National Cancer Advisory Board (NCAB)
***ad hoc* Subcommittee on Population Science, Epidemiology, and Disparities**

Gaithersburg Marriott Washingtonian Center
Gaithersburg, MD
13 June 2023
6:45 p.m.–8:15 p.m. EDT

SUMMARY

Subcommittee Members
Dr. Electra D. Paskett, Chair
Dr. Francis Ali-Osman
Dr. Philip E. Castle, Executive Secretary
Dr. Christopher R. Friese
Mr. Lawrence O. Gostin (absent)
Dr. Nikan Khatibi
Dr. Margaret R. Spitz
Dr. Susan Thomas Vadaparampil
Dr. Karen M. Winkfield (absent)

Other Participants
Dr. H. Nelson Aguila, National Cancer Institute, (NCI)
Dr. LeeAnn Bailey, NCI
Dr. Monica M. Bertagnolli, Director, NCI
Dr. Oliver Bogler, NCI
Dr. John D. Carpten, Chair, NCAB
Dr. Behrous Davani, NCI
Mr. Brian Davis, NCI
Dr. Mark P. Doescher, Board of Scientific Advisors (BSA)
Dr. Chyke A. Doubeni, BSA
Ms. Ysabel Duron, NCAB*
Dr. Shelton Earp, BSA
Dr. Howard J. Fingert, NCAB
Dr. Keith T. Flaherty, Chair, BSA
Dr. Katrina A.B. Goddard, NCI
Dr. Jennifer R. Grandis, BSA
Ms. Julie Papanek Grant, NCAB*
Dr. Ed Harlow, NCI
Dr. Dorothy K. Hatsukami, BSA
Dr. Ana Maria Lopez, BSA
Dr. Douglas R. Lowy, NCI
Ms. Anne Lubenow, NCI
Dr. Karen M. Mustian, BSA
Dr. Ana Navas-Acien, NCAB*
Dr. Lisa A. Newman, BSA
Dr. Raymond U. Osarogiagbon, BSA
Dr. Diane Palmieri, NCI
Dr. Nancy J. Raab-Traub, NCAB
Dr. Sanya A. Springfield, NCI
Dr. Fred K. Tabung, NCAB*
Dr. Cornelia M. Ulrich, BSA
Ms. Stacey Vandor, NCI
Dr. Tiffany Wallace, NCI
Dr. Ashani T. Weeraratna, NCAB
Ms. Joy Wiszneauckas, NCI
Dr. Nastaran Zahir, NCI
Dr. Tamara Korolnek, The Scientific Consulting Group, Inc., Rapporteur

* Pending appointment.

Welcome and Opening Remarks
Dr. Electra D. Paskett, Marion N. Rowley Professor of Cancer Research and Director, Division of Cancer Prevention and Control, Department of Internal Medicine, College of Medicine, The Ohio State University, Columbus, Ohio

Dr. Electra D. Paskett, Subcommittee Chair, welcomed the participants to the NCAB *ad hoc* Subcommittee on Population Science, Epidemiology, and Disparities (Subcommittee) meeting. She invited the meeting participants to briefly introduce themselves.

The Subcommittee was formed in response to feedback regarding the lack of population science input to NCI's activities. To this end, the Subcommittee convened the *ad hoc* Working Group on Strategic Approaches and Opportunities in Population Science, Epidemiology, and Disparities (which issued a report that included key recommendations related to the observational extramurally supported cancer epidemiology cohort program) and the *ad hoc* Working Group on Strategic Approaches and Opportunities for Research on Cancer Among Racial and Ethnic Minorities and Underserved Populations (which developed a report on the current status of National Institutes of Health (NIH)– and NCI-funded research on cancer in racial and ethnic minorities and underserved populations). Dr. Paskett reminded the meeting participants of the present opportunity for the Subcommittee to focus on new approaches and opportunities in population science, epidemiology, and disparities. One opportunity that has been discussed in recent meetings relates to training activities, in particular funding to support the population science and cancer prevention and control workforces.

Dr. Paskett invited Dr. Monica M. Bertagnolli, NCI Director, to address the Subcommittee.

NCI Director's Remarks
Dr. Monica M. Bertagnolli, Director, NCI

Dr. Bertagnolli expressed gratitude to the participants for attending the meeting virtually and in person. She highlighted the importance of this Subcommittee in addressing the needs of people who historically have been overlooked in cancer research efforts. Dr. Bertagnolli noted that the fields of population science and epidemiology have contributed to current knowledge of the etiology of disease and hopefully—with novel, cutting-edge tools—will continue to do so. These fields are on the cusp of a data revolution that will help eliminate roadblocks to addressing cancer-related needs of underserved populations across the country.

