutant RAS involving transport of specific proteins in the nucleus, with implications for improving treatment. Division of Cancer Control and Population Sciences (DCCPS) investigators reported in the October issue of the *Journal of the National Cancer Institute* that more than 2.1 million (M) cancer survivors in the United States are diagnosed between the ages of 15 and 39 years. NCI has implemented key initiatives and advances to modernize clinical studies. Myeloid Malignancies Molecular Analysis for Therapy Choice, which is a successor to NCI precision medicine trials, was launched in October 2024. The aim is to evaluate innovative methods for treating myelodysplastic syndromes or acute myeloid leukemia over the course of the disease, customizing treatment as the disease evolves. The Pragmatica-Lung Cancer Treatment Trial, launched in April 2023, is a streamlined model that removes barriers to accessing clinical studies that are related to enrollment eligibility and consent for a Phase 3 clinical trial. In November 2024, the National Library of Medicine and NCI researchers introduced TrialGPT, an AI algorithm that can help match potential volunteers to clinical trials more quickly.

Dr. Rathmell asked the BSA and NCAB members to provide input on ways that NCI can better utilize existing networks and partnerships to advance NCI's goals for cancer. She also asked the group to consider what can be leveraged now to more effectively share knowledge, data, and opportunities to partner and solve problems.

Questions and Answers

Dr. Edjah K. Nduom, Daniel Louis Barro Endowed Chair, Professor, Department of Neurosurgery, Emory University School of Medicine, Brain Tumor Disease Leader, Winship Cancer Institute, asked about increasing awareness in academia and among the public about NCI's new initiatives, such as those related to early-onset cancers and cancer screening. Dr. Rathmell noted that NCI has been communicating these updates across its media outlets, including podcasts, panels, and journal articles. Mr. Garrett noted that the Boards are the best ambassadors for communicating NCI's initiatives and can work with NCI's Office of Communications and Public Liaison on potential approaches. Dr. Karen M. Emmons, Professor, Department of Social and Behavioral Science, Harvard T.H. Chan School of Public Health, suggested that the messaging be framed in a way that considers cancer as a chronic disease as one way to engage the public on the directions that NCI and all of government is taking to address cancer.

Dr. Cornelia M. Ulrich, Chief Scientific Officer and Executive Director, Comprehensive Cancer Center, Huntsman Cancer Institute, University of Utah, commented on how the single-digit R01 paylines are a challenge for maintaining morale and efficiency in the cancer research community and asked Dr. Rathmell to comment further. Dr. Rathmell explained that the decision to reduce paylines was challenging and made only after NCI issued additional reductions across all its divisions, offices, and centers to non-personnel budgets, in addition to the reductions made two years prior. NCI also made reductions to the intramural program. In addition, CCR has operated under a hiring freeze for the last several months.

IV. RECOGNITION OF RETIRING NCAB MEMBER—DR. W. KIMRYN RATHMELL

On behalf of NCI, Dr. Rathmell recognized the contributions of Dr. Andrea Hayes Dixon, Dean, Howard University College of Medicine, Vice President of Clinical Affairs, Chair of Surgery, Howard University Hospital. Dr. Rathmell expressed appreciation for Dr. Hayes Dixon's service, talents, and

dedication as an NCAB member from 2020 to 2024. Dr. Hayes Dixon was appointed Chair of the National Institutes of Health (NIH) Scientific Management Review Board in September 2024 and will be assisting NIH in its structural focus.

V. BUDGET OVERVIEW—MR. WESTON RICKS AND DR. DOUGLAS R. LOWY

Mr. Weston Ricks, Director, Office of Budget and Finance, NCI, reviewed the budget landscape for NCI activities over time. He expressed appreciation to Ms. Tenille McCatty and Ms. Linli Liu of the NCI Office of Extramural Finance and Information Analysis, as well as to Dr. Christine Burgess, NCI Center for Research Strategy, for their support in updating budget data for this presentation. Mr. Ricks first noted that the current CR covers 1 October 2024 through 20 December 2024 and that NCI received a prorated appropriation of 22.19 percent funding for 81 days. To manage within this funding environment, NCI implemented an interim budget to fund noncompeting grants at 90 percent of the committed level and to reduce internal operating costs. He assured the BSA and NCAB members that these operating conditions were standard for NCI and other NIH institutes, centers, and offices under a CR.

Mr. Ricks summarized the FY 2025 and FY 2026 appropriations timelines. The Professional Judgment Budget for FY 2025 was released on 20 September 2023. He reiterated that NCI was awaiting congressional action on FY 2025 budget appropriations. Throughout the coming months, NCI will be developing the FY 2026 budget in response to the President's request and will publicly release this information by April 2025. Mr. Ricks noted that NCI has operated under a CR in all but 3 of the last 48 fiscal years. He stated that operating under a CR comes with restrictions and uncertainties to which NCI must adapt.

Mr. Ricks summarized several aspects of research and operations that consume the NCI budget, starting with inflation. The Biomedical Research and Development Price Index (BRDPI), an inflationary price index associated with biomedical research, is managed by NIH. The BRDPI is released annually, and for NCI, it shows that in 2003, the buying power and the budget (normalized) were the same but became unsynchronized in 2013. Although NCI has had significant budget increases, it has not yet reached the parity of 2003. NCI has 15 percent less buying power in 2024 than in 2003 due to inflation. To maintain operations in FY 2025 with the current 15 percent loss in buying power, NCI will need $181 M in additional appropriations. Another aspect to consider is budget authority. Sequestration was initiated in FY 2013, which required NIH to reduce 5 percent, or $1.55 B, across all programs, projects, and activities. NCI lost $250 M post-appropriation, which required withdrawal and restructuring of the budget. In addition, Cancer Moonshot funding ended in FY 2023. Although Congress provided additional base appropriations funding in FY 2024 to offset this reduction, NCI's overall budget was still reduced compared to FY 2023. Mr. Ricks emphasized that Cancer Moonshot activities are transitioning to the regular budget appropriation, and NCI remains committed to advancing its research, as exemplified by the cost of the Research Project Grant (RPG) pool, to which NCI annually commits more than $2 B. Another factor is the cost of mandatory operating needs (e.g., cybersecurity, program evaluation, infrastructure) across the federal government, which continues to increase.

Mr. Ricks highlighted the budget actions from 2018 through 2025, comparing the Professional Judgment Budget, the President's budget request, and the House, Senate, and enacted budgets for NCI. He stressed that the enacted budget authority is historically lower than NCI's Professional Judgment Budget. Even with these constraints, NCI is committed to operating in a fiscally responsible manner while funding the best possible science.

Dr. Douglas R. Lowy, Principal Deputy Director, NCI, provided an overview of the RPG pool and changes in grant applications to NCI over time. He noted that NCI funds many critical components of cancer research through mechanisms outside the RPGs, including Specialized Programs of Research Excellence (SPORE), CCSGs, cancer training, and clinical trials networks. From FY 2013 to FY 2024, the rate of applications submitted to NCI increased, with twice as many applications to NCI compared with other NIH institutes and centers (ICs). The percentage of NCI modular awards (up to $250,000 in

direct costs) has progressively decreased from 63 percent in FY 2012 to 8 percent in FY 2024. During this same period, the number of NCI nonmodular awards (greater than $250,000 in direct costs) increased from 38 percent to 92 percent. NCI prioritizes providing more awards with less funding, rather than fewer awards with more funding.

From FY 2023 to FY 2024, for experienced investigators, the number of awards from unsolicited applications decreased more than 20 percent, from 893 to 724. NCI has continued funding approximately 125 to 130 ESI awards annually. The paylines for ESI R01/R37 remain at the 17th percentile in FY 2024. The percentage of ESI applications in the pool of NCI R01/R37 applications remains approximately 13 percent annually. NCI has been funding a higher percentage of ESI awards, including 15 percent in FY 2023 and 19 percent in FY 2024.

Dr. Lowy discussed the possible impact of a constrained budget on NCI activities. He highlighted areas NCI can consider prioritizing, including developing new standards of care rather than funding research to increase the uptake of current standards of care or decreasing the number of CCSGs, Cancer Centers, and SPORE grants. NCI must make difficult decisions when establishing priorities among developing new standards of care, reducing the investments in RFAs to protect new investigator-initiated research, funding noncompeting RPG awards at less than 100 percent of the commitment level, and maintaining the number of extramural trainees through specific trainee award mechanisms.

Questions and Answers

In response to a question from NCAB Chair Dr. Carpten about whether the trends in modular versus nonmodular awards were being observed in other ICs, Dr. Lowy confirmed that the trends were similar across ICs.

Dr. Christopher R. Friese, Vice Provost, Academic and Faculty Affairs, Elizabeth Tone Hosmer Professor of Nursing, Professor of Health Management and Policy, Associate Director, Cancer Control and Population Sciences, Rogel Cancer Center, University of Michigan, asked about approaches for increasing the accessibility and availability of the SBIR program to extramural investigators as a more flexible financial mechanism to leverage. Dr. Lowy responded that Mr. Michael Weingarten, Director, NCI SBIR Development Center, had noted in prior meetings of these Boards that efforts are underway to expand the utilization and opportunities for SBIR grants. Dr. Lowy also highlighted NCI's new approach to providing translational research support for researchers developing new interventions.

Dr. Ulrich suggested developing impact statements that can serve as talking points for Congress and the cancer research community. These statements would highlight the effects of NCI's reduced funding of meritorious research projects and the consequences of NCI-wide hiring freezes. She noted that researchers are spending most of their time writing proposals rather than conducting research. Dr. Lowy responded that a large portion of meritorious grants submitted to NCI are not funded and that NIH peer-review study sections spend the same amount of time reviewing applications even when fewer applications are funded.

