U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
PUBLIC HEALTH SERVICE
NATIONAL INSTITUTES OF HEALTH
NATIONAL CANCER INSTITUTE
18th VIRTUAL NATIONAL CANCER ADVISORY BOARD

Summary of Meeting
9 February 2023

Virtual Meeting
National Cancer Institute
National Institutes of Health
Bethesda, Maryland

NATIONAL CANCER ADVISORY BOARD
BETHESDA, MARYLAND
Summary of Meeting
9 February 2023

The National Cancer Advisory Board (NCAB) convened for its 18th virtual regular meeting on 9 February 2023. The meeting was open to the public on Thursday, 9 February 2023, from 1:15 p.m. to 3:30 p.m. and closed to the public from 3:55 p.m. to 5:13 p.m. The NCAB Chair, Dr. John D. Carpten, Professor and Chair, Department of Translational Genomics, Royce and Mary Trotter Chair in Cancer Research, Keck School of Medicine, University of Southern California, presided during both the open and closed sessions.

NCAB Members

Dr. John D. Carpten (Chair)
Dr. Francis Ali-Osman
Dr. Nilofer S. Azad
Dr. Anna D. Barker
Dr. Luis Alberto Diaz, Jr.
Dr. Howard J. Fingert
Dr. Christopher R. Friese
Mr. Lawrence O. Gostin (absent)
Dr. Andrea A. Hayes Dixon
Dr. Amy B. Heimberger
Dr. Scott W. Hiebert
Dr. Nikan Khatibi
Dr. Electra D. Paskett
Dr. Nancy J. Raab-Traub
Dr. Margaret R. Spitz
Dr. Susan Thomas Vadaparampil
Dr. Ashani T. Weeraratna
Dr. Karen M. Winkfield

President's Cancer Panel

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

Alternate Ex Officio NCAB Members

Dr. Michael A. Babich, CPSC
Dr. Michelle Heacock, NIEHS (Alternate for Dr. Gwen W. Collman)
Dr. Joseph R. Graber, DOE
Dr. Michael Kelley, VA (absent)
Dr. Richard Pazdur, FDA (absent)
Dr. Tara A. Schwetz, NIH (absent)
Dr. Craig D. Shriver, DoD
Dr. Kerry Souza, NIOSH (absent)

Members, Scientific Program Leaders, National Cancer Institute, NIH

Dr. Monica M. Bertagnolli, Director, National Cancer Institute
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. Henry P. Ciolino, Director, Office of Cancer Centers
Dr. James H. Doroshow, Deputy Director for Clinical and Translational Research
Dr. Dan Gallahan, Director, Division of Cancer Biology
Mr. Peter Garrett, Director, Office of Communications and Public Liaison
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. Ed Harlow, Special Advisor to the NCI Director
Dr. Toby T. Hecht, Deputy Director, Division of Cancer Treatment and Diagnosis
Dr. Tony Kerlavage, Director, Center for Biomedical Informatics and Information Technology
Dr. Kristin Komschlies McConville, Acting Director, Office of Scientific Operations, NCI at Frederick
Dr. Douglas R. Lowy, Principal Deputy Director, National Cancer Institute
Dr. Glenn Merlino, Scientific Director for Basic Research, Center for Cancer Research
Dr. Tom Misteli, Director, Center for Cancer Research
Dr. Margaret Mooney, Associate Director, Cancer Therapy Evaluation Program
Dr. Diane Palmieri, Acting Director, Center for Research Strategy
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
Ms. Donna Siegle, Executive Officer and Deputy Director for Management, Office of the Director
Dr. Dinah S. Singer, Deputy Director, Science Strategy and Development
Dr. Sanya A. Springfield, Director, Center to Reduce Cancer Health Disparities
Dr. Louis M. Staudt, Director, Center for Cancer Genomics
Mr. Michael Weingarten, Director, Small Business Innovation Research and Small Business Technology Transfer Programs
Dr. Robert Yarchoan, Director, Office of HIV and AIDS Malignancy
Dr. Maureen Johnson, Executive Secretary, Office of the Director

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THURSDAY, 9 FEBRUARY 2023

I. CALL TO ORDER AND OPENING REMARKS—DR. JOHN D. CARPTEN

Dr. John D. Carpten called to order the 18th virtual National Cancer Advisory Board (NCAB) meeting. He welcomed members of the Board, *ex officio* 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.

Motion. A motion to accept the minutes of the 5–7 December 2022 Joint Meeting of the Board of Scientific Advisors (BSA) and the NCAB was approved unanimously.

II. FUTURE BOARD MEETING DATES—DR. JOHN D. CARPTEN

Dr. Carpten called Board members' attention to the future meeting dates listed on the agenda.

III. NCI DIRECTOR'S REPORT—DR. MONICA M. BERTAGNOLLI

Dr. Monica M. Bertagnolli, Director, NCI, welcomed NCAB members and attendees to the 18th virtual meeting and provided an update on recent progress and what it will take to sustain and accelerate it, the budget outlook, and the role of the NCAB in the National Cancer Program.

Recent Cancer Research Progress: Sustaining and Accelerating. Dr. Bertagnolli highlighted that 2 February 2023 marks the 1-year anniversary of President Joseph R. Biden's announcement of the reignited Cancer Moonshot℠. On 7 February 2023, during the State of the Union Address, President Biden announced loftier goals of a 50 percent reduction in cancer mortality in 25 years. In his speech, the President also emphasized ending cancer as we know it, meaning that all people with cancer will live full and active lives and that cancer is prevented as much as possible, with fewer diagnoses. Dr. Bertagnolli noted that since the first announcement of the initial Cancer Moonshot during the Obama Administration, President Biden has been unwavering in his support of what cancer research seeks to accomplish.