Review of Training Activities in Prevention and Control
Dr. Oliver Bogler, Director, Center for Cancer Training, NCI

On behalf of his colleagues at NCI's Center for Cancer Training (CCT), Center to Reduce Cancer Health Disparities (CRCHD), Division of Cancer Control and Population Sciences (DCCPS), and Division of Cancer Prevention (DCP), Dr. Oliver Bogler, Director, CCT, NCI, provided an overview of training opportunities from the NCI for cancer prevention, disparities, control, and population sciences. He reminded the participants of the aspirational goals of the National Cancer Plan, which include optimizing the cancer workforce. To this end, a diverse pool of talented cancer researchers will be engaged, barriers to entering the workforce will be eliminated, gaps and needs will be addressed through funding initiatives, and research will be conducted to understand and address the unique needs of cancer researchers at all career stages and in all disciplines. DCP and DCCPS are adopting strategies that are vital to the National

Cancer Plan: preventing cancer, detecting cancer early, eliminating cancer disparities, and delivering optimal cancer care.

The NCI supports cancer training at multiple career stages through various mechanisms. As of June 2023, CCT supports 1,379 active training awards totaling $214.5 million (M). These totals include about 1,000 trainees on 177 T32 awards totaling $65 M. From fiscal year (FY) 2013 to FY 2022, DCCPS funded 38 F31 awards (4% of NCI awards) and 14 F32 awards (3.5% of NCI awards), and DCP funded 7 F31 awards (0.7% of NCI awards) and 3 F32 awards (0.7% of NCI awards). Combined, DCCPS and DCP funded 261 T32 awards (17% of NCI awards) during the same period. Dr. Bogler pointed out the opportunity for DCP to increase investments in F31 and F32 awards.

Dr. Bogler shared additional information about DCCPS and the DCP Ruth L. Kirschstein National Research Service Award (NRSA) Institutional Research Training Grant (T32) portfolio. Significant growth in T32 awards in the fields of cancer prevention and cancer control was observed between 2014 and 2020. This growth has been observed exclusively in predoctoral awards. Dr. Bogler pointed out that the last application date for the Cancer Education and Career Development Program (R25T awards)—which supported the development and implementation of curriculum-dependent programs to train predoctoral and postdoctoral candidates in highly interdisciplinary and collaborative cancer research settings—occurred in May 2013 and that transition from R25T awards likely contributed to the growth of the T32 program. He noted that, in 2022, more than half of NCI's T32 predoctoral grants were awarded by DCCPS and DCP. Dr. Bogler shared a comparison of NRSA and Research Project Grant (RPG) funding awarded by DCCPS and DCP in FY 2022; 18 percent of NCI's RPG-awarded principal investigators (PIs) are funded by DCCPS, and only 9 percent are funded by DCP.

Dr. Bogler presented career trajectory data for DCCPS Early Stage Investigator (ESI) R01-equivalent (R01e) grant recipients from FY 2020 to FY 2022. He noted that ESIs funded by DCCPS achieve their R01e sooner than basic bench scientists and by a variety of paths. ESIs with R01e funding from DCCPS and DCP were more likely to have received training awards (F, T, or K awards) than the general pool of NCI investigators with R01 funding.

Dr. Bogler compared the NCI Pathway to Independence Award for Outstanding Early Stage Postdoctoral Researchers ("Early" K99/R00) and NIH Pathway to Independence Award (K99/R00) programs that currently are active at the NCI. Both programs include mentored and non-mentored phases and offer a combined maximum of 5 years of funding. Unlike parent K99/R00 awards, which require 4 or more years of postdoctoral experience and accept open submissions three times annually, Early K99/R00 awards require less than 2 years of postdoctoral experience and accept nominated submissions once annually. From FY 2020 to FY 2023, Early K99/R00 grants have been awarded in the fields of data science (14 awards), cancer control science (21 awards), and other cancer research (19 awards).

Dr. Bogler commented that his group has discussed possible Career Development (K) awards to support the population science and cancer control and prevention workforces. These include K01 awards (i.e., mentored awards for postdoctoral or early-career researchers who require advanced training and experience) and K02 awards (i.e., independent awards for early- to mid-career researchers who have funding but require protected time). K01 and K02 parent awards exist within the NCI, but no specific K01 or K02 awards exist for trainees in the fields of population science and cancer prevention and control.