Dr. Ana Maria Lopez, Professor, Medical Oncology and Integrative Medicine (ABOIM) & Nutritional Sciences, Director, Integrative Oncology, Associate Director, Diversity, Equity, and Inclusion, Sidney Kimmel Cancer Center, NCI-Designated, Thomas Jefferson University, suggested assessing the financial infrastructure of certain networks or platforms (e.g., professional societies' obesity grant supplements, primary care clinics, advocacy groups) for effectively advancing the science being discovered in cancer research. She also recommended leveraging existing models, such as the Association of American Medical Colleges' Project Medical Education, which could convey the impact of NCI's budget reductions.

Ms. Julie Papanek Grant, General Partner, Canaan, proposed the use of clear language that includes examples on affordability, employment, trial recruitment, and patient treatment when describing the effects on the public of funding fewer cancer-related R01 grants. Dr. Lowy responded that, on

average, grantees have 1.3 awards, and it would be difficult to measure the examples mentioned although there is a clear impact on their careers.

Dr. Karen M. Mustian, Dean's Professor of Oncology and Surgery, Departments of Surgery, Radiation Oncology and Public Health Sciences, University of Rochester School of Medicine and Dentistry, recommended reviewing metrics on whether the decrease in modular grant applications can be attributed to an increase in multiple principal investigator (MPI) grants based on a team science approach implemented across Cancer Centers. Dr. Lowy explained that MPI awards have significantly increased in the last 15 years from 5 percent to more than 30 percent, and the total number of principal investigators (PIs) being supported by NCI has not decreased significantly.

VI. PRESIDENT'S CANCER PANEL UPDATE—DR. ELIZABETH M. JAFFEE

Dr. Elizabeth M. Jaffee, Professor of Oncology, The Dana and Albert "Cubby" Broccoli, Deputy Director, Sidney Kimmel Cancer Center, Co-Director, Gastrointestinal Cancers Program, Johns Hopkins University, Chair of the President's Cancer Panel (Panel), provided an update on the Panel's recent report "Enhancing Patient Navigation with Technology to Improve Equity in Cancer Care." The three-member panel was established by the National Cancer Act of 1971 to monitor the development and execution of the activities of the National Cancer Program and report directly to the President, and its main activity is identifying high-priority topics for which actionable recommendations can be made.

Patient navigation in cancer care is a person-centered health care service delivery model that aims to overcome individual barriers (e.g., transportation access to chemotherapy appointments) and systemic barriers (e.g., navigating the complex medical system). Participants in this model can include health care workers (e.g., patient navigators, community health workers, social workers, physicians, nurses, and other members of health care teams). Navigation activities include coordinating care, connecting patients with financial and psychosocial resources, and providing health education. Dr. Jaffee highlighted that technology, including AI, will be key to providing patient care coordination and matching patients to clinical trials.

Certain populations are more likely to experience barriers to cancer care, including minorities; rural communities; lesbian, gay, bisexual, transgender, and queer (LGBTQ) communities; individuals with limited educational attainment; and individuals with disabilities. Patient navigation has been shown to reduce cancer care disparities and facilitate access to high-quality care, but Dr. Jaffee emphasized that key challenges still need to be addressed. She also added that patient navigation is now a reimbursable Medicare cost, but services remain limited because implementation efforts are still ongoing.

Dr. Jaffee highlighted the Panel's recommendations, which encompassed four priority areas: use technology to support navigation and achieve equity; ensure equitable access to technology; promote responsible development and use of technology; and maintain privacy and security while promoting data sharing. To improve interoperability and identify opportunities for a national legal framework, the following fundamental principles guided the implementation of panel priorities and recommendations: Technology is a supplement to patient care, technology should be responsibly developed, access to technology should not be a requirement to high-quality care, and technology should help achieve equity.

The Federal Communications Commission's Affordable Connectivity Program (ACP) provided crucial financial support to subsidize household internet access. Currently, one in six households rely on this program. ACP funding concluded in May 2024, which has limited access to online scheduling and telehealth appointments. The Panel recommends reinstating funding for the ACP using the Universal Service Fund to ensure patients have access to broadband internet.

To close gaps in cancer outcomes, the Panel recommends providing incentives to develop and test technology that addresses health disparities. Technological development should adhere to core principles that focus on promoting patient–to–care team interactions and equity. Technology that supports cancer

patient navigation should undergo continuous assessment and improvements to ensure the tools effectively support user needs and avoid unintended consequences.

In the fall of 2023, the Panel commenced a series of meetings with National Cancer Program stakeholders to discuss navigation needs, technological opportunities, and policy considerations at the intersection of technology and patient navigation. Representatives from academia, government, health care systems, patient advocates, patient navigators, private-sector industry, technology innovators, societies, and associations were invited to provide their input during these three 1-day meetings. The main concepts discussed included technological solutions to current challenges related to patient navigation, how to build and maintain patient trust regarding new tools introduced into the health care systems, how to involve end users throughout the development process to ensure their needs are addressed, and how to address current policies and regulations that do not sufficiently protect patient information.

The key takeaways from these meetings informed the Panel's first report, which was released in February 2024. It provided five recommendations based on an initial assessment of the National Cancer Plan. The recommendations were to increase investment in biomedical research; ensure access to high-quality insurance coverage for all; build a sustainable, robust, and diverse workforce; promote dynamic and sustainable community engagement; and prioritize data sharing and integration to accelerate research. The Panel's second report will be released to the President in 2025. The Panel reviewed both the clinical research and clinical care workforces, and the report will focus on how to develop and retain a robust and diverse cancer workforce as well as identify challenges and opportunities across the National Cancer Program.

Questions and Answers

Dr. Mark P. Doescher, Professor, Department of Family and Preventative Medicine, College of Medicine, University of Oklahoma Health Sciences Center, suggested the panel consider including primary care with screenings and diagnostic exams in the navigation of the cancer care continuum. He stated that technology should be incorporated when primary care staff in non-oncology settings communicate with oncologists. Dr. Jaffee agreed that concern was shared by the Panel. She elaborated that, to have a defined scope, the Panel recommended patient navigation begin when suspicion of cancer (e.g., a lesion) is observed. However, initial screening could be incorporated as another opportunity to begin navigation.

Dr. Trey Ideker, Professor, Department of Medicine, University of California, San Diego, asked which entity would pay for access to basic technology (e.g., Wi-Fi). Dr. Jaffee responded that a government program pays for this access, not NCI.

Dr. Samuel L. Volchenboum, Associate Professor of Pediatrics, Director, Pediatric Cancer Data Commons, Pritzker School of Medicine, University of Chicago, recommended leveraging the proposed navigation technologies to improve conditions for cancer survivors and implement survivorship initiatives. Dr. Jaffee responded that this challenge was discussed and relies on the expansion of the proposed technological infrastructure.

Ms. Ysabel Duron, Founder and Executive Director, The Latino Cancer Institute, asked how social health determinants and disaggregation of subpopulation data will be addressed. Dr. Jaffee responded that the goal is to pull issues such as lack of transportation or housing and food insecurity from electronic health records (EHRs) and make them available to navigators. She mentioned that this critical component is gaining more attention within the health systems.

Dr. Chandrakanth Are, Jerald L. and Carolyn J. Varner Professor in Surgical Oncology and Global Health, Associate Dean for Graduate Medical Education, University of Nebraska Medical Center, appreciated the emphasis on human compassion within the health care system. He stated that 30 percent of hospital leaders want to introduce virtual nursing, which removes person-to-person interactions, and he wondered how to use this technology without losing such interactions. Dr. Jaffee emphasized that the

recommendations within the report would not replace human navigation and would increase the time available for navigators to spend with patients. Dr. Are mentioned concern about the cost of treatment and asked how value-based care could be introduced. Dr. Jaffee agreed, stating that a national-level review is required, although it is beyond the scope of the recommended technology.

VII. EARLY ONSET CANCER INITIATIVE—DRS. LEEANN BAILEY AND YIN CAO

Dr. LeeAnn Bailey, Chief, Integrated Networks Branch, Center for Cancer Health Equity (CCHE), NCI, introduced the Early Onset Cancer (EOC) Initiative, which is in its nascent phase. From 1990 to 2019, the global incidence of EOC increased by 79.1 percent and EOC global mortality has increased by 27.7 percent. These alarming rates of EOC are associated with specific risk factors, such as obesity, environmental exposure, sleep patterns, ultra-processed foods, and microbiota. It remains unknown how these risk factors interact to increase EOC incidence rates. Dr. Bailey highlighted the need to accelerate the pace of discovery and utilize methods beyond the traditional epidemiological approaches because of time constraints associated with large cohort studies.

Dr. Yin Cao, Associate Professor of Surgery, Division of Public Health Sciences, Department of Surgery, Washington University School of Medicine in St. Louis, introduced the Pathways, Risk Factors, and Molecules to Prevent Early Onset Colorectal Tumors (PROSPECT) study. More than 19 countries (including the United States, Canada, India, Australia, and United Kingdom) have observed increasing incidence of colorectal cancer diagnoses in people younger than age 50. Early onset colorectal cancer (EOCRC) has become the leading cause of cancer-related death among young adults in the United States. The vision of the Cancer Grand Challenges Team PROSPECT is to identify and reverse the network of causal factors that promote EOCRC and advance correlation to causation for actionable prevention among younger generations.