The reignited Cancer Moonshot strives for an all-of-government and all-of-society approach to eliminating cancer, with a patient-centric emphasis. One initiative NCI has implemented as part of this approach is the new Childhood Cancer–Data Integration for Research, Education, Care, and Clinical Trials (CC-DIRECT), a first-of-its-kind public–private partnership that will directly help families confronted with childhood cancer. CC-DIRECT will help families with a child who has cancer obtain their child's medical record and connect the family and child to specialty care. CC-DIRECT also will provide families the opportunity to participate in research through clinical trials and data-sharing initiatives. With its goal of providing every family and child with much-needed support to successfully navigate the health care system at a time of great personal stress, CC-DIRECT aligns with the reignited Cancer Moonshot.

CC-DIRECT will centrally coordinate a request to participate in the NCI Childhood Cancer Data Initiative (CCDI) Molecular Characterization Initiative, which is a national collaboration that provides state-of-the art tumor molecular characterization at the time of diagnosis and helps participants and doctors select the best and most appropriate treatment. When fully implemented, CC-DIRECT will connect children and families to additional resources and opportunities to participate in research. This navigation and engagement program will be essential for the approximately 15 percent of children and adolescents who have difficulty with access to care, as well as children with rare tumors who need highly specialized care. CC-DIRECT represents a groundbreaking response to the call for an all-of-society

approach. Dr. Bertagnolli explained that CC-DIRECT was not launched with Cancer Moonshot funding and is a collaboration among the NCI and seven other organizations; each is invested in contributing in-kind support to the program.

Dr. Bertagnolli reported that President Biden announced six new appointments to the NCAB, and each brings new expertise to the Board. Approvals are pending, and NCI will extend formal introductions at the next meeting.

NCI Budget Outlook. Dr. Bertagnolli reported that on 29 December 2022, President Biden signed legislation that provided funding to the NIH and other federal agencies through 30 September 2023. The NCI received a total budget increase of $408 million (M), which is a $386 M increase to NCI's base budget; $22 M is allotted for the final year of the initial Cancer Moonshot funding, for a total of $216 M for those investments. She commented that this base increase makes it possible to fund more compelling investigator-initiated cancer research and continue to support key research efforts outside of the Research Project Grant (RPG) pool. These include the clinical trials networks, NCI-Designated Cancer Centers (Cancer Centers), and training. RPG funding allows investigators throughout the entire cancer research enterprise to turn their innovative new ideas into answers that drive progress for cancer patients. Peer review sets a priority level for funding for the thousands of proposals the NCI receives. The payline determines the number of grants that the NCI budget supports. In 2023, the NCI increased the R01 payline to the 12th percentile (a 13-year high) for established and new investigators and to the 17th percentile for early stage investigators. With these increases, the NCI reaffirms its commitment to distributing federal funding to researchers whose work has successfully established the foundation for progress in cancer prevention, treatment, and control.

Dr. Bertagnolli noted the challenges that factor into making the decision to increase paylines. Because of the out-year costs incurred by each increase, funding in the subsequent years needs to increase to accommodate funded grants and maintain the payline. Aside from the RPG pool, NCI has other essential commitments, such as the National Clinical Trials Network (NCTN), NCI Community Oncology Research Program (NCORP), and Cancer Centers, as well as global health and large national programs (e.g., RAS Initiative). The NCI also needs to address the rising costs of conducting biomedical research overall. To this end, the NCI needs significant increases in budgets in subsequent years to support out-year costs and to maintain support for new R01s in 2023. Even with the significant increases for the fiscal year (FY) 2023 appropriations, rising costs require continuing noncompeting grants (years 2–5) to be funded at a level of 98 percent. The NCI also has reduced its spending considerably. Once increased baseline costs were allocated, the NCI implemented a 2 percent across-the-board reduction in funding for NCI Divisions, Offices, and Centers and allocated a major portion of the budget to fund critical infrastructure needs that no longer could be delayed. One such example is information technology that will further expand data sharing access across the entire cancer research community. Dr. Bertagnolli conveyed that budget allocations are a priority for the NCI and the cancer research community, and that the NCI is utilizing FY 2023's increased funding to ensure all programs and initiatives are supported.

NCAB's Role in the National Cancer Program. Dr. Bertagnolli explained that the NCI leads a National Cancer Program required by the National Cancer Act (NCA) of 1971 that calls for collaboration across local, federal, and state governments, as well as across the many agencies, organizations, and other groups that play a role in progress against cancer. Aligning with the National Cancer Program and NCA, the NCI is creating a National Cancer Plan. This Plan is different from the *Annual Plan and Budget Proposal for Fiscal Year 2024*, which is released in September every year, and focuses attention on promising new NCI-reported research areas for that year. The *Annual Plan and Budget Proposal* provides NCI's best professional judgment on the funding needed over the ensuing fiscal year. The National Cancer Plan is a long-range planning document that will guide NCI's work for years to come. It is a

response to the challenge to reduce cancer mortality by 50 percent in 25 years and end cancer as we know it.