Dr. Bogler recommended that CRCHD's Continuing Umbrella of Research Experiences (CURE) program, which offers training and career development opportunities to increase diversity in the cancer

and cancer health disparities research workforce, serve as a model for additional elements of cancer workforce training. CURE's support extends beyond research and training awards and includes mentoring, professional development workshops, and networking opportunities. CRCHD also has established the Exploratory Grant Award to Promote Workforce Diversity in Basic Cancer Research (R21) award. During the past 10 years, recipients of 89 R21 awards have received 67 subsequent NIH awards ($61.3 M total), 19 non-NIH awards ($7 M), and 444 patent awards. The 89 recipients have been responsible for 1,400 publications, of which 271 cited the R21 as a funding source.

DCP currently has two ongoing workforce initiatives: a request for information on Strategies to Expand and Enhance Development of the Molecular Cancer Prevention and Cancer Interception Research Workforce and a notice of special interest on Career Development Opportunities for Research Within the Mission of DCP at the NCI.

In summary, Dr. Bogler emphasized that cancer prevention and control and population sciences are essential to meeting NCI's stated goals for the next 25 years. More early-stage investigators must be recruited and retained in these areas of research to meet the needs of the Nation and the National Cancer Plan. Although training in these areas is supported by some NCI mechanisms (e.g., T32, Early K99/R00), opportunities exist to expand the reach of other mechanisms (e.g., F awards, K awards). Additionally, improved approaches to training, as exemplified by CRCHD's CURE program, should be considered to address training needs. Dr. Bogler requested that the Subcommittee consider possible next steps, including necessary data collection and the formation of a joint BSA/NCAB Working Group to examine this issue and make further recommendations.

Discussion

Dr. Margaret R. Spitz thanked Dr. Bogler for his comprehensive presentation. She agreed that designating training awards (e.g., K01) for cancer prevention and control and population sciences would be beneficial. Mechanisms that previously were used to address population science training—including the Cancer Prevention, Control, Behavioral Sciences, and Population Sciences Career Development Award (K07) and the Cancer Research Education Grants Program (R25)—are no longer available. Dr. Bogler noted that the NIH had discontinued the R25 awards and re-emphasized that data in his presentation indicated that previous R25 scholars transitioned to T32 awards. He added that the K07 awards were discontinued during K award compression efforts at the request of the BSA.

Ms. Ysabel Duron requested data regarding the racial and ethnic demographics of award recipients to ensure that a diverse workforce is being supported. Dr. Bogler agreed on the importance of this information. He shared additional data showing that NCCPS and DCP RPG grants fund more female awardees and more underrepresented groups (URG) than the general pool of NCI awards and that the underrepresentation of women and URG populations is due to underrepresentation in the applicant pool. Dr. Bogler noted that a team from NCI's Center for Research Strategy was assessing the gender and racial demographics of RPG award recipients.

Dr. Karen M. Mustian requested data on additional trainee populations (e.g., different socioeconomic backgrounds, sexual and gender minority populations). She acknowledged that gathering this information is a challenge but emphasized the importance of collecting such data. Dr. Mustian expressed her interest in the career timelines and trajectories of trainees supported by the Early K99/R00 awards, particularly those involved in randomized clinical trials. She noted that researchers experience difficulties transitioning beyond traditional K99/R00 awards (i.e., the funding timeline is too short to transition to

RPG funding) and that investigators, particularly clinician scientists, are at greater risk of abandoning research careers during this window.

The Subcommittee discussed the shift from R25 to T32 awards and noted that many investigators encountered major challenges during this transition. Dr. Susan Thomas Vadaparampil added that the shift resulted in funding losses even for PIs who run the training programs. In response to a question from Dr. Vadaparampil about the success rate of T32 applications, Dr. Bogler answered that he did not present these data but that T32 application success rates were comparable to the previous mechanism.

Dr. Christopher R. Friese asked how Dr. Bogler's team would measure the success of targeted training mechanisms in the future. He added that changes to funding have resulted in training gaps within particular disciplines (e.g., epidemiology, social science) that align with the Nation Cancer Plan's mission of reaching trainees of all stages and in all disciplines. Dr. Bogler commented that the Early K99/R00 award was established to mitigate such gaps. He noted that key metrics of success will include continued funding from the NIH and NCI and agreed that gaps in training opportunities exist and should be addressed.