A multidisciplinary team of 11 leaders in cancer epidemiology, exposomics and cancer metabolism, reproducible microbiome research, computational biology, chemical biology, cellular biology, immunology, cancer stem cell biology, global oncology, precision nutrition, and cancer prevention was developed for the PROSPECT study. The team is supported by more than 30 collaborators, 30 future leaders, and 15 biobanks and cohorts worldwide.

PROSPECT implements work practices that included global and diverse cohorts, chemical and functional profiling of human biospecimens, life course animal models, *in vitro* human models, human–animal convergence, and precision trials. PROSPECT will use global cohorts of racially and ethnically diverse populations, data from traditional cohorts, EHRs, microbiome, and nontargeted small-molecule profiling to focus on the lifelong impact of established and novel environmental and social risk factors. Causal mechanisms and biological networks will be elucidated through advanced chemical and functional profiling of human tissues collected through the EOC development continuum. Based on the insights gathered from these previous objectives, precision and community-based trials will be designed and conducted in the United States, United Kingdom, and India to test causality and feasibility of EOCRC prevention in both high- and low-to-middle income countries (LMICs).

PROSPECT's understanding of public needs, refinement in scientific focus, and engagement of patients in EOC etiology and prevention research will be supported through a team of advocates. PROSPECT aims to share the study's developed framework and inspire future leaders for team science initiatives that will discover solutions for other EOCs.

NCI has been tracking EOCs for more than a decade, and more than 60 of the 72 Cancer Centers have initiated EOC efforts. NCI-funded EOC projects that primarily focus on early-onset cancer include 30 intramural and 25 extramural projects. NCI-funded efforts, from basic research to networks such as the Cancer Intervention and Surveillance Modeling Network (CISNET), will be leveraged in future EOC research. Key EOC priorities include investigating rising cancer incidence at younger ages; understanding

tumor biology and heterogeneity; identifying emerging exposures and risk factors; developing novel detection strategies; and addressing health disparities among diverse and special populations.

Dr. Bailey reiterated the importance of patient advocacy and discussed ways the team has prioritized culture-tailored outreach to build trust and ensure community engagement. Feedback has already been received from the EOC community, and testimonies from patients, providers, and caregivers were shared. She emphasized that this research is patient centered and focused on enhancing quality of life by improving survivorship, fertility, financial independence, and mental health. Communication is an additional priority area to ensure data and novel prevention strategies are accessible, shareable, and collaborative and that the transition into the clinic is seamless. Dr. Bailey requested BSA and NCAB members' feedback on EOC scientific opportunities to pursue, prospective partners to engage, and existing networks to utilize.

Questions and Answers

Dr. Gloria D. Coronado, Associate Director, Population Sciences, Maynard Endowed Prevention and Control Chair, University of Arizona Cancer Center, called attention to the importance of tools to better understand colorectal cancer warning symptoms and suggested guidelines be developed for primary care providers evaluating and examining patients to determine when additional screening is warranted. These are currently unavailable, and she recommended these be additional priorities for PROSPECT.

Dr. Are pointed out that microplastics and nanoplastics are risk factors for colorectal cancer. He suggested speaking with experts from around the globe on different colorectal cancer profiles observed in their respective locations.

Dr. Michelle M. Le Beau, Arthur and Marian Edelstein Professor Emerita of Medicine, Director Emerita, University of Chicago Comprehensive Cancer Center, Chief Scientific Officer, Cancer Prevention and Research Institute of Texas, commented that researchers have concerns regarding accessibility to tissues, images, and databases for EOCRC and that NCI can play a significant role supporting this research.

Dr. Lopez emphasized that food intake and nutritional benefits can vary between individuals because of differing genetics. She praised PROSPECT for including precision nutrition as an aspect of the study. Dr. Bailey agreed and reiterated that the study is focused on being culturally responsive and culturally tailored, (e.g., understanding how food deserts may affect an individual's risk when they do not have access to nutrient-rich foods).

Dr. Nilofer S. Azad, Professor of Oncology, Co-Director, Developmental Therapeutics Program, Co-Leader, Cancer Genetics and Epigenetics, Sidney Kimmel Comprehensive Care Center, Johns Hopkins University, recommended that groups involved in diagnostics and early treatment, such as the American Board of Internal Medicine and the American College of Surgery, be invited as collaborators to help develop training programs and diagnostic tools for primary care physicians and surgeons. Few physicians and allied medical field professionals who can provide long-term survivorship support are available, and this remains a critical issue.

Dr. Karen M. Basen-Engquist, Professor, Department of Health Disparities Research, Division of Cancer Prevention and Population Sciences, The University of Texas MD Anderson Cancer Center, recommended inviting subject-matter experts from other federal agencies who study exposures and risk factors that may not be unique to cancer.

Dr. Rudin commented that Dr. Peter Kingham at Memorial Sloan Kettering Cancer Center has an NCI-funded program in Nigeria studying genetic risk factors for an aggressive phenotype of EOCRC. He suggested Dr. Cao collaborate with Dr. Kingham for PROSPECT.

VIII. BSA AD Hoc WORKING GROUP IN SUPPORT OF EFFORTS TO ENHANCE COMMUNITY CANCER RESEARCH AND QUALITY CARE—DRS. WILLIAM L. DAHUT AND RAYMOND U. OSAROGIAGBON

Dr. William L. Dahut, Chief Scientific Officer, American Cancer Society, presented the BSA *ad hoc* Working Group in Support of Efforts to Enhance Community Cancer Research in Quality Care report. He acknowledged the members and the Co-Chair, Dr. Raymond U. Osarogiagbon, Adjunct Research Professor, Department of Medicine, Vanderbilt University, Chief Scientist, Baptist Memorial Health Care Corporation. Dr. Dahut expressed appreciation to the Working Group's Executive Secretary, Ms. Andrea M. Denicoff, Nurse Consultant, Clinical Investigations Branch, Cancer Therapy Evaluation Program (CTEP), Division of Cancer Treatment and Diagnosis (DCTD), NCI, for her support in organizing the Working Group's activities.

The Working Group was reminded that not all people benefit equally from improvements in cancer prevention, detection, and treatment. Significant disparities exist in cancer outcomes in rural communities and in other populations with challenges obtaining optimal care. The opportunity exists to identify currently available resources to increase capacity for clinical research and delivery of high-quality cancer care to more people where they live. The call to action is to assist NCI and its partners in planning initiatives focused on achieving these goals.

The Working Group's process was to thoroughly analyze the problem, develop a comprehensive list of existing assets and programs, develop metrics for assessing improvement and then provide advice regarding criteria for developing future efforts. Initially, four major cancers that had the greatest impact on outcomes and had screening, early detection, and a broad network already established (breast, colorectal, lung, and prostate) were selected for evaluation. Cervical cancer was then added. Data on these five cancers were reviewed across the cancer care continuum of prevention, screening/early detection, diagnosis, treatment, survivorship, and mortality. The Working Group also reviewed data maps of the United States that identified locations of cancer care sites and availability of clinical research. A list of metrics to enhance quality care for the five cancers across the cancer continuum was developed, and approaches to expand clinical research capacity in communities via clinical trials were reviewed. Because of the population-level impact, the Working Group deliberated on opportunities to enhance quality cancer care, expand clinical research access, and prioritize cancer prevention and early detection. More than 20 ideas to enhance the quality of cancer control and cancer care were discussed. The consensus was that NCI should expand clinical research into more rural and underserved communities.

Dr. Osarogiagbon summarized the key Working Group recommendations for improving the quality of treatment and improving access to clinical trials.

Expand the Reach of Lung Cancer Screening. Test community-wide approaches that utilize public–private partnerships essential to improving lung cancer screening and aligning with local needs and priorities. Bundle lung cancer screening with other screening tests. Screen outside of traditional settings. Create linkages between primary care providers and Cancer Centers. Create linkages between well-resourced and under-resourced health care systems.

Eradicate Cervical Cancer. Launch a national plan to eradicate cervical cancer in the United Staes. Improve human papillomavirus (HPV) vaccination, screening, and optimal treatment. Increase HPV vaccination and screening in areas with low adherence. Partner Cancer Centers with community pediatricians, gynecologists, and Health Resources and Services Administration (HRSA)–funded health centers, including Federally Qualified Health Centers.

Improve Access Through Digital Tools. Conduct information technology–enhanced projects to eliminate access disparities for rural and underserved communities. Study the implementation of digital and telehealth services at all stages, from cancer prevention to survivorship. Develop culturally sensitive mobile health apps that address the needs of specific underserved populations. Study digital platforms

linking Cancer Centers with rural and underserved communities to improve biomarker testing and biomarker-directed treatment.

Scale up the NCI Community Oncology Research Program (NCORP). Increase the number of Minority/Underserved NCORPs. Strategically locate additional NCORPs to include institutions with cancer care delivery infrastructure within target populations of interest. Develop NCORP planning grants that would serve as an incubator program to expand the capacity for more underserved communities to participate in NCI-supported clinical research.

Leverage Electronic Medical Records (EMRs) to Support Clinical Trial Access. Promote collaborations between NCI, partner organizations, and EMR vendors to support clinical research activities. Leverage EMRs to automate technology to enhance patient screening for clinical trial eligibility and extract EMR patient data directly to reduce errors and lessen the burden of clinical trials data collection.

Questions and Answers

Dr. Weiner encouraged partnerships with statewide cancer control consortia that are conducting similar research and have themes that overlap with the Working Group's recommendations. Dr. Osarogiagbon noted that the Working Group inventoried available federal-, state-, and county-level resources, as well as nongovernmental resources, for improving care delivery and clinical trials access to determine how to establish such partnerships. These data can be shared with the Boards with NCI approval.