Dr. Bertagnolli noted that the Annual Plan will continue to align and focus NCI's priorities within a given year, and she provided an update on the broader long-term National Cancer Plan. Over the last few months, Dr. Bertagnolli has worked closely with NCI leaders to develop this Plan, which embraces the idea that everyone has a role to play—across federal agencies, as well as industry, universities, advocacy groups, nonprofits, and even caregivers and patients. NCI's intent is that when any organization or individual views this Plan, where they fit in as a contributor to cancer progress will be obvious. Cancer research partners also will be able to grasp the full picture of the many interrelated actions needed to end cancer as we know it. To ensure that this Plan works for everyone, NCI is soliciting input from a wide range of stakeholders across the NIH, U.S. Department of Health and Human Services (HHS), White House Office of Science and Technology Policy (OSTP), Cancer Cabinet, and various other organizations and groups. Soon the NCAB will have the opportunity to provide its input. Once final, the Plan will be broadly communicated to the public through NCI's website and social media platforms and other news outlets and events. This campaign will begin spring 2023 and continue throughout the year. The Plan integrates the goals and objectives into a framework that will help the NCI understand the full range of what is necessary and strategize on the most important work, together with its partners. Whatever the future holds regarding the budget, the NCI continues its important work, making best use of whatever resources currently are available.

Dr. Bertagnolli highlighted examples representing particular areas of focus, including clinical trials, data, and cancer surveillance. She first noted that the NCI, in its 2024 Annual Plan, emphasized at a minimum, doubling accrual to clinical trials to produce the prevention, detection, and treatment measures that will end cancer suffering. Those who have been underserved have not been able to benefit from trials to the same extent that those who have been able to participate. The need is great to make it possible for each person with cancer, or at risk for cancer, to have a realistic opportunity to participate in research and to receive results much faster. In July 2022, the NCI collaborated with the NCTN, U.S. Food and Drug Administration (FDA), Eli Lilly and Company, Merck & Co., Inc., and Lung Cancer Master Protocol (Lung-MAP) investigators to launch the S2302 Pragmatica-Lung clinical trial for people with lung cancer. The study is evaluating a combination of ramucirumab and pembrolizumab compared with standard therapies in patients with advanced non–small cell lung cancer (NSCLC) whose disease progressed after immunotherapy. This FDA registration trial was designed to determine whether this drug combination helps patients live longer. The study team demonstrated that the Pragmatica-Lung trial could be quickly developed. The difference was the willingness of all parties—government, industry, and academic collaborators—to work together and eliminate the delays that normally challenge multiple stakeholder collaborations. The Pragmatica-Lung trial is now ready to open across the nation and will focus on rapidly enrolling patients, particularly those who often have limited access to clinical trials. These include people with adverse social determinants of health, who are also the ones at greatest risk for NSCLC.

Dr. Bertagnolli noted that the next step is to make this type of innovation in clinical trials design and operational effectiveness commonplace. To accomplish this, the NCI, FDA, and extramural clinical cancer research community have established a Clinical Trials Innovation Unit. The aim is to select high-priority studies deemed particularly amenable to radically new study designs and operational procedures and to engage the partners necessary to break the mold and forge a new path. The Clinical Trials Innovation Unit is not intended to replace the current active and critical study design and approval processes of the NCTN. The Unit will be co-directed by Dr. Sheila Prindiville, Director, Coordinating Center for Clinical Trials (CCCT), NCI, and Dr. Michael J. Morris, Medical Oncologist, Memorial Sloan Kettering Cancer Center, both of whom will be nonvoting members of the Unit. She emphasized that all aspects of clinical trials that can be adapted to achieve more and faster benefits for patients and are open

to innovation will be explored. These include study eligibility, comparator arms, endpoints, diagnostics, study data collection procedures, and participant engagement strategies. The NCI anticipates that successful approaches developed by this Unit will then transition to become mainstream but will require innovation. This Unit is anticipated to be operational late February 2023.

A second area to highlight involves data, because understanding cancer biology and what measure works best against it relies on data, especially from populations long underrepresented in our data collections. The NCI is making great headway to get much-needed data into the hands of scientists via the CCDI. This initiative has made significant progress to provide data that historically have been very challenging for researchers to access. Dr. Gregory Reaman, Scientific Director, CCDI, brings his vast experience from his time leading the Children's Oncology Group and working at the FDA. In December 2022, the CCDI Molecular Targets Platform—a tool that catalogs and characterizes molecular events involved in the growth and spread of childhood cancers—was updated with additional data and software. In January 2023, CCDI's Childhood Cancer Data Catalog added 5 new resources, 3 analytical tools, and 46 new data sets. On 24 March 2023, the NCI will host the CCDI Annual Symposium, which will convene experts from around the country to discuss CCDI's progress, highlight the new resources available to the broadest possible community, and discuss opportunities for the future. Dr. Bertagnolli remarked that more is to come in the very near future through this transformative program that provides a first-of-a kind platform for nationwide data sharing and research collaboration on behalf of children, adolescents, and young adults with cancer.

A third area to highlight is cancer surveillance. The NCI is celebrating the 50th anniversary of the Surveillance, Epidemiology, and End Results (SEER) program. SEER, an indispensable tool in the fight against cancer, covers almost half of the U.S. population through participating cancer registries. The annual analysis of SEER data provides the nation with its report card on cancer. These surveillance data show where the United States stands regarding various cancers by powering such reports as the *Cancer Trends Progress Reports* and *Annual Report to the Nation on the Status of Cancer*. To commemorate SEER's 50th anniversary, the NCI will host a series of information sessions throughout 2023 online, on social media, and at various events recognizing SEER's contributions to cancer research and public health. Dr. Bertagnolli noted that despite this progress, the NCI aspires to further expand SEER to broadly reach even more of the U.S. population to help address the needs of underrepresented groups.