Dr. Jennifer R. Grandis commented that NCI efforts to collect information about application rates in underrepresented populations (e.g., by gender or race and ethnicity) at the institution level might help motivate research institutions to support improvements in this area.

In response to a question from Dr. Raymond U. Osarogiagbon about the NCI Predoctoral to Postdoctoral Fellow Transition Award (F99/K00), Dr. Nastaran Zahir responded that this award is still new and limited to one recipient per institution. More time is required to evaluate the F99/K00 awards before moving forward with any changes.

Dr. Paskett agreed that—unlike the K01, K02, Early K99/R00, and T32 awards—the F31 and F32 mechanisms are not being used effectively for population science and cancer research and prevention. She requested information about establishing an *ad hoc* Working Group to evaluate training opportunities in population science and cancer control and prevention. Ms. Joy Wiszneauckas commented that a mission statement should be delivered to the NCAB. Ms. Wiszneauckas added that she would inform the Subcommittee about further requirements for forming a Working Group.

Discussion of Open Items from Last Meeting
Dr. Electra D. Paskett

Dr. Paskett and the meeting participants discussed priorities to address that were shared during the previous Subcommittee meeting.

Social Determinants of Health (SDOH)

Dr. Paskett noted that the Subcommittee previously discussed efforts to define and measure SDOH and assess their effects. Dr. Katrina A.B. Goddard remarked that a cross-NIH Working Group is undertaking similar efforts and should share its findings shortly. She suggested that the Subcommittee wait until the NIH effort is concluded before undertaking any new projects in this area. Dr. Paskett requested that Dr. Goddard inform the Subcommittee when the results become available.

Dr. Nikan Khatibi commented that housing security is an often-overlooked SDOH.

Clinical Trial Accrual

Dr. Paskett noted that the Subcommittee previously discussed clinical trial accrual and the accrual of URM populations. The categories of populations of interest should be expanded.

Dr. John D. Carpten, Chair, NCAB, requested an analysis of clinical trials that compared therapeutic versus non-therapeutic trials and interventional versus non-interventional trials (i.e., similar to a Cancer Center Support Grant analysis). The Subcommittee discussed the new guidance published by the U.S. Food and Drug Administration (FDA) to improve clinical trial diversity and ways to align the efforts of the FDA and the NCI. Dr. Bertagnolli commented that the new FDA law was focused on matching clinical trial demographics to those of the disease, which is a different focus from determining how treatments affect underserved populations. She agreed that the FDA and NCI should cooperate in this area.

Ms. Duron commented that subpopulation data related to populations of interest (e.g., Latino/Hispanic, Asian, Tribal) should not be aggregated. Dr. Paskett noted that a previous Subcommittee report made a similar recommendation. She added that the NCI uses institutional data and should ensure that this information is collected.

Other Topics

Dr. Paskett reminded the Subcommittee about discussions during the previous meeting on the possbility of investigating the following areas: (1) population science and immunooncology and (2) bidirectional communication between researchers and the community.

Ongoing Business and Future Agenda
Dr. Electra D. Paskett

Dr. Paskett and Dr. Bertagnolli remarked that workforce training is the most pressing issue for the Subcommittee to address. The meeting participants discussed issues related to supporting early-career investigators, especially clinician scientists. The group noted that workforce challenges extend beyond the NCI, a fact that is directly acknowledged in the National Cancer Plan.

Dr. Shelton Earp commented that metrics of success for training initiatives should not be limited to NIH funding; other funding sources are substantial and should be considered.

The Subcommittee discussed training efforts for research teams (i.e., beyond lead investigators) in the fields of population science and cancer control and prevention. Turnover of employees is common, and hiring, training, and retaining staff members is a challenge.

Dr. Chyke A. Doubeni noted that diversity initiatives increasingly are being subject to local and national scrutiny. The new Working Group should address these new developments and develop initiatives that can withstand such examination.

In response to a question from Dr. Bertagnolli, Dr. Bogler explained that the NCI Research Specialist Award (R50) encourages the development of research career opportunities in any area of NCI-funded cancer research for exceptional scientists who do not serve as independent investigators, including core facility managers, data scientists, and clinician scientists.

Adjournment

Dr. Paskett thanked the participants for their comments and adjourned the meeting at 8:15 p.m. EDT.

Dr. Electra D. Paskett Chair	Date	Dr. Philip E. Castle Executive Secretary	Date