Dr. Doescher emphasized promoting policies that would help to address and implement solutions to improving community cancer research and care in the United States, such as mandatory HPV vaccinations in schools.

Dr. Emmons appreciated the focus on bundling for screening services. She noted that community health centers often face challenges associated with lung cancer screening because of the specialized equipment needed and process for returning results, which HRSA might address.

Dr. Lisa A. Newman, Professor of Surgery, Chief, Division of Breast Surgery, Weill Cornell Medicine, suggested engaging nursing professionals in any new community-based cancer research efforts.

Ms. Duron suggested advocating for research into vaping and cancer risk. She underscored intervening early by educating and recruiting the young adult population, which is most affected, to help convey messages about the potential hazards.

Dr. Lopez pointed out that "underserved communities" is a broad term. She observed that highly educated people can be skeptical of the health system because they have lost trust. Dr. Lopez suggested that this group would also benefit from patient navigation services and community engagement. She commented on leveraging EHRs for data science and data science collection.

Dr. Ulrich suggested determining whether any barriers identified in the Working Group recommendations can be addressed without funding.

Dr. Chyke A. Doubeni, Professor of Family Medicine, Klotz Chair in Cancer Research, Associate Director, The Ohio State University Comprehensive Cancer Center, Chief Health Equity Officer, Director, Center for Health Equity Research, The Ohio State University Wexner Medical Center, promoted the integration of primary care into this work for downstream follow-up care and suggested a continual cancer prevention approach to screening. He suggested engaging other federal agencies and strongly focusing on rural health.

Dr. Basen-Engquist noted the need for specific recommendations for improving the collection and availability of data to better monitor quality care and access to trials.

Dr. Karen M. Winkfield, Executive Director, Meharry–Vanderbilt Alliance, Ingram Professor of Cancer Research, Professor of Radiation Oncology, Vanderbilt University School of Medicine, commented on pairing access to health care with the Working Group's recommendations and taking the insurance status of those needing cancer care into consideration.

Dr. Dorothy K. Hatsukami, Forster Family Chair in Cancer Prevention, Masonic Cancer Center, Professor, Department of Psychiatry and Behavioral Sciences, University of Minnesota, observed a lack of cancer prevention interventions in the lung cancer recommendations and noted that radon exposure is a significant contributor to lung cancer. She also noted the need to review cannabis use and cancer risk.

Motion: A motion to accept the report of the BSA *ad hoc* Working Group in Support of Efforts to Enhance Community Cancer Research in Quality Care was approved unanimously.

IX. RFA/COOP. AGR. AND PAR CONCEPTS—NEW AND RE-ISSUE—NCI PROGRAM STAFF

Division of Cancer Treatment and Diagnosis

The Experimental Therapeutics Clinical Trials Network (ETCTN) (Re-issue RFA/Coop. Agr.)—Dr. S. Percy Ivy

Dr. S. Percy Ivy, Associate Chief, Investigational Drug Branch, CTEP, DCTD, NCI, presented a re-issue RFA concept on continuing the Experimental Therapeutics Clinical Trials Network (ETCTN) for project period 3, FY 2026 to FY 2032. The ETCTN was established in 2013, and the program has increased accruals and expanded components in this funding period (FY 2020–FY 2026), including Disease-Focused Clinical Investigators, U24 Pharmacokinetic Reference Laboratories, and the Creating Access to Targeted Cancer Therapy for Underserved Populations (CATCH-UP.2020) initiative.

Dr. Ivy noted three challenges facing the ETCTN. First, the need to establish approaches to optimize Phase 2 dosing of investigational agents in early-phase clinical trials to ensure safety and tolerability. Second, to address the lagging accrual in biomarker-driven or rare patient populations. Third, to focus on the lack of access to cutting-edge and innovative therapies in underserved and underrepresented patient populations. The primary goals of the ETCTN are unchanged and include studying the science of clinical trial design, dose optimization, and drug development for new cancer treatments; expanding team science approaches in drug development; and enhancing accrual science applied to underserved and underrepresented communities in clinical trials.

The ETCTN consists of eight Lead Academic Organizations (LAOs) that collaboratively conduct trials that are open network-wide across 52 clinical sites. This re-issue concept will support two RFAs for continuing the UM1 LAOs, U24 Pharmacokinetic Reference Laboratories, and National Clinical Laboratory Network. The re-issuance also will support ETCTN's extensive drug portfolio of high-priority targets of various disease processes important in cancer.

Since its inception, the ETCTN program has had several accomplishments that reach across the current funding period goals: to compete more effectively for patients, improve the quality of biopsy specimens, and enhance the use of validated biomarker assays. From FY 2020 through FY 2024, the ETCTN conducted 170 Phase 1 or Phase 1/2 novel-novel combination studies (and has conducted more than 300 studies since inception); completed new agent development; increased the number of early-career investigators leading studies by 27 percent; codified the use of biomarker assays; categorized the types of biomarkers used in trials; defined when biopsies should be performed (optional versus mandatory); and improved the general metrics (e.g., molecular targeted effects) of biomarkers and biopsies in studies. The ETCTN program received a 1-year budget supplement to CCSGs to support the

CATCH-UP.2020 initiative, which allowed preliminary work to enhance accrual from underserved and underrepresented patient populations by 50 percent in ongoing clinical trials. Using this 1-year budget supplement, the eight participating Cancer Centers activated 111 trials, screened 571 patients, and enrolled 373 participants, of whom 51 percent were from underserved or underrepresented patient populations. This successful pilot project established best practices, including outreach efforts that will guide prospective clinical sites or Cancer Centers as they implement these trials. Leveraging the CATCH-UP.2020 initiative, the ETCTN established Equity-Focused Clinical Investigator Teams to apply these best practices. The four highest accruing clinical sites in the pilot project moved to an LAO.

An external review of the program concluded that the ETCTN merger of innovative, novel therapeutics through the NCI Experimental Therapeutics (NExT) Program with NCI's broad clinical translational infrastructure is an effective combination. The external reviewers noted that curating the NCI Cooperative Research and Development Agreement (CRADA)–based portfolio is a critical success factor. This concept proposal is requesting a 15 percent increase in the overall budget to continue funding the LAOs, establish operations and statistical centers, and increase contract funding for centralized support services.

Subcommittee Review. Dr. Jennifer R. Grandis, Robert K. Werbe Distinguished Professor in Head and Neck Cancer, University of California, San Francisco, expressed the Subcommittee's strong support for the re-issue concept. The Subcommittee recognized ETCTN as an overachieving program that understands its opportunities and addresses its challenges.

The first-year cost is estimated at $21 M for up to eight UM1 awards, one U24 award, and administrative supplements, with a total cost of $126 M for 6 years.

Questions and Answers

Dr. Rudin asked about activation times for ETCTN trials and an alternative funding mechanism that would enable the pharmaceutical companies that benefit from these government-supported studies to contribute financially. Dr. Ivy explained that some issues exist with trial activation times and are multifactorial, from slowness at all levels (sponsors, drug companies, and clinical sites) to interactions with the U.S. Food and Drug Administration (FDA) and responses to protocol comments from the Central Institutional Review Board (CIRB), all of which NCI is actively addressing. ETCTN's leadership meets twice per month to discuss improving activation times and operational efficiency. Regarding pharmaceutical company investments, NCI's approach has been to use its CRADA program to support contracts and related work performed by contractors. NCI can consider requesting additional support from these companies.

Dr. Lopez appreciated the increase in early-career investigators' leading clinical trials and asked about data on LGBTQ enrollment and rural enrollment in ETCTN trials. Dr. Ivy responded that data on rural enrollment are captured via the CATCH-UP.2020 program but are limited, partly due to the difficulty in reaching potential participants in rural areas. Information on LGBTQ enrollment is largely unknown. NCI is interested in forming critical partnerships with these constituencies by working with community outreach groups in the Cancer Centers to improve contact and provide these patients with care and the opportunity to participate in cutting-edge or novel investigational therapies if prior treatment options have been unsuccessful. The next phase of this program will focus on improvements in those areas.

Motion. A motion to concur on the DCTD's re-issue RFA/Coop. Agr. entitled "The Experimental Therapeutics Clinical Trials Network (ETCTN)" was approved unanimously.

Division of Cancer Prevention

NCI Community Oncology Research Program (NCORP) (Re-issue RFA)— Dr. Brandy Heckman-Stoddard

Dr. Brandy Heckman-Stoddard, Chief, Breast and Gynecologic Cancer Research Group, Acting Director, NCORP, Division of Cancer Prevention (DCP), NCI, presented a re-issue RFA concept to continue the NCORP, which was developed in collaboration with DCTD and CCHE. Dr. Heckman-Stoddard acknowledged NCI staff supporting this program. The NCORP objectives remain unchanged in this re-issuance, and the primary aim is to design and conduct clinical trials and human subject studies for adults and children in cancer prevention, cancer control, cancer care delivery, and quality-of-life studies embedded within treatment trials. This effort includes incorporating the needs of diverse populations, enhancing patient and provider access to treatment and imaging trials conducted through the NCI National Clinical Trials Network (NCTN), integrating health disparities research within the community network, and understanding and addressing cancer care delivery challenges in the community. NCORP disseminates knowledge gained from trials throughout the community.