Dr. Bertagnolli reported on recent cancer research progress across the intramural and extramural research programs regarding treatment and prevention. In 2021, the FDA approved the first *KRAS* inhibitor for tumors with the G12C mutation, which is most common in lung cancer. KRAS is one of three human RAS genes (a family of genes mutated in more than 30 percent of cancers) and is involved in cell growth, cell maturation, and cell death. Next on the path is the treatment for *KRAS* G12D mutations, common in pancreatic cancer. An NCI-funded study showed that a new drug, *KRAS* G12D inhibitor MRTX 1133, shrank tumors or halted their growth in several mouse models of human pancreatic cancer bearing this mutation. These results from animal studies are expected to translate to human studies. A phase 2 clinical trial led by NCI's Division of Cancer Treatment and Diagnosis (DCTD) resulted in the first FDA approval of a treatment for advanced alveolar soft sarcoma for adults and children 2 years and older.

A special series from a collaboration between NCI and the American Society of Clinical Oncology was published in the *JCO Oncology Practice* that included 15 peer-reviewed publications on team-based cancer care. Researchers described significantly increased involvement of advanced practice providers in cancer care in response to increased patient demand. The report identified a dramatic increase in the number of critical disciplines routinely participating in an individual patient's care, including pharmacists, oncologists, nutritionists, palliative care specialists, social workers, and nurse navigators. Common themes throughout this series are that cancer care is becoming increasingly complex and that

understanding the dynamics of cancer care delivery at all levels is required for successful clinical research and for the implementation of new advances in cancer care and prevention.

In prevention, a phase 1 clinical trial led by researchers from NCI's Center for Cancer Research and the Frederick National Laboratory for Cancer Research showed that a combination of low-dose temozolomide and ado-trastuzumab-emtansine (commonly called T-DM1) may be effective in preventing brain metastasis for patients with HER2-positive breast cancer. This study showed that 83 percent of patients demonstrated no new brain metastasis with treatment. The NCI looks forward to seeing this important phase 1 result advance.

Last, research has shown that drinking alcohol can increase the cancer risk of several cancer types, but this knowledge needs to be communicated to the public, not just to other researchers. To address this issue, NCI's Division of Cancer Control and Population Sciences led a study showing that most Americans were not aware of this connection. The study concluded that numerous changes need to be made to raise public awareness of this fact. Because awareness does not guarantee action, further research will be necessary to solve these challenges.

Dr. Bertagnolli expressed appreciation to attendees for their expertise in contributing to help NCI achieve its mission. On a personal note, she thanked everyone who reached out with their expressions of support following her recent cancer diagnosis. She credits early detection and the knowledge provided by decades of NCI-supported research and NCI investigators, which has enabled her own personal, excellent long-term prognosis.

Questions and Answers

NCAB Chair Dr. Carpten commented on observing increased decisions around prostate cancer screening and recent articles showing a significant increase in advanced prostate cancer and asked how the NCI might engage in mitigating this increase. Dr. Bertagnolli explained that the NCI would have to address this situation at all levels. First, the *Annual Report to the Nation on the Status of Cancer* reveals the population-level status. It is critical that the NCI continues to get feedback indicating which subpopulations are a concern regarding prostate cancer. The NCI will use the three-pronged attack of understanding the basic mechanisms of early tumor development, translating that understanding into effective new methods for detection and ensuring that successful strategies are implemented, and delivering the new screening or prevention methods to the people who need them. To this end, the NCI is exploring new molecular multicancer detection tests but needs to be specific to identify a prostate cancer molecular detection test. She emphasized inviting prevention researchers to the table early, as well as other disciplines, to achieve success. Dr. Carpten added that integration of the existing information is key to understanding genetic risk of prostate cancer.

Dr. Electra D. Paskett, Marion N. Rowley Professor of Cancer Research, Director, Division of Cancer Prevention and Control, Department of Internal Medicine, College of Medicine, The Ohio State University, remarked that the nation is not bouncing back from COVID-19 in terms of cancer screening and uptake of human papillomavirus (HPV) vaccine. Reports have indicated a 65 percent decrease in cervical cancer incidence in the first cohort of women that received the vaccine, thus demonstrating that this cancer can be prevented. She suggested promoting innovative strategies for increasing the accrual of underrepresented minorities to clinical trials within the Clinical Trial Innovation Unit. Dr. Bertagnolli explained that although the NCI is not a care delivery organization, it supports the research that shows how care delivery can be accomplished in ways that achieve equity and maximum uptake of what works.

Dr. Anna D. Barker, Chief Strategy Officer, Ellison Institute for Transformative Medicine, University of Southern California, commented that the President in his State of the Union speech mentioned bringing the cancer research infrastructure into the 21st century and asked how that translates

in the NCI. Dr. Bertagnolli explained that the most rapid increase in demand for infrastructure for the NCI has been information technology in terms of data, data storage capability, and data analytics, and she indicated that it is expensive and challenging to integrate the needed data sets. In addition, data-sharing information technology is another critical need to enable working together.

Dr. Nilofer S. Azad, Professor of Oncology, Co-Director, Developmental Therapeutics Program, Co-Leader, Cancer Genetics and Epigenetics, Sidney Kimmel Comprehensive Cancer Center, Johns Hopkins University, suggested facilitating discussions with the FDA on innovative approaches to collecting the necessary biomarker confirmation data that would satisfy the regulatory requirement for randomized trials, especially because the subsets of patients in these trials are relatively small.

Dr. Karen M. Winkfield, Executive Director, Meharry-Vanderbilt Alliance, Ingram Professor of Cancer Research, Professor of Radiation Oncology, Vanderbilt University School of Medicine, commented that one major barrier to cancer care, prevention, and entry into clinical trials is the fact that the United States does not have a unified insurance and health care system that allows patients from underserved backgrounds access to care. She asked whether the larger group has discussed how all parts of government can be involved, especially with the infrastructure challenge for Cancer Centers accepting Medicaid. Dr. Bertagnolli noted that this topic is a great concern of the President and the Cancer Cabinet, which is the all-of-government approach. NCI's role is to provide the data that show what happens to cancer death rates in states that do not expand Medicaid, justifying why this needs to happen.

IV. LEGISLATIVE REPORT—MS. M.K. HOLOHAN

Ms. M.K. Holohan, Director, Office of Government and Congressional Relations, NCI, reported on leadership changes in the 118th Congress, debt limit and budget negotiations, the FY 2024 appropriations process, and oversight. She noted that the Senate President *pro tempore* is Patty Murray (D-Washington), and, in the line of succession for the presidency, she is after the Speaker of the House. New leadership and generational changes are in place among House Democrats. Experienced legislators throughout both parties and chambers are continuing and have held leadership positions for some time. Speaker of the House Kevin McCarthy (R-California) assumed this position after 15 voting sessions, in which he made many concessions to the more conservative members of the Republican party. For example, Speaker McCarthy pledged to cut spending to the FY 2022 funding levels, which is tied to the debt limit, and avoid large omnibus spending bills, which can take time to review. These concessions will have concrete effects on the appropriations process.

Congress has passed 20 debt limit increases since 2001, with more than 100 occurring since the early 1900s. The debt ceiling presents a leveraging opportunity and typically occurs in parallel to budget deals and deficit reduction legislations. Both parties tend to support debt limit increases at a higher proportion when their party is in the White House. The majority party and the White House always have supported a clean (e.g., no-hassle) debt limit increase, with minimal spending deals or sacrifices of their priorities. A 2-year budget deal would not be unusual. The date by which the U.S. Treasury indicates that extraordinary measures being used to ensure that the United States meets its debt obligation is anticipated to be in June or July. Ms. Holohan highlighted that for the first time, the leaders of the House and Senate Appropriations Committees for both parties all are women, as is the Office of Management and Budget Director, Ms. Shalanda Young, and they will be leading the debt limit negotiations. Ms. Holohan explained that Appropriators tend to be very pragmatic and less partisan. Appropriators have to complete bills each year, advancing them through the Subcommittee, the Committee, a floor vote, conferencing, and then to the President. Without this process, the government shuts down. Conversely, authorizing bills introduced rarely become law, and very few go through the process of committee hearings and markups. With the overall congressional climate that includes a new House majority, negotiations likely will be a challenge for these leaders, and compromises will be necessary.

Senator Murray will be Chair of the Senate Appropriations Committee, and Susan Collins (R-Maine) will be Ranking Member. Rep. Kay Granger (R-Texas) will be Chair of the House Appropriations Committee, and Rep. Rosa DeLauro (D-Connecticut) will be Ranking Member. Rep. Robert Aderholt (R-Alabama) is Chair of the House Appropriations Subcommittee on Labor, Health and Human Services, Education, and Related Agencies (Labor-HHS) and Rep. DeLauro will be Ranking Member. Senator Tammy Baldwin (R-Wisconsin) is reported Chair of the Senate Labor-HHS Subcommittee, and Senator Shelly Moore Capito (R-West Virginia) is reported Ranking Member. Ms. Holohan noted that both Senators Baldwin and Capito are familiar with the NIH and NCI and have visited the NCI on the NIH campus.

Ms. Holohan explained that with the concessions in the House governing party to return to FY 2022 funding levels, agreeing on a government funding bill enacted for FY 2024 will be more challenging. Congress has enacted one or more continuing resolutions (CRs) in all but three of the last 46 fiscal years. The defense appropriations bill has not been included in a full-year CR. The Appropriators could pass a bill that meets the overall FY 2022 funding level, but with compromises. Agencies cannot assume that this will be the starting point for this process with FY 2024 because the original approach was across all 12 subcommittees. Appropriators could consider a bill consisting of strategic cuts or rescind appropriated funds not spent in the last Congress for COVID-19 and infrastructure programs.

Ms. Holohan reminded the NCAB of the NCI's FY 2023 appropriations previously described by Dr. Bertagnolli. She noted that the President's budget request is scheduled to be released on 9 March 2023 and is the official start of the NIH/NCI appropriations process. Different in this year's process is that instead of an omnibus or minibus package, Appropriators will need to draft 12 individual spending bills, which had not been the practice since 2002. In addition, the individual spending bills have not included the Labor-HHS bill, which funds the NIH. The NCI is monitoring the FY 2024 budget process and is optimistic that the strong bipartisan support from Congress for cancer research continues and is a shared priority of the President.