The current NCORP infrastructure includes 31 Community Sites, 14 Minority and Underserved Sites, 7 Research Bases, 5 Cooperative Groups, and 2 Cancer Center–based Research Groups. One Community Site, the Bay Area Tumor Institute, closed in July 2024. The Research Bases are supported by NCI centralized functions including the CIRB; Clinical Trial Support Unit; three NCI steering committees; common data management hosting, rostering, and registration; the Biomarker, Imaging, and Quality of Life Studies Funding Program; and the electronic patient reported outcomes data capture system. Research Bases also have biobanks and imaging and radiation oncology cores. NCORP has 2,200 enrolling sites across North America and internationally.

From FY 2019 to FY 2024, NCORP had a 4 percent (%) increase in the number of physicians participating in the program, a 418% increase in the number of non-physician investigators participating in the program, a 9% increase in the number of registered research staff participating in the program (after a change in the FY 2020 guidelines that expanded PI coverage in NCORP and CTEP to include qualified advanced practice providers), a 3% increase in affiliate and sub-affiliate sites, and a 21% increase in affiliate and sub-affiliate sites that accrued to cancer prevention and control and treatment trials. The program experienced a 7% increase in treatment accruals, a 45% increase in cancer prevention and control and treatment trials (primarily attributed to the Tomosynthesis Mammographic Imaging Screening Trial), a 40% increase in sites qualifying as high-performance, and a 59% increase in affiliate and sub-affiliate sites participating in cancer care delivery research (CCDR) trials.

NCI is proposing some improvements to NCORP that do not affect the budget. These proposals include changing Minority/Underserved Sites to Minority/Underserved Rural Sites and increasing these sites by 40 percent in combined catchment; requiring trial-specific recruitment and retention plans and plain-language summaries for protocol submission; enhancing tracking of Operational Efficiency Working Group timelines and slow-accruing trials and amendment timelines; and restructuring the NCORP Research Performance Progress Report submissions to collect outcomes and workload data. Program improvements that have budgetary impact include a proposal to fund increased per-case reimbursement to be consistent with the NCTN, expand NCORP affiliate and sub-affiliate networks to include CCDR staffing, and increase per-case reimbursement to Lead Academic Participating Sites (LAPS) for accrual to cancer prevention and control trials achieving high-performance metrics. NCI is also proposing to enhance workforce development and link the NCTN biobanks with quality-of-life data for symptom mechanism studies.

This concept re-issuance to commence in FY 2026 will support increasing the funding period from 6 years to 7 years to separate the timing between the NCTN and the NCORP RFAs, allowing limited Research Base member site participation in CCDR studies, and establishing an electronic patient reported outcomes contract to enable remote data capture and enhanced data sharing.

Future NCORP RFAs will return to the 6-year cycle. NCI is proposing a 24.7-percent increase in the NCORP budget to support ongoing activities, including increased staff support for protocol development, increased non-NCORP site capitation, and increased requirements of centralized infrastructure. NCI is enhancing workforce development by establishing a new funding opportunity, the Worta McCaskill-Stevens Career Development Award for Community Oncology and Prevention Research (K12), named in honor of former NCORP Director Dr. Worta McCaskill-Stevens, who conceived this program.

Subcommittee Review. Dr. Doescher expressed the Subcommittee's support for the re-issue concept, which is a premier research clinical network of community oncology in the United States. The Subcommittee agrees with the proposal to increase the funding period to 7 years, supports the budget increase, and lauds the expansion to rural sites.

The first-year cost is estimated at $165 M for 93 UG1 awards for Community and Minority and Underserved Sites, 55 UG1 awards for Research Bases, and 4 U24 supplements, with a total cost of $1.155 B for 7 years.

Questions and Answers

Dr. Friese sought clarity on the budget increase for the NCORP program, given the NCI budget situation. Dr. Rathmell clarified that the BSA approves the concept and that the budget discussion is informational. NCI is seeking input on whether the amount seems adequate for the work being proposed.

Dr. Ulrich suggested an approach for enhancing interactions with Cancer Centers through LAPS grants and a mechanism for rewarding high-performing clinical sites with LAPS that participate in cancer prevention and control trials through membership with NCORP Research Bases.

Motion. A motion to concur on the DCP's re-issue RFA entitled "NCI Community Oncology Research Program (NCORP)" was approved unanimously.

Division of Cancer Treatment and Diagnosis

Cancer Tissue-on-Chip (ToC) Technologies for Improved Preclinical Efficacy Evaluation of Therapies in Oncology (New PAR)—Dr. Piotr Grodzinski

Dr. Piotr Grodzinski, Chief, Nanodelivery Systems and Devices Branch, DCTD, NCI, presented a new PAR concept on Cancer Tissue-on-Chip (ToC) Technologies for Improved Preclinical Efficacy Evaluation of Therapies in Oncology. Despite promising results in preclinical testing, most compounds evaluated in cancer clinical trials fail, and results are not translatable to humans. Several strategies for preclinical testing are available, including two-dimensional (2-D) cell culture, 3-D organoids, patient-derived xenografts, and genetically engineered mouse models (GEMs), all with different levels of sophistication. Each strategy has some deficiencies, such as lack of tumor heterogeneity, immune deficiency, and high tumor mutational burden. Evaluating and improving ToC technologies in GEMs is one approach to address this challenge.

ToC structures can be a parallel tool to using animal models in preclinical testing, but their full potential has yet to be examined. ToCs have several advantages, such as improved cell-to-cell interactions and better tumor microenvironment replication and control. Key advantages in preclinical testing compared with the existing strategies include high-throughput screening capability, richness of information, lower cost, and faster speed. ToCs have been commercialized (e.g., Emulate, Inc.; CN Bio Innovations) and designed to study safety and toxicity and encompass single and multiple organ chips. These devices could benefit from additional cell types in appropriate ratios to the chip and from studies testing those environments with therapies compared with *in vivo* results. Organ-on-a-chip market valuation is poised to rapidly increase by 2032.

The purpose of this PAR is to improve preclinical efficacy testing of cancer therapies using ToCs. The goals are to develop and optimize ToC-based cancer therapy efficacy testing platforms with dynamically controlled environments by implementing new device design features and integrating imaging and sensing tools or incorporating mixed-cell cultures, including blood-vessel and immune components, to better mimic *in vivo* conditions.

A portfolio analysis of ToC grants from FY 2013 to FY 2023 revealed that most applications were submitted through NCI's Cancer Tissue Engineering Collaborative and were focused on basic biology on the chip. The National Center for Advancing Translational Sciences funded larger grants in its Clinical Trial on a Chip program but awarded only one cancer-related grant. During this same period, NCI funded 40 to 50 grants that focused on other preclinical technologies. Most ToC technologies were developed in engineering laboratories. This PAR concept will enable collaborative efforts with drug developers to strengthen ToC preclinical testing in a cancer-adequate environment. The FDA Modernization Act of 2022 authorized the development of new alternative methods (or NAMs) to reduce animal testing, which NIH and this concept is addressing. This PAR will solicit R01 applications in two receipt dates per year and fund four to six awards annually.

Subcommittee Review. Dr. Ideker expressed the Subcommittee's support for the concept. The Subcommittee expects that this research on ToC technologies will result in the type of high-throughput screening that is observed among tumor cell lines in similar projects. The Subcommittee appreciated that NCI staff addressed its concerns to review unsuccessful ToC grants and perform a more in-depth analysis of the causes. They also expressed interest in how this PAR would complement existing efforts in industry. The Subcommittee emphasized engaging other ICs to advance ToC technologies and convening a separate study section outside the standard NIH Center for Scientific Review to evaluate the proposals because of the complexity of the research relative to the amount of available preliminary data.

Questions and Answers

Dr. Nduom expressed concern that with this PAR, NCI is reducing the number of applications that will be received and grants that will be awarded in this funding climate. He also noted this as an area that is already attracting 40 applications annually, where the technology is advanced, and where companies have been successful. Dr. Grodzinski explained that the portfolio analysis indicated that the current applications submitted to NCI focus on fundamental biology studies whereas this PAR addresses preclinical testing and is not seeking set-aside funds.

Dr. Amy B. Heimberger, Jean Malnati Miller Professor of Brain Tumor Research, Vice Chair for Research, Department of Neurosurgery, Northwestern University Feinberg School of Medicine, commented on how this concept is paying for ToC development where industry would have billion-dollar market valuation and asked why NCI is investing in the intellectual property of companies conducting this research. Dr. Grodzinski noted that ToC companies are small, not publicly traded, and do not have market valuation. The expectation is that this research will also inform industry to enable more rapid ToC development and availability to the scientific community.

Dr. Hahn speculated that most grants focusing on fundamental biology would be unsuccessful because of the need for a hypothesis to be tested and because study sections are designed to identify those grants and fund the best ones. From a science perspective, performing fundamental biology on ToCs is the optimal approach because it reflects real biology and provides insights that the other systems cannot. The key is to determine whether the ToC reflects the biology and then identify it as the right system to test drugs.

Dr. Ashani T. Weeraratna, Bloomberg Distinguished Professor of Cancer Biology, E.V. McCollum Chair of Biochemistry and Molecular Biology, Johns Hopkins Bloomberg School of Public Health, Co-Program Leader, Cancer Invasion and Metastasis, Sidney Kimmel Cancer Center, Johns Hopkins School of Medicine, commented that part of the rationale for ToCs is that animal preclinical

models are not the best strategy and that drug testing often fails in these models. Researchers test drugs in 8-week-old mice when they should test them in 18-month-old mice. She asked whether the ToCs would be evaluated in aged fibroblasts and endothelial cells with immune components. Dr. Grodzinski acknowledged that this scenario would be ideal and noted that preclinical testing with ToCs can reduce costs and fulfill requirements for NAMs, which is a goal of NIH, Congress, and FDA. He also noted that PARs are approved for 3 years of funding and can be discontinued if applications are fewer than expected.