Ms. Holohan commented that oversight will be a major part of the 118th Congress. Hearings in the past week have included a COVID-19 session in the House Oversight Committee about the Paycheck Protection Act funding and fraudulent obtaining of these loans, as well as a House Energy and Commerce Committee hearing attended by the FDA Commissioner, CDC Director, and NIH's Dr. Lawrence Tabak, who performs the duties of the NIH Director, focusing on the agencies' responses to COVID-19. She anticipates that these types of hearings will continue during the course of this Congress, noting that the appropriations hearings also present an opportunity for oversight.

V. ANNUAL DELEGATIONS OF AUTHORITY—DR. PAULETTE S. GRAY

Dr. Paulette S. Gray, Director, DEA, requested concurrence by the NCAB on two Delegations of Authority to the Director of the NCI. Dr. Gray described the delegations and provisions in the Statement of Understanding. Delegation A allows the Director to obtain the services of not more than 151 special experts or consultants who have scientific or professional qualifications. She also explained that Delegation B specifies that the NCAB delegates authority to the NCI Director to appoint one or more advisory committees composed of private citizens and officials of federal, state, and local governments to advise the Director with respect to his or her functions.

The Statement of Understanding with NCI Staff on Operating Principles in Extramural Grants also falls within the Delegations of Authority to the Director, NCI. NCAB operations are conducted in accordance with management and review procedures described in the NIH Manual Issuance 4513. Concurrence of the NCAB with recommendations of initial review groups will be required, except for the

following: (1) Training grants and fellowships and other non-research grant applications are not subject to NCAB review and approval and, without other concerns, may be awarded without presentation to the NCAB for concurrence, with the exception of Ruth L. Kirschstein National Research Service Awards. (2) Applications above the 20th percentile will not have summary statements presented to the NCAB unless the Institute is considering an award of such an application, or other special consideration is requested or required by NCI or NIH policy, or for special consideration by an appointed member of the Board. (3) For applications assigned raw scores that are not percentiled, the cutoff will be a priority impact score of 50 for all mechanisms except R41, R42, R43, and R44 awards; for the latter, all scored applications will be included.

Expedited Concurrence: (1) For R01 and R21 applications with percentiled or raw scores that fall within the NCI paylines for that mechanism, a process of expedited concurrence will be used and (2) the Executive Secretary will alert Board members with responsibility for expedited concurrence when review outcomes for eligible applications are available on the Electronic Expedited Concurrence portion of the Electronic Council Book.

Administrative Adjustments: (1) Permission is delegated to the Director, NCI, to allow staff to negotiate appropriate adjustments in dollars or other terms and conditions of grant and cooperative agreement awards. (2) Administrative requests for increases in direct costs that are the result of marked expansion or significant change in the scientific content of a program after formal peer review will be referred to the Board for advice and recommendation. (3) Actions not requiring Board review or advice—such as change of institution, change of principal investigator (PI), phase-out of interim support, or additional support—need not be reported to the Board. (4) NCI staff may restore requested time and support that were deleted by the initial review group when justified by the PI in an appeal letter or when restoration is in the best interest of the NCI and the project is of high NCI programmatic relevance.

To continue responsible stewardship of public funds, the NIH has instituted a policy of Special Council Review of applications from well-funded investigators. Applications from PIs who have $2 M or more in total costs from active NIH Research Project Grants (RPGs) must be given additional consideration. The $2 M will be a threshold, and investigators who have additional research support may still receive additional awards as warranted.

Motion. A motion to approve the NCI Annual Delegations of Authority was approved unanimously.

VI. ADAPTING NCI'S CLINICAL TRIALS SYSTEM TO A CHANGED CLINICAL RESEARCH ENVIRONMENT—DR. JAMES H. DOROSHOW

Dr. James H. Doroshow, Deputy Director for Clinical and Translational Research and Director, DCTD, explained that from the start of the COVID-19 pandemic, several factors presented roadblocks to clinical trial accrual. These included in-person study activities (e.g., informed consent, visits to receive investigational study drugs, assessments of patient safety and study adherence); the required use of imaging and laboratory facilities specified by trial documents; a need to collect low-grade adverse events despite potential lack of clinical relevance to study endpoints; and limited access to cancer care personnel and facilities. Complicating these matters are the major ongoing issues of critical shortages of clinical research staff and essential health care workers and lack of institutional central research services. All have diminished trial availability and accrual, especially in underserved populations, and have led to substantive delays in results reporting. To address these issues, the NCI switched to electronic consenting, provided oral investigational agents directly to patients, initiated electronic study audits, and facilitated the use of telemedicine for study visits. The NCI also limited the impact of minor study deviations on trial conduct and evaluation; implemented decentralized testing for required laboratory and imaging studies; and developed a new strategic plan for NCI's clinical trials programs, which is now being implemented.

Dr. Doroshow reviewed the NCI clinical trials accrual rates from January 2020 through December 2022. From March to June 2020, a major reduction to accruals was observed across trials, regardless of type. Although accruals in NCTN trials have recovered, investigator-initiated (e.g., R01s, R21s) or externally peer-reviewed trials have not returned to pre-pandemic levels and remain 20 to 25 percent below target accruals. The primary reason for these differences is the remaining 4,000 to 5,000 patient decrease in accrual to investigator-initiated trials at Cancer Centers. The NCI conducted a clinical trials workforce survey to assess the ongoing impact of the COVID-19 pandemic on the capacity of Cancer Centers to conduct treatment trials. The survey was administered by the Science Technology Policy Institute; 64 Cancer Centers participated, and the response rate was 100 percent. The results showed that the major issue affecting clinical trial capacity was that the lack of staff that prevented opening the trials and accruing patients. The primary reason for staff attrition was the availability of higher pay or career advancement, followed by greater ability to work remotely and burnout from frontline work. Nearly 60 percent of individuals at academic Cancer Centers were recruited by pharmaceutical companies or contract research organizations, with only 10 percent retiring from active employment. Additionally, senior and recently trained staff also left Cancer Center employment, further reducing the pool of qualified candidates for new hires.

Recognizing these adverse effects on clinical trials and operations, the NCI engaged the Clinical Trials and Translational Research Advisory Committee (CTAC) to strategically plan NCI's 2030 vision for clinical trials. CTAC established the Strategic Planning Working Group to reassess the strategic vision for clinical trials for 2030 and beyond and to review and address necessary clinical trials infrastructure. The planning working group developed 15 recommendations and 3 operational initiatives. The detailed report can be accessed from the NCI website. The key themes include trial complexity and cost, decentralized trial activities, accrual and access promotion, operational burden, new data collection approaches, and workforce outreach and training. The overarching goal of this strategic vision is to develop flexible, faster, simpler, less expensive, high-impact clinical trials that seamlessly integrate with clinical practice. The broad recommendations are to streamline processes for trial design and execution, decrease regulatory hurdles and broaden trial access, focus on essential endpoints, and increase efficiency of data collection. To address streamlining clinical trials, CTAC established the Streamlining Clinical Trials Working Group. In its 2022 interim report, this working group recommended limiting clinical trial data collection in late phase trials to essential data elements and using electronic health records (EHRs) to support clinical trials.

Dr. Doroshow described some activities of the CTAC Streamlining Clinical Trials Working Group in analyzing recent NCTN phase 3 trials to assess data collections. He noted some data elements to consider from an analysis of NCI Cancer Therapy Evaluation Program (CTEP)–sponsored trials, specifically late-phase, interventional treatment, Investigational New Drug (IND)–exempt trials conducted in adults. The proposed categories include adverse events, medical history, concomitant medications, physical examination, laboratory testing, imaging and other assessment procedures, and patient-reported data. Dr. Doroshow emphasized that timely implementation of a set of standard practices for data collected in NCI phase 3 and phase 2/3 adult, IND-exempt treatment trials will reduce operational burden and provide important insights that will inform development of data collection standards for other types of trials (e.g., late-phase IND trials, pediatric trials). Broad stakeholder engagement will be necessary for successful implementation of these standards. Dr. Doroshow highlighted a demonstration of the NCI's vision for clinical trials. Leveraging the design of the Pragmatica-Lung trial, which is a follow-up to the Lung-MAP randomized phase 2 trial, a new trial could be developed and activated in 4 to 6 weeks, with a survival endpoint and essentially no adverse events, except hospitalization.

Dr. Doroshow described an NCI initiative on standardized EHR study builds, in which the goal is to facilitate development of standardized electronic treatment plan builds for NCI-supported clinical trials. The NCI launched a pilot project with 10 Cancer Centers. Two consortia have been established: the

Clinical Trials Rapid Activation Consortium (commonly called CTRAC), being led by The University of Texas MD Anderson Cancer Center, and the Big Ten Electronic Health Record Consortium (commonly called Big Ten-EHRC), sponsored by Indiana University. The general approach is to develop standard representations of protocol-specified pharmacotherapy and other required therapeutic and assessment procedures. Efforts also will focus on developing a method for "packaging" the standardized requirements in a form that can either be imported directly into a site's EHR or facilitate local customization. The outcome will be a built library of modules that would be reusable across trials and institutions.

In closing, Dr. Doroshow highlighted ways that the NCI is proposing to address critical clinical trial workforce issues, including reducing the volume of trials that staff are responsible for supporting, improving alignment of institution and Cancer Center hiring processes related to staff recruitment and retention, and developing a virtual clinical trials office pilot study.

Questions and Answers

In response to a question from NCAB Chair Dr. Carpten about interfacing with NCORP, Dr. Doroshow explained that these programs are fully integrated and encounter similar issues, which the NCI is actively addressing.

Dr. Howard J. Fingert, Consultant, asked about positive and constructive models of collaborative industry support that the NCI could prompt to help to address this shared issue of advancing trials in underserved populations. Dr. Fingert also queried about engaging former NCI trainees interested in the success of the NCI clinical trials in this effort. Dr. Doroshow noted that the NCI recently distributed letters to the Cancer Centers to determine the interest in remote staff and data acquisition, which is a topic likely to be of interest to industry as well. Dr. Fingert suggested reaching out to groups already doing similar work that might be interested, such as the Leukemia & Lymphoma Society.