Motion. A motion to approve the DCTD's new PAR entitled "Cancer Tissue-on-Chip (ToC) Technologies for Improved Preclinical Efficacy Evaluation of Therapies in Oncology" was approved with 21 ayes, 0 nays, 0 abstentions, and 7 deferrals.

Office of the Director

Phase 4: U.S. and Low- and Middle-Income Countries (LMICs) HIV-Associated Malignancy Research Centers (New RFA/Coop. Agr.)—Dr. Geraldina Dominguez

Dr. Geraldina Dominguez, Program Director, AIDS Malignancy Program, Office of HIV and AIDS Malignancy (OHAM), NCI, presented a new RFA concept to establish Phase 4: U.S. and Low- and Middle-Income Countries (LMICs) HIV-Associated Malignancy Research Centers (HAMRCs). The HIV epidemic remains a significant problem globally. At the end of 2022, approximately 39 million people were living with HIV worldwide, of whom the majority reside in LMICs, particularly sub-Saharan Africa. The highest incidence of HIV-attributable cancers, including cervical cancer and Kaposi sarcoma (KS), are in sub-Saharan Africa and countries with high HIV burden. Programs to increase research capacity in LMICs began in FY 2010 with Phase 0, the training program, followed by three phases of supporting partnerships that would conduct research projects on cancer in people with HIV and would support mentoring and career development for young investigators in LMICs. Phase 1 (FY 2014) was limited to Africa. Phase 2 (FY 2017) included LMICs elsewhere. Phase 3 (FY 2020–FY 2023), which is the current phase, supports larger consortia working in multiple LMICs. Phase 4 (FY 2026–FY 2027) is the proposed program.

In Phase 3, 10 HAMRCs are active; they are partnerships between U.S. and LMIC institutions across 12 African countries and Brazil. Projects include KS diagnosis and progression, screening and diagnosis of HPV-associated cancers, and tumor-associated biomarkers for HIV-associated diffuse large B-cell lymphoma. The HAMRCs had several accomplishments, such as developing data capture and management systems, developing new technologies and methodologies, and fostering new scientific collaborations. HAMRC investigators generated more than 85 peer-reviewed publications. Two HAMRCs have performed significant work in developing research capacity, and both have manuscripts completed by junior LMIC investigators. The Rwanda HAMRC (Albert Einstein College of Medicine) developed a population-based cancer registry in Phase 1 that is now managed by the Rwandan government. In a study comparing the association between HIV infection and specific cancers, the investigators used probabilistic record linkage between HIV and cancer registries to show that people with HIV had elevated risk of developing a variety of cancers, particularly KS and other HPV-related cancers, compared with people without HIV. The Kenya HAMRC (University of California, San Francisco/Indiana University) studied survival after KS diagnosis in 411 newly diagnosed patients with KS. The results illustrated reduced 1-year survival after a diagnosis of KS even in the presence of antiretroviral therapy. This study points to the fact that KS is still a major cause of morbidity and mortality in people with HIV and that new approaches are needed, as well as earlier detection and better linkage to oncology care.

The goals of this Phase 4 RFA are to support collaborations between U.S. and LMIC investigators to conduct research projects that address high-priority research questions on malignancies in people with HIV in LMICs and to foster the development of early- and mid-career investigators from the United States and LMICs who are interested in researching malignancies in people with HIV. This Phase

4 RFA will use the U54 mechanism; be open to all investigators; support research projects that address questions related to the HAMRCs' theme; and support administrative, developmental, and shared resources cores. This concept is approved by the NIH Office of AIDS Research (OAR) as a FY 2026 NCI initiative. The NCI-appropriated AIDS funds, as established by OAR, will support this research. The Fogarty International Center is interested in co-funding this research. As the Phase 3 HAMRCs conclude, their funding also will support this RFA.

Subcommittee Review. Dr. Are expressed the Subcommittee's enthusiasm and support for the concept. The Subcommittee commended NCI on the pragmatic research approach, which is relevant and applicable to the local context and emphasized building local cancer research capacity workforce in LMICs. The Subcommittee suggested thorough reviews of the HAMRCs and clear metrics of success.

The first-year cost is estimated at $7.1 M for six to seven U54 awards, with a total cost of $35.5 M for 5 years.

Questions and Answers

Dr. Erle S. Robertson, Harry P. Schenk Endowed Chair Professor, Vice-Chair, Department of Otorhinolaryngology, University of Pennsylvania School of Medicine, suggested establishing an additional clinical site in the southern part of the United States (e.g., Alabama, Georgia, South Carolina), where individuals who have HIV likely will experience secondary malignancies in the next 5 to 10 years. He asked about engaging the appropriate expertise in this research, given that HAMRCs can conduct only one to two projects. Dr. Dominguez pointed out that existing partnerships between U.S. institutions are within the southern part of the United States and that junior investigators can propose projects that involve the HAMRCs. She also noted that one to two projects fit with the proposed budget for this research.

Motion. A motion to approve the Office of the Director's (OD) new RFA/Coop. Agr. entitled "Phase 4: U.S. and Low- and Middle-Income Countries (LMICs) HIV-Associated Malignancy Research Centers" was approved unanimously.

Global Training for Research and Equity in Cancer (GlobTREC) (Re-issue RFA/Coop. Agr.)—Dr. Sudha Sivaram

The BSA Chair, Dr. Earp, had a conflict of interest, and Dr. Le Beau presided over the review of this concept.

Dr. Sudha Sivaram, Program Director, Global Cancer Research Training, Center for Global Health (CGH), NCI, presented a re-issue RFA concept on continuing Global Training for Research and Equity in Cancer (GlobTREC). Most cancer worldwide occurs in LMICs, where the proportion is increasing. Global research training in these settings provides opportunities to address global cancer burden, generate new knowledge and approaches, and inform efforts to address domestic inequities. NCI recognizes that these opportunities will require the support of the next generation of scientists who can conduct rigorous and impactful research in these settings. LMIC-based academic institutions and Cancer Centers are increasingly committed to addressing this need, as are early-career investigators in LMICs.

NCI's GlobTREC program was developed in FY 2020 to address a demand from U.S. Cancer Centers and research institutions, as well as collaborating LMIC institutions, to address questions in global cancer and to support this nascent LMIC-based cancer research workforce. GlobTREC is the first sustained, institutional global research training program at NCI and was developed using the D43 International Research Training Grant mechanism.

In the first issuance of GlobTREC, U.S. institutions collaborated with institutions in LMICs as defined by the World Bank. NCI funded eight grants across two RFA receipt dates, and the training teams have led a range of training activities in sub-Saharan Africa, Latin America, and the United States.

An external evaluation of GlobTREC highlighted key accomplishments despite delays due to the COVID-19 pandemic. The reviewers noted the high demand, which GlobTREC seemed to address, as well as the success rate of applications, which was lower than the typical success rate for NCI domestic T32 institutional training awards. The reviewers also noted many early-career scientists were trained across a diverse range of cancer research topics and highlighted career development successes for GlobTREC trainees. Last, the reviewers noted that GlobTREC allowed NCI to leverage research training efforts in other regions of the world and to initiate a global community of practice for early-career investigators. Considering these program achievements and accomplishments, the external evaluation recommended program continuation and expansion.

This re-issuance RFA will retain the goals of the first phase of the GlobTREC program regarding career development and mentored research and will support increasing leadership for LMIC institutions and investigators as contact PIs, expanding eligibility to include upper middle-income countries and institutions, and increasing opportunities for U.S. trainees working in LMICs. NCI is proposing to enhance network coordination in this phase by changing the D43 International Research Training Grant to a U2R International Research Training Cooperative Agreement, which has a strong track record at the NIH in global health research training and includes several existing NIH Common Fund and Fogarty International Center programs. NCI is proposing a 65-percent increase in the budget to support a 7-year funding cycle and a third cohort of awards.

Subcommittee Review. Dr. Doubeni expressed the Subcommittee's strong support for the re-issue concept. The Subcommittee recognized that the COVID-19 pandemic impacted the output of publications in this program and encouraged NCI to address this metric in this re-issuance. The Subcommittee commends the community of practice approach and emphasized clarifying the trade-off of increasing the size of the awards relative to the number that can be funded.

The first-year cost is estimated at $2.55 M for 12 U2R awards across two receipt dates, with a total cost of $17.8 M for 7 years.

Questions and Answers

Dr. Stegmaier asked about plans or mechanisms to host the HAMRC and GlobTREC trainees. Dr. Sivaram noted that the next HAMRC network meeting is planned, and that NCI will engage trainees across programs to participate.

Drs. Winkfield and Mustian emphasized conveying to taxpayers (i.e., the public) how this international training program, GlobTREC, and other related research will benefit the United States, and they suggested providing clear deliverables.

Motion. A motion to concur on the OD's re-issue RFA/Coop. Agr. entitled "Global Training for Research and Equity in Cancer (GlobTREC)" was approved unanimously.

Division of Cancer Control and Population Sciences

Cancer Intervention and Surveillance Modeling Network (CISNET) (Re-issue RFA/Coop. Agr.)—Dr. Natasha K. Stout

Dr. Natasha K. Stout, Program Director, Statistical Research and Applications Branch, DCCPS, presented a re-issue RFA concept to continue CISNET. Formed in 2000, CISNET is a sponsored collaborative consortium using population-based disease simulation to extend existing evidence to guide public health research and priorities across the cancer continuum. CISNET pioneered the comparative modeling approach in which independent modeling teams collaborate to address the same research questions.

Since 2000, more than 715 CISNET peer-reviewed papers have been published, including more than 100 in high-impact journals. CISNET assists the U.S. Preventive Services Task Force in its cancer screening recommendations, including those for breast, lung, and colorectal cancers. The CISNET consortium consists of MPI U01s, each focusing on a single cancer site. Each U01 is composed of two to six modeling teams and a cancer site–specific coordinating center with disease expertise, data, and stakeholder involvement. Legacy cancer sites include high-burden cancers, such as breast, prostate, colorectal, lung, cervical, and esophageal. Incubator program cancers include bladder, gastric, multiple myeloma, and uterine. The CISNET modeling approach addresses evidence gaps not filled by clinical trials or observational studies; is valuable when new data collection is not feasible due to ethical, financial, or time constraints; synthesizes multiple sources of data and evidence; provides insight into unobservable natural history; and is useful for designing and evaluating policy, emerging technologies, and clinical questions.

Dr. Stout highlighted examples of how CISNET modeling has been used to address research questions. CISNET investigators seek to understand what contributed to the decline in U.S. breast cancer mortality since 1975. CISNET breast models detangled the simultaneous effects of improvements in adjuvant treatment, new advances in metastatic treatments, and the introduction and improvement of screening mammography as contributors. In another simulation, CISNET projected the impact of increasing screening use on eligible interventions and cancer mortality. The model estimated that more than 15,000 deaths could be prevented if 10 percent more of the eligible 2021 U.S. population used recommended lung, colorectal, breast, and cervical cancer screening protocols. The aim of this study was to better understand the contribution to screening of meeting the Cancer Moonshot goals.

NCI is proposing a new set of clinical and policy priority areas for CISNET to address, which represent crosscutting, pressing issues that are priorities for NCI and the broader cancer community. These areas include examining risk factors and downstream implications of increasing EOC; evaluating AI and other emerging technologies for cancer risk prediction or cancer detection; evaluating the potential of liquid biopsies and biomarkers for targeting treatments or surveillance for recurrence to improve survivorship; designing strategies that promote equity and reduce disparities; and elucidating drivers of disparities across the cancer control continuum by directly incorporating equity considerations into policymaking and decision-making. The re-issue RFA will support continuing CISNET's 10 cancer modeling sites and cross-program activities, including the ongoing collaborations.

Subcommittee Review. Dr. Andrew T. Chan, Chief, Clinical and Translational Epidemiology Unit, Massachusetts General Hospital (MGH), Director of Epidemiology, MGH Cancer Center, Daniel K. Podolsky Professor of Medicine, Harvard Medical School, expressed the Subcommittee's strong enthusiasm and support for the re-issue concept, which has had significant impact in the cancer field. The Subcommittee highlighted the success of this program in setting priorities and advancing cancer control policy and how it provides an infrastructure for leveraging AI tools.

The first-year cost is estimated at $14 M for eight U01 awards, with a total cost of $70 M for 5 years.

Questions and Answers

In response to a question from Dr. Doescher about addressing uncertainty in the models, Dr. Stout explained that one of the pioneering aspects of CISNET is having multiple models of the same disease tackling the same clinical problem. Agreement among these models decreases uncertainty in the results. Each model can serve as a cross-validation of the others, which adds to the credibility and rigor of the analyses.

Dr. Ideker asked to what extent AI would be incorporated into CISNET modeling. Dr. Stout noted that AI tools are used to assist in calibrating and validating the models and in searching parameter space. These activities can inform future applications for AI in this program.

Motion. A motion to concur on DCCPS' re-issue RFA/Coop. Agr. entitled "Cancer Intervention and Surveillance Modeling Network (CISNET) Re-issuance (U01 Clinical Trial Not Allowed)" was approved unanimously.

Office of the Director

The Academic Career Excellence (ACE) Award, including awards to Promote Diversity (New PAR)—Drs. Nastaran Zahir and Shahrooz Vahedi

Dr. Nastaran Zahir, Chief, Cancer Training Branch, Center for Cancer Training (CCT), NCI, presented a new PAR concept to establish the Academic Career Excellence (ACE) Award, including awards to promote diversity, which was developed in partnership with CCHE. NCI recognizes that postdoctoral scholars pursuing foundational research and aspiring to succeed in the academic Principal Investigator track face multiple challenges. These scholars often are inadequately prepared to successfully compete for substantial NIH funding for cancer research, frequently receive insufficient support from mentors to apply for substantial NIH funding early in their career, and receive suboptimal salaries compared to industry and with other sectors. Fewer NIH career development awards are available for temporary visa holders, who comprise nearly 60 percent of U.S. postdoctoral scholars in science, engineering, and the health sciences. These challenges have been corroborated by the Advisory Committee to the Director (ACD) Working Group on Re-Envisioning the Postdoctoral Experience.

NCI is proposing to establish two new career development awards, the ACE Award and ACE Award to Promote Diversity, using the new K32 mechanism. These K32 awards will align with the Predoctoral to Postdoctoral Transition Award (F99/K00) currently supported through NCI. The ACE K32 Awards will provide 3 years of support and would allow the individuals to apply for subsequent career development awards, such as the NIH Pathway to Independence Award (K99/R00), which will position them on the path to a successful independent academic research career.

Dr. Shahrooz Vahedi, Program Director, CCHE, NCI, explained that the CCHE Diversity Training Branch has a goal of enhancing diversity in the cancer workforce and providing a variety of training programs for all career levels from high school to faculty within the Continuing Umbrella of Research Experiences (CURE) program. Three career development awards (K01, K08, and K22) are available to postdoctoral scholars. A recent evaluation of the outcomes of the CURE program suggests that the CCHE K awardees were likely to apply for RPG (e.g., R01, R21, or R23) funding and were successful in securing R01 grants. CCHE is co-sponsoring a 2-year ACE Award to Promote Diversity (K32D) to fill the gap in its CURE pathway program training awards.

Dr. Zahir noted that career development awards help individuals successfully obtain subsequent NIH funding. CCT observed that 90 percent of NCI K99/R00 awardees apply for subsequent R01 or R01-equivalent funding, and nearly 65 percent successfully obtain those awards. Fewer Ruth L. Kirschstein National Research Service Award (NRSA) F32 awardees than K99 awardees submit R01-equivalent applications or receive R01 awards, likely due to the constraints in stipends and eligibility.

NCI is proposing the ACE Award and ACE Award to Promote Diversity to improve NCI's ability to attract the most promising investigators into the cancer research workforce and determine early in the postdoctoral phase if a scholar has the skills and interest in communicating and supporting their science through grant writing. In addition, with the ACE program, NCI aims to retain highly skilled scholars by providing a well-supported pathway toward independent careers in all areas of cancer research, broadening inclusivity of the NCI career development award portfolio by welcoming temporary visa holders as CCT applicants, and offering an award to promote diversity among CCHE applicants early in postdoctoral training. Applicants should focus on ideas and creativity rather than productivity. Preliminary data are optional.

Upon BSA approval of the ACE program, CCT/NCI will no longer participate in the NRSA F32 program and will issue the new K32 program. CCT FY 2024 investment in the F32 was $3.7 M, and part of those funds can be repurposed to cover costs associated with the ACE program. CCT and CCHE also will request increases to their respective base budget allocations to support this new program.

Subcommittee Review. Dr. Le Beau expressed the Subcommittee's enthusiasm and strong support for the concept, which was endorsed by the ACD Working Group on Re-Envisioning NIH Support for Postdoctoral Training. The Subcommittee was pleased with the prospect of funding more postdoctoral scholars and broadening the applicant pool to both U.S. citizens and temporary visa holders.

The first-year cost is estimated at $6.74 M for 40 K32 awards and 8 K32 diversity awards, with a total cost of $20.2 M for 3 years.

Questions and Answers

Dr. Ideker suggested providing opportunities for improving grant-writing ability or manuscript-writing ability as part of the ACE Award program.

Motion. A motion to approve the OD's new PAR entitled "The Academic Career Excellence (ACE) Award, Including Awards to Promote Diversity" was approved unanimously.

Informatics Technology for Cancer Research (ITCR) (Re-issue RFA/Coop. Agr.)—Dr. Juli Klemm

Dr. Juli Klemm, Program Director, Center for Strategic Scientific Initiatives, NCI Informatics Technology for Cancer Research Program, NCI, presented a re-issue RFA to continue the Informatics Technology for Cancer Research (ITCR) program. Dr. Klemm noted that the ITCR program was initiated in 2013 and that many of the factors that prompted its initiation are still relevant today. Informatics tools are essential to all areas and aspects of cancer research. Evolving needs and trends in cancer research and informatics require ongoing software innovation to keep pace with and enable research priorities. Technology development projects require specialized funding opportunity announcements and review, especially at the enhancement and maintenance stages. Many software tools are relevant across cancer research areas, requiring a cross-NCI approach to program coordination. The ITCR program provides focused support for the development of open-source computational methods, software tools, and informatics resources driven by cancer research needs that can broadly benefit the cancer research community. The program supports the life cycle of informatics technology development, and programmatic activities encourage collaboration that increases the interoperability, enhancement, and dissemination of these technologies.

The ITCR is managed through a series of four companion RFAs. An R21 supports computational research to drive novel algorithm and informatics method development; a U01 supports early-stage software development; a U24 supports the further enhancement and dissemination of informatics technologies that are emerging in impact in the targeted cancer research; and a second U24 is used to sustain widely accessed resources to continue to maintain their availability and relevance to the cancer research community. The U01 and U24 awardees are required to set aside 10 percent of their budget for collaborations proposed post-award to increase the interoperability and functionality of these tools. All four mechanisms are Clinical Trial Optional to support validation studies that meet the NIH definition of a clinical trial.