VII. ONGOING AND NEW BUSINESS—DR. JOHN D. CARPTEN

NCAB *ad hoc* Subcommittee on Population Science, Epidemiology and Disparities. Dr. Paskett, Chair of the NCAB *ad hoc* Subcommittee on Population Science, Epidemiology and Disparities, presented the report of the 9 February 2023 meeting. The NCI Director, Dr. Bertagnolli, attended the meeting and provided opening remarks. Dr. Paskett explained that the Subcommittee was reminded of its charge to advise the NCI and the Director on strategic approaches and opportunities to enhance NCI's contribution to population science, epidemiology, and disparities. The Subcommittee then discussed future priorities and reflected on the two reports that their working groups have completed: the 2019 *NCAB Ad Hoc Working Group on Strategic Approaches in Population Science, Epidemiology, and Disparities Report on NCI Extramural Cancer Epidemiology Cohort Studies* and the 2022 *NCAB Ad Hoc Working Group Report on Strategic Approaches and Opportunities for Research on Cancer among Racial and Ethnic Minorities and Underserved Populations*. A potential next priority for the Subcommittee that was discussed was examining the funding for training for population scientists. The Subcommittee heard from Dr. Phillip R. Castle, Director, Division of Cancer Prevention (DCP), and Subcommittee Executive Secretary, that the NCI currently is analyzing the landscape of the population science, cancer control, translational science, and cancer prevention workforces. Dr. Castle will plan to present those results during the joint BSA/NCAB meeting in June 2023. The Subcommittee was updated on NCI's intent to expand the Cancer Prevention Fellowship to the broader extramural community. They further discussed unified descriptors for the social determinants of health; engagement with regulatory agencies to provide guidance on up-to-date analytic approaches; and the use of registries, such as SEER, to help perform post-marketing monitoring. Other suggestions for priorities included the evolving techniques in germline sequencing and epigenomics—especially those beneficial to minority and underserved populations—that could be explored in large-scale, population-based efforts. Subcommittee members further suggested evaluating clinical trial accruals, including those of trials conducted at Cancer

Centers and beyond NCORP. Dr. Paskett will work with the NCI and Dr. Carpten to determine whether the topics discussed will be appropriate for this Subcommittee and would not be a duplication of effort.

Motion. A motion to accept the report of the 9 February 2023 NCAB *ad hoc* Subcommittee on Population Science, Epidemiology and Disparities meeting was approved unanimously.

NCAB Subcommittee on Planning and Budget. Dr. Barker, Chair of the NCAB Planning and Budget Subcommittee, presented the report of the 9 February 2023 meeting. The NCI Director, Dr. Bertagnolli, attended the meeting. Dr. Barker reported that the Subcommittee heard an update on the FY 2022, 2023, and 2024 budgets—including current developments and trends—by Mr. Patrick McGarey, Associate Director for Finance and Legislation and Subcommittee Executive Secretary. In addition, Dr. Diane Palmieri, Director, Center for Research Strategy, reviewed NCI's Annual Plan and Budget Proposal for FY 2024. Dr. Barker opened the meeting by reflecting on the President's call to reduce cancer by 50 percent in the next 25 years and reminded the Subcommittee of the 2022 data on the reduction in cancer mortality thanks to the efforts of the NCI and its affiliates and partners. Dr. Barker emphasized that this reduction is not equally divided among the cancer types and highlighted successful NCI programs and initiatives (e.g., smoking cessation) that have contributed to this improvement. She also highlighted cancer screening approaches and the financial impacts of reauthorization of the NCA of 1971 relative to the NCI Annual Plan. The Subcommittee heard from Mr. McGarey regarding the positive news of increased support for awarding 7,500 new grants to NCI investigators and increasing the paylines. The Subcommittee learned more about the long history of NCI's Annual Plan and the specific research areas for FY 2024, including cellular therapies and undruggable targets. The Subcommittee discussed prioritizing the research funding to reach the populations with the greatest need. In closing, Dr. Barker noted that Mr. McGarey is retiring from the NCI after two decades of federal service. On behalf of the Subcommittee and the NCAB, she expressed appreciation to Mr. McGarey for his support.

Motion. A motion to accept the report of the 9 February 2023 NCAB Subcommittee on Planning and Budget meeting was approved unanimously.

Approval of Mission Statement: Review of Center for Cancer Research (CCR) Scientific Directors. Dr. Carpten explained that the Board will need to approve the mission statement of the NCAB *ad hoc* Review Group for the Evaluation of the Scientific Directors in the NCI Center for Cancer Research, details of which were provided in the meeting materials.

Motion. A motion to concur with establishing an NCAB *ad hoc* Review Group for the Evaluation of the Scientific Directors in the NCI Center for Cancer Research was approved unanimously.

Future Agenda Items. Members suggested a report on the funding levels to Cancer Centers and the percentage designated for disparities research (basic, clinical, epidemiology, or translational), as well as a review of the association between the geographic locations of patients treated in the Cancer Centers and their access to the more modern types of therapies (e.g., chimeric antigen receptor T-cells). The NCAB members were asked to forward any further suggestions for potential future agenda items to Drs. Carpten and Gray.

VIII. ADJOURNMENT OF OPEN SESSION—DR. JOHN D. CARPTEN

Dr. Carpten adjourned the open session. Only Board members and designated NCI staff remained for the closed session.

IX. 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)(4), 552b(c)(6), Title 5 U.S. code, and 10(d) of the Federal Advisory Committee Act, as amended (5 U.S.C. appendix 2)."

There was a review of grants and 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.

The Board was informed that a comprehensive listing of all grant applications to be included in the **en bloc** vote was in the Special Actions package. Those grant applications, as well as those announced during the closed session, could be considered for funding by the Institute.

The NCAB **en bloc** motion to concur with IRG recommendations was unanimously approved. During the closed session, a total of 2,383 NCI applications were reviewed requesting direct cost support of $955,320,935 and two FDA applications requesting direct cost support of $226,634.

X. ADJOURNMENT—DR. JOHN D. CARPTEN

Dr. Carpten thanked all the Board members, as well as the visitors and observers, for attending. There being no further business, the 18th virtual meeting of the NCAB was adjourned at 5:13 p.m. on Thursday, 9 February 2023.

Date	John D. Carpten, Ph.D., Chair, NCAB
Date	Paulette S. Gray, Ph.D., Executive Secretary