The ITCR program continues to have a significant impact on cancer and cancer informatics. During this funding cycle, the ITCR supported emerging and widely used informatics tools, enabled advances across the cancer research continuum, placed emphasis on collaboration and interoperability, improved adoption and citation of ITCR tools, and enhanced outreach and training. Since its inception, the ITCR has funded 175 competing awards across cancer data types and research activities, including radiology imaging, medical informatics, genomics, and digital histology.

A 2024 evaluation of the ITCR program by an external panel recommended continuing the program. The evaluation panel also recommended enhancing the impact of the program, continuing to place a strong emphasis on supporting emerging technologies to keep pace with advances in cancer research, and advancing areas that are underrepresented in the portfolio, both through targeted outreach to these communities and through programmatic judgment. The evaluation panel suggested aligning the R21 mechanism with the goals of the program and exploring approaches to increase engagement of the ITCR teams with education and training opportunities.

This re-issuance RFA will support continuing the ITCR program to support investigator-initiated informatics technology that addresses needs in cancer research, including use of a multi-mechanism approach to support the life cycle of technology development. NCI is proposing several programmatic changes in response to recommendations from the evaluation panel. These include revising the R21 RFA to emphasize prioritizing innovation, balancing funding for early- and late-stage development through program team prioritization, and providing administrative supplements to the funded ITCR teams to develop courses and workshops.

Subcommittee Review. Dr. Grandis expressed the Subcommittee's enthusiasm and strong support for the re-issue concept, which has had significant impact on the cancer research field.

The first-year cost is estimated at $8.35 M for six R21 awards, five U01 awards, six U24 awards, and 7 to 10 administrative supplements, with a total cost of $41.7 M for 5 years.

Questions and Answers

Ms. Duron made a general request to include demographic data and information on minority groups' participation for all research concepts presented to the BSA.

Motion. A motion to concur on the OD's re-issue RFA/Coop. Agr. entitled "Informatics Technology for Cancer Research (ITCR)" was approved unanimously.

Cancer Moonshot Scholars Program (New PAR)—Dr. LeeAnn Bailey

Dr. Bailey presented a new PAR for the Cancer Moonshot Scholars program (CMSP). This program was initially presented to the BSA as an RFA to establish a Cancer Moonshot Scholars Diversity Program. She explained that demographic trends for funded NCI R01-equivalent PIs from FY 2010 to FY 2020 showed disparity between the Black/African American and Hispanic/Latino PIs compared with their White and Asian counterparts. This disparity has reduced racial equity and representation in NCI-funded grants. NCI is expecting to address this disparity with the Scholar's program.

The goals of the original RFA and the PAR [are to promote scientific advances in cancer research by increasing the diversity of thoughts, approaches, and perspectives in NCI's funded portfolio; support ESIs; and increase the number of funded R01 investigators from underrepresented groups across the cancer research continuum. This aligns with the priorities of the White House Cancer Cabinet to inspire and support the next generation of diverse cancer researchers and the goals of the National Cancer Plan to optimize the workforce. Regarding eligibility, the proposed research must align with NCI's scientific mission. The contact PI must be an ESI and must have included an Institutional Eligibility Letter describing the required contribution to the goals.

NCI has funded two cohorts in this program. The first cohort was announced in July 2023, and NCI funded 11 applications. The second cohort was announced in July 2024, and another 11 applications were funded. The award rate for CMSP applications was compared with the award rate for applications from all NCI ESI R01s. The analysis showed a higher award rate for FY 2023 Scholar applications; whereas, the FY 2024 Scholar applications had a lower award rate than NCI ESI R01 applications, partly due to the number of applications submitted to the program.

In this next phase, NCI will revert from using set-aside funds (i.e., RFA) to using RPG funds (i.e., PAR), where award decisions are based on the R01 payline. Applications will be reviewed through PARs and will be grouped by percentile, allowing support equivalent to the parent R01 announcement. NCI is requesting a 3-year PAR issuance (FY 2026-2028) to fund new Type 1 R01 awards. The PAR will support applications up to the NCI ESI payline.

Subcommittee Review. Dr. Newman expressed the Subcommittee's enthusiasm and strong support for the concept. The Subcommittee commended NCI for the success of the program and supported the proposed mechanism conversion from an RFA to a PAR, which should ensure the program's longevity and avoid unintended consequences that could affect issuing the awards.

Motion. A motion to approve the OD's new PAR entitled "Cancer Moonshot Scholars Program" was approved unanimously.

X. ONGOING AND NEW BUSINESS—DRS. JOHN D. CARPTEN AND SHELTON EARP

NCAB *ad hoc* Subcommittee on Experimental Therapeutics. Dr. Richard J. Boxer, Clinical Professor, David Geffen School of Medicine, University of California, Los Angeles, Chair of the NCAB *ad hoc* Subcommittee on Experimental Therapeutics, presented the report of the 2 December 2024 meeting. Dr. Boxer noted that the Subcommittee discussed organizing a workshop or conference to convene advocacy groups, FDA, NCI, academia, and industry to discuss specific pathways for working together and communicating on improving patient care. The aim is to foster partnerships with NCI leaders to bridge gaps between what industry is looking for and their needs, as well as to emphasize the importance of basic science and clinical research conducted in extramural or intramural programs. During the meeting, Dr. Rose Aurigemma, Executive Secretary, described ways NCI could bridge the gaps using the NCI SBIR/Small Business Technology Transfer programs to improve health care delivery. Dr. Boxer explained that the Subcommittee discussed different contexts of the conference (drug development areas most in need of support), such as antibody–drug conjugated technologies and degraders. The members also highlighted the need for pediatric-based methods for research. The Subcommittee looks forward to developing this conference by the end of the second quarter of 2025.

Motion. A motion to accept the report of the 2 December 2024 NCAB *ad hoc* Experimental Therapeutics Subcommittee meeting was approved unanimously.

NCAB *ad hoc* Subcommittee on Population Science, Epidemiology, and Disparities. Dr. Winkfield, Chair of the NCAB *ad hoc* Subcommittee on Population Science, Epidemiology, and Disparities, presented the report of the 2 December 2024 meeting. Dr. Winkfield began by expressing appreciation for Dr. Philip E. Castle, Director, DCP, and former Executive Secretary, for his support of this Subcommittee. She welcomed Dr. Gary L. Ellison, Deputy Director, DCCPS, NCI, as the new Executive Secretary of the Subcommittee. During the meeting, Dr. Ellison briefly reviewed the Subcommittee's purpose: to help inform and advise NCAB and the NCI Director on strategic approaches and opportunities to enhance NCI's contributions to population science, epidemiology, and diversity. The Subcommittee heard a presentation from Dr. David Berrigan, Program Director, DCCPS, NCI, on policy systems and environmental approaches to reduce obesity and cancer risk. Dr. Berrigan pointed out that obesity and tobacco utilization are the top two modifiable risk factors for cancer and noted that by the year 2050, roughly 50 percent of the U.S. population is expected to be obese. Dr. Winkfield explained that the Subcommittee spent the bulk of its time discussing approaches to reduce obesity, including intentional weight loss, lifestyle interventions, bariatric surgery, or therapeutics, such as glucagon-like peptide-1 (GLP-1) agonist drugs for populations at greatest risk. The Subcommittee also discussed leveraging successful NCI programs on reducing U.S. tobacco use that include a policy component and reviewing the Obesity-Related Policy, Systems, and Environmental Research in the U.S. (commonly called OPUS) project and ongoing partnerships. Last, the Subcommittee discussed future agenda items, including establishing an *ad hoc* working group to focus the efforts of the Subcommittee, which

Dr. Ellison will begin to address. The Subcommittee plans to convene during the February 2025 NCAB meeting to further these discussions.

Motion. A motion to accept the report of the 2 December 2024 NCAB *ad hoc* Subcommittee on Population Science, Epidemiology, and Disparities meeting was approved unanimously.

New Business. Dr. Earp explained that the Boards need to approve establishing a BSA *ad hoc* Working Group in Support of Research on Biomarkers for Cancer Prevention, Control, and Patient Care. The mission statement has been provided in the Boards book.

Motion. A motion to concur on establishing a BSA *ad hoc* Working Group in Support of Research on Biomarkers for Cancer Prevention, Control, and Patient Care was approved unanimously.

Other Business. Dr. Carpten asked for any remaining thoughts, issues, concerns, or recommendations to highlight. The BSA and NCAB members noted issues that NCI could address, including conveying to the cancer research community that NCI needs de-aggregated data on demographics, all sexual orientations, and rural areas to ensure data quality and equity and considering approaches (in academia and the private sector) for communicating about NCI priorities.

The BSA and NCAB members suggested agenda items for future meetings, including a review of innovative ways for communicating the value of cancer research to the public and an update on the science of communication. BSA and NCAB members were asked to forward any additional suggestions for potential future agenda items to the respective Board chairs and Dr. Paulette Gray.

XI. ADJOURNMENT—DRS. JOHN D. CARPTEN AND SHELTON EARP

Dr. Carpten thanked all the Board members, as well as the visitors and observers, for attending. There being no further business, the 17th joint meeting of the BSA and NCAB was adjourned at 3:58 p.m. on Tuesday, 3 December 2024.

Date	H. Shelton Earp, M.D., Chair, BSA
Date	John D. Carpten, Ph.D., Chair, NCAB
Date	Paulette S. Gray, Ph.D., Executive Secretary